63.5222
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53F15SW0006 63.5222 LINGMAN LAKE

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AGASSIZ RESOURCES INC.

Twin Gold Project

Ore Reserves
Discounted Cash Flow
and
Proposed Work Report

by

R.P. Bowen, P.Eng.

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7 February 1988

OM87-1-L-008

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SUMMARY

This report summarizes the work done on the Lingman Lake Project of Agassiz Resources Inc. during the 1987 field season and the conclusions reached and recommendations as to how to approach the next phase of exploration.

The 41,114 feet of diamond drilling completed in 1987 coupled with 36,551 feet of surface and 9,796 feet of underground diamond drilling completed in the 1940's have upgraded ore reserves from 373,599 tons measured to 473,428 tons measured, 374,232 tons inferred to 466,057 tons inferred and 539291 tons indicated to 788,898 tons indicated. Discounted cash flow studies show that if the inferred and indicated reserves can be upgraded to measured then rates of return may range from 10.5 to 18.5%.

INTRODUCTION

Lingman Lake lies near the Ontario - Manitoba border between Red Sucker Lake, Manitoba and Sachigo Lake, Ontario. More precisely this is 93°54'19" West Longitude and 53°52'1" North Latitude and is covered by the NTS Map 53F/14 Seeber Lake. While the 1987 diamond drilling program was serviced by air from Pickle Lake, Ontaio, 200 air miles to the south, the old winter road from Red Sucker Lake, Manitoba is being re-established at the present time.

PREVIOUS WORK

The first serious work done on the property was completed after World War II in the late 1940's by Lingman Lake Gold Mines Ltd. This work consisted of 36,551 feet of surface diamond drilling in 76 holes and the sinking of a 430 foot shaft with 3,274 feet of drifting, 822 feet of cross-cutting and 440 feet of raising on the 150, 275 and 400 foot levels. In addition 9,796 feet of underground diamond drilling in 120 holes was done at that time. Reserves were reported to be 148,000 tons grading 0.41 oz/ton gold.

In 1973 five diamond drill holes were drilled, however, this author has not seen any logs for four of the holes and the one log submitted is not considered reliable inasmuch as the location is not correct.

In 1986-87 James Wade Engineering Ltd. was engaged to prepare a prefeasibility study for Massive Energy Limited. Ore reserves were recalculated by G.R. O'Gorman, P.Eng. to nominally the 600 foot level using a cut-off grade of 0.1 oz/ton gold across a mining width of 5 feet with assays greater than 1 oz/ton cut to 1 oz/ton. In this manner the reserves calculated were 798,000 tons grading 0.26 oz/ton gold in the proven and probable categories with an additional 672,000 tons of 0.25 oz/ton gold material in the possible or indicated category.

PRESENT WORK

In 1987 Agassiz Resources Inc. engaged Durham Geological Services Inc. to conduct a surface diamond drilling program on the Lingman Lake property. Most of the drilling was done on three claims, PA 6130, PA 6132 and PA 6134. Some drilling was done on the Roman Property to the east, however, results were not encouraging.

Geological mapping and ground geophysical (magnetometer, VLF EM and IP/resistivity) surveys were completed during the summer of 1987. A new zone at about 12,300 north was discovered using IP, however, only two holes have intersected it to date so it remains to be tested.

The general geology prepared at the end of the 1987 field season follows. Thin sections have not been received for examination so as to prepare a more comprehensive description of the individual rock units.

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Minerals Exploration Management

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31 December 1987

Agassiz Resources Inc.

SUMMARY OF GEOLOGY ON THE TWIN GOLD PROJECT, LINGMAN LAKE, ONTARIO

The Twin Gold property is comprised of 21 patented mining claims in the Kenora Red Lake Mining Division of Ontario.

The property is approximately 200 air miles north northwest of Pickle Lake, Ontario. Access at the present time is by float or ski equipped aircraft or helicopter. Larger aircraft may land at airports at Sachigo Lake, Ontario or Red Sucker Lake, Manitoba, both locations some 25 miles east and west of Lingman Lake respectively.

The rocks underlying the Twin Gold property are Archean metasedimentary clastic and chemical units and metavolcanic flows and pyroclastic units ranging from ultramafic and mafic with lesser intermediate units. Felsic metavolcanic units were not encountered. Cutting the metasedimentary and metavolcanic units are a series of felsic to intermediate sills and dikes at a low angle to the regional foliation which is nearly east-west and dips steeply to the south. The northern most 5 claims are bisected by the contact between the greenstone belt rocks and the surrounding Sachigo Lake batholith which is felsic in composition, probably granodiorite to tonalite. All rock units have been cut by a north trending diabase dike of Late Archean to Proterozoic age.

To date the only known gold mineralization has been located on the ground underlying three claims; PA 6134, PA 6132 and PA 6130. The most encouraging zones are those on claim PA 6132 where multiple zones occur and appear open to depth.

A 400 foot deep shaft is located on claim PA 6132 and drifting has been done in the 1940's on three levels; 150 foot level, 275 foot level and the 400 foot level. Diamond drilling has been done from all three levels with room for further diamond drilling on the 275 and 400 levels.

The rocks underlying the above mentioned claims and hosting the mineralization are a series of komatiitic (ultramafic) and mafic (both magnesium and lesser iron tholeiitic basalts) flows and lesser pyroclastics. The flows are both massive and pillowed which indicate submarine deposition. Whole rock analyses of selected surface samples and diamond drill core has confirmed this classification. The high magnesium content of these rocks also is indicative of the basal sequence of volcanism which is also the case at Timmins and Red

Lake. The trend of the units is roughly east-west and regional foliation is subparallel to this trend. Metamorphic grade is upper greenschist to amphibolite rank on the regional scale and biotite hornfels rank approching the contact with the surrounding batholithic complex.

The diabase dike that cuts the belt rocks and the batholith in a north-south direction trends roughly up the boundary between claims PA 6132 and PA 6134. This dike has been used as a dividind line on the property so that the west zone and east zones are those west and east of the dike respectively.

The west zone is essentially the mineralized zone between lines 10,300 East and 11,300 East for a strike length of 1,000 feet. The zone appears to be cut off to the west or become so erratic as to become uneconomic. The zone was outlined in the 1940's drilling and the 1987 drilling has further defined it and added some depth to it as well as delineating two additional splays to it. Another zone south the the baseline was outlined by an IP survey conducted in 1987, however, diamond drilling encountered economic grade mineralization only within the 50 feet nearest the diabase dike. Not including lost and redrilled holes 10,381 feet of diamond drilling was done west of the diabase dike in 1987.

The east portion of the property hosting gold mineralization in economic grades lies between lines 11,600 and 13,500 East. To date there have been four zones including splays outlined. A fifth zone was encountered north of previous drilling by an IP survey conducted in 1987 and several holes were put through it, however, assays are still to come. In any case there is still more drilling to do on that zone inorder to fully ascertain it's potential. East of line 13,500 East the mineralization appears to peter out. Due to time constraints very little drilling was done between lines 12,400 and 13,400 East. The 1940's drilling was wide spaced in this area with only one hole per line. Some 35,000 feet of surface diamond drilling should be done east of the diabase dike to more fully appreciate the zones outlined to date. Extending the drifts and deep drilling from the 400 level will aid in testing the zones at depth prior to other levels below the 400 level being driven. There was 30,733 feet of diamond drilling done east of the diabase dike.

Structurally the mineralization appears to be hosted in a series of high angle shear zones to the direction of greatest compressive stress. That compressive stress being produced by the surrounding batholithic complex. These shear zones appear to be arranged in an en echelon manner and in some cases intersect each other thereby giving the appearance of splays to a single zone. Hydrothermal fluids have traveled along these shears and have severely altered the host rocks to the point that the original rock can no longer be ascertained. This makes for a distinctive appearing and easily recognizable unit that is characterized by silicified and sericitized rock with lesser green mica and carbonate. Sulfides encountered are generally pyrite and pyrrhotite with lesser arsenopyrite and chalcopyrite. Overall sulfide content rarely exceeds 10% and visable gold is rare (only three cases in the 1987 drilling). There may be pipes developed where the intersection of subparallel and conjugate sets of shears occur. These zones could provide stopes of increased tonnage. The felsic dikes and sills that have also penetrated the shear zones do not appear to be mineralized and where they are the mineralization appears to be along the contact between the intrusion and the host rock. There does appear to be a spacial relationship between the mineralized zones and the intruding felsic sills and dikes.

Prelininary stripping of the surface exposures revealed much information toward unravelling the structural picture and more of this work is recommended once more favorable weather arrives. In the meantime more surface diamond drilling should be undertaken to further define the zones and help upgrade the tonnage and grade picture on the property. A prelininary tonnage and grade calculation will be made once all assay results have been received and some discounted cash flow calculations will be made at that time to assist in determining what will be needed to make the project economic.

While the Twin Gold project was underway 17 patented mining claims east of the Twin Gold property owned by the Roman Corporation were also examined. Geological mapping and geophysical surveying delineated several targets to test by diamond drilling. Seven holes totalling 3,892 feet were put down without economic values being encountered. Several more targets are worthy of testing just to make sure all possibilities are exhausted.

Regional geophysical data appear to indicate that the intersection of two lineaments occurs on the Twin Gold property in the vicinity of the economic zones and it is the author's opinion that any economic values if encountered away from this area will not be significant.

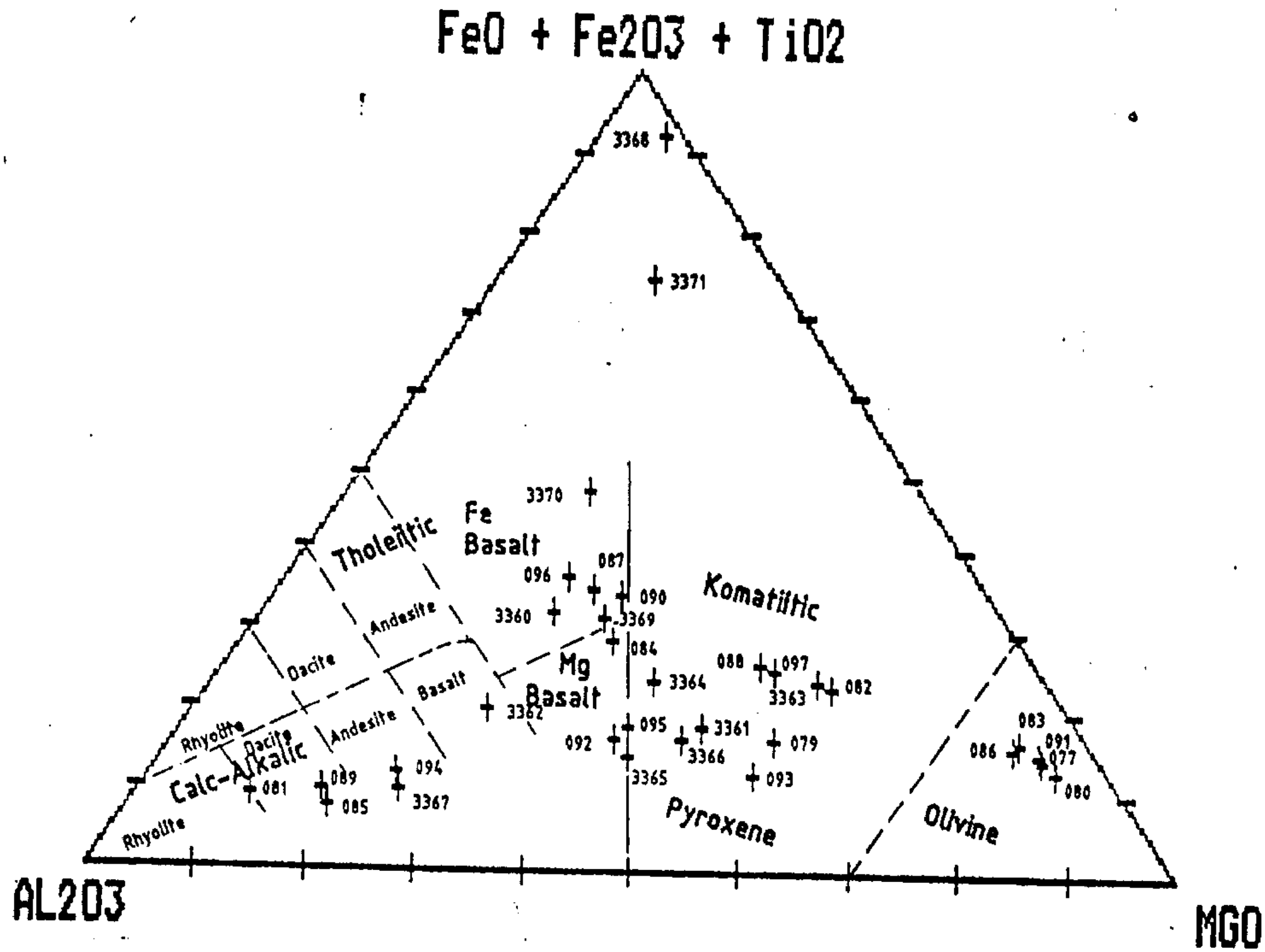
Sincerely,

R.P. Bowen

R.P. Bowen, P.Eng.

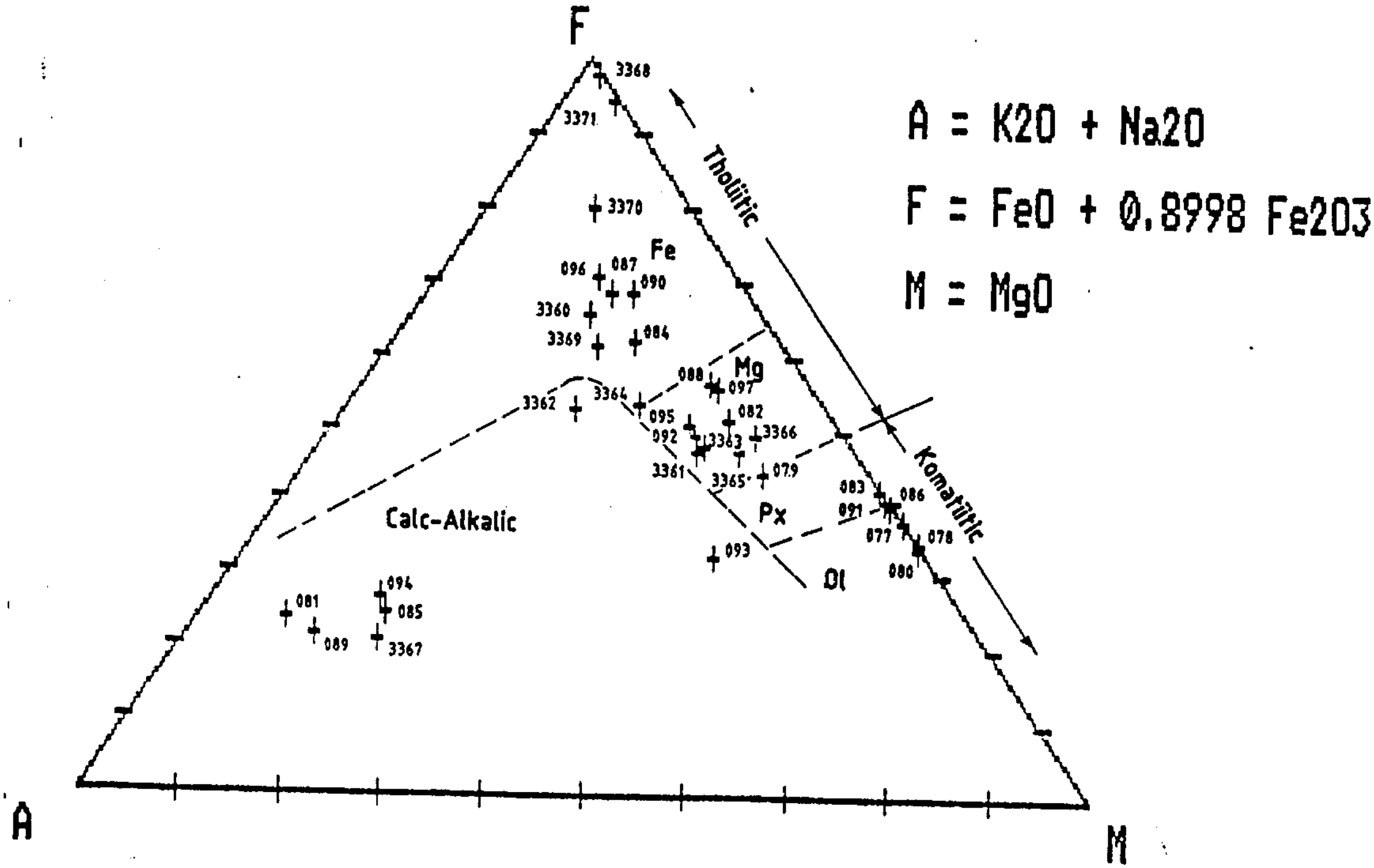
LINGMAN LAKE, ONTARIO

JENSEN CATION PLOT after Jensen (1976)



LINGMAN LAKE

AFM DIAGRAM after Irving & Baragar (1971)



TWIN GOLD LEGEND

Two additional categories have been added to the geological column to facilitate modern terminology.

LATE TO MIDDLE ARCHEAN

10 Diabase Dike

ARCHEAN

9 Felsic Plutonic Rocks
- a Granite to tonalite
- b Granite feldspar porphyry

8 Mafic Plutonic Rocks
- a Gabbro
- b Diorite

NOTE! None of these units were identified in the field or in drill core. It is most likely that medium to coarse grained units are the result of metamorphism or are thick flows and possibly synvolcanic sills and dikes.

7 Felsic Hypabyssal Rocks
- a Tonalite quartz feldspar porphyry
- b Monzonite feldspar porphyry
- c Aplite

NOTE! These units may or may not be related to the batholithic complex north or the property.

6 Clastic Metasedimentary Rocks
- a Mudstone
- b Arenite (sandstone)

5 Chemical Metasedimentary Rocks
- a Oxide affinity iron rich rocks
- b Sulfide affinity iron rich rocks
- c Graphitic units

4 Felsic Metavolcanic Rocks
- a Rhyolite flows
- b Rhyolite tuff
- c Rhyolite lapilli tuff
- d Rhyolite volcanic breccia

3 Intermediate Metavolcanic Rocks
- a Andesite flows
- b Andesite porphyry

2 Mafic Metavolcanic Rocks

a Massive basalt flows
b Pillowed basalt flows
c Medium grained recrystallized mafic flows
d Vesicular mafic flows
e Amygdaloidal mafic flows
f Mafic interflow sediment
g Mafic tuff
h Coarse grained basalt flow
i Mafic feldspar porphyry (Leopard Rock)

1 Komatiitic Metavolcanic Rocks

a Talc-carbonate schist - Komatiitic flow
b Spinifex textured komatiitic metavolcanic flow

The diamond drilling program was conducted by Norex Drilling Ltd. and consisted of 41,114 feet of BQ core in 76 holes. The purpose of this phase of drilling was to provide substantiating information between the widely spaced 1940's drilling and to upgrade previously defined reserve categories. For the most part this program was a success and ore rerves have been upgraded to:

Category	Ore - tons	Grade - oz/t	Waste - ton
Measured	473,428.3	0.249	470,568.3
Inferred	466,057.4	0.232	620,253.0
Indicated	788,898.4	0.243	1,263,657.8
Measured + Inferred	939,485.7	0.240	1,090,821.3
Measures + Inferred + Indicated	1,728,384.1	0.241	2,354,479.1

These calculations are based on an eight foot mining width and in some areas the ore zones are considerably narrower than five feet. Selective mining using shrinkage stope methods may permit mining even narrower than five feet, however, with the cross-cutting, raising, and other development work the waste calculations do provide an indication of the tonnage of rock that may have to be moved. Some of the zones delineated and shown on the map in the back pocket may not be able to be profitably mined by themselves but only in conjunction with adjacent stronger zones.

The increases in reserves due to the 1987 drilling are 99,829 tons in the measured or proven category, 91,825 tons in the inferred or probable category and 441,261 tons in the indicated or possible category. These new tonnages have been used in the creation of discounted cash flow sheets.

DISCOUNTED CASH FLOW SHEETS

The January 1988 issue of the "Northern Miner Magazine" gave a survey of 32 mines scheduled to come on stream in 1987. Of these there were three; Ketza River, Yukon, Golden Bear, Northern British Columbia and Puffy Lake, Manitoba that approached Lingman Lake in size and remotness. Capital costs ranged from $18,000,000 to $36,000,000, with operating costs between $36 and $98/ton and mills between 400 and 1000 tons per day.

The scenarios presented will be those using:

1. All reserves calculated, $30.00/ton operating cost and the rate of return will be 18.5%.
2. All reserves calculated, $36.00/ton operating cost and the rate of return will be 15%.
3. Measured and inferred reserves at $30.00/ton operating cost and the rate of return will be 10.5%.
4. Measured and inferred reserves at $36.00/ton operating cost and the rate of return will be 6%.
5. Measured reserves only at $30.00/ton operating cost and the rate of return will be less than 1%.

Even though only a 0.200 oz/ton grade of gold was used and a substantially wide mining width was used it may readily be ascertained that the reserve figures in the inferred and indicated must be upgraded to the measured category if this operation is to become economically viable. Discounted cash flow sheets are in the appendix along with intersections.

CONCLUSIONS AND RECOMMENDATIONS

The first attempt to upgrade ore reserves should be to complete at least 50,000 feet of surface diamond drilling. Most of this drilling should be concentrated between lines 12,400 east and 13,400 east where previous drilling was very widely spaced. There is some additional surface drilling to be done between lines 11,700 east and 12,000 east. This drilling is all east of the north-trending diabase dike that cuts the ore zones. West of the dike the West 12,400 North Zone deserves additional drilling to upgrade reserve categories.

In addition to the surface and preferrably in conjunction with it should be an underground diamond drilling program of at least 15,000 feet concentrated on the 275 and 400 foot levels. This program will help provide fill-in data to upgrade ore reserves and provide access to extend the depth of the mineralized zones without having to drill all the way from surface. It should be noted that this footage should not be used as testing for wallrock stability. Wall rock stability testing should be a separate program. It is most essential that surface and underground drilling be closely coordinated and not separated into separate bailiwicks of operational control otherwise targets will be missed or duplicated. The same group of core loggers should be assigned to log both programs inorder that continuity in terminology and quality be maintained.

APPENDIX

DISCOUNTED CASH FLOW SHREADSHEET FOR PROJECT AGASSIZ RESOURCES - TWIN GOLD DATE 3 Feb. 1988

ORE RESERVES	OPEN PIT	UNDERGROUND	TOTAL ORE	TONS DILUTION
Measured		473428.30	473428.30	
Inferred		0.00	.00	
Indicated		0.00	.00	
Total	.00	473428.30	473428.30	
Waste		2354479.10		
Dilution %	##################	10.00		47342.83
Total Mill Ore	.00	426085.47	426085.47	

ORE GRADE

METAL	GOLD (Au)	SILVER (Ag)	COPPER (Cu)	LEAD (Pb)	ZINC (Zn)
Heads	.20				
Recovery	98.00				
Yield	.20	.00	.00	.00	.00
Price	575.00				
Metal Value	112.70	.00	.00	.00	.00
Total Yield Value	112.70	##			

OPERATING COSTS	COST/TON MINED	COST/TON MILLED	TOTAL OP. COST
Mine Development	4.00	##################	4.00
Mine Operations	4.80	##################	4.80
Mill Operations	##################	15.00	15.00
Maintenance	1.10	1.10	2.20
Administrative	1.00	1.00	2.00
Services	1.00	1.00	2.00
Total Cost/Ton	11.90	18.10	30.00

INVESTMENT	
Exploration	3500000.00
Pre-Production	1000000.00
Mine Development	2000000.00
Mine Equipment	3000000.00
Mill	6000000.00
Shops	1000000.00
Townsite	2000000.00
Roads/Dams	1000000.00
Power Facilities	750000.00
Other	
Total	20250000.00
10% Contingency	2025000.00
20% Int. on Const.	4455000.00
Wk. Cap. @ 20% NSR	4057200.00
Total Investment	30787200.00

PRODUCTION	TONS MINED	TONS MILLED
Tons Ore/Day	570.00	500.00
Tons Waste/Day	750.00	##################
Days Worked/Year	320.00	360.00
Concentrate/Day	##################	
Concentrate/Year	##################	
2 Tons Ore/Year	182400.00	180000.00
Mine Life	2.34	##################

FINALCIAL YIELD	
Total Yield Value	112.70
Tons Milled/Year	180000.00
Annual Sales	20286000.00
NET SMELTER RETURN	
Annual Sales	20286000.00
Smelter Charges	.00
Shipping Charges	.00
Prod. Adval. Chg.	.00
NSR	20286000.00
NSR	20286000.00
Total Cost/Year	19727221.96
Pre Tax Income	558778.04
Pre Tax Income	558778.04
Depletion	
Taxable Income	558778.04
Taxable Income	558778.04
Income Taxes	279389.02
Net Earnings	279389.02
NSR	20286000.00
Total Investment	30787200.00
NSR/TI	.66

CHARGES	
Smelter Charge %	
Annual Sales	20286000.00
Smelter Charges	.00
Shipping Chg./Ton	
Tons Concentrate	.00
Shipping Charges	.00
Prod. Adval. Rate	
Annual Sales	20286000.00
Prod. Adval. Chg.	.00
Taxable Income	558778.04
Tax Rate	50.00
Income Taxes	279389.02
KEY RATIOS	
Net Earnings	279389.02
NSR	20286000.00
NE/NSR	.01
Net Earnings	279389.02
Total Investment	30787200.00
NE/TI	.01

COSTS	
Tons Ore/Year	180000.00
Cost/Ton	30.00
Op. Costs/Year	8284560.00 1
Investment	30787200.00
Working Capital	4057200.00
Mine Life	2.34
Depreciation/Year	11442661.96
Op. Costs/Year	8284560.00
Depreciation/Year	11442661.96
Total Cost/Year	19727221.96
Depletion Rate	
Pre Tax Income	558778.04
Depletion	.00
Net Earnings	279389.02
Depreciation	11442661.96
CASH FLOW	11722050.98
Total Investment	30787200.00
Cash Flow	11722050.98
Cash Payout TI/CP	2.63

RATE OF RETURN P/A Less than 1

DISCOUNTED CASH FLOW SPREADSHEET FOR PROJECT AGASSIZ RESOURCES - TWIN GOLD DATE 3 Feb. 1988

ORE RESERVES	OPEN PIT	UNDERGROUND	TOTAL ORE	TONS DILUTION
Measured		473428.30	473428.30	
Inferred		466057.40	466057.40	
Indicated		0.00	.00	
Total	.00	939485.70	939485.70	
Waste		2354479.10		
Dilution %	##################	10.00		93948.57
Total Mill Ore	.00	845537.13	845537.13	

ORE GRADE

METAL	GOLD (Au)	SILVER (Ag)	COPPER (Cu)	LEAD (Pb)	ZINC (Zn)
Heads	.20				
Recovery	98.00				
Yield	.20	.00	.00	.00	.00
Price	575.00				
Metal Value	112.70	.00	.00	.00	.00
Total Yield Value	112.70	##			

OPERATING COSTS	COST/TON MINED	COST/TON MILLED	TOTAL OP. COST	INVESTMENT	
Mine Development	5.00	##################	5.00	Exploration	3500000.00
Mine Operations	6.80	##################	6.80	Pre-Production	1000000.00
Mill Operations	##################	18.00	18.00	Mine Development	2000000.00
Maintenance	1.10	1.10	2.20	Mine Equipment	3000000.00
Administrative	1.00	1.00	2.00	Mill	6000000.00
Services	1.00	1.00	2.00	Shops	1000000.00
Total Cost/Ton	14.90	21.10	36.00	Townsite	2000000.00
				Roads/Dams	1000000.00
PRODUCTION	TONS MINED	TONS MILLED		Power Facilities	750000.00
Tons Ore/Day	570.00	500.00		Other	
Tons Waste/Day	750.00	##################		Total	20250000.00
Days Worked/Year	320.00	360.00		10% Contingency	2025000.00
Concentrate/Day	##################			20% Int. on Const.	4455000.00
Concentrate/Year	##################			Wk. Cap. @ 20% NSR	4057200.00
Tons Ore/Year	182400.00	180000.00		Total Investment	30787200.00
Mine Life	4.64	##################			

FINALCIAL YIELD		CHARGES		COSTS	
Total Yield Value	112.70	Smelter Charge %		Tons Ore/Year	180000.00
Tons Milled/Year	180000.00	Annual Sales	20286000.00	Cost/Ton	36.00
Annual Sales	20286000.00	Smelter Charges	.00	Op. Costs/Year	10091760.00
NET SMELTER RETURN		Shipping Chg./Ton		Investment	30787200.00
Annual Sales	20286000.00	Tons Concentrate	.00	Working Capital	4057200.00
Smelter Charges	.00	Shipping Charges	.00	Mine Life	4.64
Shipping Charges	.00			Depreciation/Year	5766218.69
Prod. Adval. Chg.	.00	Prod. Adval. Rate			
NSR	20286000.00	Annual Sales	20286000.00	Op. Costs/Year	10091760.00
		Prod. Adval. Chg.	.00	Depreciation/Year	5766218.69
NSR	20286000.00			Total Cost/Year	15857978.69
Total Cost/Year	15857978.69	Taxable Income	4428021.31		
Pre Tax Income	4428021.31	Tax Rate	50.00	Depletion Rate	
		Income Taxes	2214010.66	Pre Tax Income	4428021.31
Pre Tax Income	4428021.31			Depletion	.00
Depletion		KEY RATIOS			
Taxable Income	4428021.31	Net Earnings	2214010.66	Net Earnings	2214010.66
		NSR	20286000.00	Depreciation	5766218.69
Taxable Income	4428021.31	NE/NSR	.11	CASH FLOW	7980229.34
Income Taxes	2214010.66				
Net Earnings	2214010.66	Net Earnings	2214010.66	Total Investment	30787200.00
		Total Investment	30787200.00	Cash Flow	7980229.34
NSR	20286000.00	NE/TI	.07	Cash Payout TI/CF	3.86
Total Investment	30787200.00				
NSR/TI	.66			RATE OF RETURN P/A	6.00

DISCOUNTED CASH FLOW SPREADSHEET FOR PROJECT AGASSIZ RESOURCES - TWIN GOLD DATE 3 Feb. 1988

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Indicated		0.00	.00	
Total	.00	939485.70	939485.70	
Waste		2354479.10		
Dilution %	##################	10.00		93948.57
Total Mill Ore	.00	845537.13	845537.13	

ORE GRADE

METAL	GOLD (Au)	SILVER (Ag)	COPPER (Cu)	LEAD (Pb)	ZINC (Zn)
Heads	.20				
Recovery	98.00				
Yield	.20	.00	.00	.00	.00
Price	575.00				
Metal Value	112.70	.00	.00	.00	.00
Total Yield Value	112.70	##			

OPERATING COSTS	COST/TON MINED	COST/TON MILLED	TOTAL OP. COST	INVESTMENT	
Mine Development	4.00	##################	4.00	Exploration	3500000.00
Mine Operations	4.80	##################	4.80	Pre-Production	1000000.00
Mill Operations	##################	15.00	15.00	Mine Development	2000000.00
Maintenance	1.10	1.10	2.20	Mine Equipment	3000000.00
Administrative	1.00	1.00	2.00	Mill	6000000.00
Services	1.00	1.00	2.00	Shops	1000000.00
Total Cost/Ton	11.90	18.10	30.00	Townsite	2000000.00
				Roads/Dams	1000000.00
PRODUCTION	TONS MINED	TONS MILLED		Power Facilities	750000.00
Tons Ore/Day	570.00	500.00		Other	
Tons Waste/Day	750.00	##################		Total	20250000.00
Days Worked/Year	320.00	360.00		10% Contingency	2025000.00
Concentrate/Day	##################			20% Int. on Const.	4455000.00
Concentrate/Year	##################			Wk. Cap. @ 20% NSR	4057200.00
Tons Ore/Year	182400.00	180000.00		Total Investment	30787200.00
Mine Life	4.64	##################			

FINALCIAL YIELD		CHARGES		COSTS	
Total Yield Value	112.70	Smelter Charge %		Tons Ore/Year	180000.00
Tons Milled/Year	180000.00	Annual Sales	20286000.00	Cost/Ton	30.00
Annual Sales	20286000.00	Smelter Charges	.00	Op. Costs/Year	8284560.00
NET SMELTER RETURN		Shipping Chg./Ton		Investment	30787200.00
Annual Sales	20286000.00	Tons Concentrate	.00	Working Capital	4057200.00
Smelter Charges	.00	Shipping Charges	.00	Mine Life	4.64
Shipping Charges	.00			Depreciation/Year	5766218.69
Prod. Adval. Chg.	.00	Prod. Adval. Rate			
NSR	20286000.00	Annual Sales	20286000.00	Op. Costs/Year	8284560.00
		Prod. Adval. Chg.	.00	Depreciation/Year	5766218.69
NSR	20286000.00			Total Cost/Year	14050778.69
Total Cost/Year	14050778.69	Taxable Income	6235221.31		
Pre Tax Income	6235221.31	Tax Rate	50.00	Depletion Rate	
		Income Taxes	3117610.66	Pre Tax Income	6235221.31
Pre Tax Income	6235221.31			Depletion	.00
Depletion		KEY RATIOS			
Taxable Income	6235221.31	Net Earnings	3117610.66	Net Earnings	3117610.66
		NSR	20286000.00	Depreciation	5766218.69
Taxable Income	6235221.31	NE/NSR	.15	CASH FLOW	8883829.34
Income Taxes	3117610.66				
Net Earnings	3117610.66	Net Earnings	3117610.66	Total Investment	30787200.00
		Total Investment	30787200.00	Cash Flow	8883829.34
NSR	20286000.00	NE/TI	.10	Cash Payout TI/CF	3.47
Total Investment	30787200.00				
NSR/TI	.66			RATE OF RETURN D/[illegible]	[illegible]

DISCOUNTED CASH FLOW SPREADSHEET FOR PROJECT AGASSIZ RESOURCES - TWIN GOLD DATE 3 Feb. 1988

ORE RESERVES	OPEN PIT	UNDERGROUND	TOTAL ORE	TONS DILUTION
Measured		473428.30	473428.30	
Inferred		466057.40	466057.40	
Indicated		788898.40	788898.40	
Total	.00	1728384.10	1728384.10	
Waste		2354479.10		
Dilution %	##################	10.00		172838.41
Total Mill Ore	.00	1555545.69	1555545.69	

ORE GRADE METAL	GOLD (Au)	SILVER (Ag)	COPPER (Cu)	LEAD (Pb)	ZINC (Zn)
Heads	.20				
Recovery	98.00				
Yield	.20	.00	.00	.00	.00
Price	575.00				
Metal Value	112.70	.00	.00	.00	.00
Total Yield Value	112.70	##			

OPERATING COSTS	COST/TON MINED	COST/TON MILLED	TOTAL OP. COST	INVESTMENT	
Mine Development	5.00	##################	5.00	Exploration	3500000.00
Mine Operations	6.80	##################	6.80	Pre-Production	1000000.00
Mill Operations	##################	18.00	18.00	Mine Development	2000000.00
Maintenance	1.10	1.10	2.20	Mine Equipment	3000000.00
Administrative	1.00	1.00	2.00	Mill	6000000.00
Services	1.00	1.00	2.00	Shops	1000000.00
Total Cost/Ton	14.90	21.10	36.00	Townsite	2000000.00
				Roads/Dams	1000000.00
				Power Facilities	750000.00
				Other	
				Total	20250000.00
				10% Contingency	2025000.00
				20% Int. on Const.	4455000.00
				Wk. Cap. @ 20% NSR	4057200.00
				Total Investment	30787200.00

PRODUCTION	TONS MINED	TONS MILLED
Tons Ore/Day	570.00	500.00
Tons Waste/Day	750.00	##################
Days Worked/Year	320.00	360.00
Concentrate/Day	##################	
Concentrate/Year	##################	
Tons Ore/Year	182400.00	180000.00
Mine Life	8.53	##################

FINALCIAL YIELD		CHARGES		COSTS	
Total Yield Value	112.70	Smelter Charge %		Tons Ore/Year	180000.00
Tons Milled/Year	180000.00	Annual Sales	20286000.00	Cost/Ton	36.00
Annual Sales	20286000.00	Smelter Charges	.00	Op. Costs/Year	10091760.00
NET SMELTER RETURN		Shipping Chg./Ton		Investment	30787200.00
Annual Sales	20286000.00	Tons Concentrate	.00	Working Capital	4057200.00
Smelter Charges	.00	Shipping Charges	.00	Mine Life	8.53
Shipping Charges	.00			Depreciation/Year	3134303.31
Prod. Adval. Chg.	.00	Prod. Adval. Rate			
NSR	20286000.00	Annual Sales	20286000.00	Op. Costs/Year	10091760.00
		Prod. Adval. Chg.	.00	Depreciation/Year	3134303.31
NSR	20286000.00			Total Cost/Year	13226063.31
Total Cost/Year	13226063.31	Taxable Income	7059936.69		
Pre Tax Income	7059936.69	Tax Rate	50.00	Depletion Rate	
		Income Taxes	3529968.35	Pre Tax Income	7059936.69
Pre Tax Income	7059936.69			Depletion	.00
Depletion		KEY RATIOS			
Taxable Income	7059936.69	Net Earnings	3529968.35	Net Earnings	3529968.35
		NSR	20286000.00	Depreciation	3134303.31
Taxable Income	7059936.69	NE/NSR	.17	CASH FLOW	6664271.65
Income Taxes	3529968.35				
Net Earnings	3529968.35	Net Earnings	3529968.35	Total Investment	30787200.00
		Total Investment	30787200.00	Cash Flow	6664271.65
NSR	20286000.00	NE/TI	.11	Cash Payout TI/CF	4.62
Total Investment	30787200.00				
NSR/TI	.66			RATE OF RETURN P/A	15.00

DISCOUNTED CASH FLOW SHREADSHEET FOR PROJECT AGASSIZ RESOURCES - TWIN GOLD DATE 3 Feb. 1988

ORE RESERVES	OPEN PIT	UNDERGROUND	TOTAL ORE	TONS DILUTION
Measured		473428.30	473428.30	
Inferred		466057.40	466057.40	
Indicated		788898.40	788898.40	
Total	.00	1728384.10	1728384.10	
Waste		2354479.10		
Dilution %	##################	10.00		172838.41
Total Mill Ore	.00	1555545.69	1555545.69	

ORE GRADE

METAL	GOLD (Au)	SILVER (Ag)	COPPER (Cu)	LEAD (Pb)	ZINC (Zn)
Heads	.20				
Recovery	98.00				
Yield	.20	.00	.00	.00	.00
Price	575.00				
Metal Value	112.70	.00	.00	.00	.00
Total Yield Value	112.70	##################	##################	##################	##################

OPERATING COSTS	COST/TON MINED	COST/TON MILLED	TOTAL OP. COST
Mine Development	4.00	##################	4.00
Mine Operations	4.80	##################	4.80
Mill Operations	##################	15.00	15.00
Maintenance	1.10	1.10	2.20
Administrative	1.00	1.00	2.00
Services	1.00	1.00	2.00
Total Cost/Ton	11.90	18.10	30.00

INVESTMENT	
Exploration	3500000.00
Pre-Production	1000000.00
Mine Development	2000000.00
Mine Equipment	3000000.00
Mill	6000000.00
Shops	1000000.00
Townsite	2000000.00
Roads/Dams	1000000.00
Power Facilities	750000.00
Other	
Total	20250000.00
10% Contingency	2025000.00
20% Int. on Const.	4455000.00
Wk. Cap. @ 20% NSR	4057200.00
Total Investment	30787200.00

PRODUCTION	TONS MINED	TONS MILLED
Tons Ore/Day	570.00	500.00
Tons Waste/Day	750.00	##################
Days Worked/Year	320.00	360.00
Concentrate/Day	##################	
Concentrate/Year	##################	
Tons Ore/Year	182400.00	180000.00
Mine Life	8.53	##################

FINALCIAL YIELD		CHARGES		COSTS	
Total Yield Value	112.70	Smelter Charge %		Tons Ore/Year	180000.00
Tons Milled/Year	180000.00	Annual Sales	20286000.00	Cost/Ton	30.00
Annual Sales	20286000.00	Smelter Charges	.00	Op. Costs/Year	8284560.00
NET SMELTER RETURN		Shipping Chg./Ton		Investment	30787200.00
Annual Sales	20286000.00	Tons Concentrate	.00	Working Capital	4057200.00
Smelter Charges	.00	Shipping Charges	.00	Mine Life	8.53
Shipping Charges	.00			Depreciation/Year	3134303.31
Prod. Adval. Chg.	.00	Prod. Adval. Rate			
NSR	20286000.00	Annual Sales	20286000.00	Op. Costs/Year	8284560.00
		Prod. Adval. Chg.	.00	Depreciation/Year	3134303.31
NSR	20286000.00			Total Cost/Year	11418863.31
Total Cost/Year	11418863.31	Taxable Income	8867136.69		
Pre Tax Income	8867136.69	Tax Rate	50.00	Depletion Rate	
		Income Taxes	4433568.35	Pre Tax Income	8867136.69
Pre Tax Income	8867136.69			Depletion	.00
Depletion		KEY RATIOS			
Taxable Income	8867136.69	Net Earnings	4433568.35	Net Earnings	4433568.35
		NSR	20286000.00	Depreciation	3134303.31
Taxable Income	8867136.69	NE/NSR	.22	CASH FLOW	7567871.65
Income Taxes	4433568.35				
Net Earnings	4433568.35	Net Earnings	4433568.35	Total Investment	30787200.00
		Total Investment	30787200.00	Cash Flow	7567871.65
NSR	20286000.00	NE/TI	.14	Cash Payout TI/CF	4.07
Total Investment	30787200.00				
NSR/TI	.66			RATE OF RETURN P/A	18.60

PUFFY LAKE

Gold production from Pioneer Metals Corp.'s new Puffy Lake mine, near Flin Flon, Man., was scheduled to reach 75% of design capacity by the end of 1987. By the end of this year, the $18-million underground mine should be pouring the yellow metal at an annual rate of 72,000 oz. Mine life now stands at about seven years.

Discovered in 1979 by Maverick Mountain and Granges Exploration (Granges retains a 20% net profit interest), the Puffy Lake deposit has 2.5 million tons of probable and possible ore grading 0.233 oz gold per ton. Milling 1,000 tons of this material per day is sufficient to meet annual production targets.

The gold occurs in at least four parallel zones of multiple-quartz vein systems. The zones are of variable extent, according to Stewart Blusson, vice-president, exploration. They average about 6.5 ft in thickness and occur tens of feet apart. Vein structures are continuous but variable in thickness, ranging from 0.65 ft to 34.8 ft.

The mineralization of the gold-bearing structure consists primarily of 40% to 80% quartz, along with disseminated pyrite, arsenopyrite and pyrrhotite with lesser amounts of galena, sphalerite and chalcopyrite. Some native gold has been identified in the core and in the underground workings.

To date, some 5,000 ft of underground workings have been driven by Canadian Mine Development of Brampton, Ont., to open up production stopes. A modified room-and-pillar method has been chosen, using jackleg and slushers. Drill jumbos, scooptrams and 15- and 24-ton trucks are being used for development work by the contractor. Access to the mine is provided through a decline ramp.

The mill, designed to treat 1,000 tons per day, will recover about 75% of the gold in a gravity concentrate and a further 18.9% in a flotation concentrate.

Puffy Lake Notebook

Location: .... 7½ miles southeast of Sherridon, Man.
Major owner: .... Pioneer Metals Corp., 20% net profit interest to Granges Exploration.

Discovery date: 1979
Production decision: .... Jan 19, 1987
Capital cost: .... $18 million, including underground development
Operating costs: .... $200(US) per oz
Reserves: .... 2.5 million tons at 0.233 oz gold per ton
Means of access: .... decline
Mining method: .... modified room-and-pillar
Production rate: .... 1,000 tons per day
Milling: .... 72,000 oz per year
Major contractors: .... Proton Systems, Canadian Mine Development
Status: .... production

KETZA RIVER

Canamax Resources is growing at an impressive clip. Last year the Bell Creek mine, in northern Ontario, shipped its maiden dore bar. This year, its Ketza River project, in the Yukon, and the Kremzar deposit, near Goudreau, Ont., should be shipping gold. (For the Kremzar story, see page 39.)

Rich cores have been cut at Ketza River: an 11.7-ft section grading 0.677 oz gold per ton; 22.5 ft assaying 1 oz; and 14.7 ft grading 0.62 oz. Obviously, as we stated in *The Northern Miner* following an on-site visit in 1986, "Mother Nature did a magnificent job of concentrating the gold mineralization." Undoubtedly, Canamax and its 50% partner, Pacific Trans-Ocean Resources, were pleased with the handiwork as well.

This is a property with a long history, dating back to 1955 when Conwest Explorations first discovered the play. Canamax became involved in 1984, committing itself to exploring for gold mineralization in the oxide zone.

Several mineable zones have been identified, and recent drilling suggests plenty of opportunity for boosting reserves.

Ketza River Notebook

Location: .... Ross River, Y.T.
Major owners: Canamax Resources (50%) and Pacific Trans-Ocean Resources (50%)
Commodity: .... gold
Discovery date: 1955
Production decision: .... February, 1987
Start-up: .... September, 1988
Capital costs: .... $21 million
Operating costs: .... $220 per oz
Reserves: .... 506,900 tons of 0.446 oz gold per ton (proven and probable)
Means of access: .... three adit levels
Mining method: ...... modified cut-and-fill square-set mining
Mining equipment: .... trackless
Production rate: .... 350 tons per day
Milling plans: .... carbon-in-pulp
Major contractors: .... Orocon (mill construction) and Mainstreet Mining (mine development)
Status: .... pre-production

GOLDEN BEAR

The rugged Dease Lake area of northern B.C. will soon be the site of a new gold mine when the Golden Bear property, owned by North American Metals and Chevron Canada Resources, starts producing the yellow metal late this year. The positive characteristics of this mining project include the relatively low operating cost which is a direct result of milling high grade ore. North American Metals, which is earning a 50% interest in the project by spending $9 million, has outlined a rich zone known as the Bear. Reserves total 1.25 million tons grading 0.31 oz gold per ton. The remaining reserves are associated with two other zones along strike, known as the Fleece and Totem.

A quick payback period of only 18 months is expected as a result of milling grades of 0.5 oz gold per ton during the first five years of the project's operating life. The mine is forecast to produce 64,000 oz of gold during its first full year. Considerable exploration potential remains along the 5-mile-long structure which hosts the three deposits.

Infrastructure on-site will include a mill and tailings disposal facilities. Also, a 77-mile access road is required from the B.C. Highway 114 to the site. Because of the mine's mountainous location, the open-pit portion of the operation will only be conducted during a 4-month period.

Gold mineralization is associated with sub-parallel faults and fault breccia zones. Mineralization occurs as fine disseminations of fracture fillings of pyrite.

Golden Bear Notebook

Location: .... near Dease Lake, B.C.
Major owners: ..... North American Metals (50%), Chevron Canada Resources (50%)
Commodity: .... gold
Discovery date: 1985
Production decision: .... August, 1987
Start-up: .... fourth quarter, 1988
Capital costs: .... $36 million
Operating costs: .... $136 (US) per oz of gold
Reserves: .... 2.3 million tons grading 0.27 oz gold per ton
Means of access: .... open pit and adit
Extent of vertical workings: .... 328 ft from oxide cap to adit level
Mining methods: .... open pit and panel cut-and-fill
Mining equipment: .... trackless
Production rate: .... 71,500 tons per year (open pit); 55,000-66,000 tons per year (underground); daily milling at 396 tons
Milling plans: .... on-site
Major contractors: .... unavailable
Status: .... pre-production

TWIN GOLD MINES LIMITED

LINGMAN LAKE PROJECT

ASSAY RESULTS

TO DECEMBER 31, 1987

HOLE NO.	LOCATION	DIP	TOTAL DEPTH	INTERVAL/FT.	CORE LENGTH/FT.	ASSAY OZ/TON/AU	WEIGHTED AVERAGE
S-1	12003E, 11461N	-50	730'	633.4-638.8	5.4	0.209	
				664.0-667.0	1.5	0.220	
S-2	12083E, 11661N	-60	897'	381.4-383.9	2.5	0.410	
				775.5-780.3	4.8	0.140)	0.113/19.3
				780.3-782.0	1.7	0.0)	
				782.0-786.4	4.4	0.062)	
				786.4-788.4	2.0	0.032)	
				788.4-791.4	3.0	0.201)	
				791.4-794.7	3.3	0.166)	
S-3	12003E, 11461N	-70		665.0-668.3	3.3	0.161)	
				734.2-735.8	1.6	0.104	
S-4	12020E, 11822N	-45	287'	NO SIGNIFICANT VALUES			
S-5	12020E, 11822N	-70	287'	282.6-287.0	4.4	0.231	
	ENTERED DRIFT AT 287' AND HAD TO BE DISCONTINUED						
S-6	11900E, 11427N	-45	889'	307.0-309.5	2.5	0.149	
				652.1-657.0	4.9	0.297)	
				657.0-660.1	3.1	0.303)	0.30/8.0
				765.6-766.1	0.5	0.579	
				810.8-813.4	2.5	0.116	
S-7	11900E, 11427N	-60	957'	396-399.5	3.5	0.275	
				643.5-645	1.5	0.131	
				819-822	3	0.113	
S-8	11800E, 11450N	-45	1040'	629-631	2	0.124)	
				631-636	5	0.090)	0.10/7
S-9	11702E, 11509N	-45	APPROX 500	311.5-314.5	3.0	0.105	
				338.7-343.3	4.6	0.172	
				354.7-357.7	3.0	0.056)	
				357.7-360.7	3.0	0.294)	
S-9 CONT'D				377.75-380.5	2.75	0.167)	0.175/6.0
				380.5-381.5	1.0	0.026)	
				381.5-383.0	1.5	0.010)	
				383.0-387.25	4.25	0.194)	0.172/20.55
				387.25-389.25	2.0	0.01)	
S-9				389.25-393.5	4.25	0.500)	
				393.5-398.3	4.8	0.014	
				409.5-411.25	2.75	.038	
				411.25-412.75	1.5	0.000)	
				412.75-414.5	1.75	0.054)	
				414.5-418.0	5.25	0.173)	
				418.0-421.75	3.75	0.070)	0.213/15.25

S-10	11702E, 11509N	-60	700	421.75-423.75	2.00	1.030)	
				330.5-333.5	3.0	0.052	
				401-405	4.0	0.107	
				468-472	4.0	0.030)	
				472-476	4.0	0.010)	0.200/12
				476-480	4.0	0.560)	
				488-492	4.0	0.074	
				531.5-533.5	2.0	0.200)	
				533.5-537.5	4.0	0.251)	0.234/6.0
S-11	11690E, 11610N	-45	697'	190-194.5	4.5	0.213)	
				194.5-198.5	4	0.032)	0.128/8.5
				250-253.25	3.25	0.166	
				260.5-264.5	4	0.068)	
				264.5-267	2.5	0.271)	0.223/11
				267-271.5	4.5	0.335)	
				296-300.5	4.5	0.002)	
				300.5-303	2.5	0.321)	0.307/11
				303-307	4	0.641	
				512.5-516	3.5	0.319	
S-12	11615E, 11595N	-60	327'	NO SIGNIFICANT VALUES			
S-13	11650E, 11700N	-45	207'	137.0-141.5	4.5	0.088)	
				141.5-145.5	4.0	0.737)	0.333/13
				145.5-150.0	4.5	0.218)	
S-14	11801E, 11650N	-45	747'	209.5-213.3	3.8	0.136)	
				243.7-248.3	4.6	0.102)	
				248.3-252.6	4.3	0.163)	0.117/13.7
				252.6-255.1	2.5	0.010)	
				255.1-257.4	2.3	0.172)	
				712.4-714.3	1.9	0.513	
S-15	11799E, 11811N	-45	664'	38.7-43.0	4.3	0.507)	
				43.0-46.7	3.7	0.187)	0.359/8
				238.6-241.9	3.3	0.131	
				468-468.9	0.9	0.309	
				469-469.7	0.7	0.131	
				548.3-554.0	5.7	0.246)	
				554.0-559.0	5	0.260)	0.253/10.7
S-16	13400E, 11801N	-45	697'	420-422	2	0.185)	
				422-426.5	4.5	0.124)	
				426.5-431.1	4.6	0.215)	
				431.1-436	4.9	0.187)	
				436-438.3	2.3	0.196)	0.229/29
				438.3-441	2.7	0.129)	
				441-444.4	3.4	0.228)	
				444.4-449	4.6	0.484)	
				495.8-500.6	4.8	0.115)	
				500.6-504.7	4.1	0.100)	0.108/8.9
S-17	11299E, 11691N	-60	715	650.8-655	4.2	0.139)	
				655-660	5.0	0.124)	0.132/9.0

S-18	12096E, 11654N	-60	817'	465.0-470.5 470.5-473.7	4.7 3.2	0.333) 0.106)	0.241/7.9
S-19	12096E, 11654N	-55	699'	174.3-177.0	2.7	0.159	
				219.0-223.0	4.0	0.143	
				442.1-444.5	1.4	0.259	
S-20	10703E, 12200N	-60	517'	273.7-277.6 277.6-279.6	3.9 2.0	0.100) 0.122)	0.107/5.9
				300.5-301.8 392.5-394.0	1.3 1.5	0.191 0.207	
S-21	10703E, 12200N	-70	456'	NO SIGNIFICANT VALUES			
S-22	10000E, 12025N	-45	497'	ANOMALOUS VALUES ONLY			
S-23	10000E, 12025N	-55	543'	220-222	2	0.109	
S-24	10001E, 12297N	-45	207'	30-32 45-51 162-166 166-172 172-176 176-182 182-183.5	2 6 4 6 4 6 1.5	0.460 0.062 0.145) 0.222) 0.020) 0.242) 0.260)	0.100/21.5
S-25	10702E, 12342N	-50	191'	140-142 159-164 164-169 169-174 174-177.5	2 5 5 5 3.5	0.174 0.109) 0.463) 0.216) 0.374)	0.305/18.5
S-26	11300E, 12150N	-50	497'	NO SIGNIFICANT VALUES			
S-27	11200E, 12285N	-45	307'	122-123	1	0.101	
S-28	11200E, 11805N	-45	ABANDONED AT 46 FEET				
S-28A	11290E, 11805N	-45	400'	65-67.5	2.5	0.179	
S-29	11276E, 11604N	-45	127'	NO SIGNIFICANT VALUES			
S-30A	11277E, 11702N	-65	ABANDONED AT 57 FEET				
S-30B	11277E, 11702N	-67	497'	361.5-364.8 364.8-369.5 369.5-373.0 373.0-377.0 377-383 383-386.5 386.5-391.5 391.5-392.25 392.25-398.75 398.75-399.75 399.75-404 404-405.5	3.3 4.7 3.5 4.0 6 3.5 5 5.75 1.5 1 4.25 1.5	0.120) 0.730) 0.571) 0.145) 0.040) TR) 0.203) 0.002) 0.306) 0.459) 0.014) 0.264)	0.274/34.5
S-31	11099E, 12003N	-45	469'	302.5-304.3	4.0	0.106	
S-32	11001E, 12157N	-45	350'	262-263.3	1.3	0.564	
S-33	10099E, 12105N	-55	364'	ANOMALOUS ASSAYS ONLY			
S-34	10904E, 12279N	-45	360'	157-160 160-164 167-168	3 4 1.0	0.256) UNCUT 1.170)CUT TO 1 OZ 0.150	0.770/7' 0.461/7'

S-35	10595E, 12319N	-45	255'	173-176	3.0	0.142	
				197.1-199.6	2.5	0.169	
				205.7-208	2.3	0.116>	
S-36	10595E, 12319N	-60	351'	208-209.3	1.3	0.367>	0.21/3.6
S-37	10581E, 12350N	-45	250'	NO SIGNIFICANT VALUES			
				184-187	3	0.316>	
S-38	10400E, 12420N	-45	252'	187-190	3	0.068>	0.192/6'
				135.3-136.3	1.0	0.08	
				140-141.5	1.5	0.316>	
				141.5-144	2.5	0.316>	
				144.0-146.3	2.3	0.350>	0.232/10
				146.3-150	3.7	0.068	
S-39	10400E, 12420N	-85	375	ANOMALOUS VALUES ONLY			
S-40	10300E, 12392N	-45	250'	ANOMALOUS VALUES ONLY			
S-41	10286E, 12004N	-60	657'	426.5-428.6	2.1	0.254	
S-42	10407E, 12025N	-45	900'	813.3-816.0	2.7	0.257	
S-43	10498E, 12070N	-45	527'	470.5-473.1	2.6	0.139	
				498.1-499.6	1.5	0.460	
				522.5-527.0	4.5	0.236	
S-44	10500E, 11773N	-55	254'	NO SIGNIFICANT VALUES			
S-45	10701E, 11690N	-60	982'	955-959.3	4.3	0.137>	
				959.3-962.9	3.6	0.186>	
				962.9-964.7	1.8	0.240>	0.145
S-46	11100E, 11653N	-70	350'	NO SIGNIFICANT VALUES			
S-47	13504E, 11694N	-45	438'	NO SIGNIFICANT VALUES			
S-48	13498E, 11929N	-45	542'	253.0-255.5	2.5	.149>	
				255.5-259.5	4.0	.052>	
				321.0-325.5	4.5	.072>	.101/6.5
				325.5-328.8	3.3	.132>	
				328.8-332.4	3.6	.386>	
				332.4-335.0	2.6	.070>	.145/14.0
S-49	13498E, 11929N	-53	747'	389-391.1	2.1	0.124	
				410.6-414.9	4.3	0.112	
				420.7-426	5.3	0.169	
S-50	13400E, 12000N	-45	30'	SHIFTING BOULDERS CAUSED DRILL STRING TO BREAK			
S-51	12200E, 11610N	-60	817'	40.3-45.0	4.7	0.210	
				262.7-265.7	3.0	0.068>	
				265.7-270.3	4.6	0.537>	0.371/10.3
				270.3-273	2.7	0.423>	
				304.0-307.6	3.6	0.256>	
S-52	12200E, 11610N	-70	889'	57.8-61.0	3.2	0.236	
				355.1-360.0	4.9	0.164>	
				360.0-365.0	5.0	0.251>	0.208/9.9
				829.3-832.3	3.0	0.100	
S-53	12201N, 11601N	-55	776'	128.5-130.1	1.6	0.409>	

				130.1-135	4.9	0.171)	
				135-137	2.0	0.012)	
				137-139.6	2.6	0.002)	0.135/11.9'
				139.6-140.2	0.8	0.113)	
				250.3-252	1.7	0.062)	
				252-255.4	3.4	0.331)	
				255.4-258.3	2.9	0.074)	0.181/8'
				463.2-466.3	3.1	0.960)	
				466.3-468.5	2.2	0.510)	0.776/9.7
				468.5-471	2.5	0.197)	uncut
S-54	12302E, 11751N	-45	740'	471-472.9	1.9	0.300)cut to 1 oz	0.660/9.7
				17.7-20.3	2.6	0.466)	
				20.3-21.6	1.3	0.316)	0.277/7'
				21.6-24.7	3.1	0.102)	
				216.3-218	1.7	0.396	
				239.5-240.0	1.3	0.102	
				289.6-291.0	1.7	0.125	
				553.2-555.2	2.0	4.290) uncut	1.610/11.0
				555.2-557.8	2.6	0.722)	
				557.8-560.3	2.5	2.640)cut to 1oz.	0.712/11.0
				560.3-562	1.7	0.074)	
S-55	12302E, 11751N	-55	852'	562-565	3.0	0.130)	
				23.5-24.7	1.3	1.330)	
				24.7-26.3	1.5	1.200)	
				26.3-31.3	5.3	9.374) uncut	0.490/7.3
				130.75-135	4.25	0.206 cut to 1 oz	0.40
				242-246	4	0.156)	
				246-250	4	0.112)	0.134/8'
				287.5-292.25	4.75	0.226	
S-56	12398E, 11674N	-45	627'	110.5-113.9	3.4	0.264	
S-57	12398E, 11674N	-60	1007'	477.9-479.9	2	0.124	
				169.5-173.5	4	0.129	
				298.5-302	3.5	0.149	
				777-781	4.0	0.169)	0.181/8'
				781-785	4.0	0.192)	
S-58	12398E, 11674N	-70	407'	234-237	3	0.302)	
				237-240	3	0.169)	0.236/6'
S-59	12295E, 11606N	-50	507'	36-39	3	0.132	
S-60	12100E, 11579N	-60	997'	131.1-134.1	3.0	0.211	
				617.5-622.7	5.0	0.137)	0.168/9.7'
				622.7-627.4	4.7	0.200)	
S-61	12100E, 11579N	-70	1075'	126.5-127.6	1.1	0.262	

				674.2-679.0	4.8	0.076)		0.195/8.3'
				795.6-798.3	2.7	0.105		0.554
S-62	12401E, 12136N	-50	467'	ANOMALOUS ASSAYS				
S-63	12401E, 12136N	-65	303'	185.0-189.7	4.7	0.155		
				189.7-193.5	3.8	0.243)		0.195/8.5'
				238.8-242.9	4.1	0.554		
S-64	12301E, 12135N	-45	400'	ANOMALOUS VALUES ONLY				
S-65	12302, 11986N	-45	473'	373-376	3	0.130)		
				376-379	3	0.227)		0.179/6'
S-66	12399E, 11946N	-55	458'	370-373	2	0.126		
S-67	12295, 11606N	-65	499'	55.4-59.4	2	0.113		
				60.4-62.6	2.2	0.119		
				487.7-489	1.3	0.104		
S-68	12200E, 12000N	-55	505'	313-316	3	0.323)		
				316-319	3	0.197)		
				319-323	4	0.299)		0.276/10'
S-69	12204E, 12170N	-45	400'	ANOMALOUS VALUES ONLY				
S-70	12097E, 11430N	-65	600'	ANOMALOUS VALUES ONLY				
S-71	12097E, 11965N	-45	290'	ANOMALOUS VALUES ONLY				
S-72	12097E, 11965N	-65	446'	130-133	3.1	0.241		
				226-227.2	1.2	0.166)		0.183/4'
				227.2-230	2.8	0.076)		
S-73	12100E, 12075N	-45	292'	235-238	3	0.538		
				238-241	3	0.698		
				241-244	3	0.188		
				244-247	3	1.280	uncut	0.745/21'
				247-250	3	0.190	cut to 1 oz	0.557/21'
				250-253	3	2.830		
				253-256	3	0.280		
				268-269.8	1.8	0.173		
S-74	12100E, 12075N	-70	478'	325.8-328.4	2.6	0.255		
S-75 (ROMAN PROP)	16400E, 11800N	-45	553'	NO SIGNIFICANT ASSAYS				
S-76 " "	16400E, 11300N	-45	514'	" " "				
S-77 " "	16800E, 11200N	-45	457'	" " "				
S-78 " "	17600E, 11350N	-45	412'	" " "				
S-79 " "	17600E, 9800N	-45	707'	" " "				
S-80 " "	18000E, 11700N	-45	692'	" " "				
S-81 " "	NOT DRILLED							
S-82 " "	16800E, 11650N	-45	557'	" " "				
S-83	NOT DRILLED							
S-84	NOT DRILLED							

S-84	NOT DRILLED						
S-85	12100E, 12225N	-50	390'	59.3-62.2	2.9	0.010) uncut	0.806/7.7'
				62.2-65.0	2.8	2.170) cut to 1oz	0.379/7.7'
				65.0-67.0	2.0	0.034)	
S-86	NOT DRILLED						
S-87	NOT DRILLED						
S-88	12700E, 12125N	-45	540'	NO SIGNIFICANT ASSAYS			

GEOPHYSICAL REPORT

on the

TWIN GOLD MINES - LINGMAN LAKE GOLD MINES
PROPERTY

for

AGASSIZ RESOURCES INC.

BY:
R.J. MEIKLE
October 1, 1987

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LIST OF FIGURES

APPENDICES

INTRODUCTION

During the months of August and September of 1987, a geophysical program was undertaken for Agassiz Resources Ltd. on the Twin Gold Mines Ltd./Lingman Lake Gold Mine property. The surveys were carried out by Exsics Explorations Ltd., Timmins, Ontario. The program included a magnetometer survey, a VLF survey, and an induced polarization survey.

The magnetometer and VLF surveys covered the entire grid which consisted of 73 kilometers of north-south lines and east-west base-lines. The purpose of these surveys was to give structural information such as the location of iron formations and magnetic dikes and to find and delineate sulphide zones, most of which would likely be along shear zones.

Underground work was carried out previously on the property by Twin Gold Mines Ltd. The mine exploration reached out to the surrounding Twin Gold property in a less detailed and orderly manner. Some drilling and prospecting was done based on surface geology. However, no IP surveys were performed to search for massive to disseminated sulphides. Thus, the IP method was used to survey much of the grid, especially areas of geological interest and areas covered by overburden.

This is a report of the results and interpretation of the survey results. The geophysical results may be correlated with the known geology in a separate report. This report will not deal with claim status or description.

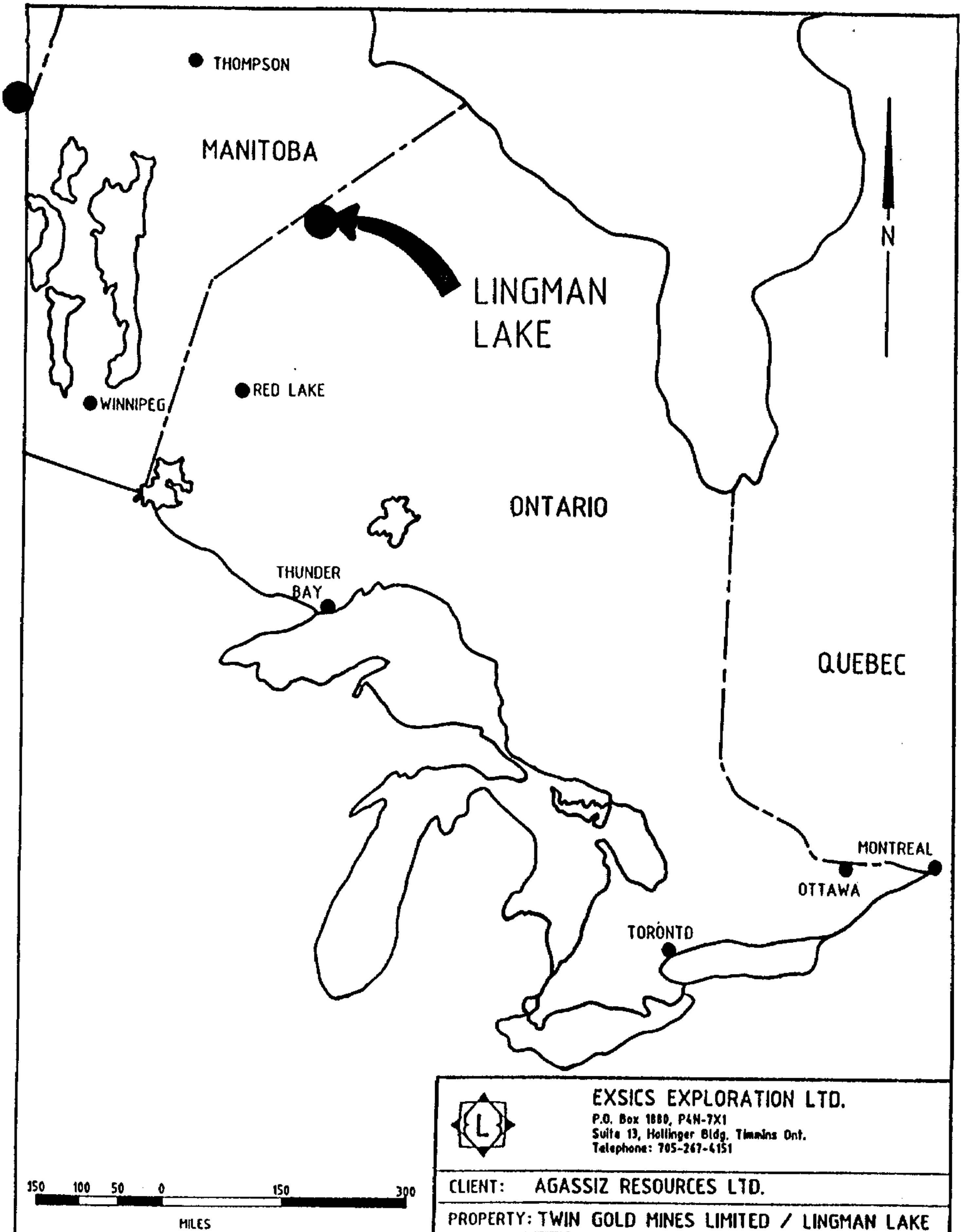
PERSONNEL

The following personnel were directly involved with the project during August/September, 1987:

R.J. Meikle	Timmins, Ontario
S. Anderson	Timmins, Ontario
L. Anderson	Crystal Falls, Ontario
P. Rasmussen	Bancroft, Ontario
E. Brunet	Timmins, Ontario
P. Boucher	Timmins, Ontario
P. Frederick	Crystal Falls, Ontario

PROPERTY LOCATION AND ACCESS

The property is located approximately 200 miles north of the town of Red Lake, Ontario, comprising 44 patented claims on the north shore of Lingman Lake (see Figure 1a). At the time of this report, access is by air only, although Island Lake, Manitoba, is located just 35 miles west of the property. (See Figure 1).



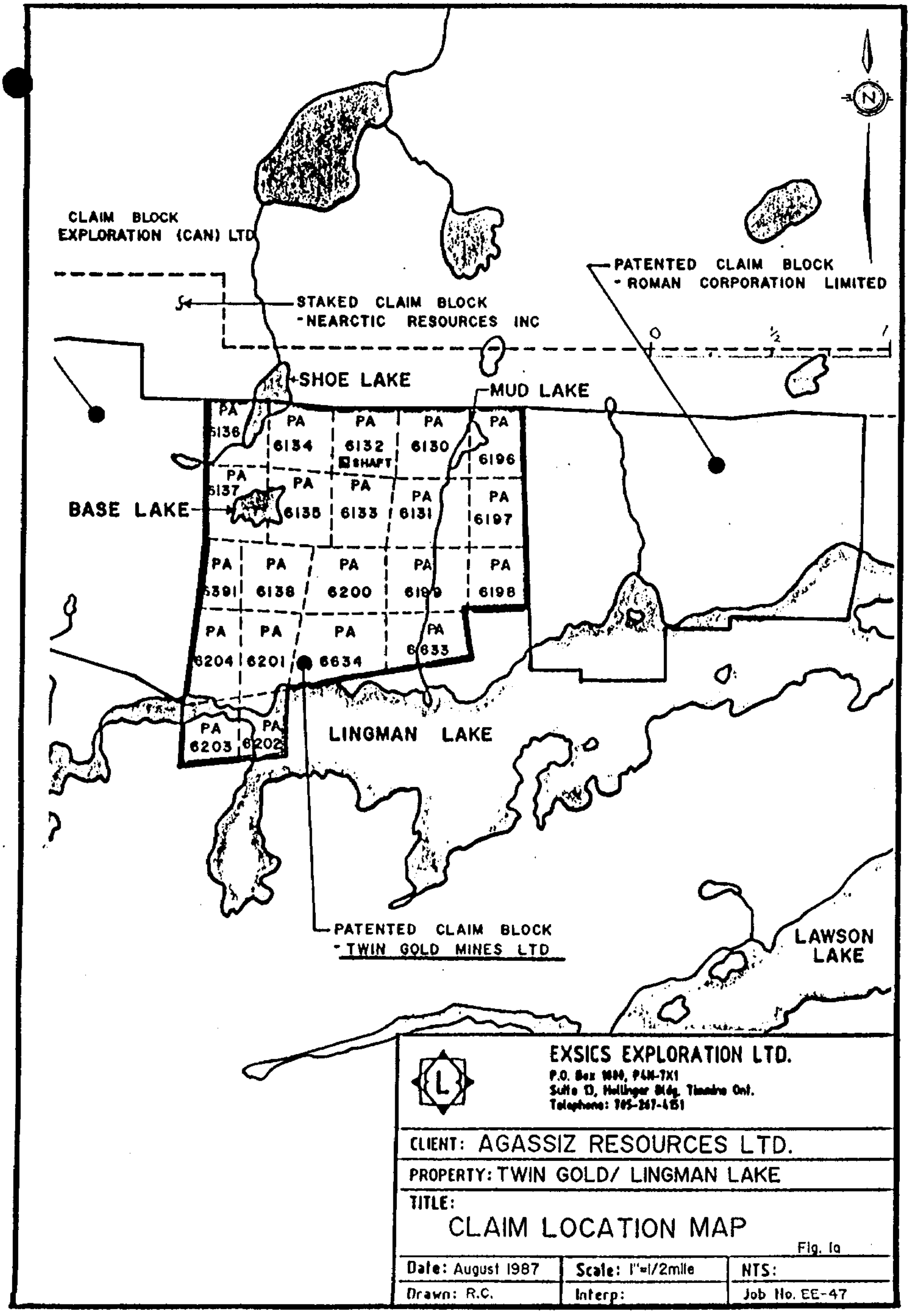
EXSICS EXPLORATION LTD.

P.O. Box 1880, P4N-7X1
Suite 13, Hollinger Bldg. Timmins Ont.
Telephone: 705-267-4151

CLIENT:	AGASSIZ RESOURCES LTD.
PROPERTY:	TWIN GOLD MINES LIMITED / LINGMAN LAKE
TITLE:	LOCATION MAP

Fig. 1

Date: August 1987	Scale:	NTS:
Drawn:	Interp:	Job No. EE-47



N
CLAIM BLOCK
EXPLORATION (CAN) LTD
PATENTED CLAIM BLOCK
- ROMAN CORPORATION LIMITED
STAKED CLAIM BLOCK
- NEARCTIC RESOURCES INC
0
½
1
SHOE LAKE
MUD LAKE
PA 6136
PA 6134
PA 6132
SHAFT
PA 6130
PA 6196
PA 6137
PA 6135
PA 6133
PA 6131
PA 6197
BASE LAKE
PA 5391
PA 6138
PA 6200
PA 6199
PA 6198
PA 6204
PA 6201
PA 6634
PA 6633
PA 6203
PA 6202
LINGMAN LAKE
PATENTED CLAIM BLOCK
- TWIN GOLD MINES LTD
LAWSON LAKE
EXSICS EXPLORATION LTD.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD/ LINGMAN LAKE
TITLE:
CLAIM LOCATION MAP
Fig. Ia
Date: August 1987
Scale: 1"=1/2mile
NTS:
Drawn: R.C.
Interp:
Job No. EE-47

REGIONAL GEOLOGY

The Lingman Lake property is situated in the central part and along the Northern edge of the Lingman Lake volcanic belt, one of several belts within the God's Lake subprovince of the Canadian Shield.

The entire area was most recently surveyed by Gerald Bennett and R. Riley (1969) in 1967 as part of a much larger mapping project, Operation Lingman Lake. Relevant geological data is presented on two preliminary maps (Bennett and Riley 1967a, 1967b) and a compilation map (Bennett et al 1969) (part of which has been reproduced as Figure 2). The recent study (see footnote 1) concentrated on the supracrustal rocks of the Lingman Lake Belt and did not involve a detailed examination of the surrounding granitic rocks. (Part of this map, referred to in Footnote 1, has been reproduced in this report as Figure 3).

Metavolcanic lithologies comprise mainly mafic massive and pillowed flows, mafic tuff, and (or) immature arenite, and minor volumes of felsic flows, tuffs, crystal tuffs, and possibly lapilli-tuffs. Chemical metasediments consist of interbedded chert with magnetite and iron silicate-bearing ironstone which in some places contains graphite or garnets.

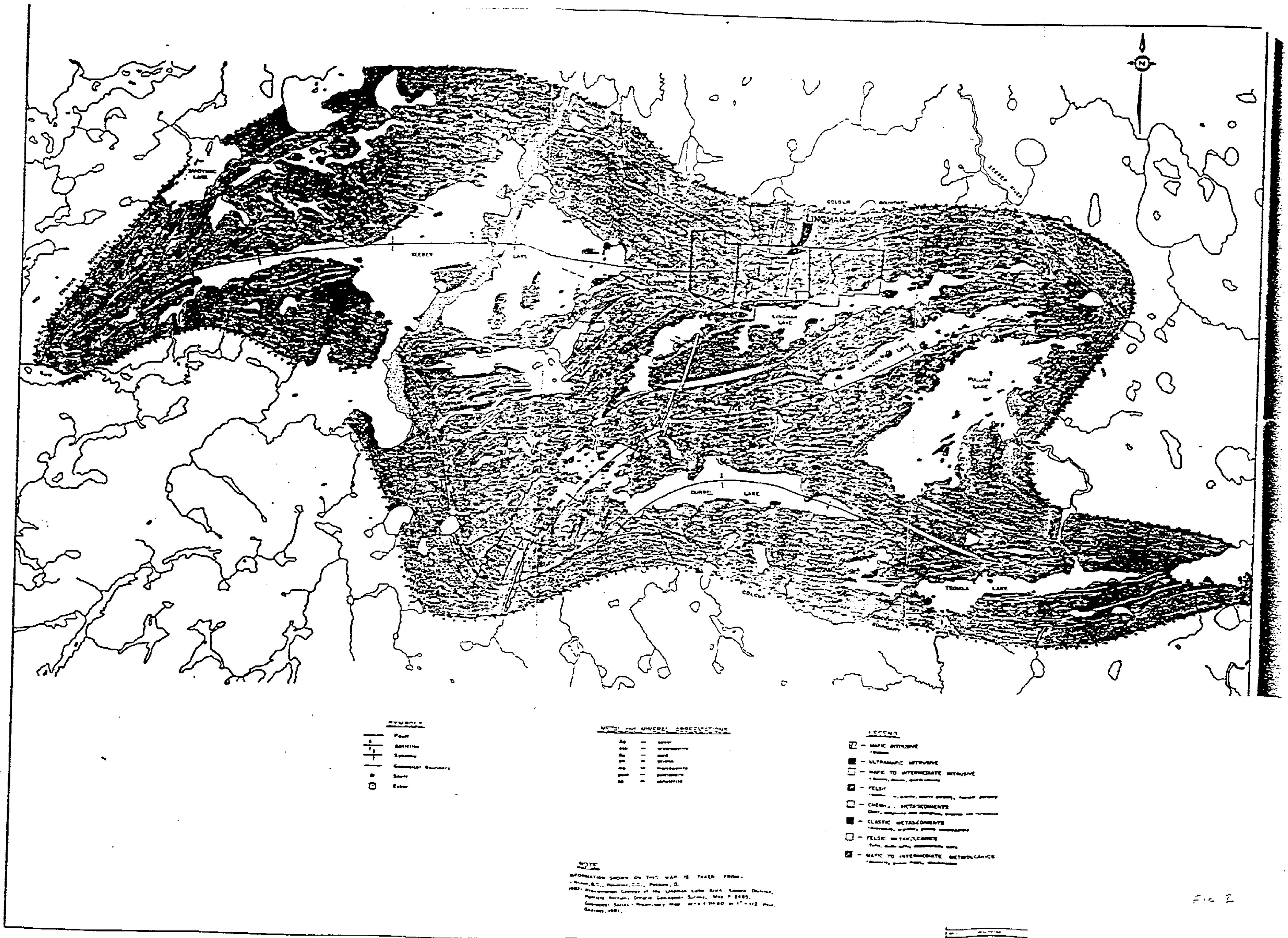
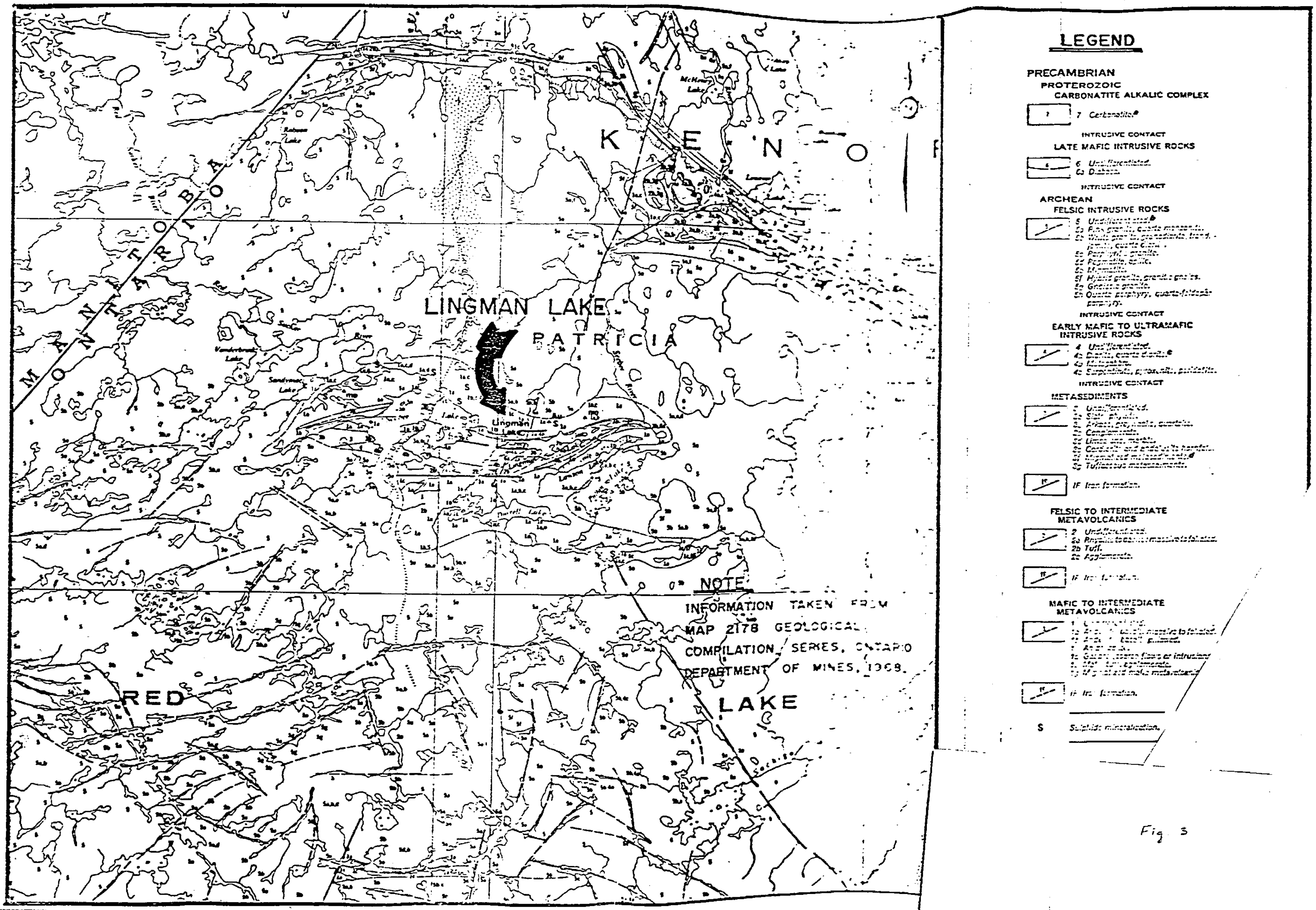

BEEBER LAKE
DURREL LAKE
LINGMAN LAKE
BOUNDARY
LEGEND
MAFIC INTRUSIVE
ULTRAMAFIC INTRUSIVE
MAFIC TO INTERMEDIATE INTRUSIVE
FELSIC
CLASTIC METASEDIMENTS
FELSIC METAVOLCANICS
MAFIC TO INTERMEDIATE METAVOLCANICS
NOTE
INFORMATION SHOWN ON THIS MAP IS TAKEN FROM:

Fig 2



MANITOBA
ONTARIO
KENORA
PATRICIA
LINGMAN LAKE
RED LAKE
McHenry Lake
Lingman Lake
NOTE
INFORMATION TAKEN FROM MAP 2178 GEOLOGICAL COMPILATION SERIES, ONTARIO DEPARTMENT OF MINES, 1968.
LEGEND
PRECAMBRIAN
PROTEROZOIC
CARBONATITE ALKALIC COMPLEX
7 Carbonatite.
INTRUSIVE CONTACT
LATE MAFIC INTRUSIVE ROCKS
6 Undifferentiated.
INTRUSIVE CONTACT
ARCHEAN
FELSIC INTRUSIVE ROCKS
5f Hybrid granite, granitic gneiss.
5h Quartz porphyry, quartz-feldspar porphyry.
INTRUSIVE CONTACT
EARLY MAFIC TO ULTRAMAFIC INTRUSIVE ROCKS
4 Undifferentiated.
INTRUSIVE CONTACT
METASEDIMENTS
IF Iron formation.
FELSIC TO INTERMEDIATE METAVOLCANICS
2 Undifferentiated.
2b Tuff.
MAFIC TO INTERMEDIATE METAVOLCANICS
S Sulphide mineralization.

Fig 3

Most mafic flows are massive and few porphyritic, but pillowed flows which are commonly variolitic or highly fractured are abundant. Some pillows contain large gas cavities filled with quartz and feldspar. Thinly laminated to very thinly bedded dark green clastic or epiclastic in origin, are transitional to more mature metasediments. These clastic rocks, which may be pyroclastic or epicalstic in origin, are transitional to more mature metasediments. These rocks form thick successions near Seeber and Durrel Lakes where they are apparently stratigraphically equivalent to mafic flows occurring along strike.

White to buff, light green and grey felsic metavolcanics occur around the southeastern corner of Seeber Lake and along the southern shore of the large lake 6 km southeast of Durrel Lake, locally known as Tequila Lake. On the small islands and nearby shore of Seeber Lake are feldspar-or rarely quartz-phyric flows. Crystal tuff, the pyroclastic equivalent of the flows, is found interbedded with grey, thinly laminated metasediments to the west and northeast of the flows at Seeber Lake and along the southwestern shore of Lingman Lake. Medium grey and grey-green crystal tuff and lapilli-tuff found southwest of Lingman Lake appear more distal with large proportions of light-coloured metasediments. At Tequila Lake, there are interbedded felsic flows, mostly quartz-phyric, and quartz crystal tuff with and without associated metasediments.

Clastic metasediments derived from the metavolcanics within the belt are commonly interbedded with and transitional to those metavolcanics. Such rocks, found in units rarely exceeding 3 m in thickness throughout the belt, are difficult to distinguish from the metavolocanics. More mature, easily recognizable wacke and mudstone occur in much thicker units along the southern shore of Lingman Lake, along the western shore of the small lake just southwest of Lingman Lake, locally known as P.S. Lake, and across the centre of Seeber Lake to the contact between the supracrustal and granitic rocks. These rocks are medium to dark grey, fissile to slaty, and commonly are graded in beds that are thinly laminated to medium bedded. Polymictic matrix- and clast-supported conglomerates were found at only three locations, one close to the southeastern corner of Seeber Lake and two near its northwestern shore.

Thin units of chemical metasediments found near Lingman and Lawson Lakes consist of thinly laminated to very thinly bedded chert and magnetite ironstone, commonly interbedded with iron silicate layers now composed of chlorite or amphibole. At the western end of Lingman Lake some of the chert is highly graphitic. A few outcrops of chert interbedded with iron silicate rock were found southwest of Seeber Lake. South of Tequila Lake similar beds of iron-bearing, commonly garnetiferous metasediments are more abundant and thicker.

A few, very minor metagabbro bodies and at least two varieties of mafic dikes of as yet undetermined composition, intrude the local supracrustal rocks. A single occurrence of serpentinized ultramafic rock of extrusive or intrusive origin was found 1.5 km west of Tequila Lake.

The supracrustal rocks are surrounded by, and close to the greenstone-granite contact are intruded by, felsic to intermediate intrusive rocks mapped by Bennett and Riley (1969) as granite, granodiorite, quartz monzonite, trodhjemite (probably tonalite), quartz diorite, and migmatite (5b on the map-face). In the present study these rocks are known to form a number of irregularly shaped, moderately to strongly foliated, medium- to fine-grained, commonly feldspar-phyric stocks and plutons cut by numerous pegmatitic to aplitic or, more rarely, porphyritic dikes. Along the northern edge of the supracrustal belt and around Pullan Lake the contact appears to be conformable with supracrustal trends but along much of the southern edge of the belt the contact appears to be discordant.

Cutting the interior of the greenstone belt are dikes and sills up to 5 m wide of felsic to intermediate intrusive rocks. These minor intrusions may be roughly divided into three categories. One variety, a black and white, mottled, possibly tonalitic rock found on the islands in the northwest portion of Seeber Lake (5c on the map-face) is medium-grained and equiangular but with notably euhedral feldspar. A second variety, found on Lingman Lake (5d on the map-face) is grey to dark grey, fine-grained and feldspar or quartz-feldspar-phyric.

A north-trending, 50 m wide post-Archean diabase dike is easily traced in outcrop and by its aeromagnetic expression. North of Lingman Lake, the dike forms a number of en-echelon segments so that, although the overall trend there is N 10 degrees E, the trends of observed contacts average N 23 degrees E. Apparent righthanded 'offsets' of the dike, resulting from the en-echelon pattern of intrusion, range from less than 1 m to at least 20 m.

The continuity of the dike is not well defined across the western end of Durrel Lake where aeromagnetic maps suggest the presence of more than one dike. A few, much narrower dikes were observed in mapping but none could be traced along strike for any significant distance.[1].

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1. The regional geology section, including maps, of this report has been taken from O'Gorman, Glenn R., 1987: "Massive Energy Limited; Twin Gold Project/Lingman Lake Property; Prefeasibility Report, which is quoted almost verbatum from Wilson, B.C., Pelletier, C.C., and Paktunk, D., 1982: Precambrian Geology of the Lingman Lake Area, Kenora District, Patricia Portion: Ontario Geological Survey, Map.2485, Geological Series-Preliminary Map, scale 1:31680 or 1 inch to 1/2 mile. Geology 1981"

PROPERTY GEOLOGY

Glenn R. O'Gorman described the geology in his pre-feasibility report of January, 1987:

> The Lingman Lake property is situated in the central part and along the Northern edge of the Lingman Lake Volcanic one of the several belts within the God's Lake subprovince of the Canadian Shield.
>
> The property is underlain by Precambrian or Archean rocks striking nominally east-west and dipping deeply south. The most northerly of the formations is a granite which underlies the volcanics to the south. South of the granite, there is a zone 3500 feet wide of indetermined andesite and gabbro which is cut by bodies of quartz and feldspar porphyry.
>
> In September 1986, the only known deposit of economic significance in the area was the gold occurrence of Twin Gold Mines Limited. On this property mafic flows and minor interbedded sediments have been intruded by granitic dikes, including quartz-feldspar, and by a diabase dike. All of the lithologies were subsequently cut by right-handed strike-slip faults which, in this vicinity, are

roughly layer-parallel. The most favourable host rocks for gold mineralization were found... to be silicified mafic to intermediate metavolcanics especially close proximity to the ends of bodies of mylonitized quartz-porphyry. Metallic minerals associated with the gold consist mainly of pyrite accompanied by some arsenopyrite, occasionally pyrrhotite and galena and rare chalcopyrite. Gold values are commonly associated with the presence of arsenopyrite needles, however, good gold values were found in silicified rocks with accessory pyrite only. Visible gold is reported to be rare.

The mineralization (of Twin Gold Mines Limited) occurs in a number of narrow sub-parallel, near vertical zones which have been traced and demonstrate conductivity for a strike length of 4000 feet and remain open along strike and to depth. The zones are intersected by a 200 foot diabase dike which offsets the zones by approximately 300 feet.[2].

---

[2]. Quoted verbatum from O'Gorman, Glenn R., 1987 Prefeasibility Report Twin Gold Project, Massive Energy Ltd.

A more recent extensive report on the property geology has been prepared by Durham Geological Services Inc.

SURVEY PARAMETERS

MAGNETOMETER SURVEY

A magnetometer survey was completed on this property over 73 miles of grid line with the objective of determining changes in rock type or changes in the mineralization within a certain horizon. The parameters of that survey are as follows:

Instrument:	1 EDA "Omni-plus" field magnetometer serial no. 208033 (see Appendix A for instrument specs.)
Values Measured:	Earth's total magnetic field and earth's vertical magnetic gradient
Units of Measurement:	Nano-teslas
Precision:	+/- 1 nano-tesla
Line spacing:	200 feet (100 feet over old mine area)
Station Interval:	100 feet

Diurnal Drift: Corrections were made by the base-line looping method with the Omni-plus operating in "Tie-line" mode. In this mode, values were corrected by linear interpolation at every tie-in point on the baseline or tie-line.

Data Presentation: Total Field- Maps #1 & 1a-sheets 1-4

Gradient- Map #2 - sheets 1-4

(Both maps in plan, contoured format)

Data Presentation: Scale- 1"= 200 feet (1"= 100 ft. on Map #1a over old mine area).

Contour Interval: 500 nano-teslas

NOTE: A datum base of 60,000 nano-teslas has been removed from each corrected total field value for ease of data manipulation.

VLF SURVEY

A VLF (Very Low Frequency) survey was completed on this property over 73 miles of grid line. The purpose of the survey was to dilineate electro-magnetic conductors such as mineralized shear zones and mineralized contacts. Several submarine guidance stations, located throughout the hemisphere, transmit radio waves at frequencies low enough to pass through water to waiting submarines. When one of these transmitters is transmitting close to the strike of a bedrock conductor, the conductor will be energized by the field of the waves reaching it. This secondary field has a vertical component which can be measured by surveying perpendicular to the conductor. The Omni-plus automatically orientates its coils to be at right angles to the primary field minimally coupled with this field. The audio signal from the coil is minimized by tilting the instrument. The tilt or dip-angle is measured internally in percentage. Any remaining out-of-phase, or quadrature signal is measured by the horizontal coil. The Omni-plus has quality control signals which help ensure good data.

Survey results can be complicated by overburden features such as troughs and clay seams. Deep conductive overburden can often completely mask the presence of bedrock conductors. Overburden is minimal over much of the property, with a maximum of about 50 feet of clay in places. Therefore, the VLF EM survey was an economical and geophysically feasible method of finding bedrock conductors on this property. None the less, VLF method does not give any information on whether a conductor is bedrock or not. Nor does it give any decisive estimate of the type or amount of mineralization. Therefore, all VLF cross-overs should be checked out geologically and surveyed by other means to produce more usable data.

NAA, Cutler Maine was chosen as the most suitable transmitter being at 110 degrees azimuth. The dip angle and quadrature data have been recorded. The dip angles have been filtered by the Fraser filtering method to produce absolute values of relative conductor strength finding the point of inflection on the profiles.(see Appendix 'C'). The parameters of the VLF survey are as follows:

Instrument:	1 EDA "Omni-Plus" Serial no. 208033 (see Appendix B for instrument specs).
Values Measured:	Dip angle of in-phase vertical component of the secondary field and out of phase signal (quadrature).
Units of Measurement:	Percent Dip
Location & Fequency of Transmitter:	NAA, Cutler, Maine @ 24.0 KHz
Azimuth of Station:	110 degrees
Line Spacing:	200 feet (100 feet over old mine area)
Station Interval:	100 feet
Data Presentation:	Dip Angles - Map #5 - sheet 1-4 1 Plan Form Fraser Filtered Values - Map #3 - sheets 1 - 4 in contoured plan form Scale- 1"= 200 feet and 1"= 100 ft.

(both maps are found in the back pocket of this report)

Contour Interval: 0, 5, 10, 15 . . . .

INDUCED POLARIZATION METHOD

Much of the grid was surveyed using time-domain induced polarization method to check for mineralization at VLF - EM crossovers and to search for new sulphide targets. To maximize the coverage, only sections of every second line were surveyed with the exception of the very east end of the grid and the detail grid over the old mine-site area. The coverage on the very east end was minimal but the entire detail grid was surveyed. Two electrode 'a' spacings were employed: 100 foot for normal coverage; 50 foot for greater detail over designated areas.

The time-domain 'IP' survey involved applying a direct electrical current across a dipole consisting of two electrodes grounded at an 'a' spacing of 50 feet or 100 feet apart. The current was transmitted for 2 seconds and shut off for two seconds repeatedly (see Appendix 'D'). A second dipole, of the same separation or 'a' spacing (at a distance of 'n' times the 'a' spacing further down the line) received the residual current during the 2 second shut off time. The potential across the two receiving electrodes was measured by the receiver at three different times during each decay after shut off (see Appendix 'E'). When the rock affected by the current contains at least 1-2% sulphide mineralization, polarization takes place as free ions pile up at mineralized/non mineralized interfaces. This capacitor effect delays later current from passing through. If a greater delay (slower decay) is measured, the receiver will display a higher chargeability value. That is, the millivolts per volt measured after a certain delay will be greater.

The receiver also measures the current received from the charge dipole while the current is turned on. This is a direct readout in millivolts and is dependent directly on the output of the transmitter and the resistivity of the medium between the dipoles. A constant correction is applied to account for the distance between the charge dipole and the receiving dipole (i.e. the 'n' spacing). The resultant is a measurement of the apparent resistivity of the overburden and rock between the two pairs of electrodes.

Any chargeability higher than background warrants a second look. The known gold zones are sheared zones with replacement and some carbonatization. These zones are quartz-rich and even the mafic intrusives along the quartz are often well silicified. Apparent resistivity values will depend on the amount and nature of mineralization in the shear. Large percentages of quartz may cause a high resistivity value, while the same zone could cause a low resistivity if massive sulphides are present in such a way as to be conductive along strike. Therefore, changes in sulphide content may be masked by the siliceous nature of the shear so as to be very subtle resistivity changes. However, the chargeability values would still indicate the presence of sulphides and should be correlated with resistivity values and all other geophysical and geological data.

The parameters of that survey are as follows:

Transmitter:	Scintrex IPC-9, 200 watt
Receiver:	Scintrex IPR-8 (see Appendix 'E')
Method:	Time Domain
Array:	Dipole-Dipole
'a' Spacing:	100 feet & 50 feet
Pulse Duration:	2 seconds on 2 seconds off
Delay Time:	650 ms
Integration Time:	520 ms

Data Presentation:

1. Plan Map #4 - sheets 2-4 of Contoured Fraser Filtered (Method A) chargeabilities (in back pocket of this report). Scale: 1" = 200'

   Contour Interval: 10 millivolts/volt
2. Contoured Pseudo-sections of chargeabilities
3. Profiles of chargeabilities & Fraser Filters & Apparent Resisitivities

SURVEY RESULTS

MAGNETOMETER SURVEY

The magnetometer survey was successful at delineating several rock type trends and changes on the property.

Most notable, are the two E-NE trends of high magnetic susceptibility. The first is found on sheet # 1 and #2 just north of Lingman Lake (Annomaly F). This is a known iron formation of a very high susceptibility. Several breaks are found in the trend on sheets # 2, 3 and 4 possibly indicating faulting. These will be discussed in a later paragraph.

The other broad E-NE trend occurs across the entire property and is found north of Base Lake and continues south of Mud Lake to the north property boundary (Anomaly G). Early geology shows this as another iron formation. The lower magnetic values could also describe an ultra-mafic.

A prominent N-NE dike was found to cut the property just east of Base Lake. Two prominent displacements indicate two right hand faults. These displacements occur at approximately 9700N on lines 10000E, 10200E and 10400E. Flanking this dike on the east side is a series of magnetic lows (Anomaly A). These lows are offset close to the same northings and could indicate some flanking structure continuing just east of the old mine site.

Following the west shore of Mud Lake and the creek to the south of it, is a series of subtle magnetic depressions and/or breaks in the dominent magnetic trends such as the ultra mafics and iron formation. Two such parallel trends exist, about 600 feet apart (Anomalies B_1 and B_2) at the south of the property merging to the north. The Mud Lake water system is possibly related to faulting.

Three other series of magnetic depressions are found to cut across other prominent magnetic and VLF trends. Anomalies 'C' and 'D' (sheets #2 and #3) trend N-NW and might indicate regional fracturing. The third remaining trend of magnetic lows can be found on sheets #3 and #4 trending N-NE and labelled 'E'.

Without more information, there is no certain evidence of other dikes although they may be found between lines joining magnetic highs. Several isolated magnetic depressions and peaks do occur but these will be considered later in this report only if they coincide with VLF and/or IP anomalies.

VLF - EM SURVEY

The VLF electromagnetic method was successful at finding many conductors and contacts. All notable anomalies have been labelled, using letters, on the contoured plan map #3 - sheets 1-4. Some of these anomalies were tested with the IP method. Many have magnetic highs or lows coincident with them or just flanking them. No attempt has been made to analyze individual anomalies for conductivity thickness or widths. This author believes that interesting VLF anomalies require testing by other geophysical and/or geological methods.

Anomaly 'A' (sheet #2) is a strong filtered E-W anomaly coincident with an E-W magnetic high north of the old minesite. This VLF anomaly could be due to a rock type of higher mineralization within a less mineralized igneous metamorphic background. Lines 11800E to 12100E have coincident IP response. At lines 16000E, Anomaly 'A' forks into two distinct directions (A_1, and A_2), both still following the magnetic highs (sheets #2 and #3). Of interest here is that both 'A_1' and 'A_2 are strongly chargeable zones as indicated by the IP response.

Anomaly 'B' (sheets # 1 and #2), at the south end of Shoe Lake, is also associated with a magnetic high but has no IP response.

Anomaly 'C' (sheet #1 and #2) is found along a magnetic high and has coincident IP response of moderately high chargeabilities.

Anomaly 'D' (sheet #1) has no magnetic or IP correlation.

Anomaly 'E' (sheet #1) is on a subtle magnetic low. There was no IP coverage here.

Anomaly 'F' (sheet #1 and 2) is found mainly in areas of magnetic lows. Line 11800E was surveyed with IP. On this line, Anomaly 'F' is also a chargeability high.

Anomaly 'G' (sheet #2) parallels 'F' for some length then it strikes south. This anomaly has no magnetic signature but it is chargeable on the only line of IP coverage (L11800E).

Anomaly 'H' (sheet #1 and #2) is found running across two magnetic depressions but also across the iron formation. No real magnetic signature can be determined. There is no IP coverage here.

Anomaly 'I' (sheet #1 and #2) follows a magnetic low. Anomaly 'I_2 however, follows a magnetic high in the iron formation. In contoured form, these two anomalies appear to be joined. No IP coverage exists over this anomaly.

Anomalies 'J' & 'K' (sheet #2) are coincident with the iron formation. There is no IP coverage over these anomalies.

Anomaly 'L' (sheet #2) runs into 'K' and 'F'. It has no magnetic signature but it does show a chargeability high where covered with IP on L14400E. Further east along strike, this anomaly seems to fork off into two separate anomalies 'L_1' and 'L_2' (sheet #3). 'L_2' still has no magnetic signature while 'L_1' follows a magnetic ridge.

Anomaly 'M' (sheet #2) has no discernible magnetic signature. However, it is moderately chargeable on L11800E where it was traversed by an IP survey.

Anomaly 'N' (sheet #2) is a shorter N-NE anomaly joining Anomaly 'P'. Anomaly 'N' is found with a moderately high magnetic background but it is found flanking a chargeable zone about 200 feet to the south.

Anomaly 'O' (sheet #2) occurs along the north edge of the ultra-mafics. That is, following contact of a zone of magnetic highs and lows. This anomaly is coincident with a zone of high chargeability although it is south of and flanking the chargeability peaks.

Anomaly 'P' (sheet #2) is coincident with the magnetic high zone over the ultramafics. It is found flanking the chargeability zone which is found directly to the north.

Anomaly 'Q' (sheet #2) is found in an area of unremarkable magnetic susceptibility running south of a zone of high charegeabilities.

Anomaly 'R' (sheets #2 & #3) is found east of Mud Lake. It is noteworthy for two reasons. It is possibly one extension of anomaly 'A' in the ultra mafics with high magnetic susceptibility. Secondly, this anomaly is coincident with a good IP response.

Anomaly 'S' (sheet #3) is a small anomaly along the southern margin of a zone of magnetic highs. The IP survey did not cover this anomaly.

Anomaly 'T' (sheet #3) has no magnetic signature but it is found flanking the northern margin of chargeable zone.

Anomaly 'U' (sheet #3) may be a faulted off extension of Anomaly 'L_1'. This anomaly follows a zone of magnetic highs from L17200E to L18200E and from there it seems to have no discernible magnetic signature. A good IP response is recorded over a section of Anomaly 'U' which is coincident with magnetic highs. The chargeabilities appear to drop off as the high magnetic susceptibility drops off. This could be response of a sulphide zone with a notable pyrrhotite content.

In filtered format, Anomaly 'U' broadens out on L19000E only, then forks into two distinct anomalies 'U_1' and 'U_2' in L19200E.

Anomaly 'V' (sheet #3) is found to run sub-parallel to anomalies 'R' and 'A_2' until it splits at L1800E and there strikes south-east as well as the same direction. Anomaly 'V_1' is coincident with a magnetic peak and is within a chargeable zone. Anomaly 'V' follows the northern margin of a trend of magnetic highs and is found to be flanking the northern margin of a chargeable zone.

Anomaly 'W' (sheets #3 & #4) is a small horseshoe shaped anomaly coincident with the contact of zones of high and low magnetic susceptibility. This anomaly has not been surveyed by the IP method.

Anomaly 'X' (sheet #4) has no discernible magnetic signature although it is coincident with both magnetic lows and magnetic highs in places. What is remarkable about this anomaly is the coincident IP response along strike from L208+00E to L22200E and on L23000E and L23800E wherever covered by the IP survey.

Anomaly 'Z' (sheet #4) is found just north of Anomaly 'Y' in the southern margin of a moderately high magnetic trend. It is found to have above background chargeabilities associated with it and to be lying between two chargeability peaks on lines 20000E to 20400E. Apparently this anomaly is discontinued between L20200E, between L21800E and L22200E and between 22600E and 23000E. Weak IP response was obtained on L22200E (on the discontinuity) and on L23000E where Anomaly 'Z' meets Anomaly 'AA'.

Anomaly 'AA' (sheet #4) is an extensive one that stretches from 17600E to L23+800E with several offshoots. It is found to be just flanking the northern margin of a series of magnetic ridges up to L23200E where it curves back on itself. An offshoot of this heads N-W from L21600E coincident with a broad magnetic high. This offshoot has a weak to moderate IP response coincident with it. Anomaly 'AA' flanks the northern margin of a chargeable zone on L21400E and 22000E where an IP survey was performed.

Anomaly 'BB' (sheet #4) is found on L23600E. It has no remarkable magnetic or IP response with it.

Anomaly 'CC' (sheets #3 & #4) has no discernible magnetic signature. It follows a broad magnetic high from the west end along strike until it branches off at L19600E where both branches head north and join Anomaly 'AA'. This anomaly was tested with IP on L20000E and 18000E only. On both lines, it was found to be weakly chargeable.

Anomaly 'DD' (sheet #4) is found from L20200E to L21400E. It is located in a broad magnetic low. IP coverage included L20400E where no IP response was obtained.

Anomaly 'EE' (sheet #3) has a short strike length. It is found between Anomalies 'AA' and 'CC' and merges with both. It is coincident with a broad magnetic high. No IP survey was carried out over this anomaly.

INDUCED POLARIZATION SURVEY

The Induced Polarization was successful at delineating known sulphide zones and at finding new chargeable zones of considerable interest.

All anomalous chargeability values should be looked at as possible indications of the presence of sulphides. Twenty-five areas of interest are indicated on Maps #4 - sheets 2-4. Many of these are peaks within the same chargeable zones or are distinguished only because of lack of coverage between them. Detailed examination of data for depth interpretation is not within the scope of this report and may be undertaken as separate anomalies are chosen for further exploration.

Anomaly #1 (sheets #1 and #2) is found west of Shoe Lake. This zone is highly chargeable and is found within a broad magnetic low coincident with a VLF anomaly on a resistivity contrast.

Anomaly #2 (sheets #1 and #2) is likely of the same horizon as #3 or #4. It may extend from Anomaly #39 on L9400E to L10000E with moderately high chargeability values. Anomalies #1 and #2 may be related but discontinued by the source of VLF anomaly 'B' which is also a resistivity low. Anomaly #39 may be related to Anomaly #2.

Anomaly #40 (sheet #1) is likely a separate chargeable zone since it is coincident with VLF Anomaly 'C' on L9200E.

In contoured plan format, and #41 and #42 Anomalies #3 to #10 (sheet #2) appear to be chargeability peaks related to a broad chargeable zone which is common to all of them. However, several chargeability peaks are evident, with enough variance in apparent resistivities to treat them as separate anomalies here.

Anomaly #3 (sheet #2) is highly chargeable over L10800E to L11400E. It is found within an area of elevated magnetic and resistvity values with no VLF correlation.

Anomaly #4 (sheet #2) is slightly above the local chargeability background with no magnetic or electromagnetic signature.

Anomaly #6 (sheet #2) is found to be a highly chargeable zone coincident with a magnetic depression and is just north of a VLF anomaly. Resisitivities indicate that this VLF anomaly is conductive.

Anomaly #41 (sheet #2) is a relatively weaker chargeability peak within a broad magnetic high. It is coincident with resistivity peak but exhibits no VLF response.

Anomaly #42 (sheet #2) is a chargeability peak over three lines coincident with VLF Anomaly 'A'. It has no magnetic signature but it is found within a broad zone of magnetic low values.

Anomaly #5 (sheet #2) is a broader chargeability peak extending from L108+00E to at least L114+00E where IP coverage was discontinued at a north-south dike. This anomaly has no coincident magnetic or EM signature.

Anomaly #5a (sheet #2) may be continuations of Anomaly #5 across the dike. Anomaly #5a is coincident with VLF Anomaly 'A' and an E-W weak magnetic high. Anomaly #5b has no discernible magnetic signature and it has no coincident EM response.

Anomaly #43 (sheet #2) is a slight chargeability high and has a high apparent resistivity. No EM or magnetic response is noted here.

Anomaly #6a (sheet #2) is possibly related to Anomaly #6. No magnetic or EM response is noted and apparent resistivities are deceiving. However, this chargeability peak is a resistivity low.

Anomaly #7 (sheet #2) is a moderately chargeable zone with moderate to low apparent resistivities. It is coincident with VLF Anomaly 'P' within a broad zone of magnetic highs.

Anomaly #8 (sheet #2) is also highly chargeable and resistive. It is found to be located between two parallel zones of magnetic highs. There is no coincident EM response here although it strikes parallel and about 150 feet north of an anomaly. This anomaly seems to be stronger at depth.

Anomalies #8a & #8b (sheet #2) are likely peaks on the same horizon since both are a chargeable and resistive and look similar in pseudo-section.

Anomaly #9 (sheet #2) is highly chargeable and resistive. It is coincident with a small magnetic high. No notable EM response was received here.

Anomaly #10 (sheet #2) appears to be conductive but shows no EM correlations of this although it does parallel a VLF anomaly which is about 100 feet to the south.

Anomaly #11 & #11a (sheet #2) are on the same horizon. Both are strongly chargeable with slightly below background resistivities. Both are found along a subtle magnetic low.

Anomaly #12 (sheet #2) is weakly chargeable and it is coincident with VLF Anomaly 'M'.

Anomaly #14 (sheet #2) is also weakly chargeable and it is coincident with VLF Anomaly 'F' within a broad zoned magnetic low.

Anomaly #15 (sheet #2) is a moderately chargeable zone coincident with magnetic depression and a VLF conductor 'G'.

Anomaly #16 (sheet #2) is found to trend east from the west shore of Mud Lake. It follows VLF Anomaly 'R' and a series of magnetic highs. It is likely conductive as evidenced by the low resistivities and the VLF response. The chargeabilities peak on L5200E and L16000E.

Anomaly #17 (sheet #2) is found within a broad magnetic high and is coincident with VLF Anomalies 'A' and 'A_2. It has high chargeability values and low apparent resistivity values and is almost certainly chargeable conductors.

Anomaly #18 (sheet #2) is moderately chargeable. It is slightly more resistive than the background and is found in a subtle magnetic depression.

Anomaly #19 (sheet #2) is also moderately chargeable and is also more resistive than the background. It is found within a broad zone of magnetic lows with no coincident anomalous values.

Anomaly #20 (sheet #2) is moderately chargeable and it peaks in two locations 150 feet apart. This anomaly is located along VLF anomalies within the iron formation and it is found to be a resistivity high relative to the background.

Anomaly #21 (sheet #3) is moderately chargeable which may possibly be considered two separate zones #21 and #21$_a$. Both are flanked on the north and south by magnetic peaks. Anomaly #21 appears to be relatively resistive while #21$_a$ exhibits a lower apparent resistivity and is found closely associated with Anomaly A_1.

Anomaly #22 (sheet #3) is a moderate chargeable zone which is coincident with VLF Anomaly 'J' on L17100E only. Low apparent resistivities confirm that this is a conductive zone. It has no remarkable magnetic signature with it.

Anomaly #23 (sheet #3) is a highly chargeable zone which is found to be coincident with VLF Anomaly 'U'. The apparent resistivity values confirm this anomaly as a true conductor.

Anomaly #43 (sheet #3) is a weakly chargeable zone flanked to the south by VLF Anomaly 'T'. The apparent resistivity is unremarkable and is not low enough to indicate conductivity.

Anomaly #24 (sheet #3) is a chargeability peak on L1800E located within a broader E-W chargeable zone and also within a broad E-W zone of magnetic highs. It is coincident with VLF

Anomaly 'A' and the apparent resistivity values confirm it as a true conductor.

Anomaly #44 (sheet #3) is a moderately chargeable and resistive zone located just within a broad EW trend of high magnetic values. There is no remarkable VLF response associated with it.

Anomaly #25 (sheet #3) is a chargeable peak within a broad zone. It is found to have considerable strike length of a least 800 feet across L18800E to L19600E where coverage was discontinued. It is found within a zone of low magnetic values coincident with VLF Anomaly 'AA' along its entire known strike. The apparent resistivity values show this zone to be notable less resistive than background.

Anomaly #45 (sheet #3) is a weakly chargeable zone which is coincident with VLF Anomaly 'AA'. This zone has a moderately high apparent resistivity. It is located with a broad E-W zone of high magnetic values.

Anomaly #26 (sheet #3) has coverage on L18800E only and it is weakly chargeable there. It is found to be coincident with a magnetic low within a zone of magnetic highs and to be associated with VLF Anomaly 'CC'. This anomaly is also coincident with a sharp resistivity contrast which, with the other available data, suggests that this is a slightly mineralized contact.

Anomaly #28 (sheet #4) is a broad chargeable zone with no discernible magnetic signature. The apparent resistivities are very low. Since the VLF response is very weak, these values could indicate an area of deeper and/or conductive overburden.

Anomaly #29 (sheet #4) is a moderately chargeable zone found to be coincident with VLF Anomaly 'Y' on L20000E. It has no remarkable magnetic signature on L20000E. Apparent resistivites are regionally low but slightly elevated relative to the local background. Anomaly #29a (sheet #4) could be the same anomaly as #29. However, here it has no VLF correlation. No IP coverage is available for L20200E. If these two peaks were part of one anomaly it would be cutting through a local magnetic peak.

Anomaly #30 (sheet #4) is a moderately chargeable zone found within a regional magnetic low. It appears to extend from L21400E to L22000E. There is no coincident VLF anomaly here. Actually it is a resistivity high found between two major VLF Anomalies 'AA' and 'X'.

Anomaly #31 (sheet #4) was surveyed by IP on L21400E only. The high apparent resistivity values suggest a change of rock type here. It has no coincident VLF or magnetic signature.

Anomaly #32 (sheet #4) is a deeper chargeable zone of moderate to weak strength. The overburden here could be quite deep and/or conductive. The anomaly is located within a broad magnetic low exactly where VLF Anomaly 'Z' shows a discontinuation on L22000E.

Anomaly #33 (sheet #4) has the same IP signature of #32 and is probably related. It is found to be at a discontinuation of VLF Anomaly 'Z' within a broad resistivity low. This anomaly has no other remarkable geophysical anomalies coincident with it.

Anomaly #34 (sheet #4) is a weakly chargeable zone which is coincident with VLF Anomaly 'AA'. The apparent resistivity is higher here and these anomalies appear to be along a weaker mineralized contact.

Anomaly #35 (sheet #4) is a weakly chargeable zone which is probably on the same horizon as #34. It is coincident with VLF anomaly 'AA' and a resistivity contrast. This suggests a weakly mineralized contact.

Anomaly #36 (sheet #4) is a moderately chargeable zone which is coincident with VLF Anomaly 'X'. The magnetics are unremarkable.

Anomaly #37 (sheet #4) is weakly chargeable but shows no other remarkable geophysical response.

Anomaly #38 is a weakly chargeable zone which is possibly associated with Anomaly #36 and it flanks VLF Anomaly 'X'. The resistivity values are indecisive. There is no remarkable magnetic signature here.

CONCLUSIONS AND RECOMMENDATIONS

The geophysical program was very successful at finding and describing possible sulphide zones and at providing data which gives a better understanding of the complex geology of this vast property.

This report has attempted to define and describe separately all remarkable magnetic and electromagnetic (VLF) anomalies. These anomalies have not been rated according to their possible sulphide potentials. Data from these surveys will often delineate rock type changes, changes in mineralization, structural anomalies and changes in overburden. Precise determination of the cause of magnetic and VLF anomalies is seldom possible. Therefore, these anomalies should be carefully considered only with all relevant known geological data and the results of the IP survey, where available.

The IP method proved to be the best, most decisive, geophysical tool for locating disseminated or massive sulphide deposits on this property. The survey succeeded at defining the known Twin Gold Mine sulphide zone. Therefore, all high chargeability values should be considered as possible indications of sulphide deposits. These results would then be investigated geologically and/or co-ordinated with existing geophysical (see 'Survey Results: IP Survey') and geological information with the purpose of evaluating their potential as diamond drilling or stripping targets. Many lines were not surveyed using the IP method. This report recommends that all gold bearing deposits proven by drilling or trenching should be traced out and described by surveying some fill-in lines of IP on either side, along the strike of the known sulphide horizon.

Respectfully Submitted,

R.J. Meikle

CERTIFICATION

I, Raymond Meikle of Timmins, Ontario hereby certify that:

1. I hold a three year Technologist Diploma from the Haileybury School of Mines, Haileybury, Ontario obtained in 1975.

2. I have been practising my profession since 1973 in Ontario, Quebec, NWT, Manitoba, New Brunswick, Nova Scotia for Teck Exploration Ltd., Metallgesllschaft Canada Ltd., Rayan Exploration., Sabina Industries Ltd., and most recently Exsics Exploration Ltd.

3. I have based conclusions and recommendations contained in this report on knowledge of the area, my previous experience, and on the results of the field work conducted on the property during July and August, 1987 which was carried out under my overall supervision.

4. I hold no interest, directly or indirectly in this property other than professional fees, nor do I expect to receive any interest in the property or in Twin Gold Mines Limited or any of it`s subsidiary companies.

Dated this 1st day of Oct., 1987 at
Timmins, Ontario

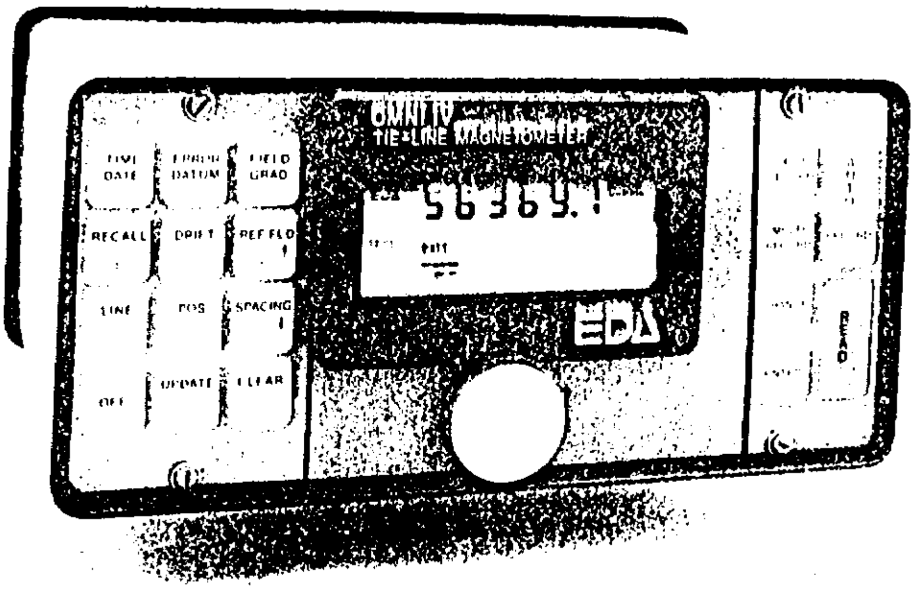
R.J. Meikle

APPENDICES

APPENDIX A

OMNI IV (COMPARABLE TO OMNI-PLUS)
"Tie-Line" Magnetometer

EDA



OMNI IV's Major Benefits

- Four Magnetometers In One
- Self Correcting for Diurnal Variations
- Reduced Instrumentation Requirements
- 25% Weight Reduction
- User Friendly Keypad Operation
- Universal Computer Interface
- Comprehensive Software Packages

Appendix 'A'

Specifications

Dynamic Range	18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm
Automatic Fine Tuning	± 15% relative to ambient field strength of last stored value
Display Resolution	0.1 gamma
Processing Sensitivity	± 0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range
Standard Memory Capacity	
Total Field or Gradient	1,200 data blocks or sets of readings
Tie-Line Points	100 data blocks or sets of readings
Base Station	5,000 data blocks or sets of readings
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.
RS 232 Serial I/O Interface	2400 baud, 8 data bits, 2 stop bits, no parity
Gradient Tolerance	6,000 gammas per meter (field proven)
Test Mode	A. Diagnostic testing (data and programmable memory) B. Self Test (hardware)
Sensor	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Gradient Sensors	0.5 meter sensor separation (standard), normalized to gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional.
Sensor Cable	Remains flexible in temperature range specified, includes strain-relief connector
Cycling Time (Base Station Mode)	Programmable from 5 seconds up to 60 minutes in 1 second increments
Operating Environmental Range	−40°C to +55°C; 0–100% relative humidity; weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; rechargeable NiCad or Disposable battery cartridge or belt; or 12V DC power source option for base station operation.
Battery Cartridge/Belt Life	2,000 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings
Weights and Dimensions	
Instrument Console Only	2.8 kg, 238 x 150 x 250mm
NiCad or Alkaline Battery Cartridge	1.2 kg, 235 x 105 x 90mm
NiCad or Alkaline Battery Belt	1.2 kg, 540 x 100 x 40mm
Lead-Acid Battery Cartridge	1.8 kg, 235 x 105 x 90mm
Lead-Acid Battery Belt	1.8 kg, 540 x 100 x 40mm
Sensor	1.2 kg, 56mm diameter x 200mm
Gradient Sensor (0.5 m separation - standard)	2.1 kg, 56mm diameter x 790mm
Gradient Sensor (1.0 m separation - optional)	2.2 kg, 56mm diameter x 1300mm
Standard System Complement	Instrument console; sensor; 3-meter cable, aluminum sectional sensor staff, power supply, harness assembly, operations manual.
Base Station Option	Standard system plus 30 meter cable
Gradiometer Option	Standard system plus 0.5 meter sensor

E D A Instruments Inc.
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Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR
Cable: Instruments Toronto
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Printed in Canada

APPENDIX B

OMNI PLUS
VLF/Magnetometer System

EDA

Major Benefits of the OMNI PLUS

- Combined VLF/Magnetometer/Gradiometer System
- No Orientation Required
- Three VLF Magnetic Parameters Recorded
- Automatic Calculation of Fraser Filter
- Calculation of Ellipticity
- Automatic Correction of Primary Field Variations
- Measurement of VLF Electric Field

EDA

Specifications*

Frequency Tuning Range	15 to 30 kHz, with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 28.5 kHz
Transmitting Stations Measured	Up to 3 stations can be automatically measured at any given grid location within frequency tuning range
Recorded VLF Magnetic Parameters	Total field strength, total dip, vertical quadrature (or alternately, horizontal amplitude)
Standard Memory Capacity	800 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings
Display	Custom designed, ruggedized liquid crystal display with built-in heater and an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal strength status monitor and function descriptors.
RS232C Serial I/O Interface	2400 baud rate, 8 data bits, 2 stop bits, no parity
Test Mode	A. Diagnostic Testing (data and programmable memory) B. Self Test (hardware)
Sensor Head	Contains 3 orthogonally mounted coils with automatic tilt compensation
Operating Environmental Range	−40°C to +55°C; 0 – 100% relative humidity; Weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid 18V DC battery cartridge or belt; 18V DC disposable battery belt; 12V DC external power source for base station operation only.
Weights and Dimensions	
Instrument Console	2.8 kg, 128 x 150 x 250 mm
Sensor Head	2.1 kg, 130 dia. x 130 mm
VLF Electronics Module	1.1 kg, 40 x 150 x 250 mm
Lead Acid Battery Cartridge	1.8 kg, 235 x 105 x 90 mm
Lead Acid Battery Belt	1.8 kg, 540 x 100 x 40 mm
Disposable Battery Belt	1.2 kg, 540 x 100 x 40 mm

*Preliminary

EDA Instruments Inc.,
4 Thorncliffe Park Drive,
Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR,
Cables: Instruments Toronto
(416) 425-7800

In USA,
EDA Instruments Inc.,
5151 Ward Road,
Wheat Ridge, Colorado
U.S.A. 80033
(303) 422-9112

Printed in Canada

APPENDIX C

VLF-EM Data Processing

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Geophysical Engineering and Surveys Limited,
(Keevil Mining Group Limited),
Toronto, Ontario

ABSTRACT

Geophysical Engineering and Surveys Limited of the Keevil Mining Group have routinely conducted ground surveys with VLF-EM receivers for the past two years. Both Crone's Radem and Ronka's EM16 have been used.

VLF-EM dip-angle data often yield complex patterns which require considerable study for a proper interpretation. A method was developed which allows field operators to transform the noncontourable dip angles into contourable data, producing conductor patterns which are immediately apparent to exploration personnel untrained in VLF-EM interpretation.

VLF-EM contoured data generally peak very close to the top of a conductor, thereby allowing drill holes to be spotted accurately. However, the data generally should not be used alone to select drill targets because structures may be sufficiently conductive to yield strong anomalies. Thus, magnetic and/or vertical-loop EM correlations may be considered as necessary criteria for drilling.

VLF-EM surveys can replace IP surveys in certain environments. For example, the Restigouche orebody in the Bathurst camp of New Brunswick yielded a VLF-EM anomaly as distinct as that obtained by IP, although the body did not respond to vertical- or horizontal-loop EM. However, the cupriferous breccia pipes of the Tribag mine near Batchawana, Ontario yield strong IP anomalies but not VLF-EM anomalies, illustrating that disseminated ore targets should be sought with IP rather than with VLF-EM.

INTRODUCTION

A METHOD HAS BEEN DESCRIBED (Fraser, 1969) which enables somewhat noisy, noncontourable dip-angle data to be transformed into less noisy, contourable data. This data processing is performed routinely by field personnel, and simply involves additions and subtractions.

Both magnetic and VLF-EM data can be collected by a single individual as part of a ground evaluation program. The VLF-EM method can provide contour maps which may be as useful to exploration geologists as magnetic maps. The key to the usefulness, however, lies in the data processing, because raw dip-angle data frequently are more confusing than elucidating. This point is illustrated in *Figure 1*, which presents dip-angle data from the Temagami mine in Ontario. Clearly, the complex pattern requires some thought for proper interpretation. Conversely, *Figure 2* provides a conductor pattern which is immediately apparent even to those untrained in VLF-EM interpretation. It is obtained from the data of *Figure 1*, using the method described in the Appendix. The contoured units are expressed in degrees. Only the positive quantities are contoured.

D. C. FRASER obtained a Bachelor's and a Master's degree in geology at the University of New Brunswick and, in 1966, a Ph.D. degree in geophysics at the University of California at Berkeley. He has performed research on induced polarization, resistivity, magnetics, gravity and electromagnetics, including the design of new interpretation methods employing, in part, digital filtering and correlation techniques. Recently, he has been involved to a considerable extent in mapping conductivity inhomogeneities, first with ground equipment as a thesis problem, and then with airborne equipment in collaboration with Barringer Research Limited.

Dr. Fraser has worked for several petroleum and mining companies and currently is chief geophysicist of Geophysical Engineering & Surveys Limited, a member of the Society of Exploration Geophysicists and of the CIM, and a past president of the Canadian Exploration Geophysical Society.

PAPER PRESENTED: at the 72nd Annual General Meeting of the CIM, Toronto, April, 1970.

KEYWORDS: Geophysical exploration, Data processing, Electromagnetic surveys, Dip angles, VLF-EM surveys, Filter theory, Contouring.

CIM TRANSACTIONS: Vol. LXXIV, pp. 11-13, 1971.

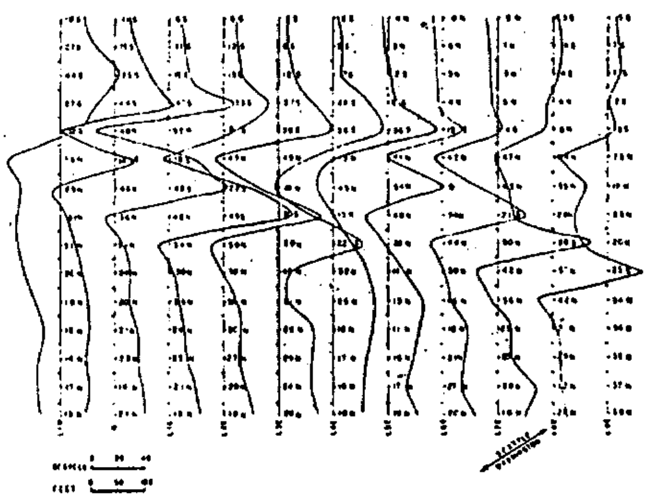


FIGURE 1 — Dip-angle VLF-EM data in the vicinity of the Temagami mine. The arrow defines the primary field direction from the transmitter at Seattle, Washington (after Fraser, 1969).

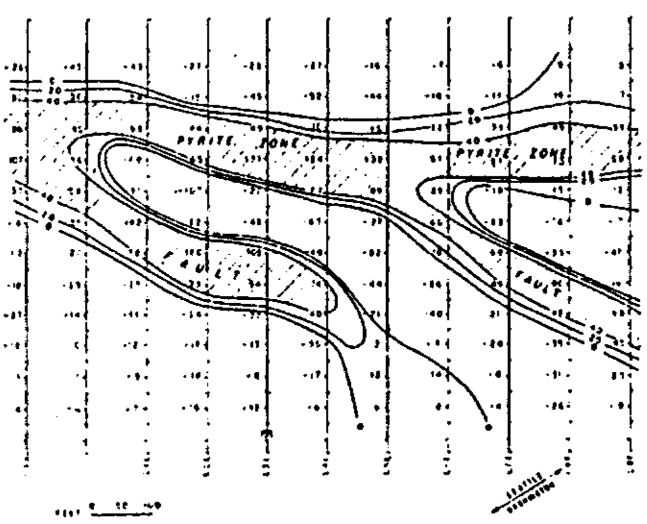


FIGURE 2 — Contoured VLF-EM data, in degrees, as calculated from the map of Figure 1 (after Fraser, 1969).

Other environments described in Hallof (1967) would not be as amenable to the use of VLF-EM in place of IP. A truly disseminated copper deposit will not provide a VLF-EM anomaly but will yield a large IP effect, as was found to be the case for the breccia pipes of the Tribag mine near Batchawana, Ontario.

Structural Interpretation

Inasmuch as VLF-EM responds well to structures, the method has been applied to the mapping of faults. An example is shown in *Figure 6*, which depicts a portion of a survey in the Cobalt area of Ontario. The property was a silver prospect where the veins were postulated to be associated with faults. VLF-EM appeared to be the most reasonable geophysical method available to aid in tracing these faults. Considerable drilling has been done on this property, and the fault interpretation was verified.

Figure 2 illustrates that faults can be as conductive to VLF-EM as massive pyrite. In this Temagami example, the faults contain a brecciated matrix with some hematite cementing. They yield a strong IP anomaly, but are non-conductive to conventional EM.

DEPTH OF EXPLORATION

The relatively high transmitted frequency of approximately 20,000 hz severely limits the depth of exploration in areas of conductive overburden. As an example, penetration of the 100 to 200 feet of clay in the Timmins area often is not achieved.

In regions where the overburden has a less exceptional conductivity, such as the Bathurst area, depth of exploration generally is limited to about 300 feet. This depth was predicted from model curves in Fraser (1969), and appears to be true in practice, as over the Restigouche deposit (*Figure 4*).

CONCLUDING REMARKS

VLF-EM surveys are exceptionally easy to perform, but the dip-angle data may be exceedingly difficult to interpret correctly. This latter point has produced unfavourable comments regarding the utility of VLF-EM as a prospecting tool. The data-processing method used to transform somewhat noisy, noncontourable dip angles into less noisy, contourable data greatly increases the value of VLF-EM surveys.

The efficiency of data flow is significantly increased in the case of an active mining company performing such surveys in large quantities. This is because the contoured maps may be used directly by geologists in charge of their various projects, rather than requiring a geophysicist to study each dip-angle map.

Contoured VLF-EM maps form a useful complement to magnetic maps. The survey and data-processing cost is similar to that for a hand-held fluxgate magnetometer.

For general exploration in the Shield, VLF-EM conductors generally should be tested with vertical-loop EM to separate massive sulphides (and graphite) from conductive structures. As such structures can be mapped with VLF-EM, this provides another use for the method. Further, some massive and heavily disseminated sulphides, which do not respond to conventional EM, will yield VLF-EM anomalies as distinct as those obtained by IP. These three uses of VLF-EM, i.e., for general prospecting, mapping of structures and as a judicious alternate to IP, form our primary applications of VLF-EM to property evaluation.

APPENDIX

The Data-Processing Technique

THE DATA-PROCESSING TECHNIQUE is described in detail by Fraser (1969), where it is also discussed in terms of filter theory*. The method is very simple to apply, as is shown by the example of *Figure 7*. This figure illustrates that the contourable quantity is the sum of the values at two adjacent stations minus the sum at the next two adjacent stations. The above-referenced paper presents a tabulation method suited to the processing of this dip-angle data. The calculations are performed in the field by the instrument operators.

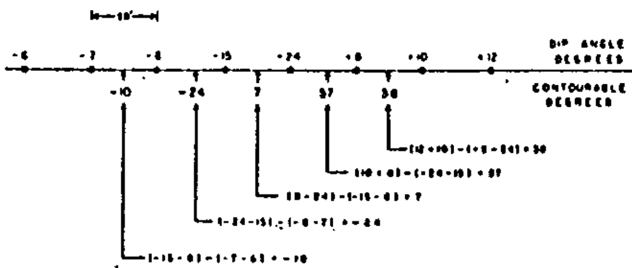


FIGURE 7 — Example of the data processing calculations, illustrating that the contoured quantities are obtained simply from additions and subtractions performed on the dip angles.

A 50-foot station interval is recommended to avoid the problem of near-surface conductors appearing as deeper conductors, as could occur if the station spacing was larger. In actual practice, data are collected at 100-foot intervals, with 50-foot readings being taken where anomalies occur. Later, 50-foot artificial data are interpolated in non-anomalous areas prior to performing the calculations. This procedure avoids some confusion in the contour patterns which would result from near-surface 'geological noise'.

Normally, only the positive values are contoured, because the negative quantities generally represent anomaly flanks. Consequently, the inclusion of negative contours would serve only to confuse the conductor patterns. However, if a backward crossover was produced by a geological source, an erroneous interpretation of the contour map and the dip-angle profiles would result. To date, such a crossover has not been recognized on the predominantly in-phase dip-angle data.

REFERENCES

Fraser, D. C., (1969), Contouring of VLF-EM Data; *Geophysics*, Vol. 34, pp. 958-967.

Hallof, P. G., (1967), The Use of Induced Polarization Measurements to Locate Massive Sulphide Mineralization in Environments in which EM Methods Fail; paper presented at Canadian Centennial Conference on Mining and Groundwater Geophysics, Niagara, Ontario.

*The technique is analogous to passing the dip-angle data through a bandpass filter which (1) completely removes DC bias and greatly attenuates long wave lengths, (2) completely removes Nyquist frequency noise, (3) phase-shifts all frequencies by 90 degrees and (4) has the bandpass centered at a wave length of five times the station spacing.

FIELD EXAMPLES

The following field examples were chosen to illustrate the three primary uses to which VLF-EM has been applied by Geophysical Engineering and Surveys Limited.

General Prospecting

General prospecting or ground evaluation provides the most common use for VLF-EM. Ground often is obtained which requires only a general approach to exploration, as when there is insufficient geological information regarding the specific target sought. In such cases, magnetic and VLF-EM surveys are routinely performed without the guidance of a geophysicist. VLF-EM conductors are tested by short traverses with vertical-loop EM. The anomaly patterns generally are sufficiently clear so that mapping, trenching, drilling or abandonment will be decided without consulting a geophysicist. Exceptions can occur when patterns become complex.

Figure 3 illustrates a survey in which two strong VLF-EM conductors were obtained. The southern anomaly has vertical-loop EM correlation and the northern one does not. The VLF-EM anomaly with vertical-loop correlation also coincides with a magnetic anomaly, and probably is due to magnetic sulphides. It will be drilled shortly. The other equally strong VLF-EM anomaly without vertical-loop correlation does not parallel the magnetic patterns, and probably is due to a fault.

In Place of IP

There are certain environments where VLF-EM can be used as an alternate to IP. These are the environments characterized by massive or heavily disseminated sulphides which occur within 300 feet of surface and yet do not respond to conventional EM. IP was considered to be the most suitable geophysical method for the detection of such bodies (Hallof, 1967). However, it is well worth testing VLF-EM in these environments because of the very substantial cost savings that result if the method is responsive. As an example, *Figure 4* illustrates a VLF-EM survey over the Restigouche orebody in the Bathurst area of New Brunswick. *Figure 5*, showing IP chargeability contours, allows a comparison to be made of the relative merits of IP and VLF-EM for this type of mineralization. The Restigouche body did not respond to vertical- or horizontal-loop EM because of the high sphalerite content of the massive sulphides.

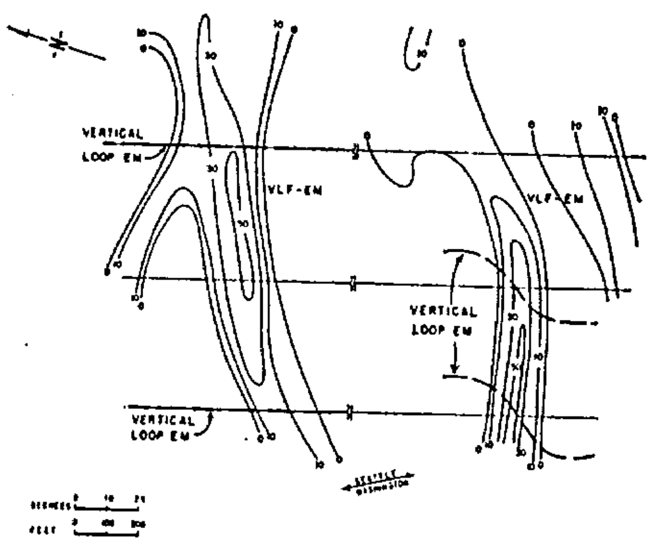


FIGURE 3 — Contoured VLF-EM in degrees and vertical-loop EM profiles (1,200 hz) from a property evaluation survey in the Uchi Lake area.

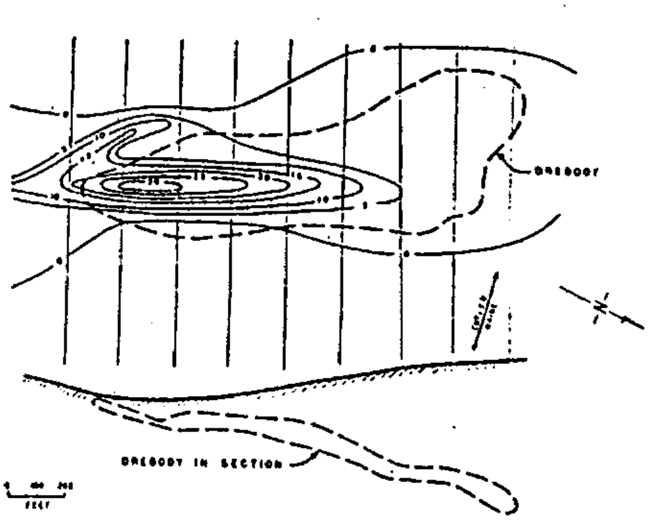


FIGURE 4 — Contoured VLF-EM in degrees from the Restigouche orebody, illustrating that the method is a viable alternate to IP in this environment (cf. Figure 5).

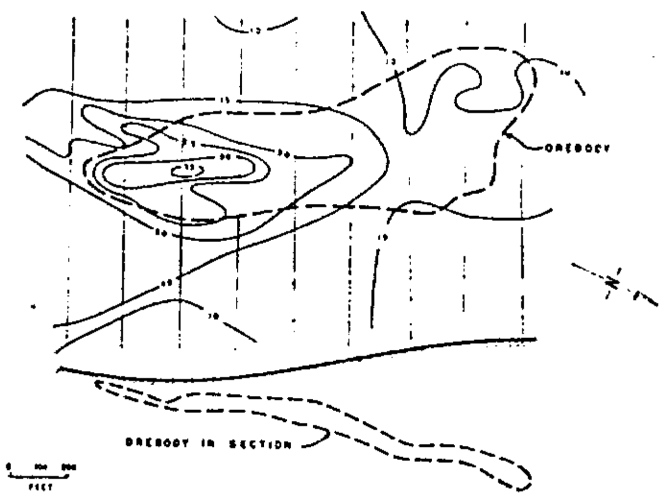


FIGURE 5 — Gradient-array IP chargeability in milliseconds over the Restigouche orebody, for comparison with the VLF-EM data of Figure 4.

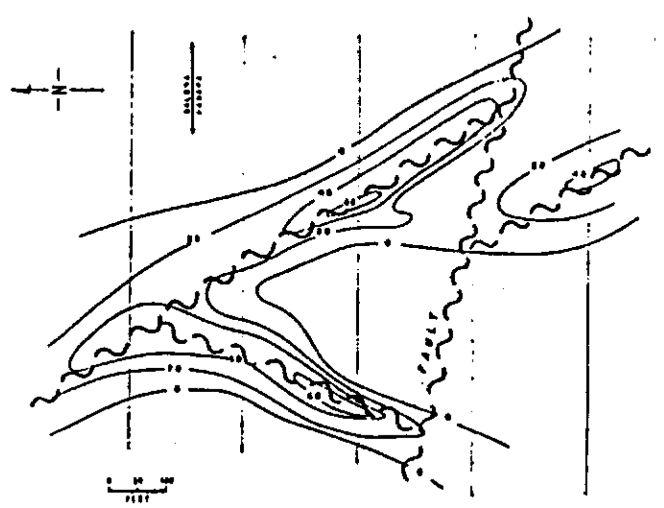


FIGURE 6 — Contoured VLF-EM in degrees from a fault-mapping survey in the Cobalt area.

APPENDIX D

2.0 SPECIFICATIONS

Maximum Output Power	200W defined as when current is on and into a resistive load.
Output Voltage	Switch selectable at nominal settings of 15, 150, 210, 300, 425, 600 or 850 V.
Output Current	1.5 A maximum.
Meter Ranges	Switch selectable at 50 mA, 150 mA, 500 mA, 1500 mA full scale with accuracy of ±3% of full scale.
Automatic Cycle Timing	T:T:T:T; on:off:on:off.
Automatic Polarity Change	Each 2T.
Pulse Durations	T is switch selectable at 1, 2, 4, 8, 16 or 32 seconds.
Period Time Stability and Accuracy	Crystal controlled to better than 0.002 percent of the selected pulse duration.
Open Loop Protection	High voltage is automatically turned off if the output power is less than 2 W. This can be overridden manually for testing purposes. This protection is not effective at the 15 V output.
Synchronization Output	Optically isolated, suitable for external synchronization of the IPR-11 multichannel IP Receiver.
Internal Power Sources	Two battery packs are standard, each containing 4 GC 660-1 lead-acid gel-type batteries giving 24 V at 12 Ah. One Penlite battery, Eveready E91 or equivalent.
External Power Sources	24 V DC supply at maximum 10A.

Power for Battery Charger	115 or 230 VAC, 50 to 400 Hz, 100 W.
Dimensions and Weights	Transmitters with two battery packs: 140 x 300 x 460 mm; 16.0 kg Single battery pack: 140 x 300 x 150 mm; 6.2 kg Charger: 140 x 300 x 150 mm; 5.5 kg
Operating Temperature Range	-30°C to +55°C.
Standard Equipment	Console, 2 battery packs, battery charger, carrying harness. Two giant banana plugs, minor spare parts kit.
Optional Equipment	Reels, wire, porous pots, electrodes, major spare parts kit, radio transceivers, back pack.
Shipping Weight	46 kg includes reusable wooden shipping case.

APPENDIX E

Induced Polarization - Receivers

IPR-8 Analog Time Domain Induced Polarization Receiver

The IPR-8 is the least expensive time domain IP receiver available from Scintrex. It offers a good deal of information about curve shape and is simple to operate.

Up to 20 standard selectable integration channels.

1, 3 or 6 channels simultaneously integrated.

Automatic memory register storage for up to 6 channels.

Reads directly in Vs/Vp, normalized for channel width and number of pulses selected.

Automatic programmer for averaging 2, 4 or 8 cycles.

Multiple channel readouts normalized for standard decay curve shape, providing immediate field indication of anomalous curve shape.

Synchronous gating to reduce mistriggering by noise.

Automatic self-potential tracking.

Calibrated manual SP bucking for SP measurements.

Usable with any time domain transmitter.

High input impedance.

Built-in external circuit tester.

Excellent power line noise rejection.

Latest COS/MOS circuitry permits up to two months battery life using only 4 D cells.

Very light weight at 3.6 kg complete with batteries.

IPR-8 Receptor de Polarización Inducida en el Dominio del Tiempo, Analógico

El IPR-8 es el Receptor de PI que Scintrex brinda de manera muy economica. Esta ofrece una buena distribución de datos para informacion sobre la forma de la curva de decaimiento y es muy simple de operar.

Hasta 20 canales de integración standard, seleccionables.

Integracion simultanea de 1, 3 ó 6 canales.

Almacenamiento automatico en registros de memoria de hasta 6 canales.

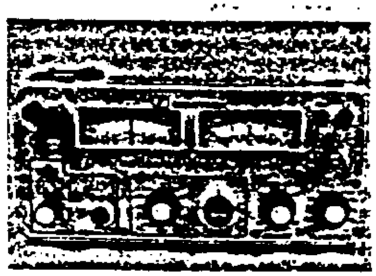
Lectura directa de la razon Vs/Vp, normalizados por el ancho de canal y numero de pulsos, seleccionados.

Programación automatica para un promedio de 2, 4 u 8 ciclos.

Lecturas de canales múltiples, normalizados según una forma standard de curva de decaimiento, proporcionando indicación inmediata de una forma de curva anomala, en el campo.

Ajusto sincronico que reduce falsa activación por ruido.

Ajuste automatico de autopotencial.



Polarización Inducida - Receptores
Recepteurs de polarisation provoquee

Calibración manual de autopotencial, valederas en medidas de AP.

Uso con cualquier transmisor en el dominio de tiempo.

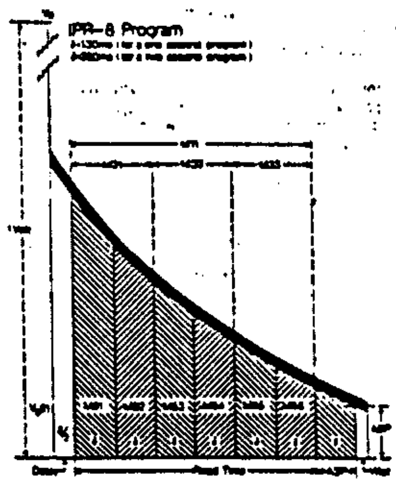
Entrada de alta impedancia.

Circuito externo de comprobación, incorporado.

Excelente rechazo de ruido de lineas de alta tension.

Circuitos COS/MOS modernos permiten hasta 2 meses de servicio a las 4 baterias de tipo D standard.

Muy liviano; con baterias incluidas alcanza un peso de 3.6 kg.



IPR-8: Récepteur de polarisation provoquee et resistivité en domaine de temps à lecture analogique.

L'appareil IPR-8 est le recepteur de polarisation provoquee en domaine de temps le moins cher, disponible chez Scintrex. Il offre beaucoup d'informations en rapport avec la forme de courbes et, est facile a operer.

Il offre jusqu'à 20 bandes normales d'integration à choisir.

1,3 ou 6 bandes sont integrees simultanement.

Un emmagasinage a registre de memoire pour jusqu à 6 bandes.

Il lit directement en Vs/Vp et est normalise pour la largeur de bande et le nombre d impulsions selectionnees.

Un programmeur automatique pour l'établissement de moyenne de 2,4 ou 8 cycles.

Des lectures à bandes multiples normalisees pour la forme de courbe transitoire normale et, fournissant une indication sur place de la forme de courbe d'une anomalie.

Un declenchement periodique synchronise afin de reduire les faux declenchements par du bruit.

Un reglage de polarisation spontanee automatique.

Une compensation manuelle de polarisation spontanee, calibree pour les mesures de polarisation spontanee.

Il est compatible avec n importe lequel des emetteurs en domaine de temps.

Une impedance d'entree elevee.

Un contrôleur de resistance ou circuit externe est incorpore.

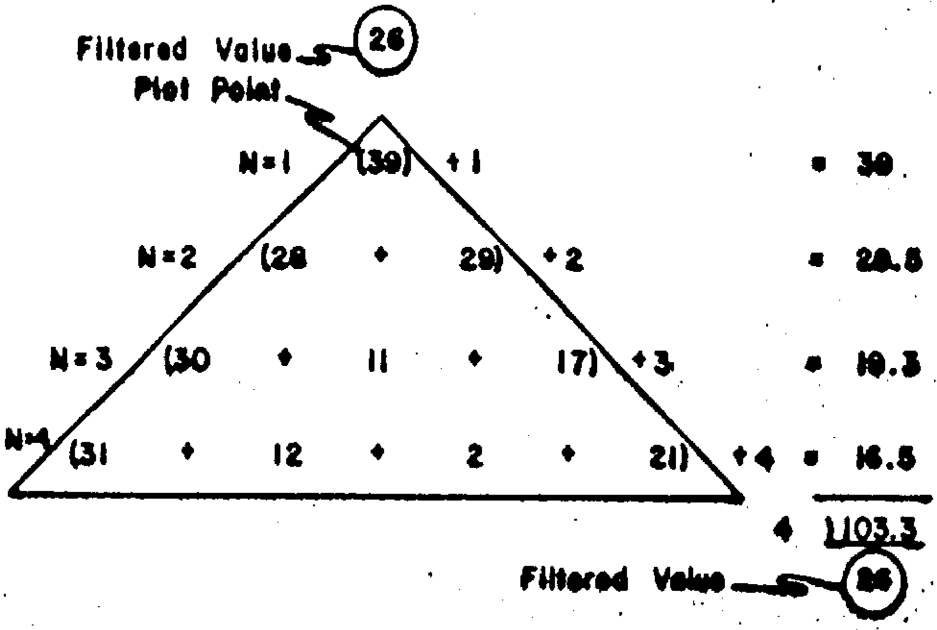
Un excellent rejet des bruits de secteur electrique.

Les circuits de type COS/MOS des plus modernes permettent aux 4 piles "D" de durer jusqu à deux mois.

Un poids leger de 3.6 kg avec les piles.

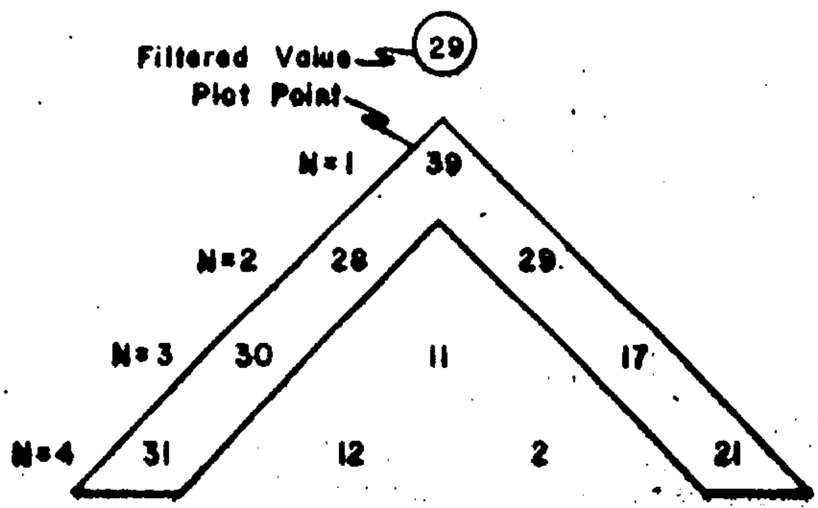
APPENDIX F

FRASER FILTER METHOD A.



FRASER FILTER METHOD B

DOUBLE WEIGHTED 1ST N



$$\left[(39 \times 2) + (28 + 30 + 31) + (29 + 17 + 21)\right] \div 8$$

METAL FACTOR CALCULATION

$$MF = \frac{\text{CHARGEABILITY} \times 2000}{6.6 \times \text{RESISTIVITY}}$$

Appendix F

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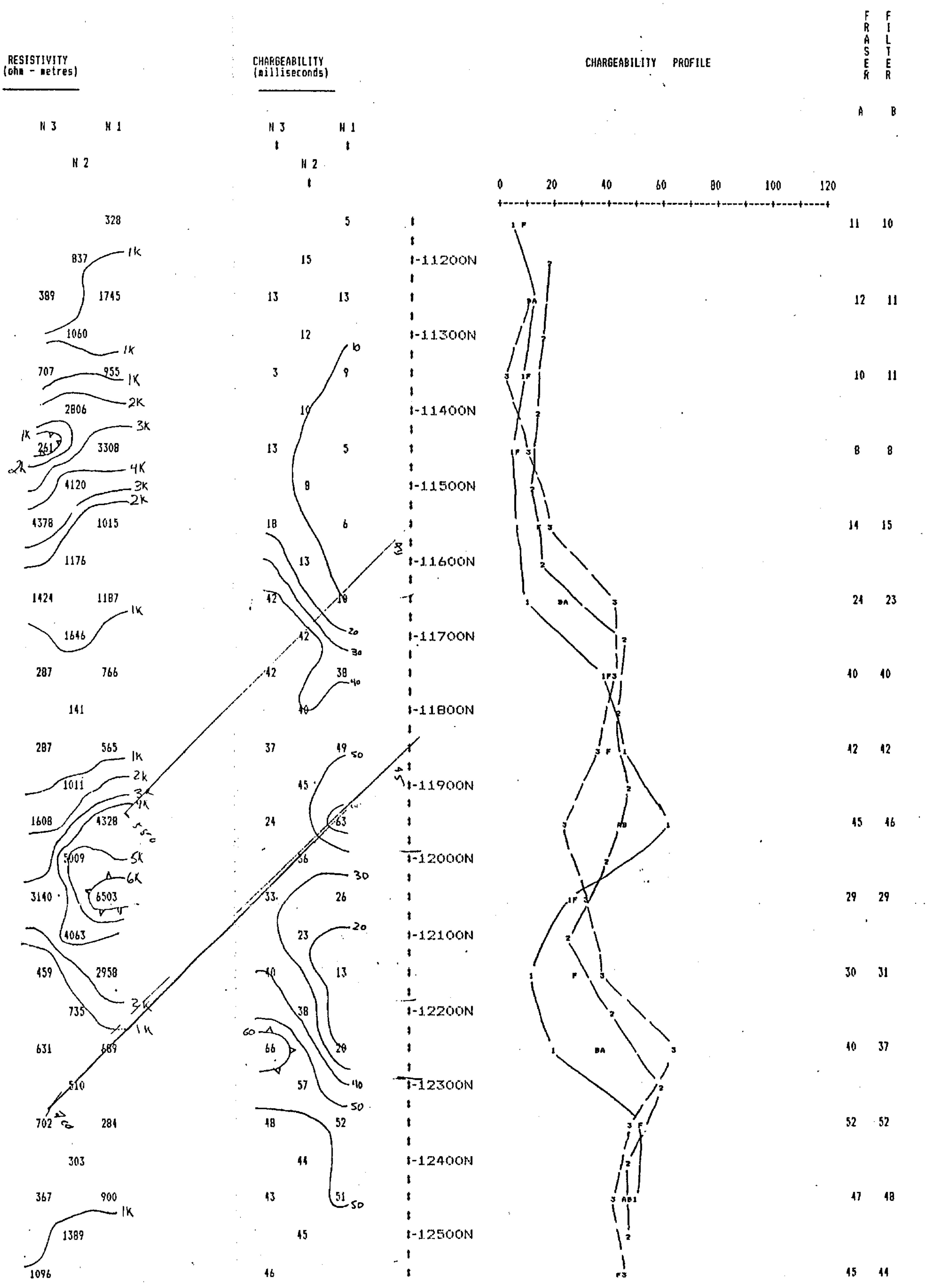
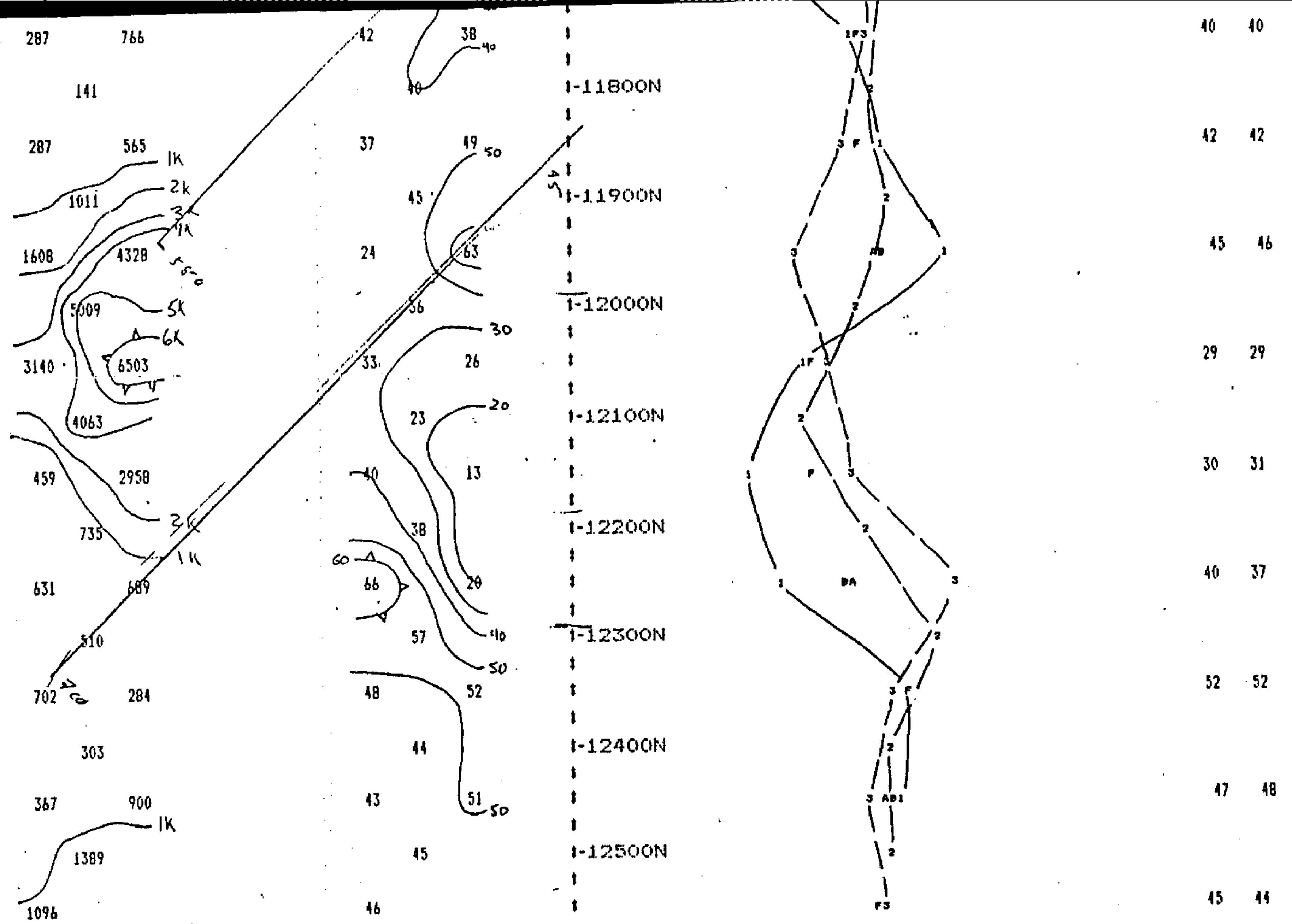


Property : twin gold



Property : twin gold

Client :

AGASSIZ RESOURCES

Date of Survey : 13/8/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

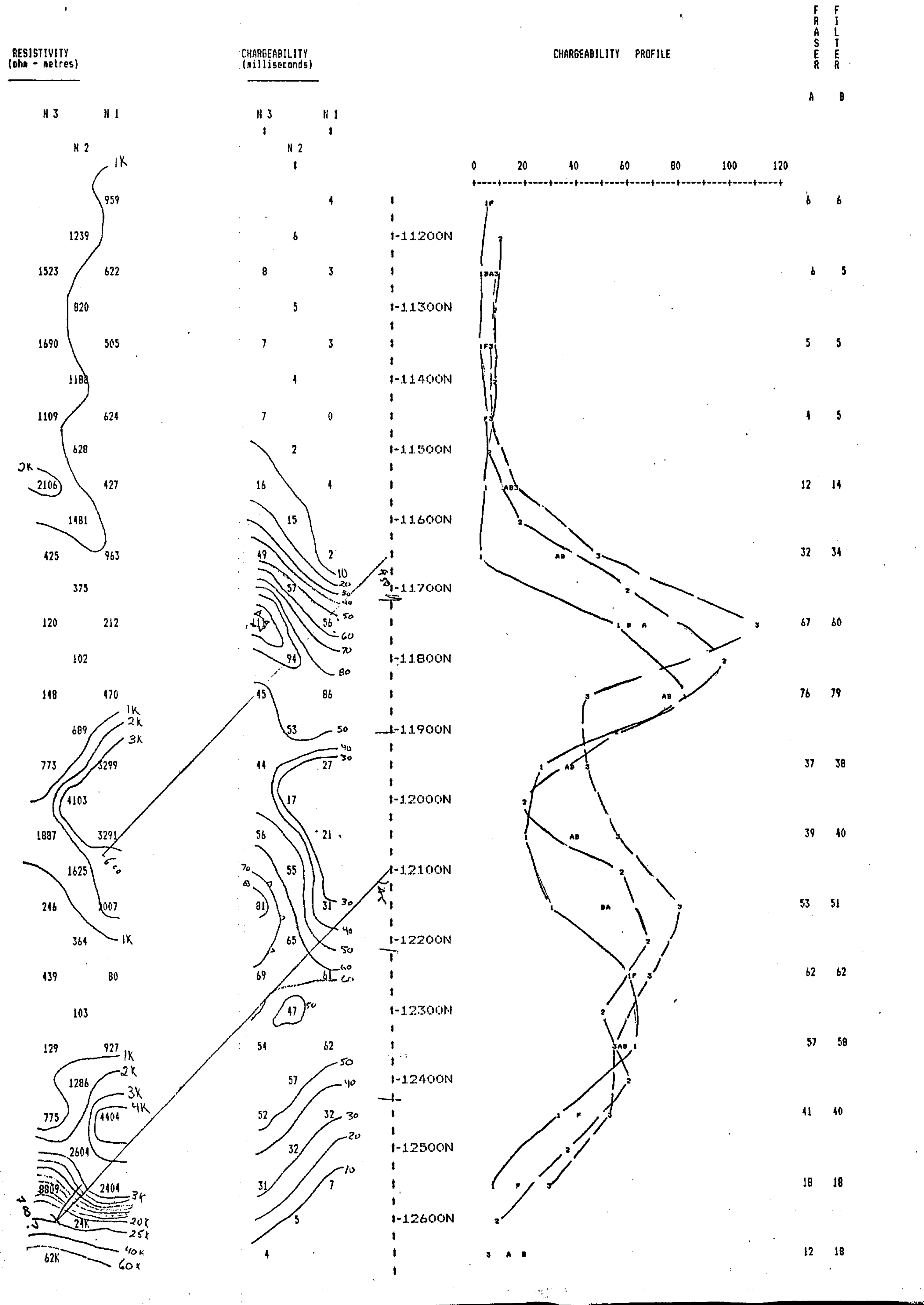
****

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 M

LINE 15600 E

SCALE = 1:5000



RESISTIVITY
(ohm - metres)
CHARGEABILITY
(milliseconds)
CHARGEABILITY PROFILE
FRASER
FILTER
A B
N 3 N 1
N 2
0 20 40 60 80 100 120
11200N
11300N
11400N
11500N
11600N
11700N
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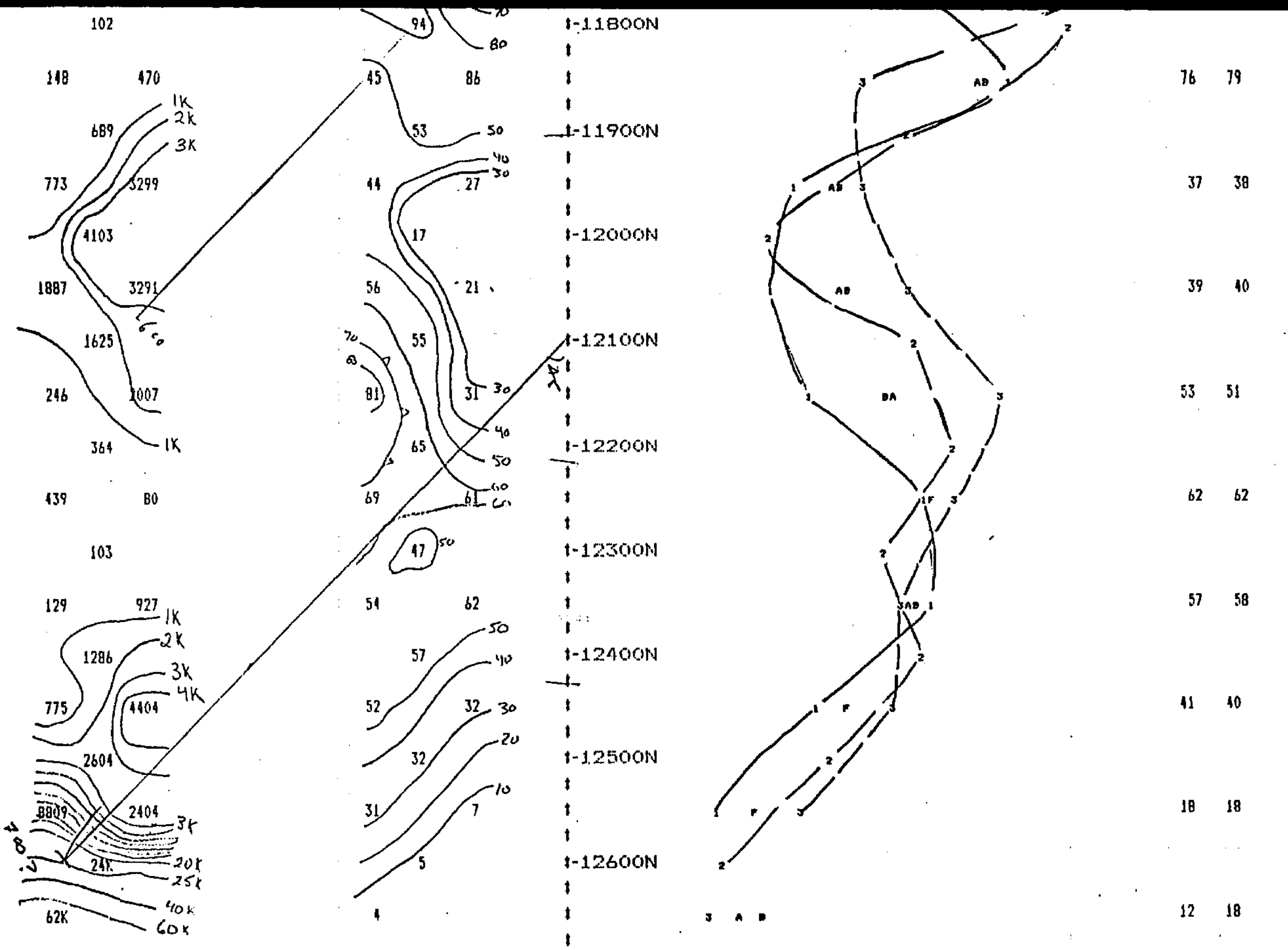
12400N
12500N
12600N



Property : twin gold

Client : AGASSIZ RESOURCES INC.

Date of Survey : 13/8/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****
EXSICS EXPLORATION LTD.
****

IP Pseudosections for N = 1 to 3

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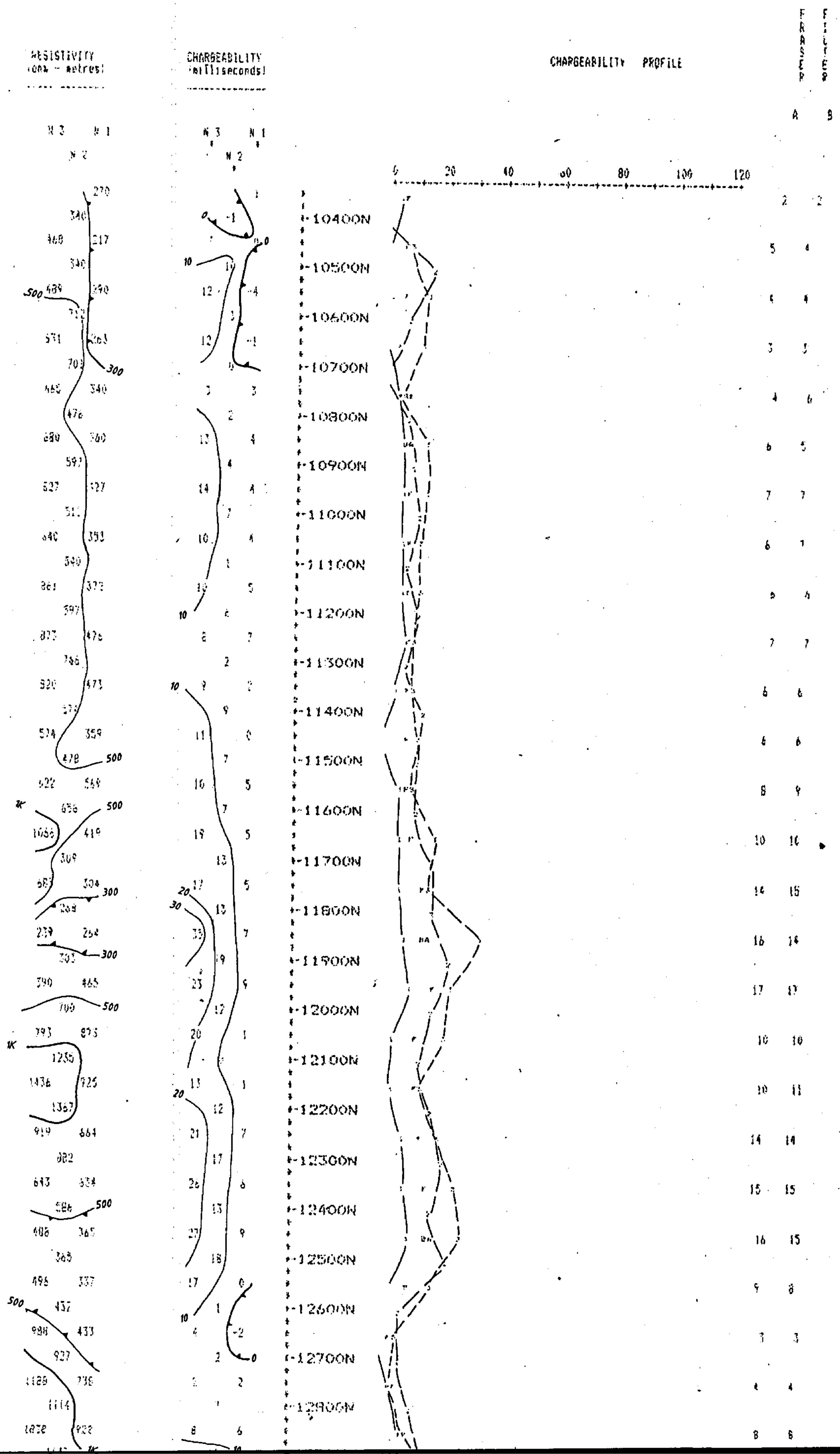
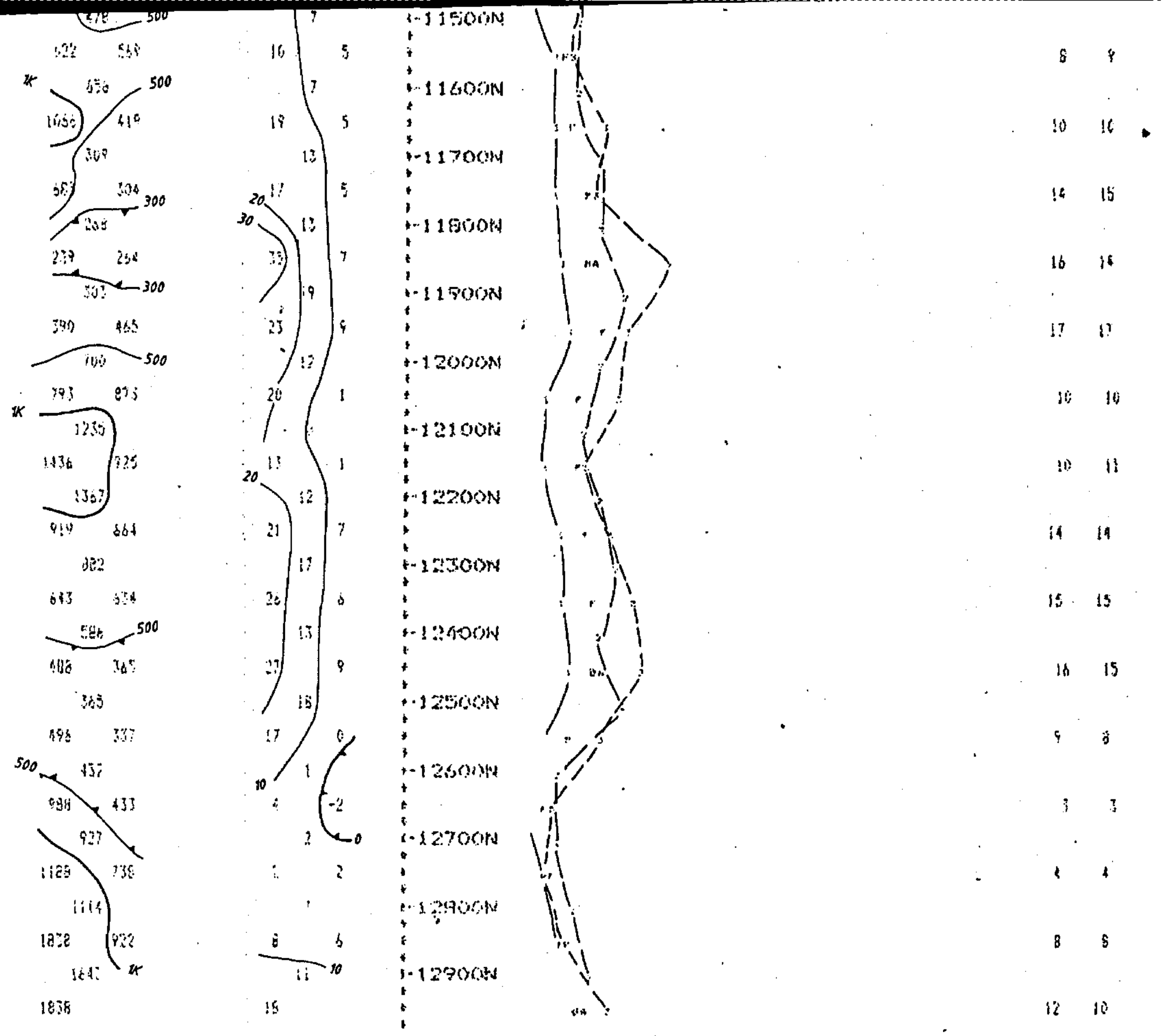
LINE 15200 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 18/9/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-7

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

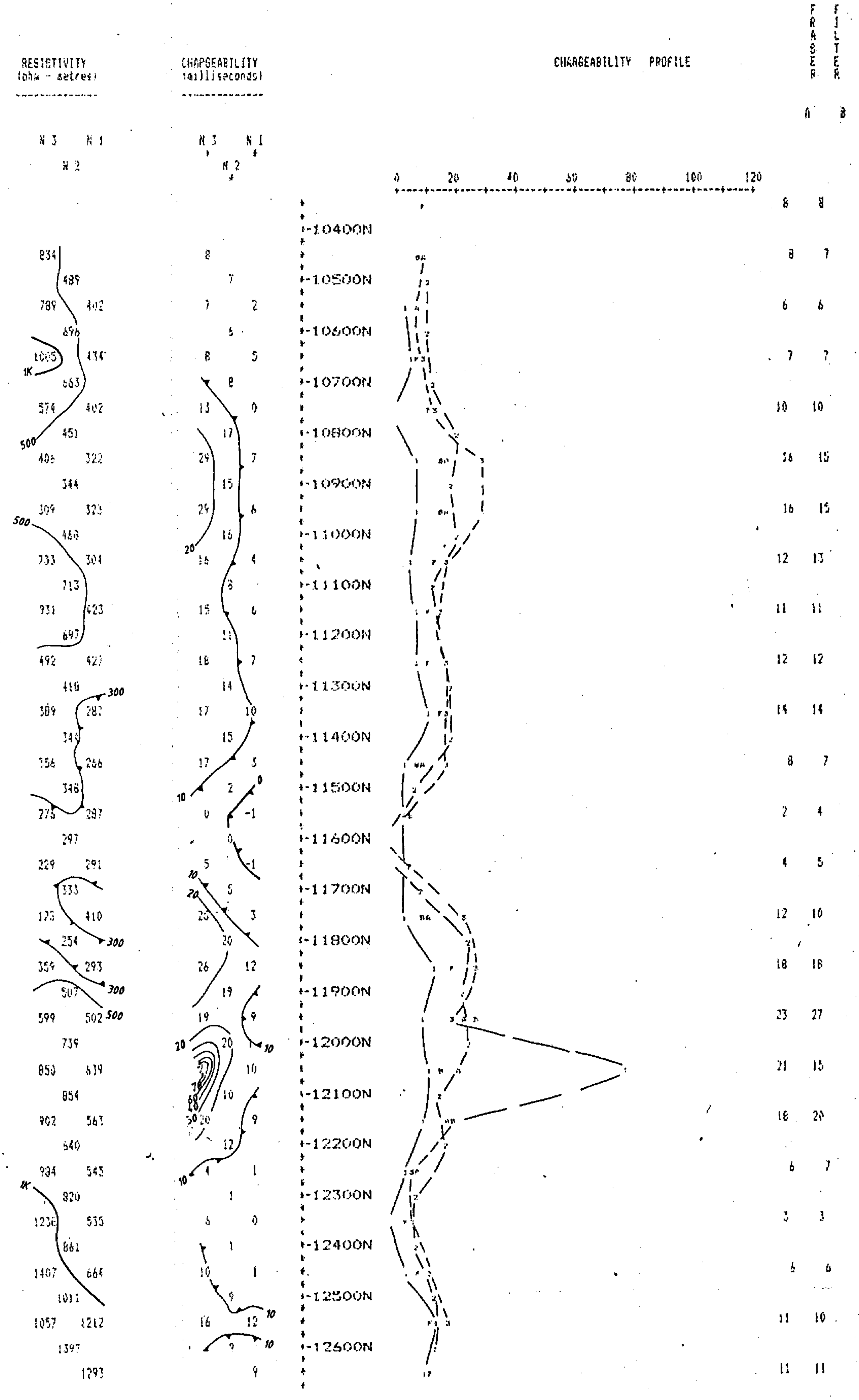
****

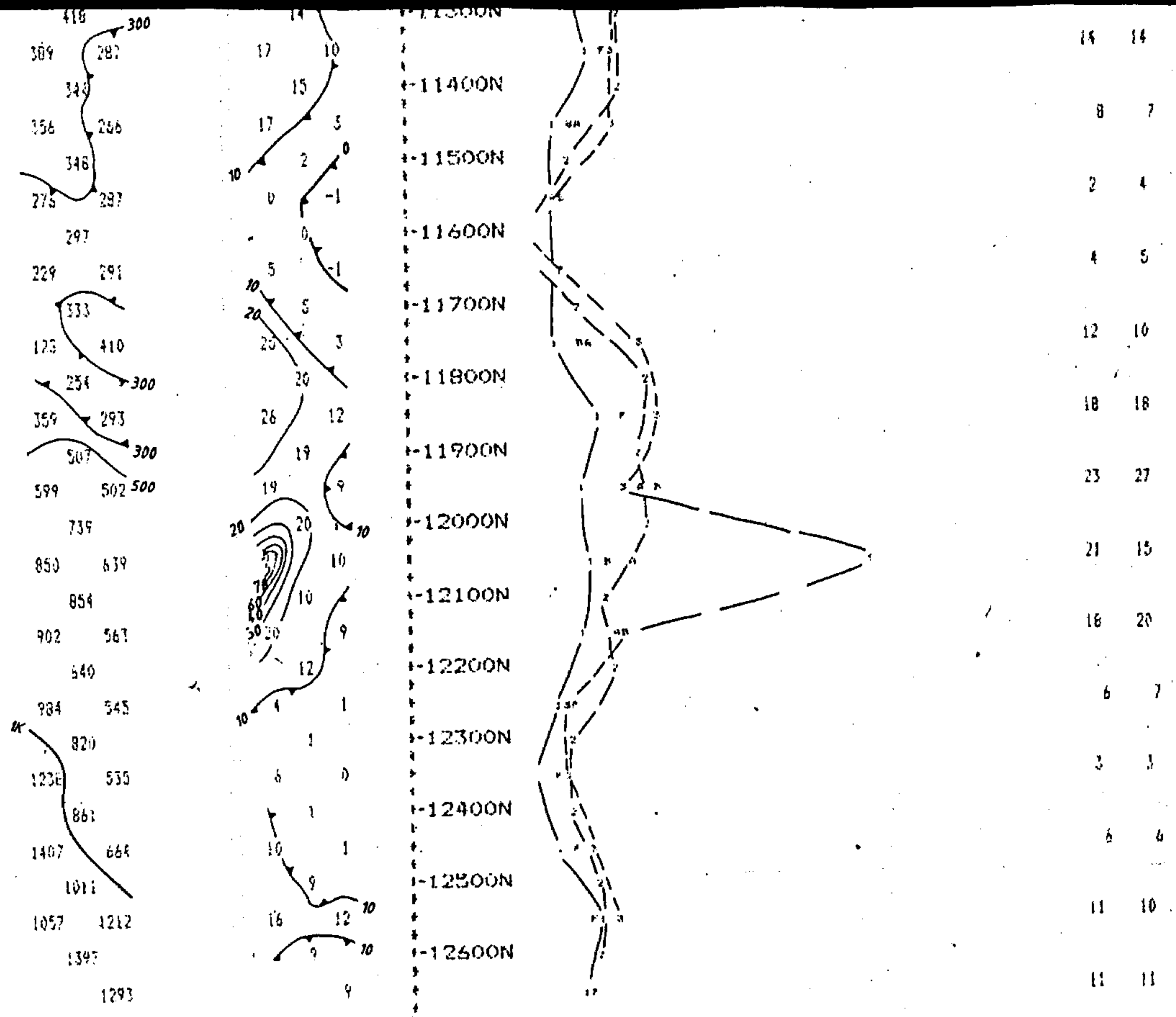
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 23800 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 18/9/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-7

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

****

IP Pseudosections for N = 1 to 3

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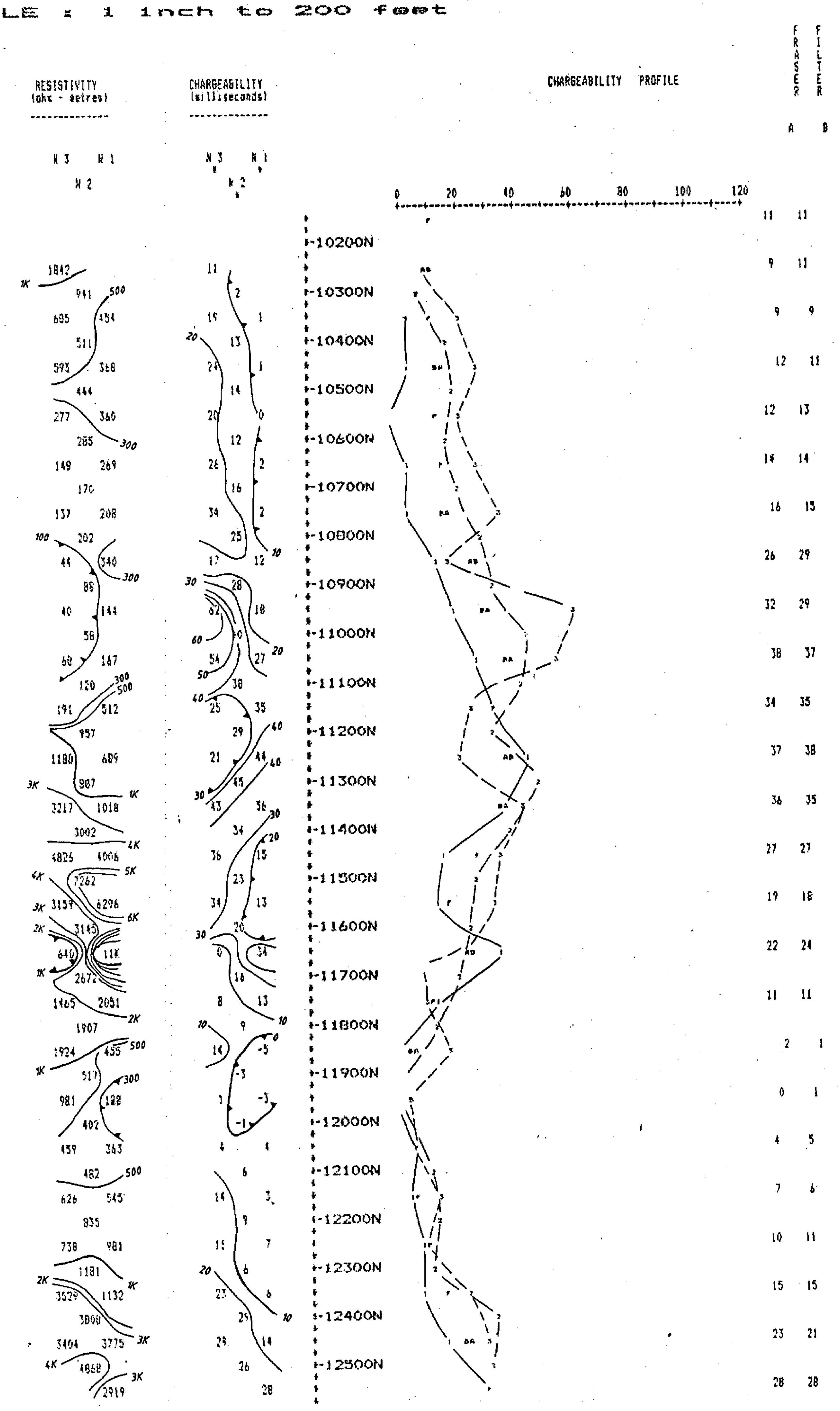
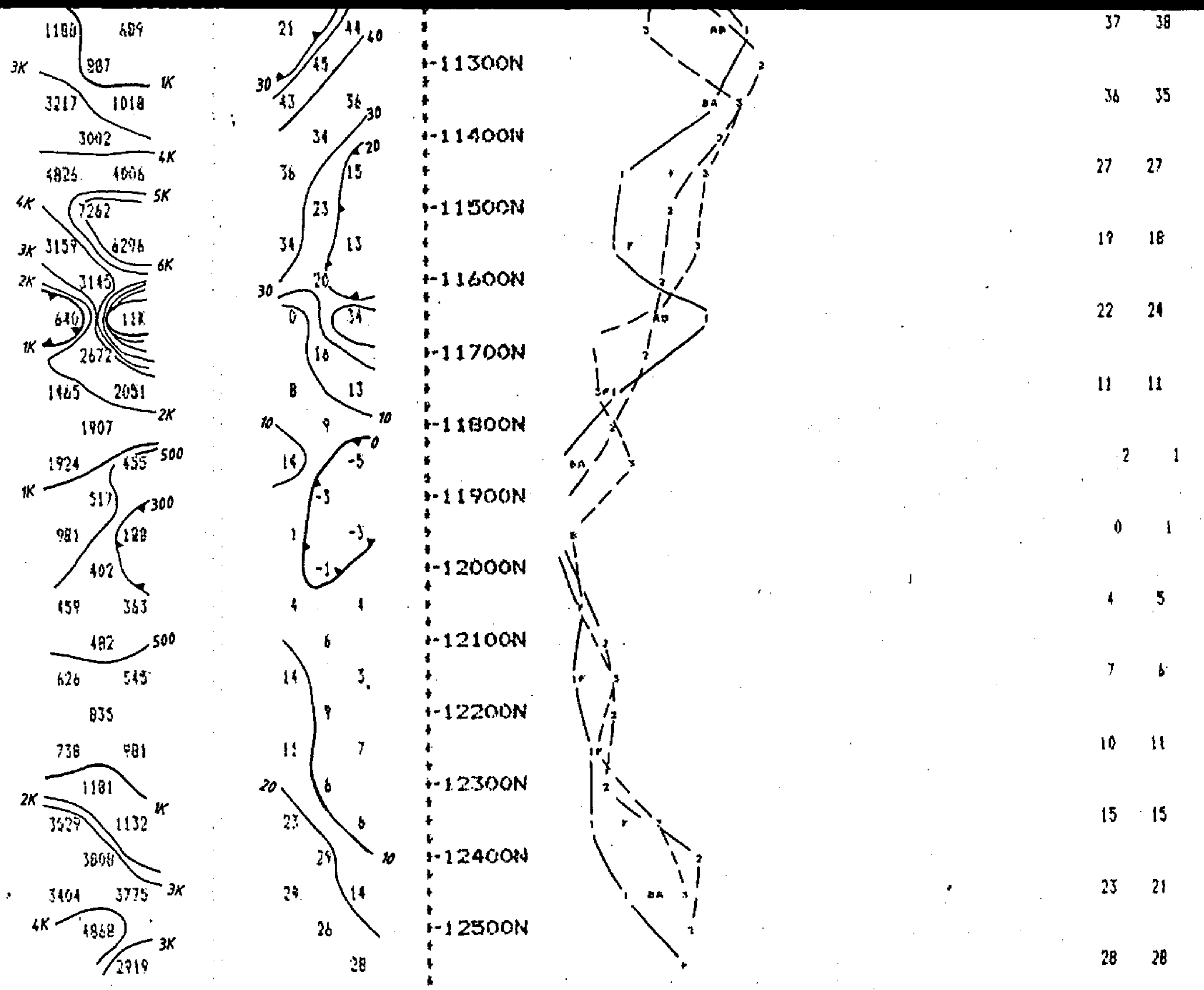
LINE 23000 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

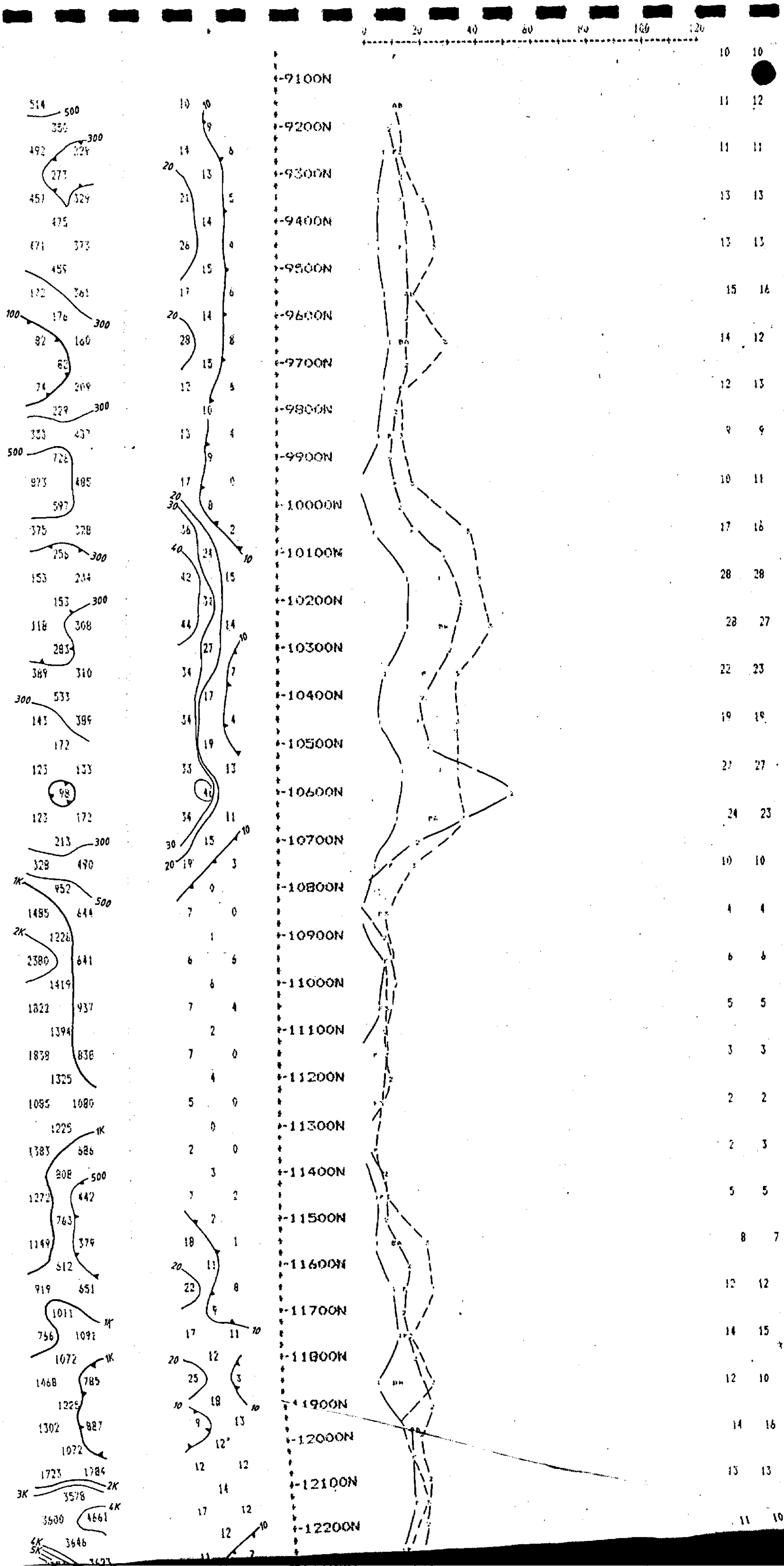
Date of Survey : 21/9/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 21400 E


0 20 40 60 80 100 120
9100N
9200N
9300N
9400N
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9800N
9900N
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10200N
10300N
10400N
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10800N
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11500N
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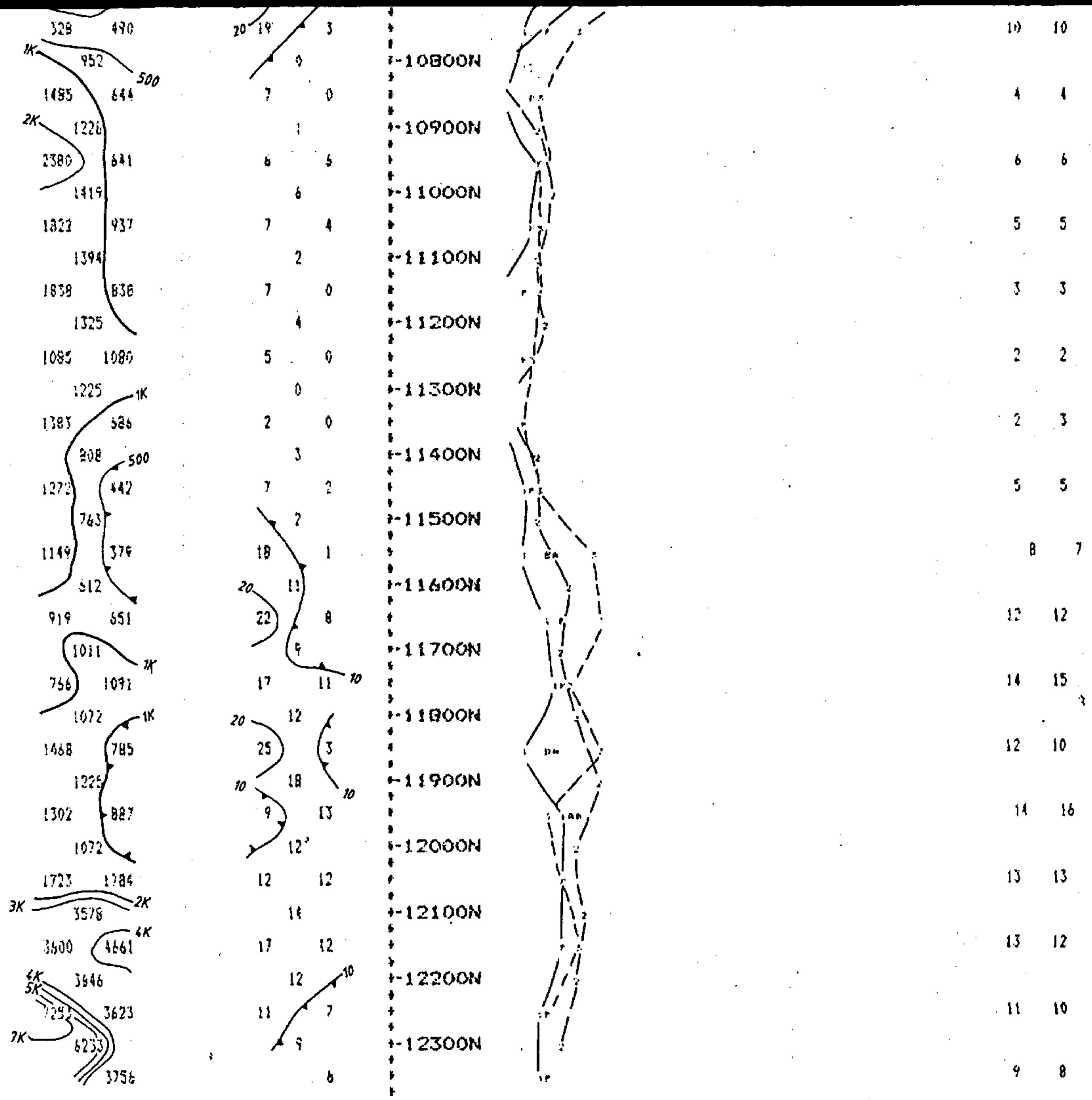
11900N
12000N
12100N
12200N



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 20/9/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

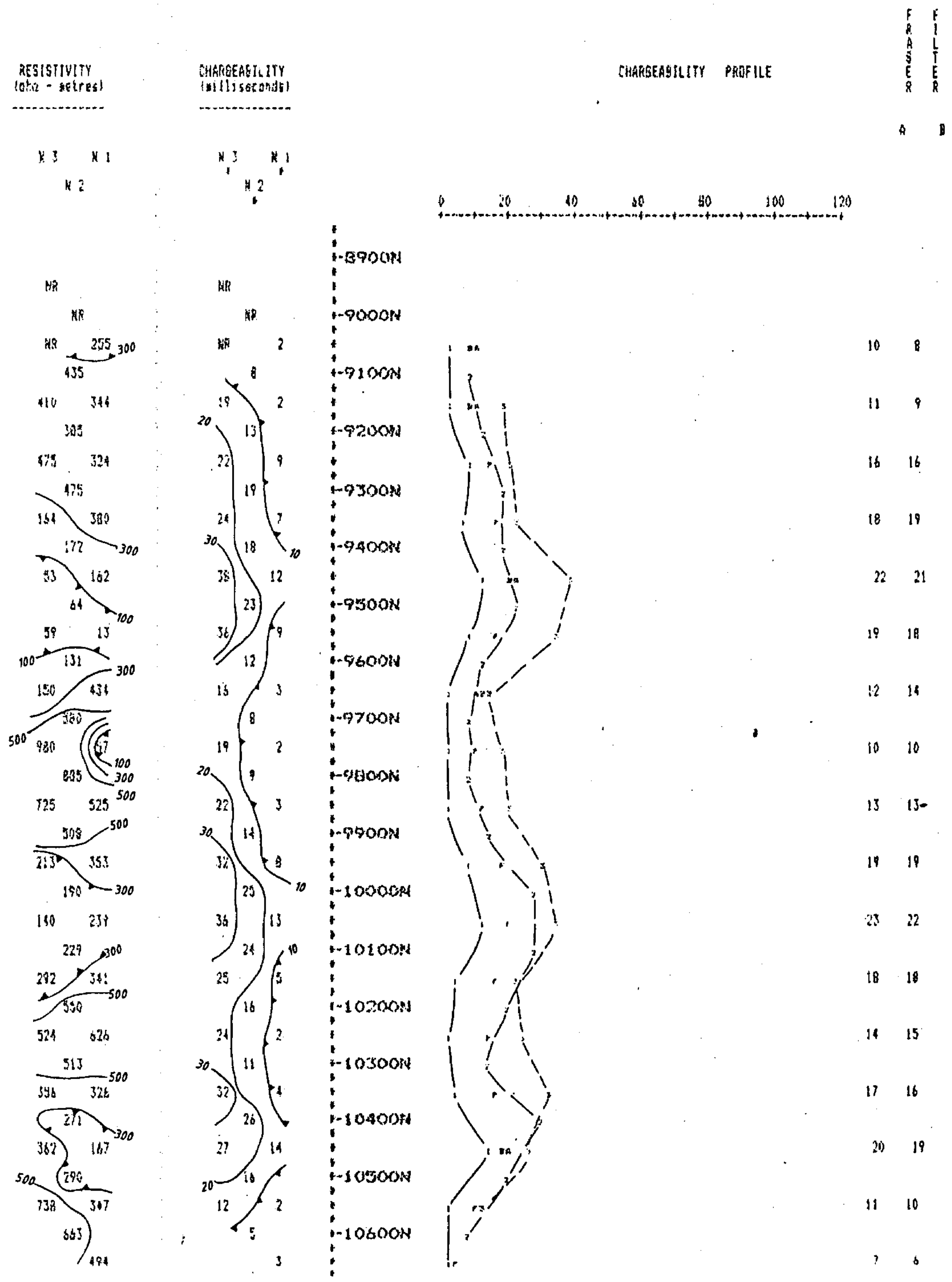
EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

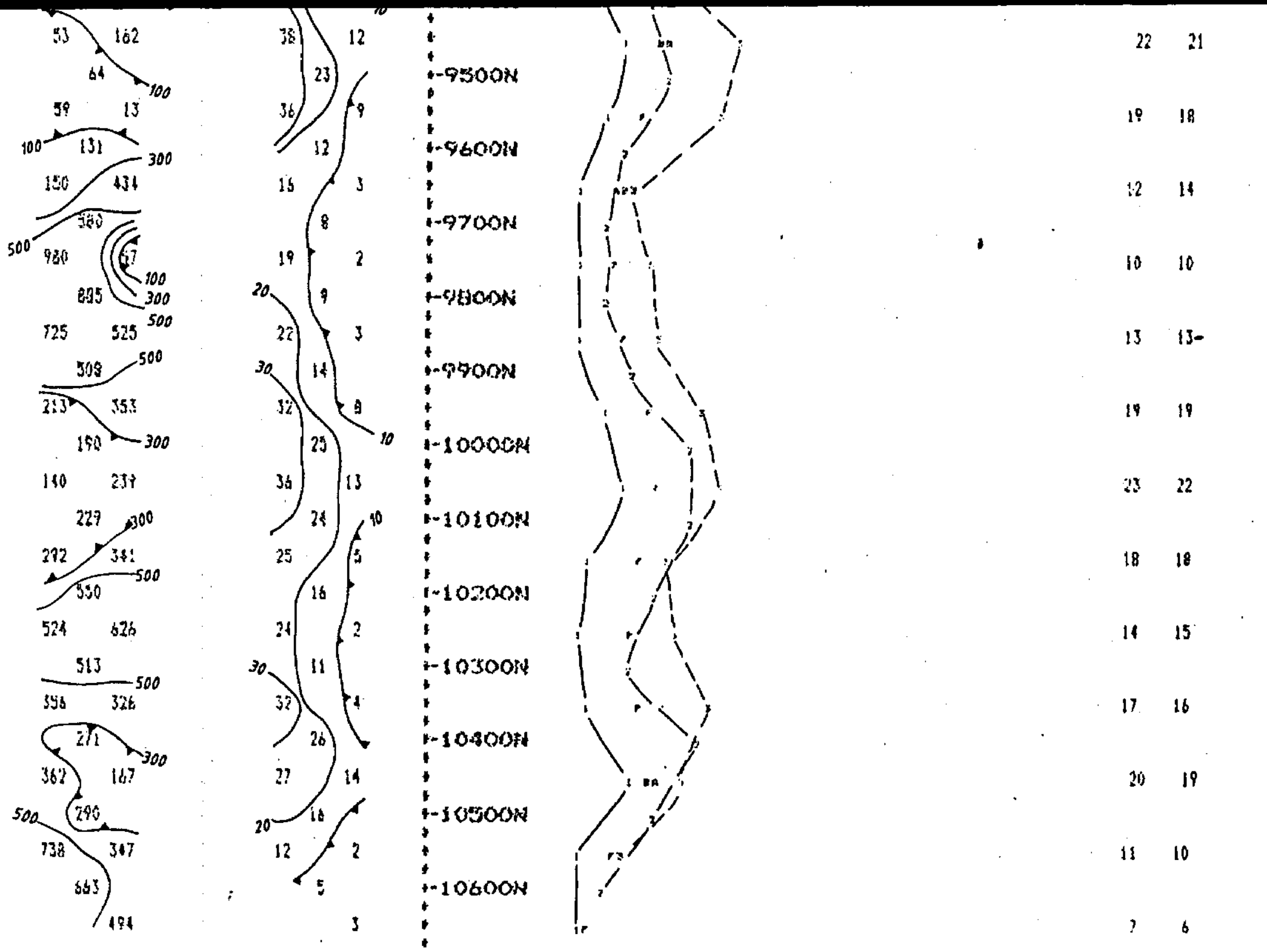
'a' Spacing = 100 ft

LINE 20400 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 18/9/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

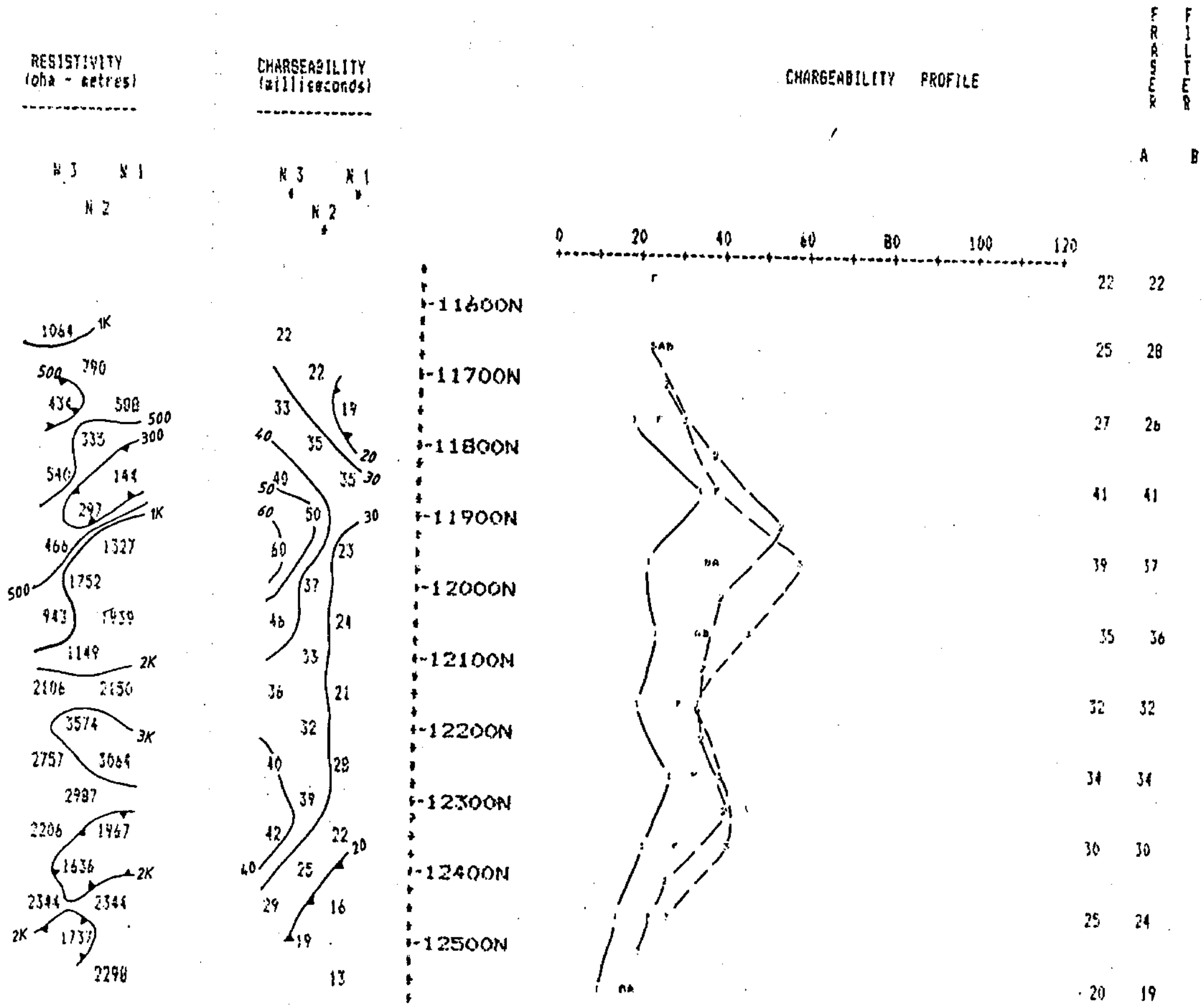
****

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 20000 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD
Client . AGASSIZ RESOURCES LTD.

Date of Survey : 17/9/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

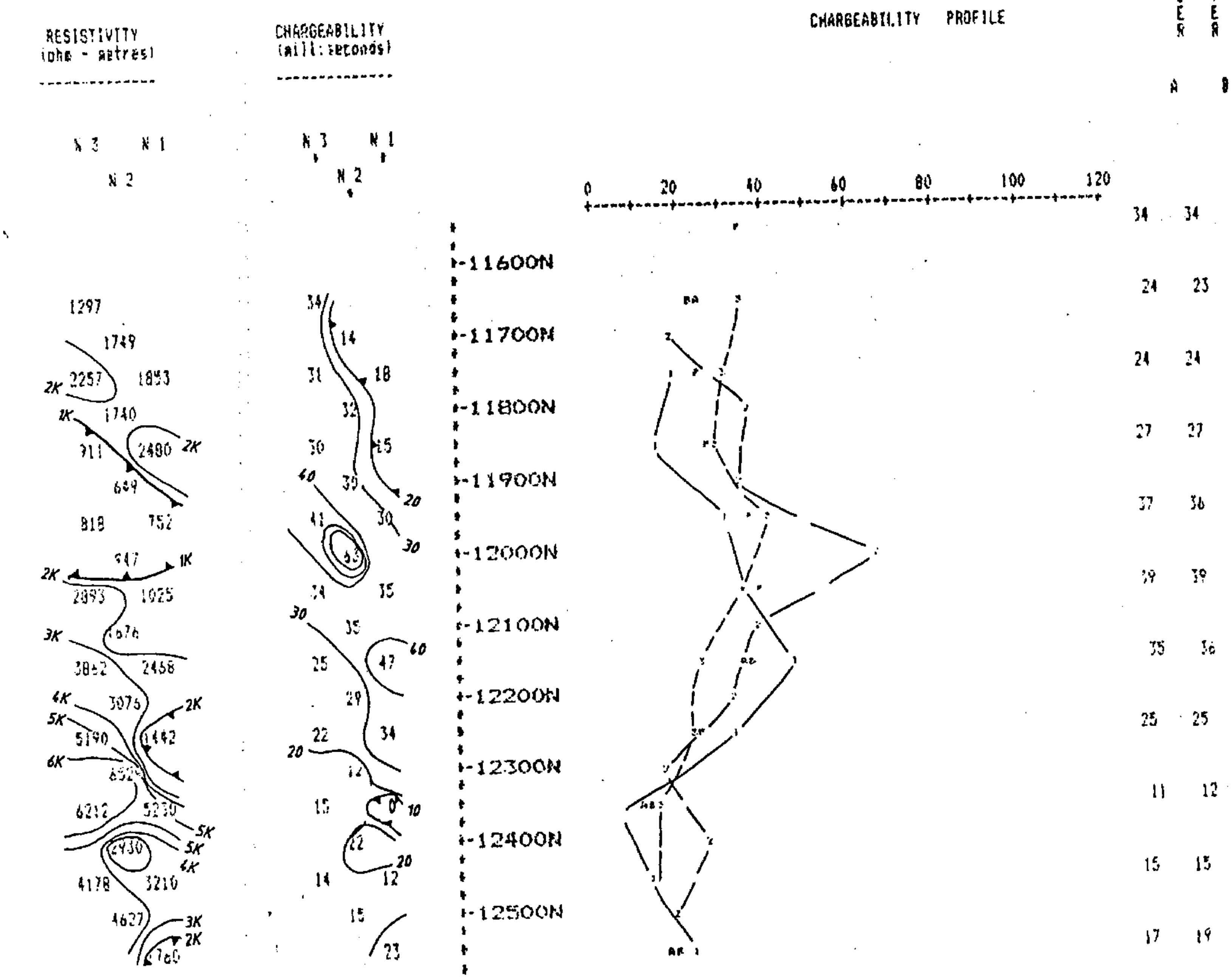
EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 19600 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 17/9/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

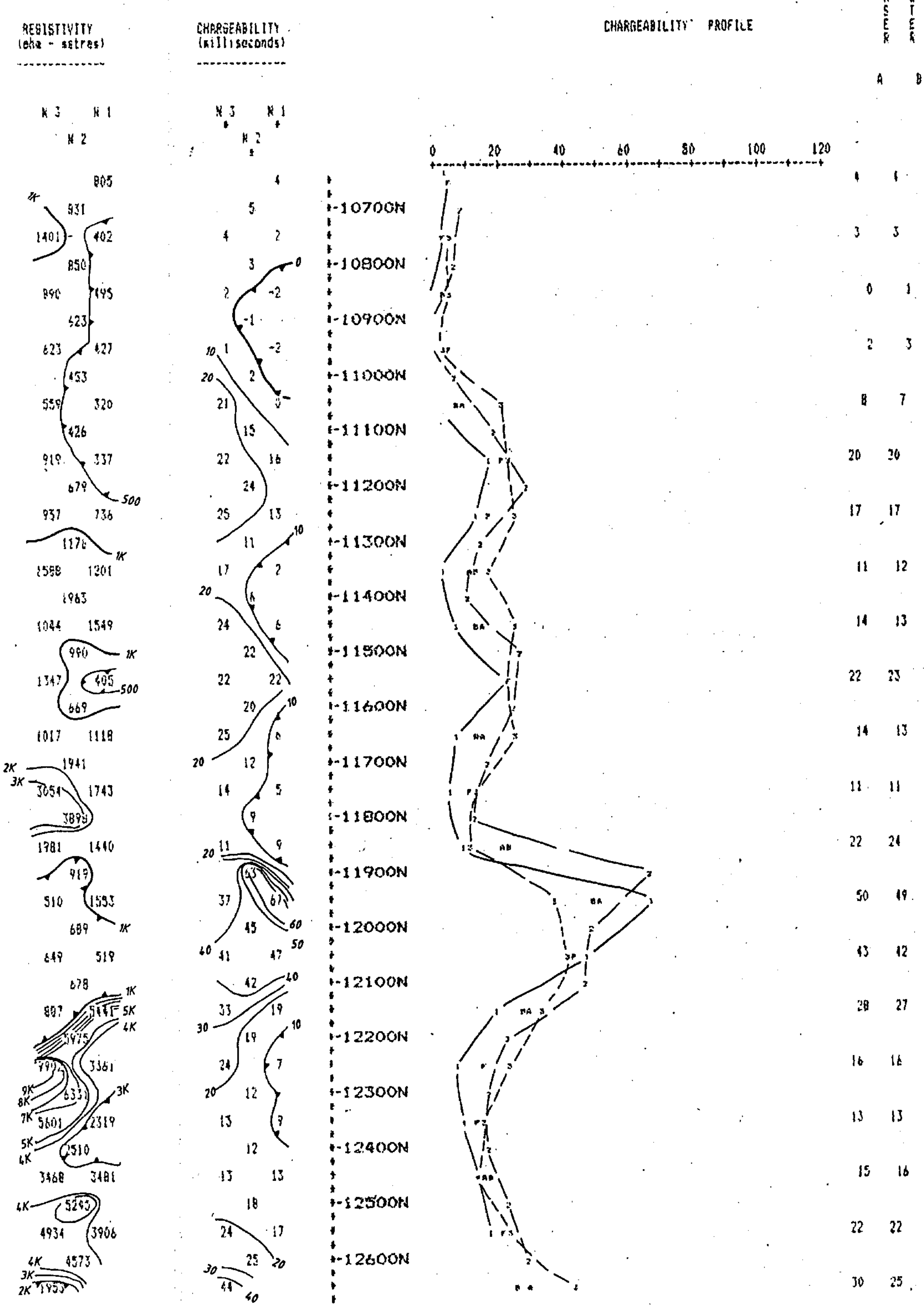
****

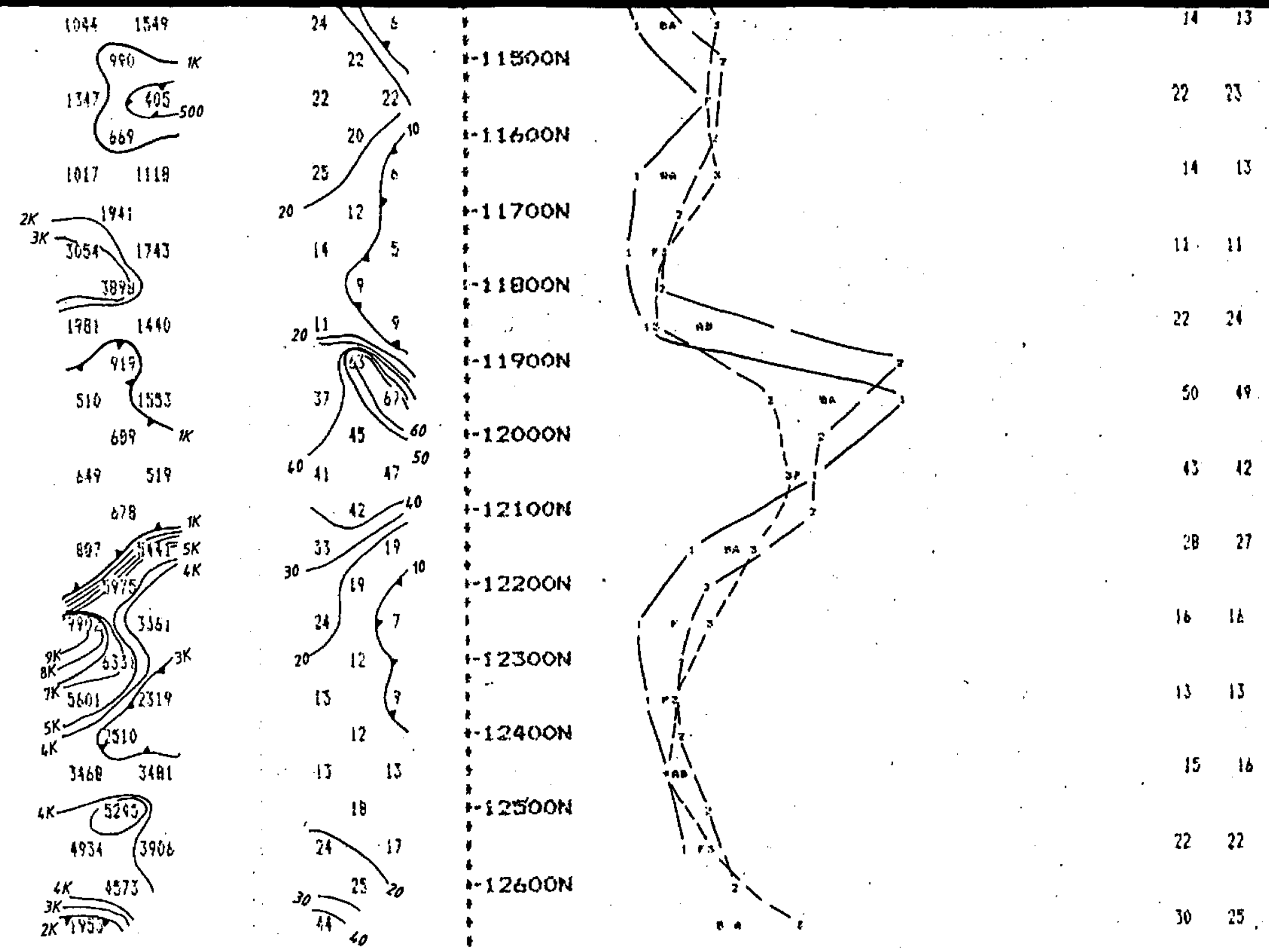
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft.

LINE 19200 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 16/9/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

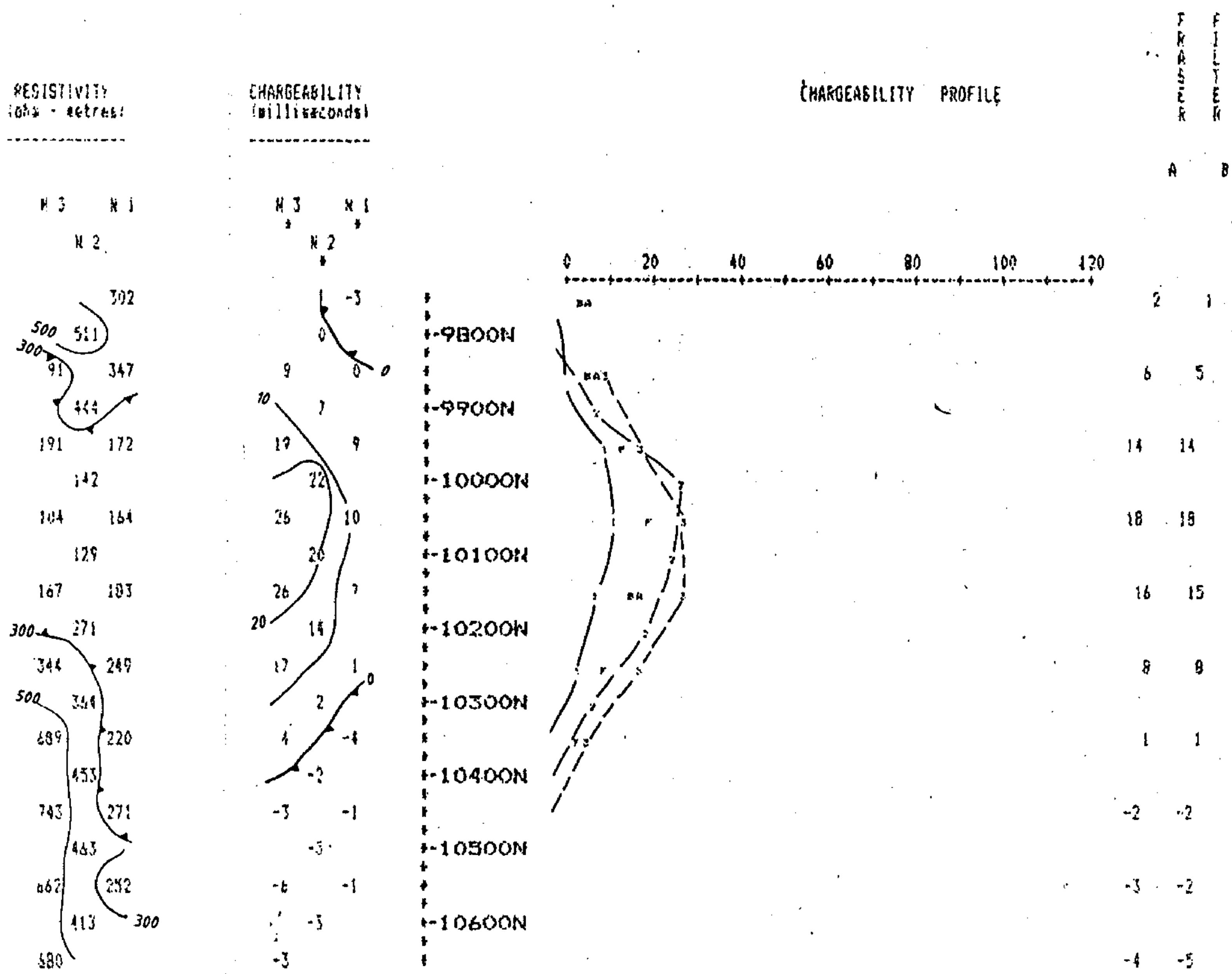
EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 18800 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 16/9/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

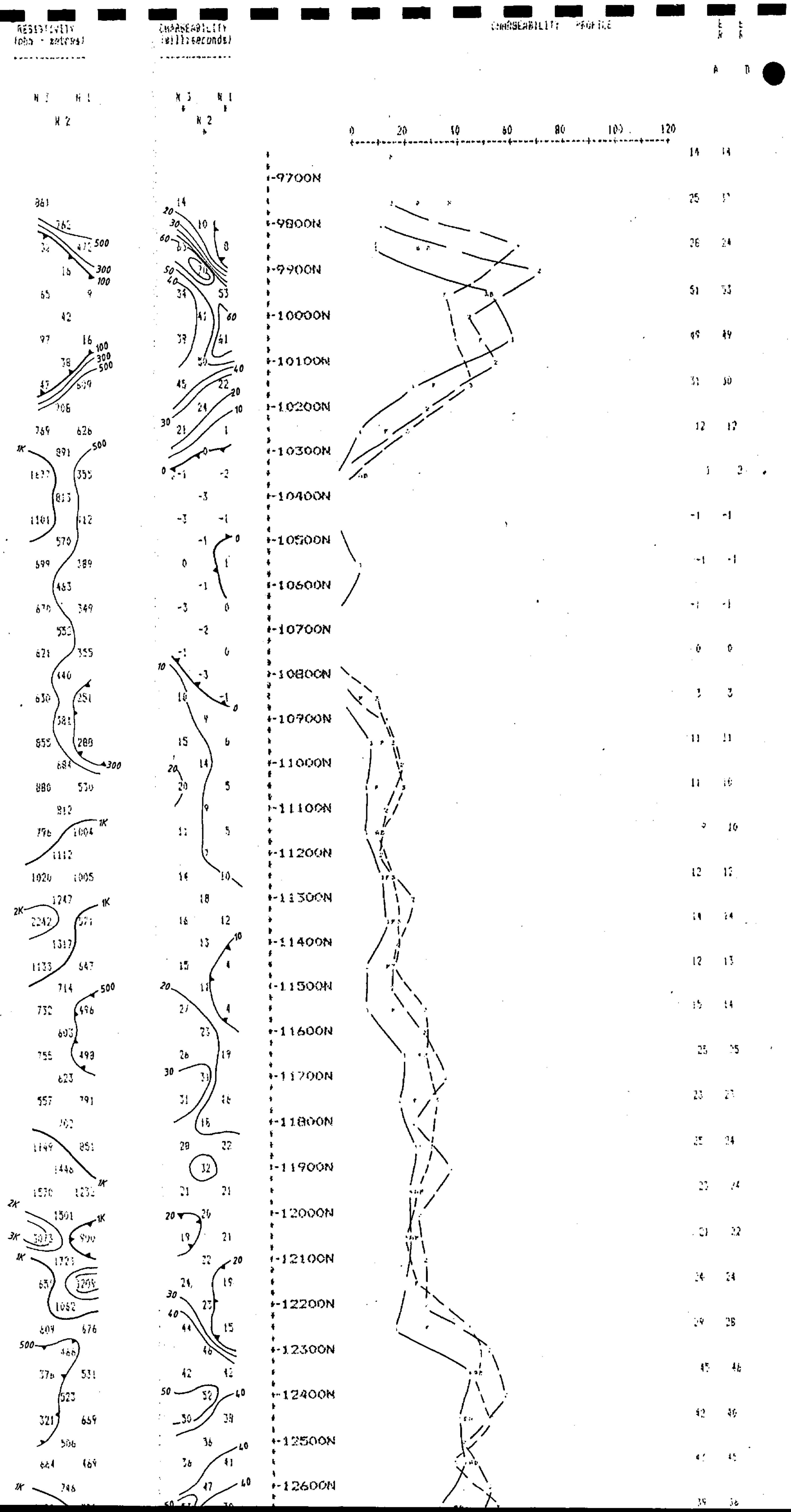
Integration Time : 900 ms

EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 18400 E


RESISTIVITY (ohm - metres)
CHARGEABILITY (milliseconds)
CHARGEABILITY PROFILE
N 3 N 1 N 2
A B
0 20 40 60 80 100 120
9700N
9800N
9900N
10000N
10100N
10200N
10300N
10400N
10500N
10600N
10700N
10800N
10900N
11000N
11100N
11200N
11300N
11400N
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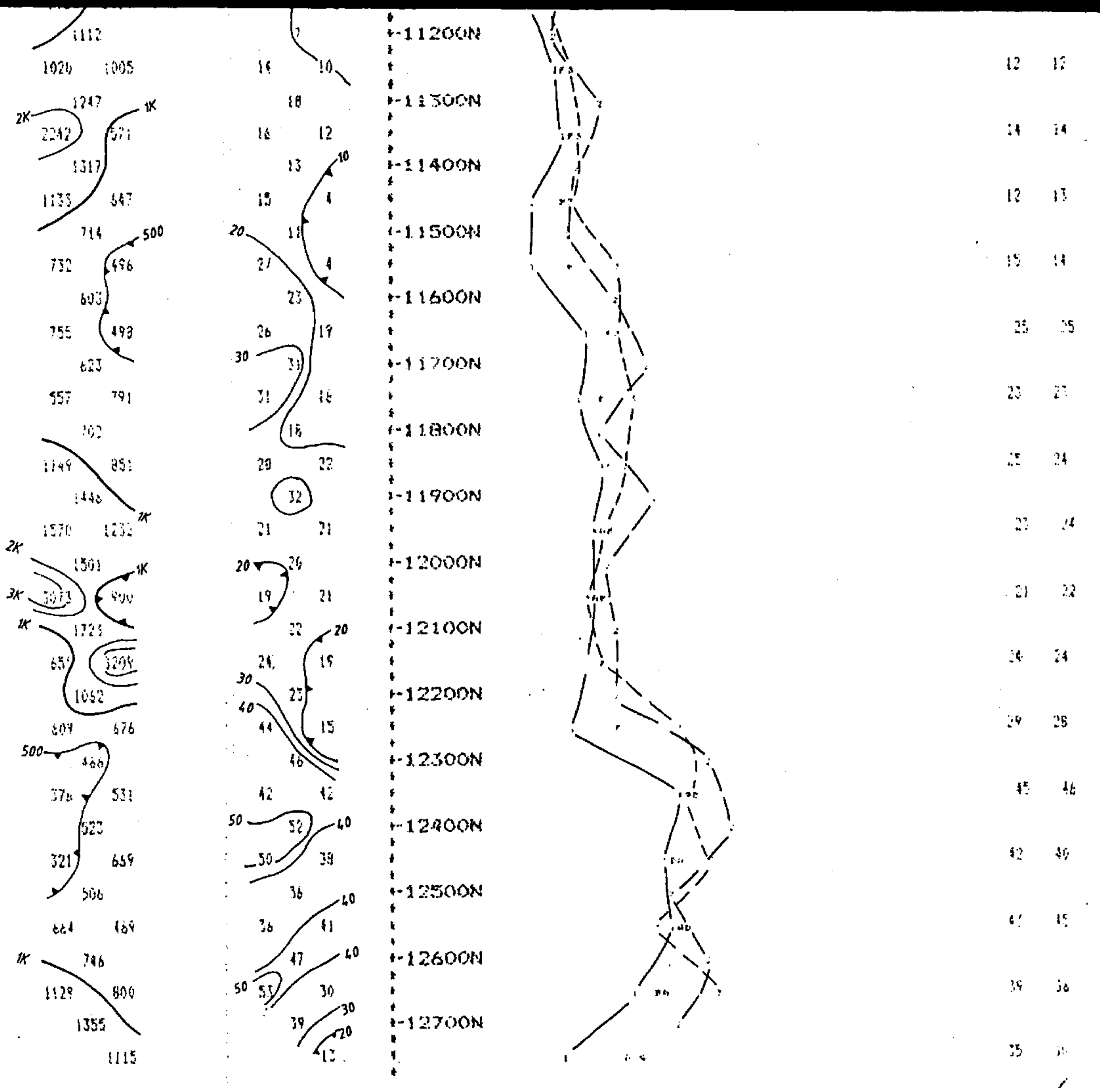
12000N
12100N
12200N
12300N
12400N
12500N
12600N



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

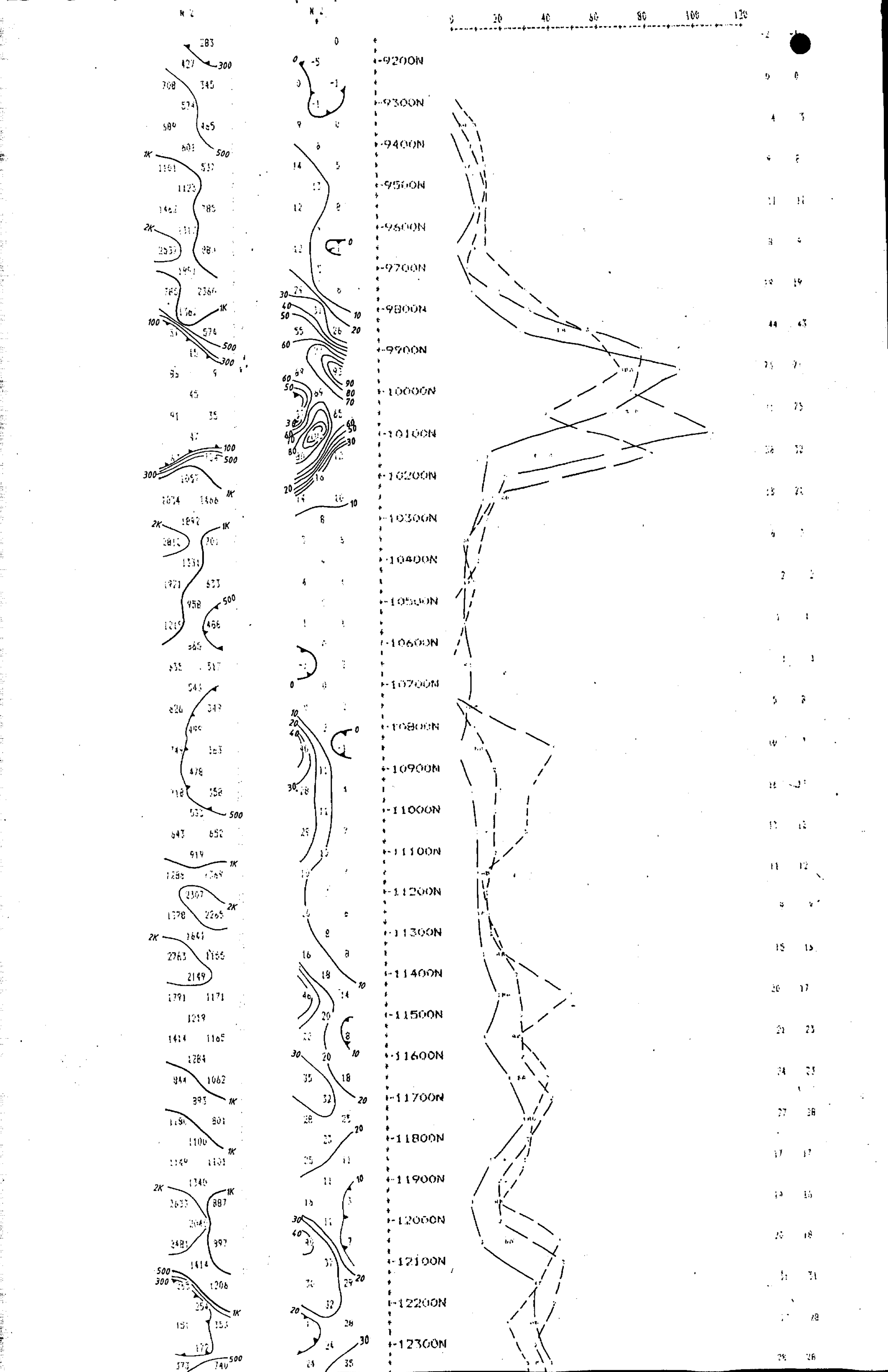
Date of Survey : 14/9/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 18000 E


0
20
40
60
80
100
120
9200N
9300N
9400N
9500N
9600N
9700N
9800N
9900N
10000N
10100N
10200N
10300N
10400N
10500N
10600N
10700N
10800N
10900N
11000N
11100N
11200N
11300N
11400N
11500N
11600N
11700N
11800N
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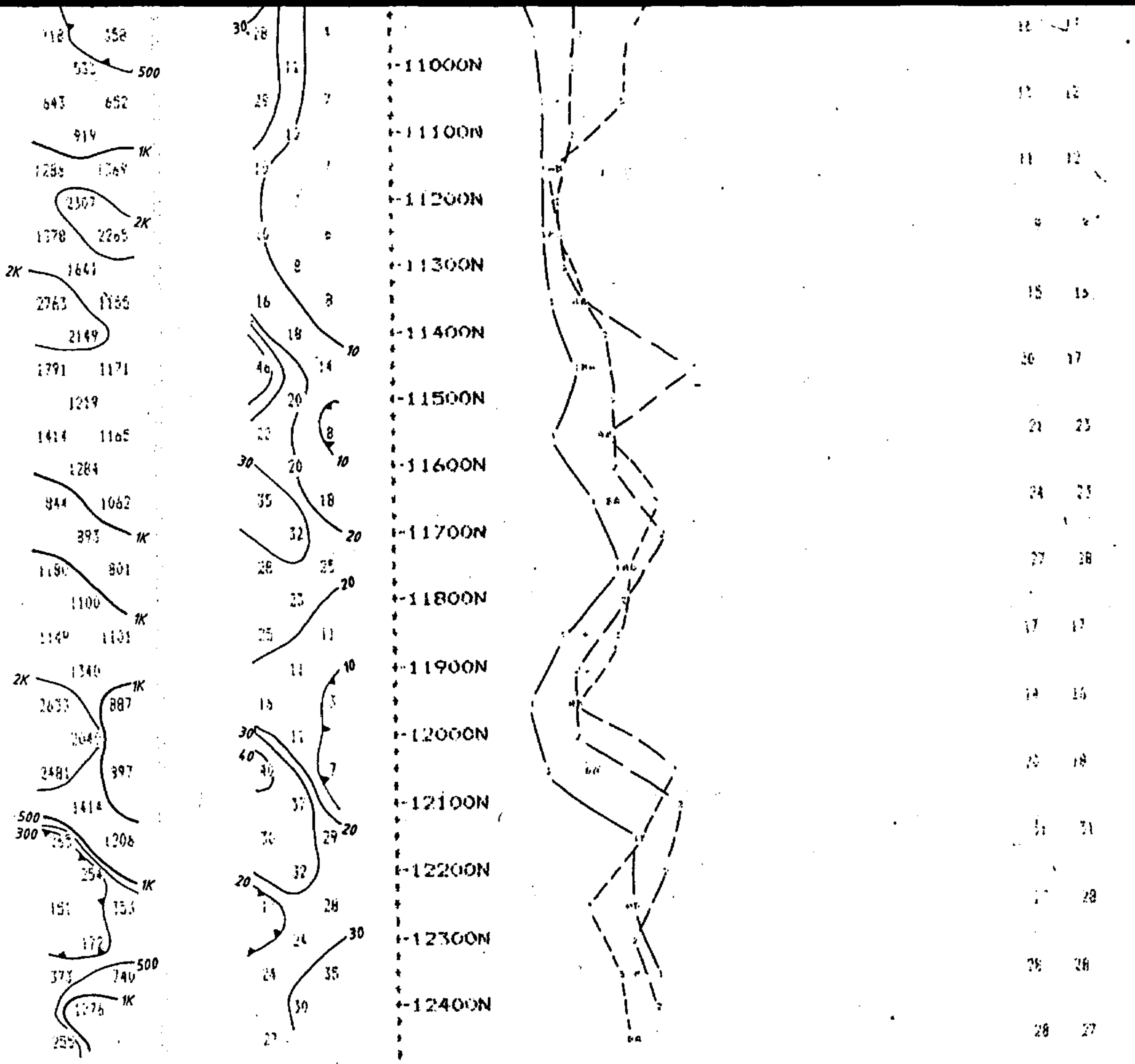
12000N
12100N
12200N
12300N



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 14/9/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

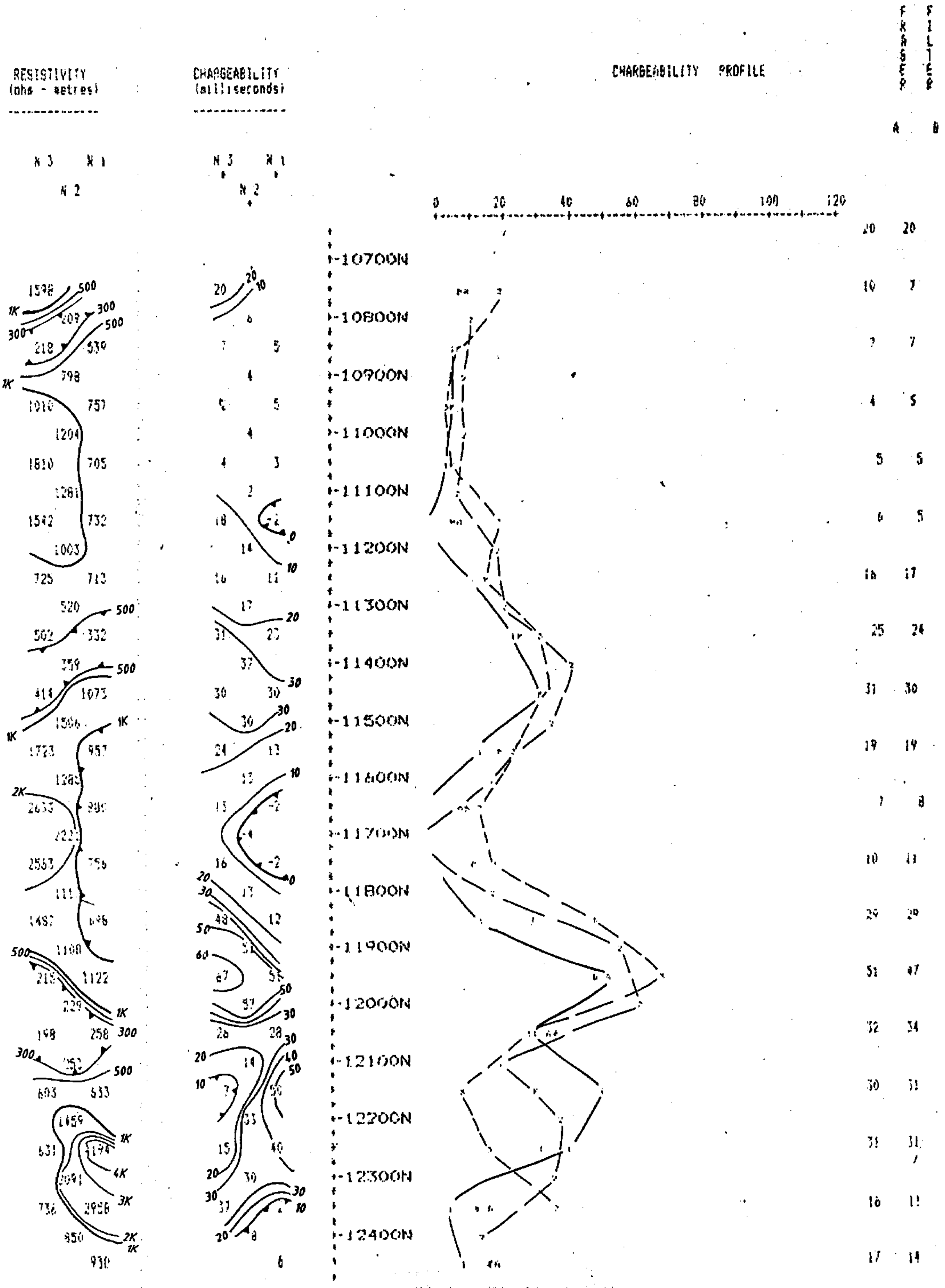
****
EXSICS EXPLORATION LTD.
****

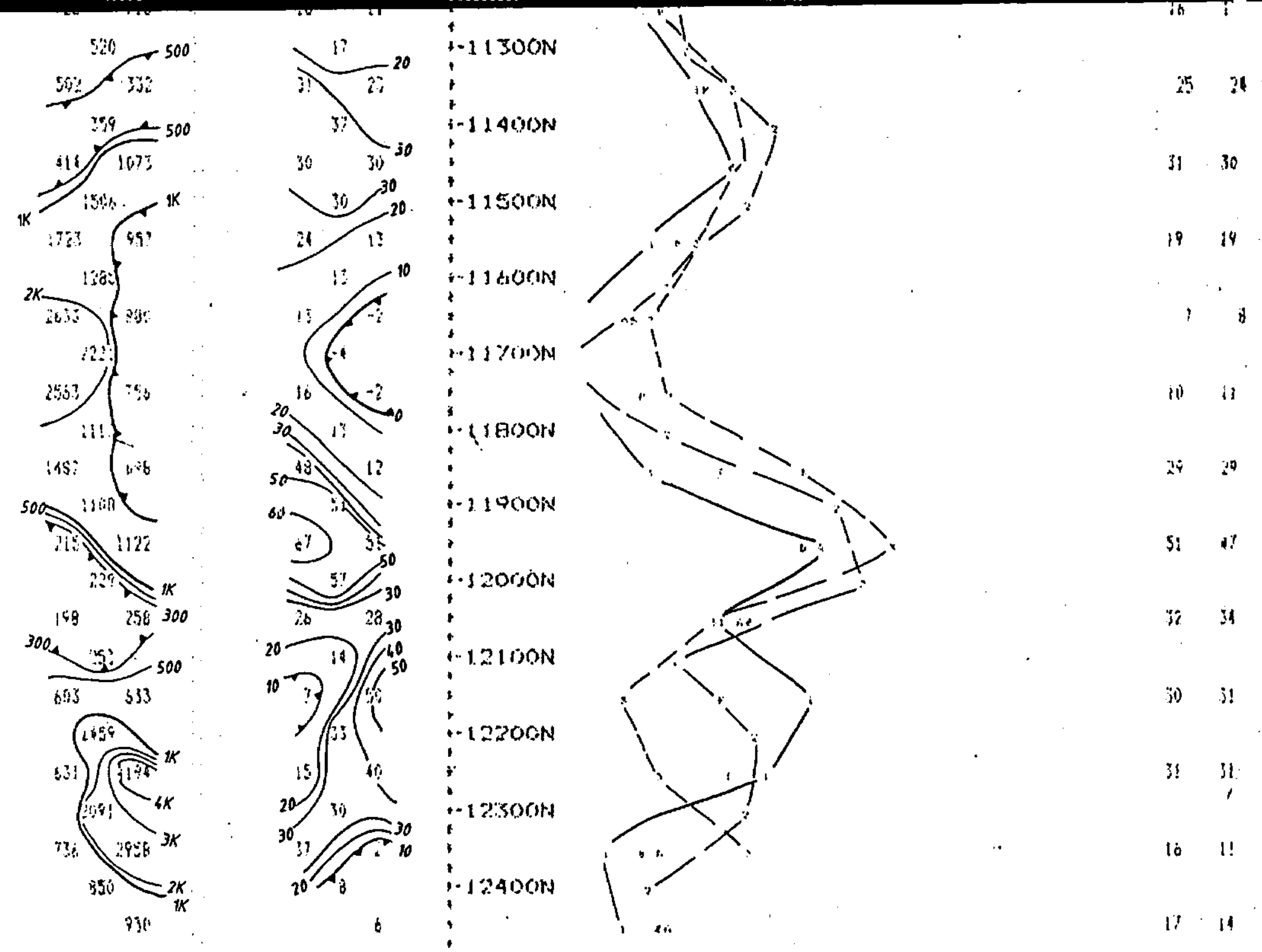
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 17600 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 14/9/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

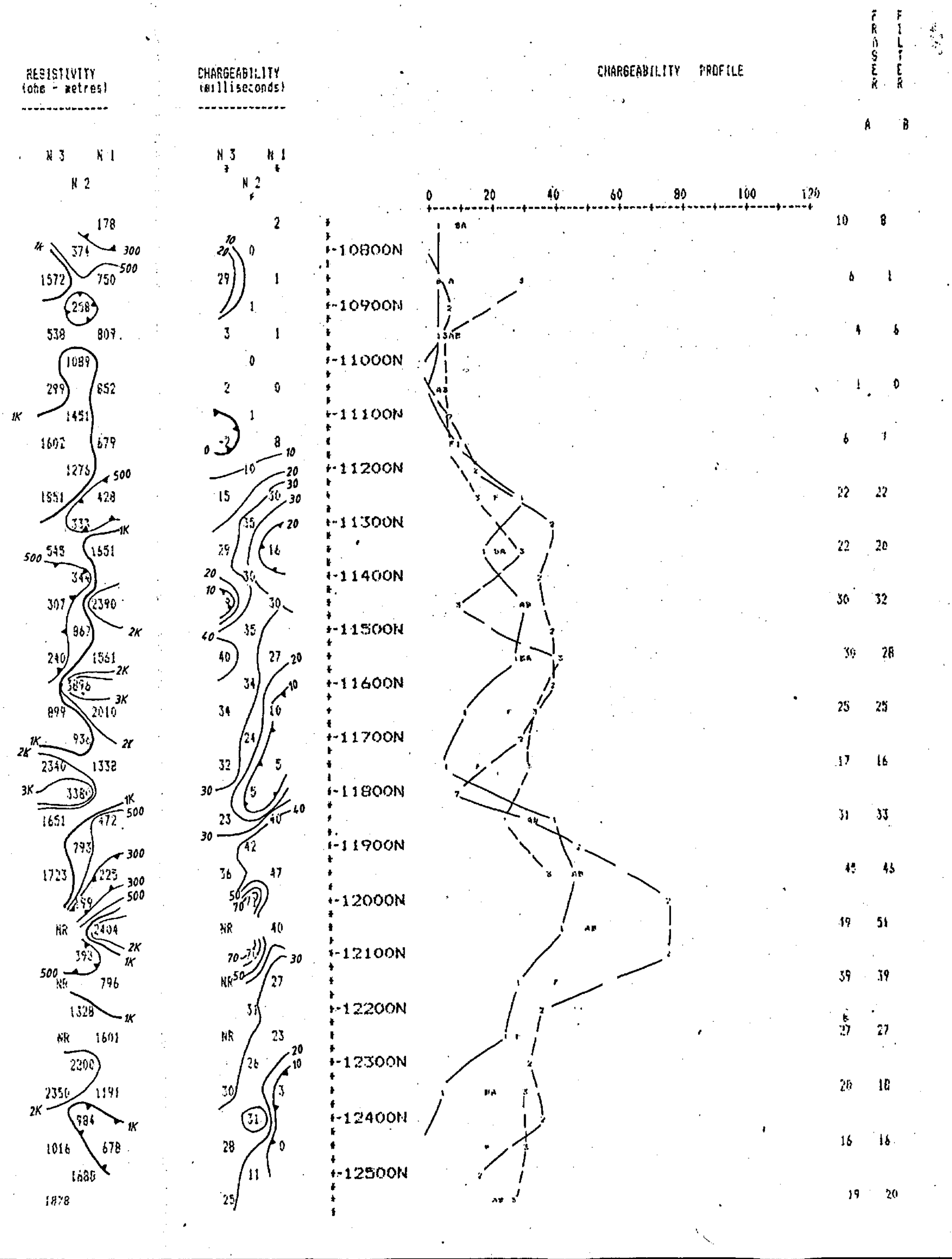
EXSICS EXPLORATION LTD.

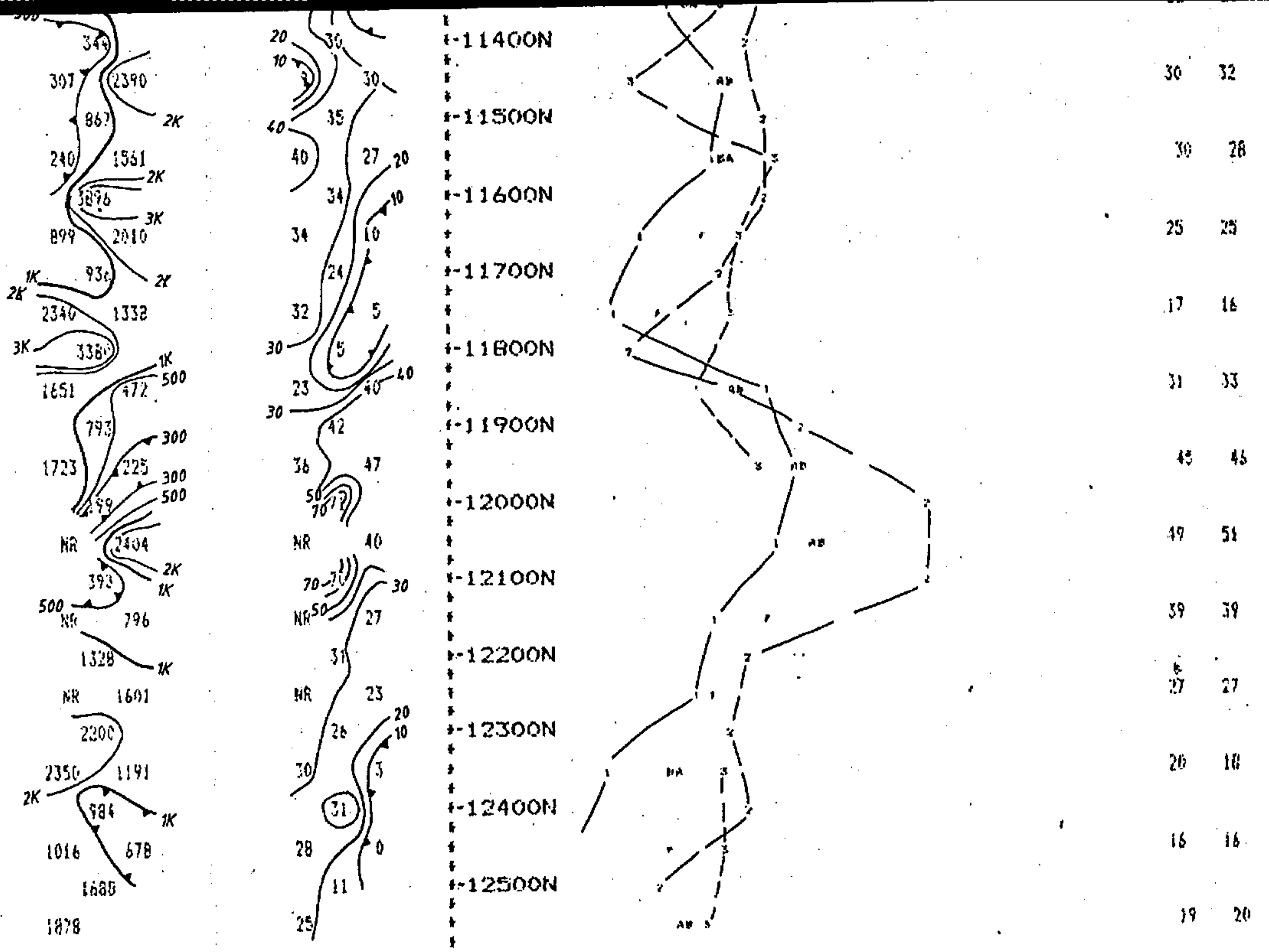
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 17200 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 28/8/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

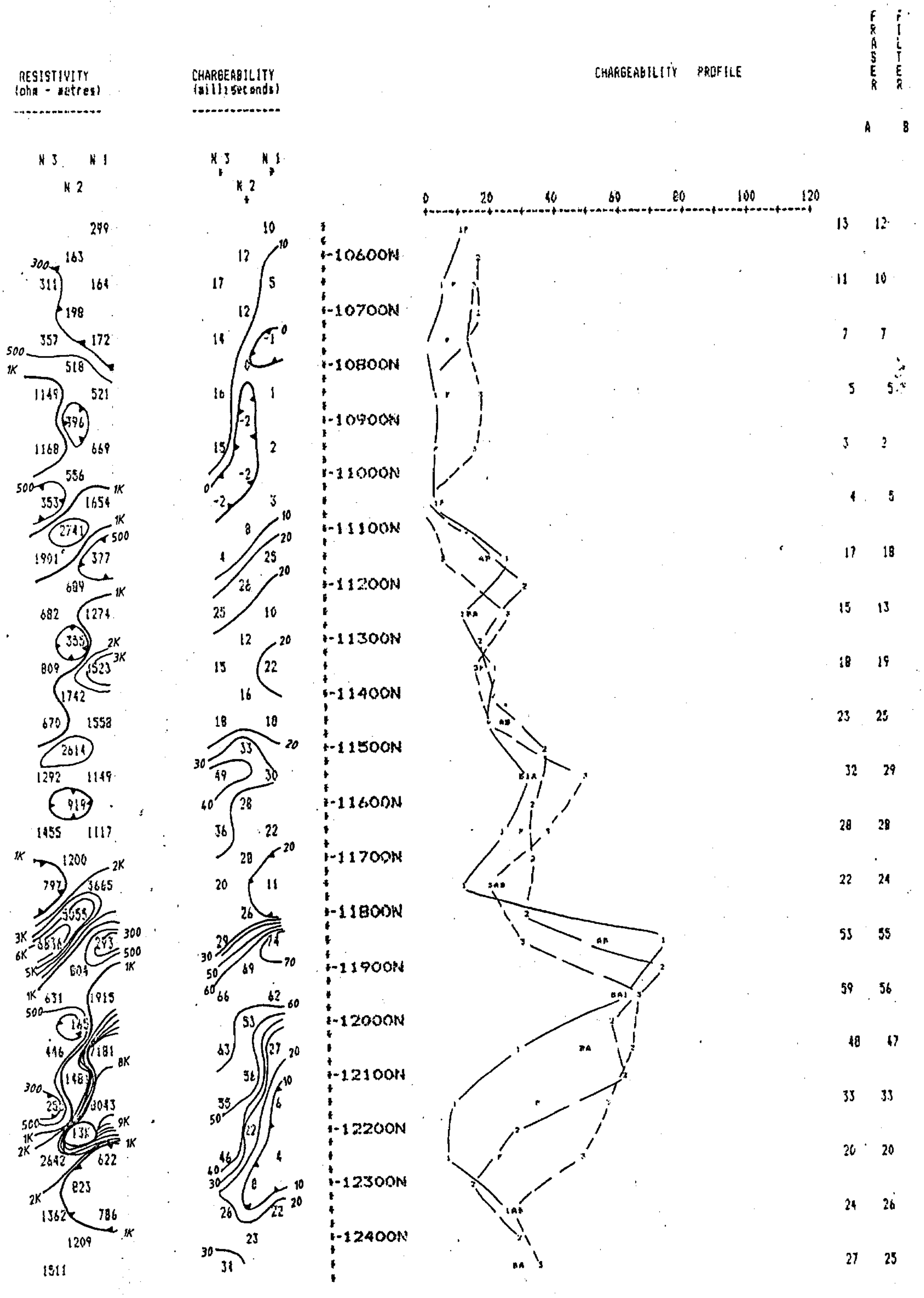
EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

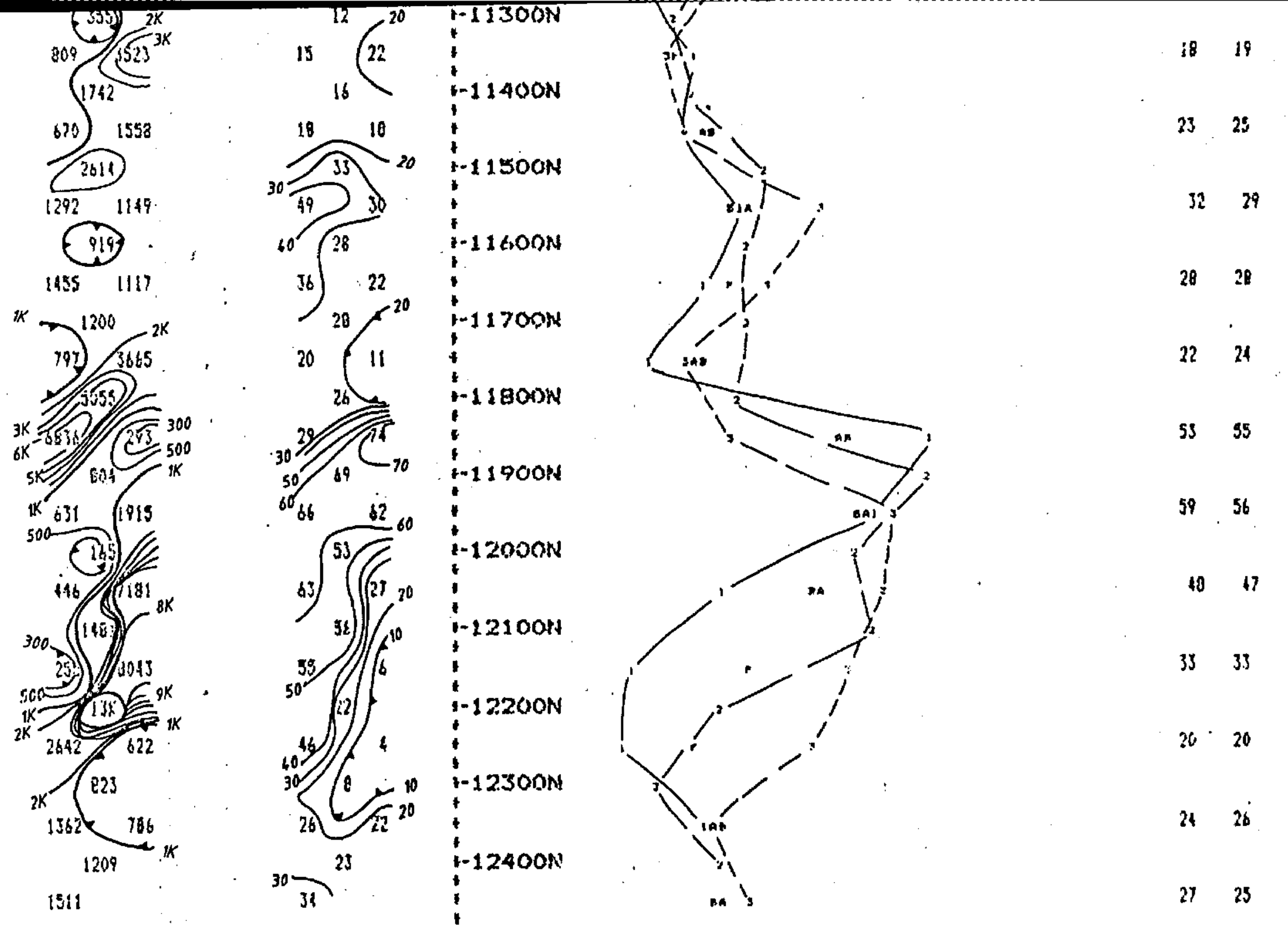
LINE 16800 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD

lient : AGASSIZ RESOURCES LTD.



Property : TWIN GOLD
Client : ABASBIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

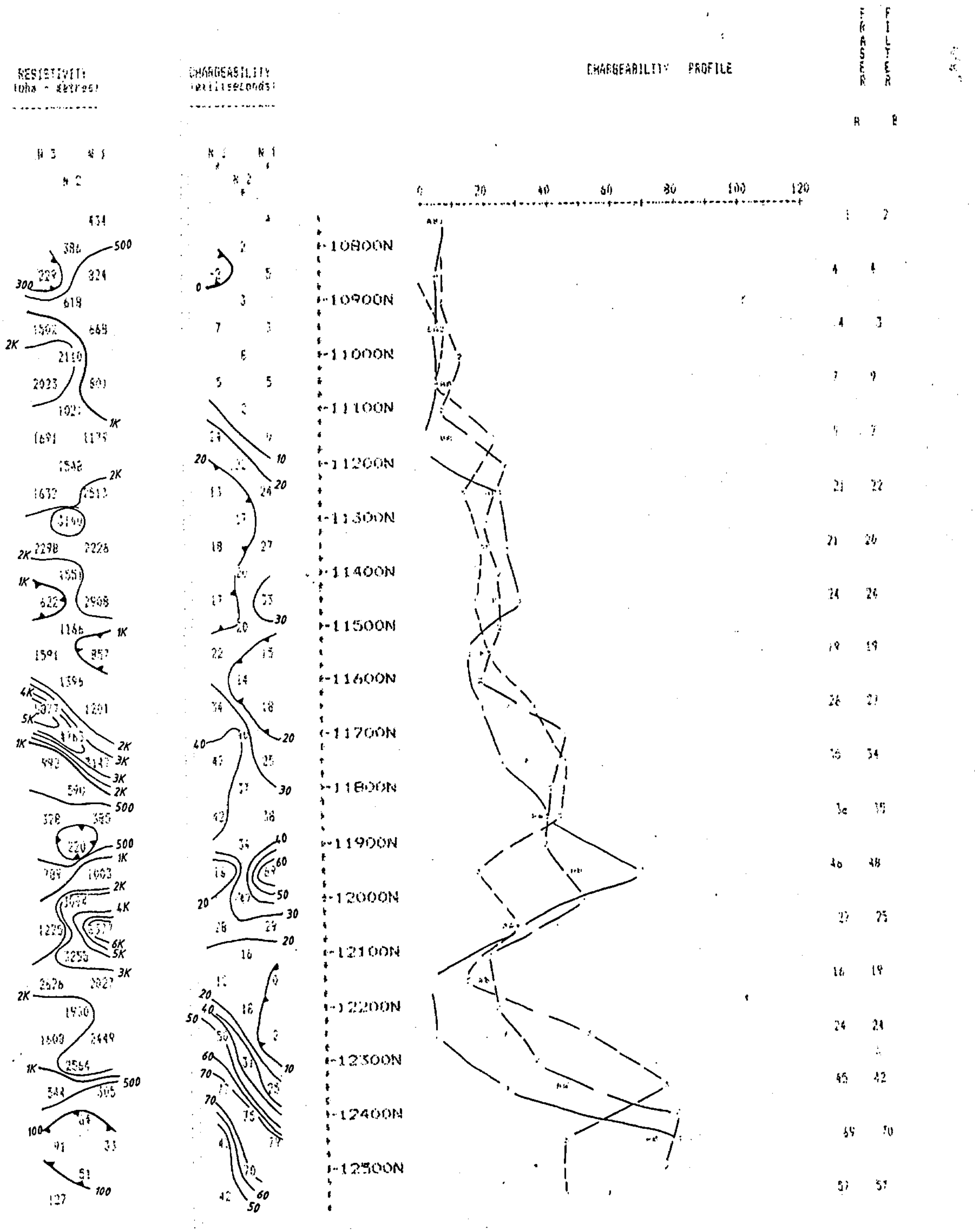
EXSICS EXPLORATION LTD.

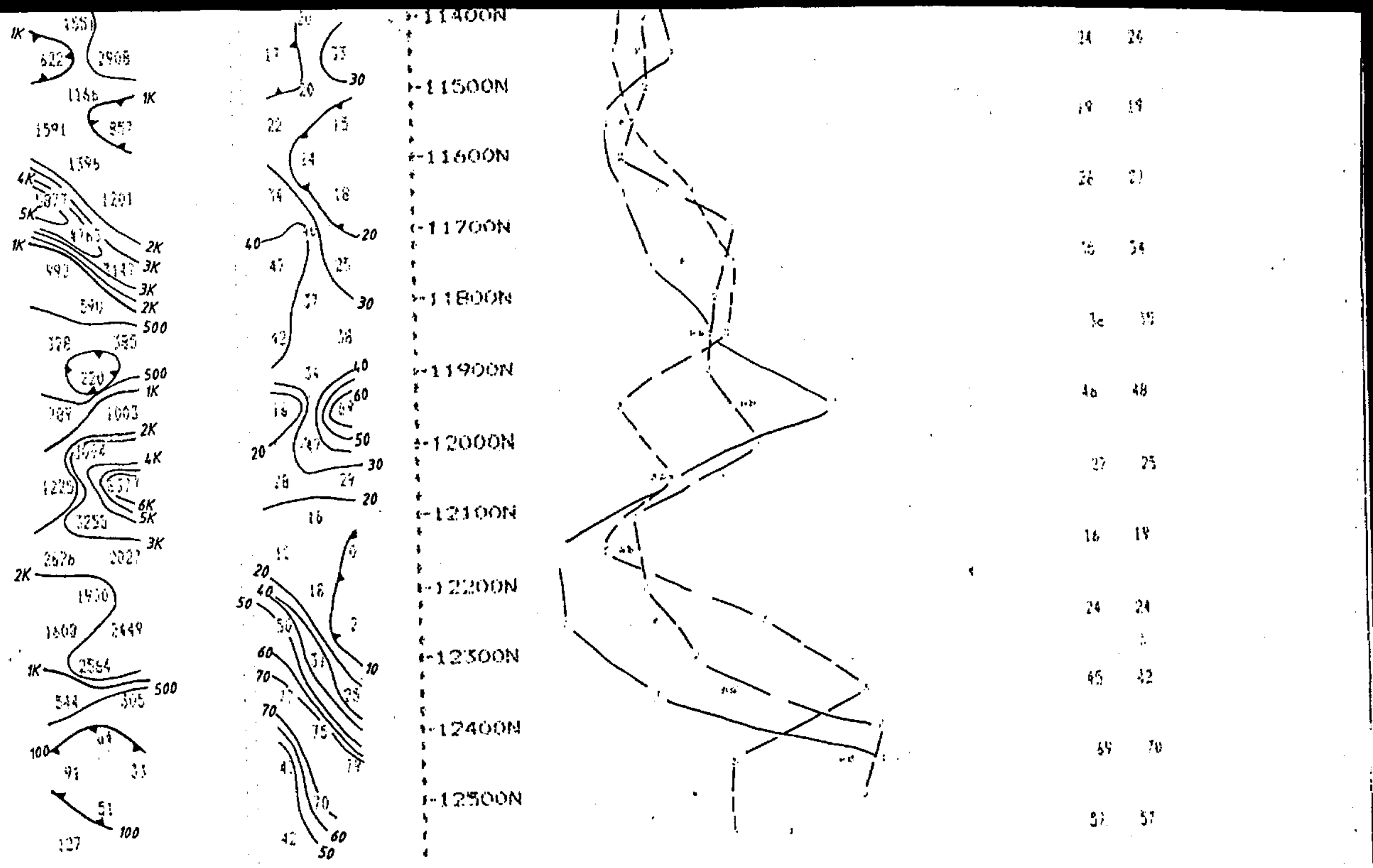
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 16400 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 23/8/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

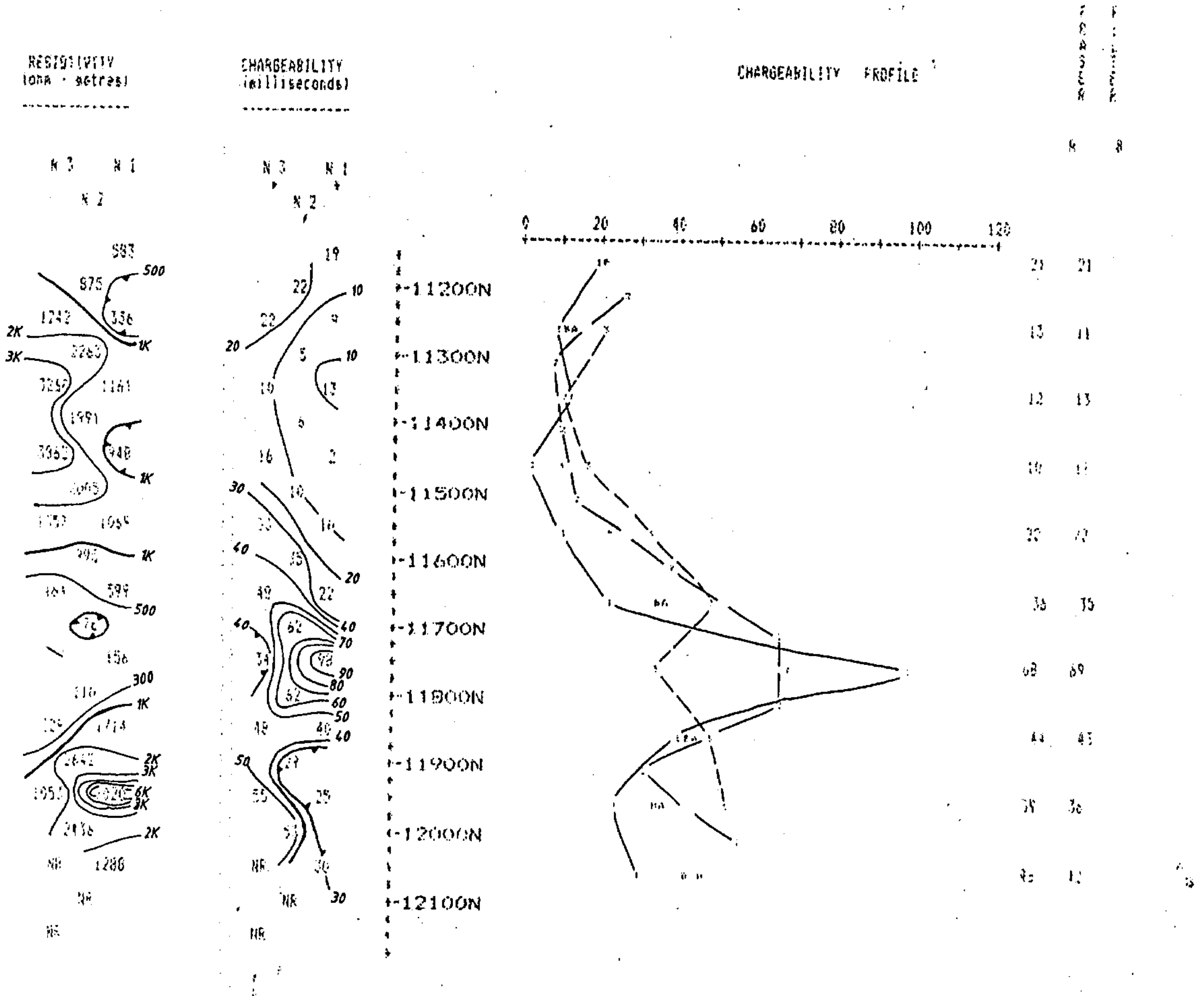
****

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 16000 E

SCALE : 1 inch to 200 feet



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 14/8/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

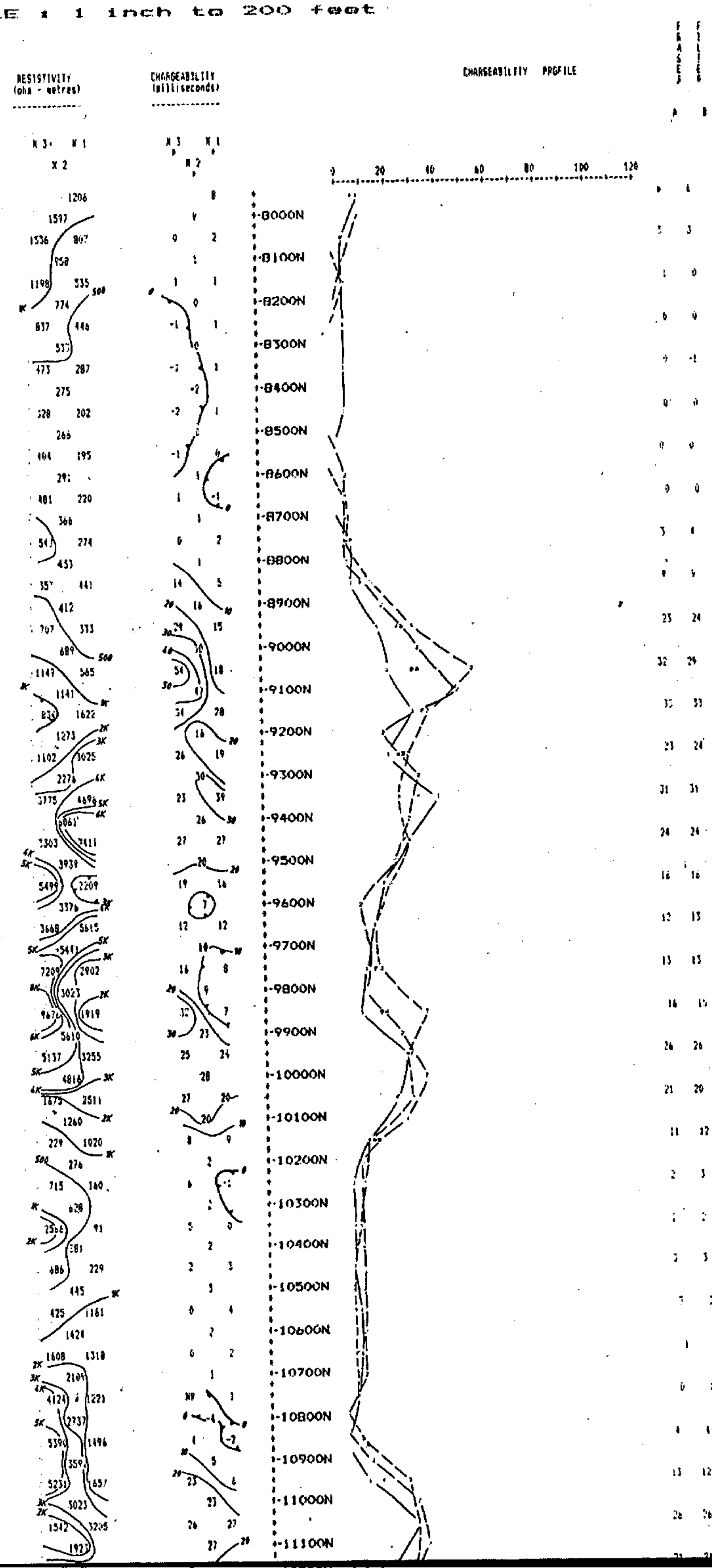
****

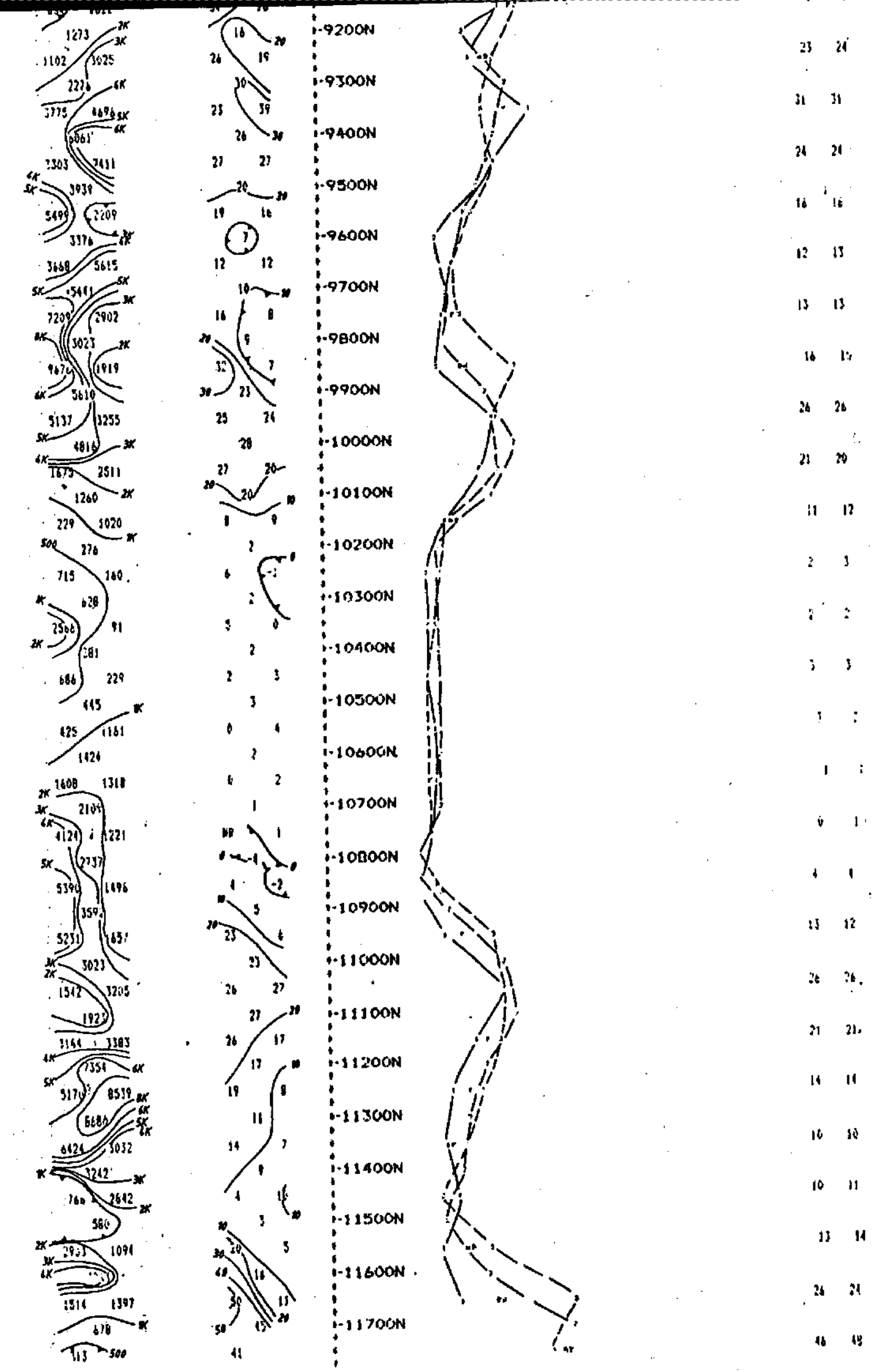
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 14800 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

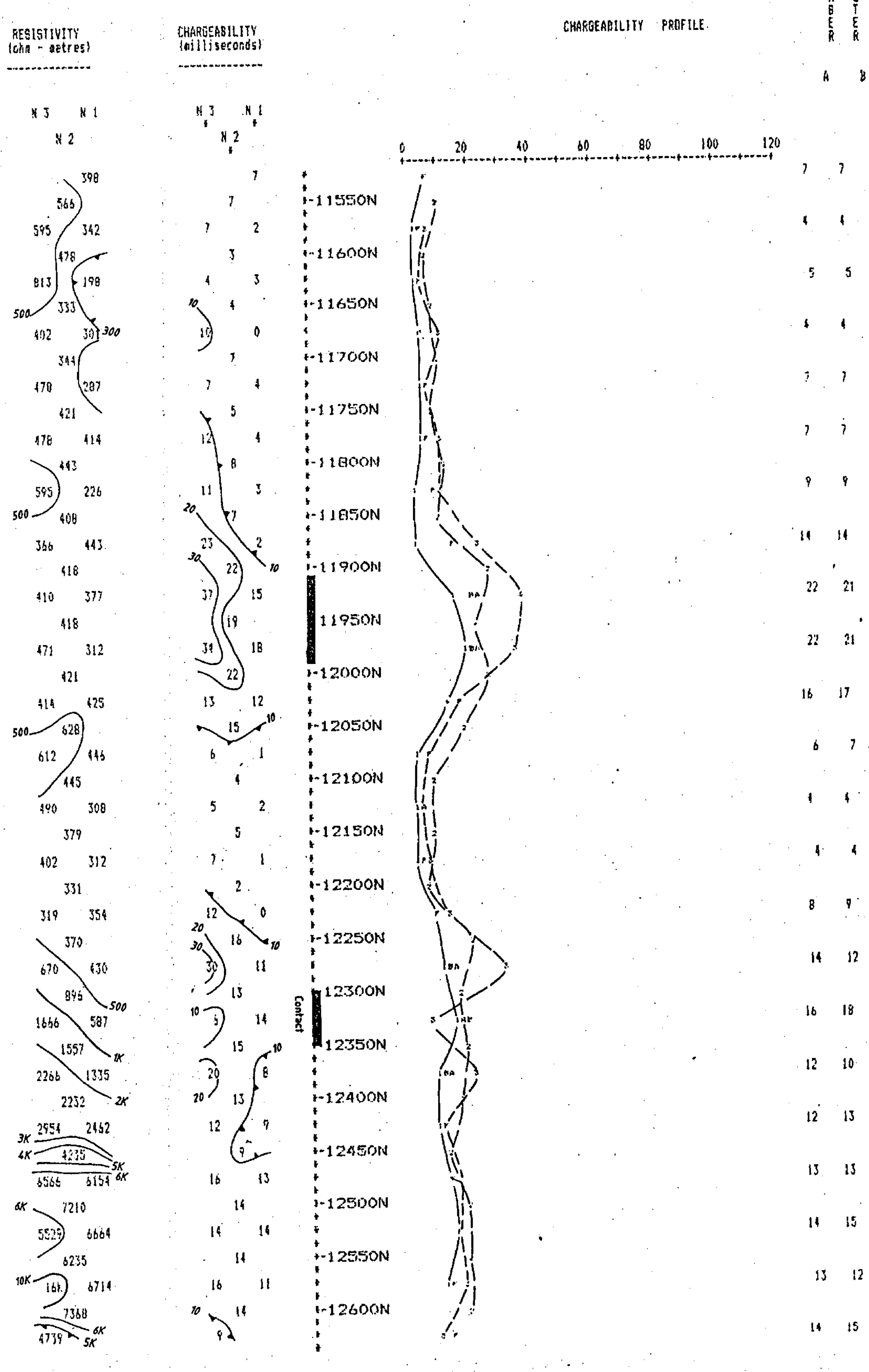
****
EXSICS EXPLORATION LTD.
****

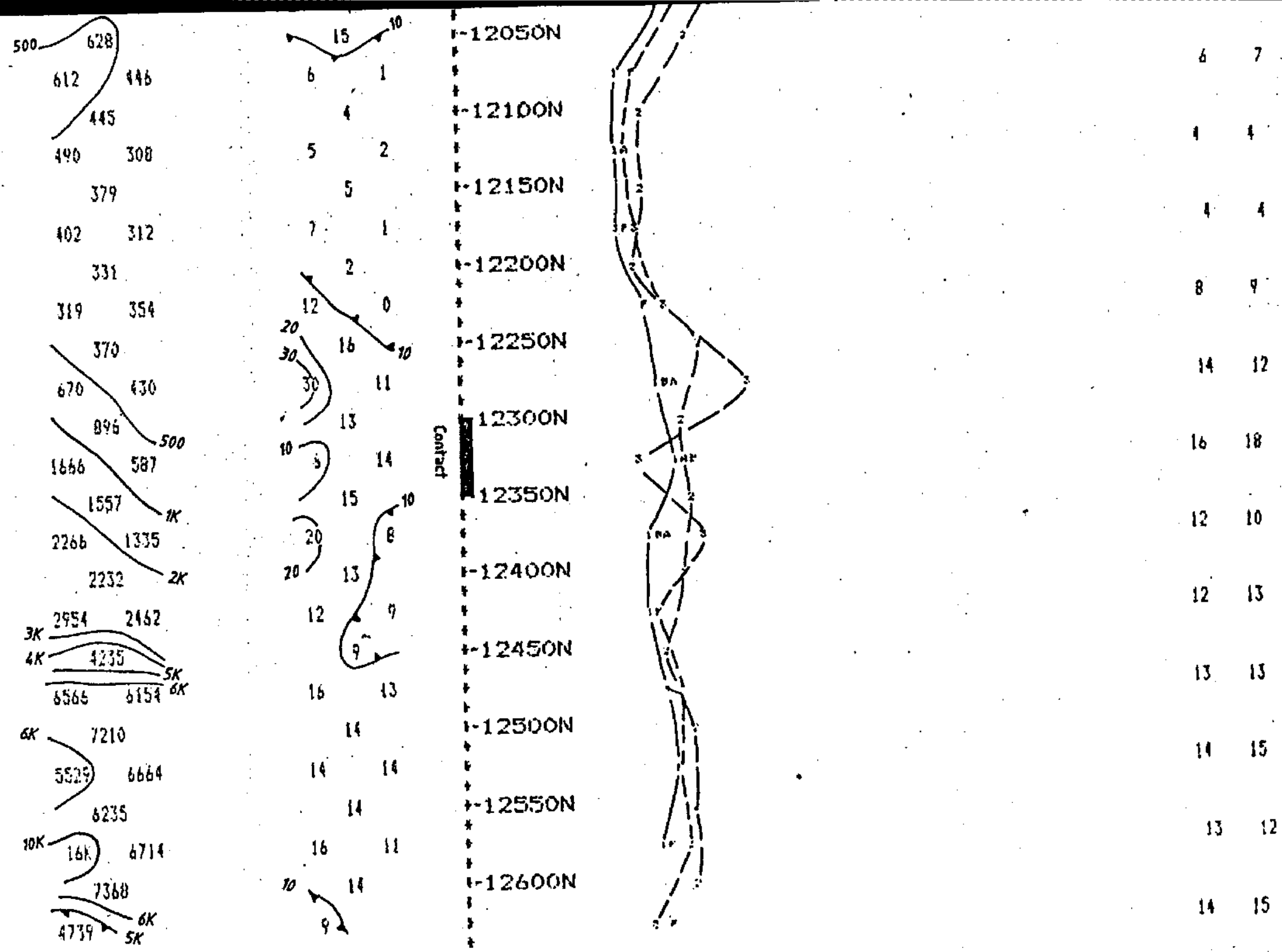
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 14400 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

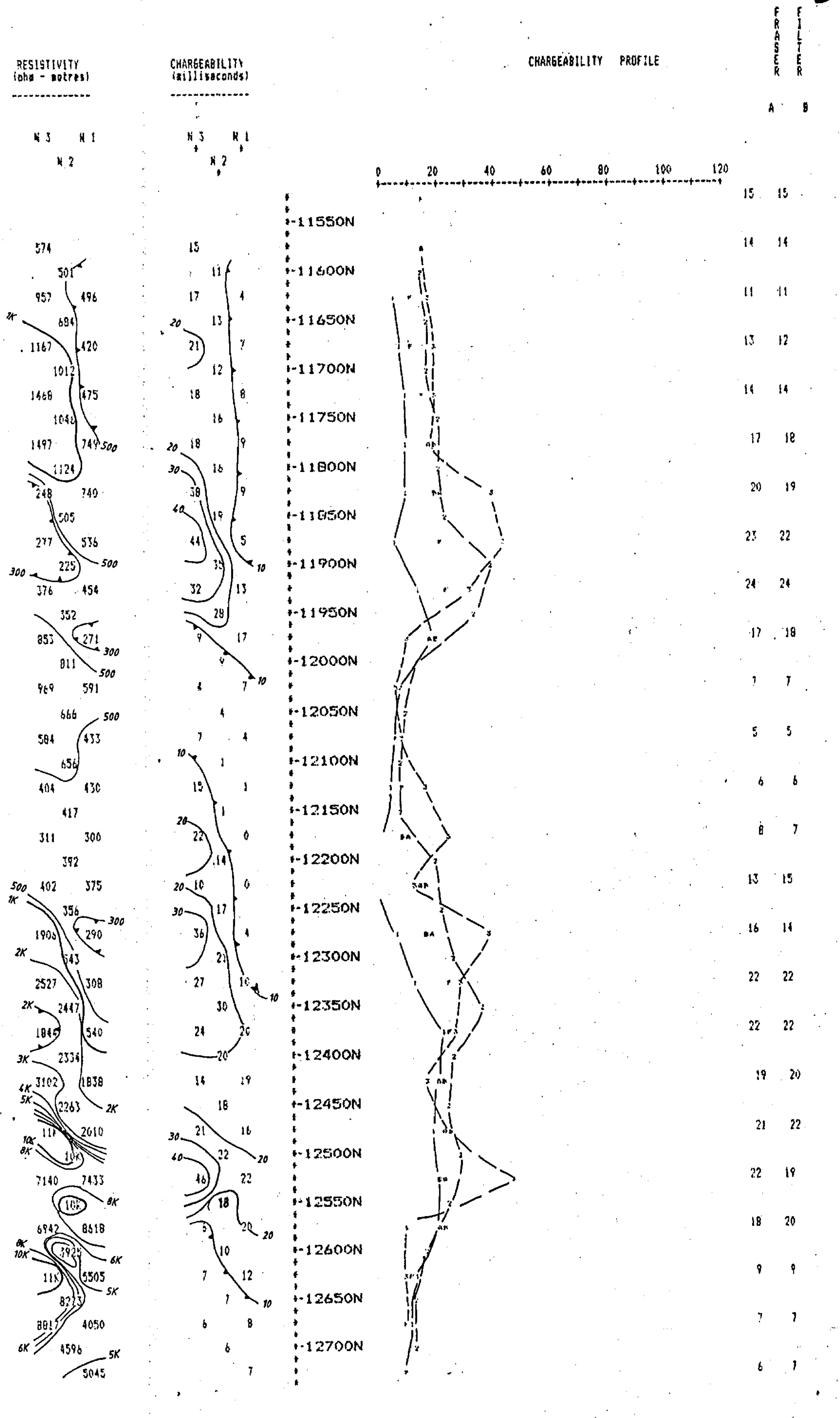
****

IP Pseudosections for N = 1 to 3

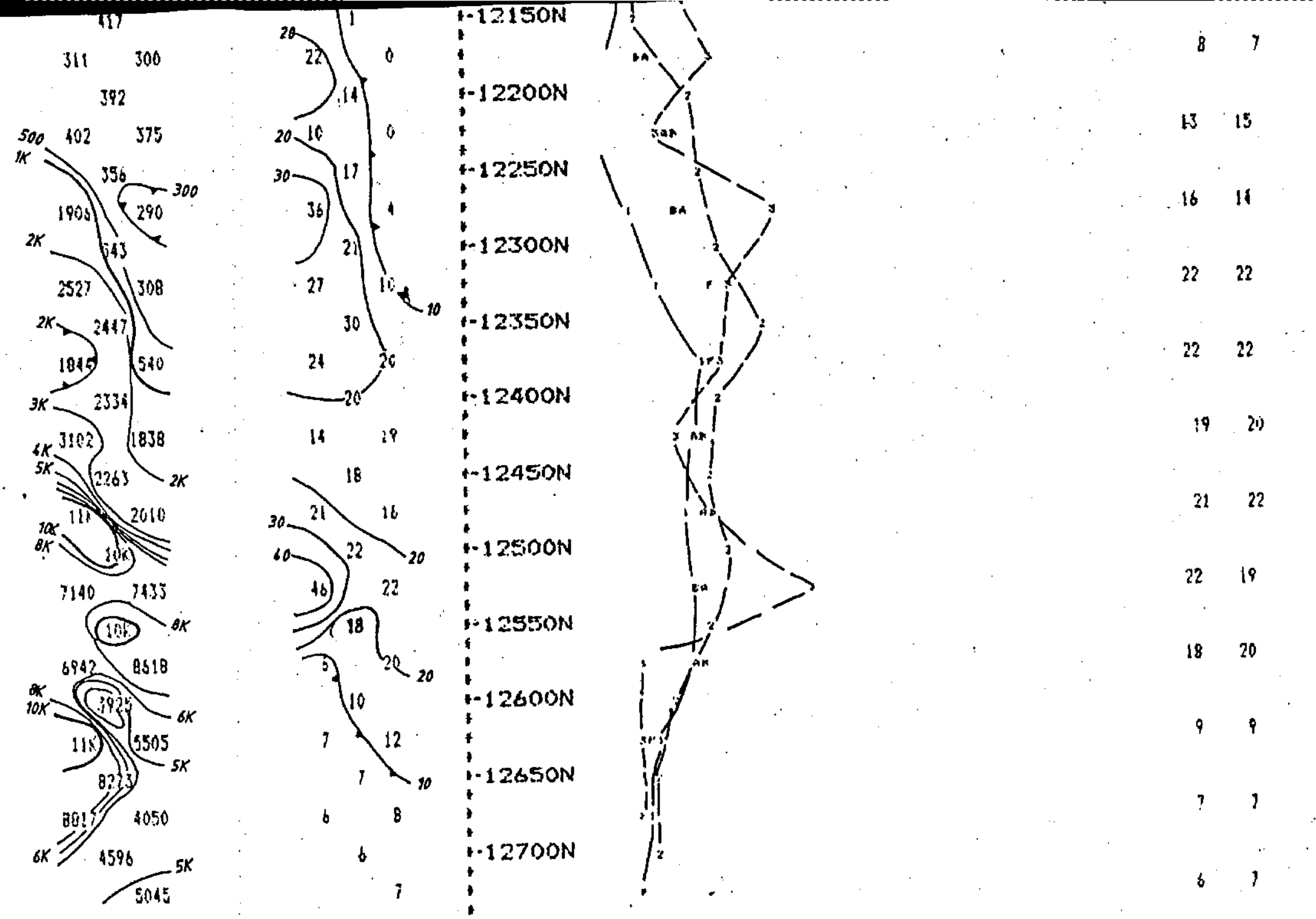
'a' Spacing = 50 ft

LINE 13600 E

SCALE : 1 inch to 100 feet



Property : TWIN GOLD



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

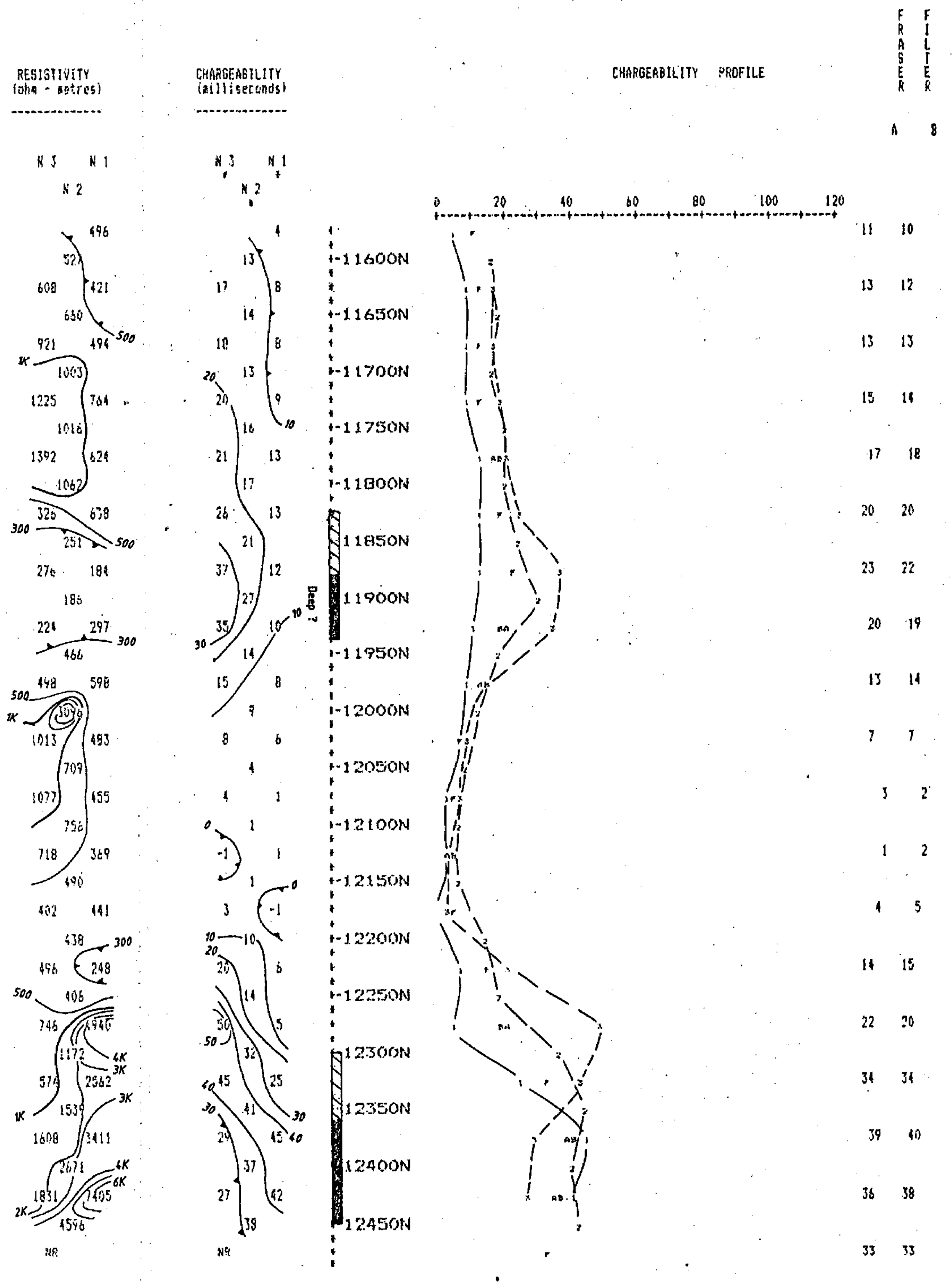
****

IP Pseudosections for N = 1 to 3

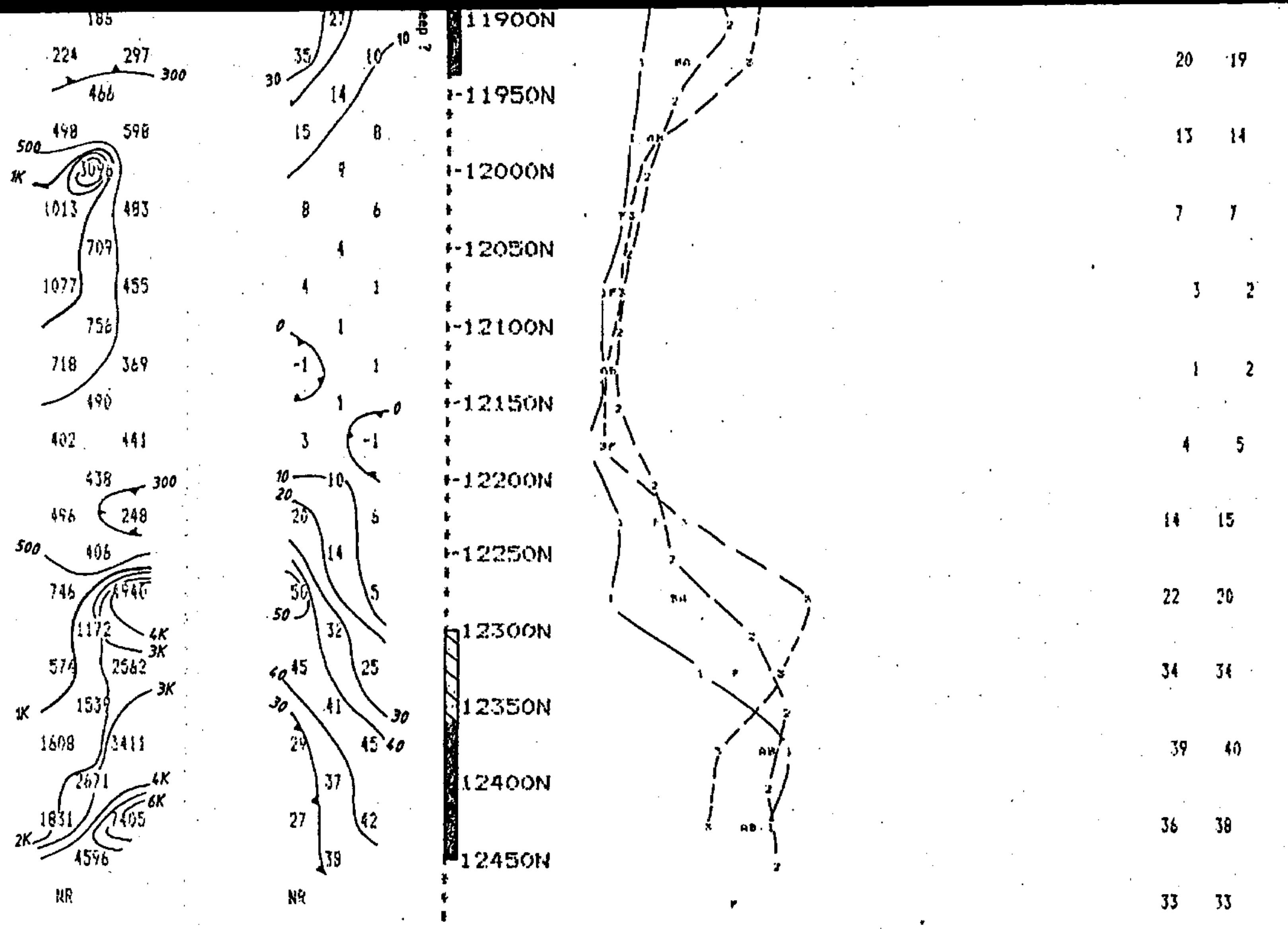
'a' Spacing = 50 ft

LINE 13400 E

SCALE : 1 inch to 100 feet



Property : TWIN GOLD



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on, 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

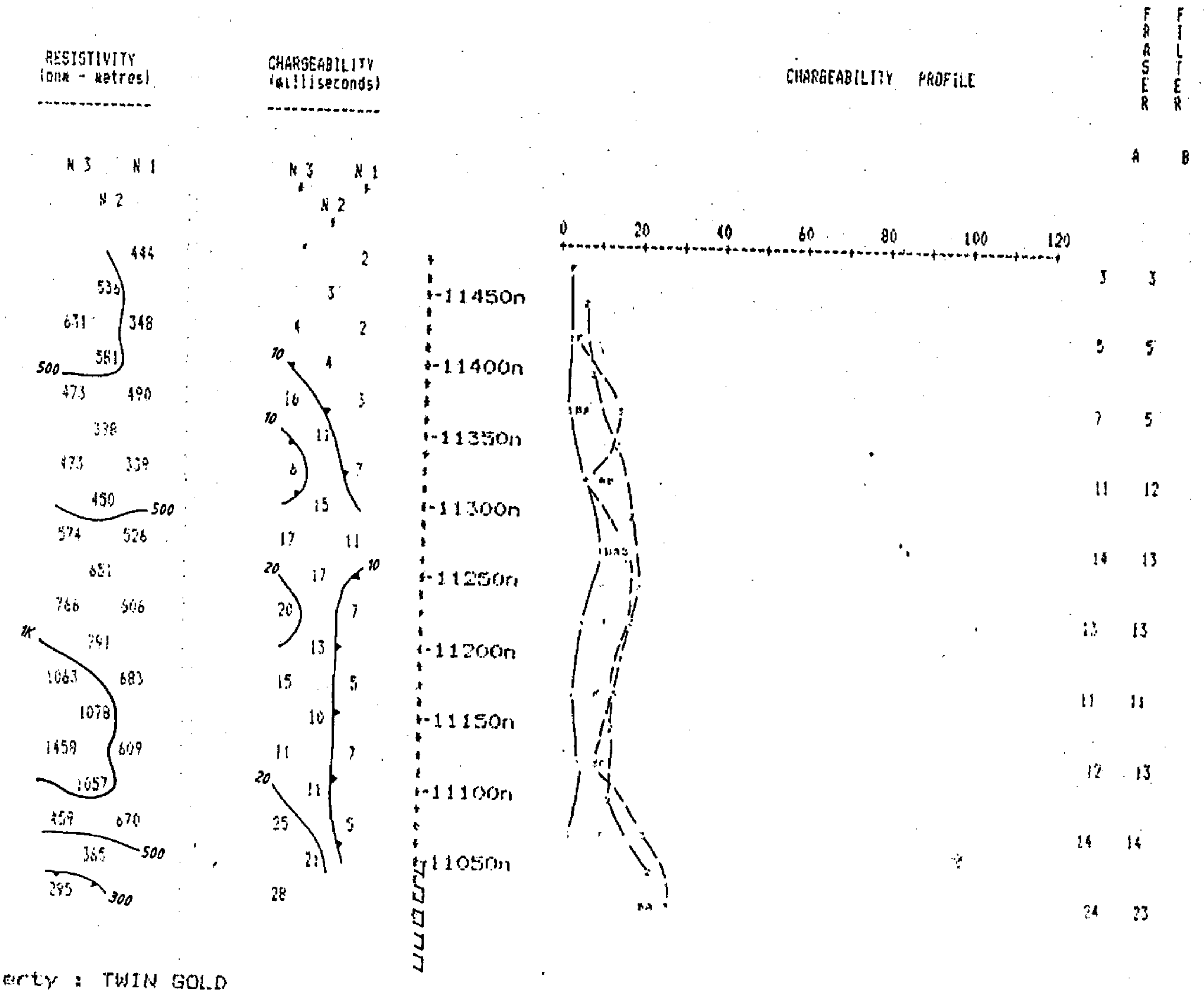
****

IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 13300 E

SCALE : 1 inch to 100 feet



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

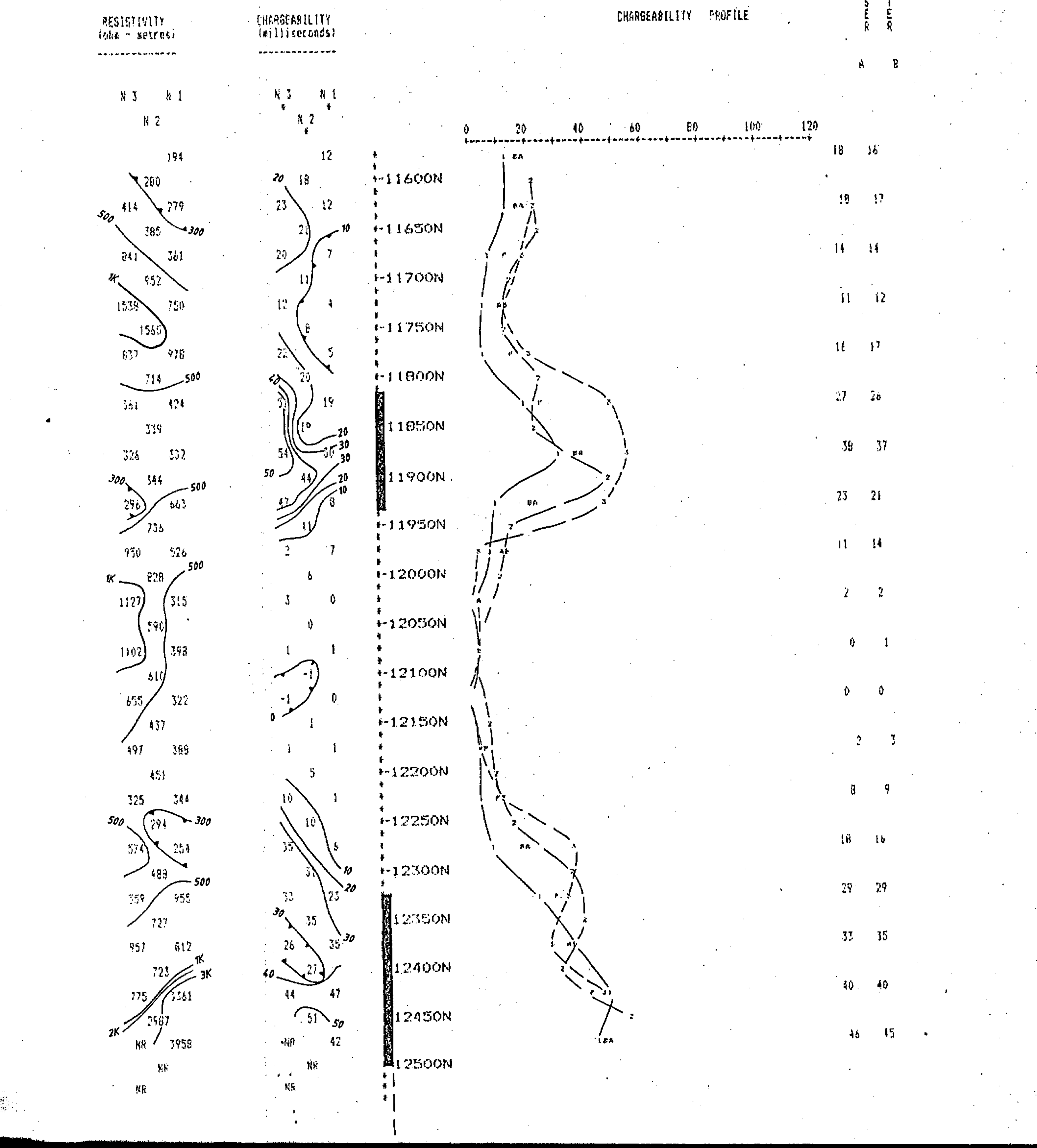
EXSICS EXPLORATION LTD.

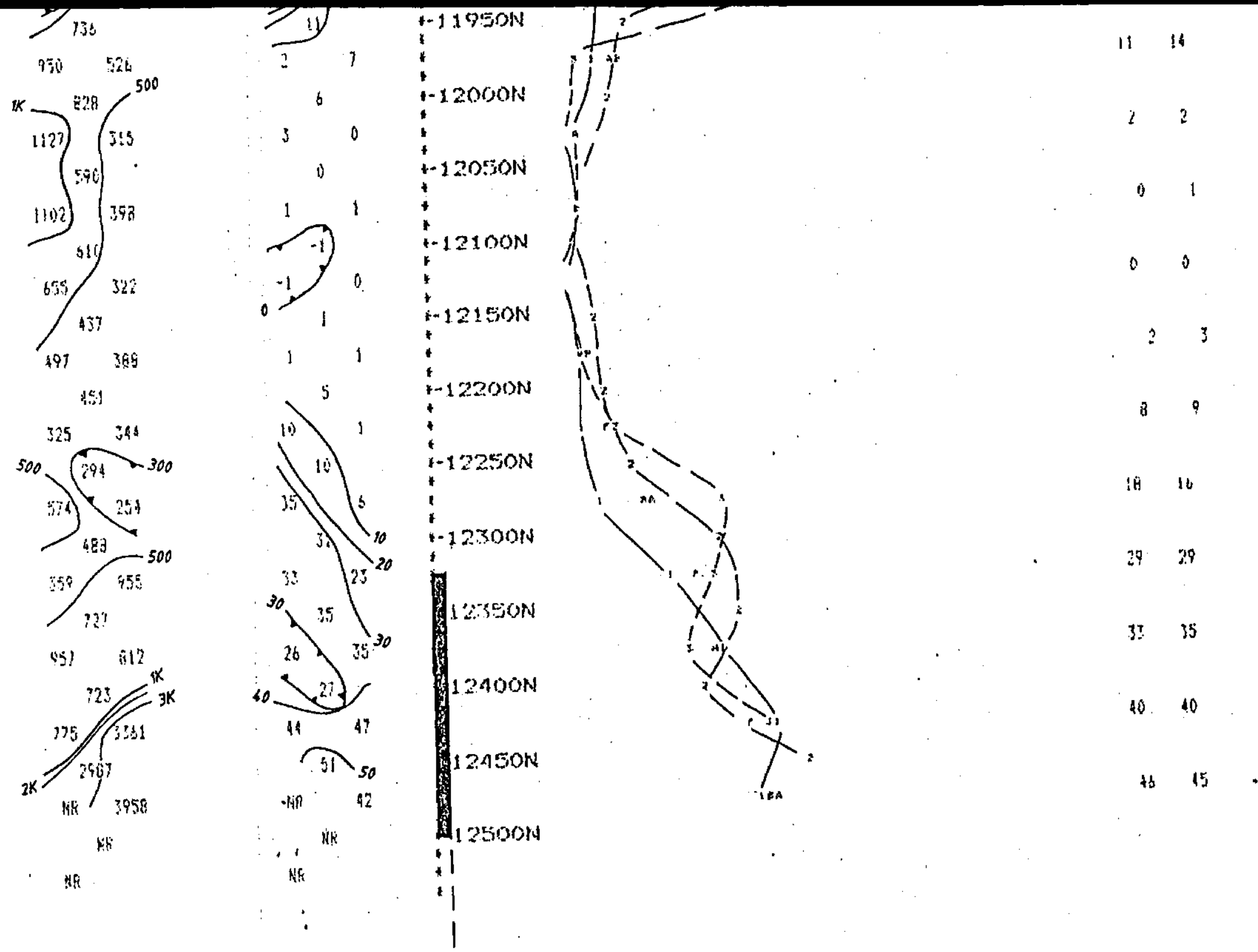
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 13200 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

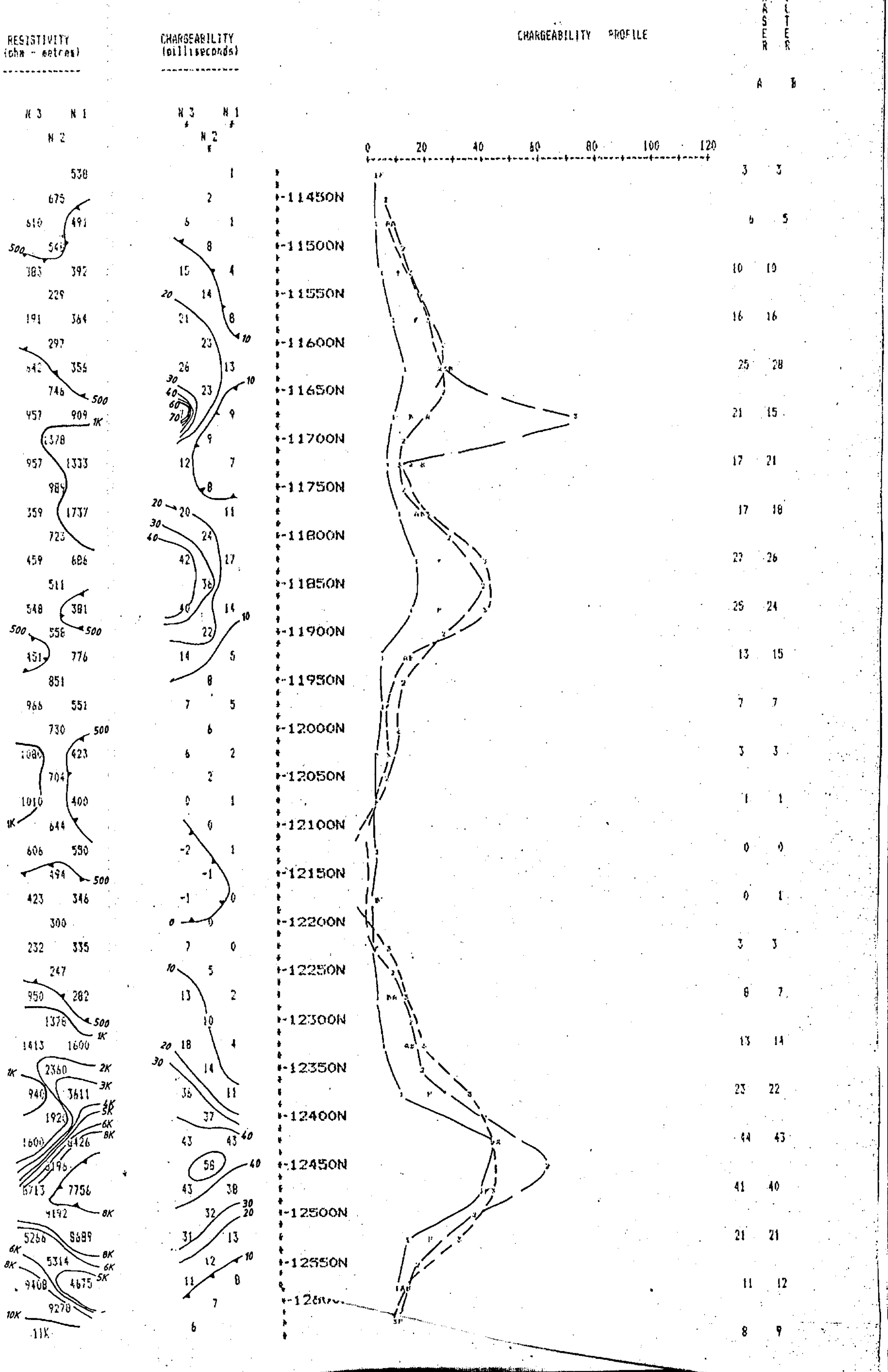
EXSICS EXPLORATION LTD.

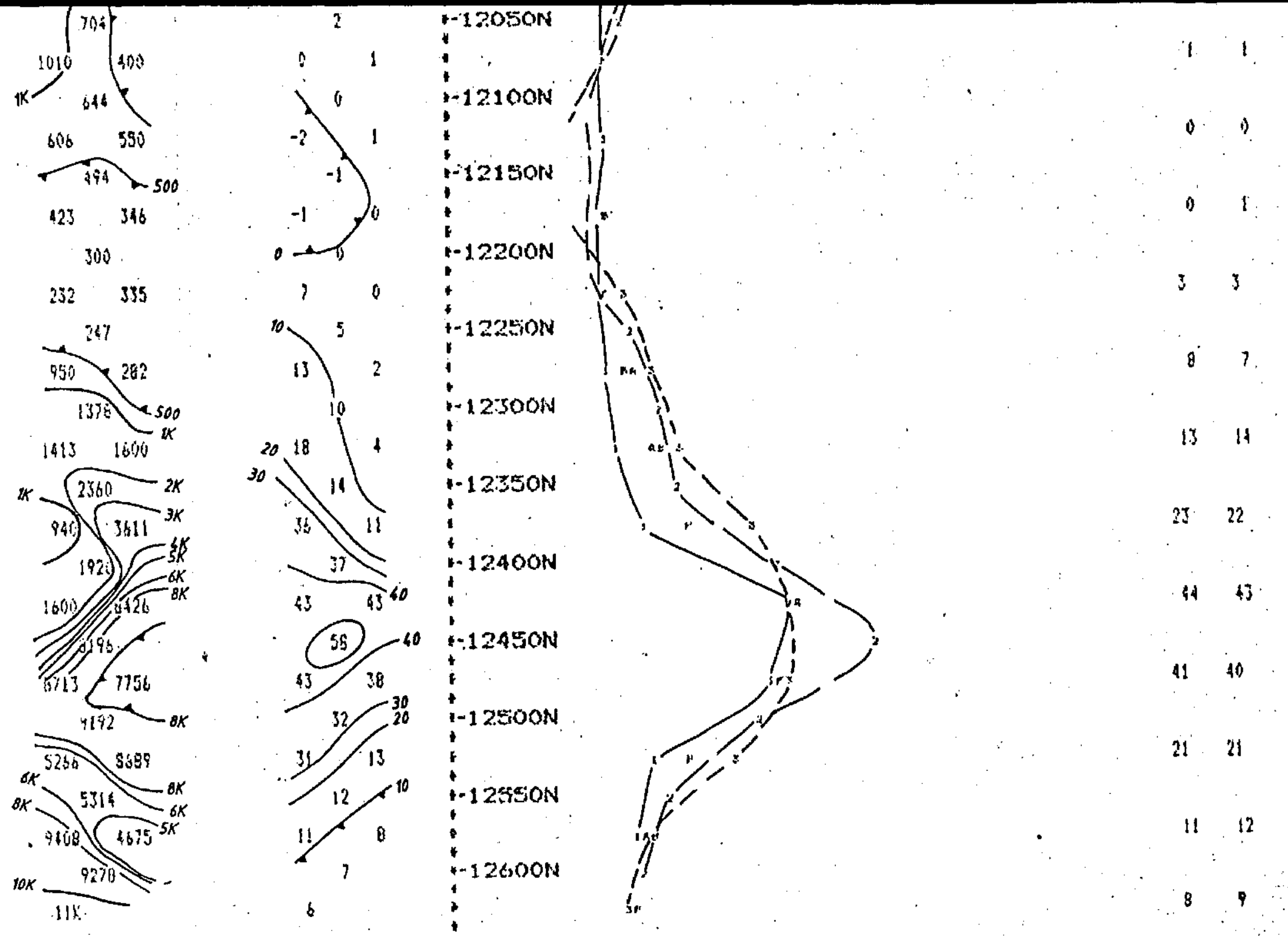
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 13100 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : FR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

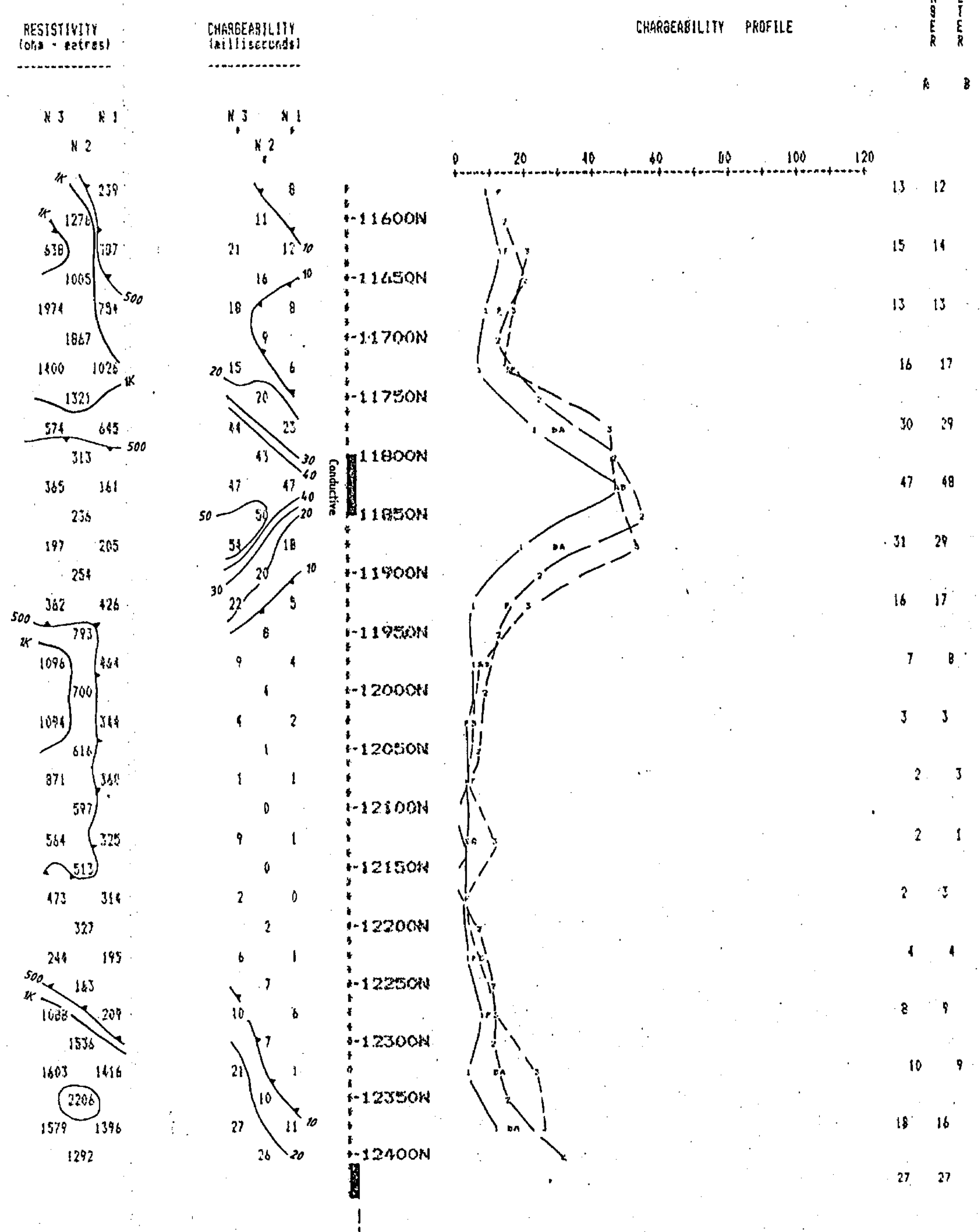
EXSICS EXPLORATION LTD.

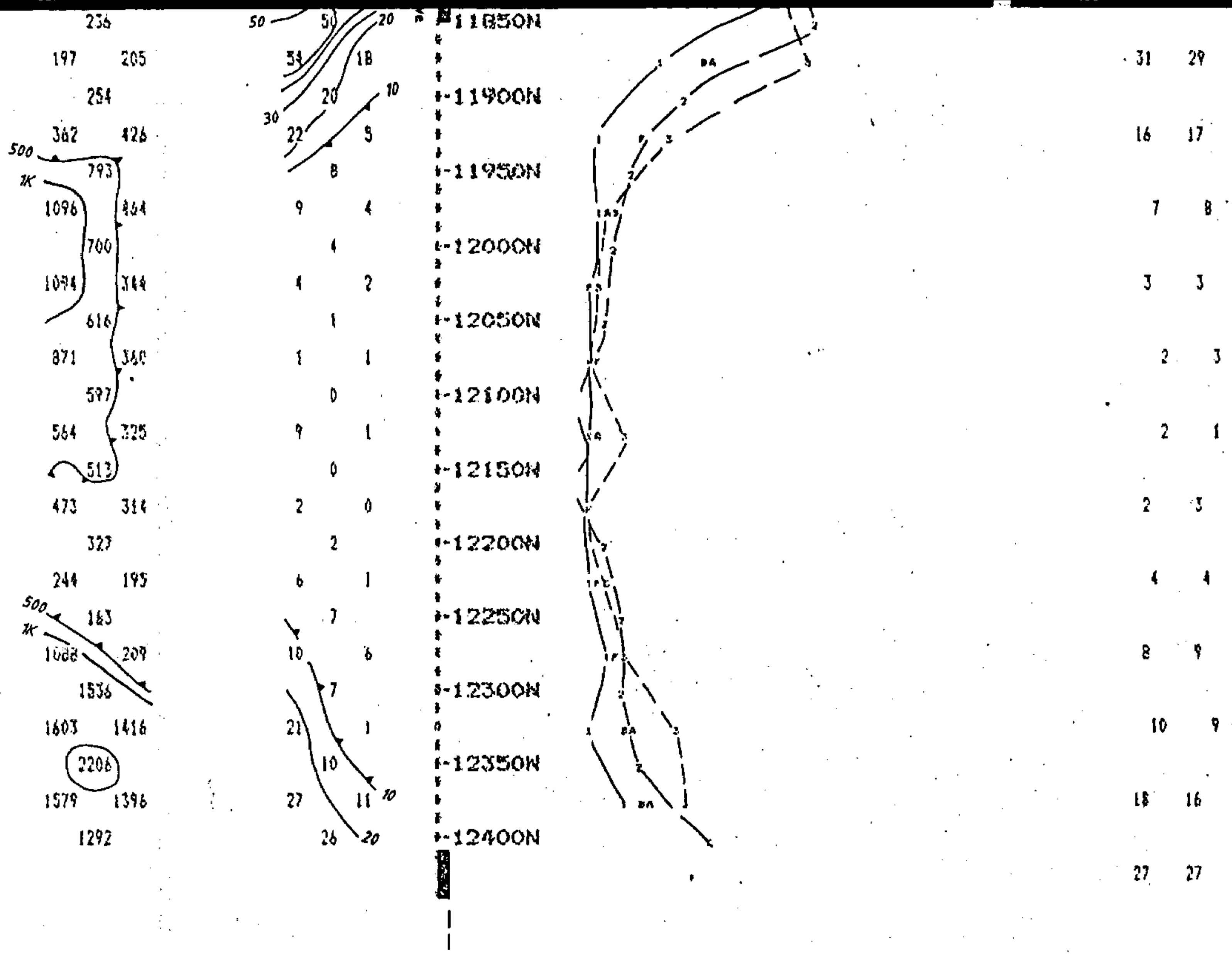
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 13000 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

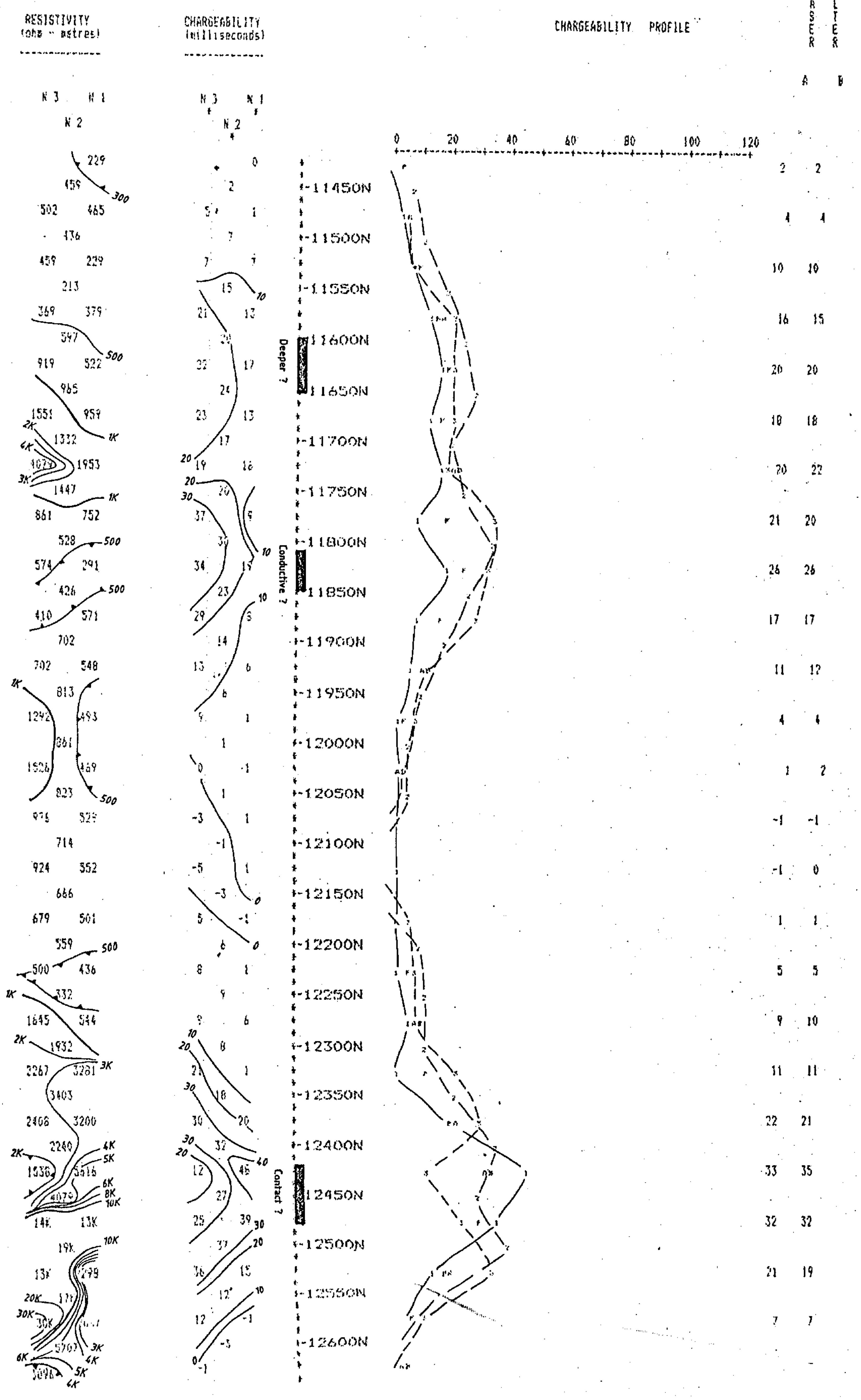
EXSICS EXPLORATION LTD.

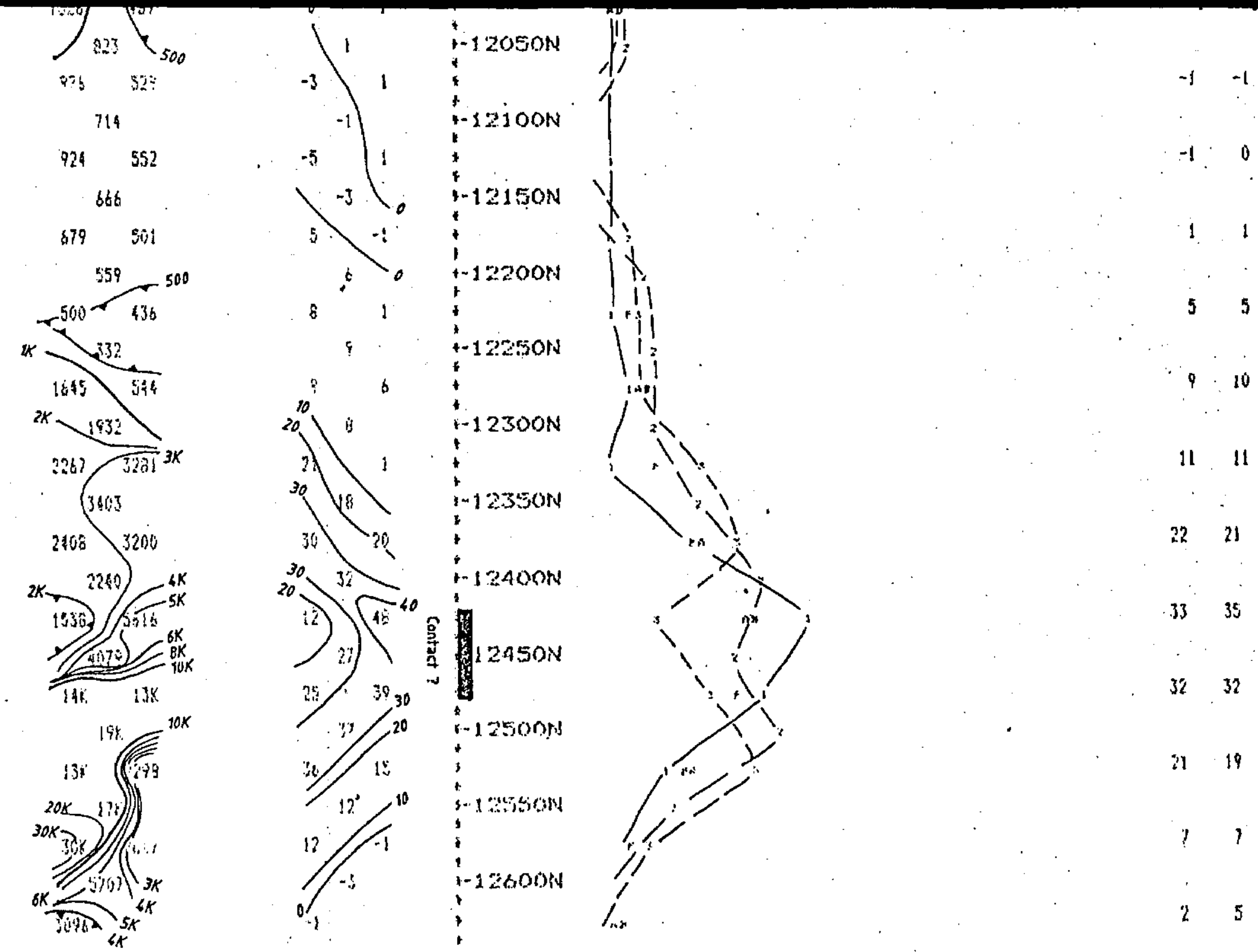
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12900 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

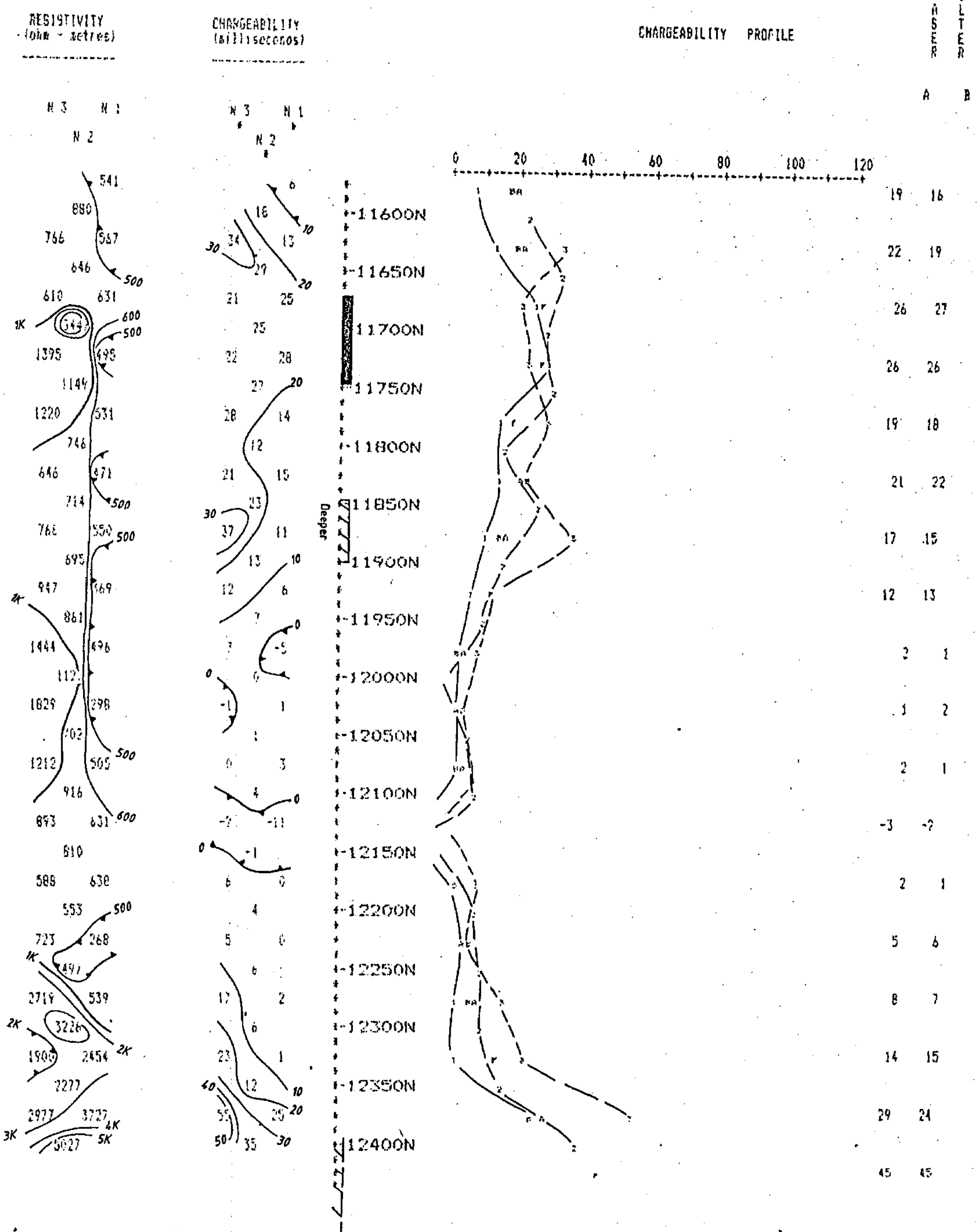
****

IP Pseudosections for N = 1 to 3

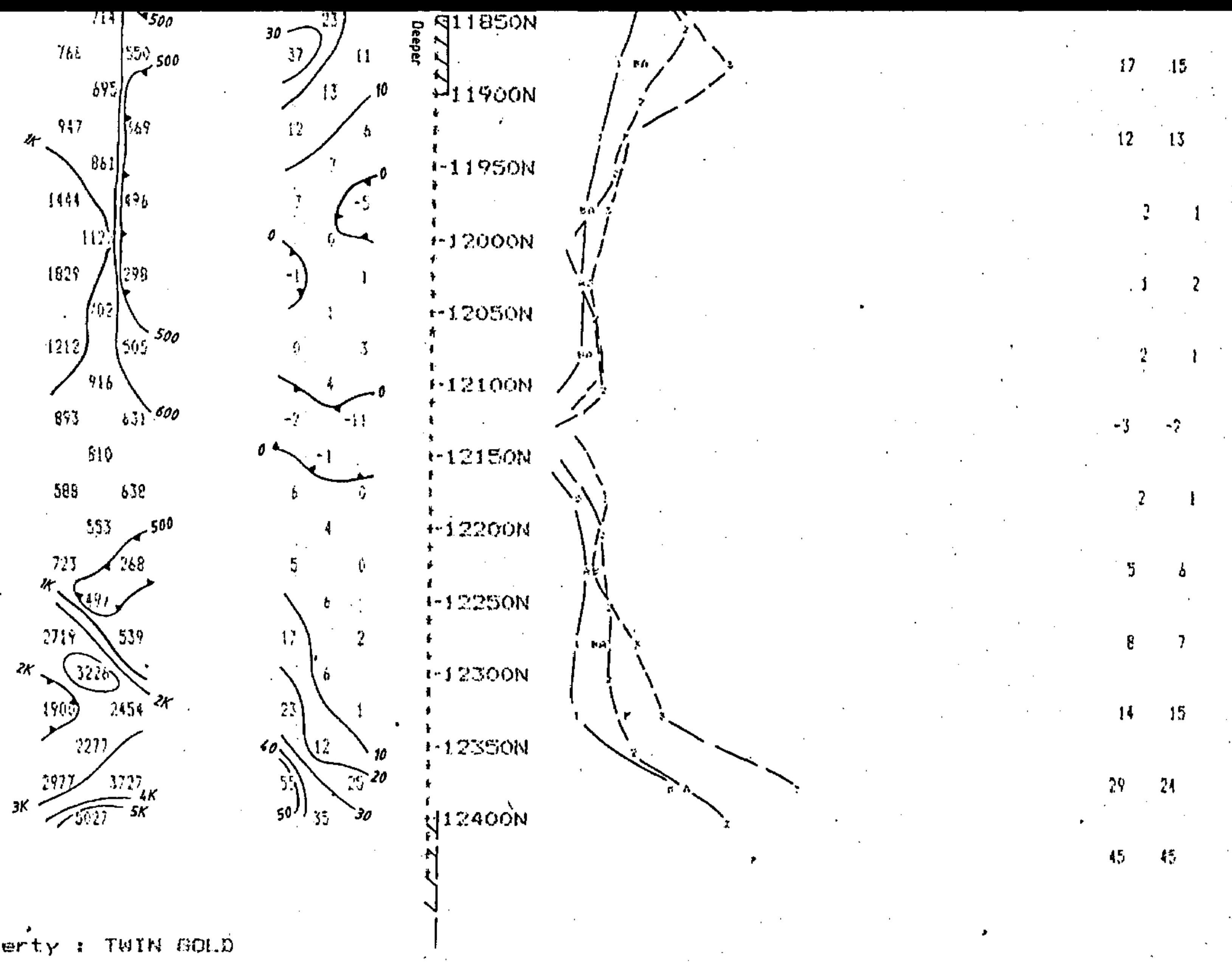
'a' Spacing = 50 ft

LINE 12800 E

SCALE : 1 inch to 100 feet



Property : TWIN GOLD



Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

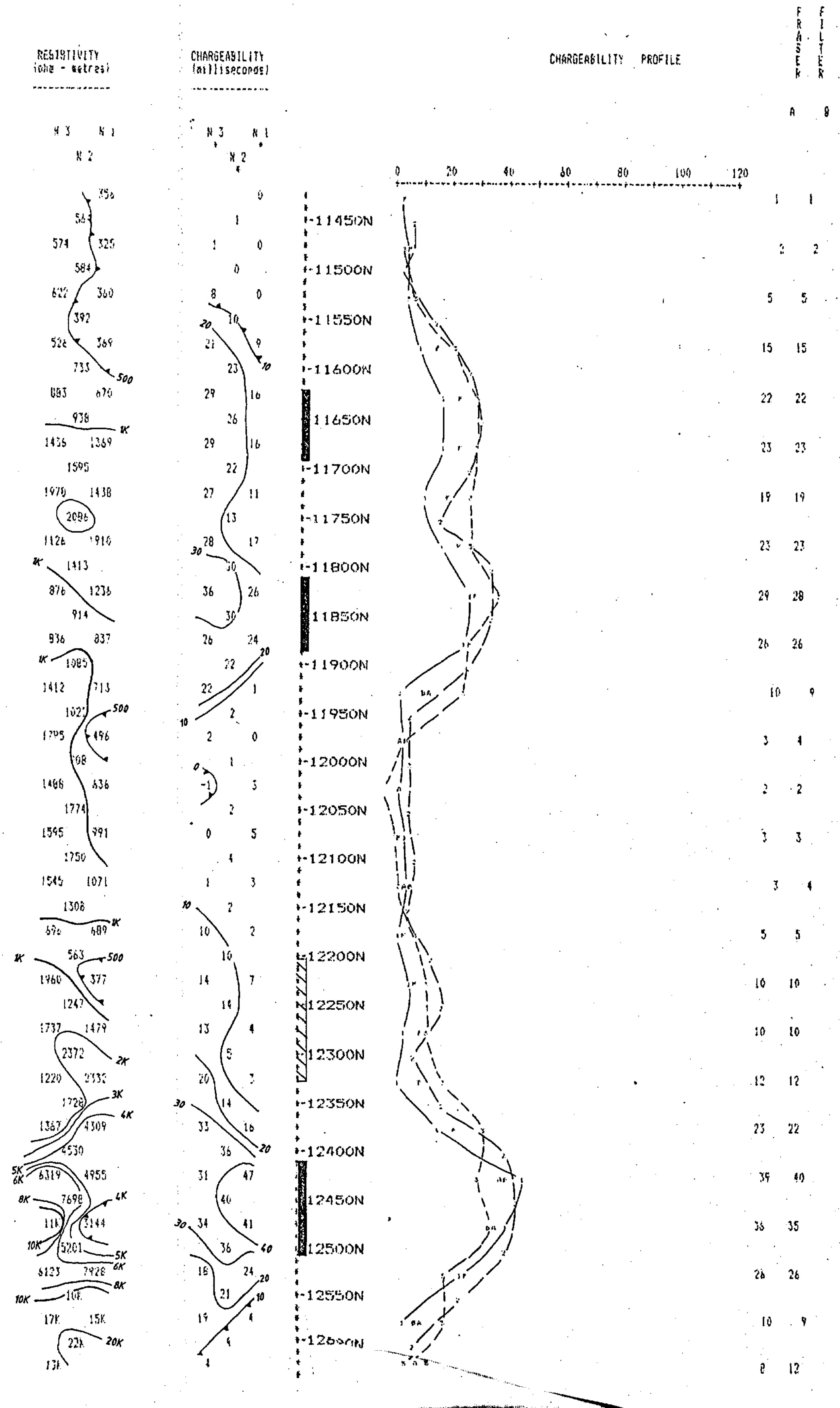
****

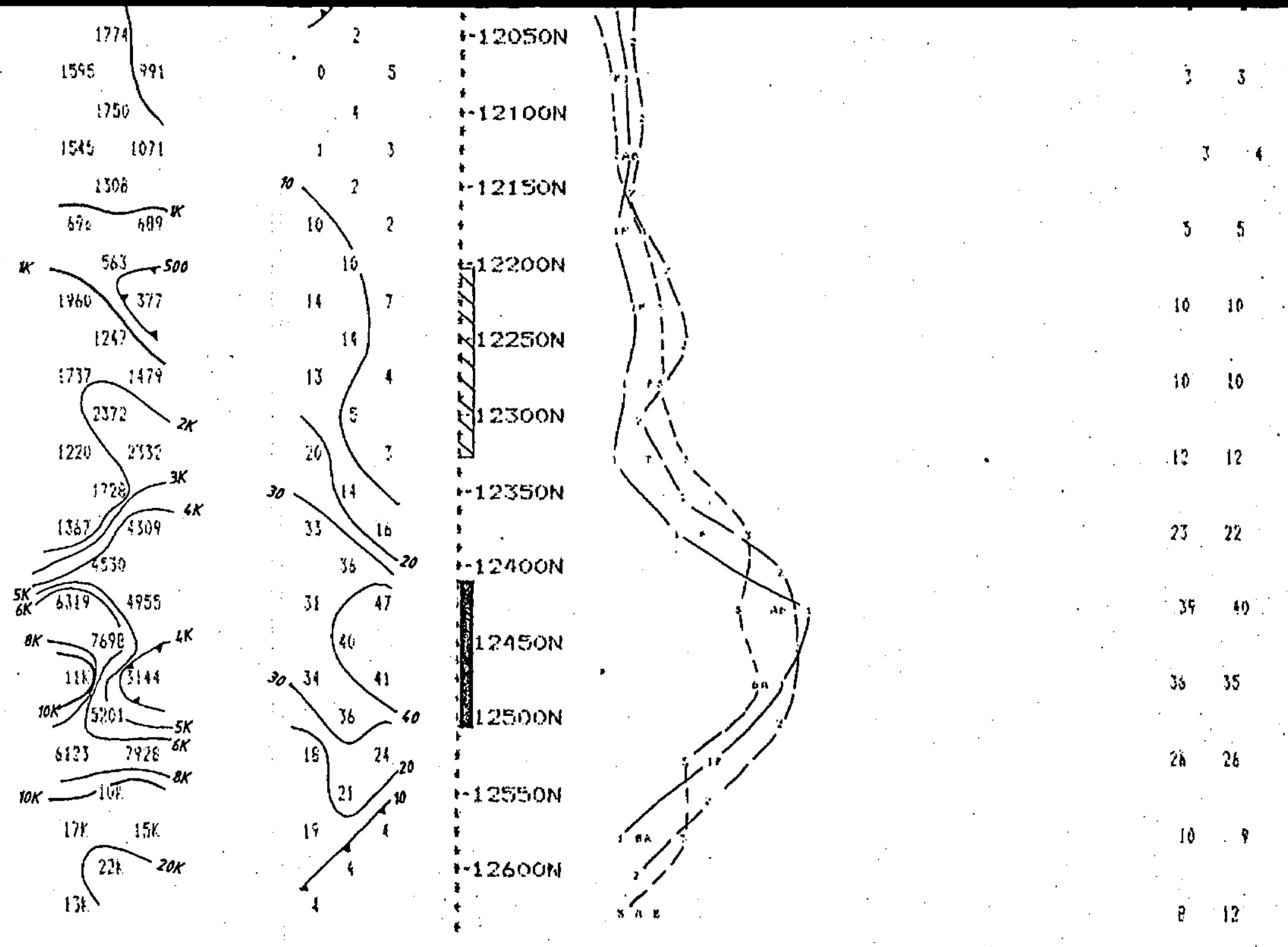
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12700 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

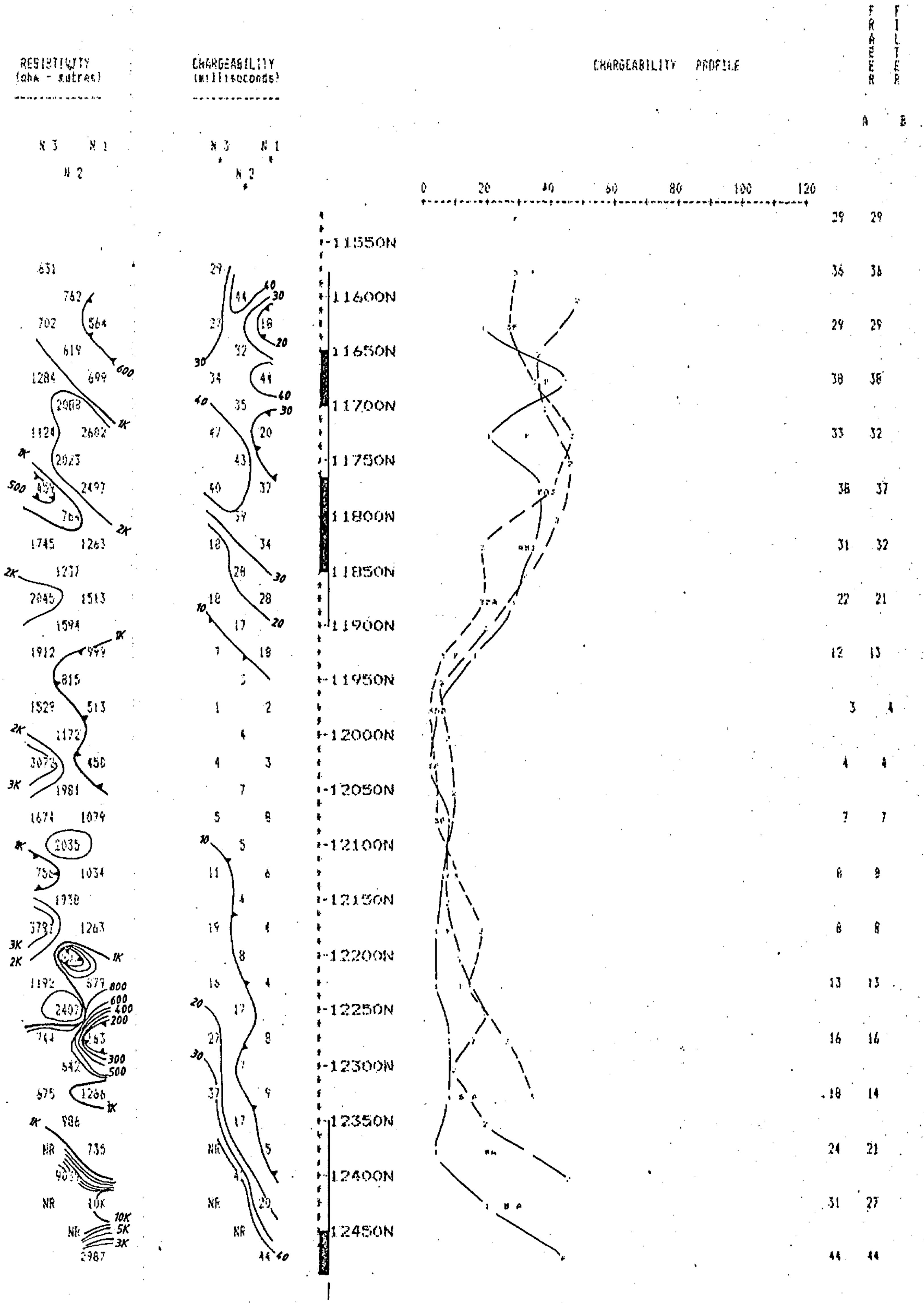
EXSICS EXPLORATION LTD.

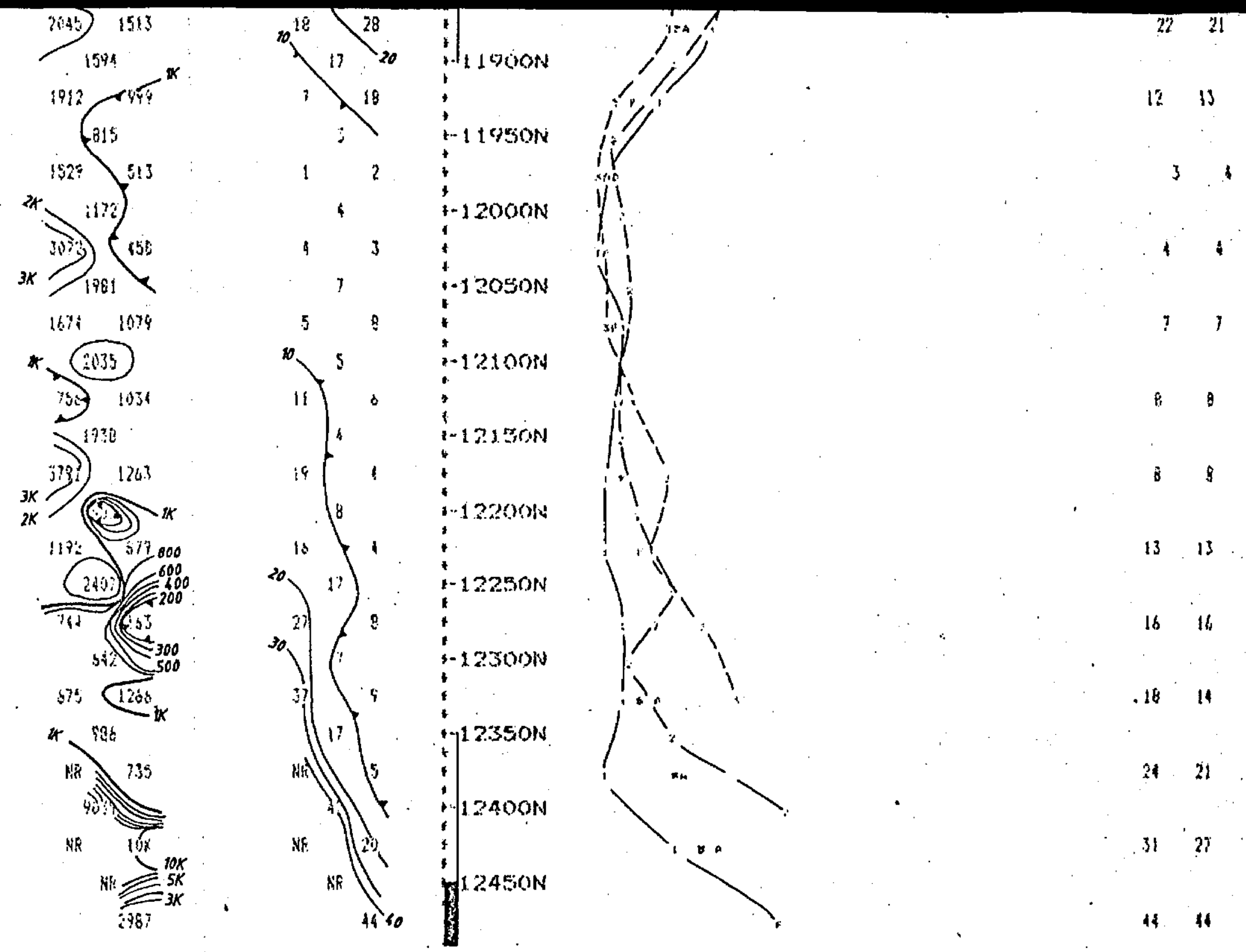
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12600 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

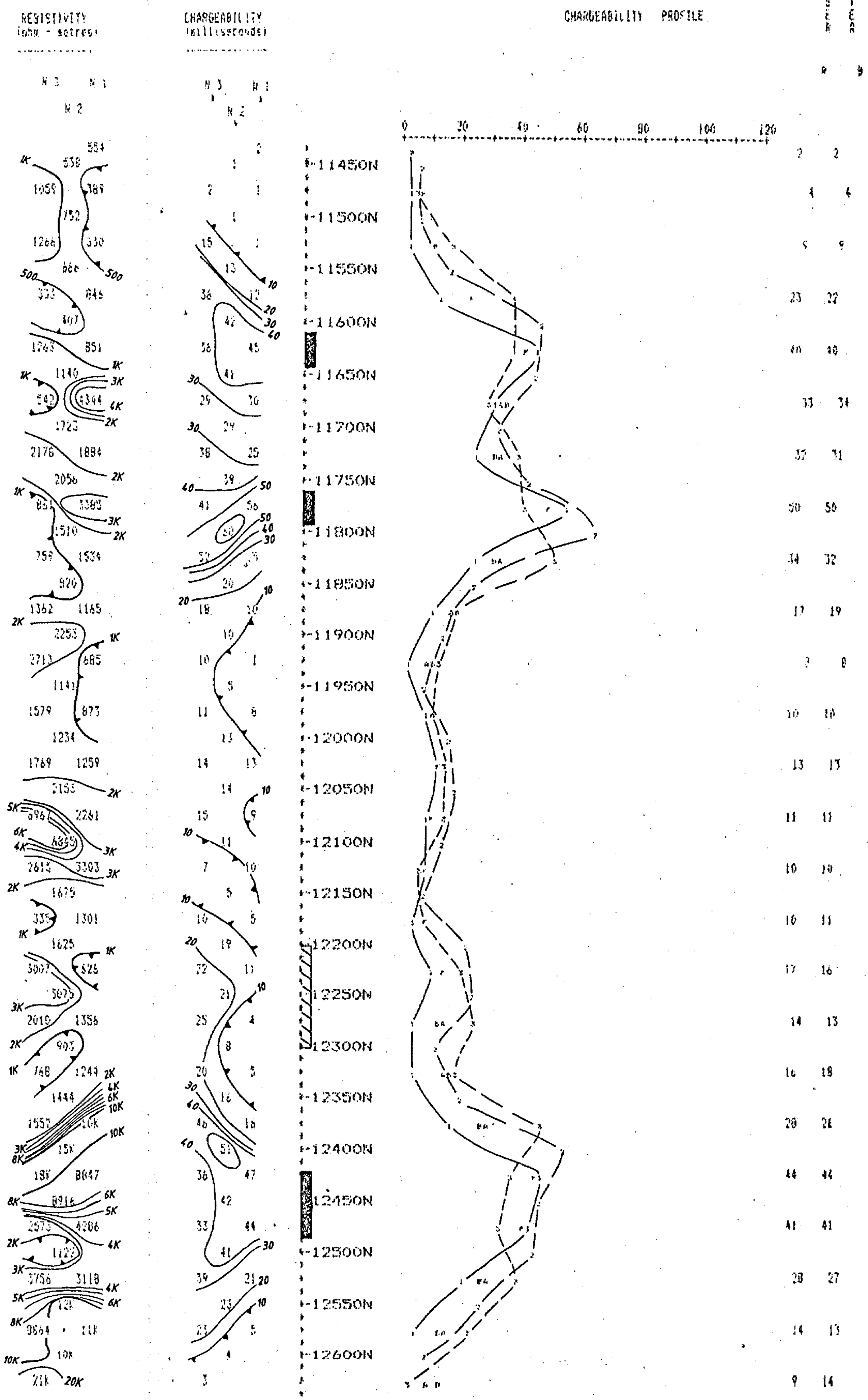
****
EXSICS EXPLORATION LTD.
****

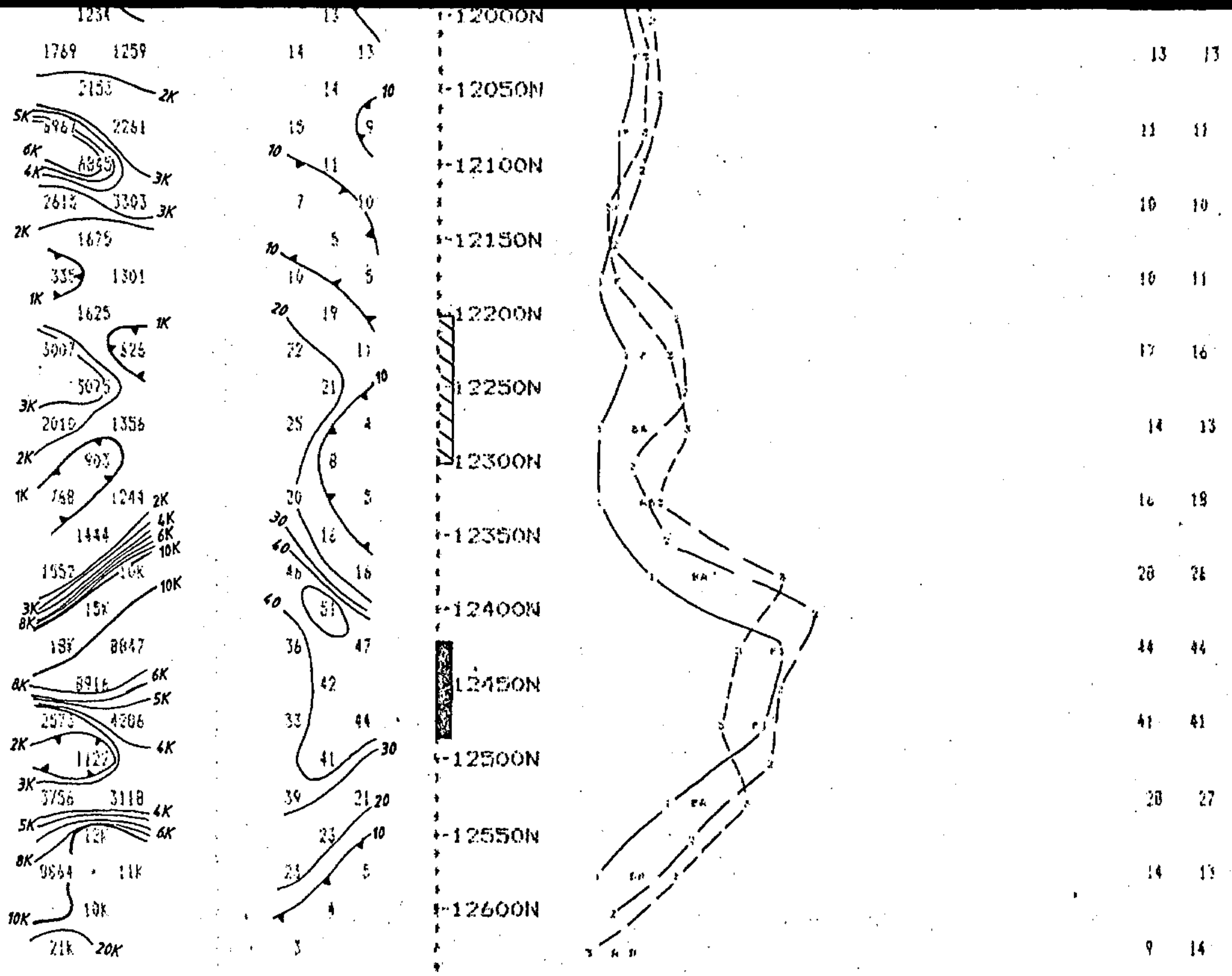
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12500 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSÍCS EXPLORATION LTD.

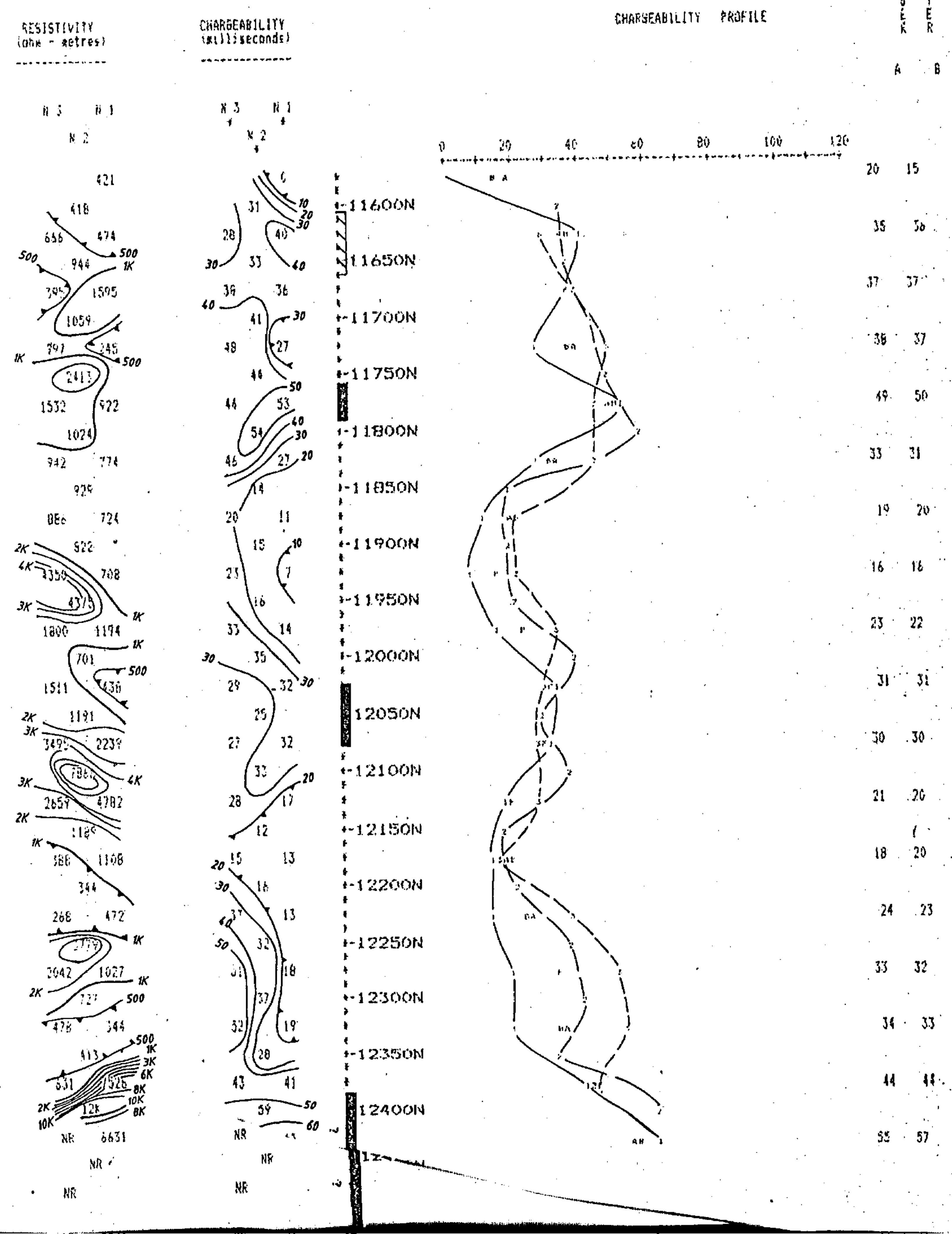
****

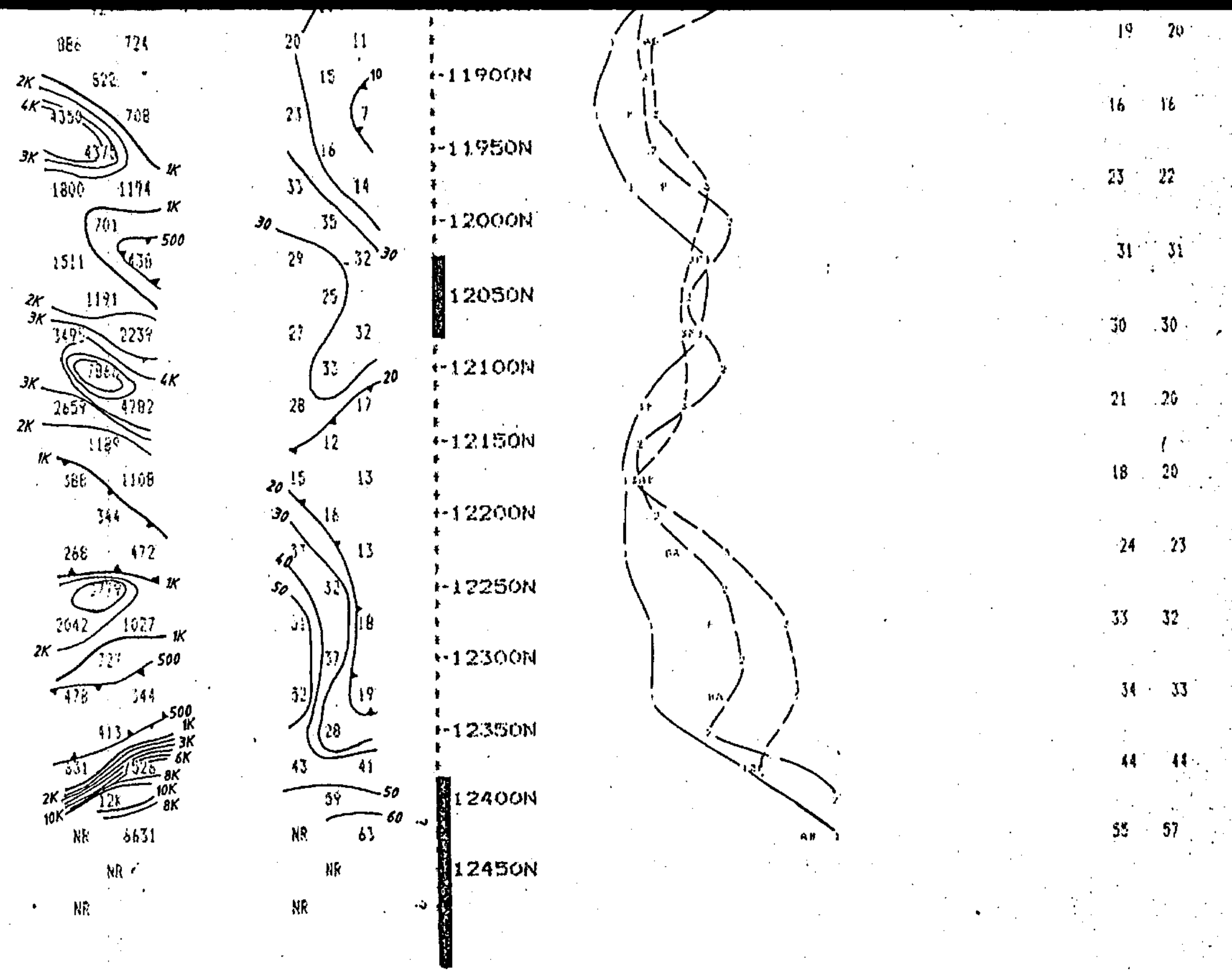
IP Pseudosections for N = 1 to 5

'a' Spacing = 50 ft

LINE 12400 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

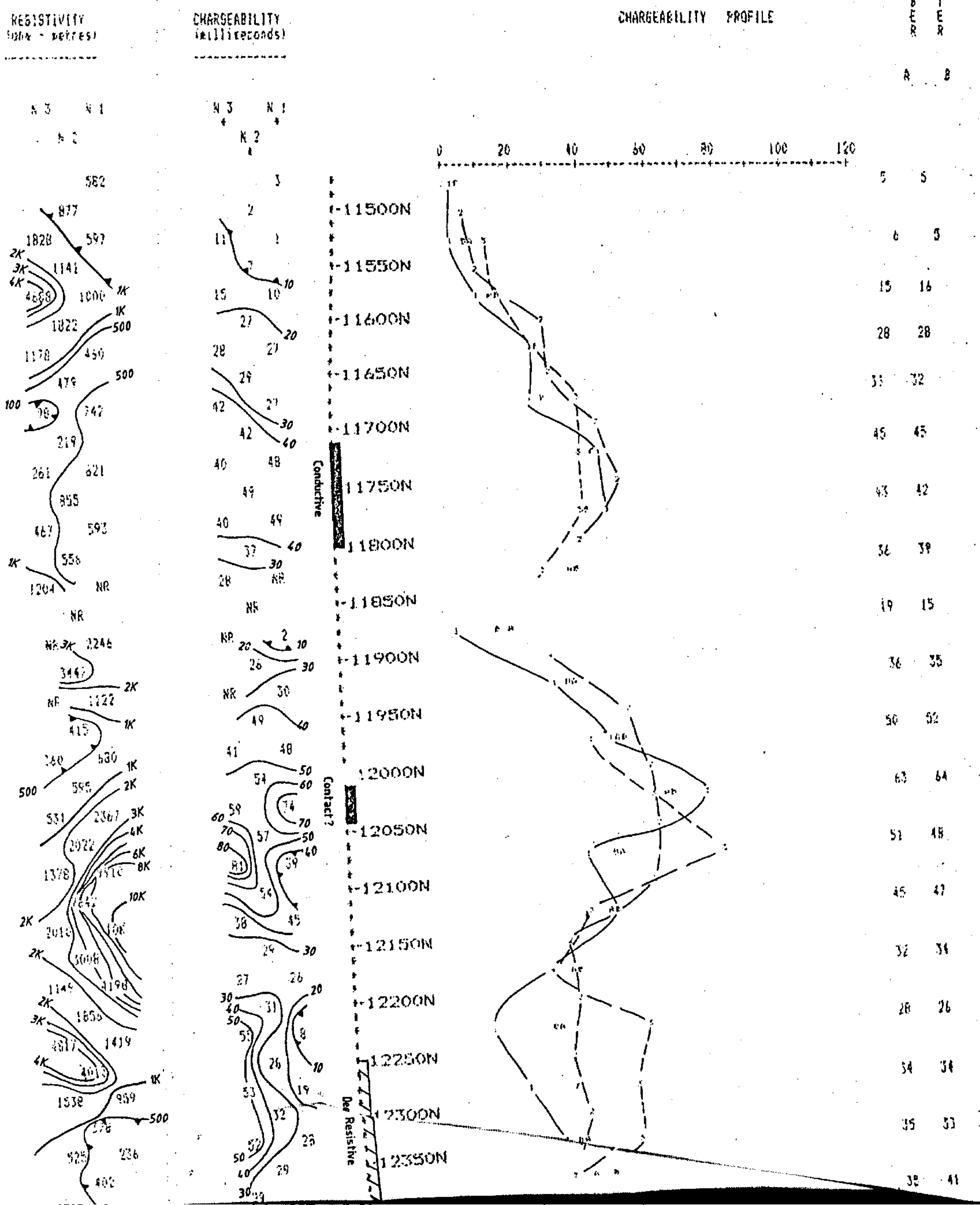
EXSICS EXPLORATION LTD.

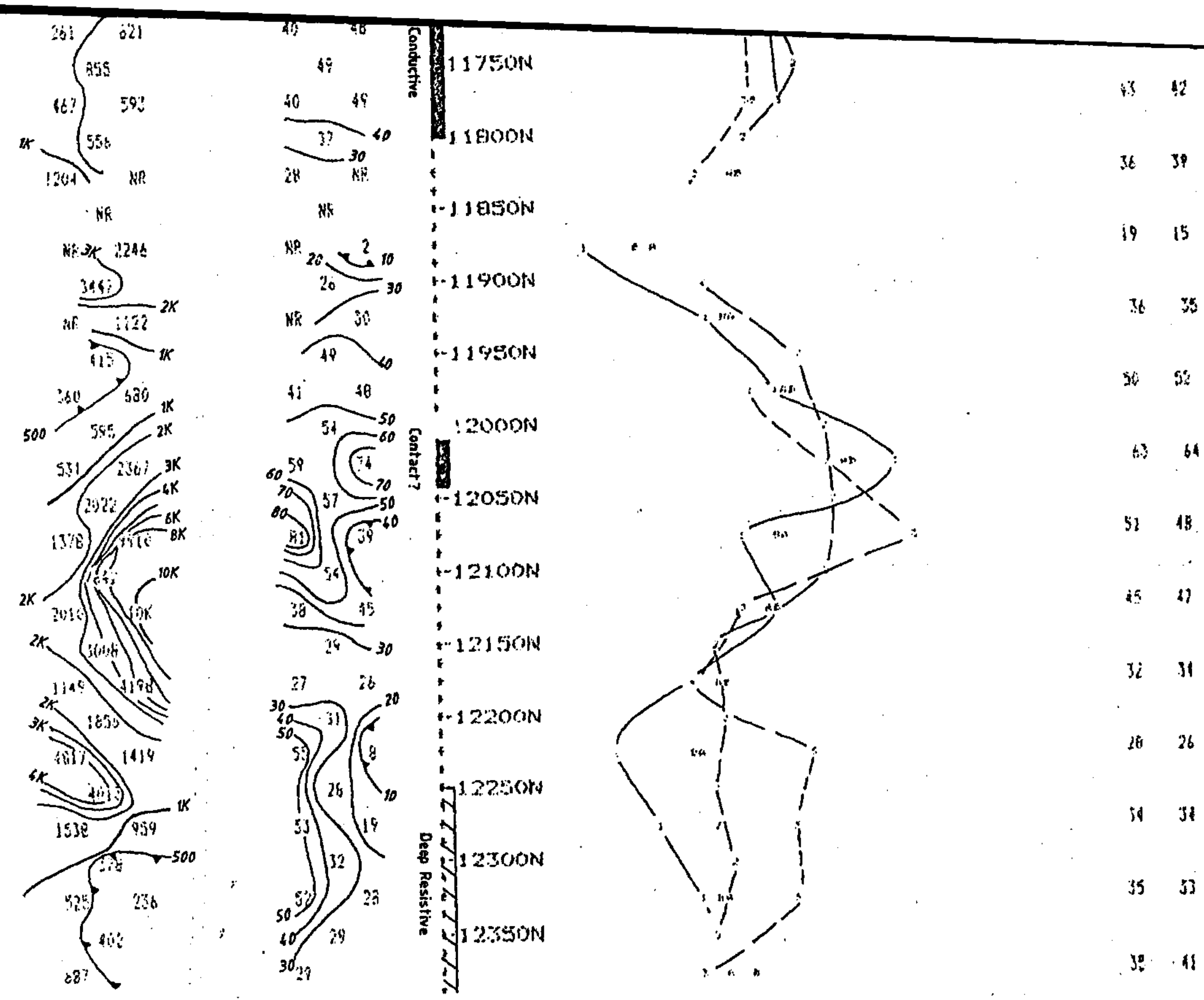
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12300 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

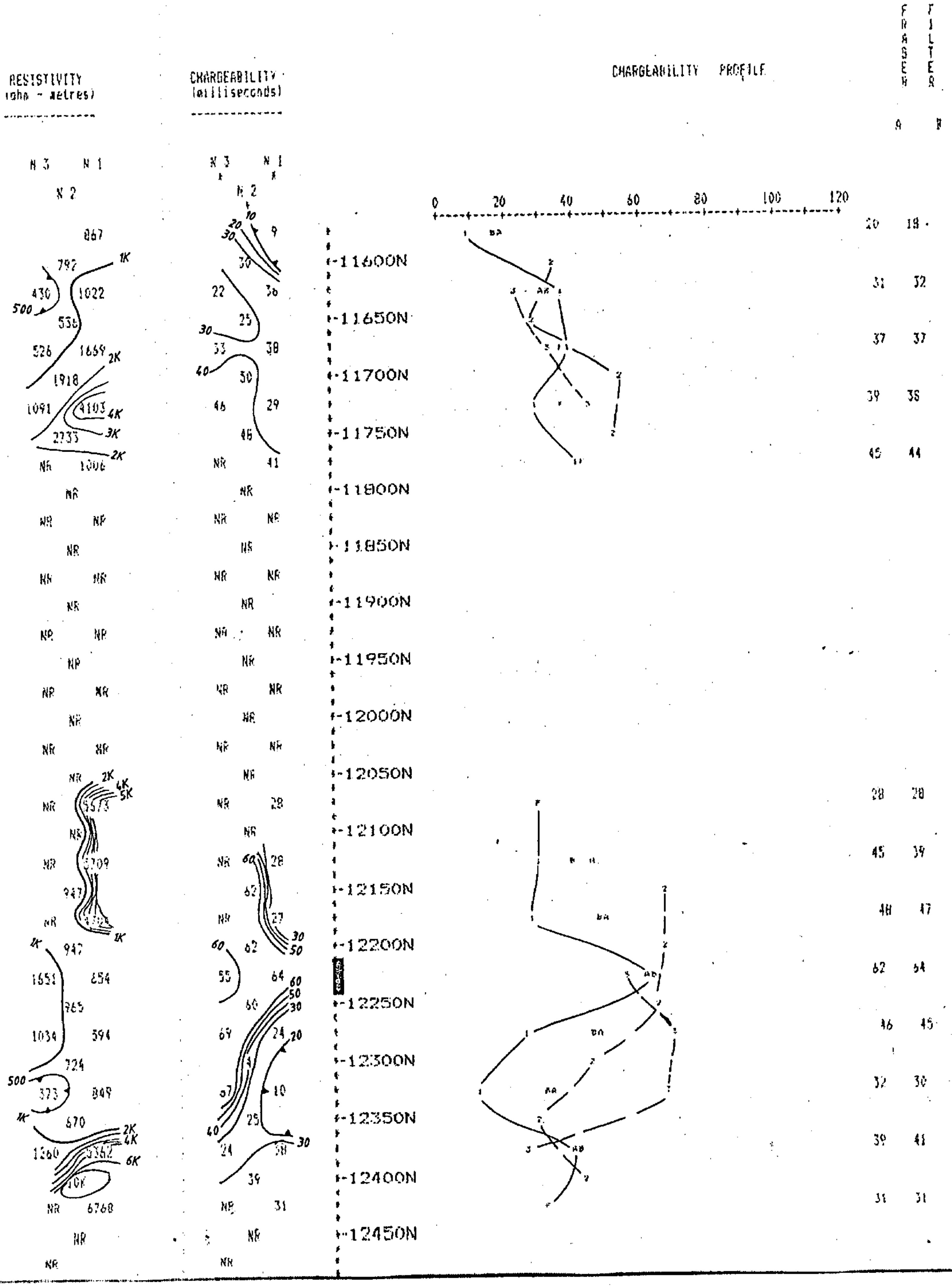
****

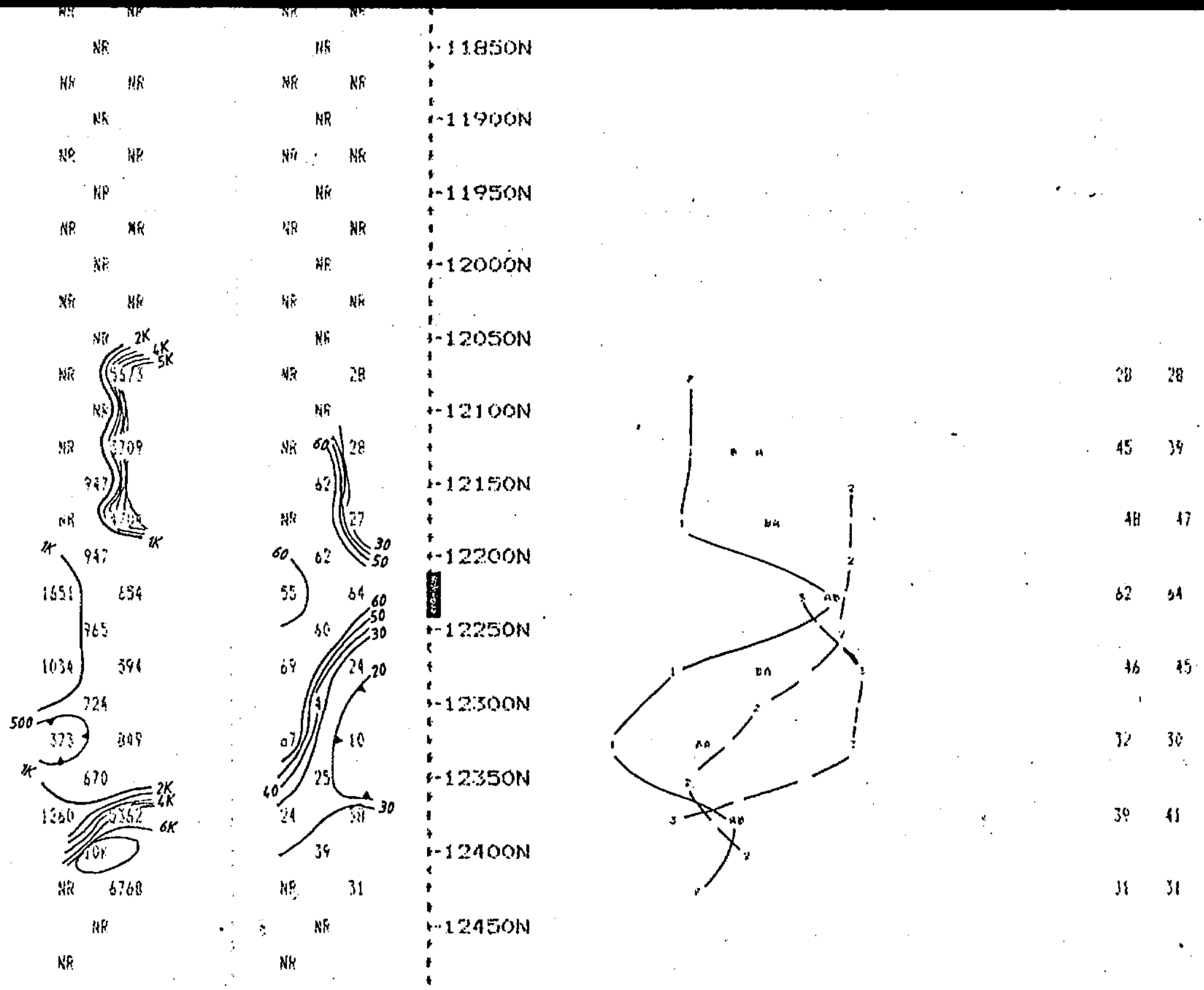
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12200 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

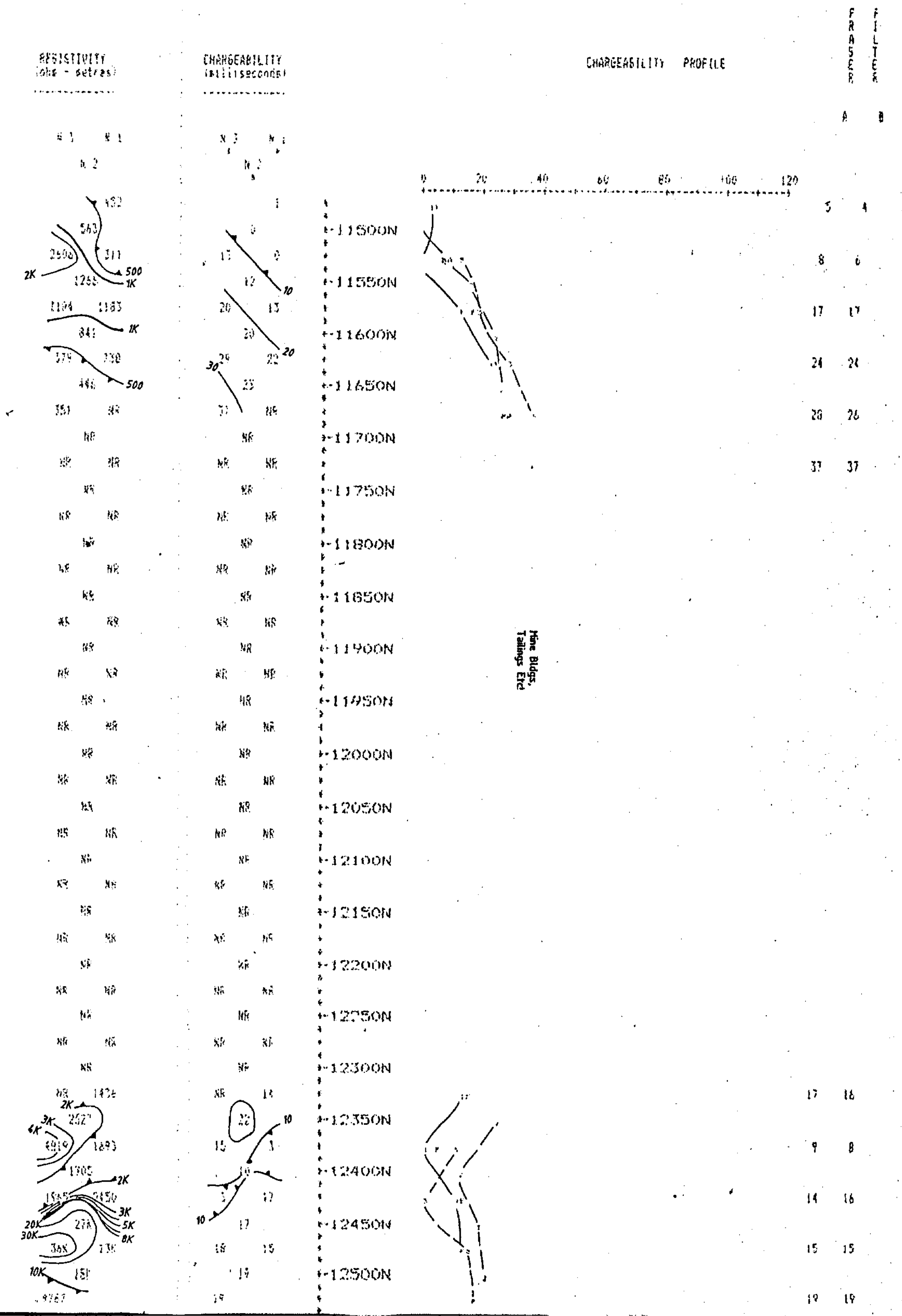
****

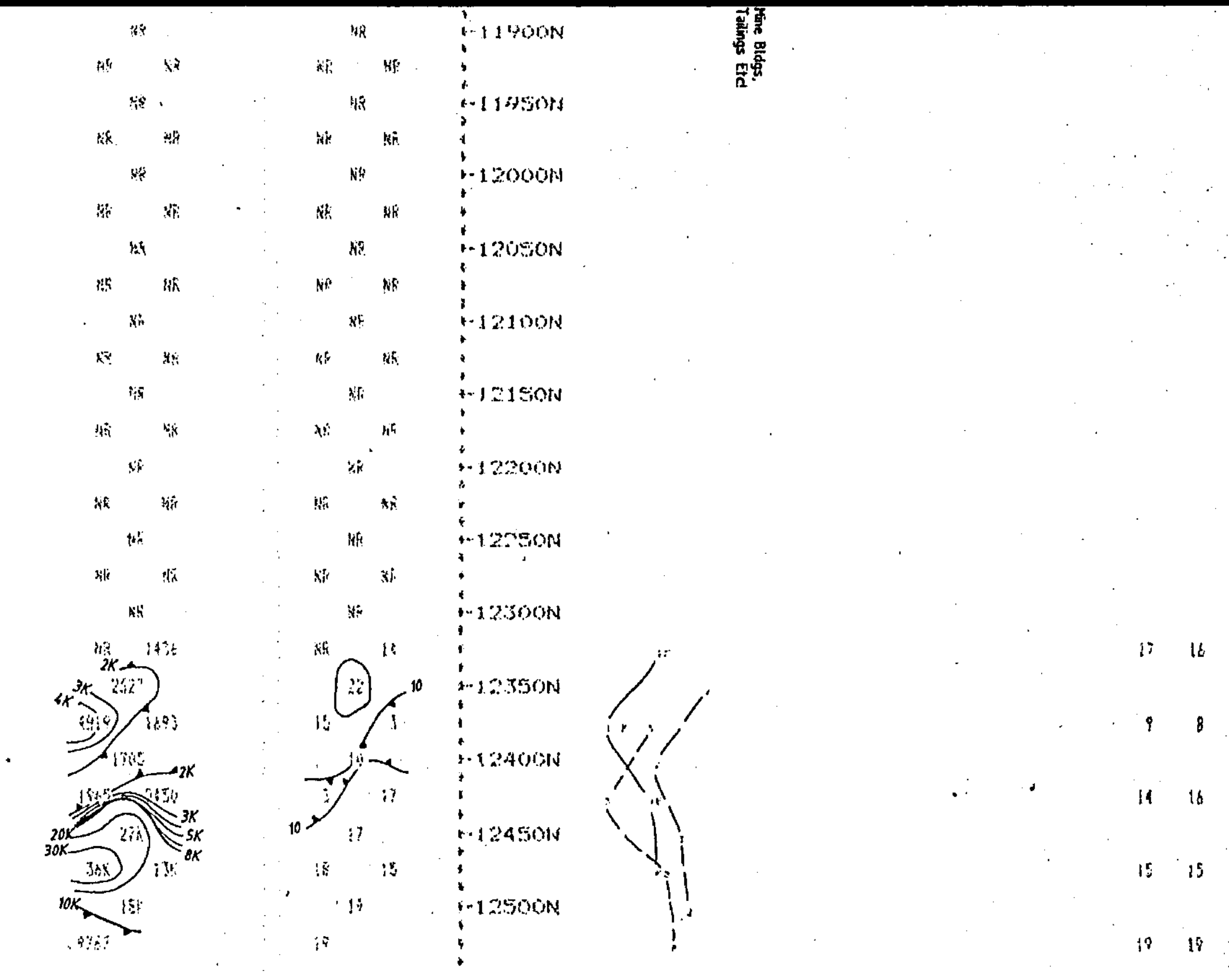
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12100 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

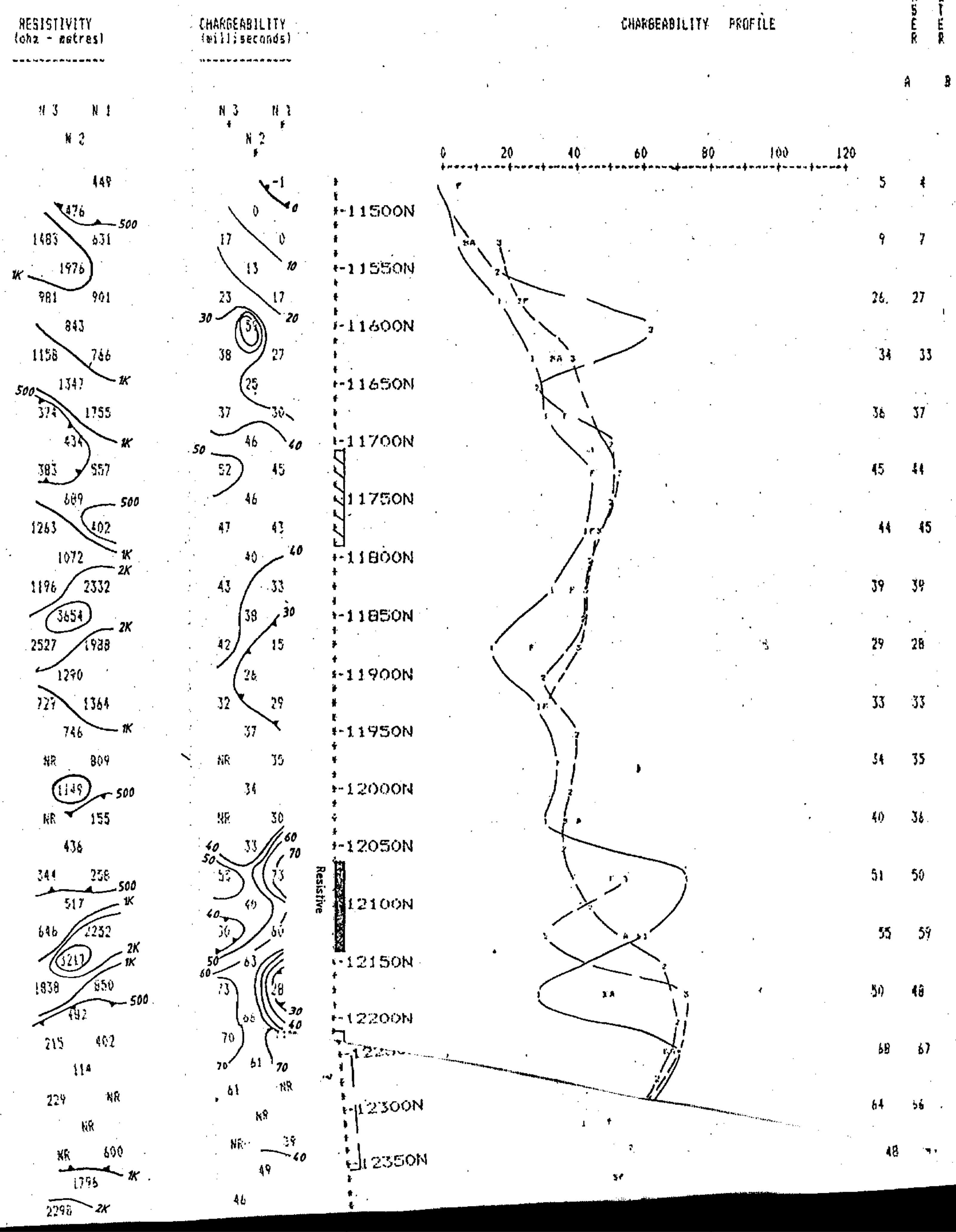
EXSICS EXPLORATION LTD.

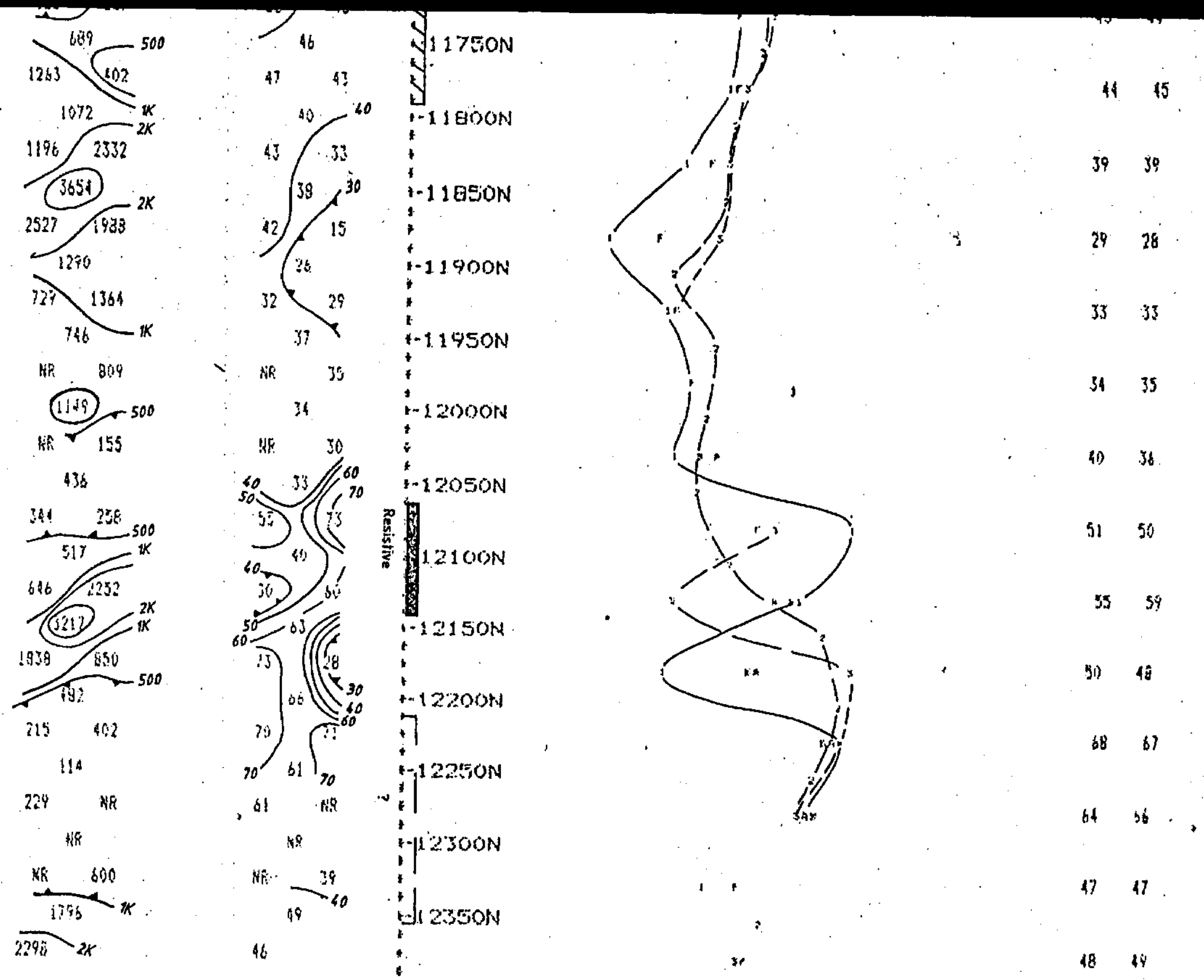
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 12000 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

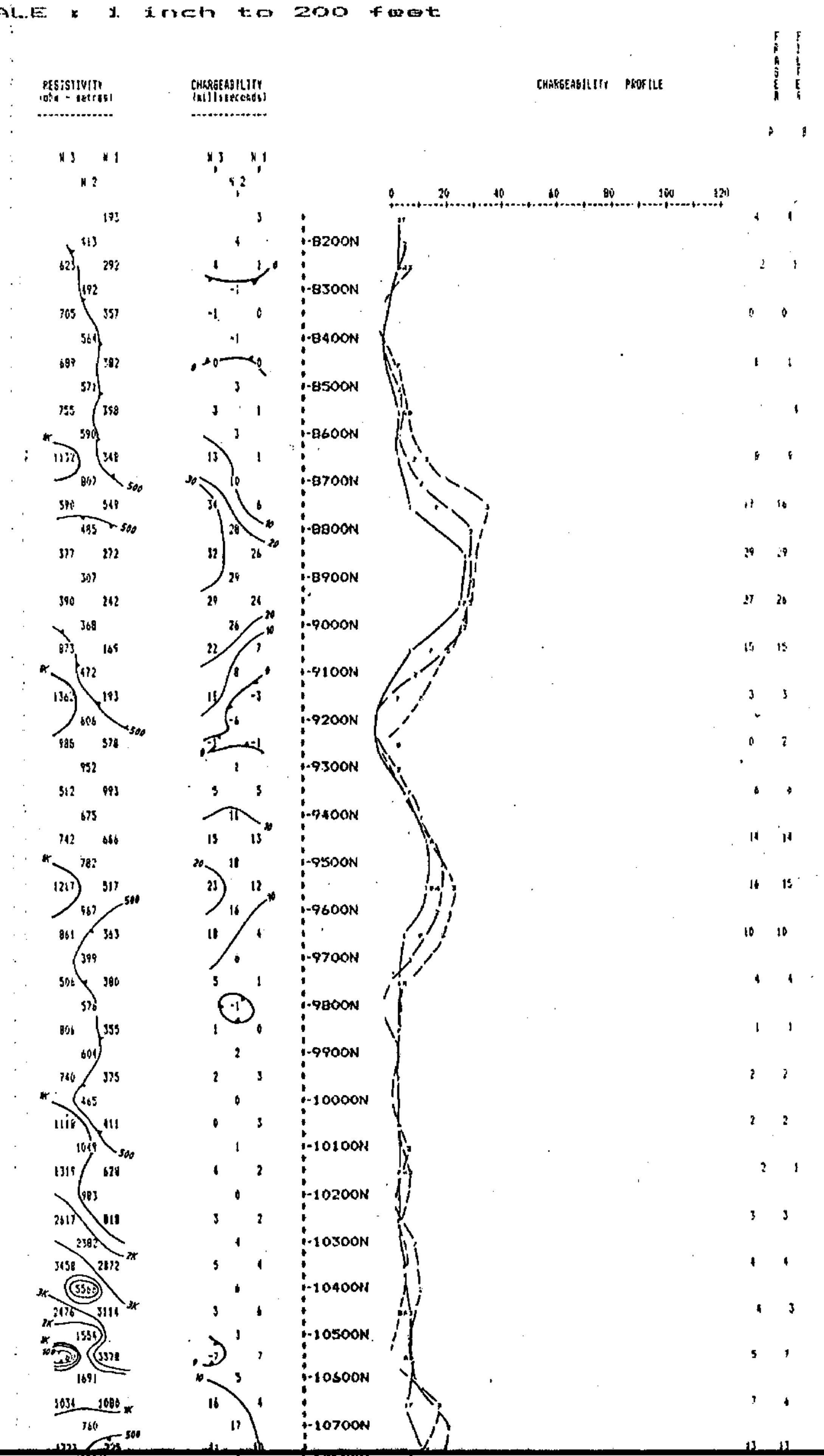
****

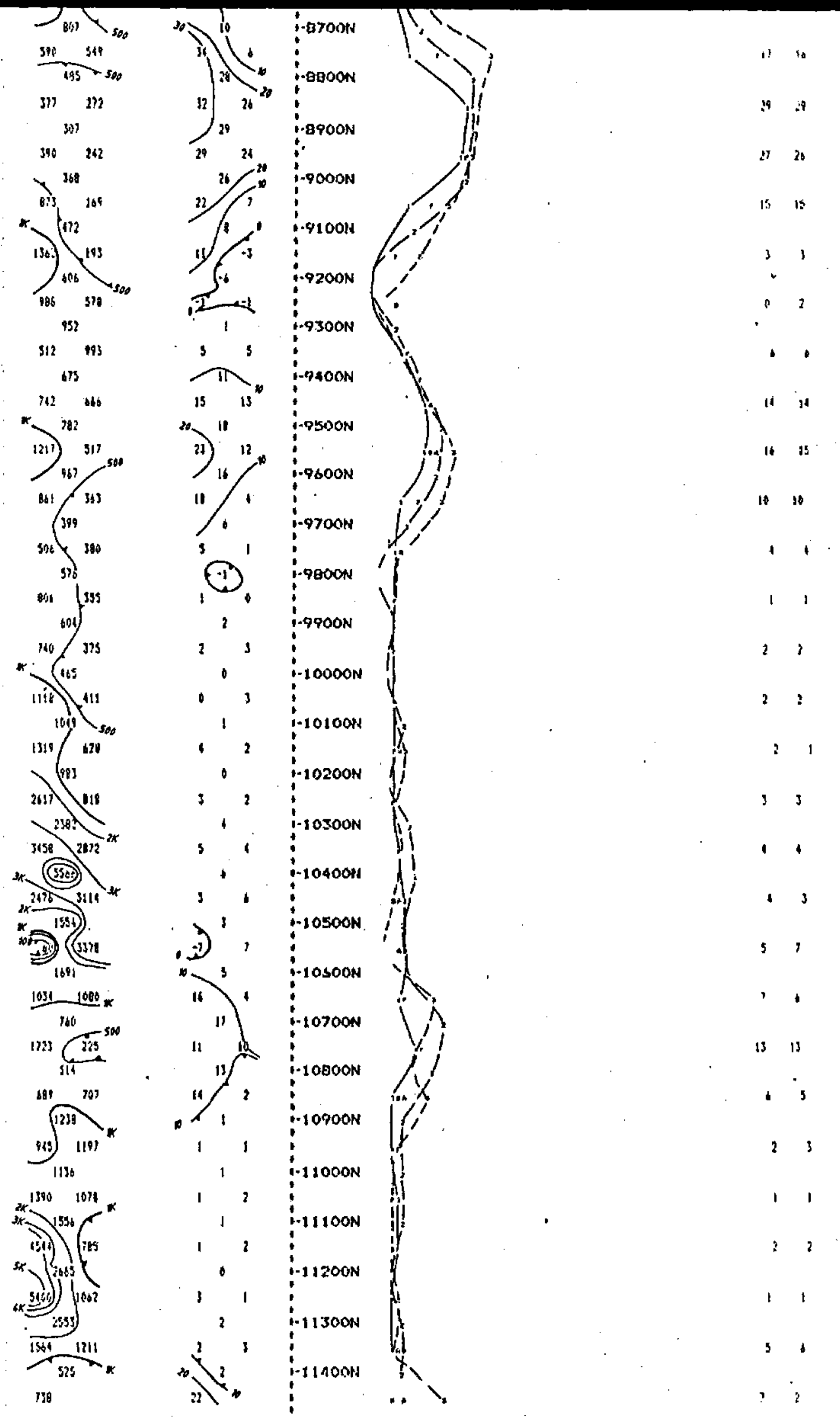
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 11900 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 10/8/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

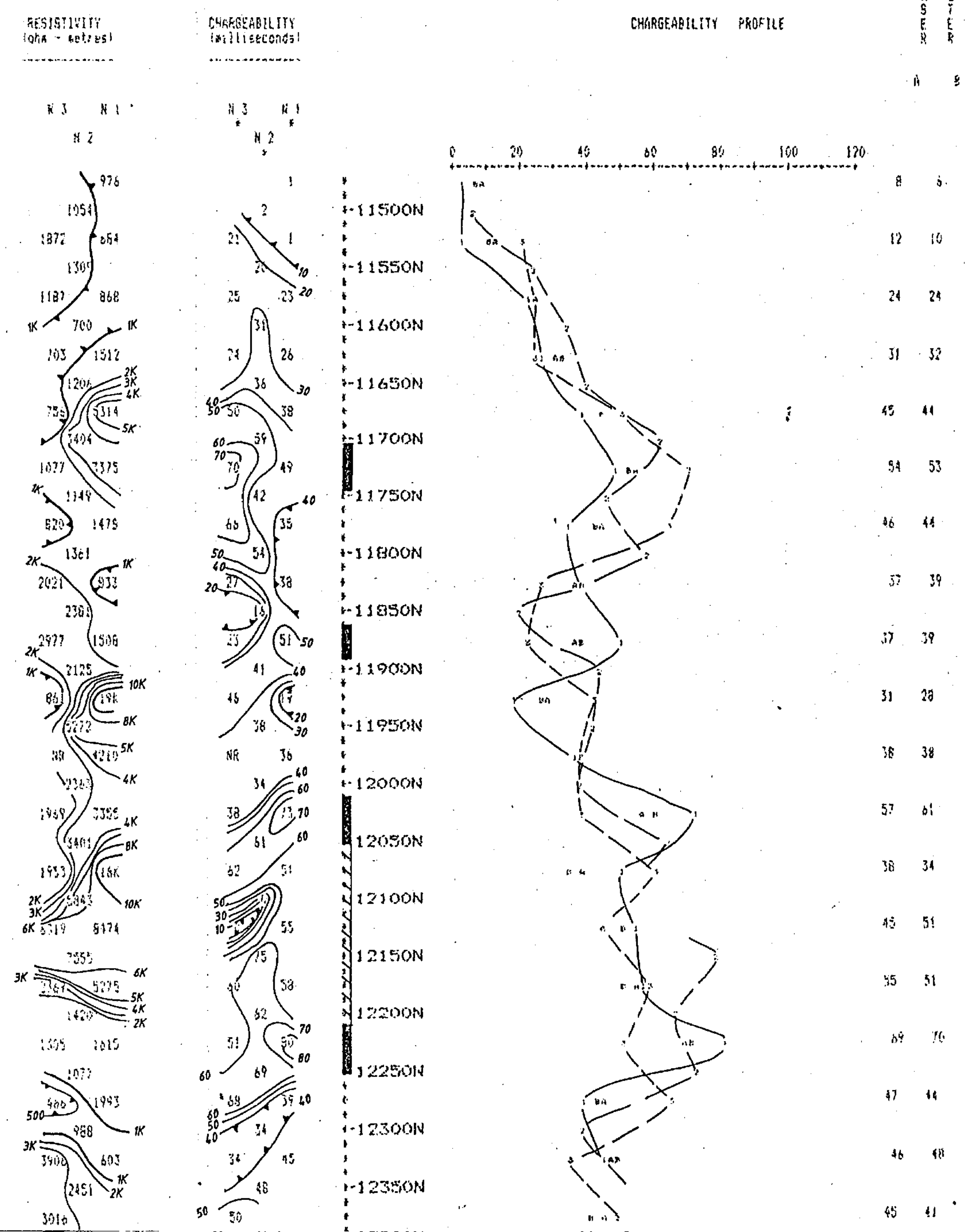
****
EXSICS EXPLORATION LTD.
****

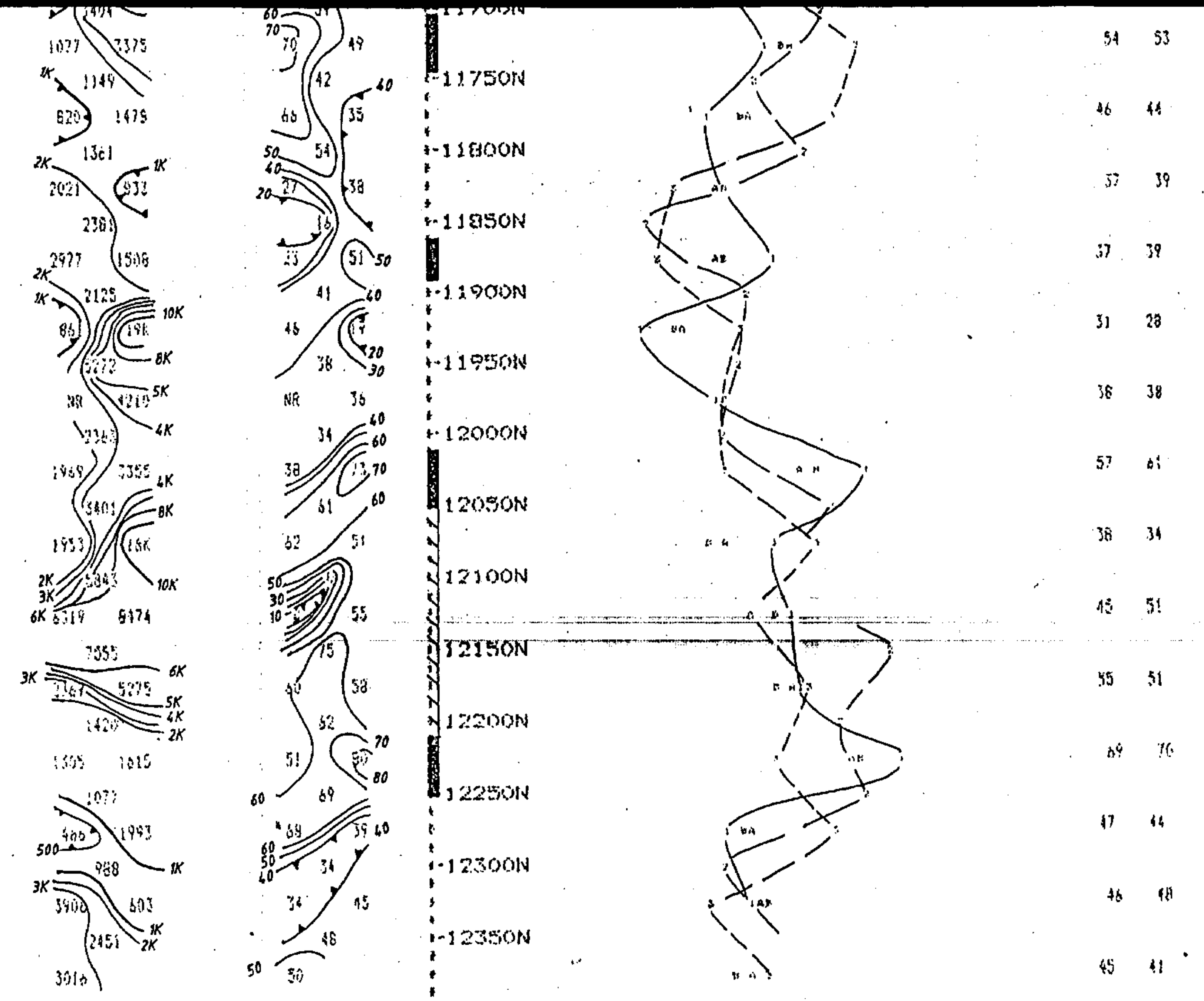
IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 11800 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client   AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

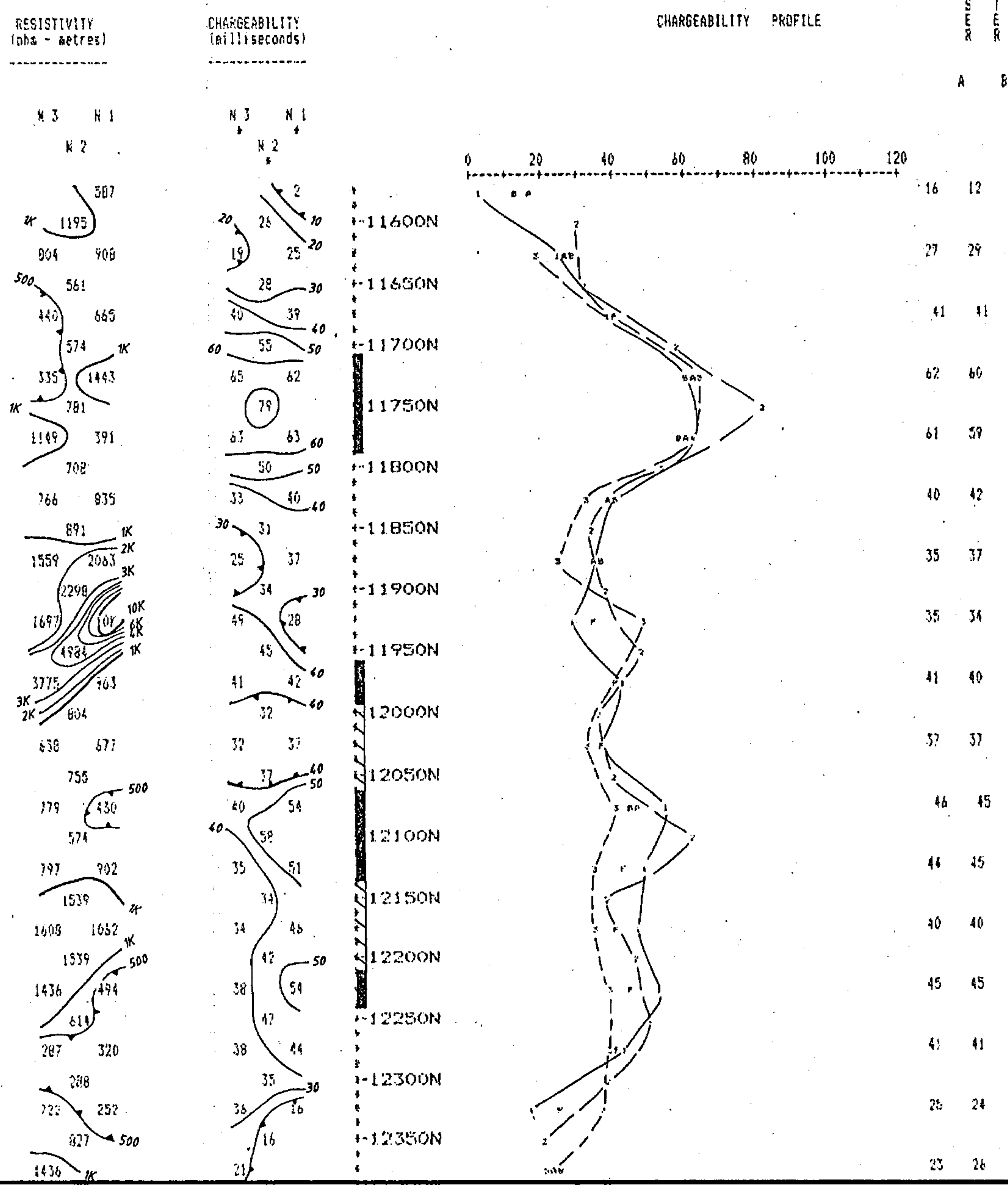
EXSICS EXPLORATION LTD.

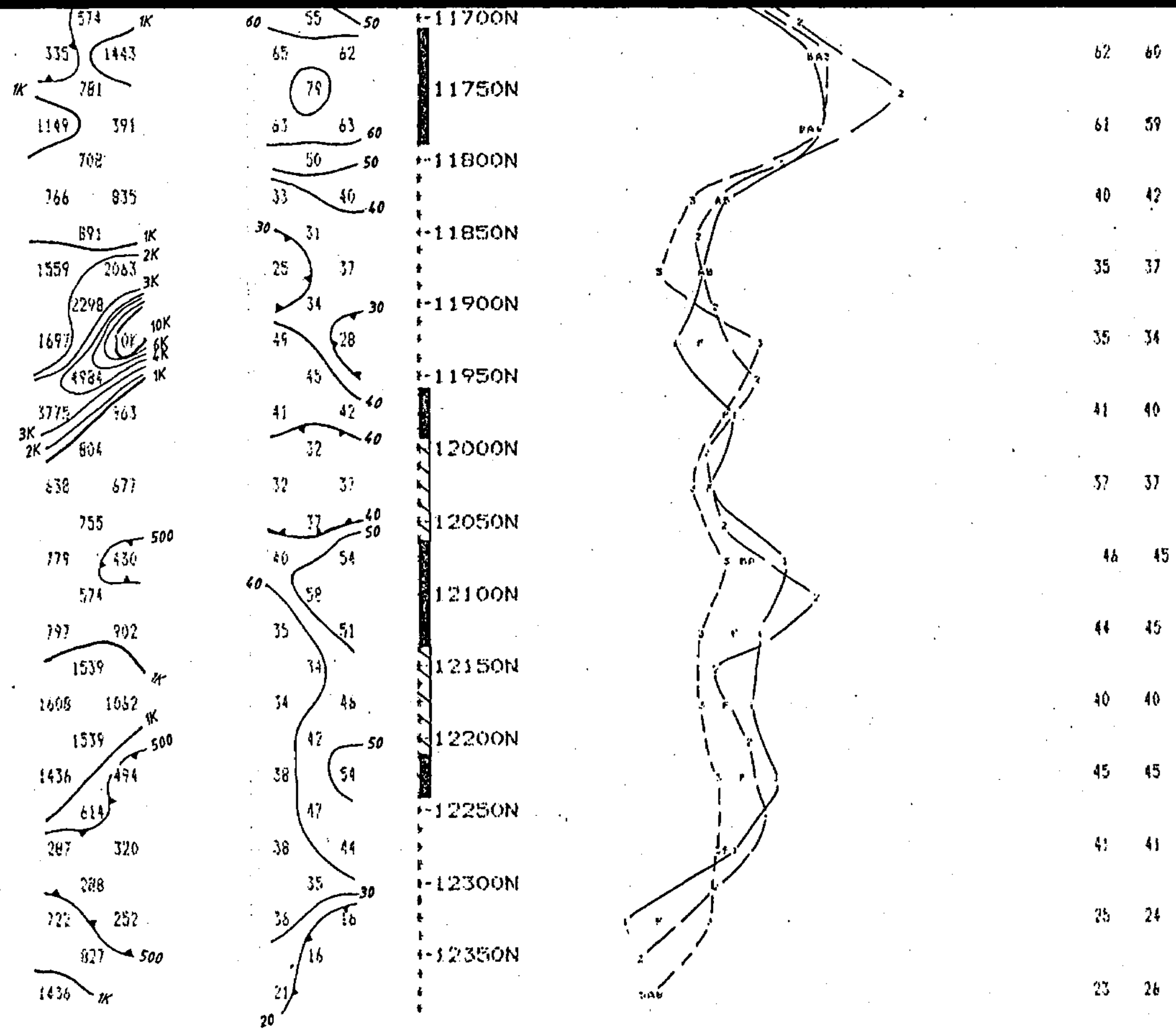
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 11800 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

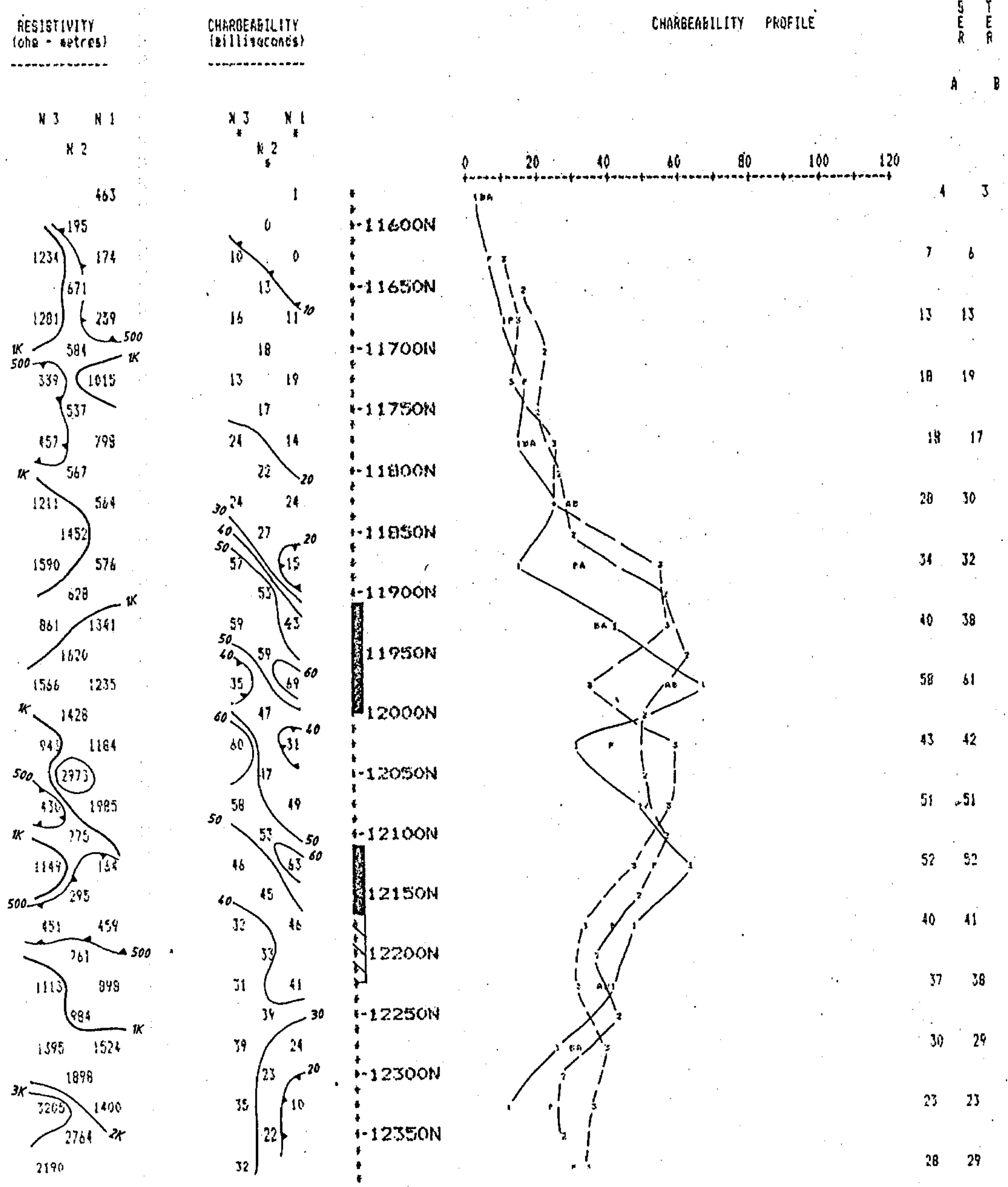
****

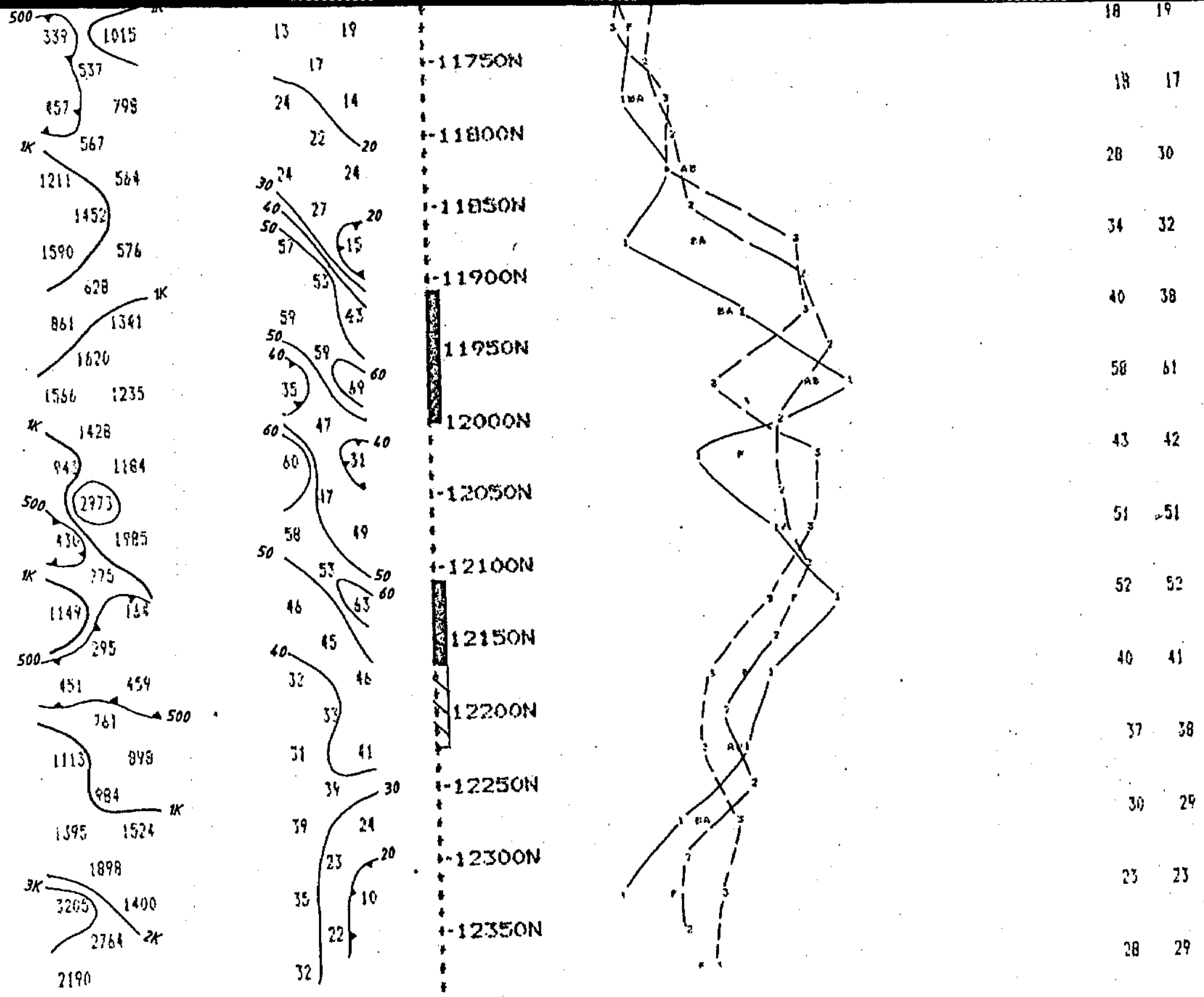
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 11700 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

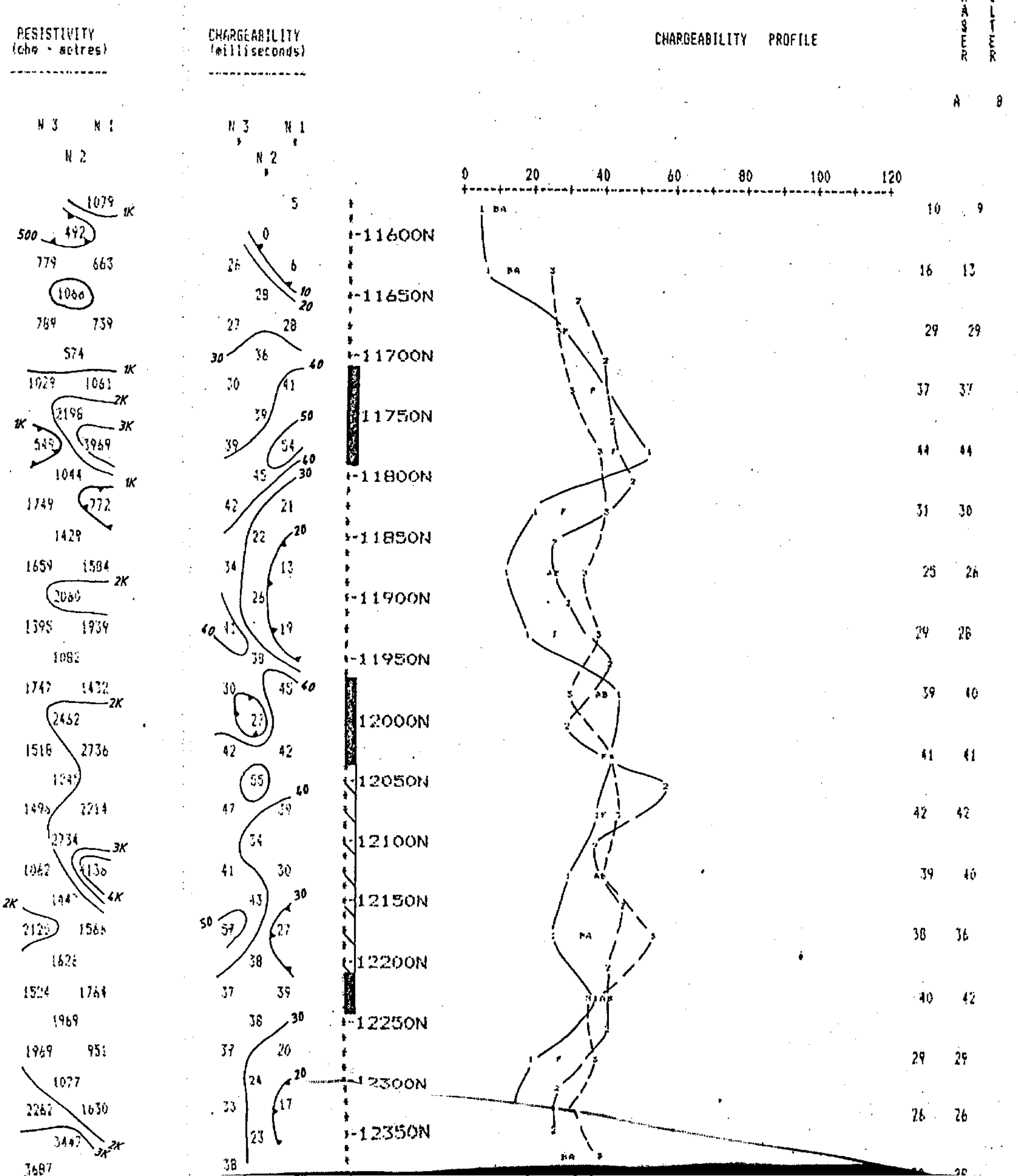
EXSICS EXPLORATION LTD.

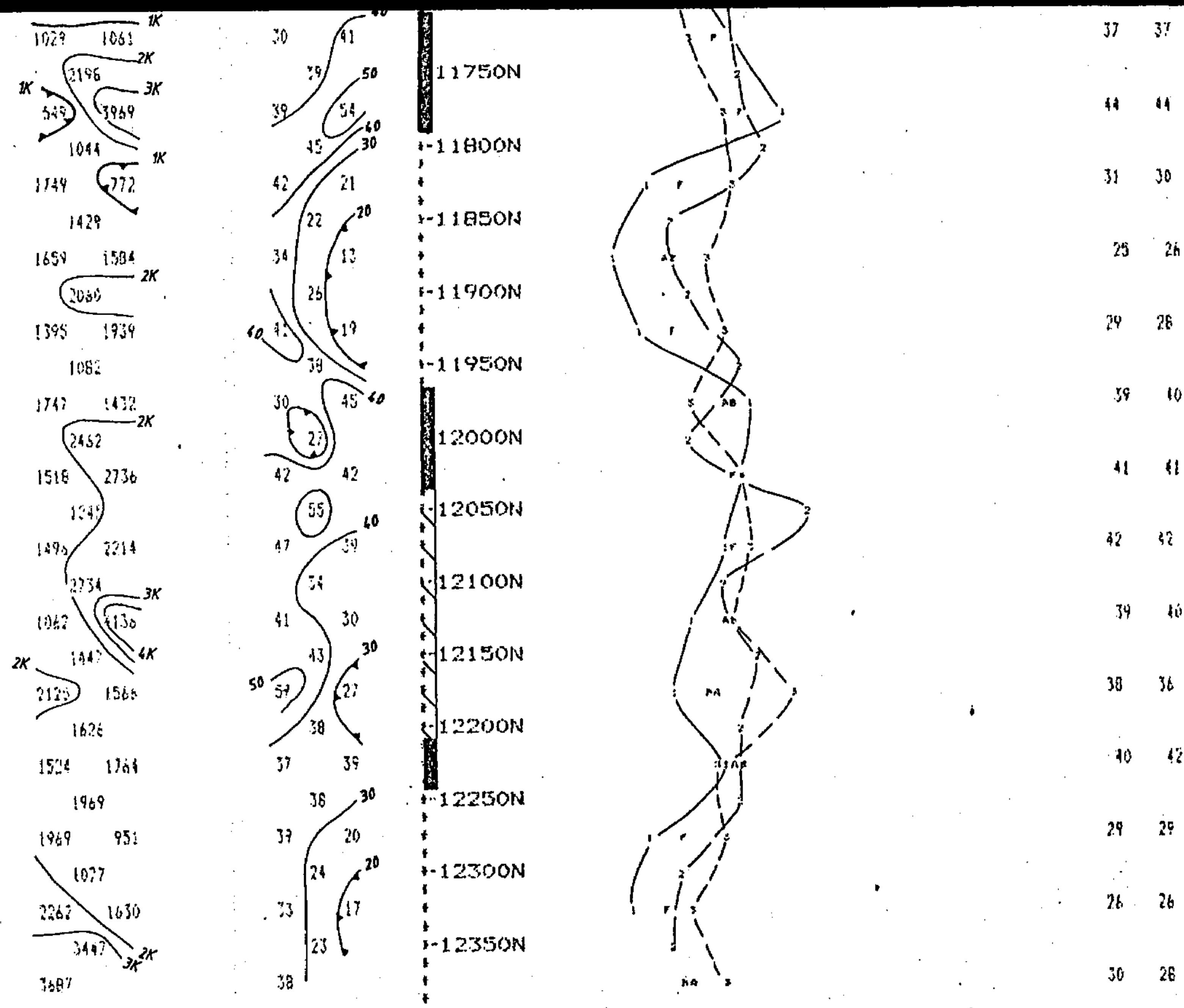
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 11300 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

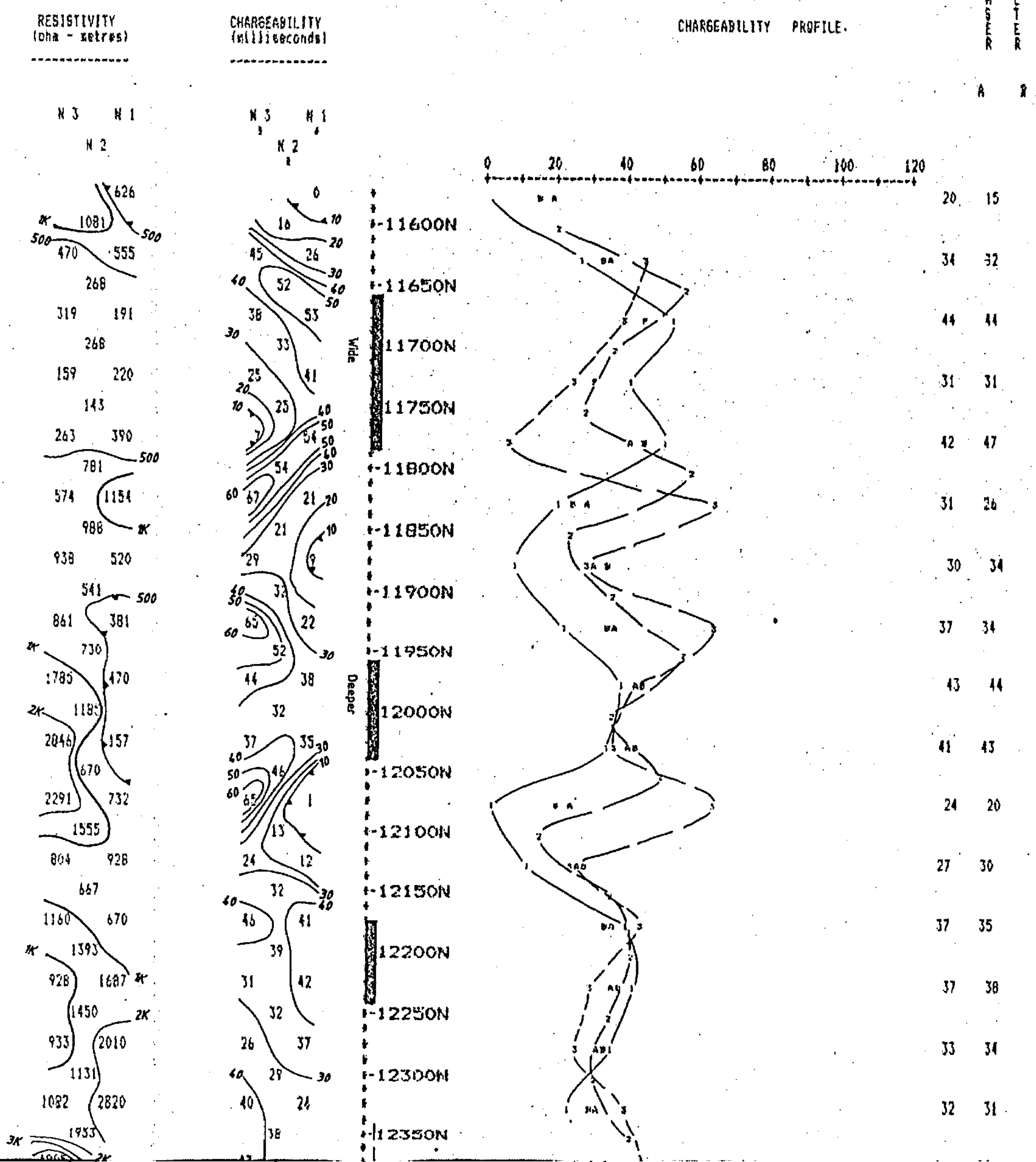
****

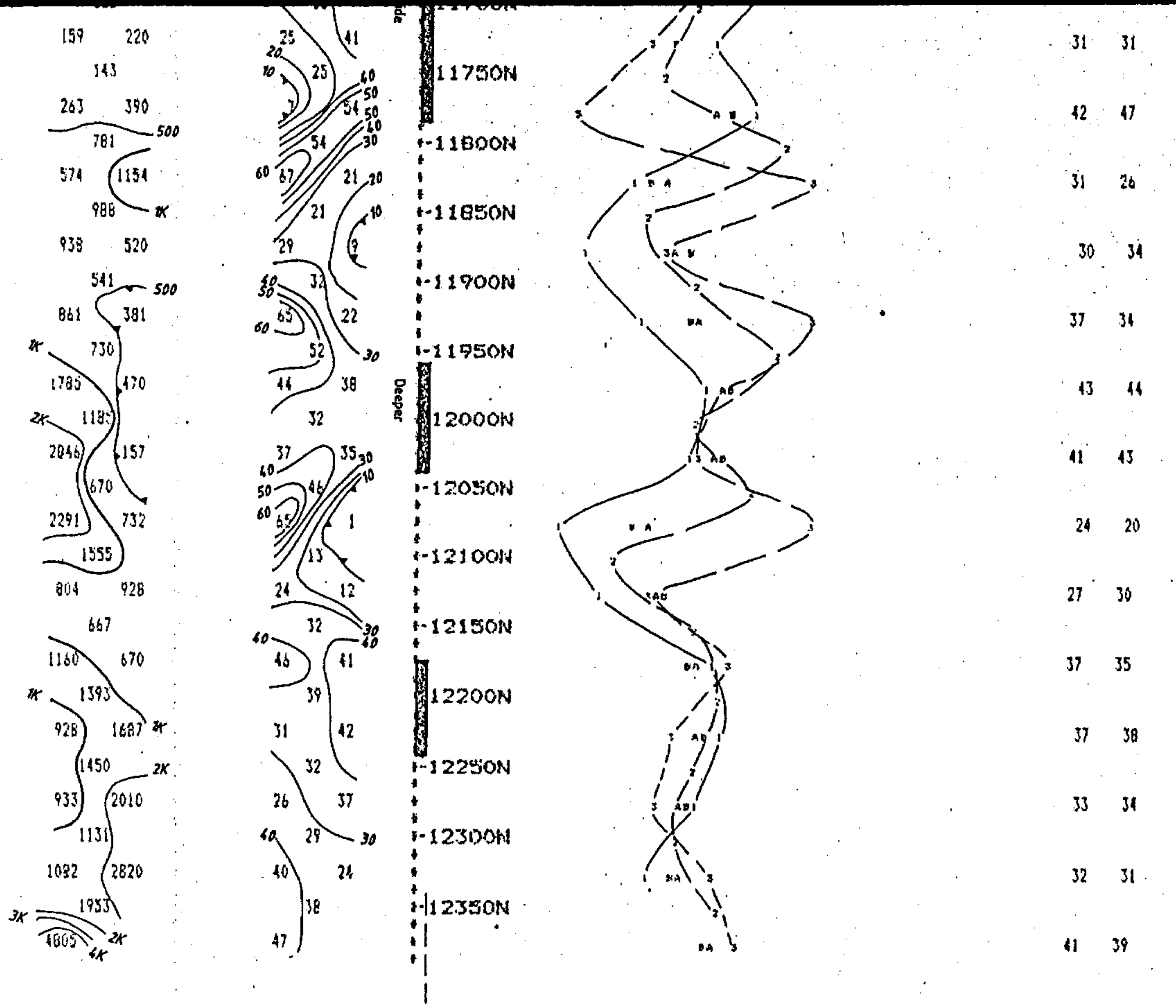
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 11200 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

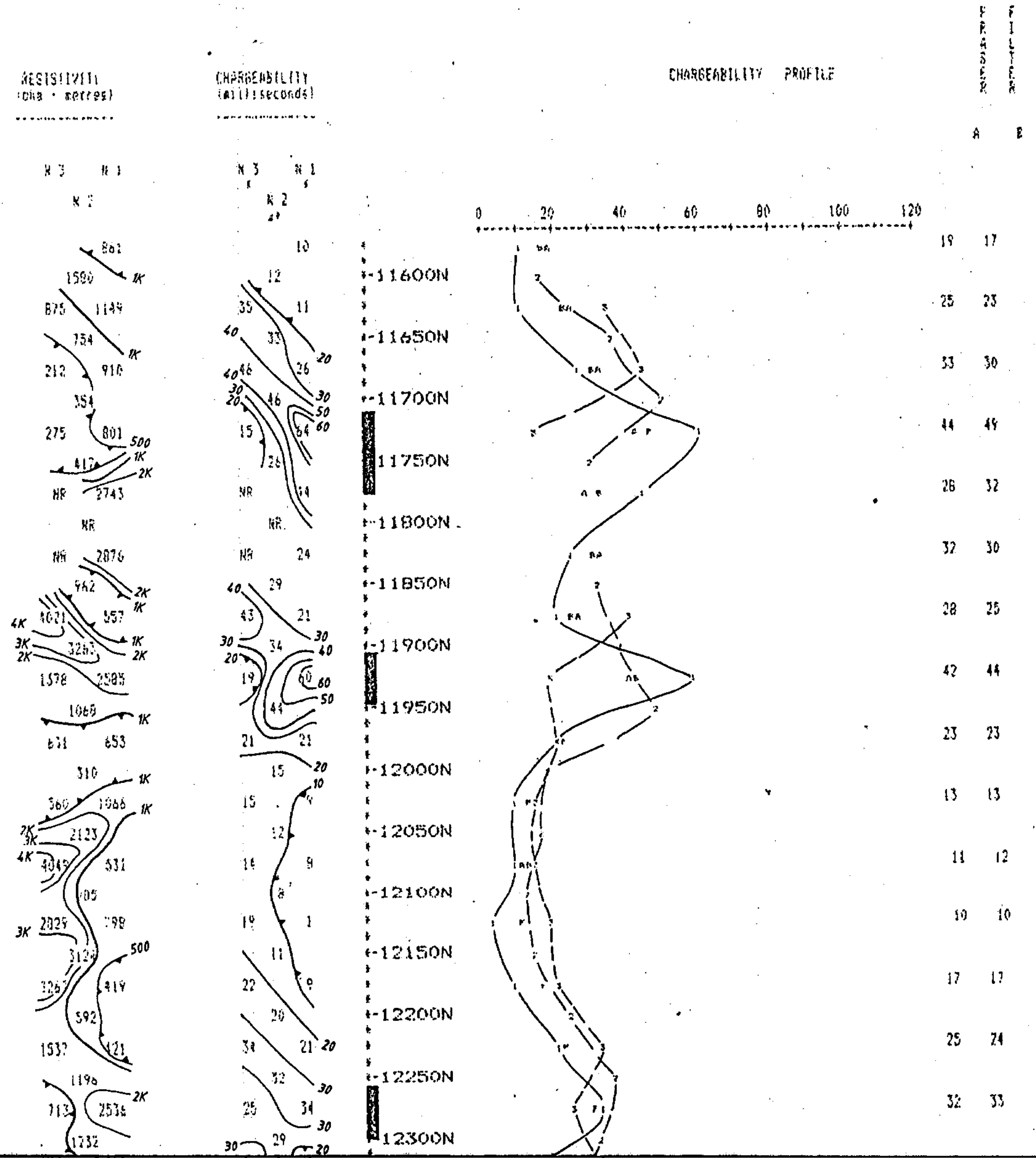
EXSICS EXPLORATION LTD.

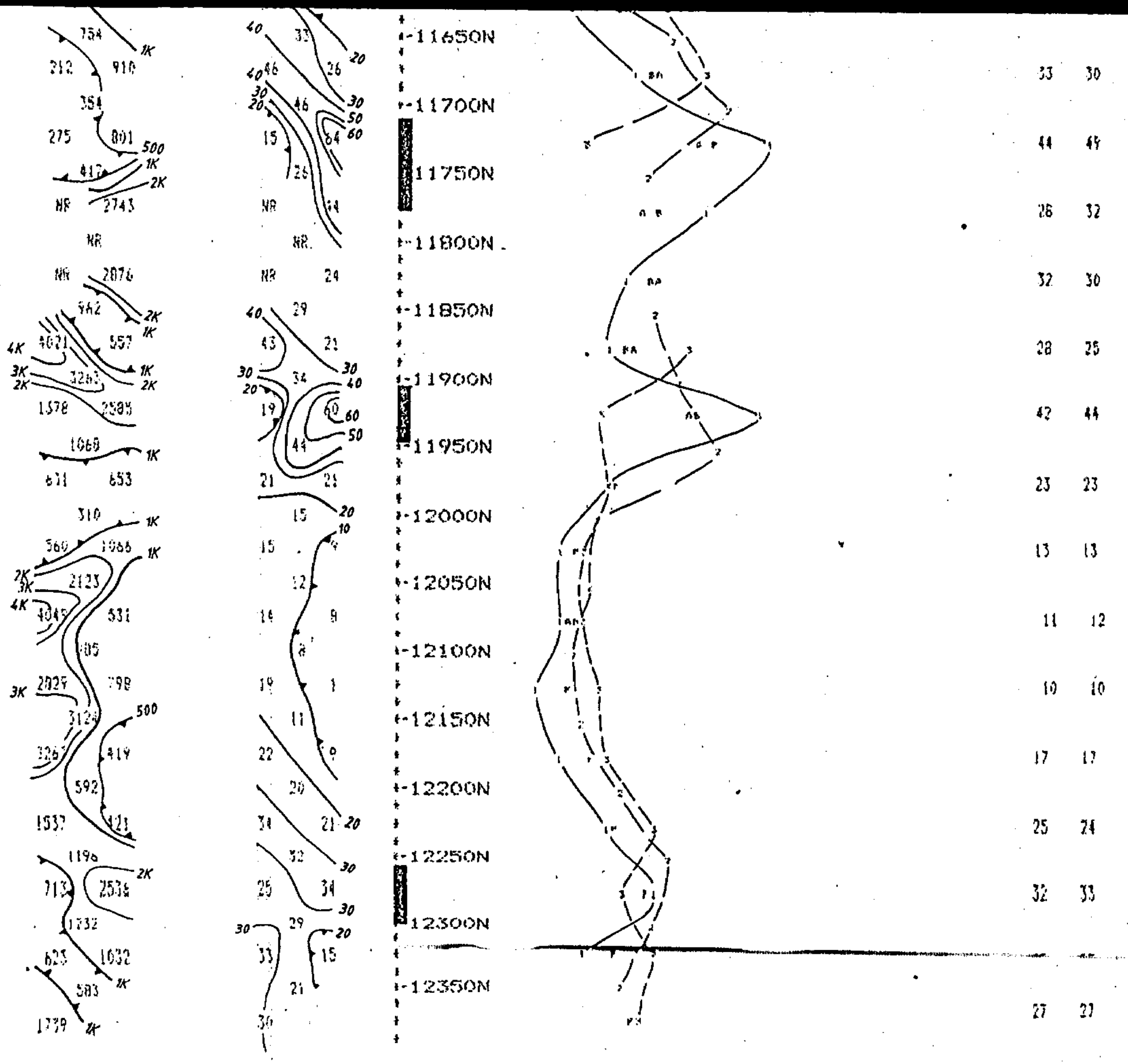
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 11100 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

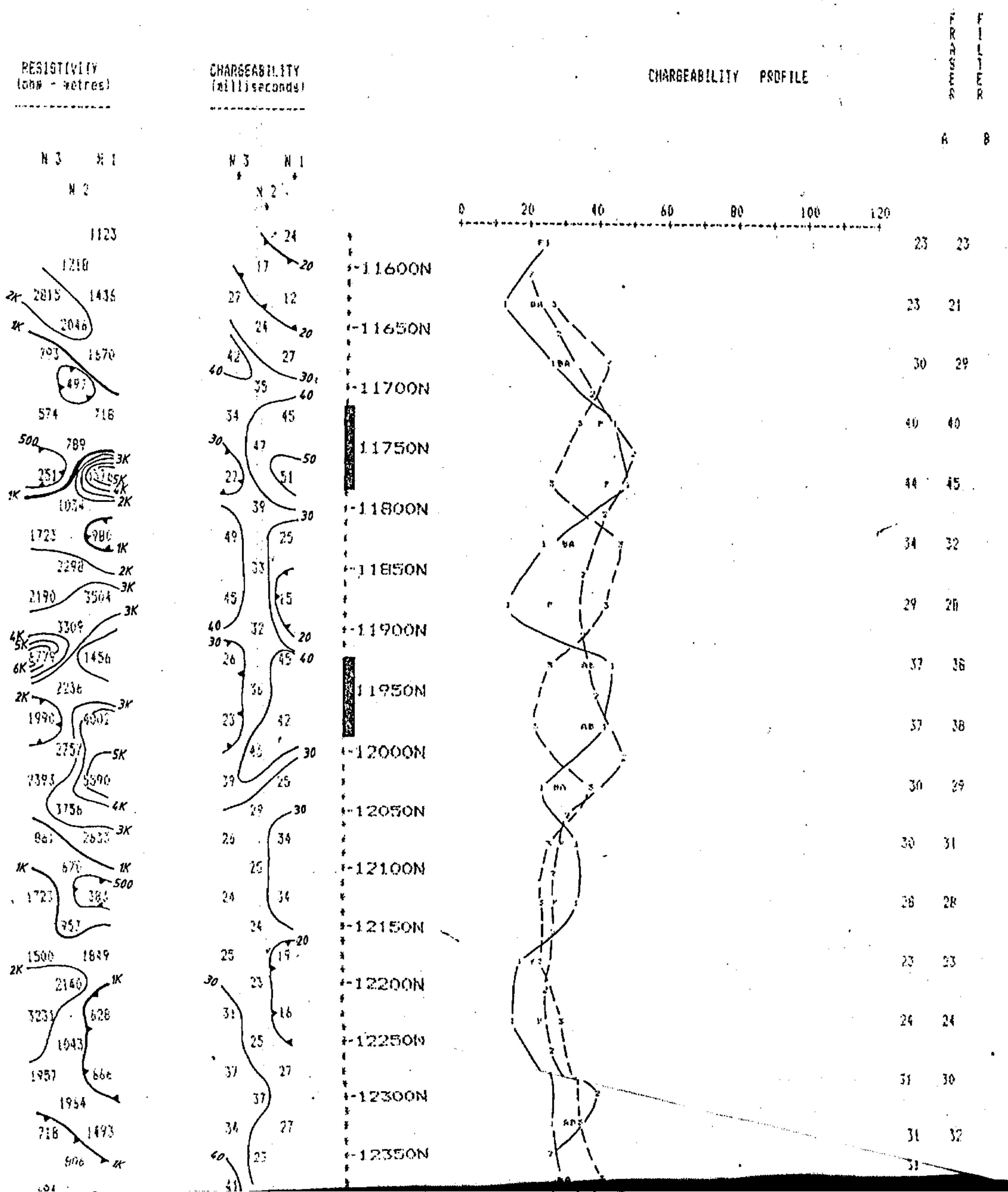
EXSICS EXPLORATION LTD.

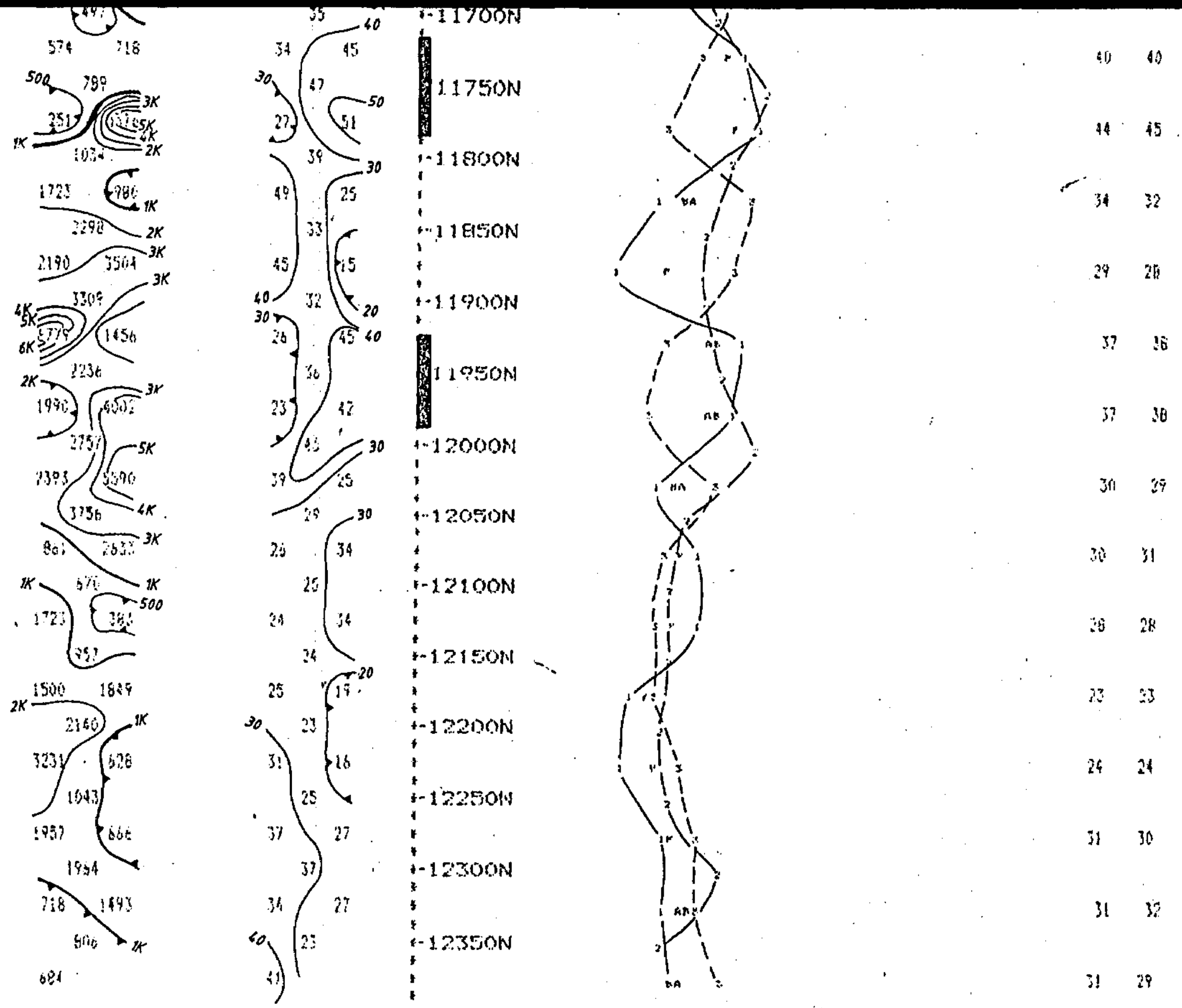
****

IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

SCALE = 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

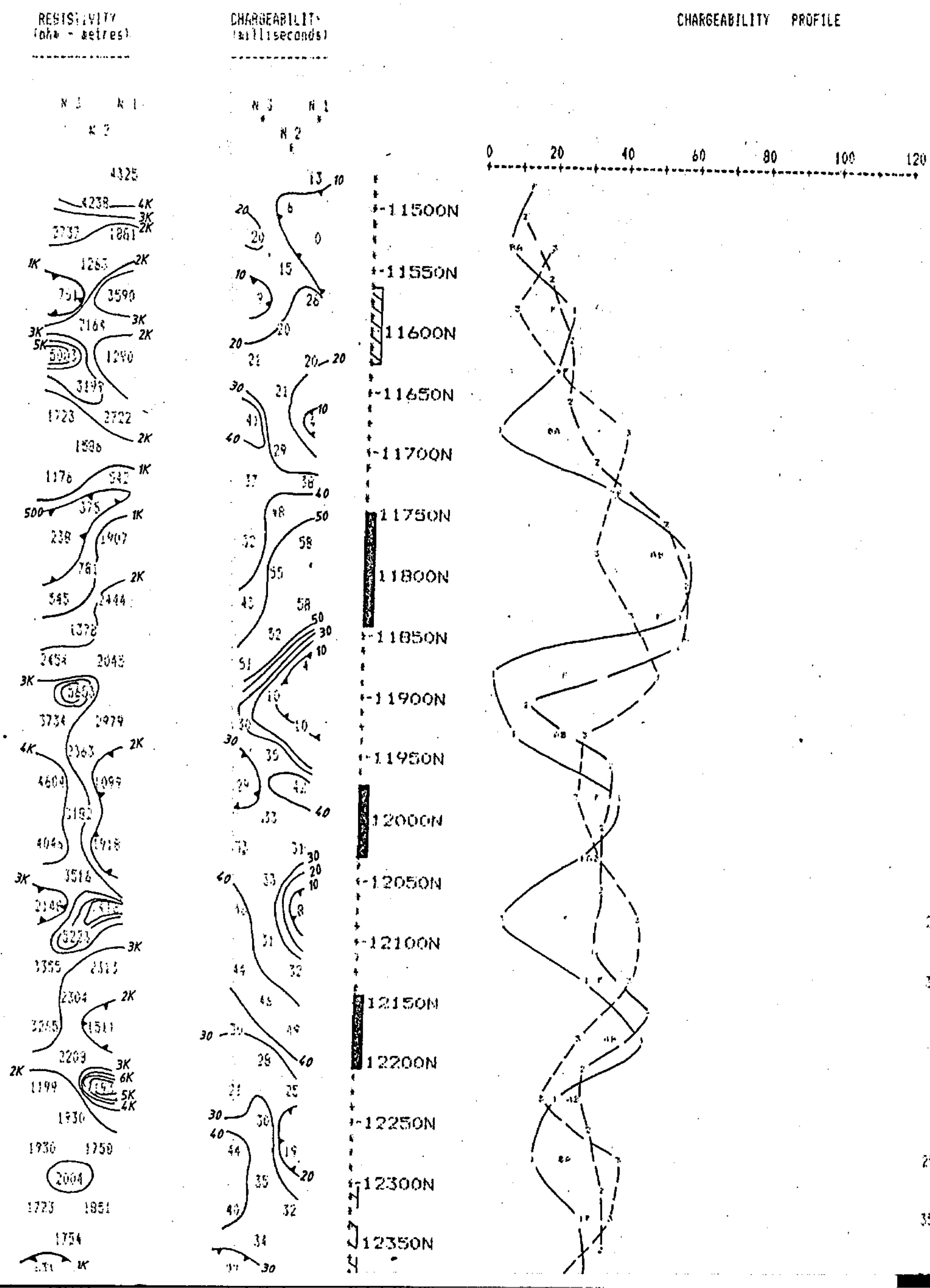
****
EXSICS EXPLORATION LTD.
****

IP Pseudosections for N = 1 to 3

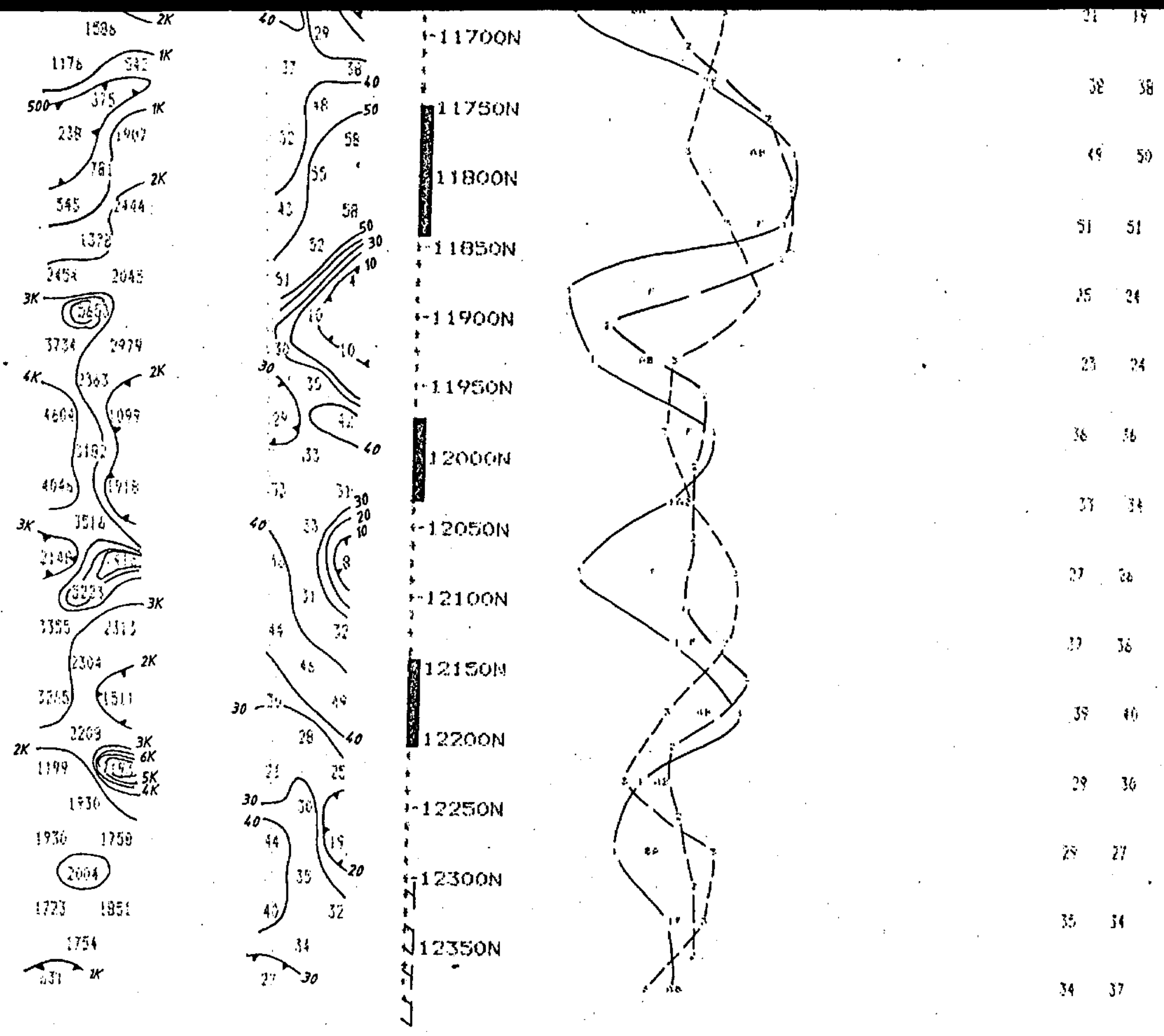
'a' Spacing = 50 ft

LINE 10900 E

SCALE : 1 inch to 100 feet



FRASER A	FILTER B
13	13
9	6
20	21
22	22
21	19
38	38
49	50
51	51
25	24
23	24
36	36
33	34
27	26
37	36
39	40
29	30
29	27
35	34



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

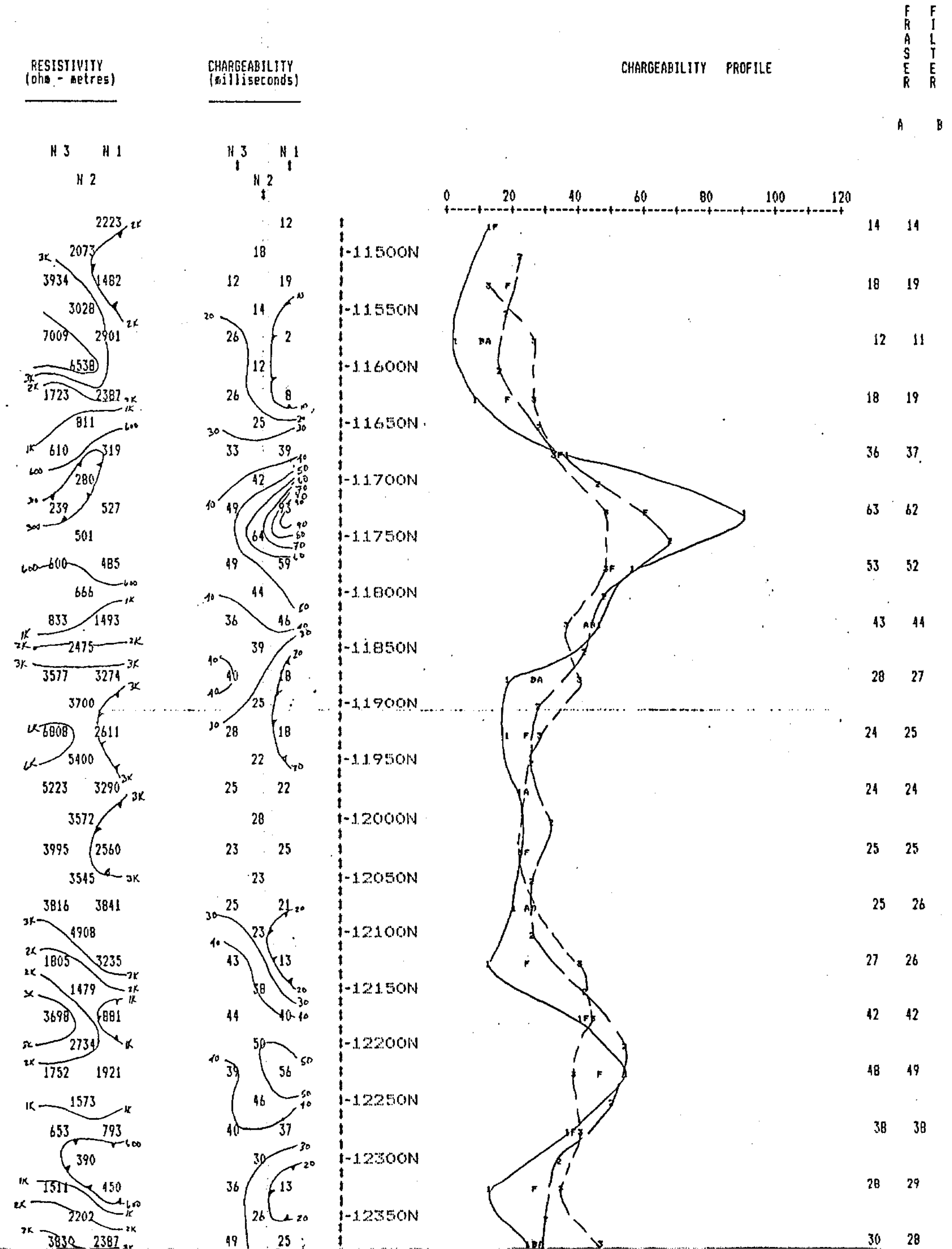
****

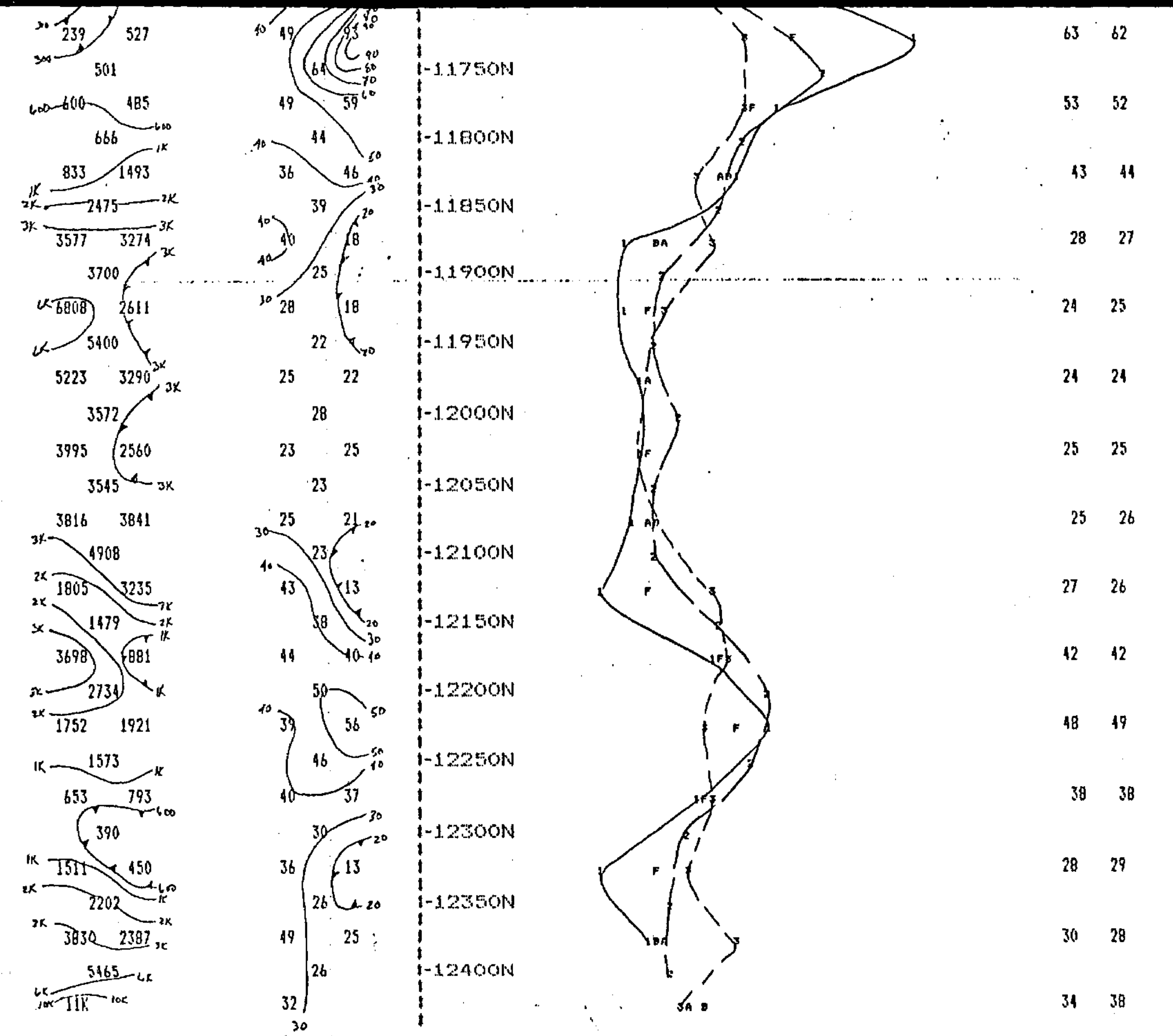
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 10800 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client :
AGASSIZ RESOURCES INC.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

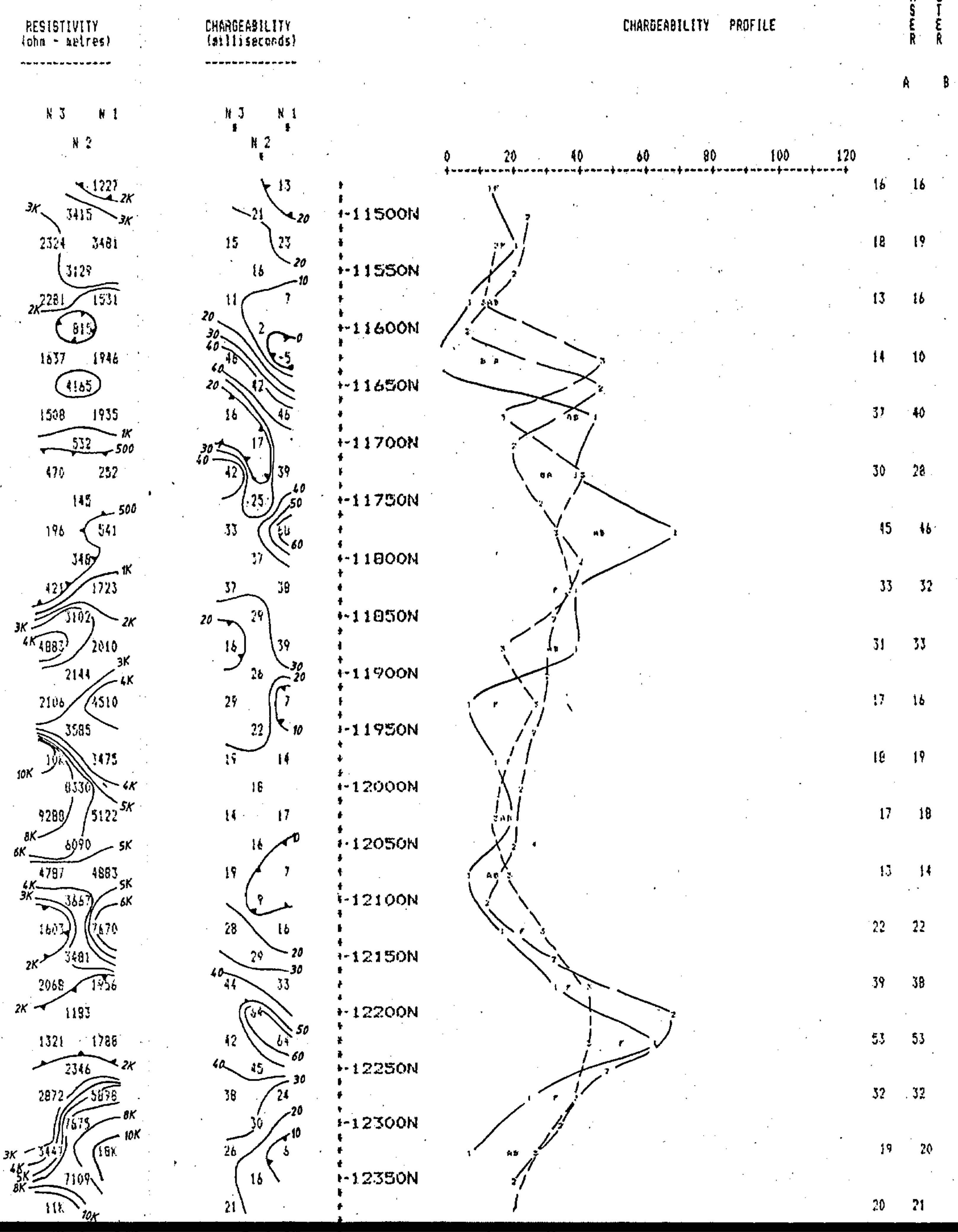
****
EXSICS EXPLORATION LTD.
****

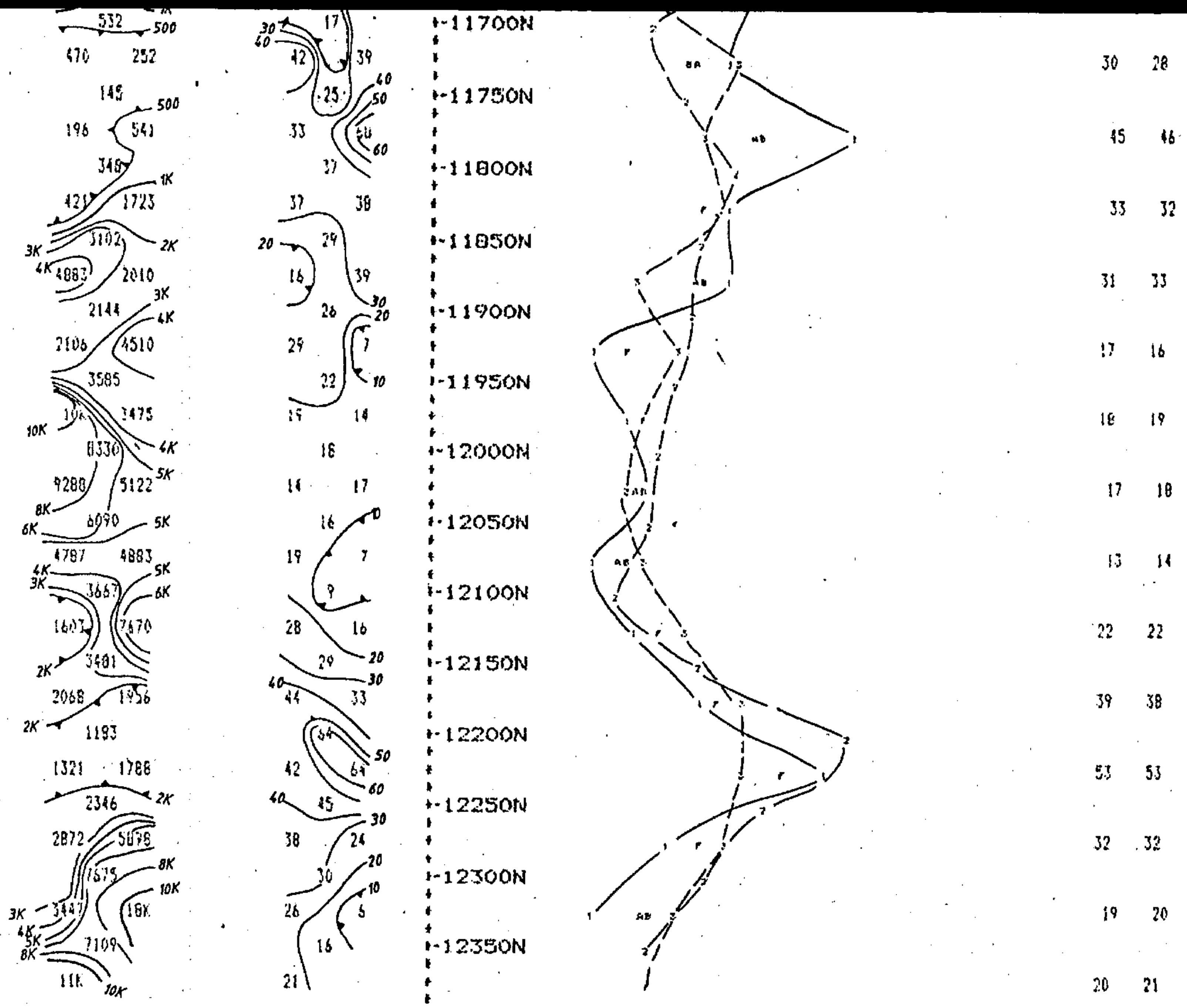
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 10700 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 20/7/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

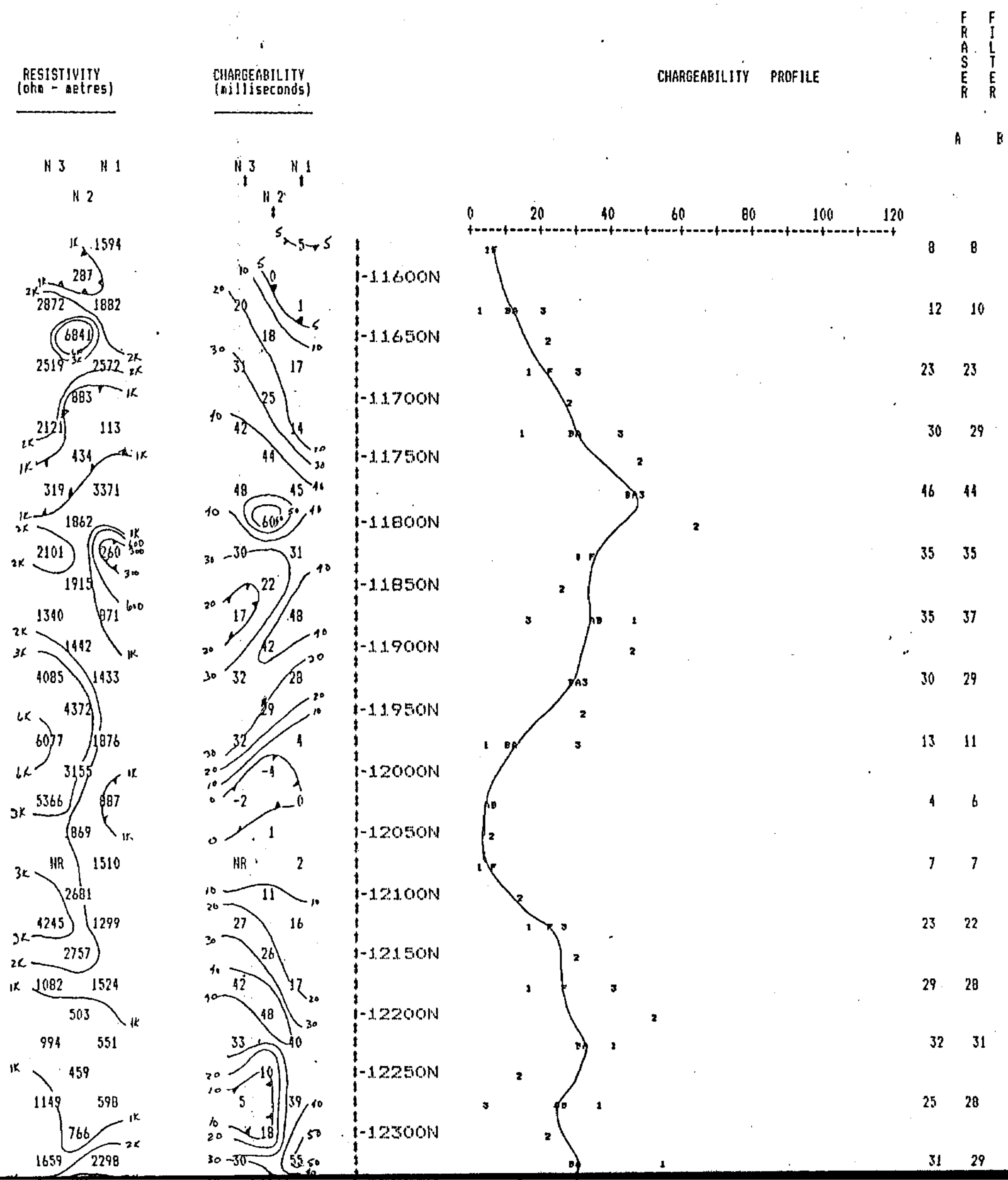
****
EXSICS EXPLORATION LTD.
****

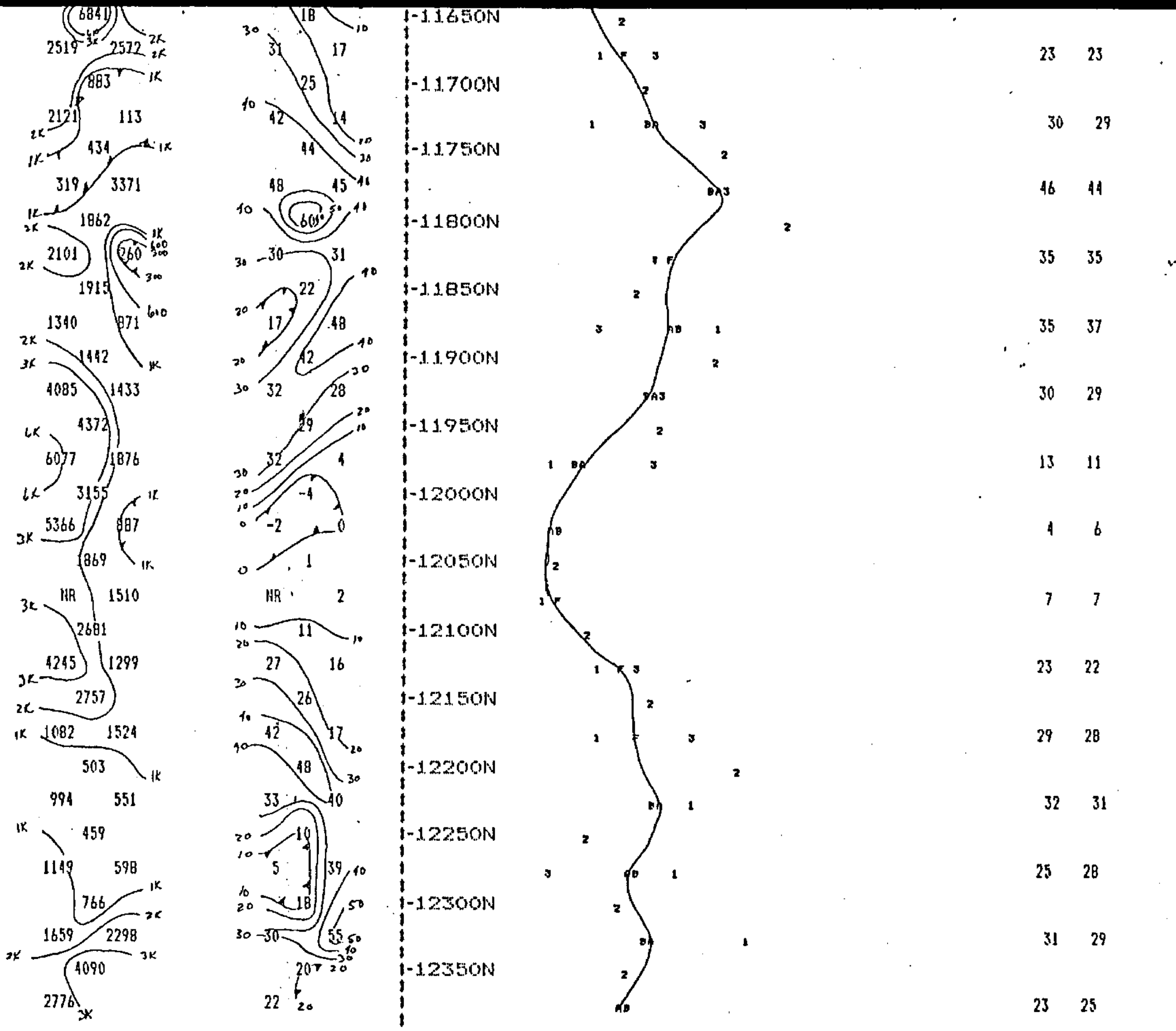
IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 10600 E

SCALE : 1 inch to 100 feet





Property : TWIN GOLD

Client : .
AGASSIZ RESOURCES INC.

Date of Survey : 19/7/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-9

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 450 ms

Integration Time : 900 ms

****

EXSICS EXPLORATION LTD.

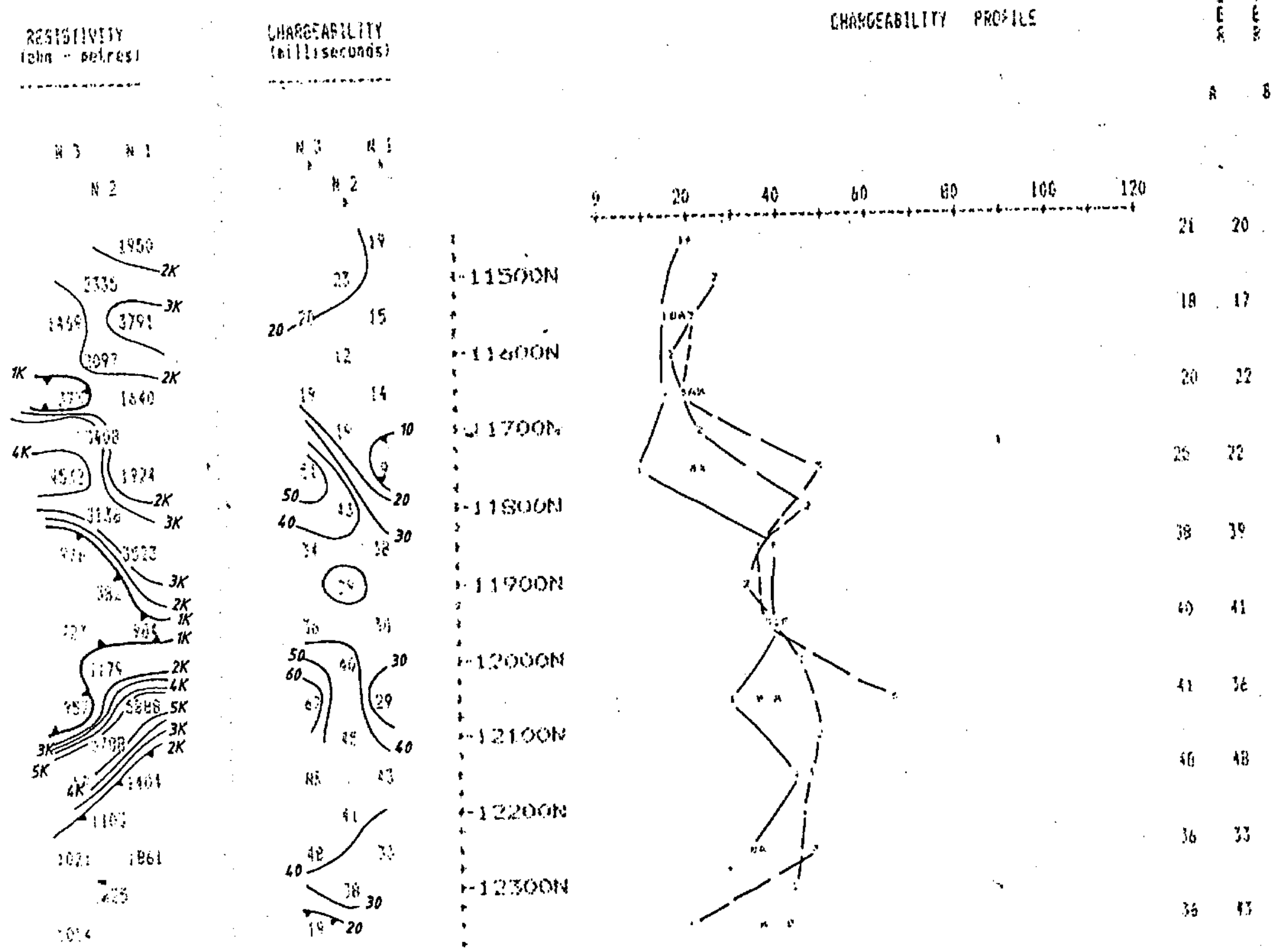
****

IP Pseudosections for N = 1 to 3

'a' Spacing = 50 ft

LINE 10500 E

SCALE = 1 inch to 200 feet



Property : TWIN GOLD

Client : AGASSIZ RESOURCES LTD.

Date of Survey : 10/8/87

Operator : PR

Electrode Array : DIPOLE - DIPOLE

Mode : TIME DOMAIN

Receiver : SCINTREX IPR-8

Transmitter : SCINTREX IPC-7

Pulse Time : 2 Sec on 2 Sec off

Delay Time : 480 ms

Integration Time : 900 ms

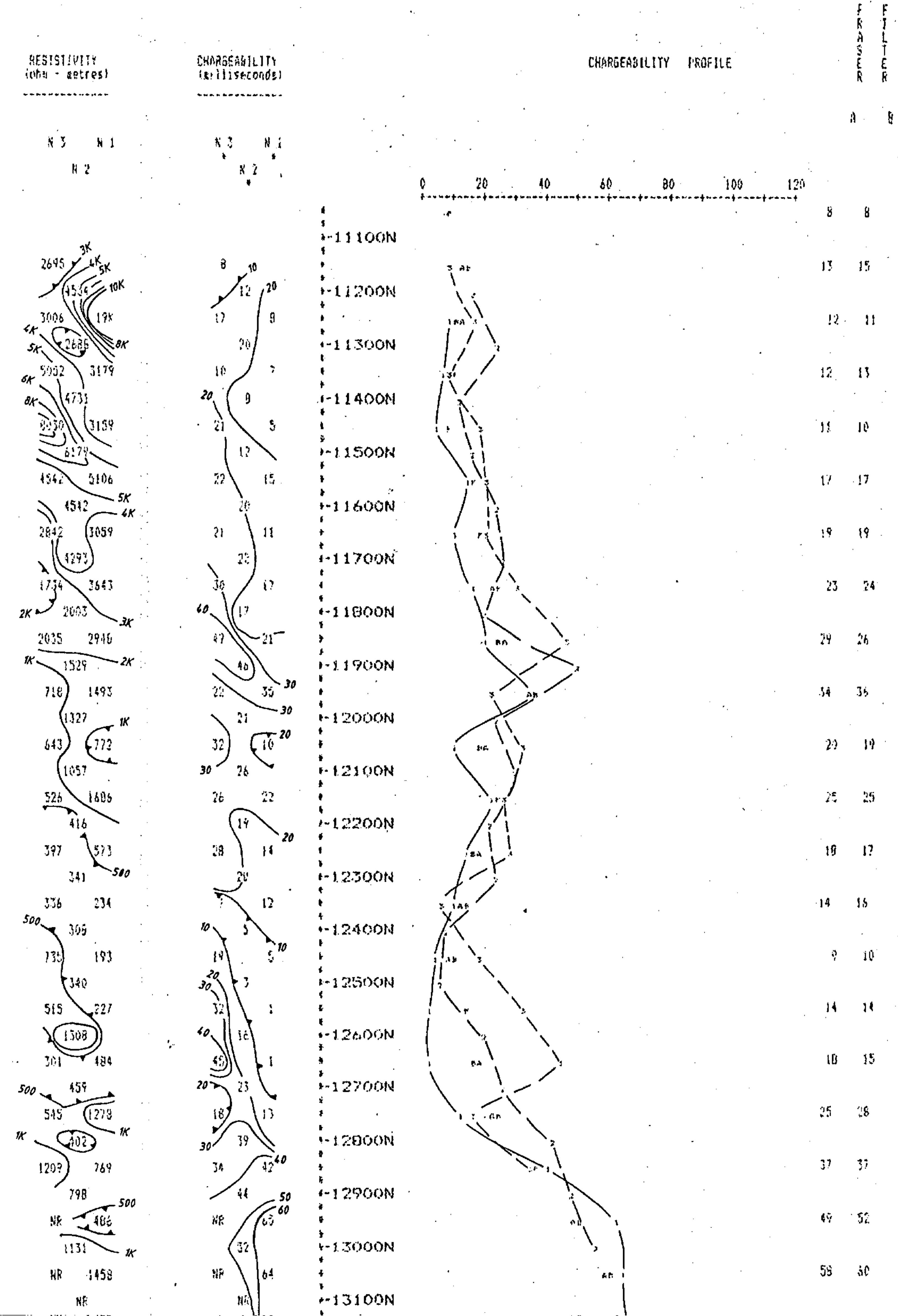
EXSICS EXPLORATION LTD.

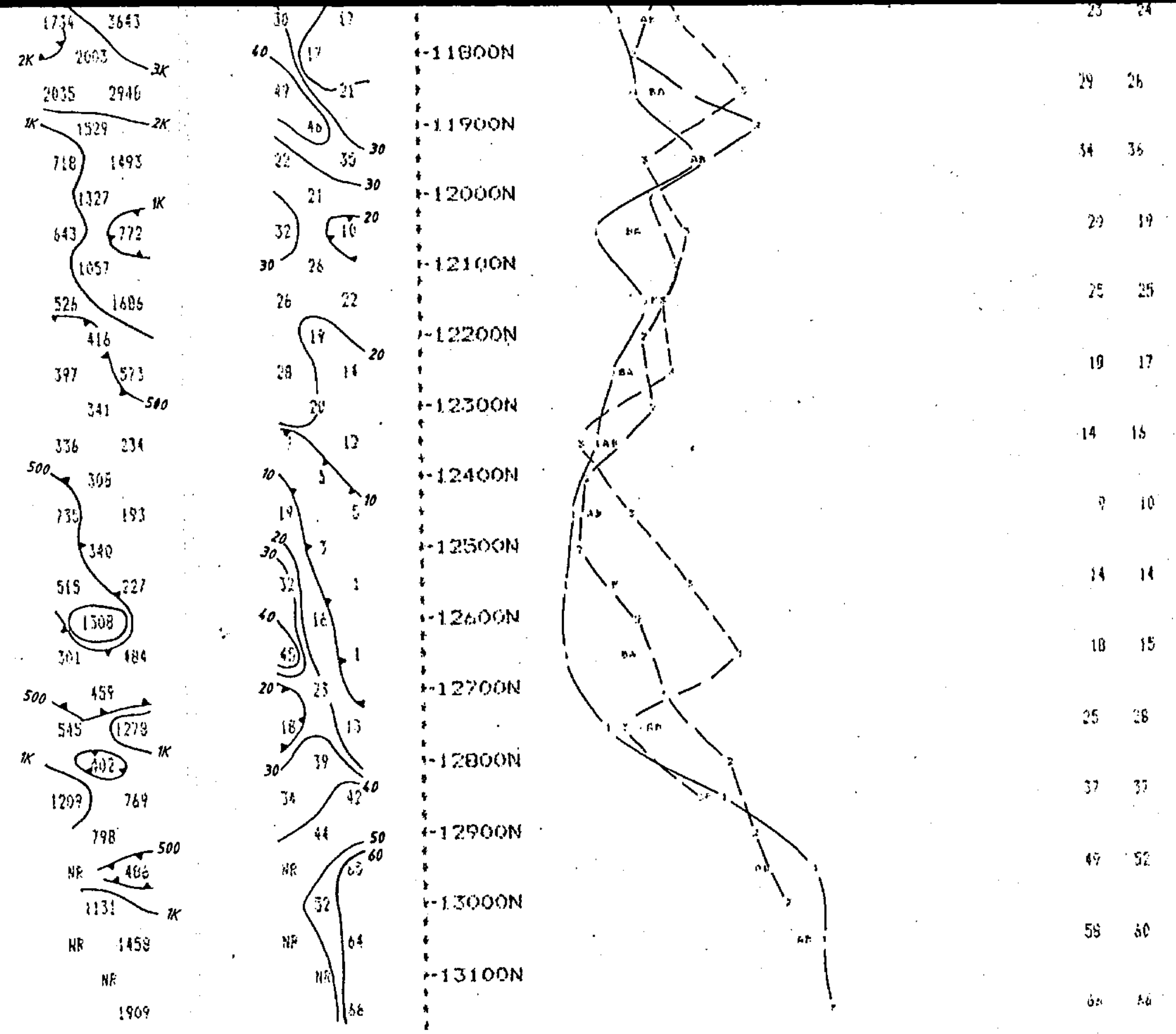
IP Pseudosections for N = 1 to 3

a Spacing = 100 ft

LINE 1000 E

SCALE : 1 inch to 200 feet





Property : TWIN GOLD
Client : AGASSIZ RESOURCES LTD.

Date of Survey : 12/8/87
Operator : PR
Electrode Array : DIPOLE - DIPOLE
Mode : TIME DOMAIN
Receiver : SCINTREX IPR-8
Transmitter : SCINTREX IPC-9
Pulse Time : 2 Sec on 2 Sec off
Delay Time : 450 ms
Integration Time : 900 ms

EXSICS EXPLORATION LTD.

IP Pseudosections for N = 1 to 3

'a' Spacing = 100 ft

LINE 9400 E

Diamond Drill Log Report

s split & sent

OM87-1-L-008

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linamar Lk NTS 53 F/15 PAGE 1 of 18

LATITUDE EASTING 12,003 DEPARTURE NORTHING 11,461 AZIMUTH 0° DIP -60° DEPTH 807' ELEVATION 2280.5

DEPTH 100' AZIMUTH 360° DIP -55.5°

INCLINATION AND TROPARI TESTS

DEPTH 500' AZIMUTH 360° DIP -48.5°

DEPTH 200' AZIMUTH 360° DIP -54° DEPTH 300' AZIMUTH 360° DIP -55.5° DEPTH 400' AZIMUTH 360° DIP -51° DEPTH 600' AZIMUTH 360° DIP -48.5°

DEPTH 700' AZIMUTH 360° DIP -46°

LOGGED BY Anne Moore CLAIM NO. PA 6132 MINING DIVISION Kenora Red Lake DATE STARTED 2 July 87 DATE COMPLETED 9 July 87

DEPTH 800' AZIMUTH 360° DIP -46°

DRILLING COMPANY Noran Drilling Ltd. CASING Left in hole CORE STORED AT Linamar LK.

DEPTH 857 AZIMUTH 360° DIP -45.75°

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb

63.5222
3 of 4

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linoma Lk. NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0 - 28'	Casing - overburden													
28 - 73.9'	Basalt: f.g.-m.g. massive dark green; numerous fractures w ... brecciated segments; hematite staining along fractures; @63.5' f.g. segment with a flow top w qtz/cb vning, blk biotite (chl) bands w <1% sulphides Fe>py, non-magnetic		<1%	598	63.1	64.1	1	Tr	0.8				275	
73.9 - 75.5'	Mafic tuff; greenish grey, v.f.g. well foliated ~30°; sulphides <1% py>po. along foliation. magnetic.	30°	<1%											
75.5 - 77.0	Basalt - m.g. non-magnetic weakly foliated. contact sharp. Tr. sulphides		Tr.											
77.0 - 80.'	Altered Mafic tuff: chl. content diminishes well foliated ~30° talc ↑ cb ↑	30°	Tr											
80' - 96.5'	Talc-carbonate schist, light grey. v.f.g. magnetic; well foliated ~30° Tr. sulphides. coppery-red hematite alteration along foliation.	30°	Tr											
96.5 - 98.3	Basalt - weakly foliated m.g.-f.g. contacts sharp @ 30°	30°	Tr											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linomon Lk. NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
98.3 - 99.9	Talc-carbonate schist as per 80-96.5'	30°	Tr										
99.9' - 103.5'	Diabase Lamprophyre? dike f.g. massive, hard. amphibole-rich, very magnetic! v.f.g. chill margins. @ 100.0' a 4" ?? tuffaceous xenolith? all contacts parallel to foliation ~ 40°. finely diss py/po <1%	40°	<1%										
103.5' - 144.6'	Talc-carb. schist: as per 80.0'-96.5'	40°	Tr										
	@ 110.0' - 3" non-magnetic basalt flow?												
	@ 116.0' - foliation ~ 30°	30°											
	@ 134.0' - foliation is folded & moderately disrupted. continues ! 139.0'												
	@ 139.5' - 142.3' massive v.f.g.												
	@ 142.3 a 4" foliated section	45°											
	@ 142.6 - 144.6 massive v.f.g.												
	@ 144.6 a 3" non-magnetic biotite-rich band												
	overall sulphides ~ 0.1% mostly py minor po												
144.6' - 153.4	Bedded interflow seds alternating biotite rich-chlorite-carbonate & non-magnetic tuffaceous units in the talc-carb. schist unit. foliations steep ~ 15° to 20° sulphides py > po total <0.5%	15-20°	<0.5%										

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY [illegible] Lk NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
153.4 - 156.6'	Cherty mafic tuff; f.g. foliated, stree [illegible] 10°-20°; folded; slightly brecciated; 1% py>po [illegible] filled fractures	0°-20°	1%											
156.6 - 157.8	Amygdaloidal? basalt flow - stretched [illegible] flattened amygdules. contacts ~15°	15°	Tr.											
157.8 - 167.4	Cherty mafic tuff; as per 153.4-156.6 except more [illegible]	15°-20°	<1%											
	@ 159.0 basalt flow unit 4".	10°-15°												
	@ 161-164.3' 1-2% py>po Tr. As.	25-30°	1-2%	599	161.0	164.3	3.3'	Tr	1.0				150	
	@ 164.3 tuff becomes brecciated, folded; lwr contact has a 1½" (true thickness) qtz vn. 2-3% sulphides py>> As & po associated with secondary silicification & carb. - in fracture & folds		2-3%	600	164.3	167.4	3.1'	Tr	1.4				100	
167.4 - 169.2	Amygdaloidal? basalt flow as per 156.6-157.8		Tr.	601	167.4	169.2'	1.8'	Tr	1.0				175	
169.2 - 171.8	Cherty mafic tuff; as per 164.3 - 167.4' py>As>po ~ 2-3%	25-30°	2-3%	602	169.2	171.8	2.6'	.066	1.4				300	
171.8 - 198.1	Basalt - mafic tuff - alternating units of f.g.-m.g. massive greenish green basalt with weakly foliated tuffaceous units; gradational contacts.	20-25°	Tr.											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Lineman Lk NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
171.8' - 198.1' con't	some cb. fracture filling ; @188.2' a 1"		Tr											
	qtz-cb vein c̄ minor py. @192.0' - 2" qtz/cb													
	vn. @193.8 a qtz cb veinlet c̄ 1% py			603	171.8	173.5	1.7'	Tr	0.8				125	
198.1 - 202.9'	Cherty mafic tuff ; alternating cherty &	40°	1%											
	chlorite-rich laminations incl. py/po													
	concentrated near contacts - over ~6"													
	where ~2-3% py>po is ~ overall ~1%		2-3%	604	198.3	202.0	3.6	Tr	0.6				10	
	minor slip faults & cb fracture filling.													
202.9' - 203.9'	Basalt Flow - f.g. greenish grey weakly	40°	Tr											
	foliated lower contact has chill 1" of tuff													
203.9 - 246.0'	Basalt c̄ minor mafic tuff segments. f.g-m.g.		Tr											
	generally massive to weakly foliated (tuffaceous													
	segments.													
	@ 215' a 6" tuff unit c̄ 1-2% py>po.	45°-50°	1-2%											
	@ 216.0 - ½" wide chl-rich band may be a													
	flow top. - below is massive													
	@ 225' - 6" section c̄ 3 qtz-cb veins													
	@ 241' - 3" qtz/cb/biotite band c̄ 2% py>po		2%	605	241.0'	246.0'	5.0'	Tr	0.6				ND	
	@241-246' - 1% py>po overall, more cb.													
	stringers than previously in section.													
246 - 247.3'	Amygdaloidal Basalt flow as per 156.6-157.8													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
247.0 - 260.5'	Basalt: typically f.g. massive greenish/grey weakly foliated in places; some cb-filled fractures.													
	@ 247.3' - 252.5' silicified, bleached, carbonated	45°	3-4%	606	247.3	252.5	5.2'	Tr	1.8				225	
	mnr chloritic interval vaguely foliated - 45° mnr. qtz vns 3-4% sulphide: py (2%) As (1%) po+cpy (<1%) : fracture filling mineralization													
	@ 252.5 - 256.0 - covers gradational contact into unaltered greenish-grey basalt Tr. As, 1% py		1%	607	252.5	256.0	3.5'	Tr	1.4				50	
260.5 - 270.8'	Basalt - mafic tuff; gradational upper contact; basalt becomes fractured (abundant cb. stringers fracture fillings), folded tuffaceous segments parallel to core axis - alternating biotite / chl rich laminations	0-5°	Tr											
270.8' - 272.0'	Basalt - c.g. amphibole crystals. lwr. contact ~10°	10°												
272.0' - 282.7'	Basalt - mafic tuff typically v.f.g. greenish-grey weakly magnetic massive to well-foliated crenulated	25-30°												
	@ 274.6 - 277 tuffaceous, chloritic not silicified cont'g cubic magnetite (2-3%) py (1-2%) As (1%) sulphides are mainly assoc'd c̄ cb stringers cross-cutting; magnetite prob. secondary.		2-3%	608	274.6	277.0'	2.4'	Tr	1.4				200	
	@ 277 - c.g. amphibole interval c̄ Tr sulphides.		Tr	609	277.0	278.1	1.1'	Tr	0.8				75	

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines - PROPERTY Lingua Lk NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb	
272.0 - 282.7 con't	278.1 - 280.9 as per 274.6' - 277.0'	30°	2-3%	610	278.1	280.9	2.8'	0.002	0.0				275		
282.7' - 291.2'	Mafic tuff; foliated m.g. some cb. filled	30°	<1%		~~278.2~~	~~301.4~~									
	fractures & py/cpy <1%														
	@ 282.7 - 291.2 1-2% py in fractures.	30°	1-2%												
291.2 - 292.3'	Basalt flow - c.g. vaguely foliated Tr py														
292.3' - 298.2'	Mafic Tuff - basalt; cal + bxtn ; cb	40°	Tr.												
	stringers sub-parallel Tr. sulphides														
298.2' - 301.4'	Basalt flow; m.g. greyish green massive														
	contacts sharp														
				126013	298.2	301.4	3.2	Tr							
301.4 - 303.9'	Mafic tuff: contacts tuffaceous central	40°	3%	611	301.4	303.9	2.5'	0.410	1.8				325		0.226 / 4.6
	portion silicified bleached & 3% py/po			126014	303.9	306	2.1	0.006							
				126015	306	309	3	Tr							
303.9 - 316.2	Basalt; f.g. typically massive & foliated			126016	309	312	3	Tr							
	segments, locally & chert ca. @ 307.0'			126017	312	316	4	Tr							
	generally only Trace of sulphides in cb fractures.			126018	316	318.1	2.1	Tr							
	@ 313.5 - 316.2 c.g. amphibole segment.														
316.2 - 321.6	Mafic tuff. foliated & cherty bands.	40-45°													
	2% sulphides po>py along foliation. odd		2%	612	318.1	321.6	3.5'	0.034	0.8				40		
	cross-cutting cb. stringers.														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines. PROPERTY Lingman Lk. NTS 52 F/15

FOOTAGE From - To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
321.6' - 322.3'	Quartz vein, white 2% py/po		2%	613	321.6	322.3	0.7'	Tr	0.4				15	
322.3 - 331.0'	Basalt. fine-med. grained light to med. green - grey (non-magnetic) massive vaguely foliated. 45-50° Tr. sulphide/mod. silicified	45-50°												
331.0 332.0	Mafic tuff w cherty bands magnetic 1-2% py/po minor cb stringers.	45°	1-2%											
332.0 - 336.7	Basalt as per 322.3-331.0'													
336.7 - 342.0	Mafic tuff: as per 331-332 magnetic	45°	1%											
342.0 - 344.7	Basalt as per 322.3-331.0'													
344.7 - 345.7	Mafic tuff as per 331-332 magnetic 1% py		1%											
345.7 - 348.3	Basalt as per 322.3-331.0'													
348.3 - 350.4	Quartz vein, tuffaceous from 349.3-350.4 all silicified. minor green carb sulphides 2% incl. po>py>>cpy>As.	30°	2%	614	348.3	350.4	2.1'	.064	1.0				350	
350.4 - 351.4	Basalt as per 322.3-331.0.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-2-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
351.4' - 353.5'	Mafic tuff as per 331 - 332.	45°	1%	615	351.4	353.5	2.1'	.002	2.0				100	
	@ 353.0 a 6" qtz.vn c 2% py masses.													
	remaining tuff <0.5% py/po.													
353.5' - 355.3'	Amygdaloidal basalt as per 156.6 - 157.8	50°	Tr.											
355.3' - 374.8	Mafic tuff c interlayed min basalt flows.	45-50°	Tr.											
	@ 356. a 4" f.g. basalt flow non-magnetic;													
	min. chert bands locally tuff magnetic													
	generally. @ 372 foliation 60°	60°												
	numerous ch. filled fractures Tr. py/po/cpy													
374.8 - 378.5'	Basalt flow. c.g. amphibole crystals. massive		Tr.											
	min. ch. stringers. Tr. sulphides													
378.5' - 387	Basalt. f.g. non-magnetic. vaguely foliated.		Tr.											
	min. ch. stringers. Tr. sulphides													
387.0 - 393.9'	Mafic tuff; foliated. chert bands & siliceous	50°	<1%											
	@ 390.5 a 1" qv hor over ch. Tr. sulphides,													
	ch. vn's common. silicification common.													
	@ 391.5 - 393.4 7" q.v @ 392.8' c 1-2% py	50°	2%	616	391.5	393.4	1.9'	.082	8.0				375	
	silicified tuff contains 2% py > po >> As													
	~ 0.5% As. - associated c ch stringers													
	along foliation.													

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-2-87 COMPANY Twin Gold Mines PROPERTY Lingua Lk NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
393.9' - 398.5'	Very finely laminated Mafic Tuff. v.f.g.	40°	Tr.											
	magnetic, silicified (v. hard).													
398.5' - 401.3'	Basalt. v.f.g. massive thin cb stringers		1%											
	1% [illegible] diss													
401.3' - 402.1'	Mafic tuff finely foliated [illegible], silicified	40°	<0.5%											
402.1' - 402.8'	Basalt; massive, grey		Tr.											
402.8' - 409.0'	Mafic tuff. finely laminated odd cb. stringers	40°												
	@ 403.0' - 405.5' <2% finely diss. sulphides.		<2%	617	403.0	405.5	2.5'	0.002	2.2				75	
	Py (1%) As (.5%) po (.5%) Tr cpy.													
	@ 403.0 - 4" qv. ō 2-3% As													
	@ 405.5 - 408.0 : as per 403.0 - 405.5		<2%	618	405.5	408.0'	2.5'	0.032	2.0				275	
409.0' - 442.0'	Basalt; f.g. greenish grey; typically massive	40°												
	but tuffaceous segments also; very gradational													
	contacts difficult to discern; silicified.													
	@ 426.5 - 428.8', vaguely foliated ō <1% As		1%	619	426.5	428.8	2.3'	0.028	1.0				225	
	min. py, both finely disseminated													
	@ 432.1 - 434.3 - abundant small qv's ō cb		1-2%	620	432.1	434.3	2.2'	[illegible]	1.0				200	
	& green cb.? 1% py ≥ po & 0.5% As.													
	vns chiefly parallel ō a few cross cutting:													

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk. NTS 52 F/15

FOOTAGE From - To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
449.0 - 450.3'	Basalt flow - c.g.; clots of amphibole crystals massive; min. q.v.'s Tr. sulphides		Tr.											
450.3' - 455.8'	Basalt: f.g. massive; min. qtz. vn's w/ py. spo' <1%		<1%											
455.8 - 467.5'	Mafic tuff: finely laminated @ 50°; small scale offset faults; qtz vns common min. drag folds; a few cb. filled fractures abundant beside qtz + cb veins. @ 461.0' a 4x6" q.v. w/ 1% py; randomly scattered diss. py grains throughout <0.5%	50°	0.5%											
467.5' - 473.3'	Basalt as per 450.3 - 455.8 numerous cb-filled thin fractures. 2 qtz vns @ 469.1 & @ 472' w/ 1-2% py/po. overall ~ 0.5%		0.5%											
473.3' - 480.9'	Basalt; silicified (v. hard) bleached, tan light grey, massive; min. fracturing & vn's. virtually no sulphides -		nil											
480.9 - 482.0	Mafic tuff; dk blue-grey w/ yellowish-green sericite & talc laminations; odd chert band; intensely folded; Alteration 0-45° upper contact has most folding lower contact gradational	0-45°	Tr.	621	480.9	482.0	1.1	0.002	3.6				50	

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linamon Lk NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	mod. silicified													
480.0 - 523.8	Mafic tuff / basalt; greenish-grey v.f.g. &	50°	<0.5%											
	finely foliated: numerous, cross-cutting, thin													
	cb stringers: fracturing & small scale offsets													
	common; rare q.v.'s ~0.5% sulphides overall													
	@ 500.3' - 502.3 - tuff, mnr q.v.'s, brecciated	50°	Tr	622	500.3	502.3	2.0'	Tr	1.2				20	
	Tr. py													
	@ 502.3' - 505.4': tuff, 6" wide w <1% diss As		<1%	623	502.3	505.4	2.1'	0.002	1.0				75	
	in contact w a foliated basalt @ 502.6													
	to 503.1' then tuff again w Tr. of As, py													
	@ 505.4 - 507.4 tuff, folded where most intense	30°-40°	2-3%	624	505.4	507.4	2.0'	Tr	1.6				175	
	As content is highest: As overall 2-3%													
	As is diss. & appears cubic: small q.v.													
	in section w 1% py // As >> py													
	@ 507.4 - 509.7 tuff, intensely folded near			625	507.4	509.7	2.3	Tr	1.8				150	
	lwr contact (where highest As content is)	0 - 40°	1%											
	As diss. throughout ~ 1% overall													
	@ 509.7' - 511.0 siliceous cherty tuff no As,	40°	1-2%	626	509.7	511.0	1.3'	0.060	2.6				250	
	1-2% py													
	@ 511.0 - 514.8 tuff Tr of As.		Tr	627	511.0	514.8	3.8'	0.002	3.2				125	
	@ 514.8' - 517.2' virtually no sulphides		nil	628	514.8	517.2	2.4'	0.044	2.0				360	
	@ 517.2 - 518.7 <1% diss As.		<1%	629	517.2	518.7	1.5'	Tr	2.0				225	
	@ 518.7 - 523.0 virtually no sulphides		nil	630	518.7	523.0	4.3'	0.002	2.6				50	
	@ 523.0 - 523.8 contact w porphyry 2-3% As/py	30°	2-3%	631	523.0	523.8	0.8'	0.020	3.0				375	
	qtz & cb vn's, folding.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-2-87 COMPANY Twin Gold Mines - PROPERTY Linamar Lk NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
523.8' - 542.4'	Silicified QFP; intense silicification has		Tr											
	erased much of original porphyritic texture;													
	grain boundaries commonly indistinct; gen. massive													
	@ 523.8 - 526.5 diss. Rs Traces		Tr	632	523.8	526.5	[illegible]	Tr	0.6				150	
	@ 526.5 - 529.5 diss. Rs Traces		Tr	633	526.5	529.5	3.0'	0.014	0.4				75	
	@ 538.4 - 542.4 diss. Rs Traces		Tr	636	538.4	542.4	4.0'	Tr	0.4					
542.4' - 582.0'	Basalt w short interference sequences		Tr											
	typically f.g., variably foliated to massive													
	numerous thin cb. stringers; one q.v.													
	@ [illegible] [illegible] w odd As speck;													
	@ 542.4 - 543.2' contact intensely foliated	40°	1-2%	637	542.4	543.2'	0.8'	Tr	2.0					
	w 1-2% Py > po. overall Tr. of sulphides													
	@ 579.2 - 582.0 foliated 1% py assoc. w	40°	1%	638	579.2	582.0'	2.8'	0.002	1.6					
	small q.v.'s. numerous thin cb stringers													
582.0 - 752.9'	Feldspar qtz porphyry in near tonalite composition.													
	<10% mafics; equigranular plag.; more sericitic &													
	sheared intervals; from 580 - 618'; shearing													
	& sericite gradually increase; saussuritization													
	of plag. & the development of blue-grey qtz		Tr	639	582.0	583.8	1.8'	Tr	0.2					
	eyes occur w more intensely sheared segments.													
	Mylonite is predominant rock type after 655'													
	@ 582.0 - 583.8 - contact w mnr. py													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linamon Lk. NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
582-752.9' cont.														
	@ 618.6-620.8 mod. sheared zone Tr. Po	45°	Tr.	640	618.6	620.8	2.2'	Tr	0.2					
	@ 641.8-645.0 sheared sault [illegible] bluegrey	45°	Tr.	641	641.8	645.0	3.2'	Tr	0.4					
	qtz. vein sericitic [illegible] few qtz. stringers													
	ē mod. brecciation													
	@ 653.0-654.7 sheared [illegible]	55°		642	653.0	654.7	1.7'	Tr	0.2					
	@ 654.7-655.5 fault breccia [illegible]													
	[illegible] rock [illegible]													
	contact @ 45° ; [illegible]													
	@ 654.8-655.5' translucent smoky qtz. vein			643	654.8	656.0	1.2'	Tr	ND					
	@ 662.0' mylonite section ; qtz-sericite schist;													
	mylonite is the predominant rock type													
	after ~655'													
	@ 671' 3" fault zone as per 654.7-655.5													
	@ 672 10" intensely brecciated zone ē													
	long narrow (up to 3"x¼") qtz-sericite													
	bands - intensely silicified; chlorite													
	@ 693.1-698.1 mylonite (qtz-sericite) ~1%		1%	644	693.1	698.1	5.0'	0.002	0.4					
	v. finely diss. po/py ; numerous qtz. vns													
	@ 698.1-703.5 mylonite : v. finely diss. po/		1-2%	645	698.1	703.5	5.5'	0.062	1.0					
	py & As. odd qtz. vn													
	@ 703.5-707.8 mylonite po/py 1-4" q.v.		1%	646	703.5	707.8	4.3'	0.020	0.2					
	@ 707.8- " of relatively unaltered porphyry ē		1-2%	647	707.8	711.3	3.5'	Tr	ND					
	in mylonite : odd qtz vn ; po/py v.finely													
	diss. possibly traces of As.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linovar Lk NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
552'-752.9' con't													
	@ 711.3-714.3 mylonite: 1% (po>py & As) odd q.v.		1%	648	711.3 714.3	3.0'	0.012	0.2					
	@ 714.3-717.8 relatively unaltered porphyry w virtually no sulphides		Tr.	649	714.3 717.8	3.5'	Tr	0.2					
	@ 717.8-721.7 mylonite with translucent smokey qtz vn. w a 2mm As crystal. 1% py/po & tr As.	45°	1%	650	717.8 721.7	3.0'	Tr	0.2					
	@ [illegible]-727' actinolitic chl concentration w a piece of massive As in a white unsheared unsericitized tonalite porphyry		<1%	651	726.3 727	0.7	0.002	0.6					
	@ 731.9'-736.0' mylonite <1% py/po on slip surfaces abundant sericite		<1%	652	731.9 736.0	5.0'	Tr	ND					
	@ 745.7-749.5 mylonite, so intensely sheared that the qtz eyes are stretched flat - abundant sericite <1% py/po.		<1%	653	745.7 749.5	3.8'	Tr	ND					
	@ 750.9-752.9 mylonite contact crenulated folds @ contact <1% sulphides	45°	<1%	654	750.9 752.9	2.0'	Tr	ND					
752.9'-761.5'	Basalt f.-m.g.; cb-vein from 752 to 759.5 massive												
	@ 752.9-754.9 contact Tr. sulphides	45°	Tr.	655	752.9 754.9	2.0'	Tr	1.8					
	@ 759.5-761.5 intensely silicified odd qtz vn. well-foliated folded some brecciation.		2%	656	759.5 761.5	2.0'	Tr	4.4					

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Linamon Lk. NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Co	Pb	Zn	As	Sb	
761.5' - 780.3	Basalt w chert; generally the interval is	40°													
	very mixed up. the basalt is f.g., massive														
	w buff to pink, foliated, intense folded chert														
	bands layers - may have been caused by														
	slumping & mixing of unconsolidated material														
	@ 761.5' - 763.5' qtz. vein in foliated sericite		Tr.	657	761.5	764.0	2.5'	0.016	0.2						
	actinolite? schist after basalt? moving to pulps			126019	764	768	4	Tr							
	qtz vein is common throughout although basalt			126020	768	772.5	4.5	Tr							
	remains only moderately silicified.														
	@ 772.5 - 775.5' character sample of basalt / folded chert		Tr.	658	772.5	775.5	3.0'	Tr	1.2						
	@ 775.5 - 780.3; silicified, 2% po/py as cavity fillings		2%	659	775.5	780.3	4.8'	0.144	3.6						
	lower contact brecciated														
780.3 - 782.0	QFP, tonalite? blue qtz. eyes saussuritized		Tr	660	780.3	782.0	1.7'	Tr	0.4						0.1134 / 19.2
	feldspar. Tr. po/py slightly foliated														
782 - 798.0	Basalt: f.g. mod. foliated. strongly														
	fractured upper contact brecciated. numerous														
	qtz. veins & mod. silicification, finely diss. po/py														
	@ 782.0 - 786.4 basalt as described 1% po/py		1%	661	782.0	786.4	4.4'	0.062	2.4						
	@ 786.4 - 788.4' basalt next to 'ore zone' 1%		1%	662	786.4	788.4	2.0'	0.032	2.6						
	finely diss po/py														
	@ 788.4 - 791.4 'ore zone': foliated, due to		6%	663	788.4	791.4	3.0'	0.201	0.19						
	orientation of sericite, chlorite & secondary qtz.														0.183 / 6.3
	3% py, <2% po, <1% As. Tr. of cpy diss. or blebs.														
	@ 791.4 - 794.7 Same; 1% v. finely diss As.		6%	664	791.4	794.7	3.3'	0.166	0.32						

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk. NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
782 - 798 con't														
	@ 794.7-796.8 - foot-wall sample 1% py		1%	665	794.7'	796.8'	2.1'	0.020	3.2					
	strongly silicified basalt; numerous thin			126021	791.8	798	1.2	Tr						
	cb stringers & minor QFP dikes (<1" wide)													
798.0 - 804.8'	Basalt, c.g., weakly foliated; abundant cb-infilled fractures, mod to strongly silicified													
	@ 801.0 803.6' qtz. vein, strongly silicified brecciated at vein ½% py >Ø.		½%	666	801.0	803.6'	2.3'	0.020	1.2					
804.8'-821.5'	Basalt: v.f.g., silicified, massive w short foliated segments; intensely silicified QFP dikes @ 805.6-806.6'; other smaller dikes intrude between 813.3'-814.3 @ 45° TCA	45°												
	@ 819.3'-821.5' 1-2% py=po in a cb vein w green cb. contact foliated interval silicified; diss to short 1cm massive py/po		1-2%	667	819.3'	821.5	2.2'	0.026	1.8					
821.5'-831.8'	Interflow meta-seds - micaceous, finely laminated/foliated @ 50°, f.g., cb, moderately hard & gritty. lower contact sharp.	50°												

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-I-87 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
831.8 - 836.0	Basalt, as per 804.8 - 821.5'													
	@ 831.8 - 836.0 a 6" qtz. vn w specks		<0.5%	668	831.8	836.0	4.2'	Tr	0.6					
	of f.g. [illegible] concent. at [illegible]													
	mnr. ½" UFP dike													
836.0 - 838.5'	Granitic? dike - silicification has erased		Tr	669	836.0	838.5	2.5'	Tr	0.2					
	any porphyritic texture - pinkish to buff													
	As traces on upper contact													
838.5 - 843.0'	Basalt as per 804.8 - 821.5', silicified													
	@ 838.5' - 843.0': 2% po > py mnr. As		2-3%	670	838.5	843.0'	4.5'	Tr	0.8					
	3 short felsic dikes													
843.0 - 845.4'	Granitic? dike as per 836.0 - 838.5'													
845.4' - 853.5	Basalt: as per 804.8 - 821.5'; felsic													
	dikes @ 847 a completely 'rolled-up'													
	cherty dike - circular in the basalt													
	@ 848.5' - 852.5' strongly silicified interval		2%	671	848.5'	852.5'	4.0'	Tr	1.2					
	w 1-2% Po <1% py & mnr. As.													
852.5' - 897'	Basalt: f. to m.g.; mod. altered. strongly													
	silicified. numerous felsic usually													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
852.5-897 cont	feldspar-qtz porphyry range in size from	45°	<0.5%											
	<1/16" to 6". foliation is most													
	developed near these.													
	@ around 873' the grain size													
	increases to c.g. & becomes massive													
	appears almost actinolitic - non-magnetic.													
	-minor narrow <1/2" wide felsic porphyritic													
	dikes & stringers.													
	@ 893.5-897 (EOH) < 1' wide & 6"		0.5%	[illegible]	893.5	897.0	3.5'	Tr	1.4					
	wide tonalite dike cut the mafics													
	po is predominate sulphide w/													
	minor py.													
897'	EOH													
	T.D. 897 feet													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd PROPERTY Linamon Lk NTS# 53 F/15 PAGE 1 of 20

LATITUDE EASTING 12,003 DEPARTURE NORTHING 11,461 AZIMUTH 0° DIP -50° DEPTH 1223' ELEVATION 9,980.5

INCLINATION AND TROPARI TESTS

DEPTH 100' AZIMUTH 360° DIP -73°
DEPTH 200' AZIMUTH 360° DIP -71.5°
DEPTH 300' AZIMUTH 360° DIP -66° DEPTH 500' AZIMUTH 360° DIP -65° DEPTH 700' AZIMUTH 360° DIP -61.5° DEPTH 900' AZIMUTH 360° DIP -57.5°
DEPTH 400' AZIMUTH 360° DIP -67.5° DEPTH 600' AZIMUTH 360° DIP -62° DEPTH 800' AZIMUTH 360° DIP -60° DEPTH 1000' AZIMUTH 360° DIP -57°
DEPTH 1100' AZIMUTH 360° DIP -56.5°
DEPTH 1200' AZIMUTH 360° DIP -56.5

LOGGED BY Arne Moore CLAIM NO. 6132 MINING DIVISION Kenora Red Lake DATE STARTED 9 JULY 87 DATE COMPLETED 15 JULY 87

DRILLING COMPANY Norex Drilling Ltd CASING Left in hole CORE STORED AT Linamon Lk.

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0 - 22.5	Casing - overburden													
22.5-32.	BasalT: c.g. massive w short foliated segments; magnetic, magnetite grains < 4mm. upper & lwr. contacts are foliated - 40° tuffaceous; mnr po & py. weakly silicified.	40°	<0.5%											
32.-102.8	Basalt; m.g.; massive; non-magnetic; the odd qtz-cb stringers/veins; moderately silicified. Tr. of cpy, py, po.		Tr.											
	lwr. contact sharp @ 35°, basalt magnetic over bottom foot. mnr hematite staining.	35°												
102.8-145.8	Talc-carbonate schist after interflow seds. magnetic. well foliated - Tr. sulphides.	30°	Tr.											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
145.8 - 153.8'	Basalt; f.g. - m.g. weakly magnetic; massive to weakly foliated. Upper contact slightly brecciated ~35° TCA.												
	@148'-148.7' interflow seds as above												
	@148.7- m.g. - c.g. basalt, magnetic												
	@152.6 - 2" bed of inter-flow seds, chloritic												
	@152.8'-153.8' - f.g. - m.g. basalt. magnetic												
153.8' - 218	Talc-carbonate schist after interflow seds. as per 102.8'-145.8'	35°	Tr.										
	@159' - a 3" magnetite/pyrite-bearing v.f.g. chlorite-rich interflow sed.												
	'S' - folds of cb. beds.												
	- the odd cubic py crystal.												
	@189 - ½ wide q.v. caused folding & brecciation in schist.												
	@208.1' - black, biotite-rich layer 6" wide.												
	@216.0 - 217' biotite-rich layer.												
	foliation throughout interval is 30-35°												
218' - 238.3'	Bedded interflow seds; alternating biotite-rich / chloritic/carbonate - non-magnetite foliated units → the talc-cb schist. foliations 30-35°	30-35°	<0.5%										
	Py >00 ~ 0.5%												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines PROPERTY Lingman Lk NTS 53 F/15 Page 3 of 20

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
238.3'-254.0'	Cherty mafic tuff: f.g. foliated magnetic	35°												
	@ 238.3-243.2, <2% py>po in thin		<2%	852	238.3	243.2	4.9'	0.016	1.2				25	
	irregular stringers, & diss'ns.													
	@ 243.2-247.0': <2% py>po & As.		<2%	853	243.2	247.	3.8'	Tr	1.4				150	
	finely diss'd & in thin irreg. stringers													
	@ 247.0-250.': <2% py>po & As		<2%	854	247.	250	3.0'	0.014	2.0				200	
	@ 250.0-254: <2% py>po & As		<2%	855	250	254.	4.0'	0.024	1.8				75	
	gradational low contact: overall section													
	has a light brownish grey colour.													
~~254.0~~														
254.0-282.0	Basalt w mafic tuff intervals.		Tr.											
	f.g.-m.g. massive, greyish green													
	basalt w weak to moderately foliated													
	tuffaceous units; a few cb-infilled													
	thin fractures. w py>po only traces													
	@ 276.7-278.8' strongly foliated interval 20-25°	20-25°												
282.0'-291.9'	Mafic tuff; strongly foliated; alternating	20-25°	Tr.											
	chlorite-rich & cb-rich bands/laminations													
	steep core angle (20-25°): folding, small-													
	scale slip faults & brecciation are common.													
	very little mineralization: Tr. py 100													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines PROPERTY Linamon Lk. NTS 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
291.9 - 297.8'	Basalt - mafic tuff: f.g. vaguely folded the odd cb. fracture filling w pyrrhotite/po very magnetic.	-20°	<1%											
297.8 - 304.8'	Basalt - mafic tuff: f.g. non-magnetic vaguely to moderately folded -20-25°; intense folding from 302-304.0'. Lwr. contact is flooded w qtz. sample from 304 → 307 covers contact w qtz vein	20-25°												
304.8 - 322.0'	Quartz vein. white bull qtz.: 25% of interval is chloritic - basalt & mafic tuff fragments; some biotite-rich.													
	304.8 - 322.0 - Tr. of Py.		Tr	856	304.'	307.'	3.0'	Tr	1.0				ND	
			Tr	857	307.'	312.'	5.0'	Tr	0.6				50	
			Tr	858	312	317.	5.0'	0.002	1.0				25	
			Tr	859	317	322	5.0'	Tr	0.4				15	
322.0' - 324.1	Fault zone - brecciated qtz vn & basalt. ground up core - all small pieces.													
324.1 - 325.7'	Quartz vein, slightly chloritic. Tr. py		Tr	860	324.1	325.7	1.6'	Tr	0.2				5	

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines PROPERTY Linamon Lk NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	mafic tuff.													
325.7' - 361.5'	Basalt, f-m.g. greyish-green; massive to	40°	Tr											
	vaguely foliated ~40° TCA; intense cb. alteration													
	in the form of veins & fracture fillings. biotite													
	is nearly always present in these intervals eg.													
	@ 334.5' - 340.5' & from 359 - 361', Tr. py/po;													
	basalt is bleached to a light grey/green from													
	342' - 358' due to moderate silicification.													
	@ 364.5 - 3" qtz-cb vn ē 1% po>py.													
	generally the sulphides are only traces of py/po.													
361.5' - 376.1'	Basalt. m.g. massive, strongly magnetic,		1%											
	due in part to po in fine grains & in													
	thin stringers ē py. the odd cb stringer.													
	stronger mod silicified													
	@ 361.5 - 367' 1% po>py as described		1%	861	361.5	367.	5.5'	Tr	1.0				2c	
	lower contact becomes biotitic & tuffaceous													
	mafic tuff													
376.1 - 383.0	Basalt, as per 325.7 - 361.5'; the biotite													
	intervals ea 379.8' are well. foliated ~30°/35°	30°												
	@ 381' a 6" qtz/chlorite vn. foliated													
	lower contact @ 35° TCA													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
383.0 - 392.5	cherty mafic tuff: f.g.: biotite: magnetic	45°											
	@ 383 - 384.5 - 2-3mm grains of AS - 0.5% overall		1-2%	862	383.0 384.5	1.5'	Tr	1.4				175	
	= py/po in thin stringers, usually parallel to												
	foliation. 1-2% sulphides.												
	@ 384.5 - 388.5 - py/po biotite common;		1-2%	863	384.5 388.5	4.0'	Tr	1.6				125	
	possible AS traces.												
	@ 388.5 - 392.5 - py/po small-scale 'S' folds.		1-2%	864	388.5 392.5	4.0'	0.002	1.2				125	
392.5 - 395.6	Basalt. possible amygdaloidal - stretched		nil										
	amygdules near lower contact. weakly												
	foliated.												
395.6 - 399.4'	Mafic tuff - basalt: well foliated to	40°	Tr										
	vaguely foliated alternating sections. lower												
	contact drawn where magnetite appears.												
399.4' - 406'	Mafic tuff: cherty intervals: very magnetic:												
	central 3½' is vaguely foliated & v.f.g.:												
	@ 404.6-406.0 is a very biotitic cherty tuff			865	404.6' 406.0'	1.4'	0.002	1.8				5	
	= 1-2% py/po Tr. cpy.												
406.0' - 413.5'	Basalt f-mg. vaguely foliated: no		nil										
	fractures, stringers or mineralization.												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk. NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
413.5 - 440.5'	Basalt - mafic tuff a/per 325.2-361.5: biotite, abundant cb-alteration: folding, brecciation common; 1-2% py/po mostly @ 420-424.2' as described. minor chert. foliation is 20-30°. a 1cm x 3cm py lens w'in a cb. vein @ 423.3' overall - moderate silicification.	20-30°	1-2%	866	420	424.2	4.2'	0.030	0.6				30	
440.5' - 452.2'	Basalt - v.f.g., greenish grey, vaguely foliated, generally massive; mod. silicified numerous small cb stringers & fracture fillings. 1% po>py, commonly diss.		1%											
452.2' - 457.6'	Basalt m.g.: c.g. massive. some cb. alteration. mod. silicified. Tr. py/po		Tr.											
457.6 - 458.9'	Mafic tuff f.g. minor py/po		<0.5%											
458.9 - 464.0'	Basalt; light to med. bluish grey: massive to vaguely foliated; mod. silicified.		Tr											
464.0 - 473.4'	Basalt - mafic tuff ; f.g. weakly foliated until @ 467 its strongly foliated. biotite common from 467' to 472'	25-30°												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Linamon Lk. NTS#53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
473.4 - 479.0	Basalt; intensely silicified; ~25% of interval		1-2%											
	is qtz vein : brecciated : upper contact													
	is a 3" qtz/cb vein; amphibole needles common													
	@ 473.4 - 476.9' : 2% po <1% py in fractures.		2-3%	867	473.4	476.9	3.5'	0.006	1.2				125	
	@ 476.9 - 479.0 : 1% py > po mainly in qtz/cb		1%	868	476.9'	479.0'	2.1'	0.002	0.8				30	
	fractures.													
479.0' - 485.6'	Basalt as per 458.9 - 464.0'													
	very minor qtz & cb veining.													
485.6 - 503.3'	Basalt : m.g. weakly foliated: magnetic	40°												
	probably due to diss. po. mod silicified													
	@ 488.8 - 493.8 - strongly silicified, mnr. qtz/cb		2%	869	488.8	493.8	5.0'	0.024	1.2				25	
	stringers; c.g. sections where secondary laths													
	of amphibole occ. 2% diss po >> py													
	@ 493.8' - 497.3' - 10" qtz vein @ lower contact		1-2%	870	493.8	497.3	3.5'	0.002	2.2				225	
	2" one @ upper contact : 1% As >> py/po													
	@ 497.3' 503.3' : <1% po>py.		<1%	871	497.3	500.3'	3.0'	0.014	1.4				100	
503.3' - 518.5'	Mafic tuff; f.g. strongly foliated	30-35°												
	upper contact steep @ 10° mod. silicified													
	@ 506 - 508, narrow qtz/cb vein : 0.5% py/po		0.5%	872	506	508	2.0'	Tr	1.6				75	
	@ 508 - 511 2 narrow qtz/cb veins : 0.5% As >> py/po	30%	0.5%	873	508	511	3.0'	Tr	2.0				175	
	@ 511 - 515' abundant qtz vning Tr. of As		1.0%	874	511.0	514.5	3.5'	Tr	0.9				75	
	magnetic. 1% py/po													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lirama L/c NTS# 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
503.3-518.5' con't													
	@514.5-518.4 - 1% py/po >> As	25°	1%	875	514.5' 518.4'	3.9'	Tr	1.6				15	
	lower contact is only weakly foliated & v.f.g.												
518.5'-523.5'	Basalt; m.g.-c.g. massive to very vaguely foliated. texture probably due to recrystallized amphibole grains. Tr. py/po		Tr.										
523.5'-533.9'	Basalt; f.g. weak to mod foliated; abundant cb. stringers & fracture fillings. 1-2% biotite.	40°	Tr										
	only a trace of sulphides except @ 531.7-533.0 where 1-2% As in diss. grains & minor py/po is present. sample interval is also magnetic & silicified.		2%	876	531.7' 533.9'	2.2'	Tr	1.2				275	
533.9'-536.9'	Basalt; m.g. mod foliated w core angle steep v 10°. sulphide traces.	10°	Tr										
536.9'-548.5'	Basalt as per 523.5'-533.9'; minor py associated w a 6" wide zone of qtz/cb vein.	40°	Tr										
548.5-551.1	Basalt; m.g.-c.g.; vaguely foliated mod. silicified. brecciated. minor offsets.												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Linamen Lk. NTS 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
551.0-565.3'	Mafic tuff-basalt; moderately foliated; f.g	35°											
	@551.5-555.5' well foliated interval &		1%	877	551.5 555.5	4.0'	0.002	0.8				30	
	abundant qtz. vnig, parallel to foliation												
	po>py ≈ 1%												
	from 555.5 to 565.3 mod. silicified												
	@559.5-561.5 · 2% py>po in thin stringers		2%	878	559.5 561.5	2.0'	Tr	1.4				10	
	@562.9'-565.3 as per 523.5-533.0												
565.3-567.0'	Basalt; m.g.-c.g massive Tr py/po		Tr										
567.0-573.0'	Basalt-mafic tuff; f.g. mod. foliated:	40°	<1%										
	qtz/cb veining common.												
	@567.6-569.6 · <1% py>po in qtz/cb vnis		1%	879	567.6 569.6	2.0'	0.002	0.6				10	
	@571.7-573 qtz/cb vn w light green epidote		1%	880	571.7 573.0	1.3'	0.044	0.6				25	
	1% py/po												
573.0-574.7'	Basalt as per 458.9-464.0'												
574.7-578.2'	Basalt. f.g. weakly foliated. thin cb												
	stringers common												
	@575.6'-576.4' - a 3" qtz/cb vein w po>py		2%	881	575.6 576.4	0.8'	Tr	1.2				25	
	filling the 1cm wide factures.												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lina . Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
578.2'	593.9'	Basalt as per 458.9-464.0' : strongly silicified contacts sharp @ 55°. 4" q.v. @ 593.5		Tr.											
593.9'	596.9'	Basalt as per 523.5-533.9 Tr. py/po.	40°	T.											
596.9'	608.8'	Basalt as per 458.9-464.0' : virtually no secondary cb. alteration - strongly silicified.		nil											
608.8'	616.8'	Mafic tuff : finely laminated/foliated upper contact @ 55° sharp. f.g. abundant cb stringers. mod. silicified : brecciation & small scale fault offsets common. Tr. py/po	40°	Tr.											
616.8	618.9	Basalt as per 458.9-464.0' , weakly foliated lower contact gradational	40°	<0.5%											
		@ 617.1-618.1 specks of As & po minor py		<1%	882	617.1	618.1	1.0'	Tr	1.0			225		
618.9	637.7	Basalt - mafic tuff : f.g. moderately foliated abundant cb. stringers . brecciation . the odd qtz vein.		Tr.											
		@ 628.4-629.5 2, 3" qtz/cb veins w traces of As & py		<0.5%	883	628.4	629.5	1.1'	0.010	0.6			250		

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lk. NTS# 53 F/15 Page 12 of 20

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULPIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
637.7	644.4'	Basalt f.-m.g. weakly foliated; numerous cb. stringers. mod. silicified		Tr.											
641.4	644.4	Basalt - mafic tuff; mod. foliated. v.f.g.; numerous cb. stringers. @ 642.7, 3 1-2cm qtz veins; only traces of sulphides. lower contact over 6" is intensely brecciated. contacts ∠ 30°	40°	Tr.											
644.4	648.5	Basalt. f.g. massive. @ 645.4-646.7 the foliation of a tuffaceous segment is brecciated & folded parallel to the core axis; unit overall is a light grey.	5°	Tr.											
648.5	655.9'	Basalt - mafic tuff as per 641.4 - 644.4	40°	Tr.											
655.9	661.0'	Basalt as per 644.4-648.5; @ 658.7 - 659.3 - foliated tuffaceous unit brecciated & folded w cb & qtz vnig @ 1-2% py		≤0.5%											
661.0	677.0	Basalt-mafic tuff. potential ore zone.		2%											
		@ 662-665. foliated & folded interval w 1% biotite, cb & silica alteration in the form of parallel veins & stringers.		∠1%	884	662.0'	665.0	3.0'	0.6				100		

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Linomor Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
661.0	677.0	continued.														
		@ 665-668.3 intense silicified zone & carbonatization qtz vn's abundant. brecciated & folded foliation common. Qtz vn from 666-667 is a greyish-purple & sericite is a moderate yellowish brown when wet; biotite is common; 2-3% sulphides. Py > Po > As >> cpy		2-3%	885	665.0	668.3	3.3'	0.161	0.33 oz/ton				275		0.161 / 3.3
		@ 668.3-671.8 relatively unaltered chloritic, biotitic tuff with predominantly diss. As crystals. minor pyrite	45°	1%	886	668.3	671.8	3.5'	Tr	1.8				250		
		@ 671.8-675.1 tuffaceous & biotite; numerous qtz veins & cb alteration; 1-2% sulphides. Py > As = Po; py in stringers As is disseminated.	35°	1-2%	887	671.8	675.1	3.3'	0.070	2.2				300		
		@ 675.1-677.0 - tuffaceous. some cb. & qtz vn's. biotite disappears. no As & Py/Po - 0.5%		<0.5%	888	675.1	677.0	1.9'	0.006	1.0				100		
677.0	735'	Basalt f.g. variously foliated. numerous cb stringers. one 2" q.v. @ 702.		Tr												
		@ 726.2 a 2" q.v. in a soft chloritic foliated interval from 724.8' - 727.6' - may be a tuffaceous unit between flows.														
		@ 731.7- 734.2' basalt with <1% po > py.			889	731.7	734.2	2.5'	0.002	0.6				20		
		@ 734.2 - 735.8 covers contact between basalt & feldspar-qtz porphyry; 2-3% Py > Po in stringers & 1% diss. As in a qtz. cb vein.		2-3%	890	734.2	735.8	1.6'	0.104	0.6				325		< 0.104 / 1.6

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines PROPERTY Lineman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
735'	746	Feldspar-qtz porphry-tonalite; v.c.g.; black&white; euhedral feldspar to 4mm. sheared zone from 737.8'-738.5' ; one qtz vn @740.5' from 740.5'-742 - narrow chlorite vng & disruption of fabric, po in short qtz vn.		<0.5%											
		@ 735.8-739.3, as described. <0.5% po>py		<0.5%	891	735.8	739.3	3.5'	Tr	ND				75	
		@ 744.8-746, As specks & py/po <0.5% gradational contact		<0.5%	892	744.8	746.0	1.2'	Tr	ND				25	
746.0	749.5	Basalt; f.g.-m.g. vaguely foliated brecciated lwr. contact ≈20-25°. sharp. w. 1cm of foliated chlorite. odd cb stringers mnr. py		<0.5%											
749.5	751	Feldspar-qtz porphry as per 735-746.													
751	753.5	Basalt. as per 746-749.5													
753.5	757	Feldspar-qtz porphry as per 735-746													
757	758.7	Basalt-cherty meta tuff; biotitic. folded & porphry is exposed due to folding. lwr contact sharp @ 55-60° 0.5% py/po		0.5%	893	757	758.7	1.7'	Tr	1.8				15	

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
752.7	760	Feldspar-qtz porphry as per 735-746													
760	762.1	Basalt as per 746'-749.5' numerous cb stringers. brecciation <0.5% py > po													
762.1	764.0	Feldspar-qtz porphry as per 735-746. upper 1' is silicified & the euhedral feldspar grains erased. lwr contact @ 50°													
764.0	796.8	Basalt: dk green, f.g. massive, mnr cb alteration; strongly silicified.		Tr											
		@ 770.6 - 773.4 contains q.v.s 2" to 6" wide, very dark green/black. Traces of py contacts of vn are @ 45°-50°		Tr	894	770.6	773.4	2.8'	Tr	ND				30	
		@ 795.0 - 797.0 covers lwr contact - 25-30° Traces of py/po in 6" altered pale green.			895	795.0	797.0	2.0'	Tr	ND				5	
796.8	800.'	Quartz - porphry, mylonite; moderate yellowish brown sericite ~30% bluish-grey qtz bands strongly foliated/sheared.													
		@ 797.0 - 800.0' as described tr. of py			896	797.0	800.'	3.0'	Tr	ND				ND	
800.0'	803.0'	Feldspar ~~qtz~~ porphry; as per 762.1'-764.0' most of interval the feldspar grains are erased due to silicification.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Linomar ck. NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
803.0	812	Qtz porphry as per 796.8-803'													
812.	849.1	Feldspar qtz porphry - tonalit as per 735-746. ; odd short mylonitized segment													
		@ 814-814.9 bluish black qtz vein ē tr of As.			897	814	814.6	0.6'	Tr	ND				5	
		@ 827.5-831.0 - intense silicification & bluish black qtz vn'g ē 5-10% sericite			898	827.5	831.0	3.5'	Tr	0.2				ND	
849.1	880.0'	Quartz porphry - mylonite ; bluish grey qtz eyes in a white sericite groundmass ; qtz. vn'g common ; 0.5-1% finely diss. py and lesser amounts of po. py common on slip surfaces	30°	0.5%											
		@ 859.5-864.5 - as described		0.5-1%	899	859.5	864.5	5.0'	<.002	ND			1	ND	
		@ 864.5-869.5 - as described		0.5-1%	900	864.5	869.5	5.0'	Tr	ND				30	
		@ 878 - 880.0 - olive grey to grey qtz vn ē traces of py/po.		Tr											
880.'	897.8	Feldspar - qtz porphry as per 735-746'. From 883.4- 897.8 ; the feldspar grains have been saussuritized & silicified erasing their original euhedral texture.		Tr											
		@ 893.2 - 893.6' one 1cm long ? As needle in an intensely silicified interval.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
892.8	909.5	Qtz-porphry-mylonite as per 849.1-880.0'	45°	<0.5%											
		@902.1'-906.3' strongly foliated/sheared finely diss. py <0.5%			901	902.1	906.3	4.2'	Tr	ND				20	
		@906.3'-909.5 - same + a 1" recrystallized py cube, foliation is disrupted.			902	906.3	909.5	3.2	Tr	ND				25	
909.5	916.3	Feldspar-qtz porphry - tonalite as per 735-746' some shearing													
916.3	999.1	Qtz-porphry-mylonite; as per 849.1-880.0'	40°												
		@916.3'-919.0' 1% finely diss. py >>po		1%	903	916.3	919.0	2.7'	0.002	0.2		15		150	
		@919-923.4 silicified tonalite interval													
		@923.4-926.2' - mylonite folded & disrupted 1% diss. py/po; yellowish.		1%	904	923.4	926.2	2.8'	0.016	ND				30	
		@933.9'-938.2 mylonite bluish-grey 1% po>py		1%	905	933.9	938.2	4.3'	Tr	ND				5	
		@944-950 silicified tonalite interval													
		@954-955.6' reddish hematite-stained section.													
		@977-983 - blue-grey qtz vein with short Feldspar-Qtz porphry intervals minor diss. py>po <0.5%		<0.5%	906	977	983	6.0'	Tr	ND				ND	
		995-999.1 mylonite, bluish grey qtz eyes w/ sericite minor py/po; lower contact gradational - dark green; qtz eyes in a chlorit[illegible]		<0.5%	907	995	999.1	4.1'	0.002	ND				10	

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
999.1	1014.0	Basalt: f.g. intensely silicified brecciated abundant qtz. vn's & cb. stringers;													
		@ 999.1 - 1003.2' abundant qtz vn's <0.5% po/py		<0.5%	908	999.1'	1003.2	4.1'	0.002	1.2				150	
		@ 1003.2' - 1009.2' brecciated & intensely carbonated cherty mafic tuff in part. 1% po > py.		1%	909	1003.2	1009.2	6.0'	Tr	1.4				30	
		@ 1009.2' - 1014.0': abundant cb. veining w po > py ~1%.		1%	910	1009.2	1014.0	4.8'	Tr	1.2				20	
1014.0	1018.0'	Fault Breccia: angular cherty to silicified basalt clasts; entire zone is silicified except lower 10" which is soft, chloritic, & is muddy. - reactivated fault? po > py ~ 1%		~1%	911	1014.0	1018.0	4.0'	Tr	1.0				125	
1018'	1042.0'	Basalt: f.g., vaguely foliated, massive													
		@ 1018.0' - 1022.0': 1-2% finely diss As w <2% py/po in irregular stringers. qtz. veining & cb stringers abundant		3-4%	912	1018.0'	1022.0'	4.0'	0.074	1.2				300	
		@ 1022.0' - 1025.7: 2-3% py 1% As.		3-4%	913	1022.0'	1025.7	3.7'	0.074	2.2				275	
		@ 1025.7 - 1029.0 strong cb alteration sulphide content drops to <0.5% & As disappears.		1-2%	914	1025.7	1029.0	3.3'	Tr	1.8				125	
		@ 1037 - 1039.5': numerous cb stringers & py filling fractures.		1-2%	915	1037.0	1039.5	2.5'	Tr	1.0				5	

0.094 / 7.7'

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
1042	1048.5	Basalt: m-c.g.; massive; clots of													
		amphibole crystals gives a c.g. texture.	45°	Tr											
		mod. silicified; Tr. of py/po													
1048.5	1111.6'	Basalt: f.g. massive; as per 1018-1042.0; the odd feldspar-qtz dikes, usually <1"; the odd folded & contorted chert band in relatively undisturbed basalt. @ 1104.5-1110.5 a dark green qtz vn c traces of py. lower contact gradational													
1111.6'	1176'	Basalt: c.g. massive to weakly foliated;	45°												
		clots of amphibole crystals; biotite													
		appears @ 1128.9 mainly near q.vns.													
		@ 1123.3-1128.9 - interval contains a			916	1123.3	1128.9	5.6'	Tr	0.2				125	
		1' & a 1.5' dark bluish green q.v. c													
		mnr. py & As.; diss. As is especially													
		concentrated near 1127' in a tuffaceous segment													
		@ 1131.9 a 9" q.v.													
		@ 1147.4 a 15" tonalite dike followed by a 5" biotite-rich c.g. basalt followed by a 7" q.v. @ 1151 a 4.3' qtz-felsic dike c traces of py. biotite is common in basalt 1'/2' away from dikes/veins.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-3-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lineman Lk NTS#52 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SOLFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
1176	1223	Basalt; f.-m.g. mod. silicified massive ē short foliated intervals. the upper contact is foliated & folded over 6"; sulphides are not common.		Tr											
		@ 1218'-1223' traces of pyrrho; upper 1' contains a 6" qtz/cb vein.		Tr	917	1218'	1223'	5.0'	Tr	0.6				75	
	12														
		T.D. 1223 feet													

YES

split & sent

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-4-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lineman Ck NTS# 52 F/15 PAGE 1 of 4

LATITUDE EASTING 12,028 DEPARTURE NORTHING 11,822 AZIMUTH 360° DIP -45° DEPTH 207' ELEVATION 9,991.6

INCLINATION AND TROPARI TESTS

DEPTH 207' AZIMUTH 360° DIP -47.5° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY Arne Moore CLAIM NO. 61322 MINING DIVISION Kenora Red Lake DATE STARTED 15 JULY 87 DATE COMPLETED 16 JULY 87

DRILLING COMPANY Norex Drilling Ltd. CASING left in CORE STORED AT Lineman Ck

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	11	Casing - overburden														
11	14	Casing, broken rock basalt														
14	22	Basalt; f.g. massive; thin cb stringers		Tr												
		20'-22 moderately foliated/sheared @ 50°; carb	50°													
		alteration increased but virtually no sulphides.														
22	40.3	Feldspar - qtz porphyry tonalite v.c.g. euhedral	50°	Tr.												
		plag. grains; traces of finely diss. py weakly														
		foliated @ contacts @ ~50°														
		@ 37.0 - 40.3 includes lower contact, Tr py.			975	37.0'	40.3	3.3'	Tr	0.4						
40.3	67.6'	Basalt; f.g. massive; brecciated; numerous														
		thin cb. stringers. strongly silicified; odd														
		min. qtz vein @ 27% py 2% in cavity		2%.	976	40.3	44.1	3.8'	0.002	1.8						
		fillings & disseminations @ 44.1 - 48.8 some		1%	977	44.1	48.8	4.7'	0.002	1.6						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-4-87 COMPANY Twin Gold Mines Ltd. PROPERTY Linamon Lk NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
40.3	67.6'	con't ; @ 58.2'-59.2' cherty bands w 1% py													
		@ 62.6-67.6 becomes m.g. due to amphibolitization	45-50°	½-1%	978	62.6'	67.6	5.0'	Tr	1.4					
		py - ½-1% . weakly foliated. @ 45-50°													
67.6	100.2'	Qtz-porphyry - grain boundaries indistinct due to silicification. variably bleached: v. pale grey colour on dry surface.													
		@ 67.6-72.6 upper contact near 2-3% py at interface in a qtz vn overall <0.5%		<0.5%	979	67.6	72.6	5.0'	Tr	0.6					
		v. little shearing or sericite alteration.													
		@ 95.0 a 4" basalt frag w ~1% py													
		@ 95.9-100.2 minor py in porphyry lower contact @ 70°			980	95.9	100.2	4.3	Tr	0.4					
100.2	118.0'	Basalt : m-c.g. amphibolitized numerous thin cb stringers. f.g. flow contact at lower contact		Tr											
		@ 100.2'-103.7' traces of py.		Tr	981	100.2	103.7	3.5'	Tr	1.2					
		@ 103.7 - grain size decreases to f.g. & becomes well foliated - probably tuffaceous - 45°-50° TCA	45-50°												
		@ 108.8' c.g. amphibolitized to ~112.2' where a 3" cherty qtz. vn. with f.g. basalt on both sides occur													
		@ 114.5 texture almost pegmatitic due to recrystallized amphibolite													
		virtually no sulphides													

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-4-87 COMPANY Twin Gold Mines Ltd PROPERTY Linamar Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
118	207'	Basalt · possibly a variolitic flow · stretched light grey 'varioles' in a dark grey groundmass · possibly top of a f.g. basaltic flow													
		@ 124.0'-127.7' – mod. foliated @ 45° ; also a QFP · tonalitic dike from 126-127.3 py/po · <1% overall	45°	<1%	982	124.0'	127.7'	3.7	Tr	1.0					
		@ 134.3 · 138 · a granitic dike w the odd basalt fragment containing 1% py only traces of py in dike · 2 other granitic dikes occur near 142'; contacts are all ~30°													
		@ 154.6 – a bleached segment, possibly a mafic tuff w disrupted bedding due to several 1cm qtz veins & carb. stringers 1% py>po		1%	983	154.6'	155.6'	1.0'	Tr	2.0					
		@159.0 - 162.4 · interval contains a 6" porphyritic tonalitic dike & 11" of cherty metaseds? · <1% py>po overall		<1%	984	159.0'	162.4'	3.4'	Tr	1.6					
		@ 166.0'-167.6' qtz/epidote veining & granite (3") dike · 1% py/po in v. thin stringers running parallel to core axis.													
		from ~160 basalt is strongly silicified w abundant mnrzd. cb stringers. brecciation is common - v.f.g. to f.g. w odd chert in c.g. segments													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-4-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lk. NTS#53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
118.	207	cont.													
		@189.0' - 191' - 1" qtz vn. ē 1% po>Py			985	189.0	191.0'	2.0	Tr	0.6					
		in basalt contact													
		@202.8 - 206 - f.g. basalt tr. po>py		Tr	986	202.8'	206'	3.2'	Tr	0.8					
		@206 - 207 - weakly altered, strongly		1%	987	206.0	207.0	1.0'	Tr	2.0					
		silicified basalt ē traces of Aspy & 1%													
		py>po ; biotite													
		~~[illegible]~~													
		T.D 207 feet													

split sent

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-5-87 COMPANY Twin Gold Mines Ltd PROPERTY Linomar Lk. NTS# 53 F/15

LATITUDE EASTING 12,028 DEPARTURE NORTHING 11,822 AZIMUTH 360° DIP -70° DEPTH 287' ELEVATION 9,991.6

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY Arne Moore CLAIM NO. PA 6132 MINING DIVISION Kenora Red Lake DATE STARTED 16 JULY 87 DATE COMPLETED 18 JULY 87

DRILLING COMPANY Novak Drilling Ltd CASING Left in CORE STORED AT Linomar Lk

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	4.5	Casing - overburden													
4.5	41.0	Cosite: greyish green f. grained massive		Tr											
		numerous ... [illegible] T. ...													
		@ 38' lwr. contact @ 45° < 0.5% ...	40°	< 0.5%	988	38.	41	3.0'	Tr	1.2					
41.0'	75'	Feldspar-qtz porphyry - tonalite	30°	Tr											
		saussuritized plag.; light bluish-green qtz.													
		grains; 2% sericite along a 30° foliation													
		near upper contact													
		@ 62' a 1' wide shear zone - ... no sulphides			989	41.'	43.'	2.0'	Tr	0.8					
		short brecciated intervals. v. minor pink granite;													
		lower 4': stringers ... (20-25°) sericite stringers													
		following shearing - most of original porphyritic													
		texture obscured mainly from silicified ...													
		lower contact - 45°.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-5-87 COMPANY Twin Gold Mines Ltd PROPERTY Linanan Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
75	79.5	Fault zone? Crushed broken basalt c̄ odd		Tr											
		piece of porphyry to 78.5'.													
		@ 78.5 - 79.5 core is whole but still intensely													
		fractured & brecciated. Tr pyrite													
79.5	129.5'	Basalt weakly foliated strongly folded - 10-20° TCA	10-20°												
		abundant cb fracture fillings													
		@ 88' - 90.5 1" wide q.v. running for 14" c̄		1%	990	88.0'	90.6'	2.6'	0.002	1.8					
		1% Py > Aso.													
		@ 93-95. 75% cb c̄ qtz. & 1-2% arsenopyrite		1-2%	991	93.'	95.'	2.0'	0.002	2.0					
		@ 101.8' chert fragments broken & stretched													
		along foliation c̄ mar. biotite - maybe a short													
		tuffaceous interval. lower contact @ 30°. lower	30°												
		4-5' is lighter in colour (bleached) massive &		nil											
		contains no visible sulphides.													
125	335'	Quartz-feldspar porphyry 30% feldspar phenocrysts		nil											
		in a mainly quartzose groundmass. <5% sericite													
		in weakly - moderately foliated / sheared intervals.													
		no visible sulphides													
133.5	139.6'	Alteration & brecciation of above QFP.													
		hematization? or albitization? by fluids percolating													
		through an intensely brecciated zone from													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-5-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
133.5	139.6'	~135-137 - both contacts are gradational													
139.6'	152.5'	QFP same as 128.5'-133.5'													
		@ 150.5-152.5 - lower contact Tr. py contact 40°		Tr	992	150.5	152.5	2.0'	0.006	1.2					
152.5	218.4	Basalt: weakly foliated f.g. numerous thin	50°	Tr											
		cb stringers traces of garnet or scheelite													
		@ 152.5-155.4 2' of intense cb-qtz			993	152.5	155.4	2.0	Tr	1.2					
		veining [illegible]													
		generally moderately silicified - mnr. diss. AWs.													
		@ 164.2'-185.2' - m.g. due to amphibolitization.													
		@ 186.0'- 6" dark qtz. vn.													
		from 190'-218.4' mnr. granite stringers/dikes													
218.4'	222.3'	Feldspar-Quartz porphyry dike - granite?													
		upper contact @ 15° lower contact @ 50°													
		plag (75%) sericitized albitized?													
222.3	287	Basalt; as per 152.5-218.4' mnr. tonalite dikes													
		usually 2"-6"; @ 233.2- dk smoky qtz vein w/		0.5%	994	233.2	235.7	2.5'	Tr	0.6					
		mnr. feldspar containing 0.5% py [illegible]													
		sample includes 3" of mineralized basalt on													
		both sides.													
		@ 238.5-240' tonalite dike within brecciated													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-5-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk. NTS# 53 F/15 Page 4 of 4

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
221.3	287	con't.													
		@ 245.0 - 247.8 intensely silicified basalt in		2%	995	245.0	247.8	2.8'	0.028	1.0					
		contact w a mylonitized qtz porphy (246.3-247.8)													
		w abundant sericite & sulphides average 2% : 3%													
		in basalt ... in sheared dike pieces.													
		0.5% finely diss As + cpy. green carbonate													
		255.5 - 2" epidote/qtz vein w mnr. po>py													
		@ 250.2 - 260.3 weakly sheared tonalite dike			126022	276.0	280.5	4.5	Tr						
		@ 268' - 270' - pyrite stringers parallel to c. axis													
		biotite appears v. fine grained													
		@ 280.5 - 282.6 basalt sheared - 30°. 2% sericite	30°	2%	996	280.5	282.6	2.1'	.033	4.4					
		py >> po > As - cpy = 2% moderately silicified													
		@ 282.6 - 287 intensely sheared abundant sericite veined mainly qtz.	30°	7-10%	997	282.6	287.0	4.4'	0.231	4.6					
		>5% as in fracture filled cavities, >2% po													
		usually finely diss. 0.5cm areas of As 3%!													
		& mnr. cpy: thin dark grn chert bands.													
		At 287' lost hole - intersected 275' drift.													
		too much vibration to restart. 5' of													
		play in the drill string.													
		T.D. 287 feet													

0.166 / 6.5'

Split Set

6

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Twin Gold Mines Ltd PROPERTY Linomar Lk. NTS# 53 F/15 PAGE 1 of 11

LATITUDE (EASTING) 11900 DEPARTURE (NORTHING) 11427 AZIMUTH 360° DIP -45° DEPTH 889' ELEVATION 9,979.3

INCLINATION AND TROPARI TESTS

DEPTH 250' AZIMUTH 360° DIP -44° DEPTH 607' AZIMUTH 360° DIP -36° DEPTH 772' AZIMUTH 2° DIP -32° DEPTH AZIMUTH DIP

LOGGED BY Anne Moore CLAIM NO. 6132 MINING DIVISION Kenora Red Lake DATE STARTED 18 JULY 1987 DATE COMPLETED 25 JULY 1987

DRILLING COMPANY Norex Drilling Ltd. CASING Left in CORE STORED AT Linomar Lk

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	20'	Casing - overburden boulders.													
22.5'	37.2'	Chlorite - carbonate schist ± amphibole ± talc	60°	1-2%											
		prob originally tuffaceous seds. foliated													
		~60°: recrystallization obscures primary		<2%	1052	22.0'	27	5.0'	<.ccc	<.2					
		features; minor qtz veining. folding &		<2%	1053	27.0'	32	5.2'	Tr	0.2					
		disruption of original bedding common.		<2%	1054	32.2'	37.2	5.0'	<.ccc	1.0					
		biotite laminations also common in lower													
		5' of interval.													
		sulphides: 1-2% po >> py. Tr cp.													
37.2'	45.5'	Talc carbonate schist after intrusive rocks.	50°												
45.5'	99'	Basalt - andesite. v.f.g. gradually diminishing		Tr											
		to m.g. to f.g.; only locally magnetic.													
		hematite alteration on cores at lower													
		contact massive													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Twin Gold Mines Ltd PROPERTY Linaman Lk NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
99'	136	Talc-carbonate schist after interflow seds.	45°	0.5%											
		from 107-111.3' : f.g. magnetic basalt													
		flows.													
136'	143.5'	Mafic tuff - f.g. well foliated, biotitic	45°	1%											
		magnetic : numerous cb stringers, mnr.													
		qtz vein, mnr. drag folds.													
		1% py >> po ≥ cpy			1055	136.0'	139.7	3.7'	Tr	1.2					
					1056	139.7'	143.2	3.6'	.002	1.8					
143.5	318.1'	Basalt: f.g. massive, traces of py cpy.													
		@172.2' 1% py, irregular stringers - 5% fld			1057	172.2'	174.2'	2.0'	Tr	1.6					
		@180' - 7" q.v. & ferr. carbonate, 2%			1058	180.0'	181.5	1.5'	.032	1.0					
		py >> As ≥ cpy													
		@187.0' - weakly foliated 1% As - 2-3mm			1059	187.0'	189.7	2.7'	Tr	1.8					
		grains, traces cpy, py													
		@222.2 - 3" wide margin of 'spinifex texture'?													
		in a particularly v.f.g. section which runs from													
		225 to 235.5'													
		@235-240 c.g. basalt non-magnetic ...													
		@262.0 - strongly silicified f.-m.g. basalt: 1-2% cpy ≥ py		1-2%	1060	262.5'	266.1	3.5'	Tr	1.0					
		in thin stringers, mnr. ... q.v.													
		@265 - gradual increase in grain size to m.g.													
		to 282'.													

&

spinifex

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lk NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
143.5	318.1	con't.													
		282'-285.5' f.g basalt w stretched vesicles?													
		numerous thin cb. stringers. foliation ~50°	50°												
		@285.5'-286.1': m.g. interval some cb stringers													
		286.1'— f.g. basalt weakly foliated	45°												
		abundant thin cb stringers cont. (~2%)													
		from 290-290.6' foliation @ 40° & [illegible]													
		near 292' ilmenite [illegible] @ 292.8'													
		@292.8-295.1 greenish grey, crenulated foliation		1-2%	1061	292.6	295.1	2.5'	0.002	2.0					
		1-2% py>po some isoclinal folds.													
		@295.1'-298.3' - biotite (~5%) - chert? possibly a	60°	1-2%	1062	295.1	298.3	3.2'	Tr	1.2					
		mafic tuff : minor low angle folds													
		1-2% py>po>> As ~ cpy.													
		@298.3-300' intensely folded foliated basalt w		nil	1063	298.3	300.0	1.7'	Tr	0.4					
		virtually no sulphides													
		@300'-304.3' - as per 295.1'-298.3' - interbedded		5%	1064	300.0	304.3	4.3'	0.039	2.0					
		folded biotitic / chert / tuffaceous basalt													
		5% py>po minor cpy - abundant carb.													
		alteration - saturated & less sulphides with from													
		308.0' to 309.8' ; green carbonate (1-2%)													
		309.8'-318.0' = f. to m.g. basalt. Tr py.		Tr		304.3	307	2.7							
				1-2%	1864	307	309.5	2.5	0.149						
						309.5	312	2.5							

0.149 / 2.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Twin Gold Mines Ltd. PROPERTY Linnmar Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
318.1	346'	Basalt; light-med. bluish grey; c.g. massive shattered													
		upper contact ~40°; becomes foliated near													
		322' & m.o. ; @ 327 a strongly developed													
		over 6" is chevron folded, in some mm qv													
		lower contact indistinct - probably not a thick													
		or observed. lower 3' has black chloritic													
		q.vning well developed foliation ~40° & amphibolite	40°												
		amphibole grains over 2".													
346'	372'	Basalt - greenish grey weakly foliated													
		numerous cb stringers, fracture fillings, minor													
		q.vning.													
		@ 354.2' - 356 - mafic tuff secondary biotite													
		@ 356 - grey (bleached) minor breccia from													
		qtz/cb vning, folds of weakly foliated basalt													
		biotite appears @ 361.5 then 2" of c.g.													
		amphibolitized basalt.													
		@ 361.5 - 365.9 - tuffaceous secondary biotite (5-10%)	50-60°	1%	1065	361.5	365.9	4.4	0.090	1.8					
		gives overall dk brown colour. abundant													
		qtz/cb veins & cb alteration along													
		foliation. 1% py > po													
		@ 365.9 - 367.9 brown cherty metaseds -		5%	1066	365.9	367.9	2.0'	0.030	2.4					
		sulphide-facies IF? - 5-7% py > po ; cb +													
		minor qtz alteration - 1% green carbonate - Tr. sph.?													

☆

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Twin Gold Mines Ltd PROPERTY Linaman Lk NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
346	372	367.9'-372. mod. foliated (45°) & mod. cb	45°	<1%	1067	367.9	372.0	4.1	.038	1.8					
		alteration. <1% py, po finely diss.													
372	380'	Mafic tuff: finely laminated alternating chlorite/													
		biotite/carbonate laminations													
		372'- grey q.v. (10") ē chlorite, 1-2% py mainly		1-2%	1068	372	374.2	2.2'	Tr	1.4					
		filling small fractures & pull-apart structures.													
380'	440.5	Basalt - f.g. greenish grey numerous cb.													
		stringers weakly foliated													
		391.0 - 394.2 foliation ∠40°. 1% py, po as	40°	1%	1069	391.0	394.2	3.2'	Tr	1.2					
		@421. 425.5 massive - numerous q.v.'s ē py		1-2%	1070	421.	425.5	4.5'	0.015	1.4					
		also diss. py 1-2%													
		foliation @ 426 = 50°	50°												
		core is fractured & broken begin @ 432' to													
		451.5' ; @429.5 - 1% py in q.v.'s folded		1%	1071	429.5	433.0	3.5'	Tr	1.0					
		& disrupted foliation near vn contacts.													
440.5'	447.9	Qtz- feldspar porphyry - tonalite; plag. sauss'd.		Tr.											
		qtz grains, bluish. 7" of basalt @ 442'													
		grain boundaries very obscure through													
		lower 2' ; 2% sericite only Tr py													

fk

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-6-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
422	473.1	Basalt; mg very broken around evidence of a fault zone @ 440-450 where abundant cb has filled 'pull-apart' structures. @ 451.5' core is less blocky & there are numerous cb stringers. min. 3" QFP (granitic) dike @ 466'													
		@ 471.3 - contact w porphyry dike Tr. py contact @ 50°		Tr.	1072	471.3	473.1	1.8	Tr	1.0					
473.1	497'	Quartz-feldspar porphyry 30%? feldspar in a quartzose groundmass. minor brecciation shearing. sericite		Tr.											
497'	534'	Basalt, generally f.g. (v.c.g. @ 513-518), intensely fractured & brecciated w abundant cb. infillings.		Tr.											
		@ 497-499.5' - 1% overall w a 3% concentration at 498.9' of py > po. Traces of As in an intensely silicified interval (4")		1%	1073	497.0	499.5	2.5'	0.024	2.0					
		most intensely brecciated @ 524'													
534'	551.3'	QFP - tonalite? as per 473.1'-497.0' upper contact @ 80° lower contact @ 80° almost no sulphides.		Tr.											

As

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. C-6-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lineman Lk. NTS# 53 F/15

	FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
	551.3'	684.6'	Basalt: f.g. massive to weakly foliated; numerous		Tr.											
			thin cb stringers; several narrow felsic													
			dikes - granite/aplite/binary granite?													
			from 579.5' - 591 c.g. section probably													
			amphibolitized. odd narrow q.v. Traces of py													
			@614' a 1.4' tonalite dike - 90% sauss. felsic													
			feldspar.													
			c.g. interval 615.5' - 622'													
			@623 - 624.4' strongly silicified - 60% qtz.	60°												
			foliated @ 60° Traces of fine py/po.													
ore zone			@646.1' - 648.4' weakly foliated numerous cb		Tr	1074	646.1	648.4	2.3'	Tr	.2					
			stringers. Tr. py/po													
			@648.4' - 652.1' - as above mod. silicified, mod.	50°	1-2%	1075	648.4	652.1	3.7'	0.020	1.4					
As			foliated 1% diss As 1% py													
			@652.1 - 657 sheared, 30% sericite 5% py	50°	5%	1076	652.1	657.0	4.9'	0.277	0.55	opt				
As			1% po. 2% As, Tr. cpy. tr. green carbonate													
			mnr. qtz. vns. (As fine grained in thin bands & diss.)													
			657 - 660.1 as above w 4" carb. vein.	50°	5%	1077	657.0	660.1	3.1'	0.532	0.27	opt				
			660.1 - 663.7 basalt: intensely brecciated @		Tr	1078	660.1	663.7	3.6'	Tr	1.8					
			660.2 4" of unconsolidated rock flour.													
			brecciation diminishes & stops at 663.7.													

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R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Mosaic Resources Ltd.? PROPERTY Lineman Lake NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
6846	7041	Basalt - mafic tuff : f.g.-m.g. well foliated	55°												
		although qtz veining & folding has disrupted it.		1-2%	1079	6846'	6894'	4.8'	Tr	2.2					
		@ 6846 → 0.5% As 1% py/po.													
		@ 6894 → strongly silicified interval, bleached		2-3%	1080	6894'	6898.5'	4.4'	.007	1.2					
		to a grey 4" cb. vein ū local cb													
		silicification - cb stringers ū py/po moreover													
		overall 2-3% py>po - minor cp, & As.													
		@ 6938' - less altered, intensely foliated ū	c -10°	<0.5%	1081	6983.8'	6988'	5.0'	Tr	0.6					
		brecciated segment - c wide 'S'-fold parallel													
		to core axis ~0.5% py/po													
		6988' - 7041' - strongly silicified sandstone -		1-2%	1082	6988.5'	7041'	5.3	0.002	0.0					
		dark yellowish orange to moderate													
		yellowish brown sandstone ū 'wispy' grains.													
7041		Basalt: f.g. massive to weakly foliated;													
		numerous thin cb. stringers still													
		one ū mineralization (py/as), then sl.													
		narrow (<1cm) felsic dike (aplitic, tonalitic)													
		cutting basalt, until @ 750.6' a 16"													
		dike (pinkish aplitic)													
		followed by several 4"-6" dikes ū the													
		intervening basalt foliated @ 60° parallel	60°												
		to dike contacts													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-6-87 COMPANY Massive Resources Ltd. PROPERTY Lingman Lake NTS# 53 F/15 Page 9 of 11

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
704.1'	781.2'	cont.			126023	760	763.8	3.8	0.004						
		@ 763.8'-765.6' mod. foliated basalt w	45-50°	<0.5%	1083	763.8'	765.6'	1.8'	Tr	0.6					
		a ~4" felsic dike (tonalite?) <0.5% py													
		@ 765.6-766.1' tonalite? dike w mnr. chlorite		1%	1084	765.6	766.1	0.5	0.579	0.19	ppt				
		w visible gold i.e. speck 1-2mm across beside													
		a 1cm py bleb													
		@ 766.1-768.7 mod. foliated, some ch.	60°	<0.5%	1085	766.1'	768.7	2.6	Tr	0.6					
		stringers parallel to foliated @ 60°			126024	768.7	772	3.3	0.002						
		@ 778.5'-781.2' ~ 779.5 [illegible] to		2-3%	1086	778.5	781.2	2.7	0.056	1.2					
		781.2' a mod. to strongly sheared dike	45°		126025	772	775	3	Tr						
		w abundant sericite over 10", occurs.			126026	775	778.5	3.5	Tr						
		alteration of hanging wall includes moderate			126027	781.2	785.8	4.6	Tr						
		silicification & carbonation w 3-5% sulphides													
		incl 0.5% As concentrated in fine needles													
		near upper dike contact, where crystalline green													
		carbonate occurs mnr. cpy 2-3% sulphides overall.													
781.2'	848	Basalt: c.g. due to clots of amphibole	60°												
		crystals which have been stretched along													
		a foliation plane @ 60°													
		@ 785.8'- [illegible] strongly silicified, mod.		3-5%	1087	785.8	788.8	3.0'	0.038	1.6					
		carbonated; 'bleached' - increasingly chloritic			1088	788.8	793.8	5.0	0.046	0.8					
		towards lower contact. 1% As aggregates			1089	793.8	798.3	4.5	Tr	0.4					
		of fine needles 3-4% py>po, mnr. cpy													

V.G.

0.579 V.G. 0.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG.

DRILL HOLE NO. S-G-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWINGOLD MINES LTD. NTS# 53F/15 Page 10 of 11

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
781.2'	804.8'	cont.														
		@ 798.3'-800.8'; mod. silica ch alteration		1%	1090	798.3'	800.8'	2.5'	Tr	0.8						
		1% blk zone weak mod. As in fine needles			1091	800.8	905.8	5	Tr	0.6						
					1092	805.8	810.9	5.1	Tr	0.6						
804.8'	848'	Basalt: dk brown to black w biotite														
		& w numerous ch stringers, felsic														
		dikes from ½"-1' (possibly tonalite)														
		@ 810.9'-813.4': abundant (50%?) biotite w	70°	5%	1093	810.9'	813.4'	2.5'	0.116	1.4						c.116 / 2.5
		strongly silicified neighbouring intervals includes														
		a 3" felsic dike/vein? & also a light brownish														
		cherty segment ~ 4": sulphides up to 10% locally														
		5% overall														
		@ 813.4'-814.8' - 25% biotite, 25%		Tr.	1094	813.4'	814.8	1.4'	0.02	2.0						
		ch. throughout, mod. green ch. Tr. py														
				<0.5%	1095	814.8'	819.5'	4.7'	Tr	1.0						
814.8	819.5'	- Sericitic quartz ... ; ~50% sericite	60°													
		... qtz lenses, stringers parallel														
		to foliation 60°: <0.5% py														
819.5'	859.3'	Basalt: mostly as per 781.2-804.8 w numerous														
		tonalitic dikes in widths of 1" to 30" -														
		from @ 839.8'-842.4': dikes w secondary veins														
		contain mod. po > py.														
		from 839 onwards biotite content up to 10%														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-6-87 COMPANY Massive Resources Ltd. PROPERTY Longma Lake NTS# 53F/15 Page 11 of 11

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
839.5	858.3														
		locally ; @ 850.8' 2mm dia. amygdules?													
		over 5" in a section of finer grained													
		basalt from 848' to 854'													
		@ 854-856 - hurdled cb. veining & selvedge	45-50°												
		Altered although disrupted mnr. py/cp													
858.3	861.5	Granite or hornfelsed basalt ; moderately													
		reddish brown ; granular texture, not													
		porphyritic, appears recrystallized <10% mafic													
		& hornblende.													
861.5	865.4	Basalt: weakly Altered f. to m.g. biotitic													
		<0.5% py/po													
865.4	889.0	Granite? as per 858.3'-861.5' ; contains													
		the odd c.g. biotitic basalt "xenolith"													
		up to 14" in width ; traces of sulphides													
		@ 887 - 889.0 granite? tr. py/po		Tr	1096	887.0	889.0	2.0'	Tr	0.4					
		~~EOH~~ T.D. 889 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-7-87   COMPANY Massive Resources Ltd.   PROPERTY Linaman Lake   NTS 53 F/15   PAGE 1 of 7

LATITUDE Easting 11,900   DEPARTURE Northing 11,427   AZIMUTH 360°   DIP -60°   DEPTH 957'   ELEVATION 9,9?? 3

INCLINATION AND TROPARI TESTS

DEPTH 346' AZIMUTH 360° DIP -55.5°   DEPTH 607' AZIMUTH 1° DIP -52.5°   DEPTH 747 AZIMUTH 357° DIP -52°   DEPTH 957' AZIMUTH 4° DIP -51.5°

LOGGED BY R.Moore & RPB   CLAIM NO. 6137   MINING DIVISION Kenora Red Lake   DATE STARTED 26 July 87   DATE COMPLETED 31 July 87

DRILLING COMPANY Norex Drilling Ltd.   CASING Left in   CORE STORED AT Linaman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	19.5'	Casing - overburden													
19.5	53'	Chlorite - carbonate - amphibole schist after ultramafic? magnetic foliated @ 30°; recrystallized amphibole obscures primary features. minor qtz veining, abundant cb. veins & stringers; rusty slip surfaces; 1-2% pyrrho overall, min. cpy.	30°	1-2%											
				<2%	1118	32.5	37.8	5.6	.002						
				<2%	1119	37.8'	42.0	4.2	Tr						
53	71	Talc - carbonate schist, magnetic, after ultramafic?	30°												
71	134'	Basalt - andesite: v.c.g. gradually diminishing to m.g. to f.g.; slightly magnetic, massive;		Tr.											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-7-87 COMPANY Massive Resources PROPERTY Lingman Lk NTS# 52 F/15 Page 2 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
134'	147.8	Talc - carbonate schist after ultramafic?	45°	Tr.											
		from 142-141.7 f.g. basalt flow													
		from 158-158.6' a 7" biotitic basalt flow													
		Tr. of py ; lower contact 41°													
147.8'	289'	Basalt - mafic tuff ; f.g. massive basalt c̄ alternating	40°	<0.5%											
		tuffaceous intervals (from a few inches thick to													
		a ~~few~~ several feet) ; cb stringers &													
		fracture fillings c̄ minor py>po common.													
		@253.6-256.0' - tuffaceous interval c̄	30°	3%	~~1120~~	253.6	256'	2.4'	<.012						
		3-5% py>>po near a narrow q.v. in a													
		silicified segment 3% overall c̄ tr. of as.													
		@276.9-280.9 9" cb c̄ qtz vein brecciated		2-3%	1121	276.9	280.9	4.0'	Tr						
		basalt c̄ 3% associated py>po stringers &													
		blebs, minor cpy. 4" white q.v. @ 276.9 c̄													
		minor py													
		@280.9'-285.2' - v.f.g. tuffaceous segment		~	1122	280.9	285.2	4.3'	Tr						
		c̄ 2mm magnetite grains minor qtz veins													
		@286.7-288.1' amygdaloidal basalt? stretched													
		cb grains in top 6" of interval, weakly													
		Blasted on both contacts are 4" hematite													
		'holes'													
		~~[illegible]~~				~~[illegible]~~									
		~~[illegible]~~													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-7-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
289 [illegible]	320.5	Basalt; [illegible] m.g. massive [illegible]		Tr.											
		@ 289-292 : 1% quartz in [illegible] stringers		1%	1123	289.0′	292.0′	3.0′	Tr						
		& [illegible] pyrrhotite & py.													
320.5	350	Basalt; f.g. some pillowed some tuffaceous													
		Mineralized zone py-po ±cp 340.6-350	45°	3.5											
		chlr & qtz veins to [illegible]			1124	340.6	342.5	1.9	0.002						
		associated silicification.			1125	342.5	346.0	3.5	Tr						
		Unit terminates with chlr & qtz.			1126	346	350	4.0	Tr						
		locally contorted.													
350	353	Similar unit to 320.5-350. foliated													
		Tops indicated by grading [illegible] south													
										Au					
353	473	Unit similar to previous ones.			[illegible]	376	379.25	3.25	Tr	[illegible]					
		372-377 . Bio zone													
		Generally well foliated with qtz . carb chlr zone			1128	←	380.5	382	1.5	Tr					
		376 Bio zone to ~380				126028 / 126029	382 / 386	386 / 3[illegible]	4 / [illegible]	Tr / Tr					
		silicified zones rare				126030	39[illegible]	396	5	0.002					
		minor contorted zone to 1′			1129	←	396	399.5	3.5	0.275					
						126031	399.5	406	5.5	0.008					
		426 asp. qv ~0.5″			1130	←	426	427	1	0.028					

← 0.275 / 3.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-7-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		441 - 447													
		Spherulitic (amygdaloidal ?)	30°												
		Zone													
		468.5 qv - py - mo?			1131	468	469	1	55?						
		492 - 493 breccia - carb													
		ep - qtz carb common													
		495 - 499 coarse grained zone													
		Some pillow margins	40°												
		sulfides py > po		1-3											
		533.5 - 535.5 Breccia zone py - po		3-5	1132	533.5	535.5	~~1.75~~ 2	.002						
		qtz - carb													
		563 Qtz carb zone 6"													
473	474	Quartz feldspar porphyry tonalite													
474	480.5	Mafic metavolcanic flow													
480.5	491.5	Quartz feldspar porphyry tonalite	35												
		medium grey siliceous sericite													
		little or no sulfides													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG.

DRILL HOLE NO. S-7-E7 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 53F/15

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
585.5	598	Mafic metavolcanic flow + qtz carb stringers													
		local contortions cause core													
		∡ to become less steep to X.													
598	598.5	Quartz feldspar porphyry dike			1133	598	599	1	Tr						
		tonalite													
598.5	623	Mafic metavolcanic flow qtz carb													
		stringers													
		617-617.5 Chert sulfide zone	45	5-7	1134	617	618	1	Tr						
623	645	Quartz feldspar porphyry tonalite													
		Plag saussuritized													
		Sulfide at margin py < po		5-7	1135	622.5	623.5	1	.002						
		Qtz - 20-25%													
		Plag 55-60%													
		Amp - 20%													
		Sulfide py > po		<1											
		Severe alteration of plag & hydrothermal													
		"protect? minor qv & dike mostly in			126032	640	643.5	3.5	Tr						
		sheared portions.			1136	643.5	645	1.5	0.131						
					1137	645	648	3	.006						

< 0.131 / 1.5

767
1.25
765.75
769.75
3.5
773.25

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-7-87 COMPANY MASSIVE RESOURCES INC PROPERTY [illegible] NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
646	668	Mafic metavolcanics ± qtz-carb stringers													
668	678.75	Quartz feldspar porphyry													
		Medium grey ghosted phenos													
		More felsic than tonalite variety													
		up hole.													
678.75	732	Mafic metavolcanics ± qtz-carb stringers	40	1-3											
		Maybe tuffaceous in part. foliated													
		py - po													
		667.5 - 6" qtz por dike													
		well foliated - tuffaceous?													
		716 - qtz feldspar vein -													
732	755	Quartz feldspar porphyry tonalite or dike		[illegible]	1138	754.5	755.5	1	Tr						
		Sheared zone sericite po in fractures													
755	783.5	Mafic metavolcanics. flow - qtz carb													
		stringers & silicified zones													
		767. Tuffaceous schistose	40	3-5 [illegible]	1139	765.75	769.75	4	.01%						
		Zone - contorted & brecciated		2	1140	769.75	773.25	3.5	.0[illegible]%						
		Locally. ep - albite alteration			126033	773.25	776	1.75	Tr						
		py - po. chlr.			126034	776	779	3	Tr						
		Qtz carb. alb. veins locally.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-7-87 COMPANY MASSIVE RESOURCES INC PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		Silicified py zones.	45°	3-5	1141	799	801	2	.044						
					1142	812.5	813.5	1	.061						
					1143	819	822	3	0.113						
~~[illegible]~~		Quartz feldspar porphyry	40°	<1.5	1144	839.25	840.75	1.5	.038						
835.5	840.75	sulfides <1" py along slips.			126085	801	803	3	Tr						
					126086	803	806	3	Tr						
		837 hematized			126087	806	809	3	Tr						
					126088	809	812.5	3.5	Tr						
		silicified & sericitized locally			126089	813.5	816	2.5	[illegible]						
					126040	816	819	3	Tr						
		848 Brecciated			126041	822	825	3	Tr						
					126042	825	828	3	Tr						
					126043	828	832	4	Tr						
					126044	832	836	4	Tr						
840.75	954	Mafic metavolcanics locally	35°		126045	836	839.25	3.25	Tr						
		silicified & pyritized ± hem ± po			1145	856.25	858	1.75	.104						
		1-3% overall. 3-5% in sil. zones			1146	858	861	3	.032						
		Locally. plag phenos to ½"			1147	861	862.25	1.25	Tr						
		1" to 2" porphyry & granitic aplite													
		dikelets & qtz. carb veinlets			1148	868	871	3	Tr						
		Py-po zone silicified.			1149	927	930.25	3.25	Tr						
		Felsic dikes increase toward 950													
954	956	Felsic dike - slightly porphyritic													
956	957	Mafic metavolcanic													
		T.D. 957 feet													

0.113 / 3

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15 PAGE 1 of 9

LATITUDE EASTING 11,800 DEPARTURE NORTHING 11 450 AZIMUTH 310° DIP - 45° DEPTH 1040' ELEVATION 9,978.3

INCLINATION AND TROPARI TESTS

DEPTH 297' AZIMUTH 1.5° DIP 33° DEPTH 447' AZIMUTH 3° DIP - 29° DEPTH 737' AZIMUTH 360°? DIP - 30.5° DEPTH 1040' AZIMUTH 360°? DIP - 29°

LOGGED BY R.P. BOWEN CLAIM NO. PA 6134 MINING DIVISION KENORA RED LAKE DATE STARTED 1 AUGUST 1987 DATE COMPLETED 7 AUGUST 1987

DRILLING COMPANY NOREX DRILLING LTD CASING IN HOLE CORE STORED AT LINEMAN LAKE

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	15	Casing. overburden - varved clay														
		sand gravel boulders														
15	36	Mafic metavolcanic flows + pillow	45°	<1												
		breccias - actinolite chlorite														
		alteration local silicified														
		and pyritized zones. Fe [illegible]		1-5	1285	25	30	5	TR							
		Dk gn gr - f.g. to m.g. with														
		some fragmental portions														
		with 1" frags - <1' thick														
		Locally contorted														
		Brodheidclaren 2'-4' from														
		lower contact to 20%														
		Plag - to 40+														
		Amp - chlor act 60-														
		Mag < 5% - slightly magnetic														
		May be tuffaceous in part.														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
36	42.5	Talc. chlor. schist. ultramafic?													
		soft, magnetic													
		Gn gr. to dk gn bl.													
		Exhibits sheen in f.g. portions													
		Some m.g. portions													
42.5	45	Mafic m.g. flow													
45	48	Talc. chlorite schist. locally sheared													
48	72	Mg. to c.g. flow to synvolcanic	45°												
		sill - metamorphic effect?													
		Qtz alb. vein at 55' < 9" wide													
		Well foliated & sheared within 1' of													
		upper contact.													
72	73	v f.g. tuff with br at lower contact													
		mafic metavolcanic - pyroclastic													
73	80	Mafic metavolcanic													
		f.g. to m.g. chlr.													
80	90	Talc. chlorite schist. ultramafic?	60°												
		magnetic													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-E-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES NTS 52F/5

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
90	95	Mafic metavolcanic flow													
95	123	Talc-chlorite schist.													
		well foliated to banded locally contorted													
		Lt gn gr to med gr. magnetic			1286	128	129	1	Tr						
123	178.5	Mafic metavolcanic flow with	45	1-3	1287	135.25	136.25	1	Tr						
		tuffaceous portions. well foliated fg.													
		Local qtz-carb stringers			1288	139.25	141.25	2	Tr						
		126.5 Small veinlet - sp-cp-qtz - both													
		brown & metallic sp.													
		Local qtz - sulfide zone 1"-3"			1289	160	161	1	Tr						
		Some portions magnetic			126046	169	171	2	Tr						
		Silicified zones with chert - py po cp			1290	171	172.25	1.25	.009						
		171-172.25 & 176.5-178.5			1291	172.25	176.5	4.25	.002						
					1292	176.5	178.5	2	.015						
178.5	203.75	Foliated mg. to cg. flow: or sill			126047	178.5	182	3.5	Tr						
		minor qtz-carb stringers													
203.75	221	Appears to be another flow similar to	45°												
		above. Alteration - zone - sil.		1-3	1293	221	224	3	Tr						
		PY - PO ± CP.			1294	224	227	4	Tr						
221	245	Silicified alteration zone		1-3	1295	227	231	4	Tr						
		PY - PO - CP.		3-5 locally		231	235	4	Tr						

1996

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		banded.			1297	235	239	4	Tr						
		Actinolite chlr. gn mica.			1298	239	243	4	Tr						
					1299	243	247	4	Tr						
245	256	Silicification grades into chlorite													
		foliated m.g. mafic metavolcanics													
		Qtz-carb stringers													
		~~[illegible]~~													
		py-po < cp	55°	1-3?											
		amph to 1mm 50-60% - plag rextal													
		Breccia zone to 4"													
256	279	F.G. chloritic tuff or mudstone with													
		qt to 6"													
		277-279 Sil-py-po zone		7-10%	1300	277	279	2	.034						
279	288	M.g. mafic metavolcanic													
288	291	Silicified breccia zone + chlor	45°	~~5~~	1301	288	291	3	Tr						
		py-po-cp.		3-5											
291	304.5	F.g. mafic tuff		1-3											
		py - po minor sil & po zone													
		qtz-carb stringers													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES INC. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
304.5	306	M.g. mafic metavolcanic													
		amp & plag. fine qtz-carb stringers													
306	346	v.f.g. chlr-rich tuff to flow		1-3											
		local contorted ~~zones~~ and silicified													
		zones. < 1' wide also breccia													
		part zone													
		Qtz-carb stringers some local albite													
346	348.3	M.g. to c.g. mafic metavolcanic													
348.3	349.75	Mafic tuff as above													
349.75	351.5	M.G.-c.g. mafic metavolcanic													
351.5	500	Mafic tuff with qtz-carb stringers													
		silicified zones ± sulfides													
		355.75 - 358 - chlr. sil. py. po. asp		3-5	[illegible]	355.75	356	2.25	0.013						
		358-360 chlr. - mafics.		1-3	1303	358	360	2	Tr						
		360-363 Sil - sul		3-5	1304	360	363	3	0.090						
		396.5 - 412.5 Sil. ± sul.			1305	396.5	402.75	4.25	0.122						
					1306	407.75	407	4.25	0.002						
					1307	407	412.5	5.5	0.024						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 55F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
					1308	450	451	1	Tr						
		464 - 467 Br zone qtz - carb flooding													
		468 - 6" mud breccia zone				464	467	3							
		continues with v.f.g. mafic metavolc.				467	470	3							
		qtz - carb stringers.													
500	515.5	Gray feldspar porphyry (intermediate) phenos to 20-25% to 3mm indistinct.													
515.5	540	Mafic metavolcanic - pillowed in part. vfg to m.g. - qtz - carb stringers													
540	625	M.g. - c.g. mafic meta volcanic													
		546 - 546 Pinkish orange granite feldspar porphyry dike													
		553 - 554 same type / dike - carb. stringers													
		557 ∠ 2" dike													
		amphibolitized - epidote alteration of metavolcanics.													
		574 - 575 granite feldspar porphyry dike													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		epidotized													
		580-594 silicified zone		<1-3											
		m.g. metavolcanics below 594 amph.													
		becomes progressively more silicified													
		below 594 until 625: banded in places													
					126048	623	625	2	Tr						
625	638	Silicified and pyritized zone		3-5	1309	625	629	4	0.020						
		Alteration decreases below 636			1310	629	631	2	0.124						
		as far as sulfides go.			1311	631	636	5	0.090						
					1312	636	638	2	0.028						
638	767.5	Slightly silicified f.g. mafic		<1/3	126049	638	640	2	Tr						
		metavolcanics with several													
		more highly silicified zones		3-5	1313	651	652	1	0.002						
		f.g. locally amphibolitized as clots 3mm													
		674 4" porphyry dike			1314	693.5	695.75	2.25	Tr						
		scattered series of feldspar													
		porphyry dikes 2"-6" from			1315	697.5	699	1.5	0.006						
		701'													
		735.6-736.6 silicified - py-po zone	45°	3-5	1316	735.6	736.6	1	0.046						
					126050	[illegible]	739	2.4	Tr						
					126101	739	743.25	4.25	Tr						
					1317	743.25	745	1.75	0.018						
					1318	759.25	761.25	2	0.044						

0.124 / 2

0.100 / 7

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 53E/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
767.5	770	Greyish white ~~tonalite~~ qtz feldspar porphyry													
770	771	Biotite amp. chlor. ~~pyrite zone~~		3.5											
771	778.5	Quartz feldspar porphyry tonalite. Several 1-2" biotite bands over lower 2'													
778.5	819	Mg. to c.g. mafic metavolcanic with amp. clots & 1-2" bio-rich zones and 1-6" qtz feldspar porphyry tonalite dikelets. Rnd qtz-feldspar granite dike - sil. pyp. zone 803-804 ~~805~~	70°	≤1-3		~~803~~	~~804~~								
				3-5	1319	803	804	1	0.002						
819	845	Qtz-feldspar granite dike with a few mafic xenoliths		1-3											
845	865	Mafic metavolcanic tuff to breccia	50°		1320	845	849	5	Tr						
		with qtz-carb infilling & stringers			1321	849	853	4	0.006						
		py-po. to 1mm cubes ~~2%~~ cp		3-5%	1322	853	857	4	0.002						
		May be graphitic in part. More chlorite rich after 857													
		3-5mm py cubes		1-3											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-8-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
885	898	Mafic metavolcanic tuff & flow													
		½" mud seam at 886													
		virtually no py or other sulfides													
		v.f.g. greenish grey													
898	921.25	M.g. leucoxene basalt.													
		Plag 20-30% <1mm													
		amp-chlr. 50-60%/mm													
		leucoxene - 5-10% 1mm													
921.25	933.5	v.f.g. mafic tuff.													
		conformable to next unit below	45°												
933.5	1040	Mafic feldspar porphyry "Leopard rock"													
		Plag phenos to 1" 10 to 20%													
		Amp. 50%+ 1mm													
		plag - 1mm 35-40%													
		Some saussuritization of plag.													
		1013-1015 clear quartz vein with mo	45°	3-5	1323	1013	1015	2	0.002						
		T.D 1040 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-9-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15 PAGE 1 of 9

LATITUDE EASTING: 11,702 DEPARTURE NORTHING: 11509 AZIMUTH 360° DIP -45° DEPTH 547' ELEVATION 9,978.8

INCLINATION AND TROPARI TESTS

DEPTH 327' AZIMUTH 349° DIP -37.5 DEPTH 547' AZIMUTH 360° DIP -35° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moors CLAIM NO. PA 6132 MINING DIVISION Kenora Red Lake DATE STARTED 7 AUGUST 1987 DATE COMPLETED 9 AUGUST 1987

DRILLING COMPANY Norex CASING in hole CORE STORED AT Longman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	22	Casing			1626	22	23.5	1.5	0.014						
22	28.75	FG basalt. mod. fol^d. Strongly chloritized w cb. cb. Py 1-2mm deformed cubes.		1											
		22 - 23.5 wkly silic^d. str fol. w a 1" qtz-cb vN - Fe cb at contact. ab qz cb str's throughout	45°	3-5											
28.75	47.25	UFG ultramafic - some talc alt^n mod ~~St~~ fol^d - ab partings. The odd cb str w occasional py bleb. dk gy	45°	<1											
47.25	60.5	MG mafic - gabbro? massive. Mod fol in upper 2-3' w ab cb str's and some biotite. dk grn		<1											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-9-87 COMPANY Massive Rs PROPERTY Twin Gold NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
	→	~~205 - 207.5~~ FG ~~...~~ ~~mafic~~ mod fol gry			1627	103.5	106.25	2.75	Tr						
60.5	70.6	FG mafic - gradational upper contact w MG mafic. More ab cb str's. Wkly fol.d		<1											
	→	68.6 - 69.6 Contorted foln and ab qtz-cb strs		<1											
70.6	103.5	ultramafic tuff - sed. FG - thinly bedded, often contorted and pinched. light gry and v dk gry bands - 1-2 mm. Magnetic. Ab sections - <1' - broken core. Py as 1-2mm deformed cubes ab talc		≤1											
103.5	107	FG mafic - sheared - ab contorted fol.n. Flds carbonaceous w odd qtz vn. (<1"). Mod silic.d strs + the odd v.lg blebs of Py. Magnetic. Chloritized bands		1-3											
		103.5 - 106.25 highly contorted and mod. strongly silic.d. Py as grains also.		3.											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-9-87 COMPANY Massive Rs PROPERTY Twin Gold NTS# 53 F/15 Page 3 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
107.5	113	FG mafic. str fol. maybe tuffaceous bands	45	2	1628	107.5	108.5	1	Tr						
		Bleached + chlorite rich interbanded thin			1629	108.5	109.75	1.25	Tr						
		layers. Some ilmenite rich bands also			~~[illegible]~~										
		cherty appearance - mod to str silic^d													
		Po>Py - small str along foliation			1630	194.5	195.9	1.3	Tr						
		107.5 - 108.5 major unit - as above													
		108.5 - 109.75 chlorite rich section		3											
		w ab swirled fol^n lg str's of Po + Py													
		+ some assoc^d ilmenite													
		109.75 - 111.75 - major unit													
113	121.75	FG mafic mod fol. ab qz-cb altn		.1											
		w ab str and vns throughout. ab qz-cb													
		a blebs of py, po, or cp strongly silicified bands													
121.75	206	FG mafic mod fol. The odd qz-cb stringer													
		or lense - frequently at pillow boundaries.													
		.5 - 2' spacing of boundaries. More													
		massive w depth. The odd 1-2'													
		interflow sed w assoc^d ab qz-cb str's													
		194.5 - 195.8 str fol w ab qz-cb		5											
		str's w assoc str's of py>po>cp													
	→														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S 9-87 COMPANY Massive Rs. PROPERTY Twin Gold NTS 93F/15 Page 4 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
	→	202.5 - 202.8 qz vein - no mineralization			1631	305.3	308	2.7	Tr						
	→	204.5 - 205.5 a few 1-3" qz vns													
		as above			1632	308	311.5	3.5	.006						
206	250	MG basalt massive to wkly fol.													
		Occasional str fol^d zns <1' w more cb			1633	311.5	314.5	3	.105						
		cb str's				~~314.5~~ ~~320~~		~~5.5~~							
		Odd speck of py, po asp - usually assoc			126102	314.5	315.3	.8	[illegible]						
		w cb str's													
250	547	FG basalt wk to mod fol. Numerous													
	EOH	cb str's and vnlets crudely aligned w fol.													
		305.3 - 308 wk to mod alt^d		1											
		Py, + Po - mgll stringers and small blebs													
		asp as small deformed crystals and grains. local													
		abundance near base of sample													
		308 - 311.5 Mod to vstr silic^d - alt^d		2-3											
		qz vns - chloritized at margins. Py + Po													
		as strs and small to large blebs. The odd													
		speck of asp													
		311.5 - 314.5 str to vstr silic^d		2-5											
		ab alt^d qz vns - chlorite + epidote - reddish													
		brown silica - Po > Py + medium sized													

$\frac{105}{3}$

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-9-87 COMPANY Massive Rs . PROPERTY Twin Gold NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb		
		~~315.3~~ 314.5 - 315.3 whly silic odd py speck		<1	1634	315.3	316.3	1	Tr								
		315.3 - 316.3 wk to mod silic^d + a		2-3													
		2-3" qtz vn. Many py specks and abut			1635	316.3	318	1.7	0.002								
		thin str's along fol^n. ‖ lg py blebs in															
		qz VN			1636	318	319.1	2 1	Tr								
		316.3 - 318 same as 314.5 - 315.3															
		318 - 319.1 whly silic^d many lg blebs			1637	327.5	332.5	5	0.012								
		of py + odd asp bleb. Blebs mostly			126104	332.5	338.7	6.2	0.002								
		deformed crystals			1638	338.7	343.3	4.6	0.172								172 / 4.6
					126105	343.[illegible]	348	4.7	0.00[illegible]								
		327.5 - 332.5 whk to mod silic^d		1	126106	348	354.7	6.7	0.012								
		py as specks and abut str's. occasional cb			1639	354.7	357.7	3	0.056								0.175 / 6
		VN. qz cb vn at top of sample - 20% massive py															
		338.7 - 343.3 mod to vstr silic^d		3	1640	357.7	360.7	3	0.294								0.294 / 3
		py as 1-2mm euhedral grns. bands of occur.															
		≤ 1 cm py crystals at base			126103	360.7	364.75	4.05	0.002								
		354.7 - 357.7 mod to vstr silic^d		3-5													
		py as 1-5mm euhedral grains. Po as diss str^s															
		+ grns. asp as small specks + blebs in bands															
		of abundance. The odd cp speck															
		357.7 - 360.7 Mod to str silic^d		3-10													
		py as large euhedral to subhedral intergrown															
		grains forming thick stringers 2-7 mm wide															
		locally also po - small grains + blebs. Asp as															
		diss specks - banded accumulation.															

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-9-87 COMPANY Massive Rs PROPERTY Twin Gold NTS# 53 F/15 Page 6 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		364.75 - 366.75 wkly silic^d po		1-2	1641	364.75	366.75	2	0.020						
		as small blebs and larger stringers													
		366.75 - 370.75 wkly silic^d Py as			1642	366.75	370.75	4	0.024						
		small cubes and couple of large euhedral		2	126108	370.75	373.75	3	0.012						
		masses. Also odd to qtz in stringer. odd cp speck			1643	373.75	375.25	1.5	0.030						
		373.75 - 375.25 wkly silic^d. diss po		3	126107	375.25	377.25	2	0.024						
		+ a few masses of euhedral py			1644	377.75	380.5	2.75	0.167						
		377.75 - 380.5 mod to str silic^d. Py													
		a little qtz and bands of euhedral grains			1645	380.5	381.5	1	0.026						
		often surround by po. Po also as odd small blebs													
		Asp as euhedral crystals .5-5mm. Usually			1646	381.5	383	1.5	0.018						
		in bands of abundance. Often w/ po or py													
		380.5 - 381.5 wkly silic. Po as elongate		2-3	1647	383	387.25	4.25	0.194						
		blebs and thick stringers. Asp as diss grains													
		& cp often within po blebs			1648	387.25	389.25	2	0.010						
		381.5 - 383. slightly more silic^d than		2											
		above. Odd py cube + po as above. Odd asp grain													
		383 - 387.25 mod to v str silic^d		3-5											
		Asp > Py > Po. Asp as diss euhedral													
		grains < 2mm. A couple of bands of abundance													
		with up to 5mm grains. Py as small													
		to v large grains and blebs. Broken core at 386													
		387.25 - 389.25. Wk to mod silic^d. Po		2-3											
		as stringers + odd grains. A few py cubes < 2mm													

0.141 / 9.5

0.172 / 10.55

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-9-87 COMPANY Massive Rs PROPERTY Twin Gold NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		~~387.85~~ · 389.25 · 393.5 mod		5	1649	389.25	393.5	4.25	0.500						
		to vstr silic^d (att'd qz vn). Py wkly													
		(.5-3m) + lag blebs + stringers. Asp as			1650	393.5	398.3	4.8	0.014						
		small (<1mm) euhedral ~~sm~~ grains +													
		some granular vnlets. Old stringers of cb			1651	408.5	411.25	2.75	0.038						
		~~highly silic^d zone to~~ Qz vns cracked													
		w chlorite inclusion along fractures.			1652	411.25	412.75	1.5	0.0[illegible]						
		393.5 398.3 wk to mod silic.		2		~~412.75~~	~~416~~	~~3.25~~							
		a few cb fracture infillings. Small grains			1653	412.75	414.5	1.75	0.034						
		of py throughout, local lg elongate blebs			1654	414.5	418	3.5	0.173						
		of P..			1655	418	421.75	3.75	0.020						
	→	407 - 408.5 Ground core - Fault			1656	421.75	423.75	2	0.030						
		breccia. Some silica cementation. ~~with~~			1657	423.75	426.25	2.5	0.038						
		the odd cb fract infil.			1658	426.25	430.5	4.25	0.012						
		408.5 ~~410.25~~ 411.25 wkly silic^d the		1-3	1659	430.5	435	4.5	Tr						
		odd bluish quartz augen (<2cm long)													
		A 1" sulphide rich zone. Crystalline													
		stringers of py + ~~some~~ a few blebs of asp													
		411.25 · ~~414.5~~ 412.75 wkly silic^d		7-10											
		Contorted foln. A few bluish qtz augens.													
		Asp > Py. ~~Fine~~ asp grains concentrated													
		in contorted foln zones - up to 40% A		7-10											
		couple of large py blebs + stringers													

0.172 / 20.55

0.213 / 15.25 uncut

0.209 / 15.25 cut 102

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-9-87 COMPANY Massive Res PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		412.75 - 414.5 wkly silic^d. A few		3	1653	412.75	414.5	1.75	.054						
		lg blebs of py w assoc str's. diss grains													
		of asp			1654	414.5	418	3.5	.173						
		414.5 - 418 mod to v str silic^d.		5											
		v str silic^d mottled bluish colour.			1655	419	421.75	2.75	.070						
		Py as large blebs, euhedral grains and str's													
		asp locally abundant as granular str.			1656	421.75	423.75	2	.030						
		Chloritized bands also													
					1657	423.75	426.25	2.5	.030						
		418 - 421.75 ~~st~~ mod to str silic^d		5-7											
		Py as above. The odd asp bleb or thin			1658	426.25	430.5	4.25	.012						
		granular stringer													
		421.75 - 423.75 v str silic^d. Asp		10-40%	1659	430.5	435	4.5	Tr						
		~~as~~ 4-6" band of lg intergrown crystals													
		.1 - .5 cm - almost massive in appearance													
		v lg blebs + str's of py towards base													
		423.75 - 426.25 Mod silic^d ab chlorite		1-2											
		~~P blebs and str~~ small blebs + str's of py													
		+ odd small granular str gr of asp.													
		426.25 - 430.5 wkly silic^d. Py		1.											
		as small (≤ 1 mm) euhedral grains													
		430.5 - 435 same as above w the odd		1											
		cb str													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-9-87 COMPANY Massive Rs PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		466-469 whly silic^d. Py as small		1	1660	466	469	3	Tr						
		cubes, stis and blebs													
					1661	469	473.75	4.75	0.012						
		469 - 473.75 Mod silic^d - some cherty		3		~~469~~	~~474.75~~	4.							
		bands. Py as stis mostly - a few													
		assoc^d blebs													
		TD 547 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 52F/5 PAGE 1 of 6

LATITUDE EASTING 11,702 DEPARTURE NORTHING 11,509 AZIMUTH 360° DIP -60° DEPTH 700' ELEVATION 9,778

INCLINATION AND TROPARI TESTS

DEPTH 497' AZIMUTH 355° DIP -58° DEPTH 700' AZIMUTH 360° DIP -52° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P. BOWEN CLAIM NO. PA 6132 MINING DIVISION KENORA RED LAKE DATE STARTED 9 AUGUST 1987 DATE COMPLETED 11 AUGUST 1987

DRILLING COMPANY NOREX DRILLING LTD. CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	18	Casing - overburden, rusted clay													
		sand boulders													
18	67	Talc. chlorite. carbonate schist	30°												
		ultramafic. m.g. possible	going												
		spinifex texture - qtz carb	to												
		veins < 1/4" magnetite	45°												
		py as ~~fro~~ 2mm cubes		1-3											
		well foliated going to v.f.g by 37'													
		Medium schist grey to pale blue.													
		v.f.g. portion may be waterlain.													
		tops indicated up the hole or to the													
		south by grading.													
		trace possible tremolite or actinolite													
		Becomes less magnetic as lower contact													
		is approached													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10 87 COMPANY MASSIVE RESOURCES INC. PROPERTY TOWNSEND MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
67	110.3	Mg. dark greenish black mafic	45°												
		thick flow or shallow intrusive													
		Amphibole > 50% 1-2mm + chlr.													
		Plag. 40% + < 1mm vertAL. foliated													
		Py - po + Fe-Ti oxides < 5%		1.3											
		Few qtz. carb stringers with f.g. chlr													
		Biotite bands at lower 1'													
110.3	154.75	Talc - chlorite carbonate schist. v.f.g.	40°												
		magnetic ultramafic tuff? py as 2mm cubes		<1.3											
		some zones more chloritic - & more qtz carb veins													
		119.5 ½" mud & broken rock seam													
		Locally contorted. core ∠ changes													
		120° at 136'													
154.75	192	Mafic metavolcanic tuff - to basalt flow.	45												
		156 silicified zone to 161			1517	151.5	160.5	4	0.002						
		pyritized above & below ∝ 1'		3-5	1518	160.5	164.5	4	Tr						
		6" to 1' q.v. ± py			1519	164.5	167.5	3	0.012						
		Some bands appear to be pillow													
		margins - qtz - chlr. comp.			1520	172.5	174	1.5	Tr						
192	202	192 - 202 - banded. interflow sed?			1521	188.5	190.5	2	0.038						
200		240 - 242 Same													
		amphibolitized - chloritized													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
202	240	Mafic metavolcanic flow													
		F.g. dark greenish black													
240	242	Interflow sed - banded qtz-chlr.	45°		1522	245	246	1	0.002						
					1523	248	249	1	0.002						
242	265	Mafic metavolcanic flow. foliated			1524	257	260	3	0.014						
		amp + chlor													
265	316	M.G. mafic metavolcanic flow or synvolcanic sill. foliated ± qtz carb stringers ± f.g. tuff zones to 6" sulfides not prevalent	45°												
316	394.25	V.f.g. mafic metavolcanic flow													
		qtz carb stringers - chloritized													
		330.5 - 336.5 - Silica py-po alteration	45°	3-5	1525	330.5	333.5	3	0.052						
		brown chert bands			1526	333.5	336.5	3	0.024						
		Occasional 2-4 mm py clots & cubes		<1-3											
394.25	410	394.25-410 silic bed. py zone cup		3-5	1527	394.25	397	2.75	0.006						
	"	1-2mm ∥ foliation. ± cp			1528	397	401	4	Tr						
		405-406 - tremolite			1529	401	405	4	0.107						
~~394.25~~	~~410~~	~~Si~~			1530	405	410	5	0.026						
						409									

$\frac{0.107}{4}$

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLDMINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb	
410	452	Mafic metavolcanic tuff	40°													
		Qtz-carb stringers & fracture														
		fillings - amphibolitized - chlr.		<1-3												
		442- clay & broken rock breccia														
452	513	Silicified sulfidized zone of mafic volc.		1-3	1531	452	456	4	0.054							
		py - asp cubes - 1-2 mm		locally	1532	456	460	4	0.058							
		asp conc. in 2-6" bands at		3-5	1533	460	464	4	0.096							
		453, 457, 459			1534	464	468	4	0.010							
		Silicified zones come & go.			1535	468	472	4	0.025							0.208 / 12
		less silicified below 496			1536	472	476	4	0.018							0.293 / 8
					1537	476	480	4	0.568							
513	522	Gray intermediate altered feldspar		1-3	1538	480	484	4	0.006							
		porphyry - silicified - sheared py			1539	484	488	4	0.002							
					1540	488	492	4	0.074							
522	531.5	Altered mafic metavolcanic py-po		3-5	1541	492	496	4	0.020							
					1542	496	500	4	Tr							
531.5	537.5	silicified pyritized zone		3-5	1543	500	504	4	Tr							
		py cubes to 3mm		3-7	1544	504	506	4	Tr							
				locally	126109	522	527	5	0.030							
					126110	527	531.5	~~4~~ 4.5	0.016							
					1545	531.5	533.5	2	0.200							0.234 / 6
					1546	533.5	537.5	4	0.251							
					126111	537.5	540	2.5	0.002							

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15 Page 5 of 6

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
537.5	631.75	Slightly altered mafic metavolcanic tuffaceous in places? Qtz-carb stringers - foliated chloritized. Less altered below 551' 589 mud seam broken core to 605 some epidote alteration with chlorite in fractures 607. 1mm hb or px xtals? up to 15-20% becoming > % & to 1.5mm Mud seams + br to ¼" at 627 & 631.75	55°												
631.75	637.5	Foliated silicified feldspar porphyry chlor seams actinolite seam 1/8" wide at													
637.5	643.5	M.g. mafic flow = altered sil. minor chl major (syn.volc. sill?)													
643.5	646.25	Silicified feldspar porphyry - pinkish orange in color.													
646.25	654	M.g. mafic ~~fragmental~~ ~~alt~~													
654	663	Vf.g. mafic flow with ep. alteration along fractures. breccia zones to 1" common - chlorite infilling													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWINGOLD MINES LTD. NTS# 53F/15 Page 6 of 6

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		dominate over qtz.													
663	700	more c.g. below 663. - fragmental?													
		661 - feldspar porphyry dike 6"													
		alteration is likely albite & carb													
		± qtz. rock becomes lighter in													
		color as it becomes coarser.													
		qtz.-carb. [illegible] in seams.													
		699.5 [illegible] ∠ 2"													
		fragmental could be intermediate													
		pyroclastic - py		<1-3											
		T.D. 700 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-11-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWINGOLD MINES LTD. NTS 53F/15

LATITUDE EASTING 11,698 DEPARTURE NORTHING 11,610 AZIMUTH 360° DIP -45° DEPTH 697' ELEVATION 9,? ? ?

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY R.P. BOWEN CLAIM NO. PA 6132 MINING DIVISION KENORA RED LAKE DATE STARTED 12 AUGUST 1987 DATE COMPLETED 14 AUGUST 1987

DRILLING COMPANY NOREX DRILLING LTD. CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	6	Casing - overburden boulders													
6	116.5	Mafic metavolcanic flow - Fe tholeiite	55°	<1-3											
		Dk gn-blk f.g. to v.f.g.													
		Minor qtz. carb stringers & ep alt.													
		chlr. ± amp.													
		Somewhat broken in upper 20'													
		33 – 34.5 unmineralized quartz vein			1547	33	34.5	1.5	Tr						
		45 - 47.5 py-po stringers cut foliation			1548	45	47.5	2.5	Tr						
		at ∝ 90° which has same generation													
		py po.													
		57 becomes m.g.													
		Possibly pillowed													
		Occassional f.g. zones < 6" &													
		same qtz. carb stringers													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-11-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 55F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
116.5	182.5	v.f.g. Ciliated tuffaceous mafic pyroclastic													
		~~125~~ 131 - mg.													
		142 <0.5" chert bands													
		148 · py · po - cp ~~trep~~ ∠ 2" possible	55-60	3-5											
		pillow margin.													
182.5	198.5	Alteration zone			1549	182.5	185.5	3	0.002						
		qtz. carb sulfides py-po asp		3-5	1550	185.5	189	3.5	Tr						
		chlor - locally contorted			1551	189	194.5	4.5	0.213						
		asp at 198'		3	1552	194.5	198.5	4	0.032						
						198.5	204	5.5							
198.5	230	f.g. to m.g. tuff to chlor. meta-volcanics - ± br zone < 2'													
		locally contorted													
					126112	226	230	4	0.112						
230	234.6	Silicified - pyritized alteration zone		3-5	1553	230	233	3	0.072						
		py ± po			1554	233	234.6	1.6	0.020						
					~~126113~~	~~234.6~~	~~239~~	~~4.4~~	~~0.114~~						
					126115	246	250	4	Tr						
234.6	260.5	Tuffaceous to f.g. metavolcanic flow			1555	250	253.25	3.25	0.116						
		locally silicified-pyritized alteration			126116	253.25	256	2.75	0.015						
		250-253.25.			126114	239	246	7	Tr						
					126117	256	260.5	4.5	0.002						
260.5	271.5	Silicified - py · po zone	50°	3-5	1556	260.5	264.5	4	0.018						
		Brown chert breccia. white chert		5-7 locally	1557	264.5	267	2.5	0.271						

0.213 / 4.5

0.128 / 8.5

0.166 / 4.25

0.223 / 11

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-11-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 53F/15

Footage From	Footage To	Rock Type and Description	Core Angle	Percent Sulfides	Sample Number	Sample From	Sample To	Sample Length	Au	Ag	Cu	Pb	Zn	As	Sb
		in filling with chlorite ± carb			126118	267	271.5	4.5	0.335						
		well foliated													
271.5	426.75	Tuffaceous metavolcanic ± flow portions		1-3											
		qtz carb stringers -													
		broken sections 277., 280 285,292			126119	292	296	4	0.024						
		some portions bleached			126120	296	300.5	4.5	0.002						
		300.5 silicified zone py-po		3-5	1558	300.5	303	2.5	0.301						
		local patches of massive py			1559	303	307	4	0.041						
		< 0.5" & 1/8" blebs. ± asp.			1560	307	312.5	5.5	Tr						
		Some aplite dikelets 1" 320 & 328 & 335			126121	312.5	316	3.5	0.002						
		347 flow breccia? also 353													
		367- breccia & broken core													
		aplite dikes < 1" 368, 370, 373													
		Units become more greenish black													
		below 380 & epidote alteration													
		more commonly associated with													
		quartz.													
		415.5 - 416.5 py. ep. alteration			1561	415.5	416.5	1	0.002						
426.75	441	Grey feldspar porphyry intermediate													
		2mm plag indistinct phenos													
		to 20%													

0.312

7

0.506

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-11-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
441	441.75	Amp. mafic metavolcanic													
441.75	442.75	Aplite dike													
442.75	471	Amphibolitized mafic metavolcanic flow & tuff. Foliated f.g. + ep alteration.	45°	<1											
471	512.5	M.g. mafic metavolcanic flow recrystallized. amp & plag to 2mm qtz-carb stringers. Fractures show alteration rims several mm to 1cm of py & ep. + chlr Alteration increases below 496 with addition of 1"-2" aplite dikes ep & py until 512.5		1-3											
		4" zone sil-py 511			1562	511	512.5	1.5	0.02						
					1563	512.5	516	3.5	0.319						
512.5	546	Silica alteration zone ± py-po ± chlr. silica 516-518		1-3.	1564	516	518	2	Tr						
				3-5	1565	518	522	4	Tr						
				locally	1566	522	527	5	Tr						
					1567	527	531	4	Tr						
					1568	531	535	4	0.02						

0.319 / 3.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-11-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLDMINES LTD. NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
					1569	535	539	4	Tr						
					1570	539	543	4	Tr						
					1571	543	546	3	Tr						
546	591.75	F.g. + mag. med grey intermediate													
		metavolcanics may be mafic													
		in part.													
		1-2" aplite dikes													
		Locally altered - silica albite													
		pyrite													
		571.5 - 575.5			1572	574.5	575.5	1	Tr						
		584.25 - 589			1573	584.25	589	4.75	0.002						
		Alteration increases below													
		591.75													
591.75	627.5	Alteration of mafic metavolcanics		1-3	1574	591.75	597	5.25	0.002						
		aplite and feldspar porphyry		3-5	1575	597	601	4	0.012						
		dikes up to 1' wide		locally	1576	601	605	4	Tr						
					1577	605	609	4	Tr						
					1578	609	613	4	Tr						
					1579	613	617	4	0.002						
					1580	617	621	4	0.006						
					1581	621	625	4	0.016						
					1582	625	627.5	2.5	0.090						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-11-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
627.5	697	chill margin - diabase dike - appears altered along chill margin & 1' & on for about 2' more C.g. grey Plag <60 %/ to 3 mm saussuritized Px alt ± amp. 40% + 2-3mm Fe-Ti oxides 1-5% 0.5 magnetic T.D. 697 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-12-87 COMPANY Massive Resources PROPERTY Twin Gold Mines NTS# 53 F/15 PAGE 1 of 5

LATITUDE EASTING 11,615 DEPARTURE NORTHING 11,595 AZIMUTH 360° DIP -60° DEPTH 327 ELEVATION 9976.9

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY Arne Moore CLAIM NO. 61337 MINING DIVISION Kenora Red Lake DATE STARTED 15 August 1987 DATE COMPLETED 16 August 1987

DRILLING COMPANY Noren Drilling CASING left in CORE STORED AT [illegible]

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	7.1'	Casing, overburden														
7.1'	32'	Basalt, c.g. massive w short segments of f.g. moderately foliated flows? w stretched cb grains. mnr. cb veining. variably magnetic. @ 26.2' a 6" qtz. vn. w <1% py. Tr. cpy. lower 5' of interval is moderately well foliated, f.g. & w <0.5% py	45-50°													
32'	34.5'	Talc-chlorite-cb schist after interflow sed. f.g. to v.f.g. well foliated sed. of ultramafic composition. variably magnetic from nil to strong. greenish grey, mnr. biotitic sections.														
34.5'	64'	Talc-cb schist w mnr. chlorite; bluish grey v. magnetic. graded bedding, folded c.a. varies from 15-40°; py < 0.5%	15-40°													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-12-87 COMPANY Massive Resources PROPERTY Twin Gold Mines NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
64'	105.5'	Basalt-~~mafic~~ tuff?: greenish grey f.g.	40°	0.1%											
		non-magnetic except upper 2' which contains													
		secondary 3-4mm cutting magnetite veins													
		which also contains biotite bands													
		generally unit is moderately bleached. Thin													
		chert bands occur locally.													
		from ~97 - 105.5 massive moderately silicified													
		numerous small cb fracture fillings minor epidote													
		& qtz veining													
105.5'	112.8'	Mafic tuff: well laminated, f.g. - v.f.g.	35-40°	<0.5%	1583	105.5'	112.8'	7.3'	0.02						
		greyish green; <0.5% Py/Po minor cpy													
112.8	121.5	Basalt, f-m.g. massive, magnetic													
121.5	136.6'	Basalt: f to v.f.g. moderately bleached, strongly	40°												
		silicified variable amounts of chert, bluish-													
		grey overall, very magnetic ~~[illegible]~~													
		fine to coarse dissem. magnetite grains.													
		@ 123.3' - qtz/cb vein c̄ 3-5% Py over 5"				1584	123.0	124.0'	1.0'	.034						
		@ 133.3 - 136.6 : 0.5% py/po diss. & in bands.				1585	133.3	136.6	3.3'	Tr						
136.6	145'	Quartz vein: white, translucent ; 3% py in		1-2%	1586	136.6'	139.4	2.8'	Tr						
		stringers, lower 16" is f.g. basalt c̄ tr. py													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-12-87 COMPANY Massive Resources Ltd PROPERTY Twin Gold Mines NTS#53 F/15 Page 3 of 5

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
136.0	145	Quartz vn. cont													
		@134.4' pure white translucent qtz. tr. py. tr.		<0.1%	1587	139.4	145.0	5.6'	Tr						
		green chl. @140.6 1% py over 4" w sphalerite													
145'	257.0	Basalt as per 121.5-136.6'	40°	0.1%											
		@145 - 0.5% py/po in ch veins & large grains		0.5%	1588	145.0	150.0	5.0	Tr						
		@ diss Aspy randomly scattered throughout.													
		@168.8' tr. As. 0.5% py po		0.5%	1589	168.8	170.8	2.0	Tr						
		@180.3 tr. As 0.5% py po 1% magnetite			1590	180.3	183.8	3.5	Tr						
		@207 well foliated horizon strongly	20°	1-2%	1591	207	211.8	4.8	Tr						
		silicified; magnetite; py in stringers associated													
		w q.v.'s. thin As stringers. py po As = 1-2%													
		@216.5 strongly silicified zone, bleached grey	30°	1%	1592	216.5	221.6	5.1	Tr						
		sericitic, moderately foliated ≤30° TCA. seed.													
		[illegible] of Asp 1% py/po			1593	221.6	227.7	6.1	Tr						
		@221.6 less silicified fewer sulphides		<0.5%											
		@227.7 as per 216.5, cp. As traces py/po		1%	1594	227.7	232.4	4.7	Tr						
		@232.4 as per 216.5, cp. As traces py/po		1%	1595	232.4	237.3	4.9	Tr						
		@ from 237.3' to 257' m.g. weakly	30°												
		foliated basalt, minor ch. vnlg & minor amounts													
		of po/py/cpy also a fleck of moly @250.7'			1596	250.6	257.0	6.4'	Tr						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-12-87 COMPANY Massive Resources PROPERTY Twin Gold Mines NTS# 52 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
257.0	265	Silicified interflow metasediments; alternating bands													
		of light green qtz sericite & chlorite(?) wacke;													
		a v.f.g. to f.g.; intensely folded drag													
		folds & chevron folds bedding varies													
		from 10° to 30° TCA; have 4'													
		very blocky broken & strongly silicified		<0.5%	1597	257.0	262.2	5.2	Tr						
				~0.5%	1598	262.2	265.0	2.8	Tr						
265	268.6	Silicified zone; mainly dk greenish grey			~~1598~~										
		quartz w minor sericite, green carbonate;	40°	0.5%	1599	265.0	268.6	3.6	Tr						
		lower 1' contains brownish chert laminations													
		w a cross-cutting ptygmatically folded q.v.													
		0.5% py, po, cpy.													
268.6	279.1	Silicified interflow metaseds. as in 257-265.													
		very dark grey chert black, possibly graphitic													
		v.f.g. graphitic to chert 273'	30°	<0.1%	1600	268.6	272.5	3.9	Tr						
			0°-20°	0.1%	1601	272.5	275.0	2.5	Tr						
		@275-279.1' - 1% green carbonate, py, po, tr cpy	35°-45°	1%	1602	275.0	279.1	4.1	Tr						
279.1	297.3	Basalt & interflow metasediments. weakly	30°	0.1%											
		foliated, sediments are well laminated &													
		locally biotite beds. 0.1% py/po													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-12-87 COMPANY Massive Resources PROPERTY Twin Gold Mines NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
297.3	310.8	Basalt; f.g to v.f.g vaguely foliated. possibly tuffaceous (ash) intervals. light greenish gre. alteration along thin fractures.													
310.8	327.	Diabase. Typical ~~ve~~ c.g. very magnetic. @ 310.8-319.4 a finer grained chilled margin. @ 316-319.4: 1-2% ~~[illegible]~~ py>po & epidote alteration		1-2%	1603	316.2	319.4	3.4'	Tr						
		TD = 327.0 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-13-87 COMPANY Massive Resources PROPERTY Twin Gold Mines NTS 53 F/15

LATITUDE EASTING 11,644 DEPARTURE NORTHING 11,693 AZIMUTH 360° DIP -45° DEPTH 287' ELEVATION 9985.2'

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY Anne Moore CLAIM NO. MINING DIVISION Kenora Red Lake DATE STARTED DATE COMPLETED

DRILLING COMPANY Noram Drilling CASING left in CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0'	6'	Casing overburden.													
6'	16.5'	Basalt: f.g. massive, strongly silicified very magnetic py/po ~1% diss. as fine grains throughout. epidote		1%											
				1%	1605	12'	17'	5.0'	Tr						
16.5'	26.5'	Basalt m. to c.g. massive, non-magnetic contacts gradational minor epidote & pyrite		tr.											
26.5'	35'	Basalt; f.g. vaguely foliated, chlorite thin fractures & SS. w ch mod. silicified, tr. sulphides minor epidote		Tr.											
35'	45	Basalt as per 16.5-26.5													
45'		Basalt - mafic tuff - vaguely to well foliated. foliation is commonly folded													

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-13-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE		ROCK TYPE AND DESCRIPTION	CORE ANGLE	% SULPHIDES	SAMPLE				ASSAYS						
From	To				NUMBER	FROM	TO	LENGTH	Au	Ag	Cu	Pb	Zn	As	Sb
45'	145.5'	including chevron & folds drag-folds													
		core angle varies from 0 → 45° average is:	45°												
		also ptygmatically folded qv's (< 1cm wide).													
		strongly silicified throughout. sulphides, ubiquitous													
		non-magnetic @ 48.7-53' chunks of qtz/carb	45°	2%	1605	48.7	53.0	4.3'	Tr						
		vng ū py>>po & also diss. py/po. throughout													
		@ 69.0' & mor. qv's py>>po>>cpy		1%	1606	69.0'	73.8	4.8'	Tr						
		@ 76 – brownish chert bands; actinolite/talk		2%	1607	76.0'	81.5	5.5	.034						
		qtz. vein & blue-grey ch veins 2%			W126186	81.5	84.4	2.9	TR						
		py/po @ 84.4' – 88.3' 0.5% py>po stretch		0.5%	1608	84.4	88.3'	3.9'	.022						
		@ 88.3'-90.7 carbonate zone: selectively silicified		< 0.5%	1609	88.3'	90.7	2.4'	.052						
		grey, white & green carbonate in irregular			126187	90.7	96	5.3	0.002						
		bands & blebs. minor chlorite py>po			126188	96	101	5	Tr						
					126189	[illegible]	107	6	Tr						
		@ 107-111.0' intervals of thin chert bands common 2%-3% py>>po specks of Aspy	45-50°	2-3%	1610	107.0'	111.0'	4.0'	.056						
		@ 111.0 0.5% py>po v. little chert.		0.5%	1611	111.0'	113.8'	2.8'	.016						
		@ 113.8 v. similar to 107. up to 1cm masses		2-3%	1612	113.8'	118.6'	4.8'	.060						
		of py>>po cubic grains up to 5mm wide As specks.													
		@ 118.6' as previous sample (113.8'-118.6') As specks.		3%	1613	118.6'	123.3	4.7'	.034						
		@ 123.3' → 0.5% py/po v. little chert.			1614	123.3	127.5	4.2'	.012						
		@ 127.5' → dk greenish quartz veining folded 1-2% py>po. As specks.		1-2%	1615	127.5	132.1	4.6'	Tr						
		@ 132.1' → v. similar to 107-111 and rounded quartz grains are rimmed ū py.		2%	1616	132.1'	137'	4.9	.036						

DIAMOND DRILL HOLE LOG

DRILL HOLE No. S-13-87 COMPANY Massive . PROPERTY Twin Gold. NTS# 53 F/15 Page 3 of 4

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	% SULPHIDE	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ASSAYS Au	Ag	Cu	Pb	Zn	As	Sb
45'	145.5														
		@ 137' → moderately silicified basalt w intervals		1-2%	1617	137.0'	141.5	4.5'	.028						
		of chert & associated sulphides (py > po > > Asp &													
		sphalerite)													
		141.5 → interval contains 2' of dk. blue-grey		2%	1618	141.5'	~~145.5~~	4.0'	.737						
		chert, locally brecciated, filled. green ch.													
		stringers - sulphides ~~are~~ concentrated													
		on margins of chert intervals up to 4-5%													
		locally w 0.5% As, overall 2% py > po													
		~~[illegible]~~				~~[illegible]~~									
145.5'	153.8	Fault zone - very blocky ground due to			1619	145.5	150.0	4.5	0.218						
		fault breccia. - basalt composition, carbonate													
		stringers & fracture filling, minor chert				150	155	5	Tr						
		2-3% py > > po				155	160	5	Tr						
						160	165	5	<.004						
153.8'		Basalt: f.g. strongly silicified, weakly	40°	0.5%.		165	170	5	Tr						
		foliated numerous thin greenish grey cb?				170	173	3	Tr						
		stringers & alteration: some recrystallization				173.	177		Tr						
		of amphibole metacrysts. - 0.5% py > po overall													
		177.0' → moderately foliated, & 'S' folds locally		1%	1620	177.0'	181.0'	4.0'	Tr						
		200.1' → 2% py > po & specks of Asp	45°-50°	2%	1621	200.1	206.3	06.2	Tr						
		206.3 → ~~[illegible]~~ green & grey cb		1-2%	1622	206.3	209.5	3.2	.050						
		alteration py > po, specks of Asp													

0.335 / 13'

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-12-87 COMPANY Massive PROPERTY Twin Gold NTS# 53 F/15 Page 4 of 4

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE AND DESCRIPTION	CORE ANGLE	% SULPHIDES	SAMPLES NUMBER	FROM	TO	LENGTH	ASSAYS Au	Ag	As	Pb	Zn	Ac	Sb
153.5'	213.3	209.5 → 213.3 as per 206.5-209.5' ū 0.12 Au		3%	1623	209.5	213.3	3.8	0.136						
						213	218	5	Tr						
213.3	216.8	Basalt f to m.g. massive no sulphides		nil		218	222	4	Tr						
						~~222~~	~~225~~	~~3~~							
216.8	223'	Basalt, weakly foliated, greenish carbonate alteration ~~...~~ ~~...~~ white ū carbonate near lower contact; magnetic		<0.5%											
223'	225.3	Basaltic ~~...~~ qtz porphyry, qtz. 'eyes' (~5%) dispersed throughout a well ~~...~~ foliated chloritic groundmass.		Trace											
225.3	259.1'	Basalt; as per 216.8-223'; near 241' is brecciated, becomes moderately-well foliated ~45° magnetic	45°	0.1%											
		252-259.1 sect. of ... qtz 1% py ...		1%	1624	252.0	256.3	4.3	Tr						
259.1	261.0	Diabase apophyses - m.g.		1%	1625	256.3	259.1	2.8	Tr						
261.0	265'	Basalt. f.g. ~~...~~ massive ū local weakly foliated intervals; non-magnetic													
265.	271.5	Basalt f.g. ū m grains of brown amphibole metacrysts. magnetic.													
271.5	287	Diabase - typical, c.g. chilled margin in top 1' ū 1% pyrrho.													

T.D. = 287'

$\frac{0.136}{3.8}$

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-14-87 COMPANY Massive Resources Ltd PROPERTY Twin Gold Mines NTS 52 F/15 PAGE 1 of 0

LATITUDE EASTING 11,801 DEPARTURE NORTHING 11,647' AZIMUTH 360 DIP -45° DEPTH 747' ELEVATION 9,984.4'

INCLINATION AND TROPARI TESTS

DEPTH 382' AZIMUTH 2° DIP -35° DEPTH 562' AZIMUTH 2° DIP -34° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY Arne Moe CLAIM NO. P. 6132 MINING DIVISION Kenora Red Lake DATE STARTED 18 AUGUST 1987 DATE COMPLETED 1 SEPTEMBER 1987

DRILLING COMPANY Norex Drilling Ltd CASING left in CORE STORED AT [illegible]

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	5'	Casing overburden													
5'	35.5'	Basalt: m.g. massive & weakly foliated possibly tuffaceous segments strongly silicified; very black to w.2c. rusty weathered surfaces; magnetic numerous ch & minor qtz veining	45°	0.5%											
		@ 238'-270' py stringers		1-2%	1817	235	270	3.0	[illegible]						
		lower contact sharp													
35.5	55.5	~~[illegible]~~ basalt = mafic tuff, f.g. mod. silicified; ~~[illegible]~~ well foliated intervals within mainly massive f.g. basalt flows. variably magnetic minor brecciated segments & ch infillings	55°	<0.5%												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-14-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 N/5 Page 2 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
555	61.0'	Basalt m-g massive, not amygdaloidal, not magnetic		Tr.											
		Tr py													
61.0'	77.0'	Basalt-mafic tuff; fine magnetic, strongly	40°	<0.5%											
		silicified; resembles fine basalt													
		Trace of py & specks of As													
77.0	82.0	Basalt; massive m.g. weakly silicified		Tr.											
82.0	87.0	Mafic tuff well foliated f.g. biotite	40°												
		chlorite mnr chert; variable magnetic													
		numerous ch stringers moderately silicified; @ 82.0'-87.0'		0.5%	1818	82.0	87.0	5.0	0.002						
		0.5% py/po ≡ specks of As.													
		@ 87.0 - 92.8 2 ch (cross-cutting)		1-2%	1819	87.0	92.8	5.8	[illegible]						
		section 7.0" of Tr. sulphide; also													
		blebs of py, po & 0.5% fine diss. As.													
		@ 92.8 - 97 - 0.5% py/po ≡ As specks.		0.5%	1820	92.8	97.0	4.2	Tr						
97.0	100.0	Basalt m.g. weakly foliated broken 3" core @ 95.2	45-50°	Tr											
100.0	107'	Mafic tuff; f.g. mnr sericite chert bands	45°	0.5%											
		numerous ch stringers 0.5% py, po													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-14-87 COMPANY Massive Resources PROPERTY Twin C+V NTS 82 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
107.0'	116'	Basalt: f to mg, moderately silicified,	60°	Tr.											
		weakly biotized; qtz vein stringer													
116'	121.1'	Meta tuff: fg; upper 2' is bleached & [illegible] 3" [illegible] [illegible]	55°	Tr.											
121.1	122.2	Basalt as per 107-116'													
122.2	124.2	Meta tuff: altered; central portion is intensely carbonated & silicified & very biotitic; cherty; 2% [illegible]	60°	2%	1821	122.2	124.2	2.0	0.010						
124.2	127	Basalt as per 107-116													
127'	155.7	Meta tuff: fg; strongly silicified; mnr. blue-grey chert bands [illegible]	50°	Tr.											
		@ 152.7 → very fine [illegible] grains.		Tr.	1822	152.7	155.7	3.0'	TR						
155.7	160.1	Alteration zone: several 2-3' [illegible] brownish chert laminations (locally brecciated) abundant [illegible] alteration; generally silicified abundant biotite, lesser amount of chlorite 2-3% sulphides [illegible] As: [illegible] fine needles	40-45°	2-3%	1823	155.7	160.1	4.4'	0.002						

DIAMOND DRILL HOLE LOG

DRILL HOLE NO.: S-14-87 COMPANY: Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULPHIDES	SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	SAMPLE LENGTH	Au	Ag	Cu	Pb	Zn	As	Sb
160.1	163.5	Basalt; moderately biotized [illegible]	45°	Tr	1824	160.1	163.5	3.4	Tr						
		only Tr of [illegible]													
163.5	166.5	Alteration zone as per 155.2'-160.1	45°	3%	1825	163.5	166.5	3.0	0.070						
		3% Py >> Po 0.1% AsPy as with													
		the previous zone sulphides are													
		concentrated within brecciated chert.													
166.5	255.1	Basalt: f.g. weakly biotized, strongly	45°	Tr.											
		silicified, slightly [illegible] numerous													
		thin ch & qtz stringers giving the													
		basalt a bleached appearance.													
		@166.5-169.5 trace of fine Py.		0.1%	1826	166.5	169.5	3.0	Tr						
		@181.7 - 182.6 2 seams of ~~s~~'s c As		0.5%	1827	181.7	184.5	2.8	0.048						
		needles c Py/Po ; some carbonate		0.5%	1828	184.5	187.6	3.1	0.018						
		@185.4-187. 1% Py within qtz veining		1%	1829	185.4	187.0	1.6	Tr						
		@204.0 - 214.0 several granite dikes <3' wide													
		cut basalt.													
		@chert 216.0 brecciated segments ~50cm													
		wide (averaging 10-20cm) occur.													
		@240.1 → overall <0.5% sulphides Py>Po>As		<0.5%	1830	240.1	243.7	3.6	0.002						
		@243.7 → 2% Py 1% As tr Po		3%	1831	243.7	248.3	4.6	0.102						
		@248.3 → same as above		3%	1832	248.3	252.6	4.3	0.163						
		@252.6 → Py>Po Trace of As		<0.5%	1833	252.6	255.1	2.5	0.040						

:90As

avg 0.117 / 13.7

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-14-87 COMPANY Massive Resources PROPERTY Twin Gold Mine NTS# 53 E/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
255.1 ☆	257.4	Alteration zone as per 153.2-160.1													
		1% As 3-4% py as pa		4-5%	1834	255.1	257.4	2.3'	0.178						
257.4	272.5	Basalt; weakly foliated near upper contact													
		grading to massive texture, to amygdaloidal at													
		@ 257.4 to 262.8 1% pyx (c.8% cpy) mainly associated		1%	1843	257.4	262.8	5.4	0.006						
		c qtz-carb stringers													
272.5	285.0	Meta-tuff; well foliated; fg numerous carb	45-50°	Tr.											
		thin carb stringers, minor chert bands c													
		a 1cm offset virtually no sulfides.													
285.0	334.5	Feldspar porphyry - possibly trachyte; fine-gr	50°	Tr											
		blue-grey color unit; weakly foliated c													
		minor sericite laminations Tr cv													
334.5	413.5	Basalt; f-m gr; weakly foliated; the	45°	Tr.											
		coarser-grained section up to 10' thick may													
		be interior of thick flow, or due to													
		metamorphism of original fine-grained basalt.													
		carb stringers abundant, minor epidote veins,													
		odd 2" QFP (trondite) dike. lower 25'													
		is massive & mag.; very fine sulfides													

Drill Hole No.: S-14-87 Company: Massive Resources · Property: Twin Creek NTS.: 53F/15 Page 6 of 9

Footage From	Footage to	Rock type / description	core angle	% sulphides	Sample No	Sample from	Sample to	Sample length	Assays Au	Assays As
413.5	576.2	Basalt; mafic tuff? [illegible] well-[illegible]								
		segments; strongly silicified, numerous								
		ch, qtz & epidote stringers & a few felsic								
		dikes < 30cm thick.								
		@427-432.0 is dark grey sericitic		<1%	1835	427	432.0	5	0.006	
		felsic dike c <1% py [illegible] As								
		@467 → intense ch alteration & brecciation		<1%	1836	467	469.5	2.5	0.010	
		of basalt. po=py, <1%								
		@477.0' → similar to above sample		<1%	1837	477	479.4	2.4	0.002	
		@487.3-488.7 silicified, biotite sericitic		<1%	1838	487.3	488.7	1.4	0.002	
		section c <1% py/po								
		@494.9 → ch alteration <1% py/po			1839	494.9	496.2	1.3	0.060	
		From 493 to 540 + The ~~[illegible]~~ abundance of								
		felsic dikes increases until ratio to basalt								
		is 1:2 (respectively)								
		@508.0-509.5 bluish-grey chert? in a		1%	1840	508.0	509.5	1.5	0.002	
		chlorite & silicified brecciated zone. py po								
		@514.5 abundant amount of biotite in chloritic								
		basalt next to a felsic dike								
		@523.5 → felsic dike (36 cm wide) c massive PO		0.5%	1841	523.5	525.3	1.8	0.014	
		vein 1cm wide in a fracture.								
		@537 → 35cm wide intensely silicified		2%	1842	537	538.7	1.7	0.002	
		zone; bluish grey qtz. 2% py > po As								
		needles								

Drill Hole No.: S-14-87 Company: Massive Resources · Property: Twin Gold NTS 53F/15 Page 7 of 9

Footage From	Footage To	Rock type/description	core angle	% sulphides	Sample No.	from	to	length	Assays Au	Ag
413.5	576.2	@ 542.5 a 3' wide felsic dike within basalt, almost massive; light grey. all dikes are probably tonalitic; some of the feldspar is pinkish but is possibly hematitization or albitization of plagioclase.								
		@ 566.3 - 570.2 a felsic dike (tonalitic?) w/ biotite on either side; 5" of dk blue-grey qtz vein? 0.5% py>po. lineation of grains @	50°	0.5%	1875	566.3	570.2	3.9	Tr	
576.2	585.7	Felsic dike - possibly originally tonalitic, lower 2' is grey plagioclase mainly; a large q.v. (translucent, bluish grey) cuts dike for .3'. Tr. sulphide. dike is speckled & pinkish orange.								
		@ 577- 580.7 q.v.		Tr	1876	577.0	580.7	3.7	0.002	
		@ 580.7-582.9 strongly sericitic / sheared erasing most of orig. texture	55°	Tr	1877	580.7	582.9	2.2	Tr	
585.7	621.'	Mafic volcanics. m. - c.g. weakly foliated wormeness due to formation of clots of amphibole crystals. numerous felsic dikes.								
		@ 607' - 611.0' intensely carbonatized, biotite & chlorite 3% py>po; foliation disrupted.		3%	1878	607.'	611.'	4.0'	0.016	

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-14-87 COMPANY Massive Resources PROPERTY Twin Gold NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
611.	620.4	Felsic dike : intensely chear & sericite													
		along ē relatively unaltered po-chlorite													
		sections of dacitic composition.													
		@ 611 - 615.4 qtz sericite schist & areas of	40-45°	Tr.	1879	611	615.9	4.9'	0.006						
		& reddish brown (hematite staining)				615.9	618.4	2.5							
		ē 618.4-620.4 much qtz eyes in sericite.			1880	618.4	620.4	2.0	Tr						
620.4	646.5	Altered mod. silicified Mafic volcanic p f.g. (as per 583.7-611)													
		weakly foliated ; contacts are well foliated													
		@ 620.4-622.1 abundant carbonate & silica	45°	2%	1881	620.4	622.1	1.7'	0.018						
		alteration ē 2% py ; finely diss				622.1	627.0	4.9							
		@ 627-628.6' well foliated ē biotite, sericite	45-50°	2%	1882	627.0	628.6	1.6'	0.002						
		silica alteration. 2% diss py													
		@ 628.6-630.4 qtz eyes (blue) ē sericite		Tr	1883	628.6	630.4	1.8'	0.056						
		numerous felsic dikes in chlorite volcanics													
		cont. to interval.													
646.5	651.7	Felsic dike ē intercalated biotite/chloritic		nil											
		volcanics. dikes creamy white to pink f.g.													
		resembling chert no sulfides except from													
		@ 647 - 648.4' 1% py ē mainly biotite & chl			1884	647.0	648.4	1.4'	0.002						
		laminations.													
		@ 651 6" of "creamy" white f.g. ch													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-14-87 COMPANY Agassiz Resources Inc. PROPERTY Longman Lake NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
651.7	716.2'	Carbonatized mafic volcanics? white & green	60°	nil-2%												
		striped core abundant ch alteration			1885	651.7	657	5.3	0.002							
		occurring as stringers & pervasive			1886	657.0	661.7	4.7	0.018							
		saturation - core is soft except for			1887	661.7	667	5.3	0.002							
		~~…~~ narrow silicified sections:			1888	667	675	4.5'	0.014							
		brecciation common. variably magnetic 1-2% sulphides														
		to 671.5' where core is silicified & fine														
		may originally have been a cherty mafic tuff														
		@ 657 1% py diss & in stringers		1%	1889	647	649.4	2.4'	Tr							
		@ 712.4 -> 2% py cubic & diss; abundant		2%	1890	712.4	714.3	1.9'	0.513							<0.513 / 1.9'
		ch. mnr. sphalerite & magnetite				714.3	718	3.7								<
						718	722	4								
716.2	722'	Fault breccia; contact between a		nil												
		porphyritic dike & chlorite zone. brecciated														
		w/ ch filling fractures. no sulphides														
722	729	Porphyry: blue qtz-eyes (<0.8 mm wide)														
		in a f.g. dark grey groundmass. lesser														
		amount of plag. phenocrysts; weakly foliated														
		& slightly sericitic.														
729	747	Basalt: f.g. & weakly foliated to 733 where	50°	Tr	1891	744	749	3.0	Tr							
		it becomes m.g. & massive. mnr. epidote														
		& qtz veining @ 744 tr. py/po.		Tr.												

T.D. 747 feet

R.P. BOWEN ENGINEERING, INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Massive Resources PROPERTY Twin Gold Mines NTS# 53F/15 PAGE 1 of 9

LATITUDE EASTING 11,799 DEPARTURE NORTHING 11,811 AZIMUTH 360 DIP -45° DEPTH 664' ELEVATION 9,988

INCLINATION AND TROPARI TESTS

DEPTH 350' AZIMUTH ~~[illegible]~~ 2° DIP -38° DEPTH 654' AZIMUTH 6° DIP -35° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY Anne Neore CLAIM NO. P. 6132 MINING DIVISION Kenora Red Lake DATE STARTED Sept. 1/87 DATE COMPLETED Sept 4/87

DRILLING COMPANY Norex Drilling Ltd CASING left in CORE STORED AT Lingman Lake, Ontario

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	18'	Casing, overburden													
18'	38.7	Basalt; f.g. greyish green weakly foliated; ~~[illegible]~~ ch & silica alteration common as veins & stringers.	50°	<1%											
		@ 24.6-30.3 ; ~~[illegible]~~ as described @ 22% py		2%	1959	24.6'	30.3	5.7	0.048						
		~~[illegible]~~ @ 35.5 → 1-2% py > po mac. mas.			1960	35.5'	38.7	3.2'	0.010						
38.7	46.7	Alteration zone; 'bleached' to a light grey. intensely carbonatized & silicified. 7% py, 1% As <1% po - well foliated. ~~[illegible]~~ diss. sulphides ~~[illegible]~~ in bands parallel to foliation.	60°	7%											
					1961	38.7'	43.0'	4.3	0.507						
					1962	43.0'	46.7	3.7	0.187						
46.7	99.8' ~~[illegible]~~	Basalt; f.g. greyish green, ~~[illegible]~~ moderately foliated; contains altered sections as described above only with less sulphides.		1-2%	1963	52.6'	55.4	2.8'	0.022						

☆

As

0.359 / 8

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Mosaic Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
46.7	[illegible]	continued													
	89.8	@65.2-68.2 felsitic fine-grained ash tuff 1% py>po	45°	1%	1964	65.2	68.2	3.0'	0.006						
		a narrow blue-grey q.v.'s 1cm wide													
		ch fracture filling causing(?) bleaching of													
		& sulphides concentrated near veins													
		@72-77.0' 2-3% py>po minor Aspy	40-45°	3%	1965	72.0'	77.0'	5.0	0.058						
		possibly containing cherty bands													
		@77-80.7 9" light grey q.v. with 2% py		3%	1966	77'	80.7'	3.7'	0.020						
		in fractures; overall silicification with													
		py>po & minor cpy. As? cracks													
		@85 a 12" felsic dike													
		lower contact sharp @ 40°													
89.8	107.7	Felsic dike. f to med; dark grey, wet;		Tr											
		locally vaguely porphyritic sections a 6"													
		light grey q.v. with 2% py/po													
107.7	199.2	Basalt: f.g. massive to weakly foliated.		<0.5%											
		numerous cb. stringers, moderately silicified.													
		@117.4-122' 0.5% py/po strongly silicified		0.5%	1967	117.4	122.0'	4.6	Tr						
		The odd narrow (<3") felsic dike													
		@147-152 a brecciated zone with													
		numerous cb stringers also a 7"													
		q.v. which is brecciated/crackled													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
107.7	198.2'	continued													
		@181' mnr. epidote & ch in a fracture.													
		@185 a 10" felsic dike													
		lower 3 ~~[illegible]~~ of mafic	50°												
		volcanics pre strongly foliated													
198.2	205.2'	Felsic dike as per 84.8'-107.7'; slightly	50°	nil											
		sericitic until @202.3-205.2 where		nil	1968	202.3	205.2	2.9'	0.002						
		sericite is abundant; bluish qtz eyes also													
205.2'	207'	Silicified zone; well foliated; cherty	50°	1-2%	1969	205.2	207.0	1.8'	0.004						
		bands (dk ~~[illegible]~~ purplish brown) ch stringers common.													
		abundant bands of bluish qtz.; possibly													
		mnr. sericite 1-2% py po													
207	212.1'	Carbonatized zone; 50% grey-white cb	50°	1%	1970	207.0	212.1	5.1'	0.016						
		mnr. green cb 30% chlorite 10% biotite													
		mnr. cherty ~~[illegible]~~ bands. 1% py/po													
212.1'	225.7'	Basalt; f.g. dk greenish green massive to vaguely foliated													
		numerous cb stringers. moderately silicified													
		~~[illegible]~~ two 2-4" felsic dikes.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
225.7	234.3	Basalt(?) intensely silicified fine-almost		Tr.												
		aphanitic grey in colour. carbonate														
		stringers common along w the old														
		felsic dike - core is occasionally foliated.														
		& massive.														
		@ 225.5-228.2 1-2% py/po in cavity		1-2%	1971	225.5	228.2	2.7	0.004							
		fillings.														
234.3	241.9	Alteration zone is probably originally a		<0.5%												
		wet? volcanic; ~~with~~ abundant carbonate														
		alteration, & very biotitic. & also														
		strongly silicified. weakly foliated.														
		@234.3' → as above w a 6" section		1-2%	1972	234.3'	237.3	3.0	0.008							
		of chlorite yellowish green chert?				237.3	238.6	1.3								
		which also contains crystalline py minor														
		@235.6'? saturated w ch numerous		1%	1973	238.6'	241.9	3.3'	0.131							← 0.131 / 3.3
		folds ~~[illegible]~~ of fine chloritic laminations around														
		~~[illegible]~~ rounded fragments														
		of original volcanic which also is														
		rimmed w a biotite halo. 1% py/po														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Massive Resources PROPERTY Twin Gew NTS 153 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
241.9	251.8	Quartz Carbonate zone, ~~[illegible]~~ ~~[illegible]~~ f.g.:		Tr.	1974	241.9	247	5.1	0.070						
		70% grey cb & 30% grey qtz.			1975	247.	251.8	4.8	0.010						
		essentially no sulphides except at													
		lower contact ~~[illegible]~~ ~~[illegible]~~ which is													
		chloritic & contains 1% py [illegible] over a foot.													
251.8	343.4	Basalt: f.g., strongly silicified; weakly	45°	<0.1%											
		~~[illegible]~~ foliated; dk green; c few													
		large ~~[illegible]~~ (≤1cm) plagioclase grains													
		~~[illegible]~~ resembling													
		"leopard rock"; the odd 4" felsic													
		dike													
		@ 302 a 4" wide ~~[illegible]~~ purplish	50°	1-3%	1976	300.6	302.5	1.9	Tr						
		cherty section c 3% py, & As needles.													
		@ 310.5 same as above. As also in wallrock	50°	1-3%	1977	310.8	311	1.2	0.012						
		@ 315 - 316.7: a 3" & a 12" felsic dike		1%	1978	315	316.7	1.7	Tr						
		both containing 1% [illegible] py mor As													
		in fractures - at this point felsic													
		dikes (mainly tonalite) become common													
		up to 2' ~~[illegible]~~ wide to fractions of an inch.													
		Fault Breccia - 328.1-329.8', brecciated		0.5%	1979	328.1	329.8	1.7	Tr						
		felsic dike c carbonate infillings & ~~[illegible]~~													
		~~[illegible]~~ 0.5% py.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Mosaic Resources PROPERTY Twin Gold NTS: 53 F/15 Page 6 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
343.9	344.9	(Qtz) feldspar porphyry. trachytic typical		Tr.											
		c.g. feldspar grains in a grey siliceous													
		matrix. tr. py													
344.9	400.6	Basalt w numerous felsic dikes as													
		per 318-343.4.													
		@ 351.5-354.0', two 3 & 4" wide	50°	0.5%	1980	351.5	354.0	2.5'	Tr						
		greyish silicified zones w 2-3% [illegible]													
		separated & within basalt. 0.5% py overall													
		@ 354.0'-357.2' felsic dikes, one almost		1%	1981	354.0	357.2	3.2'	.020						
		completely sericitized; the other, intruded													
		w py stringers. 1% py overall													
		@ 371.3'-374.0' 1% py in cavity		1%.	1982	371.3'	374.0	2.7	.006						
		filling within 2 felsic dikes													
		@ 378.5-382.7 1-2% py, mor[e] as cavity		1-2%	1983	378.5	382.7	4.2	0.032						
		filling related to a dk siliceous dike													
		brecciated fragments & more filling.													
		chlorite silicified													
400.6	430.1	Felsic dikes w basaltic units.													
		dikes are pinkish, locally pyritic,													
		filled w numerous thin black cross-cutting													
		~~Qtz~~ fractures.													
		lower contact is sharp, weakly													
		sericitic (yellowish) & reddish)													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Mosan Resources PROPERTY "Twin Cat" NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb		
430	460'	Basalt as per 344.6-402.0															
		@ 444.3-446.0' 2% py >> po in a qtz-	50°	2%	1984	444.3	446.0	1.7	0.022								
		cb saturated interval; ground core.															
		@ 450.8-452.4 1% py >> po fracture		1%	1985	450.8	452.4	1.6	0.012								
		fillings up to 1cm wide. lower															
		contact sheared.															
460'	467.8'	Felsic dikes - sheared / well foliated	55° cc														
		strongly sericitic (yellow in [illegible] reddish)				452.4	456	3.6									<
		minor biotite				456	460	4									<
		@ 460-460.9 - upper contact = 1-2% py		1-2%	1986	460	460.9	0.9'	0.309								< 0.309/0.9
						460.9	464	3.1									<
467.8	474.0	Sulphide Zone - rock types range				464	467.8	3.8									<
		from a felsic dike at the upper															
		contact through to sericitic felsic															
		dikes & minor mafic volcanic intervals;															
		to well-foliated fine chlorite/biotite															
		& mafic volcanics over lower															
		6' of interval.															
		@ 467.8-469 minor sphalerite, galena, py		Tr.	1987	467.8	469.0	1.2	0.010	✓		✓	✓				
		@ 469-469.7 - Pb-Zn zone - ~~[illegible]~~		35%	1988	469.	469.7	0.7	0.131	✓		✓	✓				< 0.131/0.7
		30% ~~[illegible]~~ galena 5% brownish-red sphalerite															
		3% py in a banded siliceous - felsic dike				~~[illegible]~~											

galena 4%.

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
467.8	479.0	continued													
		@ 469.7'-471.8' 1% py in fine stringers	55°-60°	1%	1989	469.7	471.8	2.1	0.074	✓		✓	✓		
		parallel to foliation in volcanics				~~471.8~~	473.6	~~1.8~~							
		@ 473.6-479.0' 1-2% py > po in a		1-2%	1990	473.6	479.0	5.4	0.006						
		foliated basalt? [illegible]													
		numerous ch stringers													
479.0	491'	(Qtz) Feldspar Porphyry - c.g. phenocrysts		nil											
		mainly plagioclase in a f.g. bluish													
		grey matrix. massive; contacts													
		contain fragments of host rock													
491'	548.3	Basalt: f.g. intensely carbonated -		0.5%											
		abundant thin stringers & [illegible] calc veins													
		- strongly silicified, commonly pervasive													
		& also in narrow "cherty" veins.													
		@ 491-494' contact w above dike.		1%	1991	491	494	3.0'	0.010						
		@ 500.6-503.6' interval c 1% py > po.		1%	1992	500.6	503.6	3.0	0.016						
		@ 510.3-513' as above.		1%	1993	510.3	513	2.7'	0.004						
		@ 514.7-518.9' - as above.			1994	514.7	518.9	4.2'	Tr						
		from 542 - to 548.3 basalt is massive													
		c very few ch or qtz stringers													
						545	548.3	3.3							

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-15-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
549.3	554.0	Qtz-carbonate vein; ~~[illegible]~~ light grey <0.5%; 10% green chl.		<0.5%	1995	549.3	554.0	5	0.246						
554.0	559.0	~~[illegible]~~ Alteration zone; strongly silicified, some ch.; foliated ~70°. 10% py 1/2	70°	10%	1996	554.0	559.0	5.0	0.260						
559	565.0	Fault zone; intensely brecciated f.g. mafic volcanics? saturated w carbonate; graphitic laminations common 3% py in cavity fillings & stringers.		3%	1997	559.0	565.0	6.0	0.006						
565.0	608.1	Basalt or gabbro; f.g. to m.g. massive @ 583' grades to c.g. to 603.!		0.1%											
608.1	664.0	Feldspar porphyry; subhedral c.g. plagioclase ~~[illegible]~~ grains in dk. grey f.g. siliceous groundmass. a 3" q.v @ 635' upper contact sharp @ 40°		Tr.											

0.253 / 10.7

graphite

TD. 664.0' feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS# 53F/15

LATITUDE EASTING 13,400 DEPARTURE NORTHING 11,801 AZIMUTH 360° DIP -45° DEPTH 697' ELEVATION [illegible]

INCLINATION AND TROPARI TESTS

DEPTH 682' AZIMUTH 1° DIP -26° DEPTH 342' AZIMUTH 357 DIP -30° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.D. MAASS CLAIM NO. P-6130 MINING DIVISION KENORA | RED LAKE DATE STARTED SEPT 1/87 DATE COMPLETED SEPT 3/87

DRILLING COMPANY NOREX DRILLING CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
0.0	44.0	CASING, OVERBURDEN													
44.0	[illegible]	MAFIC VOLCANICS		<1%											
		-dk. green color with													
		veinlets of white calcite													
		and brown biotite													
		-fine to medium grain													
		-foliated to massive													
		-easily scratched													
		-minor pyrite assoc.													
		with calcite veins with													
		py. occuring as thin													
		stringers and finely dissem.													
		44-47.5 WELL FOL. MAFIC VOLC.	50°	1%	1892	44	47.5	3.5	0.002						
		-stringers of													
		brown biotite, yellow													
		carbonate and py.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15 Page 2 of 11

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		47.5-52.3 M.G. MAFIC VOLCANICS													
		52.3-55.0 WELL FOLIATED MAFIC	[illegible]°	1%	1893	52.3	55.0	2.7	0.006						
		VOLCANICS													
		- stringers of calcite,													
		biotite + pyrite													
		55.0-62.0 [illegible]	50°												
		62.0-64.4 MED. GR. MAFIC VOLC.													
		64.4-97.1 MASSIVE MAFIC VOLC.													
		66.0-69 calcite, biotite and		1%.	1894	66.0	69.0	3.0	0.006						
		pyrite veinlets													
		97.1-105.2 - med. gr. mafic volc.													
		105.2-132.8 WELL FOL. MAFIC VOLC.	50°												
		109.5-114.5 - section contains		1%	1895	109.5	114.5	5.0	0.002						
		two 6" altered bands													
		with sericite + carbonate													
		veining, py, po, aspy., biot.,													
		122-123 med. grain section													
		127-132.8 MAFIC VOLC.		1%	1896	127	132.8	5.8	0.002						
		- with 2" gray Q.V. - 1% aspy.													
132.8	150.2	CARBONITIZED MAFIC VOLCANICS		3-5%	1897	132.8	137	4.2	0.030						
		- dk gray-green color			1898	137.0	142	5.0	0.021						
		with numerous calcite			1899	142	147	5.0	0.024						
		veins which are ptygmatically			1900	147	150.2	3.2	0.01[illegible]						

folded and contorted

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
		- unit is fractured and infilled with py., po., cpy. and aspy.													
150.2	154.7	WELL FOLIATED BIOTITE-RICH MAFIC VOLC		1%	1901	150.2	154.7	4.5	0.012						
		- bands of green chlorite and brown biotite													
		- calcite veinlets parallel foliation - minor qtz veins with fine py., po. aspy. assoc.													
154.7	175.7	SILICIFIED MAFIC VOLCANICS													
		- dk gray color with weak foliation and minor veining													
		- hard + not easily scratched													
		159.7-163.8 med. grain section													
		163.8-169.3 - calcite veinlets		1%	1902	163.8	167	3.2	0.004						
		- 1% fine dissem. py.			1903	167	169.3	2.3	Tr						
		169.3-170.7 - carbonitized mafic volcanic - dissem py. po. aspy.		2%	1904	169.3	170.7	1.4	0.014						
		170.7-175.7 - f.g. mafic volc.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
175.7	182.5	MED. GR. MAFIC VOLCANICS													
182.5	190.1	QUARTZ-FELDSPAR PORPHYRY		<1%	1905	182.5	187	4.5	Tr						
		- purple gray color with white feldspar phenocrysts			1906	187	190.1	3.1	0.010						
		- massive, hard + not easy to scratch - contains minor qtz and carbonate veining with minor assoc. py.													
190.1	243.3	MASSIVE MAFIC VOLCANICS	50°	<1%											
		- past 194.7' unit contains very little veining or alteration - f.g., some sections are massive while others are foliated - biotite bands - dark green color / - minor qtz + py. veinlets													
		190.1-193.1 MAFIC VOLCANIC		1%	1907	190.1	194.7	4.6	Tr						
		- with several qtz-carb. veins mineralized with py.													
		193.1-194.7 SILICIFIED MAFIC VOLC.													
		- 1% py in stringers													
		228.6-229.3 QFP Dyke													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
243.3	332	FOLIATED MAFIC VOLCANICS	60°	<1%											
		INTRUDED BY NUMEROUS													
		FELSIC DYKES													
		- mafic volcanic is													
		dk gray to dk green													
		- very minor veining													
		- dk gray sections are silicified													
		- felsic dykes are gray													
		to orange in color, hard													
		and very siliceous with													
		sharp contacts													
		243.3 - 246.2 MAFIC VOLCANICS		1%	1908	243.3	246.2	2.9	Tr						
		- with purple gray silicified													
		bands and stringers of py, po													
		302.5 - 305.8 MAFIC VOLCANICS		1%	1909	302.5	305.8	3.3	0.002						
		- with silicified sections													
		veinlets of biotite, py., po.													
		325 - 327.8 MAFIC VOLCANICS			1910	325	327.8	2.8	Tr						
		- intruded by several felsic													
		dykes - veinlets of calcite													
		with fine assoc py., po.													
		327.8 - 332.0 TRANSITION ZONE		1%	1911	327.8	332.0	4.2	Tr						
		between mafic volcanics													
		+ biotite-rich porphyry													
		- minor py. + po. stringers													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
332	335.4	BIOTITE-RICH PORPHYRY													
		- brown groundmass													
		with white feldspar phenocrysts													
		- soft + easily scratched													
		- good foliation													
335.4	342.1	QTZ-SERICITE DYKE			1912	335.4	339	3.6	Tr						
		- with listite sections			1913	339	342.1	3.1	Tr						
		- finely dissem. py.													
		- porphyritic in sections													
		- massive - hard + siliceous													
342.1	345.2	QTZ-SERICITE DYKE			1914	342.1	345.2	3.1	.002						
		- well foliated													
		- wisps of fine, soft													
		tan color sericite													
		- finely dissem. py.													
		- hard + silicified													
345.2	354.7	BIOTITE-RICH PORPHYRY													
		- same as 332-335.4													
		347-348.5 Felsic Dyke			1915	347	348.5	1.5	Tr						
		- 1% fine py.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
354.7	358.5	MAFIC VOLCANICS WITH		1%	1916	354.7	358.5	3.8	Tr						
		PORPHYRY DYKES													
		- some sericite alteration													
		of dykes - minor py.													
358.5	391.1	SERICITE ALTERATION ZONE		3-5%	1917	358.5	362.8	4.3	Tr						
		- color varies from white			1918	362.8	364.5	1.7	Tr						
		to blue gray to tan			1919	364.5	370.1	5.6	0.002						
		- white sections are			1920	370.1	374.7	4.6	Tr						
		composed of almost entirely			1921	374.7	377	2.3	Tr						
		qtz - these sections are			1922	377	379.7	2.7	Tr						
		massive and contain			1923	379.7	382.4	2.7	Tr						
		fine pyrite			1924	382.4	385.5	3.1	0.004						
		- blue gray sections are			1925	385.5	389.8	4.3	0.034						
		qtz-porphyry dykes which													
		have white feldspar phenocrysts													
		and fine pyrite through-													
		out the groundmass - they													
		are often fractured with													
		sericite infilling													
		- Tan colored sections are													
		f.g., thinly laminated and													
		sheared and composed of													
		mostly sericite and qtz.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		385.3-386.6 BRECCIATED - POSSIBLE FAULT													
		389.8-391.1 BRECCIA + FAULT GOUGE			1926	389.8	393.8	4.0	Tr						
391.1	403	QTZ-FELDSPAR PORPHYRY		2-3%	1927	393.8	398	4.2	Tr						
		- blue gray groundmass with white feldspar phenocrysts - hard + siliceous - fine dissem py throughout groundmass			1928	398	403	5.0	Tr						
403	420	SERICITE ALTERED PORPHYRY		2-3%	1929	403	407.5	4.5	Tr						
		- blue gray groundmass			1930	407.5	412	4.5	Tr						
		with feldspar phenocrysts			1951	412	417	5.0	0.070						
		- fractures infilled with py. and sericite			1932	417	420	3.0	0.044						
420	436.5	SILICIFIED - SERICITE ALTERED MAFIC VOLCANICS	50°	3-5%	1933	420	422	2.0	0.185						
					1954	422	426.5	4.5	0.124						
		- blue gray color, thinly			1935	426.5	431.1	4.6	0.215						
		laminated - sericite and calcite veinlets - blue gray chert bands - finely dissem. py. throughout unit			1936	431.1	436	4.4	0.197						

0.229

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
436.5	438.3	FAULT ZONE			1937	436	438.3	2.3	0.196						
		- brecciated, fault-gouge													
		- chert fragments are													
		surrounded by fine													
		py., aspy.													
438.3	470.1	SILICIFIED MAFIC VOLCANICS		3-5%	1938	438.3	441	2.7	0.129						
		- dk. blue gray color			1939	441	444.4	3.4	0.126						
		with stringers of calcite			1940	444.4	449	4.6	[illegible]						
		py., po., aspy. - hard			1941	449	454	5.0	0.022						
		and very siliceous			1942	454	458.8	4.8	0.018						
		- cherty sections			1943	458.8	463.5	4.7	0.050						
		3% Py., 1% Po., 1% Aspy.			1944	463.5	467	3.5	0.060						
		- poorly foliated			1945	467	470.1	3.1	0.014						
470.1	524	~~BIOTITE-RICH~~ MAFIC VOLCANICS		1%	1946	470.1	475.6	5.5	0.014						
		- overall color is dk.			1947	481.7	485.2	3.5	0.008						
		green with brown biotite			1948	488.5	490.3	1.8	0.002						
		bands and blue gray			1949	495.8	500.6	4.8	0.115						
		siliceous sections			1950	500.6	504.7	4.1	0.100						
		- py. + po. occur as			1951	504.7	506.5	1.8	0.026						
		veinlets throughout			1952	506.5	509.7	3.2	0.024						
		unit - fine grain with			1953	517.3	520.5	3.2	0.002						
		med. grain sections			1954	520.5	524	3.5	0.024						
		- weak foliation													

0.229 / 2.9

0.108 / 8.9

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DIAMOND DRILL HOLE LOG -

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		509-517.3 MED. GRAIN MAFIC VOLCANICS													
524	612.3	MEDIUM GRAINED MAFIC		<1%	1555	536.7	541.3	4.6	Tr						
		VOLCANICS			1556	546	548	2.0	.004						
		- dk. gray color with			1557	561.3	564.9	3.6	.054						
		minor f.g. sections			1558	582	586	4.0	.058						
		- also blue gray to													
		purple color silicified													
		sections containing													
		1% fine py., po.													
		- massive with no													
		distinct foliation													
612.3	672.1	QTZ-FELDSPAR PORPHYRY		<1%											
		- dk gray groundmass													
		with white and lt. green													
		feldspar phenocrysts													
		- massive, hard + siliceous													
672.1	697	INTERMEDIATE VOLCANIC		<1%											
		PORPHYRY													
		- groundmass is dk green													
		med. grain volcanics													
		- lt. green + white phenocrysts													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-16-87 COMPANY MASSIVE RESOURCES PROPERTY TWIN GOLD NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		of plagioclase up to 1" in diameter.													
		-some course py. chunks													
		T.D. = 697 FEET													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Mosaic Resources PROPERTY Twin Creek NTS# 53 F/15 Page 10 of 10

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
664.8	715	Basalt; fg moderately foliated @ 60°	60°	<0.5%											
		strongly silicified! numerous dk grey-ish													
		blue q.v.s usually carrying py/po													
		@ 676.7-678.7 interval contains		2%	2094	676.7	678.7	2.0	0.016						
		two 4 & 5" wide alteration													
		zones as per 664.8'-669.1' @ 5%													
		py 2 & 0.5% fine aspy grains.													
		@ 678.7-683.3' py/po = 0.5% within		0.5%	2095	678.7	683.3	4.6	Tr						
		~~[illegible]~~ narrow veins & stringers													
		@ 683.3-686.3' a 14" dk greyish blue		0.5%	2096	683.3	686.3	3.0	Tr						
		q.v containing massive py [illegible]													
		(1/2" wide) in vugs 0.5% overall				686.3	689.0	2.7							
		@ 689.0-691.6' dk grey blue q.v.		0.1%	2097	689.0	691.6	2.6	Tr						
		@ 697'-700.4' mainly basalt to narrow			2098	697.0	700.4	3.4	0.026						
		grey-blue q.v.s.													
		near DL [illegible] to 711 basalt is coarse													
		@ 710.8-715. mainly qtz veining w		0.1%	2099	710.8	715	4.2	0.066						
		minor py/po													

T.D = 715 feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15 PAGE 1 of 10

LATITUDE EASTING 11,299 DEPARTURE NORTHING 11,691 moved back to 11700 AZIMUTH 360 DIP -60° DEPTH 715 ELEVATION 9985.3

INCLINATION AND TROPARI TESTS no tests - casing broke.

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY Anne Moore CLAIM NO. PA 6130 MINING DIVISION Kenora Red Lake DATE STARTED Sept 6/87 DATE COMPLETED Sept. 8/87.

DRILLING COMPANY Norex Drilling CASING Left in CORE STORED AT Lingman Lake.

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	34.3	Casing overburden.													
34.3	48.1	Basalt f-m.g. massive weakly silicified? thin ch stringers are common.		Tr.											
48.1	53.4	Mafic tuff; well foliated, chlorite, minor biotite. ch. & qtz/ch stringers common. 0.5% Al.spp.	50°	0.5%											
53.4	57.2	Basalt as per 34.3'-48.1'													
57.2	122	~~[illegible]~~ Basalt v.f.g. massive to weakly foliated; mottled light & dark green, beginnings of varioles, ~~[illegible]~~ crystal growth in concentric rings resembling fingerprints @ 61'.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Massive Resources PROPERTY Twin G.K' NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
62.2	63.8	Basalt - m.-cg. flow c̄ dendritic & fine grained crystals @ contact.		nil											
63.8'	66.0'	Basalt as per 57.2-62.2' mottled texture is caused from liquid immiscibility - means? of a variolitic flow.		nil											
66.0'	68.3'	Basalt as per 62.2-63.8'		nil											
68.3'	72.0'	Mafic porphyry - dike? upper contact has ~~[illegible]~~ qtz-chl veining & is @ 30°; consists of amphibole crystals in a grey silicified ~~gr~~ matrix.		nil											
72.0'	77.0'	Basalt as per 57.2-62.2' - c̄ a preferred orientation of mottled texture @ 50°	50°	nil											
77.0'	80.0'	Basalt; as per 62.2-63.8' ~~[illegible]~~		nil											
80.0	91.2'	Basalt as per 57.2-62.2' numerous chl stringers parallel to a weak foliation.	45°	nil											
91.2'	93.8'	Basalt as per 62.2-63.8'													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG -

DRILL HOLE NO. S-19-87 COMPANY Massive Energy PROPERTY Twin Gold NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SOLFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
93.8	109.2	Basalt as per 57.2'-62.2' Alteration @5+	50°	Tr.											
		mnr. biotitic sections.													
109.2	112	Basalt as per 62.2-63.8													
112	118	Basalt as per 57.2-62.2													
		[illegible]													
118	170.4	Basalt: moderately biotitic, sheared? tmag	35°	Tr.											
		core angle range from 0-40° average = 35°													
		@118.5' a 4" q.v. c Tr. py & cpy													
		@141.3-142.6' Two 3 to 4" bm-grey		0.5%	2046	141.3	142.6	1.6'	[illegible]						
		q.v.'s, biotitic & chloritic c <0.5% reddish													
		brown sphalerite & py >> po > cpy.													
		@150.2'-156.0' , pink-grey q.v. running		0.5%	2047	150.2	156.0	4.8	[illegible]						
		the length ~~[illegible]~~ along core													
		axis , cpy > py > po specks = 0.5% overall.													
170.4	184.8	Basalt; massive, + tmag. variably													
		hematitic, a 6" qtz/carb vein c Trace py													
		@ 180.5'													
184.8	257	Basalt as per 118-170.4 weak to moderately	40°	Tr.											
		silicified. numerous ch. stringers													
		@184.8-186'. strongly silicified, dk green,		0.5%	184.8	186	1.2	2048	0.012						
		some biotite, pt. narrow q.v. c py>po													

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Massive Bounce PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
249	257	continued.													
		@ 235.7 - 240.9' : abundant [illegible] qtz - cb veins. the [illegible] interval is strongly silicified	40°	1%	2049	235.7	240.9	5.2	Tr						
257	263'	Ultramafic? weakly [illegible] v fg, magnetic minor fs [illegible], [illegible] amount of [illegible] ~~as per 118 - 170.4' moderately silicified~~	35°		2050	257	263'	6.0'	Tr						
263	272	Basalt ~~[illegible]~~	40°	Tr.											
272'	277'	Basalt : m.g - c.g. fine [illegible] foliated		Tr.											
277'	313.8	Basalt as per 118' - 170.4'. moderately silicified.	45°	Tr.											
		@ 299.3 - 304.5 0.5% py/po minor [illegible] and quartz vein.		0.5%	2051	299.3	304.5	5.2	0.002						
313.8	316.6	Basalt - possibly ultramafic as per 257 - 263' except not magnetic;													
316.6	354.5	Basalt, as per 118 - 170.4. silicified													
		@ 322 - 324.4' barren zone		Tr.	2052	322	324.4	2.4	0.010						
		@ 324.4 - 332.4 2% [illegible] diss. py/po > [illegible] strongly silicified, still [illegible]		2%	2053	324.4	332.4	8.0	0.014						

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-10-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15 Page 5 of 10

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
316.6	354.5	continued													
		@ 332.4 - 335.7 relatively unaltered lithic arenite		Tr.	2054	332.4'	335.7'	3.3'	0.004						
		@ 335.7 - 338.7, 4-5% py/po > Aspy,		4-5%	2055	335.7	338.7	3.0'	0.034						
		strongly silicified, biotite dk green.		"											
		@ 338.7 - 342.3: green qtz-cb vein		< 5%	2056	338.7	342.3	3.6'	0.08						
		w minor po/py													
		@ 342.3 - 345.0 intensely silicified zone,		3%	2057	342.3	345.0	2.7'	0.04						
		~~[illegible]~~ veining blue-grey													
		cryptocrystalline qtz 0.5% Aspy; 2-3%													
		py/po													
		@ 345 - 347 - brown unaltered basalt.			2058	345'	347'	2.0'	Tr						
354.5	363.3	Feldspar porphyry, typical ~~[illegible]~~ plagioclase	30°												
		phenocrysts, subhedral in a dk grey													
		siliceous matrix. lower contact @ 30°													
363.3	408.5	Basalts f.g., dk green massive &		< 0.1%											
		strongly silicified qtz-cb stringers													
		& veinlets is common locally carrying													
		0.1 to 0.5% py>po, minor cpy these intervals													
		are also biotite locally magnetic sections													
		~~[illegible]~~		< 0.5%	2059	363.3	365'	1.7'	Tr						
		"continued"		< 0.5%	2060	365+	372'	2.6'	0.02						
				0.5%	2061	354.9'	357'	2.1'	Tr						

an ore zone

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Mussin Resources PROPERTY Twin City NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
383.3'	408.5'	continued													
		lower contact is disrupted w some qtz													
		veining, pillow, often skews obs contact													
		0.5% pyrr @ 408.2'-409.2'		0.5%	2062	408.2	409.2	1.0'	0.004						
411.2'	422.6'	Silicified ultramafic? or lighter coloured		Tr.											
		softer than surrounding basalt; ~~[illegible]~~													
		v.f.g., ~~[illegible]~~ chloritic w ~~[illegible]~~ often													
		short intervals containing ~~[illegible]~~													
		metacrysts of a black mineral, locally													
		magnetic & weakly foliated													
422.6	446.5'	Basalt as per 383.3-408.5', locally	55-60°	0.1%											
		biotitic; weakly foliated		0											
		@ 422.6 - 425.3 ; narrow bio-qtz		<0.5%	2063	422.6	425.3	2.7	Tr						
		qv's w pyrr + 0.5%													
		@ 448.6 - 450.8 0.5% pyrr w biotite		0.5%	2064	448.6	450.3	0.4'	Tr						
		& minor quartz veining													
446.5	464'	Basalt? lty massive bluish grey, ~~[illegible]~~ & green; mottled; possibly complete sausseritization of plagioclase & overall silicification.		Nil											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
466'	474.7	Basalt as in 363.3'-466.5' 2 stringers @ 470.5', generally homogeneous.		0.1%											
474.7	477.7	Basalts similar to 466.5'-466'; sericitic in moderately foliated	50°	Tr.											
477.7'	542	Basalt as in 363.3-466.5 w/ weakly foliated tuffaceous? sequence; several felsic dikes (mainly tonalite?) & the lower section of biotite-rich mafic? feldspar porphyry.		Tr.											
		@ 521.8'-523.5' weakly foliated segment next to a tonalite dike porphyry.	~40°	1-2%	2065	521.8	523.5	1.7	Tr						
		@ 536.4'-542' contact w/ porphyry unit below numerous narrow dikes & veins w/ porphyry ≈ 0.5%		0.5%	2066	536.4	542	5.6'	Tr						
542'	545.1'	(mylonite?) Qtz-sericite schist after qtz-feldspar porphyry of tonalite composition;	35°-40°	0.1%											
		@ 542-544.1' contact w/ basalt		0.1%	2067	542	544.1	2.1'	Tr						
		@ 544.1-547' biotite feldspar dike?		0.1%	2068	544.1	547.0	2.9'	Tr						
		@ 547-550.3' 3" dk bluish grey qv		0.1%	2069	547.0	550.3	3.3	Tr						

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-97 COMPANY Massive Resources PROPERTY Twin Gold. NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
542	595.1	continued			2070	550.3	555.1	4.8'	Tr						
			42°	0.1%	2071	555.1'	559.8	4.7	Tr						
		@ 574.5' to 545.1' less sericitiz.	45°	0.1	2072	559.8	564.7	4.9	Tr						
			45°	0.1	2073	564.7	569.7	5.0	Tr						
			45°	0.1	2074	569.7	574.5	4.8	Tr						
				0.1	2075	574.5	580.3	5.8	Tr						
		@ 580.3 two dk blue-grey translucent		0.1	2076	580.3'	584.8'	4.5	0.024						
		q.v.'s w/ minor py (1%).		0.1	2077	584.8	589.2	4.4	0.002						
		From 584.8' to 593.5' minor w/ breccia		0.1	2078	589.2	593.5	4.3	0.002						
		intervals is common.			2079	593.5'	595.1	1.6'	0.002						
595.1	597.8'	Basalt, f.g., massive, moderately			2080	595.1	597.8	2.7	Tr						
		silicified,													
597.8	600'	Fault Breccia - matrix supported													
600'	609.5	Felsic dike - pink; ~~[illegible]~~ barren													
		except @ 1% py in a blue grey q.v.													
		@ 602.8'													
609.5'	616.3'	Basalt w/ ~~[illegible]~~ sericitic felsic	45-50°	<1%											
		dike sections, py - 1%		1%	2081	609.5	613	3.5	0.030						
				0.5%	2082	613	616.3	3.3	0.008						

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-17-87 COMPANY Mussik Resource PROPERTY Twin Gold NTS: 53 F/15 Page 4 of 10

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
616.3'	650.8'	Qtz-sericite schist/mylonite as per	45°													
		542'-595.1'			2083	616.3	622.0'	5.7	Tr							
					2084	622	627	5.0	0.036							
		from 642'-644 possible faultzone			2085	627	631.5	4.5	0.072							
		core is broken due to its			2086	631.5	636.5	5.0	0.016							
		softness ~~[illegible]~~ weathered?			2087	636.5	641.1	4.6	0.016							
					2088	641.1	645	3.6	[illegible]							
					2089	645	650.8	5.8	0.06							
650.8	664.8'	Sulphide alteration zone	40-45°	3-10%												
		3-10% sulphides; mainly finely disseminated py &														
		1% Aspy; minor po & sphalerite:														
		from 650.8-654, section is strongly														
		silicified breccia & sericitic intervals														
		& abundant ~~[illegible]~~ dk greyish blue														
		qvs", py & often in veins but	10%		2090	650.8	655	4.2'	0.048							
		mainly finely disseminated.		10%	2091	655'	660	5.0'	0.139							
		from 654-667 interval is mainly														
		a qtz-sericite schist & finely diss.		5%	2092	660'	664.8'	4.8'	0.124							
		sulphides; sphalerite @ 667 over 4"		3%	2093	664.8'	669.8	5.0'	0.080							

0.132
9.8

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-1?-8? COMPANY Mosaic Resources PROPERTY Twin Creek NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
664.8	715	Basalt; f.g. moderately foliated @ 60°	60°	<0.5%											
		strongly silicified! numerous dk greyish													
		blue q.v.'s usually carrying py/po													
		@ 676.9-678.7 interval contains		0.2%	2094	676.7	678.7	2.0	0.016						
		two 4 to 5" wide alteration													
		zones as per 664.8'-669.1' @ 5%													
		py/po & 0.5% fine aspy grains.													
		@ 678.7-683.3' py/po = 0.5% within		0.5%	2095	678.7	683.3	4.6	Tr						
		narrow veins & stringers													
		@ 683.3'-686.3' a 14" dk greyish blue		0.5%	2096	683.3	685.3	2.0	Tr						
		q.v. containing massive py													
		(1/2" wide) in vugs. 0.5% overall				686.3	689.0	2.7							
		@ 689.0'-691.6' dk grey blue q.v.		0.1%	2097	689.0'	691.6	2.6'	Tr						
		@ 697'-700.4' mainly basalt to narrow			2098	697.0'	700.4	3.4'	0.026						
		grey-blue q.v.'s.													
		near 706' to 711 biotite is common													
		@ 710.8-715. mainly qtz veining w/		0.1%	2099	710.8	715	4.2'	0.066						
		minor py/po													
		TD = 715 feet													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Mussive Resources PROPERTY Twin Creek NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
514.6'	742.7'	Basalt; f.g. massive to weakly		0.1%											
		foliated, moderately silicified; ~~[illegible]~~													
		ch stringers; numerous felsic dikes													
		@ 528.6 - qtz veining & silicification.		1-2%	2201	528.6	532.7	4.1	.0024						
		1-2% finely disseminated pyrrho;													
		~~[illegible]~~ next to the felsic dikes													
		minor py & cp grains occur at													
		@ 601.5 - 603.5		<0.5%	2202	601.5	603.5	2.0'	.002						
		@ 610.2 - 611 - qtz-rich felsic dike													
		@ 615.5 - 620' - mainly basaltic w		1%	2204	615.5	620	4.5'	.016						
		several felsic dikes & 2-3% pyrrho													
		@ 639.0' - 641.6' covers contact of a		<0.5%	2205	639.0'	641.6'	2.6'	Tr						
		qtz-sericite dike w basalt pyrrho													
		in stringers & disseminations.													
		@ 650 & 660 there are two 4' wide													
		qtz w minor feldspar dikes; barren													
		Basalt is ~~[illegible]~~ m.b.c.g. due to													
		~~[illegible]~~ ~~[illegible]~~ clots of amphibole metacrysts													
		~~[illegible]~~ minor amounts of biotite is pervasive													
		@ 677 - 679.5 a ~~[illegible]~~ mafic feldspar													
		porphyry.													
		~~[illegible]~~ @ 712 - 714 - pink shearing		0.5%		~~[illegible]~~	~~[illegible]~~	~~[illegible]~~							
		~~[illegible]~~ hematized felsic dike garnet? pyrrho on													
		contacts eg. 718.4 - 721.5' - (see next pg)		0.5%	2206	718.4	721.5	3.1'	Tr						

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Gear NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
546	792.7	continued													
		the dike runs parallel to core axis through basalt.													
		@ 742.5 to 753' the same dike occurs w basaltic sections; contains only trace py/po													
		@ 753.2-764.2 py cubes disseminated randomly & also a py vein 1-2cm wide @ 761.7'		0.5%	2207	753.2	764.2	5.0'	0.002						
		@ 781.4-784.1' several narrow felsic dikes containing traces of Molybdenite & py.			2208	781.4	784.1	2.7'	0.010						
		@ 784.1'-792.7 qtz-cb veining containing 1-2% cubic py grains up to 0.8cm wide, also disseminated & in stks		1-2%	2209	784.1	788.5	4.4'	0.004						
				1-2%	2210	788.5	792.7	4.2'	0.004						
792.7	801.1'	Alteration zone. Fig. well. Bleached intensely silicified/carbonatized - pervasive only minor qtz veining; bleached to a light grey w 3-5% sulphides, mainly finely disseminated py also po & possibly cpy	45°	3-5%	2211	792.7	797.0	4.3'	0.002						
					2212	797.0'	801.1	4.1'	0.002						

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Grid NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
801.1	809	Basalt: f.g. well foliated.	45°	<0.5%											
		mnr. qtz. veining, finely dissem.			2213	801.1	804'	2.9'	Tr						
		carbonate alteration common.			2214	804'	808.7	4.7'	Tr						
809	813'	Basalt? v.c.g. possibly gabbro. massive		Tr.	2215	808.7	813.5	4.8'	Tr						
813'	817'	Basalt. f.g.-m.g. well foliated.	45°	0.3%	2216	813.5	817	3.5'	Tr						
		disseminated py													
		TD = 817.0 feet													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Mosaic Resources PROPERTY Twin Gold NTS: 52F/15 PAGE 1 of 8

LATITUDE EASTING 17,096 DEPARTURE NORTHING 11,654 AZIMUTH 360° DIP -60° DEPTH 817c' ELEVATION 9.96 F.E.

INCLINATION AND TROPARI TESTS

DEPTH 407' AZIMUTH 004° DIP -53° DEPTH 807' AZIMUTH 005° DIP -48° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY Anne Moore CLAIM NO. PD 6132 MINING DIVISION Kenora Red Lake DATE STARTED Sept. 10/87 DATE COMPLETED Sept 13/87

DRILLING COMPANY Norex Drilling CASING Left in CORE STORED AT Lac... Lake, O.T.

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	3.5	Casing overburden													
3.5	222.4	Basalt - mafic tuff; f.g. greyish green, massive or well foliated intervals. up to several feet wide; basalt flows with amygdaloidal variolites are common. Brecciated segments up to 2' wide are common from 75' to about 105'. Moderately to strongly silicified throughout.	55°	0.1%											
		@ 11.5-13, white q.v. with minor Py		<0.5%	2168	11.5	13.0	1.5	Tr						
		@ 17-25.3' disseminated Aspy ~0.5%		0.5%	2169	17'	20.3'	3.3'	0.002						
		with Py/Po stringers.		0.5%	2170	20.3	25.3	5.0'	0.004						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE		ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE				ANALYTICAL RESULTS						
From	To				Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
35'	222.4'	continued													
		@34.6'-43.1' 6" white q.v. c.		0.5%	2171	39.6'	43.1'	3.5'	TR						
		specular hematite? & Py.													
		@ 59.5-60.5' white q.v. c Asp/Py		0.5%	2172	59.5	60.5	1.0'	0.032						
		@ 90.3-92.8 Aspy/Py filling open		1-2%	2173	90.3	92.8	2.5'	TR						
		spaces related to deformation &													
		intense silicification.													
		@ 103-105' ; Py/Po in a 2" wide	40°	0.5%	2174	103.0	105'	2.0	0.02						
		qtz-ch vein & cls in stringers													
		parallel to foliation													
		@ 189.5-191.8 minor dk grey-blue q.v.		<0.5%	2175	189.5	191.8	2.3	0.002						
		c Py/Po				191.8	196.4	4.6							
		@196.4'-200.5' Py>Po >0.5% c 1% Aspy		0.5%	2176	196.4'	200.5'	4.1'	0.008						
		over 6" @ 200'													
		@ 200-211 similar to above sample, minor Aspy.		0.5%	2177	200'	211'	2.6'	0.004						
		@ 217.3-222.4 0.5% Py in blebs & stringers		0.5%	2178	217.3	222.4	5.1'	0.004						
		a few specks of Aspy													
		euhedral													
222.4	232.2	Feldspar porphyry ; dk c 1% e.g.		tr.	2179	222.4	224.7	2.3	Tr						
		plagioclase grains in a dk													
		partially biotitic & mainly siliceous matrix													
		weakly foliated in places													
		@ 222.4 - tr. Py next to contact.													

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
232.2	244.9'	Basalt, f.g., moderately foliated &	40-45	0.1%											
		@ silicified. @ 232.2'- py>> w. mnr.		<0.5%	2180	232.2'	235.2	3.0'	0.010						
		Aspy, finely disseminated.													
		@ 240.2'- similar to above sample			2181	240.2'	242.5	2.3'	Tr						
		@ 242.7'- 244.9' mnr. @ [illegible]			2182	242.7'	244.9	2.2'	Tr						
		[illegible] w. Tr. py>>													
244.9	335.3'	@ Qtz-feldspar porphyry (Tourmalized) - weakly	55-40°	Tr.											
		phenocrysts of plagioclase = 45%													
		[illegible] qtz grains. Foliated near													
		upper contact. <15% mafics.													
		@ 244.9 - foliated contact w. Traces of py		Tr	2183	244.9	252	2.1	0.012						
		& Aspy @ contact.													
		@ 302.7'- 307.1' interval is strongly			2184	302.7	307.1	4.4	0.006						
		sericitic & well foliated plagioclase													
		almost completely erased; mnr [illegible]													
		qtz 'eyes'				~~307~~	~~310~~	~~2.9~~							
		@ 310 - 319.6, qtz-sericite schist w. 0.1%	45°	0.1%	2185	310	315.2	5.2	0.024						
		py [illegible] & possibly Aspy		0.1%	2186	315.2	319.6	4.4'	0.028						
		@ 330.9 - 335.8 as above		0.1%	2187	330.9	335.8	4.9	0.006						
		lower contact contains relatively													
		undeformed QFP except for sericitized													
		& hematized [illegible].													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
352.8	358.3	Fault Zone, intensely brecciated		Tr.												
		porphyry & mafic volcanics. cb stringers														
		are common.														
358.3	361.0	Basalt fine, moderately silicified		Tr												
		numerous cb stringers; ground core.														
361'	380.2'	Feldspar porphyry as per 272.8-272.3'		Tr												
		massive; sericitized; clay...? common														
		from 375-379.														
380.2	463.6	Basalt: fine mg weakly foliated,	50-55°	<0.5%												
		moderately silicified; abundant thin														
		cb stringers.														
		@ 380.2 - 383.5 py/po		<0.5%	2188	380.2'	383.5'	3.3'	Tr							
		@ 398.5 - 402 py/po		<0.5%	2189	398.5	402	3.5'	Tr							
		from 429.0' to 463.1 numerous														
		narrow felsic dikes & stringers														
		cut basalt. no increase in sulphides.		<0.1%	2190	461.0	463.0'	2.0'	Tr							
	473.7															
463.6	~~[illegible]~~	Qtz-sericite schist;	40-45°													
		@ 463-465.8', blue-qtz eyes & yellowish sericite		0.5%	2191	463.0'	465.8'	2.8	0.058							
		@ 465.8' - 470.5 50% greyish blue qtz.		1-2%	2192	465.8	470.5	4.7	0.333							
	1-2%	very finely disseminated py > po > Aspy														

0.241 / 7.9

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Ridgeway PROPERTY Twin Gold. NTS 53 A/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
462.6	473.7	continued													
		@470.5'-473.7'; 3-5% Pyrrho. 1%	45°	3-5%	2193	470.5	473.7	3.2'	0.106						
		Asp all finely disseminated or clots of													
		fine grains.													
473.7	481.0'	Mafic tuff? well foliated - possibly													
		sheared.													
		@473.7'-475.4': ~~[illegible]~~ 0.5% Pyrrho.		0.5%	2194	473.7	475.4	1.7	0.06						
		Trace Asp.													
		@475.4'-477' 0.1% py.		0.1%	2195	475.4	477'	1.6'	0.006						
						477	481	4							
481.0	487.2	Qtz. sericite schist;		0.5%											
		as per 462.6'-473.7'		0.5%	2196	481.0'	484.0'	3.0'	0.066						
				0.5%	2197	484.0'	487.2'	3.2'	0.088						
487.2	500.0	Basalt ~~[illegible]~~	45°	0.1%											
		weakly foliated @ 45°													
		@487.2'-490.8'; 0.5% diss py/po			2198	487.2'	490.8'	3.6'	0.002						
500.0	514.6'	Qtz. sericite schist.	40°	<0.5%											
		@500.7' - 1% Pyrrho. diss & fracture filling		1%	2199	500.7	505.0	4.3	0.012						
		@505.0' - <0.5% py/po		0.5%	2200	505.0	509.8	4.8	0.002						
		@509.8' - v. sericitic; minor py			2201	509.8	514.6	4.8	0.090						

0.241 / 7.9

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Creek NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
514.6'	742.5'	Basalt ; f.g. massive to weakly		0.1%											
		foliated. moderately silicified; ~~abundant~~													
		cb stringers ; numerous felsic dikes													
		@ 523.6 : qtz veining & silicification.		1-2%	2202	528.6	532.7	4.1	.024						
		1-2% finely disseminated py>po ;													
		~~[illegible]~~ next to the felsic dikes													
		minor py & po occurs over ~~[illegible]~~													
		@ 601.5-603.5		<0.5%	2203	601.5'	603.5	2.0'	.002						
		@ 603.5 - 611 a qtz-rich felsic dike													
		@ 615.5 - 620' - mainly basaltic w		2%	2204	615.5'	620'	4.5'	.016						
		several felsic dikes & a vns py>po													
		@ 639.0'-641.6' covers contact of a		<0.5%	2205	639.0'	641.6'	2.6'	Tr						
		qtz-sericite dike w basalt py>po													
		in stringers & disseminations.													
		@ 650 & 660 there are two 4' wide													
		qtz w minor feldspar dikes ; barren.													
		Basalt is ~~[illegible]~~ m.f.g. due to													
		~~[illegible]~~ ~~[illegible]~~ lots of amphibole metacrysts.													
		~~[illegible]~~ minor amounts of biotite is pervasive													
		@ 677-679.5' a ~~[illegible]~~ mafic feldspar													
		porphyry.													
		~~[illegible]~~ @ 712 - 719 - pinkish orange		0.5%	~~[illegible]~~	~~[illegible]~~		~~[illegible]~~							
		~~[illegible]~~ hematized felsic dike garnet? py>po on													
		contacts eg. 718.4 - 721.5' - (see next pg)		0.5%	2206	718.4	721.5	3.1'	Tr						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
546	792.7	continued													
		The dike runs parallel to core axis													
		through basalt.													
		@ 742.5 to 753' the same dike occurs													
		in basaltic sections; contains													
		only trace py.													
		@ 759.2 - 764.2 py cubes disseminated		0.5%	2207	759.2	764.2	5.0'	.002						
		randomly & also a py vein 1-2cm													
		wide @ 761.7'													
		@ 781.4' - 784.1' several narrow felsic			2208	781.4	784.1	2.7	.010						
		dikes containing traces of Molybdenite													
		& py.													
		@ 784.1' - ~~[illegible]~~ 792.7' qtz-ch veining		1-2%	2209	784.1	788.5	4.4	.004						
		containing 1-2% cubic py occurs up		1-2%	2210	788.5	792.7	4.2	.004						
		to 0.8cm wide. also disseminated in blebs													
792.7	801.1	Alteration zone. fg, well Bleached	45°	3-5%	2211	792.7	797.0	4.3	.002						
		intensely silicified - carbonitized - pervasive only mnr.			2212	797.0	801.1	4.1	.002						
		qtz veining; bleached to a light grey													
		w/ 3-5% sulphides, mainly finely													
		disseminated py also po & possibly Aspy													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-18-87 COMPANY Massive Resources PROPERTY Twin Grid NTS#53 F/15 Page 8 of 8

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
801.1	809	Basalt; f.g. well foliated	45°	<0.5%											
		minor qtz. veining, finely diss.			2213	801.1	804'	2.9'	Tr						
		carbonate alteration common.			2214	804'	808.7	4.7	Tr						
809	813'	Basalt? v.c.g. possibly gabbro. massive		Tr.	2215	808.7	813.5	4.8'	Tr						
813'	817'	Basalt. f.g.-m.g. well foliated.	45°	0.2%	2216	813.5	817	3.5	Tr						
		disseminated py													

TD = 817.0 feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-19-87 COMPANY Massive Resources PROPERTY Twin Creek NTS# 53 F/15 PAGE 1 of 7

LATITUDE EASTING 12,096 DEPARTURE NORTHING 11,654 AZIMUTH 360° DIP -55° DEPTH 697' ELEVATION 9,987.8'

INCLINATION AND TROPARI TESTS

DEPTH 335' AZIMUTH 000° DIP -48° DEPTH 670' AZIMUTH 002 DIP -43° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY Arne Moore CLAIM NO. PA 6132 MINING DIVISION Kenora Red Lake DATE STARTED Sept 12/87 DATE COMPLETED Sept 14/87

DRILLING COMPANY Norex Drilling Ltd CASING Left in CORE STORED AT Linseman Lake, Ontario

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	5'	Casing, overburden													
5'	203.7	Basalt: intercalated mafic tuffs, massive basaltic flows and variolitic flows. shearing has stretched the fabric leading to foliated variolitic and massive flows. usually fine grained; occasionally biotitic, moderately to occasionally strongly silicified.	40-45°	0.1%											
		overall sulphide content is low.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-19-87 COMPANY Massive Resources PROPERTY Twin Gold. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
6'	208.7	continued													
		@16.5'-22.4 - 0.5% Aspy scattered throughout w mnr. py>>po.		0.5%	2238	16.5	22.4	5.9'	Tr						
		@34.6-38.0' qtz-cb veining containing <1% py>>po; f.g. weakly foliated.			2239	34.6	38.0'	3.4	Tr						
		@54.2'-56.1', 5% py>>po in stringers associated w a narrow q.v.; biotitic in a f.g. tuffaceous? interval moderately silicified.	45°	5%	2240	54.2	56.1'	1.9	.030						
		@78.9-87.0': moderately silicified, slightly biotitic v.f.g.-f.g. tuffaceous interval w 0.5% py>>po in qtz-cb stringers.	45°	0.5%	2241	78.9	82.9	4.0'	.002						
				0.5%	2242	82.9	87.0	4.1'	Tr						
		@107.3-109.3' qtz-cb veining in f.g. foliated basalt.	45°	0.5%	2243	107.3	109.3	2.0'	.006						
						170.0	174.3	3.3							
		@174.3-177.0' well foliated f.g. basalt? mafic tuff? w narrow qtz-cb stringers/veins w py>>po. mnr. Aspy.	40-45°	0.5%	2244	174.3'	177.0'	2.7'	.159						
						177.0	180	3							
		@195.2-199.5' , 1.8' wide gray qtz vn. nil sulphides, 197-199.5 0.2% py in a carbonatized biotitic volcanic.	40°	0.2%	2245	195.2	199.5'	4.3	.004						
		@206.3'-208.7 mnr. qtz-cb stringers w 0.2% py>>po		0.2%	2246	206.3	208.7	2.4'	.002						

0.159 / 2.7'

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-19-87 COMPANY Massive Resources PROPERTY Twin Gold NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
203.7	213.3	Qtz-sericite schist. typical.	35°	tr.	2247	203.7	213.3	4.6	.002						
213.3	320.1	Qtz-feldspar porphyry - tonalite? grey. ~~[illegible]~~ mainly anhedral & subhedral plagioclase grains <15% mafics; <15% qtz grains which are grey to blue-grey. a pervasive weak foliation and also well foliated, usually sericitic, sections. tr. sulphides.		tr.											
		@214.7'-218' abundant white qtz veining throughout. foliation is parallel to core axis.	05°	tr.		215	219.8	4.8							
		@219.8'-223.8' strongly biotitic & carbonatized interval w 0.5% stringer & diss. py>>po.		0.5%	2248	219.8'	223.8'	4.0'	.143						
						223.8	228.0	4.2							
		from 268-288' porphyry is virtually a qtz-sericite schist - atypical because sericite is grey not yellowish													
320.1	335.0	Basalt. f.g. massive abundant carbonate stringers & qtz-cb veining. 0.2% py>>po		0.2%											
		upper & lower contacts contain 0.5% diss. & stringer py>>po.		0.5%	2249	320.1	323.1	3.0'	Tr						
				0.5%	2250	332.7	335.0	2.3'	.033						

<0.193 / 4.0

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-19-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
335'	352'	Feldspar porphyry f. to c.g. subhedral plagioclase grains in a dark partially biotitic mainly ~~matrix~~ siliceous matrix weakly foliated.		Tr.											
352'	420.1'	Basalt: f. to m.g. massive to weakly foliated. moderately silicified to locally strongly silicified (unmineralized) sections. @ 379 - 1 foot of ground core; @ 401' felsic dikes increase in size		Tr.											
		& numbers. @ 401-403 basalt contact contains 0.5% Py>Po & dike has trace Po.		0.5%	2251	401.0	403'	2.0	0.058						
		@ 415.8-417 q.v. in andesite? & 0.2% Py.		0.2%	2252	415.8'	417.0	1.2'	Tr						
420.1	439.7	Qtz-feldspar porphyry - tonalite as per 213.3-320.1	45°	Tr.											
439.7	442.1'	Qtz-sericite schist as per 208.7-213.3. 0.2% finely diss. aspy.	45°-50'	0.2%	2253	439.7'	442.1	2.4'	0.102						
442.1	443.5	Qtz. vein, sericitic, lower one foot is partially chloritic; stringer Py>Po. 1% Aspy	40-45°	3%	2254	442.1	443.5	1.4'	0.259						

0.259 / 1.4

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-19-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
444.5	459.8'	Basalt; f.g. weakly to moderately foliated	50°	0.5%											
		numerous cb. and qtz-cb stringers.													
		moderately silicified. greenish grey													
		@ 444.5 - 457.8' 0.5% po>>py trace As.		0.5%	2255	444.5	449.3'	4.8'	0.02						
		very minor chert bands. most sulphides in		0.5%	2256	449.3	453.6	4.3	0.024						
		most silicified sections.		0.5%	2257	453.6	457.8	4.2	0.016						
		@ 457.8 - 459.8' 0.5% po>py, min. As.		0.5%	2258	457.8	459.8'	2.0'	Tr						
459.8	479.9'	Qtz-sericite schist as per 208.7'-213.3'	50°	Tr.											
		@ 459.8 - 464.4' sample next to contact. finely		0.2%	2259	459.8	464.4'	4.6'	0.014						
		disseminated py/po. =0.2%.													
479.9'		Basalt; as per ~~[illegible]~~ 352'-													
		422.1'; strongly silicified.													
		@ 479.1 - 480.9' py>po @ contact.		0.2%	2260	479.1'	480.9'	1.8'	0.08						
		@ 483.5' - 486.2; brecciated, intensely		0.5%	2261	483.5	486.2	2.7'	0.08						
		silicified zone - possibly a fault zone				480.9	483.5	2.6							
		because of 6" interval of unconsolidated													
		rock flour; 0.5% py>>po. finely diss.													
		@ 527-530.2' 0.2% py in basalt near	45°	0.2%	2262	527.0'	530.2	3.2	Tr						
		contacts of narrow felsic dikes.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO S-19-87 COMPANY Massive Resources PROPERTY Twin Gurl NTS# 53 F/15 Page 6 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
479.9	644.6'	continued.													
		@ 557-560' a white felsic dike possibly a				[illegible]	[illegible]	[illegible]							
		tonalite. trace of py in contacts.	[illegible]												
		@ 565-590' basalt becomes c.g., weakly	45-50°												
		foliated @													
		from 574.1 to 581.0' a typical qtz-													
		feldspar porphyry dike													
		from 592 - 599.5 a felsic dike, moderately													
		foliated, weakly sericitic; lower 1' is													
		strongly foliated & sericitic	50°												
		@ 599.5 - 602.5' mafic volcanic,	55°	1%	2263	599.5	602.5	3.0'	0.044						
		strongly biotitic, silicified, abundant													
		cb. & qtz-cb veining & stringers;													
		brownish chert bands over a width of 6".													
		from 608-614 a strongly biotitic porphyritic													
		volcanic? w numerous cb. stringers. Tr py													
		@ 623.6 - 627.0' basalt, m. to c.g.		<0.5%	2264	623.6	627.0'	3.4'	0.004						
		w py/po in qtz-cb stringers.													
		@ 643.0 - 644.6' - blebs of py/po in basalt next to		0.5%	2265	643.0'	644.0	1.6'	0.010						
		a felsic dike w brecciated contacts.													
		from 644.6 - 648.7' pinkish orange massive		Tr.											
		dike - granite? possibly hematized mac. po													

ore zone?

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-19-87 COMPANY Massive Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
644.6	683.0'	Alternating mafic volcanics & pinkish orange granite dikes. The volcanics are f.g. massive & contain <1% very finely disseminated pyrite. The following samples consist almost entirely of pyritic basalt w minor brecciated dike contacts. Basalt is cut with qtz-chl stringers. The pyrite is disseminated throughout.			2266	651.7	653.9	2.2'	Tr						
					2267	657.	659.4	2.4'	Tr						
					2268	667.	671.6	4.6	.002						
					2269	674.8'	683.0'	8.2'	Tr						
683.0'	699'	Granite? pinkish orange hematized? rock. <5% mafics - usually biotite													

T.D = 699 feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20-87 COMPANY [illegible] PROPERTY [illegible] NTS 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0 - 4.5	Casing													
4.5 - 21.75	Massive [illegible] grained basalt													
	Calcite [illegible] on fracture surfaces													
	<1% pyrite, needles and blebs													
	highly magnetic, chlorite													
	9.0'; Qtz-Carb fracture infilling													
	30% pyrite - euhedral up to 2mm													
	12.3' - 13.3' - [illegible]													
	[illegible]													
21.75 - 33.3	Foliated volcanic materials	45°												
	Non-Magnetic													
	20% - medium grained [illegible]													
	[illegible]													
	Chloritic													
	[illegible] < 1mm													
	[illegible] - Calcite [illegible]													
	[illegible] - Qtz-cb vein - augens													
	- no mineralization													
28 - 30.5	Same as above [illegible]													
	[illegible] veins or augens													
	highly chloritic													
30.5 - 38	Shear zone													
- 30.75	Highly [illegible]	40°												
	very [illegible]													
- 31.25	[illegible]													
	[illegible]													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20-87 COMPANY Twin Gold Mines Ltd. PROPERTY Longman Lake NTS# 53F/15 PAGE 1 of 11

LATITUDE EASTING 10703 DEPARTURE NORTHING 12200 AZIMUTH 360° DIP -60° DEPTH 517' ELEVATION 9974.2

INCLINATION AND TROPARI TESTS

DEPTH [illegible] AZIMUTH [illegible] DIP [illegible] DEPTH 500' AZIMUTH 360° DIP -49° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James S. Moore CLAIM NO. PA 6134 MINING DIVISION Kenora-Red Lake DATE STARTED 2 July 87 DATE COMPLETED 4 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING in hole CORE STORED AT Longman Lake

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
[illegible]-32.0	Coarse grained chlorite-silica vein [illegible]		15%	567	31.3	32.3	1.0	.05	1.6				10	
	[illegible] at base		20%	568	37.3	38	.7	Tr	3.0				ND	
	[illegible] at lower [illegible] contact		5%	569	42	43	1	[illegible]	0.4				ND	
32.5-38.0'	Alteration ~30 cm [illegible] highly													
	[illegible] zones, sometimes with	[illegible]												
	[illegible] (oxidized) and [illegible]													
	pyrite [illegible], with coarse grained													
	[illegible] bands (5-15 cm)													
38'-60'	[illegible] silicified [illegible]. Magnetic													
	Weakly to moderately foliated													
	<20% pyrite, usually as blebs													
	& stringers along foliation planes													
	Qtz carb. stringers mildly disseminated													
	Samples													
	31.3-32.3. Chl-qtz w qtz vein and													
	[illegible] pyr zone and coarse chl-silica band													
	with 20% sulfs / 37.3-38. Base of Shear zone													
	42-43 Massive [illegible] mineralized zone:													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
60 - 62.5	[illegible] weakly foliated [illegible]		15%	570	60.5 61.5	1	Tr	1.6				5	
	<5% pyrite disseminated grains [illegible]			571	68 - 70.5	2.5	0.010	3.6				ND	
	Sample												
	60.5 - 61.5 - 15% [illegible]												
	stringers and [illegible].												
62.5 - 65	Highly foliated [illegible] basalt	45°											
	<5% pyrite stringers along												
	foliation												
65 - 72.3	Highly foliated carbonated basalt												
	Abundant [illegible] and stringers												
	running parallel and sub-⊥ to												
	foliation												
	Stringers and [illegible] & pyrite + pyrrhotite												
10-15%	[illegible] found within calcite [illegible]												
	[illegible] little in basalt [illegible] <2%												
	Carbonate non-magnetic												
72.3 - 142.5	Very fine grained, highly foliated basalt												
	chloritic with <5% [illegible] 80'	45°											
	Sporadic calcite stringers and granular												
	<1% py 112'	30°											
	Calcite stringers more abundant with												
	depth. Occasional 6" more siliceous												
	zones												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-20 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	132.5 ½" [illegible]			572	150-153.3	3.3'	Tr	1.4				15	
	133.0 1" [illegible]												
	134.5 ½" [illegible]	40°											
	135.5 2" qz vn with [illegible]												
	lower contact. fine grained [illegible]												
	chill margin 2-5mm wide. Tr cp												
	136.5 - 2" qz vein fractured with												
	chlorite infill. [illegible] chill margin												
	[illegible]												
	139 - 140 Fractured and												
	[illegible] qz vn. Fractures are												
	[illegible] (1mm)												
	141 [illegible] silicified and [illegible] basalt												
	with [illegible] banding												
	142.3 Fractured and altered qz vn												
	143 - [illegible] in displacement												
	[illegible] One large fracture												
	with [illegible]												
143.5 - 172.5													
	[illegible] basalt. [illegible]	45°											
	calcite stringers. [illegible]												
Sample →	Darker bands due to greater												
	magnetite contents. Also correspond												
	with greater mineralization. [illegible]												
	[illegible] <5%												
	153.8 [illegible] - [illegible]												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-30 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
172.5-~200.2	Talc												
	-Foliated altered basaltic												
	material												
	Calcite stringers conformable												
	to bedding												
	Magnetite [illegible].												
	No sulphides												
	Gradational lower boundary												
200.2 201.0	altered basalt	50°											
	Moderately foliated - Non Magnetic												
201.0-201.9	Talc [illegible] [illegible]												
201.9 ->25.	Fine to Medium grained basalt	50°											
	Abundant chlorite, and [illegible]												
	zones												
	Schistose.												
	Some qz-carb stringers [illegible]												
	[illegible] [illegible] [illegible] fractures												
	[illegible] Epidote? Actinolite?												
	Some pyrite [illegible] along [illegible]												
	in fractures												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
252.5-254.5	[illegible] with siliceous bands.	45-50°		573	253-254.5	1.5	Tr	1.0				ND	
	2-5% pyrite. Mostly disseminated as fine [illegible]			574	259-261	2	Tr	ND				ND	
	[illegible] siliceous bands			575	263-265	2	Tr	0.2				ND	
	Same as ~~above~~			576	265.6-266.6	1	Tr	0.4				ND	
264.5-262	Medium grained [illegible] ... slightly silicified [illegible] foliation planes. All-patch Py			577	267.5-268.5	1	Tr	1.6				20	
	259-261 - Same as above												
262-267	Same as above but more siliceous with [illegible] convoluted qtz veins and [illegible] ≤ 3mm; [illegible] stringers [illegible] extending [illegible] at upper and lower contacts. [illegible] with [illegible] specks of pyrite. 263-265 - Same as above. Minor [illegible]												
267-268.66	Very silicified with qz-carb stringers. 2-5% pyrite. Highly foliated. 267.5-268.5 1" qz-carb vein. 5% py												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY PROPERTY NTS: Page 7 of 11

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
267.66 271.33	Highly silicified and sheared			578	267-271.3	1.6	0.024	5.6				40	
	Qtz-rich bands and [illegible] Cb str												
	3-15% py [illegible] with qz rich			579	271.4-273.5	2.1	Tr	1.0				5	
	bands [illegible] cp [illegible]												
				580	[illegible]	2.9	0.10	9.8				ND	
271.33-273.66	Silicified basalt. Strongly [illegible]			581	27~~6~~-279	2.0	0.122	4.0				ND	
	and [illegible]												
	[illegible] chl str			582	[illegible]	1	0.006	1.0				5	
	10% py on [illegible] planes												
				583	279.8-293	3.2	Tr	1.2				15	
273.66 - 279.6	Highly silicified and sheared												
	similar to 267.66 - 271.33			584	~~302.2-305~~ 294.5 -297.3	2.7	Tr	1.0				10	
	277.85 - 279.6 . less quartz												
	rich bands. [illegible] py												
279.6 - 308.3	[illegible] basalt. [illegible]	50°		126001	279.6-282	2.4	0.014						
	[illegible]. [illegible] Cal-Chl [illegible]			126002	282-285	3	Tr						
	[illegible]. [illegible] siliceous zones			126003	285-288	3	Tr						
	Common Qz Cb [illegible] and [illegible]												
	[illegible] and [illegible]												
	zones												
	[illegible] blebs found in some Qz-Cb vns												
	288-289 [illegible] Qz-Cb vns with py blebs												
	289.8 - 293 [illegible], highly veined. little py												

0.107

~~5.65~~

5.9

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY PROPERTY NTS:

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	302.2 - 304.5 Same as above			585	305 - 30[illegible]	1.2	Tr	1.6				ND	
	305 - 306.2 [illegible] Qz-Cb [illegible]												
3	Highly [illegible] abund Po			586	[illegible]	1.3	Tr	4.8				ND	
	309.3 - 312.5												
[illegible]	Same as above												
3				587	[illegible]	3.5	0.002	3.0				40	
309.6 -> 314.2	Mostly [illegible] foliated basalt. Highly												
	calcareous with large Cb-Qz veins												
	altered to [illegible]. Abundant												
	chlorite [illegible]												
	[illegible]												
	Quite a lot of [illegible] H2S												
	Sphene?												
314.2 - 320	[illegible] and												
	chloritized basalt [illegible] ch [illegible]												
320 - 323.5	Same as above but with quartz-[illegible] Cb str												
	[illegible] of py - [illegible] only												
323.5 -> 339.25	Same as above but with many	50°											
	bands with many cb str and												
	chlorite bands.												
	[illegible] band with <5% py. All												
	[illegible] < 1% py												
	332.5 - 336 - 20% chlorite with 3-5%												
	py												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
339.25 - 341	Highly silicified and carbonated		<1%	588	339.3-341	1.75	Tr	2.0				UD	
	metasediment. The odd speck of py, cp												
	<1%			589	352.5-353.5	1	Tr	2.8				ND	
341 - 355.5	Massive foliated basalt with			580	363-364	1	Tr	1.4				ND	
	[illegible] chl [illegible] and [illegible]												
	1" quartz veins - epidote and [illegible]												
	[illegible] common. Also [illegible]												
	[illegible]												
	Occas odd speck of py												
	352.5-353.5 Very silicified with												
	minor carbonate and 1% sulfide												
355.5 357.3	Foliated basalt with abundant												
	feldspar phenocrysts 1-2mm												
357.3-359.5	Massive fine grained basalt <1% py												
	[illegible] on fracture surfaces												
359.5 380.5	Fine grained foliated basalt with	50°											
	odd phenocryst												
	Cb-qz st's - a few throughout. Some												
	zones very calcified - <90% usually												
	with occas'd sulphides												
	363-365 Highly calcareous ^{V03} 5% py												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY . PROPERTY NTS# Page 10 of 11

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	370 - 371 - highly siliceous [illegible] <5% py			591	370 - 371	1	Tr	2.2				ND	
	372 - 374.3 50% siliceous [illegible] py [illegible]												
				592	372 - 374.3	2.3	Tr	2.4				15	
				~~126004~~	~~374.3 - 378~~	~~3.7~~	~~0.010~~						
380.5 - 384.5	Highly silicified [illegible]			~~126005~~	~~378 - 380.5~~	~~1.5~~	0.006						
	Up to 15% [illegible]			593	380.5 - 381.8	1.3	0.191	5.0				25	
	2.2' zone with [illegible]				~~381.8 - 384~~ ~~3 - 392~~								
	[illegible] as a few stringers of same			594	392 - 394	2	0.207	0.34				125	
	380.5 - 381.8 - 15% py			126006	394 - 395	1	Tr						
				595	[illegible]	1.5	0.058	2.0				30	
384.5 - 388	Fine grained [illegible] basalt			126007	396.5 - 400.5	4	0.024						
	[illegible] py. A few carbonate			126008	381.8 - 385	3.2	0.002						
	stringers at [illegible]			126009	385 - 388	3	0.010						
				126010	388 - 392	4	Tr						
388.5 - 390.8	Partly silicified, fine grained and												
	foliated basalt.												
	2-5% py, as stringers and [illegible]												
	[illegible]												
390.8 → 391.3	Fault Breccia - Lower Contact												
391.3 - 392	Fine grained foliated basalt												
392 - 396.5	Highly altered volcanic [illegible]	30°											
	392-394 mostly silicified, [illegible] 5% py												
	394 - 95 Chlorite [illegible], py specks												
	95 - 98.5 Highly silicified, [illegible] 10% py												

$\frac{0.191}{1.3}$

$\frac{0.207}{2}$

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-20 COMPANY PROPERTY NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
396.5 408.5	Fine grained [illegible] basalt			596	405.5-408.5	3	0.002	0.6				ND	
	1% pn[illegible] along the cb [illegible] and												
	foliation planes			597	512-517	5	Tr	ND				ND	
	A few feldspar phenocrysts												
LR 408.5 - 432	Feldspar porphyry Medium grained	50°		126011	4035-406	2.5	Tr						
	Sheared [illegible] Contact												
	1"-6" Chert nodules with sulfides												
	[illegible] py, po												
	Blocks .5 → 3cm												
432-446	Chlorite, sheared, foliated, medium												
	grained basalt												
	Abundant [illegible] about												
	[illegible] and [illegible]												
	[illegible]												
LR 446 - 466	Feldspar porphyry												
	same as 408-432 except												
	some Cb-Qz stain [illegible]												
466 - 470	Medium grained basalt, slightly foliated												
	<.1% sulphides												
LR 470-517	Feldspar Porphyry - same as above												
	479.5-476 Quartz vein - seeded Mo												
	512-517 Feldspar porphyry SQS												
	T.D. 517'												

(60-2)

Deepen to 700'

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-2-87 COMPANY Tlorin Gold PROPERTY Zingwaceld Lake NTS# 53F/15 PAGE 1 of 10

LATITUDE EASTING 10763 DEPARTURE NORTHING 12200 AZIMUTH 360 DIP -70' DEPTH 456' ELEVATION 9974.2

INCLINATION AND TROPARI TESTS

DEPTH 400' AZIMUTH 360° DIP -66.5° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moore CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 4 July 87 DATE COMPLETED 5 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING In hole CORE STORED AT Linpanen Lake

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
0-4'	Casing													
4-28'	FG Basalt, mod. fol. V dk gr	20°												
	chloritized													
	Many cb str + the odd <10mm qz vn													
	Magnetic,	20°												
	Py strings <1mm wide, 5mm long													
	along foliation <3%, and in qz vn's 3-5%													
	22' - highly fol. with close packed													
	cb str's - sheared - 5% py													
	sharp lower contact ~~[illegible]~~													
28'-32.25	FG Basalt. mod. str fol. dk gr													
	Upper contact sheared with swirled													
	cb ~~[illegible]~~ str's 40% cb 4-6" wd													
	ab py along cb str's 5%													
	~~[illegible]~~ cb zone at 29.75 2-3" wd													
	31' - qz vn - highly chloritized 1" wd													
	sharp yet subtle low contact													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-21-87 COMPANY Twin Gold PROPERTY Lingman Lake NTS: 53P/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
32.25 - 36.75	MG mafic, slightly ~~med~~ fol. dk grn		0	673	46	49	2	Tr	1.2					
	Carbonate porysts - <1mm	>20°												
	Amphibolitized with the odd chloritized													
	qtz eye <5mm. No sulphides													
	Sharp lower contact													
36.75 - 45.0	F-MG mafic. well foliated. dk grn		0											
	dk grn w banded apporance from	25°												
	discontinuous v dk minerals - Chlorite?													
	No sulphides.													
	Banding decreasing, white feldspar crysts													
	increasing in abundance toward lower contact													
	sharp													
45.0 - 48.5	F-MG ~~mafic~~, highly silicified with	25°	3-5											
	sheared up + low contacts - swirled fol^n													
	py. stringers along foliation and diss													
	blebs 3-5%.													
	45.5 - Two stages of qz vn's, 2"+1" - no sulphides													
	May be highly altered felsic porphyry. dk gy													
48.5 - 51	Same as above but lacking sheared appearance		1											
	No swirled foliation													
	less sulphides - the odd speck - 1%													
	Gradational lower boundary													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-87 COMPANY PROPERTY NTS: 53F/15 Page 3 of 10

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
51-53	F-MG ~~fel~~ basalt. Mod. fol ~~[illegible]~~		<1	674	54-56.5	2.5	Tr	2.0					
	fairly dk gr.												
	The odd Cb str with sulph specks.			675	68-70.5	2.5	Tr	1.0					
53-53.5	Highly siliceous and foliated zone w ab ser alt'n			676	73-74.5	1.5	Tr	1.2					
53.5-64	FG basalt. Highly silicified. Highly		15-20										
	sheared w ab fract's subparallel to	25-30°											
	well developed fol'n. dk gry												
	15-20% sulph. long str's as fracture												
	infillings. Many diss'n blebs also on foliation												
	planes. Core becomes Magnetic at 60'												
	Sulphides % gradually decreasing with												
	depth and assoc'd red'n in foliation intensity												
	Sample - Highly sheared + silic'd, 20% sulp												
	Gradational lower contact												
64-88.6	F-MG basalt. Wkly → Mod fol. dk gry												
	Occasional sheared zone with high degree												
	of silicification and ab sulphides - blebs												
	and str's along foliation												
	68-70.5 Highly sheared + ~~silic~~ silic'd												
	with swirled fol'n and qtz str's												
	Magnetic, except silicified zones												
	68-70.5 - highly sheared and sil. fract	[illegible]	5-10										
	73-74.5 - Same as above												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-87 COMPANY PROPERTY NTS# 53F/15 Page 7 of 10

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	80.5-82.25 same as above. but very		10%	677	80.5 82.25	1.75	Tr	3.6					
	large blebs + str's of py. ab ser alt.												
	82.25-~~83.25~~ F-MG basalt. some py on			678	82.25-~~83.5~~	~~1.5~~							
	Foliation planes. 1-3%. Silicified				85	2.75	Tr	2.0					
	~~83.25~~-85 Highly silic. lacking str's		5-7		~~83.25-85~~	~~1.25~~							
	blebs and web of very fine str's-py 5%												
	85-90 F-MG mafic. Mod. fol.		1%	679	85-90	5	Tr	1.2					
	V. dk - almost black. 1% py - short thin												
	str's along foliation			680	90-94.3	4.3	.002	2.2					
	90-94.3. Very silicified, a few qtz str's	40°											
	3-5% py - small blebs + str's												
	~~[illegible]~~ Sheared (swirled fol.)												
	94.3-98.3 - Highly silicified with a		3-10	681	94-98.3	4	Tr	1.0					
	few cb str's mostly sub // to fol.												
	py - str's + blebs, some cubes - 2mm												
98.6-119	F-MG Mafic. Moderately - foliated. illus	30°	<.5%										
	by preferred orient. of black mineral - Chlor.												
	foliation increases to depth												
	Cut by odd cb str. or qz vn												
	110, 110.5 Calcite frac. infil. 5mm												
119-129	FG. slightly foliated - mafic - altered.		<.5%										
	chlorite - grn. Quite a few cb str's												
	sheared lower contact. qz vein to												
	intensifying chlorite planes.												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-87 COMPANY PROPERTY NTS: 63F/15 Page 9 of 10

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
129-136.5	FG - highly foliated mafic - gry w some chlor. Silicified w ab cb str w py		1-3	682	132.3-135	2.7	Tr	1.2					
	132.3-135 - Sheared - highly silicified w ab py blebs + str	30°	3-5										
136.5-226.5	FG - Mod - highly foliated - dk gry -> dk grn abundant cb str and the odd silic^d shear zone. The odd py speck or bleb in cb str's and silic^d zns <1%	30-35°	<1%										
		30°											
	183 - 4" qtz vn												
	199-200 - 5mm wd qz-orth veins offset by cb str's												
	209 - 2" qtz-orth vn - saussuritized fslds - Moly	-> 40°											
226.5-233	F->MG mafic - shear zone - highly foliated - swirled V.dk grn ab qz-cb str - decreasing towards base sharp lower contact												
233-240.5	Mafic flow. Highly foliated with flowtop breccia. Becoming more chloritic downhole V.dk gr -> gry	40°											
~~240.5-243.5~~	Basal Breccia - Broken Core												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-87 COMPANY PROPERTY NTS: 53 F/15 Page 6 of 10

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
243.5-265	Interbedded			683	305.5 307.5	2	Tr	2.0					
	VF-MG volcanic metaseds												
	light-dk gry. Thinly to medium												
	bedded. some gradational bedding. Some												
	folding. SoSt - Talc is abundant. Pitted surf.												
	F-MG mafic volcanics. foliated.												
	dk to lght gry												
	Py - <1%. Vf diss speck along cb strs in seds												
265 - ~~278~~ 277.5	F-MG mafic. Moderately fol. dk gy → dk gr		<1%										
	10-15% biotite												
	~~273~~-276.5. Highly carbonated. ab strs and												
	blebs												
277.5 - ~~307~~ 295.5	FG mafic wkly-mod fol grn	>30°	0										
	very little biotite - ab. chlor.												
	283.5-287 mod-~~high~~ str fol.. mod												
	cbonated. Quite a few stringers. highly chlor												
	291-291.5 Same as 283.5 → 287		0										
~~291-295.5~~													
295.5 - 321	F-MG mafic mod fol. ab chl grn to	30°	0										
	dk grn. Minor arenite or wackstone												
	305.5 → 307.5. the diss bleb and str of		1-3										
	Py along silic^d zone and cb str^s												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-87 COMPANY PROPERTY NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	316-319.5 Highly silicified sheared. Qz-min		3										
	cb vns + str's with interbedded chlorite bands												
	ab diss po and diss blebs of Py in silica			684	316-319.5	3.5	Tr	2.8					
	with bands. Cp - ab Mag			[illegible]									
	319.5-321 F-MG mafic, wkly silic^d + sheared		3-5	685	319.5-321	1.5	0.002	4.6					
	w the odd qtz-cb str. diss po, more ab												
	at lower contact - 5-10%. More siliceous also			686	340-344	4	0.022	1.0					
321-339	FG mafic wkly foliated, grnsh black		0	687	359-361	3	0.002	1.8					
	The odd cb str												
	Lower contact gradational - more fol.												
339-349	FG mafic. str foliated grnsh black silicified - ab qz-cb str^s and dark-chlori with ~~quartz~~ highly silicified zones	35°											
	340-344 ab diss po also as												
	small str^s on foliation planes												
349-357.3	FG mafic - mod fol dk gry - grnsh blk		<1%										
	The odd chlorite rich vn. The odd speck of PY												
	<5% biotite more ab at base												
357.3 -	F-MG mafic. str fol. alt bands of	30°	3										
	grn + grnsh black, wkly silic^d. The odd qz-cb												
	Py str^s + blebs generally rest. to more												
	chloritic bands + fractures [illegible]												

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-E7 COMPANY PROPERTY NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
365.5-371	F-MG mafic str foliated. grn to dk grn more chloritic than above. Large py blebs 365.66-367.66. Highly calcareous and chlortic. ab str s. Large py blebs in cb str 3%		1%	688	365.66 367.66	2	0.002	2.0					
				689	388.75-389.75	1	Tr	3.2					
371-374	Mafic wacke? mod foliated. greenish black												
374-381.7	FMG mafic highly fol. Banded grn chlorite and ast black mineral - biotite? swirled Some actin. in chlorite bands - coarse gr.	30-40	1%										
381.7-384.75	F-MG mafic - similar to above but not banded. Black min even. distrib - swirled		<1%										
384.75-391.5	F-MG mafic str foliated. contorted and swirled highly cbated. some silicific - both as ab st's and veins parallel and sub-paral to fol ~~...~~. Minerals assoc w qz vn the odd speck of py. locally ab. - qtz VN Sample - highly silicified ab qz-carb str 36.75-37.75 5		1-3%										
			3%										
391.5-395.2	F-MG mafic wkly fol dk grn ~10% long black chlorite - pref. orient.												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-87 COMPANY PROPERTY NTS 53F/5

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb	
395.2-428	M-FG mafic. Mod fol. str - dk grn	35	1-3	690	398 401.75	3.75	Tr	2.2						
	v. ab. qz-cb str's. ab. chlorite													
	py + po loc. ab. <3% c Fol. incr. to low cont			691	401.75 403.25	2.50	0.002	4.2						
	398 - 401.75 dk grn. ab qz-cb str		<1											
	<1% sulphid.			692	403.25-404.25	1	0.002	2.0						
	401.75 - 403.25 lighter grn - ab qz cb str		3											
	large qtz vein - no sulph. large Po blebs			693	404.25-408.25	4	Tr	2.6						
	in groundmass - 3%													
	403.25 - ~~404.25~~ 404.25 M-FG mafic		<1	694	428-429.5	1.5	0.004	3.2						
	thr odd cb str													
	404.25 - 408.25 30-40% qz-cb str's		1797	~~695~~	429.5 433	3.5	Tr	1.8					✓	recut
	and vns. ab py + po along foliation planes.		3 →										"	
	Usually in smaller str's or in wall rk incl. into of vn's		1798	~~696~~	433-435	2.0	.002	2.2					✗	
428-440	F-MG mafic. str fol. gry to greenish gry			1797	429.5-433	3.5	Tr							
	whly to high str'y silic^d			1798	433-435	2.0	0.026							
	428 - 429.5 - whly silc^d. Very convoluted		5-10											
	foliation - fractures. Lg blebs on str of py													
	and po													
	429.5 - 433 mod to str silc^d. 1 foot													
	dirty qtz vein - some cb - with abundant swirled													
	chlorite incl. some ground core. 2 to odd													
	speck of py or po - but ~~nothing~~ residue on													
	fracture (foliation?) surface													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-21-~~87~~ COMPANY PROPERTY NTS: 53 F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb	
	433-435 Same as qtz vn from above	40°	1799	~~698~~	~~442.5-444.5~~	2	~~.002~~	2.0					x	recut
	but incl. not swirled. One smooth		1800	~~696~~	~~444.5-446~~	1.5	0.002	2.2	?				x	see
	minor fold at upper contact			~~696~~	444.5-446	1.5	Tr	4.0						below
			1801	~~700~~ 697	~~446-447.5~~	1.5	0.002	4.8					x	
440-456	MG mafic. wkly fol vdk grn		<1-3	~~697~~	~~446-447.5~~	1.5			?					
	ab cb str as fracture infillings			701	446-447.5	1.5	Tr	0.6						
	the odd qz str or veinlet		1802	~~698~~	453-456	3	Tr	1.4					x	
	442.5 - 444.5. ~~the~~ a few blebs of py		1											
	in qz veinlet + the odd speck in													
	wallrock.													
	444.5 - ~~447.5~~ 446 - str silic^d													
	zone. - UN w chlor swirls. a few py bleb		1-3											
	446 - 447.5 - same as major unit. <1%		<1											
	453-456 - Same as major unit <1%		<1											
	END OF HOLE													
	T.D. ~~456~~ 456 feet													
				1799	442.5-444.5	2.0	Tr							
				1800	444.5-446	1.5	Tr							
				1801	446-447.5	1.5	Tr							
				1802	453-456	3	Tr							

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R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-22-87 COMPANY Twin Gold PROPERTY Lingman Lake NTS: 53F/15

~~LATITUDE~~ EASTING 10 800 ~~DEPARTURE~~ NORTHING 12025 AZIMUTH 360° DIP -45° DEPTH 497' ELEVATION

INCLINATION AND TROPARI TESTS

DEPTH 400' AZIMUTH 360° DIP -33°c DEPTH 497' AZIMUTH 360° DIP -31°c DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moors CLAIM NO. PA 6134 MINING DIVISION ~~Kenora~~ Red Lake DATE STARTED 5 July 87 DATE COMPLETED 6 July 87

DRILLING COMPANY Norex CASING in hole CORE STORED AT Lingman Lake

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0-9	Casing													
9-12.75	F-MG mafic. mod fol. mudstone? a few cb str's grnsh black													
~~7.75~~-23 12.75	MG mafic. Diorite v. wkly fol. the odd cb str. with occas. py speck or bleb. dk gry		<1											
23-33.5	M-FG mafic mod to strgly foliated dk grn ~~dk gry~~ the odd qz-cb str, loc. ob. w assoc stringer and blebs of py <3%	50°	0-3											
33.5-36	MG mafic. diorite. wkly fol. dk gy grnsh Carbonaceous ders str. odd speck of py		<1											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-22-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
36 - 97	F-MG mafic mod fol. grnish black	50°	<1	806	71.0-71.25	1.25	Tr	1.0					
	ab qz-cb str and the odd qz vnlet			807	76.5 79	1.5	Tr	.6					
	str - locally contorted. The odd speck												
	of py - usually assoc'd w ab str's			808	119.3 120.55	2.25	Tr	.6					
	Minor wackestone and argilite												
	71 - 72.75 highly silicified zone.		<1										
	60% of sample being qz-cb vein. Odd py speck												
	76.5 - 79 Highly chloritized zone, diss		<1										
	vns + str with assoc py specks.												
97 - 112	F-MG - wkly fol mafic grn to dk grn												
	- the same qz-cb str's - occasionally offset												
	by microfractures												
112 - 118	FMG - mod ~~to str~~ fol. mafic dk grn to		1										
	grysh grn.												
	ab qz-cb str												
118.2 - 130	FMG - str fol mafic sed - mudstone?		1										
	dk chlorite rich zones - black foliation												
	bands with interstitial ab - str's assoc py												
	specks. Grades into ~~str~~ to mod fol.												
	118.3 120.55 Fract. ⊥ to fol.		1-2										
	qz cb veinlets and strings												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-22-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
130 135.8	MG mafic, wkly foliated - massive	50°		809	120.55-122	1.5	Tr	1.0					
	~~pale green~~ greyish green (wet)												
	a couple of cb str's, wkly silicified			810	135.8-137	1.2	Tr	0.6					
	gradational lower contact												
				811	137-138.5	1.5	Tr	1.2					
135.8-~~140~~ 149	F-MG mafic str foliated - contorted. ~~ab~~ grnsh blk		1-5										
~~139.75~~	11 ab qz-cb stringers and veinlets. 5% bio			812	138.5-139.75	1.25	Tr	0.6					
	Thin lyrs/lt. grn interbeds - mod fol.												
	135.8-137 wkly silic^d. a few cb str^s		1	813	140.5 142.8	2.3	Tr	0.6					
	with assoc pyrite strings												
	~~137~~ 137-138.5 stry silic'd, ab		5	814	142.8 145.8	3	Tr	1.4					
	contorted qz-cb str. Actinolite.												
	Large py blebs and str, generally assoc^d w qz-str												
	138.5 139.75 biotite rich, str fol. The		<1										
	odd cb str. The odd py speck												
~~139.75-149~~	~~FG mafic mod to str fol.~~												
	140.5 142.8 str fol. wkly silic^d.		1										
	~~incl a 3" zone with many cb str's - 1% py~~ cp												
	all else v. few cb str's - the odd speck of PY												
	142.8-145.8 same as above but w		3										
	ab py str's and blebs - (1cm!)												
	dkgy-dkgn												
149-155	F-MG mafic - str crenulated fol. ab dk	40	<1-1										
	chl ~~str~~ and swirled cb str's. ab <10mm												
	long py sps - pref orient. w fol 1% py												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-22-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	149-153 lg-ab py blebs		1	815	149 153	4	0.002	0.0					
155-159.5	~~F~~ F.MG mafic - streaked appearance due to alternating bands of dark and grn chlorite. Mod fol. some cb str.		<1	816	162.5-167	4.5	Tr	0.2					
				817	168-172.5	4.5	Tr	1.8					
157.5-167	F-MG mafic. mod fol. v.dk grn to dk gry. Py str's and blebs sub ‖ to fol.		1	818	172.5 176	3.5	0.002	0.4					
				819	182.5-184.5	2	0.032	0.4					
	162.5-167 MG - same as above main description.		1	820	190.5-194	3.5	Tr	0.2					
167-~~[illegible]~~ 246.5	FG - mafic mod fol gry or gysh grn ~~ch-go~~ zones of ab qz-cb str-vnlets dispersed throughout. Dk chlorite vnds also		2										
	167-172.5 wkly-mod silicif'd ab qz vnlets + cb str's. 1-3% py, cp, po - mostly as str's	55°	3										
	172.5-176 same as above		3										
	182.5-184.5 Highly silic'd with ab qz-cb str's + vnlts. ab py as blebs + stringers ‖ to foliation.		5										
	190.5-194 wkly to mod silc'd. a few cb str's + odd more siliceous zone. a few py specks		<1										

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-22-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS: 53F/15

Footage From	Footage To	Rock Type and Description	Core Angle	Percent Sulfides	Number	Sample From–To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
		194-197. Same as above yet occass.		1	821	194-197	3	Tr	0.2					
		blebs or str of py												
		205-210 mod-str silic'd. ab		5			1							
		qz-cb str + a few qz veinlets. ab dk			843	205-210	5	[illegible]	1.0				ND	
		chlorite zones. str foliated. ab py + some												
		po. lg blebs + thck str			844	210-213	3	~~0.002~~	1.6 ~~2.0~~				ND	
		210-213 wkly to mod silic'd												
		dk grn. large py veins at contact			845	220.5-222.5	2.0	Tr	1.2				ND	
		between blk chlor and gn pyrite rich zone												
		also odd small py str + cb str			846	222.5-223.25	.75	Tr	0.6				ND	
		220.5-222.5 wkly silic, mod fol		3-5										
		py as odd small blebs			847	223.25-225.25	2	Tr	0.4				ND	
		222.5-223.25 qz vein - highly chloritized		3	848	228-229	1	0.002	1.2				15	
		py blebs in wall rock inclusion and the												
		odd speck within qtz.			849	229-231	2	0.028	1.2				15	
		223.25 225.25 same as 220-222.5		3										
		but a couple of blebs and str's of py as well.			~~850~~	~~246.5-248.5~~	~~2~~							
		228-229 wkly silic'd. a few cb strs +		1.2										
		veinlets. small py bleb												
		229 231 Same as above but more py		3										
		as str's + blebs. lg amount associated with												
		1" qz vein												
		246.5-248.5 ab qz-cb str with		1										
		one large py stringer												

[Tele cond?

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S 22-87 COMPANY TWIN GOLD . PROPERTY LINGMAN LAKE NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	248.5 - 251 Same as above		1	822	246.5 248.5	2	Tr	0.6					
	252 - 253 ab qz cb str's, convoluted		3	842	248.5 251	2.5	Tr	1.8				ND	
	with specks str's and blebs of py			823	252-253	1	0.010	2.4					
246.5 - ~~295.5~~	FMG mafic str-mod. fol. dk grey		1										
295.5	to dk greenish gy. ab cb str's, some												
	qz stringers. Both locally v. ab.			824	276-277	1	Tr	1.0					
	The odd py blb. Microb as coating on												
	foliation planes			825	284.25-287	2.75	Tr	1.4					
	276 - 279 a few py strs and cb right	60°	1-3										
	"en echelon" calcite str's in fractures			PS1	307-309.2	1.8	Tr	0.8					
	⊥ to f.l. The odd py blb also.												
	284.25-287 highly silic'd and cb'ated with												
	ab py as thin str's and diss blebs												
295.5 - 307.2	FMG mafic mod fol. gy - to greenish gry												
	ab qz-cb str. grn chlorite bands. ~~ab~~.												
	a v. odd py speck.												
307.2 - 313	FMG mafic mod to str f.l. dk grn to		<1										
	dk gry. ab qz-cb str's. Locally v. ab.												
	307.2 - 309.2 a few diss blebs of py.		1										

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-22-87 COMPANY TWIN GOLD . PROPERTY LINGMAN LAKE NTS# Page 7 of 10

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
313 - 400	FG mafic wkly to str fol. light gr		<1	826	317-319.5	2.5	0.015	2.6					
	biotite ab. on fol. planes. The odd ~~py~~												
	cb stringer - ~~qtz~~ offset by microfract.			827	319.5 - 320	.5	Tr	ND					
	loc. ab.. The odd py speck on small incl.												
				828	320-321	1	Tr	0.4					
	317-319.5. Str fol. biotite rich.		3-5										
	dk grn to grnsh blk.. ab. py. blebs and			829	323-324.4	1.4	0.012	ND					
	str's. Some of stringers v. thick - 3mm												
				830	324.4-326	1.6	Tr	0.9					
	319.5-320. Qz vein - ~~qz~~ few		1-2										
	host rock incl. altered. a few py blebs			~~830~~ 831	335.2-337.7	2.5	0.002	0.6					
	more ab on fract. surf.												
	320-321 - Major unit. Biot. slightly		<1										
	more ab												
	323-324.4 v. str silicified. ~~ab~~		1										
	and str fol.. ab. ser.. a few py specks												
	+ blebs - generally assoc. with host incl.												
	324.4-326 str silicified, str fol.. ab		<1										
	ser. a few py stringers												
	335.2-337.7 mod - str fol. mod to		1										
	str silicified. minled biotite. a few												
	py blebs + strs												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-22 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	352.5 356.5 str to v. str silicified ab cb str's some ser. Py as str's along foliation	≈60°	1	832	352.5 356.5	4	0.004	1.6					
				833	356.5-357.7	1.2	0.018	1.2					
	356.5 - 357.7 host rock with small broken str's & py along fine cb-qz str's wkly silic^d		<1	834	357.7-361.5	3.8	0.016	1.8					
				835	366.75-367.5	.75	0.058	3.2					
	357.7 - 361.5 str fol. - biotite and chlorite rich - dk brownish blk. Contorted ~~fol~~ folen. ab py mainly as large blebs and the odd str. Wkly to mod silic^d		3	836	375.9 378.5	2.6	0.022	1.2					
				837	398-400	2	0.002	2.6					
	366.75 - 367.5 . V. ab qz-cb str's w̄ diss small blebs of py . str fol. with contorted str's	65°											
	375.9 . 378.5 v str silic^d , mod foliated. Some ser + ank. Small py str's along folio		1.2										
	398 - 400 . highly foliated and sheared w/ loose. V. ab qtz-cb stringers - highly contorted Broken core at base (major unit lower contact) ab py str's and blebs along qtz cb - str's → fract infil												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-22 COMPANY Noranda PROPERTY Twin Gold NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
400 - 422	Fine grained massive to wkly fol^d ~~FG~~ dk gy w ab 2mm feldspar phenocrysts - slightly corroded. The odd py speck. A few random cb str's. 419 small FG mafic, non porphyritic dk grn interbed		<1	878	446 - 450.3	4.3	Tr	1.8					
422 - 442	FG - MG mafic, mod fol, light grn to greenish gray. Qtz & a few cb - qz str's. The odd speck & small str of py associated with qtz-cb str. 427.5 - Very large py blebs (1") along qzcb veinlet.	65°			422 - 426	4							
					426 - 430	4							
442 - 446	FG mafic - wkly foliated. light grn - light gry mottled app. due to highly carb^d groundmass (light gry) with abund. thin chlorite whisps - discontinuous bands												
446 - 461.5	FG mafic - mod ~~wk~~ str fol. High qz-cb altn. - str's often swirled light - dk grn		<1										
	· 446 - 450.3 rel. thick qzcb vnlets with odd large py bleb - pref orient. w fol		1										

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-22 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS#

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	460.5 - 461.5 : Lg py str's		3	939	460.5 461.5	1	0.002	2.4					
	and blebs proximal to lower contact												
				940	484.5 486	1.5	0.002	2.2					
461.5 - ~~481~~ 481	FG mafic mod fol. dkgy to dkgrn	75°	1-3%	941	470 475	5	0.096	3.8				20	
	or grnsh blk. The odd qz-cb str												
	484.5 - 486, wkly silicified. Py				~~472.5 478.5~~								
	blebs and str's quite large.			126135	466 - 470	4	0.020						
				126136	475 - 479	4	Tr						
	470 - 475 mod to stry silicified. ab		3-5										
	py as lg py blebs + str's, lower												
	contact sheared + brecc'd												
	not a smpl 477.5 - 478.5 highly fol. and												
	~~stt~~ alt'd - very soft - clay like												
481 - 485	M-FG massive to wkly fol. dkgy		<1										
485 - 488	FG mafic - massive - a few very		<1										
	thin cb stringers												
	2 mo with epidote - alt'd zones												
488 - 497 EOH	Feldspar porphyry. large corroded		<1										
	feldspar blasts in F-MG mafic matrix												
	wkly to str foliated at upper contact -												
	clasts deformed and pref. alligned.												
EOH	T.D. 497 feet												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines PROPERTY Linomor Lk. NTS# 53 F/15 PAGE 1 of 8

LATITUDE EASTING 10,800 DEPARTURE NORTHING 12,025 AZIMUTH 360° DIP -55° DEPTH 528' ELEVATION

INCLINATION AND TROPARI TESTS

DEPTH 526' AZIMUTH 360° DIP -47.5° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P. Bowen CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 6 July 87 DATE COMPLETED 8 July 87

DRILLING COMPANY Norex [illegible] CASING Left in CORE STORED AT Linomor Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0'	5'	Casing - overburden													
5'	13'	Basalt: f.g. moderately silicified foliated - 45° odd thin cb. stringers. Tr. sulphides	45°	Tr.											
13'	19.8	Basalt: c.g. vaguely foliated; a few thin cb. stringers w/ mnr. py/po		Tr.											
19.8	27.5'	Basalt, m.g.-c.g.; massive; one qtz/cb vn. ~1" @ 23': Tr sulphide		Tr											
27.5	41.8	Basalt f.g. silicified vaguely foliated: @ 40-41.5'; [illegible] dendritic amphibole crystals after pyroxene & feldspar - 'spinifex' type texture		Tr.											
41.8	48.1'	Basalt as per 19.8'-27.5' Tr. sulphides		Tr.											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
48.1	63.6'	Mafic tuff-basalt; typically foliated to the odd vesicular foliated section (flow?); f.-m.g.; folding & small scale fault offsets common; numerous cb stringers; several <1" wide q.v.'s; moderately silicified; over 3' the core angle is ≈ 0°-35° due to folding; Tr. sulphides	45°	Tr.											
63.6'	73.0	Basalt? v.f.g. dk green siliceous massive, a few thin cb. stringers. ground core 2½'. Tr. sulphides		Tr.											
73.0'	76.7'	Basalt as per 48'-63.6'		Tr.											
76.7	78.8'	Basalt; c.g. amphibole crystals after pyroxene vesicular foliated; gradational contacts	45°	Tr.											
78.8	124	Basalt f.g. chlor hb-act.													
91	155	Carbonate-qtz alteration and veining ± py which often concentrates along boundaries of veins.	50°	<1-3	9										

R. P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines Ltd. PROPERTY Longman Lake NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
122	137	Basalt f.g. - qtz.carb veining continuous.													
137	175	Basalt f.g. to tuffaceous													
	152	Feldspar with qtz over 1'													
		Py recrystallized - cubes are uniformly aggregated. sulfides generally ∥ foliation planes.		1-3											
	170	& 1' contorted zone with py-po-cp.		3-5											
		chloritized - biotite locally in ¼" to ½" bands													
		Some deformed zone control formation of qtz.carb & sulfides.													
175	178	chlor- mg. basalt													
178	220	Basalt f.g. with py-po.	60	1-3											
	190	Py Po Mg - cp magnetite banded - 1-3mm with qtz. continues over 20 feet with ± magnetite - some sections appear tuffaceous Contorted in places well foliated generally		1-3											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S 23-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingmanlake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		Actinolite appears to be the main	55°												
		amphibole. Less Hb & chlor.													
220	222	Quartz + carbonate + actinolite py-po-cp		7-10	742	220	222	2	0.109	1.8					
		Sulfides ∥ to foliation.													
222	229.5	Foliated mafic tuff?													
229.5	240.5	Quartz alteration zone - well foliated	45°		743	229.5	232.5	3	Tr	ND					
		could have been ash flow tuff.			744	232.5	235.5	3	Tr	ND					
		Minor contortions. Py-po-cp		3-5	745	235.5	238.5	3	Tr	ND					
		Bio & garnet bands as well.			746	238.5	240.5	2	0.004	2.0					
240.5	269.5	Massive leucoxene basalt													
		Medium grey to dark greenish grey													
		1-2mm white leucoxene xtals upto 15%													
		Magnetite. Py-po at sample location		5-7	747	253	254	1	0.030	2.4					
		Quartz & qtz-felds veins py-po		1-3											
		± cp along foliation.													
269.5	290	Quartz alteration zone - less	50°		748	269.5	271	1.5	0.010	3.2					
		chlorite & biotite on banks.			749	271	275	4	Tr	2.6					
		py-po ± cp		5-7	750	275	279	4	0.00[illegible]	1.4					
		Well banded with vein contorted			751	279	283	4	0.052	2.4					
		and breccia zones.			752	283	286	3	Tr	0.6					
		Some portions less qtz more chlt.			753	286	290	4	Tr	1.0					

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG.

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
295	305.5	Basalt - v.f.g. foliated	55	<1-3											
		± qtz - bio sulfide zone < 2"													
305.5	307.5	Quartz alteration zone		3-5											
307.5	309.5	Grey porphyritic zone phenos 1-3mm to 15%. F		<1-3											
309.5	318	Quartz-biotite zone with lesser chlorite zone		3-5											
	313	2" graphite zone + qtz + py		3-5											
318	336	Mafic tuff f.g. + qtz zone lesser py-po-cp		1-3											
336	357.5	Banded weak. iron formation	50°	3-5	754	336	340	4	Tr	0.6					
		chert. biotite. amphibole lesser chlorite bas.			755	340	344	4	Tr	1.0					
		py - po - cp - ± asp.			756	344	348	4	0.030	3.0					
		Some 6" qtz-chlr. zone ±act.			757	348	352	4	0.004	2.2					
		Tops up hole or south-grading			758	352	356	4	0.010	1.4					
					759	356	360	4	Tr	1.2					
357.5	381	Basalt. f.g. chlr. act.	45°												
		± qtz & py-po	18	1-3	760	368.5	371.5	3	Tr	1.2					
					761	371.5	375.5	4	0.032	1.4					
381	382	Qtz bio zone py.po-cp		5-7	762	381	382	1	Tr	2.0					

Fade cut?

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15 Page 6 of 8

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
382	404.5	F.G. basalt as before - plag. leucoxene													
		XTALS 1-5% some qtz & sulfide			763	390	391	1	Tr	1.4					
		not over 3%													
404.5	406.5	Banded amp. rich zone bl...	70°		764	404.5	406.5	2	Tr	1.2					
		chert py-po-cp		3-5											
406.5	458	Leucoxene basalt. py.po.cp.		1-5											
		Some silicified zones up to 6"			765	413	414	1	Tr	2.2					
		with 3-5% sulfides			766	414	416	2	Tr	1.4					
		Moderately to weakly foliated													
		Loses leucoxene within 1' - becomes													
		foliated basalt - actinolite chl													
		as main amp. plag rexTAL'd not													
		in excess of 35% Chlorite													
		clots to 10% 2mm long ‖ foliation													
		1-2" qtz veins no mineralization													
		± albite													
~~453~~	457	Increased deformation & sulfides		3-5	780	457	458	1	0.024	1.0					
458	470	Gray porphyry 2-3 mm													
		plag phenos - 10-15%													
		intermediate to felsic													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
470	482	Basalt & banded chert bio. chlr.	45°		767	470	473	3	0.002	1.6					
		py - po ± cp		3-5	768	473	477	4	Tr	1.6					
		Local chlr. basalt zones 1-2'			769	477	480	3	Tr	2.0					
					770	480	482	2	Tr	3.0					
482	492.5	Gray porphyry													
492.5	508	Basalt - f.g. tuffaceous - brecciated	55°	1-3	771	492.5	496	3.5	Tr	3.4					
		with calcite filling + py			772	496	500	4	Tr	1.4					
		sulfides gradually increase until			773	500	503	3	Tr	1.4					
		chert sericite - py zone			774	503	508	5	0.002	3.2					
508	514	chert sericite - py - banded		3-5	775	508	511	3	0.080	2.6	126137	0.034			
		Below foliated -			776	511	514	3	0.088	0.6	126138	0.014			
		Blue qtz augens to 10% - 3mm			126139	514	517.5	3.5	0.18						
		Micro folds common.			126140	517.5	519.1	1.6	0.024						
514	524	F.G. dark greenish gray basalt ± py		1-5											
		QV + PY			777	519.1	520.1	1	0.070	1.6					
					126141	520.1	524.2	4.1	0.014						
524	536.5	contorted & brecciated - calcite cement		7-10	778	524.2	527	2.8	0.002	1.4					
		3mm - py-po			779	527	532	5	Tr	0.6					
		chert - sericite - chlorite biotite ± graphite													
~~536.5~~	~~543~~	~~Mf. basalt porphyry? synvolcanic? 14 hole~~													

~~E.O.H. 543 feet~~

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-23-87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
536.5	543	F.G. M.G. basalt porphyry. Pinkish plag phenos 1/4 to 2" subhedral 10-20% Epidote alteration - Leopard rock?													
		T.D. 543 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-24-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53 F/15 PAGE 1 of 4

LATITUDE EASTING 10,801 DEPARTURE NORTHING 12,297 AZIMUTH 360° DIP -45° DEPTH 207' ELEVATION 9,975.4

INCLINATION AND TROPARI TESTS

DEPTH 200' AZIMUTH 360° DIP -42° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P.Bowen CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 8 July 87 DATE COMPLETED 9 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING In hole CORE STORED AT Lingman Lake

FOOTAGE		ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE				ANALYTICAL RESULTS							
From	To				Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	14	Broken rock and debris														
14	27	Amphibolitized Fe tholeiite basalt	60°													
		Well foliated subparallel to bedding?														
		~~Act~~ Actinolite over hornblende gives a good														
		sheen along foliation plane 0.5mm														
		Dark greenish gray to greenish black														
		Some 1-2mm ~~subhedral~~ plag XTALS & leucoxene														
		Po rimmed by py														
		Felted chlorite zones common														
27	29	Rock is more banded in appearance &		1-3	702	27	30	2	Tr	1.0						
29 and	32	foliation ‖ qtz - carb ~~amph~~ bio zones														
30	32	same as at 27-29		1-3	703	30	32	2	0.46	2.2						
		Continues as basalt until														
		alteration zone			704	42.5	45	2.5	0.02	2.4						
45	50.5	Quartz-pyrite-chlorite-po-sericite	60°	7-10	705	45	51	6'	0.052	2.8						
		alteration zone														

<0.46/2

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-24-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15 Page 2 of 4

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
50.5	55.5	Foliated basalt. chlor-bio clots & wisps	50°	1-3	126142	32	35	3	0.002						
		1 to 5 mm tuffaceous?			126143	35	38	3	Tr						
		Plag < 0.1 to 1mm ± leucoxene 35%?			126144	38	42.5	4.5	Tr						
		Foliation mildly undulatory													
		Actinolite - hb - 50-65%			706	55.5	59.5	4	Tr	2.2					
55.5	56.5	Quartz content increases to > 30% along		3-5	707	59.5	63.25	3.75	Tr	1.6					
		with py-po & biotite-chlorite bands.													
		By 56' rock becomes banded and	65°	7-10											
		sulfides increase													
56.5	61	Basalt as above													
61	63.25	Quartz - bio - pyrite - chlorite bands													
63.25	91	Intermediate porphyry													
		Medium Gray													
		Phenocrysts - plagioclase 1-3mm to 10%													
		Groundmass is dark but, appears siliceous													
		and has a hardness of about 5.5-6													
		Some py along fractures													
91	108	Mafic tuff. bio - chlor. beds		1-3	708	94	96	2	Tr	1.6					
		qv. ± py chloritic			709	96	100	4	Tr	0.8					
					710	100	102	2	[illegible]	2.2					
108	116	More massive but foliated			711	102	104	2	Tr	1.8					
		less banding. - leucoxene			712	104	108	4	0.002	1.0					

59.5
3.75
63.25

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-24-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
116	126	Banded po-bio-chlr	45°	5-7	712	116	121	5	0.012	1.6					
		massive in places - Actinolite hb.			713	121	126	5	0.010	0.8					
126	146	More Actinolite-Hb-rich less													
		sulfides		<1-3											
				~~3-5~~	714	134	138	4	0.006	1.6					
	135	Carbonate breccia		3-5											
					715	142	146	4	0.002	2.2					
	145	Carbonate breccia		3-5											
		~~Po-bio-chlr alteration~~		5-7	716	146	150	4	Tr	1.6					
		~~bands~~			717	150	154	4	0.020	1.8					
					718	158	156	4	0.002	1.6					
148	166	Po-bio-chlr alteration	45	3-5	719	156	162	4	Tr	3.0					
		bands with carbonate		5-7	720	162	166	4	0.145	2.6					
		stringer zones		locally											
		changes to quartz sericite at 166													
166	183.5	Mafic-qtz breccia chlr. actinolite		5-7	721	166	172	6	0.222	3.0					
		Sulfides dominantly py ± po			722	172	176	4	0.024	3.0					
					723	176	182	6	0.242	5.0					
					724	182	183.5	1.5	0.260	4.2					

0.180 / 21.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-24-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/16

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
183.5	199	Mafic volcanic tuff													
		Actinolite - Hb			126145	183.5	187	3.5	0.030						
		Bleached zone 190-192			126146	187	191.5	4.5	0.002						
	192	Silicified with Pyrite		3.5	725	191.5	195	3.5	0.002	2.6					
		Disseminated pyrite			726	195	199	4	0.022	1.4					
199	207	More massive - foliated basalt with 1 cm phenocrysts of saussuritized plagioclase < 5%	70	1-3											

T.D. 207 feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-25-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15 PAGE 1 of 4

LATITUDE EASTING 10702 DEPARTURE NORTHING 12342 AZIMUTH 360° DIP -50° DEPTH 191' ELEVATION 9973.3

INCLINATION AND TROPARI TESTS

DEPTH 190' AZIMUTH 360°? DIP -40° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P. Bowen CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 9 July 87 DATE COMPLETED 10 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING In hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	14	Broken rock - casing													
14	52	Fine grained to med greenish gray bdl sugr													
		massive foliated basalt flow Fetholeiite breccia & tuff													
		Pyrite to 1mm		1-3											
		Chlor. clots to 1.5mm. Actinolite													
		Apparent bedding could be due to meta-			728	27	30	3	Tr	0.8					
		morphism. white flecks 0.5mm leucoxene													
		Narrow up to 0.5cm qv with													
		feldspar & pyrite often ǁ to core													
		axis make up 1-3% of rock													
		Ankerite and calcite common													
		vein associations													
	47		50°												
		Hb-act as mafics 55-65%													
		Plag as light colored minerals 30%+													
		Chlr. after hb Fe-Ti oxide 5%													
		slightly magnetic in places													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-25-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15 Page 2 of 4

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
52	54	several quartz veins 1/2" to 6" within													
		the foliated basalt - tuffaceous!	65°												
54	67 55.6	7" QV.													
		Fine (< 0.5mm) py along ~~bedding~~ foliation		< 1%	729	61.5	67	5.5	Tr.	1.6					
		planes													
	62	Interflow sed 2nd slump with micro folds after slumping													
		1-2mm blebs REXTAL qtz, bio-chlor py as													
		aggregates ∥ to foliation		3 5											
		Certain zone have more py than others													
		usually where qtz content is greater													
		Leucoxene also evident													
67	79	More apparent bedding and increased			730	67	69	2	0.022	3.2					
		quartz & py		3-5 to 5-7											
		Pyrite concentrated along foliation planes	65°												
		May be sheared with carbonate stringers													
		Ghost phenocrysts 5-10% in places													
		to 1-3mm - Rock becomes more													
		medium gray. Quartz veins do not													
		exceed 2 inches and are white													
		with no mineralization.													
		Intermediate with porphyritic													
79	95	dacite dominates after 79'													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-25-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
95	97.6	Foliated Fe tholeiite basalt with qtz.			731	95	99	4	Tr	0.4					
		albite & pyrite veins.	30°	1-3%											
97.6	104	Grey intermediate porphyry	50°												
		Chlr.-rich bands ½" near lower contact.													
		2" basalt with qtz.-albite vein.													
104	127	Fe tholeiite basalt Calcite veining	45°		732	104	107	3	Tr	1.4					
107	127	Broken core - brecciated - carbonate													
		cement - less broken to 116													
		Some microfolds with pyrite ll beds		5-7%											
		Carbonate zone ends after 116													
		FG - MG Fe thol. basalt -													
127	141.5	~~Basalt~~ Carbonate - chlorite - biotite - pyrite zone	50°	3-5	733	127	131	4	Tr	2.2					
		Magnetite portions			734	131	135	4	Tr	1.8					
		Some brecciated portions			735	135	140	5	0.002	3.0					
					736	140	142	2	0.124	0.26	oz				
141.5	159	Foliated Fe-tholeiite basalt -	40°		126147	142	146	4	Tr						
		leucoxene - 1-3% 6/mm			126148	146	150	4	0.014						
		Some portions appear tuffaceous others			126149	150	154	4	Tr						
		massive pyrite along fractures			129150	154	159	5	0.10						
		Silica over carbonate as main				~~155~~	~~159~~	~~4~~							
		alteration mineral													

← 0.174 / 2

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-25-87 COMPANY Twin Gold Mines Ltd. PROPERTY Wagner Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
159	167	Banded interflow sediment to qtz alteration	65-75	3-5	737	159	164	5	0.189	0.26 oz					
		Very contorted - bluish grey qtz.		5-7 in	738	164	169	5	0.463	2.5					
		Quartz-chlorite-biotite pyrite in fractures		planes	739	169	174	5	0.216	2.6					
		and along foliation planes - does			740	174	177.5	3.5	0.374	3.0					
		not appear to be primary.													
		Some sericite noted - 3.5% and brecciation chlorite													
167	170.5	Basaltic tuff													
	168	well foliated - albite qtz veins to 2"													
		hornblende - tremolite on broken surfaces													
		as 1-2 mm needles randomly oriented													
170.5	177	Quartz-sericite-pyrite alteration		7-10											
		zone - very fine arsenopyrite needles													
		Bluish grey cont to qtz													
		Sulfides secondary													
177	191	Basalt tuff grades into medium		<1-3	741	177.5	178.5	1	0.016	1.6					
		grained basalt flow - 1-3mm			126151	178.5	182	3.5	Tr						
		Pyrite decreases to < 1% within													
		1' of contact - bio + py ‖ fol.													
		Foliated with epidote locally													
		Leucoxene - saussuritized plag. bio													
		Probably what were termed gabbro													
		T.D. 191 feet													

0.305
18.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-26-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS#53F/15 PAGE 1 of 4

LATITUDE EASTING 11,300 E DEPARTURE NORTHING 12,150 N AZIMUTH 360° DIP -50 DEPTH 497 ELEVATION

INCLINATION AND TROPARI TESTS

DEPTH 260 AZIMUTH 360° DIP -49.5 DEPTH 497 AZIMUTH 360° DIP -50.5 DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P. Bowen CLAIM NO. PA 6139 MINING DIVISION Kenora Red Lake DATE STARTED 10 July 87 DATE COMPLETED 12 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING In hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	2	Casing - broken rock													
2	249.5	mc. - f.G. mafic volcanic - basalt	50°	<1-3											
		Quartz-feldspar veins to 1/2" ‖ to													
		foliation - py as 1mm cubes													
		po as fine aggregates ‖ foliation			781	22.5	25.5	3	Tr	0.4					
		Amph-chlor.													
		Some carbonate breccia with py ± po. bio			782	31.5	33.5	2	0.002	0.5					
		slightly contorted & steeper core angle	20°												
		Possible pillow margins and tourmaline													
		needles with qtz-fldsp veins													
		Some coarser grained portions but,													
		over character of the rock is the same													
85.5	86.5	Feldspar porphyry dikes (Granite)		1-3	783	85.5	86.5	1	Tr	ND					
93	94	each about 1' - Some quartz			784	93	94	1	Tr	ND					
		with the upper vein ± ep & tourm ± py, carbonate alteration													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-26-87 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15 Page 2 of 4

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		Amp. is hb & act.													
		sulfides increase to > 3% locally	55-60												
		Some leucoxene flecks - More greenstone			785	132	135	3	Tr	0.8					
		type													
	135.5	Possible green mica or chlr. + carb			786	139	143.5	4.5	Tr	0.6					
	173	Carb vein													
	181	Pillow margins ?				150	154	4'							
	191	Hematite													
		Alteration zone qtz carb. cu + pyrps		>3	787	204	207	3	Tr	2.2					
		Brecciated in part some talc frags			788	207	211	4	Tr	1.2					
			50°												
244.5	245.5	Porphyry dike some orange hematized													
		portions													
245.5	291	F.G. mafic metavolc. - may have													
		yellowed portions py-po ll to	50°	1-3											
		foliation with carb-qtz veins													
		to 1"-2"			789	289	291	2	Tr	1.6					
291	296	Basalt breccia		3-5	790	291	293	2	0.030	2.0					
					791	293	295.75	2.25	Tr	1.0					
296	296.5	Moderately altered basalt		3-5	792	295.75	296.5	1.25	0.002	0.6					

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S 26 87 COMPANY Twin Gold Mines Ltd PROPERTY Lingman Lake NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
296.5	299	Porphyry dike - baked at 299 for 2"			793	296.5	299	2.5	Tr	ND					
299	320	F.G. foliated basalt.	50												
	319	Minor qtz - ser alteration zone		1-3											
320	322	Quartz - sericite alteration zone	60-70	1-3	794	320	322	2	0.002	0.2					
		py cubes to 1mm													
322	329	Foliated F.G. basalt.			795	322	326	4	0.016	0.6					
		Carb veinlets			796	326	329	3	Tr	1.0					
329	337	Quartz - vein & breccia - rexTAL qtz			797	329	333	4	Tr	0.2					
		Molybdenite disseminated and on		5-7	798	333	337	3	Tr	ND					
		veins		up to 10											
337	340	Basalt porphyry. 3-10mm plag phenos - subhedral saussuritized foliated			799	337	340	3	Tr	0.2					
340	346	Quartz vein - rexTAL qtz brecciated	75		800	340	343	3	Tr	ND					
		Mo - disseminated ± veinlets		1-3 up to 5-7	801	343	346	3	Tr	ND					
346	347.75	F.G. MG basalt epidote alteration													
	347.5	Br zone 4" wide	70												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-26-E7 COMPANY Twin Gold Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
		Quartz-veins with epidote &			802	354.	355.5	1.5	Tr	ND					
		albite? adularia?							*						
					803	375.75	376.5	0.75	Tr	0.2					
341.75	497	Medium to coarse grained well foliated													
		mafic rock py-po		1-3											
		Color index 30-40% intermediate		up to											
		Probably was gabbro to diorite in		5-7											
		old logs. - Could be intrusive or metamorphic effect on basalt.													
		Minor quartz veining and fairly													
		well pronounced epidote alteration													
		zones.													
		Amphibole- chloritized Hb 35-50% (1.3mm ave size)													
		Plag recryst ~~55~~ 50-65%													
		Some leucoxene													
		Some fg. zones < 1"													
		Magnetic zones reflect increased													
		po content													
	431	Epidote zone 1' & 453 a 6" zone													
		Quartz epidote			804	444.5	447	2.5	Tr	ND					
		Quartz-epidote-carbonate			805	455	457	2	Tr	0.8					
		T.D. 497 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-27-87 COMPANY TWIN GOLD Mines Ltd. PROPERTY Lingman Lake NTS# 53F/15 PAGE 1 of 5

LATITUDE EASTING: 11268 DEPARTURE NORTHING: 12,285 AZIMUTH 360° DIP -45° DEPTH 307' ELEVATION 9,978.7

INCLINATION AND TROPARI TESTS

DEPTH 307' AZIMUTH 360° DIP -51° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moors CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 7/12/87 DATE COMPLETED 7/13/87

DRILLING COMPANY Norex Drilling Ltd. CASING In hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	5	Casing			918	25	25.5	.5	0.002	1.6				20	
5	80	FG mafic. massive to wkly fol. dk			919	43	44	1	Tr	1.4				20	
		gn to greenish black.													
		Numerous qz-cb stringers, locally ab.			933	48	49.5	1.5	Tr	1.4				ND	
		where ab. no pref orient													
		25-29.5 str silicified - v ab str		3-5	934	61	63	2	[illegible]	0.6				ND	
		ab py blebs and str/blebs													
		43-44 mod-str silicified. v. cb str's													
		diss blebs and str's of py assoc w qz-													
		cb str's													
		48-49.5 wkly to mod silic^d. ab str^s		1-2											
		wkly fol. diss blebs and str's of py													
		61-63. ~~[illegible] banded - mod~~	70°	1											
		to ~~str [illegible] interbed~~ thin interbed	65°												
		of mud-wackestone, dark and light bands	60°												
		respectively. mod to str silic^d. v. thin py str's													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-27-87 COMPANY Twin Gold PROPERTY Longman Lake NTS: 53F/15 Page 2 of 5

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
	68-69 Mineralized qz-cb vein		3	920	68 69	1	Tr	1.6				20	
	plus mineralized wall rock.												
	Chloritized qz-cb vein with ab diss			921	117-119.5	2.5	0.002	0.8				5	
	specks and short diss str's of py.			126152	119.5-122	2.5	Tr						
1	Large bleb and stringer in host rock			922	122-123	1	0.101	1.0				5	
				126153	123-127	4	0.006						
80-115.5	FG mafic, wkly fol. to mass. dk gy												
	abundant 1-2mm Felds phenocrysts												
	Slightly corroded												
	Basal Breccia - Lower contact - 2' -												
	broken crumbled core - qz-cb cement												
	90.5-91.5 highly alt'd - pitted - claylike	65											
	broken core												
	93.5 - pitted outer surface	65											
115.5-~~172~~ 177.25	~~FG~~ FG mafic. wkly to mod fol. greenish black		1-3										
	wkly to strly silic'd. Some ser.												
	117-119.5 Mod. silic'd w ab	70°	3-5										
	py along fol. planes. Sericite rich un:												
	of alter. + fract. infil.												
	122-123 highly silicified surrounding qz												
	vn with v. large py incl. - bleb												

0.101 / 1

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-27-87 COMPANY Twin Gold PROPERTY Longmanlake NTS: 53F/15

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From - To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
		122-123 cont. Also a few large occ.			923	139-142	2	Tr	1.2				10	
		beige - hard - slightly pitted mineral												
					924	155.5-156.5	1	Tr	0.4				225	
		139-141 mod to str silic^d. str												
		silic^d zone (2") w abpy str's - 10%		1-~~5~~%	925	170-172.5	2.5	Tr	0.6				150	
		remainder. The odd py speck												
					926	172.5-174.25	1.75	Tr	1.0				125	
		155.5-156.5. Arsenopy - 1mm cubes		1										
		1" ~~qz cb vn~~ width in upper so			927	174.25-176.25	2	Tr	0.8				200	
		"band of abundance". 2mm long rectangle												
		in lower band. In between - 1"												
		qz-cb vn with large broken mass												
		of dark yellowish brown min. Rutile?												
			65°											
		170-172.5 mod silicified, wkly fol.		1-3%										
		Thin str^s of py. 2" zone str silic^d with												
		vnlt py str - 5%. Some ser.												
		172.5-174.25 mod-str silic^d. a few		1%										
		py str^s, some sericite												
		174.25-176.25 Same as 170-172.5, yet		3%										
		a bit more siliceous, and a bit more sulphide												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-27-87 COMPANY Twin Gold PROPERTY Lingman Lake NTS: 53F/15

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
177.25	MFG ~~FMG~~ mafic. Str fol. near upper		<1	928	180.5 181	.5	Tr	<2				25	
~~206.5~~	contact. fol. decr w depth. to wht dk grn												
~~206.5~~	to v. dk gry. v. ab <1mm feldspar			929	206.5-208	1.5	Tr	0.4				ND	
307	phenocrysts giving speckled app.. Prof.												
EOH	oriented w fol.. Large (10mm) phenocrysts			930	208-210.5	2.5	Tr	0.2				ND	
	at upper contact. decr to 1mm within												
	1.5'. Some hematite (ilmenite?) on			931	211-213	2	Tr	0.4				ND	
	foliation surfaces. The odd qz-cb str												
	and py speck												
	180.5-181 lg qz piece of qz vn.												
	some pinkish orange mineral, actinolite also.												
	197- Epidote altered qz-cb vn w												
	hematite staining												
	206.5-213 SHEAR ZONE		<1-1										
	str fol. and ab. fractures, at upper end usually												
	infilled with qz-cb str's. a few py												
	specks												
	206.5-208 · str fol. and fract.		<1										
	broken core. v ab. str's of qz-cb and												
	the odd qz veinlet. Some ser in str's												
	Pinkish mineral in qz veinlets. Hematite												
	208-210.5 str fol. ab qz-cb str's												
	and odd qz vnlets. The odd py speck												
	211-213 str fol. v. ab qz-cb str		1-3										
	· decr specks of py on fol planes.												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-27-87 COMPANY Tarn Gold . PROPERTY Longman Lake NTS: 55F/15 Page 5 of 5

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
		249.5 - 249 2" qtz vein and mn to str fol host rock. Lg PY bleb (1") in qtz vein. Odd speck in wall rock			972	249.5 - 249	.5	TR	ND				ND	
		some red (Hematite) in qz-vn												
		T.D. 307 feet												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-28-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS# 53F/15 PAGE 1 of 2

LATITUDE EASTING 11280 DEPARTURE NORTHING 11805 AZIMUTH 360 DIP -45° DEPTH 461 ELEVATION 9979.5

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY Jann Noors CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 13 July 87 DATE COMPLETED 13 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING IN HOLE CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	19	Casing			935	20	21	1	0.034	0.4					
19	20	Glacial drift. sand gravel, boulders													
					936	21	24	3	0.02	0.8					
20	46	F-MG ~~mafic~~ wkly to str fol. mod-str silicified		3-5											
		~~Banded - contorted~~ dkgy + vdkgy			937	24	26.75	2.75	0.02	0.6					
		ab gr-cb str's + odd qz vein													
		ab py as lg blebs and str's along													
		fol.													
~~20~~	~~21~~	-20-21 str fol. str silic - ~~mmdd~~.													
~~20~~	~~21~~	ab. py blebs and str's + the odd													
		deformed cube.													
~~21~~	~~24~~	21-24 ~~Mod~~ fol. mod to str silic													
		chlorite rich. ab. py as lg blebs +													
		str's along fol.													
		24-26.75 wkly fol. - str sil - epidote													
		altn. ab py. as lg and diss blebs													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-28-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS#

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
~~26.7~~	~~30~~	26.75-30. Mod fol. w bands of		1-3	938	26.75	30	3.25	Tr	0.1					
		str silic^d. epidote alt^n similar to above			H126194	30	34	4	0.016						
					H126195	34	38	4	Tr						
					939	38	42	4	0.026	1.0					
		~~38~~ - 42 Mod silicified and mod		1-5	H126196	42	43	1	Tr						
		to str foliated. ab py as v/g blebs			940	43	44	1	0.004	0.6					
		and a couple of 3-5 mm wide massive													
		py stringlets			941	44	44.3	.3	0.012	2.2					
~~43~~	~~46~~	43-44 mod fol. wkly silic a few		1	942	44.3	46	1.7	0.016	1.2					
		large py cubes													
~~44~~	~~44.3~~	44.0-44.3 mod-str silc^d. mod fol.		3.5											
		abundant asp. diss and as small cubes +													
		intergrown into large py blebs.													
		asp only within along 1" band.													
~~44.3~~	~~46~~	44.3 - ~~45.3~~ 46 wkly to mod silic^d ab													
		py along as blebs and cubes													
		Boulders shifting and broke the drill string.													
		T.D. 46 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-28A-87 COMPANY TWIN GOLD PROPERTY LINGMAN LAKE NTS# 53 F/15 PAGE 1 of 6

LATITUDE EASTING 11298 DEPARTURE NORTHING 11805 AZIMUTH 360 DIP -45 DEPTH 400 ELEVATION 9979.5

INCLINATION AND TROPARI TESTS

DEPTH 400' AZIMUTH 360° DIP -40.5 DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moors CLAIM NO. PA 6134 MINING DIVISION KENORA RED LAKE DATE STARTED 14 JULY 87 DATE COMPLETED 17 JULY 87

DRILLING COMPANY NOREX CASING in Hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	18 20	Casing . overburden boulders			943	20	23	3	0.024	0.4					
18	63	FG mafic, wkly to str fol. v. dk gr			944	23	27	4	0.02	0.4					
		to v dk gy. quite a few chlorite rich bands													
		ab py. usually as qtz lg blebs on			945	27	29.3	2.3	0.02	0.6					
		coating on break surface.			4126192	29.3	36	5.6	0.002						
		~~18~~ 20-23 md to str silic^d		3	946	36	41	5	0.011	1.2					
		mod fol. ab py as blebs on a main													
		~~veinlet~~ veinlet													
		23-27 mod to str silic^d. wkly		2-5											
		fol. ab py - large blebs and fracture													
		infilling. str silic.													
		27-29.3 same as above, mod fol. less		1-3											
		py - mostly blebs - smaller													
	→	31-37.5 - INTERSECTION WITH S-28													
		36-41 mod fol, wkly silicified. a													
		few mechanical blebs of py. some cp													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-29A-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
		41-45 white to med fol. 1mm cubes		1-3	947	41	45	4	0.06	0.4						
		of py in bands of accumulation. Some														
		bleb-str's also			948	45	50	5	0.026	1.4						
		45-50 same as above but with more		3-5	K126193	50	53	3	0.002							
		py blebs + diss grains. Asp a few			949	53	55.5	2.5	0.002	2.2						
		specks throughout + one band of abundant														
		<1mm cubes.			950	55.5	63	6.5	0.002	1.2						
	→	51.5-55.5 highly sheared. Brecciated	45		*	However 63 marked as 63										
		very little matrix - highly fractured.			951	63	65	3	0.032	1.8						
		Somewhat broken														
		53-55.5 the odd v.fg blebs of py +		3	952	65	67.5	2.5	0.179	2.2						0.179 < 2.5
		the odd frac. infilling														
		55.5-62 Broken Core. py as coating		1-3												
		on broken surfaces														
62	79.5	FG mafic - med to str foliated dkgrn-dkgy		1-3.5												
		med to str silic, ab qz-cb str's														
		62-66 py as lg blbs + str's		3-5												
		str silic'd near base														
		65-67.5 strongly silic'd zones with		3-5												
		asp as ~~veins~~ str's comp'd of small flakes														
		and grains. Py as str's + blebs														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-28A-87 COMPANY TWIN GOLD . PROPERTY LINGMAN LAKE NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		67.5 - 72.5 py mostly as str's the		3-5	953	67.5	72.5	5	0.030	1.4					
		odd blob. A couple of short zones (2-3")			126154	72.5	76	3.5	0.010						
		of ground core			954	155.5	168.5	3	Tr	0.8					
	266.5														
79.5	~~297~~	FG mafic - wkly fol. to massive		<1											
	~~[illegible]~~	gray w ob lighter gray streaks and			955	177 ~~[illegible]~~	178.5	1.5	Tr	0.6					
	266.5	bands. the odd cp rich band													
		102 - mod foliation begins													
		Occasional more massive less banded zones 10-20'ish			956	252	254	2	0.002	0.8					
		155.5 - 168.5 mod to str silic	40	5-7											
		diss blebs of po - slight pref. orientn			957	254	256	2	Tr	0.8					
		small cubes of py - bands of accumulation													
		→ 172.5 - 191.5 less streaks + bands of lighter grey	75°												
		178 - 179.5 mod - str silic^d		7-10											
		contorted str's of po. Blebs also. Occ py sp													
79.2		~~FG mafic~~													
		252 - 254 ~~mod to~~ str silic^d. Mod		3-5											
		fol. to sheared - contorted. V fg blebs													
		of py + po + some granular masses of cp +													
		the odd speck of asp.													
		The odd qz rod or eye.													
		254 - 256 wkly to mod fol. wkly to mod silic^d		1-3											
		w few blebs + str's of po. Many small cubes of py + odd													
		speck of cp													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-29A-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULPHIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		267.5 - 268.5 mod to v str silic^{d}.		3-5	958	267.5	268.5	1	Tr	1.4					
		mod to str fol. - somewhat sheared. small to													
		large blebs of po + py. str's also. the odd			959	268.5	271	2.5	Tr	0.2					
		specks of cp + asp													
268.5	271	268.5 - 271 v str silic^{d}. v str silic^{d}		<1	960	271	272	1	Tr	0.2					
		- highly banded - not contorted. ~~ab epidote~~													
		~~altn and some~~ some sericite and saussurite			961	272	275	3	Tr	0.8					
		the odd speck of po, py cp + asp													
					962	278	282.5	4.5	Tr	0.4					
		271-272 Felsic sill. the odd speck of		<1											
		py. str sauss^{d}. Coarse grained			963	308	309.6	1.6	Tr	0.6					
		272-275 mod to str silic^{d}. mod fol.		1-3											
		dark ~~chlorite rich band 2~~" Py as small													
		granular masses													
		2-3" highly alt'd (sauss) felsic dyke													
		278 - 282.5 Felsic sill. coarse grained		1											
		chlorite altn along fractures. The odd speck or													
		blebs of py													
	→	306 - 5" wd - blood red - Hematite rich													
		str silic^{d}													
		308 - 309.6 str silic - sheared, lg py	60°	1-3											
		blebs. highly sheared zone. ab qz-cb &													
		ep alt^{n}. str's of py + some py													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-29A-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		317.5 - 320 str silic^d mod fol. some		<1	964	317.5	320	2.5	Tr	0.6					
		hematite throughout. lg amount at base.													
		Tr odd speck of py.			965	333.5	338.5	5	.002	0.6					
		321 corroded xenolith													
					966	338.5	343.5	5	Tr	ND					
		333.5 - 338.5 str to v. str silic^d		1-5											
		mod to str fol. some local ser and hem.			967	350.5	352	1.5	0.004	0.6					
		Some slightly contorted foliation. Small to													
		large blebs of py. banded accumulations			968	352	353.3	1.3	0.054	1.0					
		338.5 - 343.5 wkly to mod silic^d		<1	969	353.3	354.8	1.5	Tr	0.2					
		~~[illegible]~~ some ser. highly altered light gy													
		Tr odd py speck.													
		350.5 - 352 mod to str silic^d one odd grain 2" wd.		1-5											
		352 - 353.3 str silic^d to v str silic^d		5-7											
		lg blebs of po w interstitial cp + py +													
		odd speck of asp. Some py cubes													
		353.3 354.8 wkly-mod silic^d a few		<1											
		corroded felds crysts. odd speck of po, cp + asp													
366.5	400	FG mafic. very few of light py bands	60	<1											
		as above. Web like pattern of calcite													
		fracture infillings													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-28A-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS: 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb	
		342 - 392.5 Felsic veins a few blebs			96970	342	392.5	.5	Tr	0.2						
		& PY														
		T.D. 400'														

DURHAM GEOLOGICAL SERVICES INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-30A-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15 Page 1 of 1

EASTING 11,280 NORTHING 11,700 AZIMUTH 360° DIP -67° DEPTH 57' ELEVATION

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY JAMES MOORS CLAIM NO. PA 6134 MINING DIVISION KENORA RED LAKE DATE STARTED 21 JULY 1987 DATE COMPLETED 21 JULY 1987

DRILLING COMPANY NORKI DRILLING LTD. CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
0	6	Casing - overburden, broken rock.			973	9.5	13.5	4							
6	16	Mafic metavolcanic, fine grained, moderate to strong foliation, dark greenish gray to greenish black. Blebs and streaks of py.		1-3%	974	38	43	5							
		9.5-13.5 weakly silicified py-asp as stringers and blebs.		1-3%											
16	36	Fine grained mafic, moderately foliated dark greenish gray to dark gray chlorite streaks. Some blebs and stringers of py-po. Chlorite parallel foliation.		<1%											
36	57	Fine grained mafic metavolcanic, weak to moderate foliation. Dark greenish gray to greenish black. Py-po blebs and stringers.		1-3%											
		50' Flow tops with feldspar amygdules or phenocrysts.													
		Shifting boulders terminated hole.													
		T.D. 57 feet													

DURHAM GEOLOGICAL SERVICES INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-29-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15 Page 1 of 1

EASTING 11,280 NORTHING 11,600 AZIMUTH 360° DIP -45° DEPTH 127' ELEVATION

INCLINATION AND TROPARI TESTS

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP

LOGGED BY ANNE MOORE CLAIM NO. PA 6134 MINING DIVISION KENORA RED LAKE DATE STARTED 18 JULY 1987 DATE COMPLETED 20 JULY 1987

DRILLING COMPANY NOREX DRILLING LTD. CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	33.5	Casing - overburden boulders, very loose and shifting ground.													
33.5	37	Granite boulders - shifting.													
37	113	Diabase dike, very coarse grained, magnetic, talcose stringers common in lower section of unit. mag-py-cp		Tr											
113	116	Mineralized chilled margin - diabase/basalt. mag-py-po		1-2%	971	113	116	3							
116	127	Basalt - fine grained non-magnetic, py-cp		Tr											
		124.8-127.0 mag-py-po		Tr	972	124.8	127	2.2							

Broken ground and shifting boulders terminated hole.

T.D. 127 feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-30B-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53 F/15

LATITUDE EASTING 11,277 DEPARTURE NORTHING 11,702 AZIMUTH 360° DIP -67° DEPTH 497' ELEVATION 9,979.5

INCLINATION AND TROPARI TESTS

DEPTH 230' AZIMUTH 360° DIP -65° DEPTH 497' AZIMUTH 360° DIP -62° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moors CLAIM NO. PA6133 MINING DIVISION Kenora Red lake DATE STARTED 21 July 87 DATE COMPLETED 23 July 87

DRILLING COMPANY Norex CASING In hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	6	Casing			1021	6	9	3	Tr	0.4						
6	75	FG mafic mod fol. dk gy - slight		<1	1022	14	16	2	Tr	0.4						
		grn tint. Some zones enriched w dark														
		chlorite streaks along fol. diss Mag.			1023	58	59	1	Tr	1.2						
		Some amygdaloidal zones 2-3" - Flow top?														
		6-9 wk to mod silic^d. Py + some		3	1024	59	60.9	1.9	Tr	1.0						
		Po, blebs and str^s ~~[illegible]~~														
		14-16 same as above, not quite as silic^d		2-3												
		or pyritized. Some small deformed [illegible]														
		amygdules at base														
		33' →	30°													
		58-59 mod-str fol. major unit		<1												
		59-60.9 Mod fol. wk-mod silic. V. str		1												
		q-cb altn at top of sample w occ py str														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-308-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		66.3 - 68.3 wk to mod silic'd		<1	1025	66.3	68.3	2	Tr	0.4					
		mod to str fol. The odd speck of py + po													
					1026	68.3	69	.7	Tr	1.2					
		68.3 - 69 mod to str silicif. v dk gry. Py +		3											
		po as thin stringers and min blebs			1027	69	71	2	Tr	0.6					
		69 - 71 same as 66.3-68.3		<1	1028	95	98	3	Tr	1.0					
75	79	F-MG mafic metavol. mod to str fol.													
		dk gy w ab light gy streaks + flames.													
		ep alt'n locally ab.													
79	83	FG mafic. wk to mod fol. v dk grn													
		odd zone of broken core													
83	~~95~~	FG mafic str to v str fol. v dk grn to		<1											
	108	dk gry. Qtz + few qz-cb str's along													
		foln. the odd one contorted or across fol'n													
		and offset along foln. Odd speck of py w str's													
~~95~~	→	95 - 101.5 V str fol and contorted.		1											
~~95~~		lg blebs and stringers of py, po + asp in													
		v ab cb-qz str's													
		95 - 98 py asp-mn + po as small ...s and		1.3											
		lg str's													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-30B-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53F/15 Page 3 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		98-101 very sparse sulfides - the odd coating on fol'n surface		<1	1020	98	101	3	Tr	1.4					
		101-102 Very contorted w lg blebs/str of asp with cp + po - vuggy like		3	1030	101	102	1	Tr	0.8					
					1031	178	182	4	Tr	ND					
109	147.5	F-MG mafic wkly fol. gry-grn tint epidote altn. Large lenses and veinlets of prismatic epidote. Vab cb str's - sometimes disc cb zones Some diff weathering on fracture locations		<1											
147.5	168	Same as above yet v. str fol. - FG Sharp yet subtle upper contact some milled and offset cb str's ll - to fol.		<1											
168	188	Same as above wkly to mod fol.		<1											
		178-182 mod to str fol. qz-cb str's with ab epidote - more abundant. A few specks of py		1											
		Lower contact shows elongated str fol str's													
188	202.5	FG mafic mod to str fol. green-h block absence of qz-cb str's.	38°	1											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-303-87 COMPANY TWIN GOLD . PROPERTY Lingman Lake NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		190.5 - 193.5 Contorted fol'n and [illegible] a few contorted qz-cb str's w assoc blebs + specks of py. [illegible] cp, po		1-3	1332	190.5	193.5	3	Tr	[illegible]					
					1333	196	200	4	Tr	0.6					
		196 - 200.0 Contorted foli'n [illegible] and str chloritized qz-cb vns w granular blebs of py. [illegible] mafic - [illegible] rod like incl.		3	1334	265	266.5	1.5	Tr	ND					
					1335	268.3	270.3	2	Tr	0.6					
200.5	227.5	same as 109-147		<1											
227.5	248.5	FG mafic mod to str fol. V ab qz-cb str's both ‖ and not ‖ to fol. [illegible] fract. infil. Often contain [illegible] and the odd speck of py. dk gry - dk grn	25°	<1											
248.5	272.5	FG mafic wkly foliated to massive, dk gry-dk grn. A few qz-cb str's													
		265 - 266.5 ab qz vnlets ‖ to c.a. ab [illegible] alteration. a few specks and blebs of py		1											
		268.3 - 270.3 str fol. ab qz-cb str's along fol. py as blebs + incl. in ap rich vnlets		1-2											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-30B-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
272.5	324.2	PG mafic str fol. gry to greenish gry	40°	≤ 1	1036	293	297	4	0.002	ND					
		Vab qz-cb altn ... py str's + gen													
		grains + ep altn. Sometimes swirled			1037	312.5	315	2.5	0.024	0.2					
		Occasional ½-1' som intaflow seds -													
		arenite - wacke			1038	315	317.5	2.5	0.036	ND					
		Epidote also as large lenses and veinlets - prism													
		py occasional as lenticular blebs along fol			1039	317.5	320	2.5	0.012	0.2					
		ab str's give striped + banded appearance													
		29			1040	320	324.5	4.5	0.022	0.4					
		293-297 representative of above													
		312.5-315 wk to mod silic^d		3		324.5	329	4.5							
		occasional swirled str. py as lg blebs str^s													
		and grains. py strs // + subll to fol^n													
		315-317.5 Mod to str silic^d. Similar		3-5											
		to above. Py as smaller blebs str's. well													
		distributed throughout. Po also													
		317.5-320 mod to str silic^d. more		5-7											
		siliceous than above. Py similar to above													
		Po as well													
		320-324.5 str silic^d. Py + Po as v lg		7-10											
		blebs + smaller cubes + grains. locally 10%													

0.056 / 12

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-30B-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
324.5	348	V FG mafic wk to mod fol. gry.		<1	1041	329	331.7	2.7	0.010	0.6					
		slight greenish tinge				~~352~~	~~355~~	~~3~~							
	→	332 - 342 blocky - often broken core				~~355~~	~~358~~	~~3~~							
		swirled fol'n				~~358~~	~~361.5~~	~~3.5~~							
		329 - 331.7 Alt f.l. - stretched occasionally ab gr-cb st's		1-3	1042	361.5	364.8	3.3	0.128	0.24	opt				
		Py mostly as blebs + grains													
					1043	364.8	369.5	4.7	0.730	0.48	opt				
348	363	F-MG mafic. wk to mod fol. gry		<1											
	~~364.5~~	w. Fu greenish sections. gradational			1044	369.5	373	3.5	0.571	0.37	opt				
		upper contact				~~373~~	~~376~~	~~3~~							
	→	~~358~~ 358.5 - 360 - highly sheared		<1		~~376~~	~~379~~	~~3~~							
		mod silic'd w white deformed qz				~~379~~	~~383~~	~~4~~							
		veinlets. More deformed at contacts - brecciated			126155	354	358	4	Tr						
		361.5 - 364.8 str silic convoluted fol'n		3-5	12456	358	361.5	3.5	Tr						
		time of altn. Py as lg blebs and diss													
		accumulation. Some cpy po													
		364.8 → 369.5 v str silic. fol'n		3-5											
		marked by intense silic'n. Py as lg blebs													
		and small deformed cubes. Asp as small													
		grains + needles - accumulated in bands													
		369.5 - 373 mod to str silic'd contorted													
		fol. Py as v lg blebs large grain chloritezones													

0.415
15.5

2.

con't →

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-30B-87 COMPANY TWIN GOLD PROPERTY Lingman Lake NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
		seq cont.			1045	373	377	4	0.145	0.6						
		The odd sp speck assoc'd with			126157	377	383	6	0.040							
		~~w~~ qz vn near base - or v str silic		Recut	1046	383	~~386.5~~	3.5	Tr	126160			0.002			
					126158	386.5	391.5	5	0.213							
		zone.			126159	391.5	397.75	5.75	0.002							
				Recut	1803	397.25	398.25	1.5	[illegible]							x
		373' - 377 wkly silic - sheared at base	45	1												
		w̄ mod to str silic. The odd speck of py			1047	398.75	399.75	1	0.459	0.15	opt					
383	407	FG mafic str fol. to sheared, gry to		1												
		greenish grey - lighter than above.														
		~~383~~														
		383 - 386.5 Broken core at up cont.		3												
		Mod sil. v dk gry. V lg														
		blebs and blebish str's of py, po, w̄														
		some ~~po~~ cp														
		397.75 - 398.75 str fol - sheared - str silic'd ~~[illegible]~~		5-10												
		bands ~~in~~ w̄ bop. alt'n. also chlorite														
		Py as lg blebs, str, veinlets, and small cubes														
		and grains														
		397.75 - 399.75 deformed and alt'd qz vein w̄ py		5												
		cubes + ½ sheared str to v str silic w̄ v														
		lg py blebs and asp rich band - many grains / needles														

0.166

2.25

0.147

19'

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-30B-87 COMPANY TWIN GOLD . PROPERTY Lingman Lake NTS# 53 F/15 Page 8 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
		399.75 - 404 str fol. fract. mod sil.	50	1-2'	1048	399.75	404	4.25	0.014	0.6						
		Py as blebs + fract. infil. Occasional														
		highly altered + deformed qz veinlets			1049	404	405.5	1.5	0.214	2.0						
		404-405.5 highly sheared - breccia		7		405.5	409	3.5								
		str silic^d. Py as v lg blebs. One			1050	450.5	453.5	3	0.024	1.2						
		short rn of asp			126161	453.5	459	5.5	Tr							
					126162	459	462	3	Tr							
407	412	FG mod to str fol. mafic -		c.1												
		wkly silic^d grnish black.														
412	421	F-MG mafic. Mod fol. dk grn		c1												
421	441	F-MG mafic mod fol. dk grn w		1												
		light cb grn-gry bands + stripes. - generally														
		along fol^n but also as fract infil														
		Py blebs + str's assoc w cb bands														
441	497	Same as above but str fol. - resulting	45°	c1												
		in less pronounced banding, just str's instead														
		Gradational upper contact														
		450.5 453.5 - sheared - contorted fol^n		5												
		Py as lg blebs and coatings on fract.														
		surfaces. Asp as small blebs, coatings and														

0.215 / .94
0.27 / 34.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-30B-87 COMPANY TWIN GOLD . PROPERTY Lingman Lake NTS# 53 F/15 Page 9 of 9

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		grains. locally abundant str's			1051	459	459.5	.5	.006	0.4					
		some Po incl. in Py													
		Sheared fol'n almost // to C.A.													
		wk to mod silic'n. some qz-rich str's													
		459 - 459.5. V str fol. wk silic'd		5											
		with one ½ cm qz vein. Assoc'd py in													
		str's. sometimes rusted.													
		T.D. 497 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-31-87 COMPANY Massive Resources PROPERTY Lingman Lake NTS#53 F/15

LATITUDE EASTING 11097 DEPARTURE NORTHING 12,003 AZIMUTH 360° DIP - 45° DEPTH 469' ELEVATION 9,978.7

INCLINATION AND TROPARI TESTS

DEPTH 320' AZIMUTH 360° DIP - 35° DEPTH 469' AZIMUTH 360° DIP - 37° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY Arne Moore CLAIM NO. PA6133 MINING DIVISION Kenora Red Lake DATE STARTED 23 JULY 1987 DATE COMPLETED 24 JULY 1987

DRILLING COMPANY Norex Drilling Ltd CASING left in CORE STORED AT Lingman Lake, Ontario

FOOTAGE From To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	Number	SAMPLE From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0-24.4	Casing - Overburden													
24.4-32.'	Basalt - mafic tuff? moderately foliated fine bands of biotite		nil											
32.-103.'	Basalt - f.g.; massive; moderately silicified a few narrow qv's. ; core [illegible] are common. @ 97.5' py occurs as 4 sided polygons up to 0.8cm. <0.5% locally ; lower 2' is mod. foliated @ 70°. biotitic ; lwr. contact	70° 65°	Tr											
103'-120+'	Quartz - feldspar porphyry - granodiorite? c.g. feldspar phenocrysts (mainly) in a f-m; siliceous & biotitic (15%?) groundmass; sericite developed in a few shear? planes. lower contact @ 50°													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG.

DRILL HOLE NO. S-31-87 COMPANY Massive Resources PROPERTY Lingman Lk. NTS#53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
120.4	~~[illegible]~~	Basalt; f to m.g. moderately foliated	55°												
	149	numerous cb stringers; @ 122.4 a 2" q.v.													
		w/ 1-2% biotite													
		@ 131-137 - strongly silicified; numerous dk		1%	998	131.0'	137.0'	6.0'	Tr	1.2					
		green to black q.v.'s w/ apple-													
		green chlorite, some biotite; also a 6"													
		sericitized tonalite(?) porphyry dike; sulphides													
		≈ 1% py > po, Tr. cpy													
		From 137' to 147' numerous narrow c.v.'s													
		& felsic dikes/stringers usually w/ a													
		biotite-rich margins & associated folding													
		& disruption of foliation. Traces of py;													
		possibly minute sphalerite grains			1020	147	149	2	Tr	0.8					
149	154.5	Carbonate alteration zone; virtually		nil	999	149.0'	154.5	5.5'	Tr	2.2					
		100% white, grey & minor green cb.													
		possibly ankerite; lower contact contains													
		chlorite laminations; essentially no sulphides													
154.5	166.7'	Basalt - mafic tuff; f.g. tuffaceous alternating													
		bands of finely laminated chlorite & biotite													
		w/ varying amounts of cb. - mod. pervasive cb													
		alteration w/ lesser amounts of qtz.		2-3%	1000	154.5'	157.8	3.3'	0.002	1.7					
		@ 154 → 2-3% py/po as irregular stringers/blebs													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-31-87 COMPANY Massive Resources Ltd. PROPERTY Lingman Lk. NTS# 53 F/15 Page 3 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
154.5	166.7	continued - @ 164.2'-166.7 m.a. less cb & qtz vng i.e. <0.5% py/100		<0.5%	1001	164.2	166.7	2.5'	Tr	0.8					
166.7	177.0'	Basalt - mafic tuff? strongly silicified, light grey, well foliated @ 65°; minor cb; traces of sericite; @166.7-170.0' 2% py/100 minor cpy	65°												
				2%	1002	166.7	170	3.3'	Tr	2.2					
		170' - less silicified, more cb, more chlorite, minor green cb. 1-2% py/100		1-2%	1003	170.0'	173.7	3.7'	Tr	2.4					
		@ 173.7-177: silicified, biotite, some cb veining, minor; 1.5' very chlorite & carbonated; soft. 1% py/100	60°	1%	1004	173.7'	177.0'	3.3'	Tr	1.2					
177.0	180.3'	Basalt - mafic tuff as per 154.5-166.7' 1% py/100 minor cpy minor green cb.		1%	1005	177	180.3'	3.3'	Tr	1.2					
180.3	185.2'	Basalt; massive, fig. lower contact foliated. Tr py/100	60°	Tr											
185.2	195.0	Basalt - mafic tuff as per 154.5'-166.7' lower 1.5' is only vaguely foliated.	45°	<0.5%											
195.0	206'	Alteration zone; intensely silicified & carbonated basalt in veins & thick brecciated segments; black needles of													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-31-87 COMPANY Massive Resources . PROPERTY Lingman Lk. NTS# 53 F/15 Page 4 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
195'	206	~~continued.~~ continued.													
		amphibole & light yellow epidote													
		@ 198.4-203.2 most intensely altered section			1006	198.4	203.2	4.8'	0.002	1.4					
206'	232.6	Basalt: vaguely foliated f.g. @ 206 a 1cm													
		square py grain in a ch/qtz vein.													
		@ 225' stretched ch lenses parallel w													
		the vague foliation.													
232.6	236	Basalt-mafic tuff; as per 154.5'-166.7'													
236'	255.4	Basalt; f.g.-m.g. massive to weakly foliated.	60°												
		@ 246'-249.7'; 5" ch vein @ 247.8' w a		1%	1007	246.'	249.7'	3.7'	0.014	1.4					
		biotite halo ~~in~~ ~~[illegible]~~ in basalt													
		1% py/po													
255.4	293.0'	Basalt-mafic tuff; as per 154.5-166.7 moderately sheared													
		@ 258.4-263.1 abundant cb. veining &		1%	1008	258.4'	263.1'	4.7'	Tr	1.6					
		pervasive alteration. biotite/chloritic bands													
		folded & disrupted; 1% py/po													
		@ 267'-270.7' as above sample.			1009	267.	270.7'	3.7	0.008	2.0					

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-31-87 COMPANY Massive Resources PROPERTY Lingman Lk NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb	
293'	327'	Basalt-mafic tuff? weakly foliated m.g.		Tr												
		mainly chloritic (v. little biotite) numerous														
		thin cb stringers. minor sulphides; lower														
		contact gradational.														
327	331.9	Basalt-mafic tuff; as per 154.5-166.7'														
331.9	333.3	Feldspar porphyry (basalt?); predominantly euhedral 2-3mm		0.5%	1010	331.9	333.3	1.4	Tr	0.6						
		feldspar phenocrysts in a v. dk grey														
		chloritic qtz groundmass; contains biotite.														
		0.5% Py/Po														
333.3	345'	Basalt-mafic tuff as per 154.5-166.7'														
		@ 335.5'-340.4 abundant cb veining		<1%	1011	335.5	340.4	4.9'	Tr	1.6						
		<1% Po/Py in blebs & fine disseminations.														
345'	365.1	Basalt; f.g. massive; numerous thin cb		Tr												
		stringers. Tr of Py/Po														
365.1	392.3	Basalt-mafic tuff; as per 154.5-166.7'		<0.5%	126163	380	383.5	3.5	0.022							
		@ 383.5 - a 9" wide mod. silicified & carbonated	75°	3%	1012	383.5	384.3	0.8	0.106	2.4						
		zone with 3% Py > Po; becomes increasingly			126164	384.3	387	2.5	Tr							
		less foliated towards lower contact; moderate														
		~~[illegible]~~ silicification.														

0.106 / 0.8

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-31-87 COMPANY Massive Resources Ltd. PROPERTY Lingman Lk. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
392.3'	401.7'	Feldspar porphyry; as per 331.3-333.3'; very dk													
		grey - high mafic content. dark yellowish													
		green irregular chlorite stringers/fracture													
		fillings?													
401.7'	420.8'	Basalt: f to m.g. silicified, carbonated		1-2%											
		- numerous veins & stringers; vaguely foliated,													
		pervasive silicification & & qtz. veins has													
		disrupted overall fabric; 1-2% py													
		>po. Tr. cpy throughout.													
		bottom 14" contains a v.dk grey to			1013	405.8'	409.8'	4.0'	<.020	1.0					
		black slightly porphyritic basalt? flow (dike?)			1014	409.8	412.5	2.7	<.022	0.8					
		upper contact indistinct lower contact sharp			1015	412.5	417.	4.5	<.016	0.6					
		@ ~80°. chromitic? ~1mm			1016	417	420.8	3.8'	Tr	0.2					
								15.0							
420.8	447.2	Basalt - mafic tuff; f to m.g. massive to well-		0.12		420.8	424	3.2							
		foliated intervals which are foliated lined				424	427	3							
		in biotite; pervasive silicification;				427	430	3							
		abundant thin cb. stringers occasionally				430	433	3							
		containing py/po; 0.1% py/po overall.				433	436	3							
						436	439	3							
						439	447.2	3.2							

10.037 / 11.2

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DIAMOND DRILL HOLE LOG.

DRILL HOLE NO. S-31-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/5

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
442.2	442.7	Feldspar porphyry - basalt : locally phenocrysts of plag in a chlorite/carb matrix. Tr. pyrite		Tr.											
442.7	450.5	Quartz vein : v. light grey translucent qtz w. 20% altered chlorite : minor molybdenite. Traces of pyrite		Tr.	1017	442.7	450.5	2.8'	Tr	0.2					
450.5	464	Quartz-feldspar porphyry : tonalite/granodiorite? dk. grey matrix 3-5% bright greyish blue qtz 'eyes' : 25% rounded feldspar (cream-colored) 'eyes' : 3-5% biotite : variously altered : tr. sulphides.			1018	450.5	453.5	3.5	Tr	ND					
					1019	466.0	469.0	3.0	Tr	ND					
~~464~~		T.D 469 feet													

moly

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-22-87 COMPANY Massive Resources · PROPERTY Twin gold NTS# 53 F/15 PAGE 1 of 7

LATITUDE EASTING 11601 DEPARTURE NORTHING 12157 AZIMUTH 360° DIP -45 DEPTH 350' ELEVATION 9,978 6

INCLINATION AND TROPARI TESTS

DEPTH 350' AZIMUTH 360° DIP -40.5 DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Flores CLAIM NO. PA6134 MINING DIVISION Kenora · Red lake DATE STARTED 25 JULY 87 DATE COMPLETED 26 JULY 87

DRILLING COMPANY Norex CASING in hole CORE STORED AT Linman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	~~25~~ 35	Casing													
35	38	Boulders, blocky core													
38	45.5	FG ~~mafic flow and interflow~~ tuffaceous unit, ~~str~~ strongly f.l. and somewhat crenulated ab dark chlorite with interstitial cb													
45.5	47.0	FG mafic tuff. thinly bedded, non crenulated abundant ser. lt. silic'd	45°	<1											
47	63	FG mafic. mod to str f.l. volcanic to green black. ab dk chlorite strs and qz-cb strs. the odd str of py w po and/or cp		<1											

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-32-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
63		FG mafic w vab 5-2mm felds-				~~69~~	~~71~~	~~2~~							
	67.75	phenocrysts. ~~tot polygonal~~			1097	67.75	69	1.25	Tr						
		Elongated along folis. Corroded sq rectangle. Mod to str fol. wkly			1098	69	71	2	.022						
		sheared ~~lower~~ boundary's contact													
					1099	71	76.2	5.2	Tr						
67.75	79	F-MG mafic tuff. 2tr banded w. mod silic dkchlorite, grn chlorite, qz-cb rich bands		1-2											
					1100	76.2	77	.8	Tr						
		Py + po as blebs, elongated blebs, + str's													
		67.75 - 69. py as above		3	1101	77	79	2	Tr						
		71 - 76.2 py as above		2-3											
		76.2 - 77. very little py wkly silic		<1											
		77 - 79 py, po, cp + asp as diss blebs ~~specks~~ specks + needles + incl with other suld str silic		3											
		69 - 71 wk to mod silic, odd sulph speck, chlor. rich		<1											
79	81.5	FG mafic. mod fol. dk gy to grn	60°												
81.5	95	FG tuffaceous? sequence of mod to vstr silic str fol - often sheared units. Some rich in dkchlor, grn chlorite, qz, ± py													
		upper + lower contacts marked by altered (chlor) qtz veins [illegible] wd resp. t													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-32-87 COMPANY Massive Rs PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		82-83.5 altered qtz vein white mica chlorit		1	1102	82	83.5	1.5	Tr						
		some moly specks + surrounding wall rock = mod-													
		str silic'd dk gy a few py str's			1103	83.5	84.5	1	Tr						
		83.5 - 84.5 FG mafic . cb qz-cb str's w		<1	1104	84.5	86.75	2.25	Tr						
		occasion assoc py str													
		84.5 - 86.75 mod to str silic'd mafic FG			1105	86.75	88	1.25	0.030						
		dark chlorite rich bands.													
					1106	88	90	2	0.015						
		86.75 - 88 mod to str silic'd tightly altered		3-4											
		mafic tuff. ab dk chlorite lg py blebs + str's			1107	90	91.25	1.25	0.022						
		88-90 v str silic'd, some chlorite rich str's		1-2	1108	91.25	95	3.75	Tr						
		py as thin str's													
		90-91.25 same as above. lower contact sheared - more py		3-5											
		as lg str's or elongated blebs													
		91.25-95 mod to str silic'd FG mafic str fol.		1											
		w odd py rich vnlet or str. ~~[illegible]~~ altered													
		qz vein similar to 82-83.5 at basal contact													
95	106	FG mafic. mod to str fol. py as lg													
		blebs within a couple of sheared flow													
		contacts - rich in dark chlore + qz-cb str's													

$\frac{0.022}{4.5}$

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DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-32-87 COMPANY Massive Rs PROPERTY Twin Gold NTS# 53F/15 Page 4 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SOLFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
106	137.3	FG mafic - wk to mod fol. str silic w			1109	113.5	116.5	3	Tr						
		vab subhedral? multiedral felds phenos													
		~~cod~~ alt'd and aligned in mod fol sect			1110	124	127.3	3.5	.002						
		1-5mm long													
					1111	127.3	130	2.7	Tr						
		113.5-116.5 - lacking crysts, chlorit		1-3											
		ized - dk grn → ~~m~~ vdk grn. py + po + str's			1112	137.3	142	4.6	.002						
		mod to str silic													
		119-120 same as 113.5-116.5 but str silic		3											
		124-127.3 @ 1.5' and 5" qz alt'd		1-4											
		qz veins similar to 82-93.5. a 10"													
		section of str silic'd similar 113.5-116.5 4% sul													
		127.3 - 130 same as 113.5-116.5		3											
137.3	241	FG mafic mod to str foliat. & mod to str silic'd													
		some v silic'd grns - alt'd qz veinlets													
		~~ct~~ ct str's ab locally vab. w assoc sulph													
		Flow tops? dk grn to vdk grn													
		137.3 - 142 ab qz-cb str's v str silic'd		1-2											
		bands Py as str's dk gr													
	→	153.5-155.5 felds pcrysts as 106-137													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-32-87 COMPANY Messiro Resources PROPERTY Twin Gold NTS 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		224.5 - 226 ab cb-str's w assoc py		3	1113	224.5	226	1.5	0.032						
		+ po str's. some cp specks.													
					1114	243.5	244.5	1	Tr						
		wk to mod													
241	250.5	FG mafic (intrusive?) str silic'd w fol.		< 1	1115	257.25	259	1.75	0.005						
		v ab Feld xtysts - Same as 106 - 137.3													
		lower contact sheared - broken core													
		243.5-244.5 a few small strs of py	70°	1-3											
		w a couple ~~the~~ large strs proximal to qz vnlet.													
		~~243.5 - 244.5 Qtz vnlet w assoc py~~													
		~~as thick strs~~													
250.5	257	FG tuffaceous? mafic w ab cb str's		<1											
		generally conformable to fol. the odd py speck													
		or bleb. gry													
257	271	FG mafic. med to str fol. - some sheared zones		3%											
		w assoc cb str's silicif'n and py. dk gry													
					26165	259	262	3	Tr						
		257.25 - 259 str fol. -> sheared.													
		Py as thin-long str's usually along contorted													
		fol'n - but some ⊥ to fol'n -> fract infilling													
		wk-med silic ~~[illegible]~~ - -													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-32-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
		262 - 263.3 strsilic'd with 3-4"		5-7	1116	262	263.3	1.5	.564							
		qz vein similar to 52'-253.5' but w ab py			126166	263.3	266.66	3.36	Tr							
		specks and a few ilmenite specks			1117	266.66	267.5	.83	.066							
		266.66 267.5 shear zone - flowtop?		3												
		Contorted cb str's w ~~ab~~ py str's														
271	291	FG mafic sed - mudstone. dk gry ab dk chlorite thin bn short bands giv somewhat striped appearance. Some zones more rich than others. some biotite		<1												
	→	273 - Fault Gouge - clay with angular grains - odd pebble ~~[illegible]~~														
	→	279-281 - Broken core - crenulated S/in → Bedd'g														
	→	289-291 Shear - ab fol - chlorite + stretch. vab cb bands along fol^n. a 2" zone of fault gouge														
291	294	FG mafic - ab small folds pheno c; 106-137		<1												
294	350	F-MG mafic - massive to wkly fol ~~[illegible]~~ v.dk.gry. the odd cb str sub ll to fol. Massive sections → ab sauss folds →	55°	<1												

0.564 / 1.3

0.185 / 10.24

e.1

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-32-87 COMPANY Plessius Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		in matrix - MG													
	→	317.5, 318, 325 - qz vnlets & small													
		veins - no py. Chlorite incl.													
	→	323.5 → 336.6 mafic mudstone.													
		Mod fol. Str fol up to contacts - sheared?.													
		- a lower b str's & deformed													
		py blebs at lower contact		<1											
		T.D. 350 feet													

[redacted] te [redacted] for [redacted] core [redacted] angles : [redacted] center [redacted] of core [redacted] is 90°

Should drill deeper 500 - 550'

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Massive Resources Inc. PROPERTY Lingman Lake NTS# 53F/15 PAGE 1 of 11

LATITUDE EASTING 10899 DEPARTURE NORTHING 12105 AZIMUTH 360° DIP 55° DEPTH 364' ELEVATION 9,960.2

INCLINATION AND TROPARI TESTS

DEPTH 364' AZIMUTH 360° DIP - 51° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY P. Noël CLAIM NO. PA 6134 MINING DIVISION Kenora - Red Lake DATE STARTED 26 July 87 DATE COMPLETED 27 July 87

DRILLING COMPANY Norex Drilling Ltd. CASING In hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	3	Casing													
3	36.8	Mafic to Inter. Meta Volc.. F.G.													
		lightly folisted	40°@33'												
		hardness 4-6, lightly slicified	44°@20'												
3'	6.3	Coarser ~~amphiboles~~ chloritic cryst.													
		and stringers													
		very minor Py													
36.8	39'	Highly sheared, slicified + chloritized	40°	4-6%	[illegible]1150	36.8	39	2.3'	Tr						
		Mafic to Interm. Volc.													
		2-3% Py ≤1m to 5m													
		2-3% Asp very fine gr.													
39	40.2	Mafic Volc.													
		slicified, hardly sheared													
		fracture filling Py 1-4%, 1mm to 5mm		~2											
40.2	43.2	Sheared + slicified Mafic to Inter.													
		chloritized str. along foliation	40°												

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG.

DRILL HOLE NO. S-33-87 COMPANY Massive Resources PROPERTY Lingman Ck NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
40.2	43.2	con't													
		qtz. eyes stretched along foliation	40°	1 to 2%	1151	40.2	43.2	3'	Tr						
		Py blobs stretched along foliation 0.5cm to 3cm long													
43.2	43.7	Mafic volc.													
		lightly sheared carb cryst ≤1m and qtz. 1 to 5m elongated													
		no sulphides													
43.7	45.7	sheared Mafic Volc.	45°		1152	43.2	45.7	2.5'	0.02						
		chloritized + silicified (large qtz. eye → 2cm x 3cm) Py stretched along folia. 1mm to 10mm													
		very fine gr. Asp.													
45.7	48.1	Mafic Volc. aphanitic to f. gr.	43°	1 to 2%	1153	46.1	48.1	2'	Tr						
		carb stringers with Py ≤1mm to 10mm													
		chloritized													
48.1	49.8	Mafic Volc. - sheared	45°		1154	48.1	49.8	1.7	Tr						
		qtz.-carb. 5m to 20mm wide along fol.													
		Py ≃ 2%; ≤1m to 5mm													
49.8	52.1	Qtz. vein; creamy grey - massive	40°	≤1%	1155	49.8	51.7	2.6'	Tr						
		≤1% Py + Po													
		minor Fe-carbonate.													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Massive Res. PROPERTY Lingman NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
52.1	61.6	Mafic to Inter Volc.		~~Nil~~											
		fine gr. - massive													
		qtz-carb. stringers <1mm to 3mm wide													
		Py ≃ 1% fine gr. to .5cm		1%											
61.6	74.1	qtz. ~~mica~~ felds. porphy. with			1156	60.5	65.5	5'	Tr						
		band-like inclusions of mafic materials		.1%	1187	65.5	70.5	5'	Tr						
		strongly foliated. occasional	65°		1157	70.5	75.5	5'	Tr						
		Fe-carb. / very minor Py <1%													
74.1	87.1	Highly silicified Mafic to Inter. Volc	45°												
		with qtz.-felds. porph. inclusions			1158	75.5	78.3	2.8'	Tr						
		moderately foliated; aphanetic to f.gr.			1159	85.5	87.3	1.8'	Tr						
		minor Py ≥ 2% f.gr. (sample)													
		lightly chloritized													
87.1	131	Mafic to Inter. Volc.													
		~~f.gr.~~ to med. gr. massive													
		chloritized, qtz.-carb. str. <1mm to 10mm													
		qtz. @ 126.3 → 4" wide with Fe-carb													
		staining													
		118.5' to 123.5 ≃ 5% Py ≤1mm to 10mm	55°		1160	118.5	123.5	5'	Tr						
		127.5 to 129 ≃ 5% Py			1161	127.5	129	1.5'	Tr						
		1 spec. of Cpy @ 132.7 ≃ 3mm													
		lightly foliated to no foliation													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Hi Maisie Res. PROPERTY Lingmin NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
131	170	Mafic Volc. f.gr.	45°												
		strongly foliated													
		qtz. carb stringers <1mm to 5mm													
		chloritized and lightly silicified													
		strongly silicified sections @													
		150" to 150.3'													
		162.3 to 164' with qtz. eyes ≥2mm													
		qtz- felds. por. @ 153.6 1" wide													
		breccizted @ 165.7 to 167													
		rare sulphides → almost insignificant													
170	170.4	~~Brecciated~~ Sheared													
170.4	186.8	Highly Silicified Mafic Volc.	40°		1162	170	174.9	4.9	Tr						
		f. gr. to med gr.			1163	174.9	179.5	4.6	Tr						
		sericite stringer 1mm to 5mm along			1164	179.5	184.5	5	Tr						
		foliation			1165	184.5	186.8	2.3	Tr						
		chloritized, qtz. eyes 20% 1mm to 3mm													
		very minor Py													
186.8	205.2	Highly foliated Maf. to Inter. Volc.	60°												
		chloritized + silicified													
		189.8 to 189.3 → minor Py + Asp.		1%	1166	186.8	189.3	2.5	Tr						
		190.5 to 190.8 sericite schist.													
		193.9 to 195.4 ≥1% Py + Po		1%	1167	193.9	195.4	1.5	Tr						

192.0
1.1

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLDMINES LTD. NTS# 53 F/15 Page 5 of 11

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
205.2	208.2	Sericitized MAFIC to Inter. ~~Inter.~~ Tuff (JAMES TOLD ME THIS)	~60°												
208.3	212.2	elongated felsic clasts along foliation													
		~~slightly~~ silicified													
		minor fracture filling Py													
212.2	213.5	~~[illegible]~~ strongly silicified mafic flow		1%	1168	212.2	213.5	1.3'	Tr						
		fine gr. Py ≤1%													
		chloritized													
213.5	216.3	Mafic to Inter. Volc. Flow	50°												
		aphanitic to f. gr.													
		chloritized, lightly silicified													
		qtz. carb str. 1mm to ≃5mm													
216.3	216.6	brecciated qtz-felds. dike													
		Fe-carb. + Ep. stringer													
		<1% Py ≤1mm													
216.6	218.2	Mafic to Inter. Flow													
		chloritized													
		qtz.-carb stringers													
218.2	218.8	brecciated qtz.-felds. dike													
		Fe-carb.													
218.8	221.8	Sheared Mafic to Inter. Flow	70°												
		qtz carb. stringers 1mm to 30mm		~5%	1169	218.5	219.9	1.4	Tr						
		Py @ Contact @ 218.8 ≃5% 1mm to 4mm													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Massive Res. Inc. PROPERTY Lingman NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
221.8	236.6	lightly foliated Mafic to Inter. Volc.	45°												
		lightly chloritized + silicified													
		few qtz.-carb stringers 1 to 2mm			1170	226.4	230.6	4.2'	<.002						
		along foliation													
		Py ≅ 2-3%; from f.gr. to 10mm from		2-3%											
		226.4 to 230.6 (sampled)													
236.6	246.3	moderately foliated Mafic to volcanic	40°	<1%											
		chloritized + lightly silicified													
		qtz.-carb. str.													
		minor Py													
246.3	247.4	highly silicified Mafic Volc.		<1%	1171	246.0	247.4	1.4'	0.018						
		chloritized + carbonated @ contacts													
		minor f. gr. Py													
		K-spar on hanging wall ≅ 2" wide													
247.4	255	lightly foliated Maf. to Inter. Volc	35°												
		chloritized, light Fe-carb + qtz. carb.													
		diss. Py from 252.0 to 255.0		1-2%	1172	252.0	255.0	3'	Tr						
		1-2%; <1mm to 10mm													
255	256	flow top or contact; highly sheared	45°		1173	255	256.6	1.6'	0.002						
		highly chloritized; qtz.-carb. str.													
		from <1mm to 10mm													
256	260	Mafic to Inter. Volc.	35°		1174	257.6	258.6	1	0.010						
		lightly foliated, qtz.-carb. str. 1mm to 5mm													
		chloritized													

qtz. vein @ 258.0 → 3" wide → chlor. Py @ contact.

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Massive Res. Inc. PROPERTY Lingman NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
260	264.2	Highly sheared Mafic to Inter Volc.	45°	2-3%	1175	260.0	264.7	4.7'	0.006						
		chloritized, silicified, sericitized →													
		(highly altered)													
		2-3% Py from ≤1mm to 10mm along													
		foliation lines. with minor Po.													
264.2	265.7	lightly sheared Maf. to Inter. Volc.	40°												
		chloritized + lightly silicified													
		qtz.-carb eyes 1mm to 5mm													
265.7	268.7	Highly sheared Maf. to Inter. Volc.	45°	2-3%	1176	265.3	268.7	3.4'	0.070						
		highly chloritized + silicified + sericitized													
		2-3% Py From ≤1mm to 10mm stretched													
		along foliation													
268.7	278.4	lightly to moderetly foliated Maf. to Inter Volc.	45°												
		silicified, chloritized + lightly sericitized													
		qtz.-carb str., elongated qtz eyes →													
		.5cm to 2cm													
		2-3% Py from <1mm to 3cm from 269		2-3%	1177	268.7	272.9	4.2	0.012						
		to 272.5; along foliation with minor Po													
278.4	282.5	Maf. to Inter. Volc. lightly foliated													
		med. gr., qtz.-carb. eyes ≃ 2mm													
		chloritized.													

306.0 / 3.7   259.0 / 5.8

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87   COMPANY MASSIVE RESOURCES INC.   PROPERTY TWIN MEADOW LAKES LTD.   NTS 55F/15

Footage From	Footage To	Rock Type and Description	Core Angle	Percent Sulfides	Sample Number	Sample From	Sample To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
282.5	290.	moderetly folisted Mafic to Inter. Volc.	45°												
		chlor., slic.; qtz. carb. str. and eyes →													
		1mm to 2cm													
		282.9 to 284.6 ≃ 1% Py		1%	1178	282.9	284.6	1.7'	Tr						
		285.3 to 285.8 ≃ 2-3% Py		2-3%		284.6	290.4	5.8	Tr						
		287.6 to 290.0 ≃ 2-3% Py		2-3%											
290.0	297.3	lightly folisted Mafic to Inter. Volc.	40°												
		f. gr., chloritized + slicified													
		qtz.-carb. eyes 1mm to 3mm													
		293.0 to 294.3 large qtz.-carb.													
		stringers .5cm to 1cm with													
		qtz. eyes → ≃ 1cm													
		294.6 to 296.7 diss. Py 1% to 2%			1179	294.6	296.7	2.1	Tr						
		along fol. ≃ 1mm to 3mm													
297.3	311.8	moderetly to strongly folisted maf. to	40°												
		inter. volc., qtz. carb.													
		moderetly slisified + chloritized													
		299.3, 301., 302.5 → qtz.-carb veins													
		from 4 to 6" with qtz. eyes													
		elongated along fol. ≃ .5cm to 2cm													
		diss. Py+Po through out unit		≃ 1%	1180	297.0	302.1	5.1	.002						
		≃ 1% from ≤ 1mm to 1cm			1181	302.1	306.8	4.7	Tr						
					1182	306.8	310.3	3.5	Tr						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Massive Res. Inc. PROPERTY Lingman NTS# 53F/15 Page 9 of 11

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
311.8	319.8	lightly foliated mafic to inter. volc.	30°												
		lightly chloritized to slicified													
		qtz. carb. stringers along fol. ≃1-2mm													
		qtz. eyes ≃2%, ≃2mm													
		stronger foliation @ 318.3 to 319.8	42°												
319.8	324.5	~~Ro~~ strongly slicified maf. to inter. volc.	30°												
		chlorite filling in fractures													
		qtz. eyes 2mm to __													
		lightly foliated; rare spec. of Py													
		323.6 to 324 → same as above													
		lightly foliated maf. to inter. volc.													
324.5	328.8	lightly foliated maf. to inter volc.													
		chloritized													
		qtz. carb. stringers ≃ 8mm wide													
		qtz. eyes ≃2% ≃ 2mm													
328.8	341.3	strongly foliated to sheared mafic to inter. volc.													
		328.8 to 333 → strongly foliated with ≃ 30%	35°	≃1%	1183	328.2	333.2	5'	[illegible]						
		qtz. carb., chloritized + light. slici.													
		≃1% Py f. gr. to ≃ 2mm													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-33-77 COMPANY Lengman ~~PROPERTY~~ Massive Re. NTS# 53F/15

FOOTAGE		ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE				ANALYTICAL RESULTS						
From	To				Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
328.8	341.3	continued	352												
		333 to 337.3 Sheared maf. to inter. volc.													
		qtz.-carb veins from 1mm to 4cm wide													
		with chlorite													
		hole unit chloritized + slicified													
		with diss. Py ≃ 1% along shear lines			1184	333.2	338.6	5.4	Tr						
		337.3 to 338.4													
		lightly foliated mafic to inter volc.													
		chloritized + lightly slicified													
		<1% diss sul.		<1%											
		338.4 to 341.3													
		strongly sheared to brecciated													
		maf. to inter. volc													
		chloritized + moderately slicified with													
		chlorite + qtz. carb stringers along													
		shear line .1cm to 1.5cm; 3" wide													
		qtz.-carb. vein @338.9													
		diss. Py troughout unit ≃ 2 to 3%		2-3%	1185	338.6	341.6	3	0.030						
341.3	362.9	lightly foliated maf. to inter. volc. f-gr.		30°											
		qtz.-carb veins @ 342.2 to 342.6 +													
		346.0 to 346.7													
		chloritized + lightly slicified													
		scattered qtz.-carb. eyes ≃ 1mm +													
		qtz. eyes ≃ 10%, 2mm to 4mm													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-33-87 COMPANY Massive Res. Inc. PROPERTY Lingman NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
362.9	364	strongly silicified mafic to inter. volc.	35°												
		fracture filling chlorite ≃ 2mm to 3mm													
		~30% qtz. eyes 2mm to 5mm			1186	362.5	364	1.5	Tr						
		~5% qtz. eyes ~ 1mm													
		364.0' E.O.H.													
		T.D. 364 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-34-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TUNGOLD MINES LTD. NTS# 53 F/15 PAGE 1 of 5

LATITUDE EASTING 10,904 DEPARTURE NORTHING 12,279 AZIMUTH 360° DIP – 45° DEPTH 360' ELEVATION 9,977.4

INCLINATION AND TROPARI TESTS

DEPTH 360' AZIMUTH 360° DIP – 44° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P. BOWEN CLAIM NO. PA 6134 MINING DIVISION KENORA RED LAKE DATE STARTED 28 JULY 87 DATE COMPLETED 29 JULY 1987

DRILLING COMPANY NOREX DRILLING LTD. CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	15	Casing - broken rock and overburden														
15	18.5	Mafic metavolcanic flow.	50°	1-3												
		Dk gn gr														
18.5	27.5	Mafic tuff. altered			1207	18.5	22.5	4	0.022							
		Silica - chert - carb. chlr. - ser qu mica			1208	22.5	27.5	5	0.010							
		py >> po -		3-5 5-7 locally												
27.5	33	Mafic tuff less altered		1-3												
		py - po														
33		Altered mafic tuff		3-5	1209	33	38	5	0.002							
		po increased overall sulfides														
		less than upper zone														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-34-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 55F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
39	50	Feldspar porphyry - Intermediate													
		10-15% plag phenos hypidiomorphic													
		med gr.													
50	53	Mafic metavolcanic		1-3											
		Leucoxene? plag phenos to 1mm													
		Dk gn gr.													
53	68.75	Feldspar porphyry as above													
		terminating with a 4" quartz													
		vein with green mica													
68.75	69.05	Quartz vein													
69.05	73.5	Mafic metavolcanic tuff. py		1-3											
		70.55 - 4" Quartz vein with													
		green mica -													
		Grades into a mudstone unit													
		at 73.5													
73.5	78	Mudstone	50°												
		Mylonitic texture													
		Quartz plag with 60%+ with													
		ankerite bio 30%. ~~[illegible]~~													
		Py 1mm up cubes		1-3											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-34-87 COMPANY NASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		Quartz · ~~gr~~ widths to 3mm 10%													
		Carb wisps & stringers 10%													
7?	80.25	Mafic tuff as above													
		Chlor. bx - qtz.			1210	77.5	80.5	3	.002						
80.25	84	Mudstone as above	50°		1211	83.5	84.5	1	Tr						
84	108	Mafic ~~tuff~~ volcanic with		<1·3											
		brecciated portions filled with													
		carb.													
		95° Qtz · carb · bx · py alteration		3·5	1212	95	98	3	Tr						
		± gn mica also 99.5, 102.5 & 103			1221 / 1213	99 / 102	100 / 103	1 / 1	Tr / Tr						
					1214	104	107	3	Tr						
108	110	Mudstone - qtz grains & poss. lithgranules			1215	107	108	~1	Tr						
		or pebbles													
110	12.5	Mafic metavolcanic with tuffaceous	65	1·3	1216	111.5	112.5	1	Tr						
		portions py·po			1217	119.5	121.5	2	Tr						
					1218	121.5	124	2.5	Tr						
125	127	Mudstone													
127	186	Mafic metavolcanic ~~flows~~ ± ~~[illegible]~~													
		qtz - carb stringers.		Tr											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S 34-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
		Quartz veins to 4" locally ± gn														
		mica · also mylonitized zones to														
		2' not well mineralized			1219	152	154	2	Tr							weight
					1220	154	157	3	Tr							0.778 / 7
		157-163.5 Silicified & mineralized	60°	3-5	1221	157	160	3	0.156							0.681
		zone py ∥ foliation & along slips.		5-7	1222	160	164	4	0.170							7
		po rare		locally	126167	164	167	3	Tr							<
		167-168 silicified zone py		3-5												0.315 / 17
		168-170 Speckled portion - plag? leucoxene?			1223	167	168	1	0.158							
		170-173 Chlor sil py		1-3	1224	170	173	3	0.002							0.004
		173-176 - Silicified py		3-5	1225	173	176	3	0.142							7
					126168	176	180	4	Tr							<
		176-180 Bio-chlor contorted brecciated														
		180-182 Silicified zone		<1-3	1226	180	182	2	0.006							
		chlor-bio-± qtz-carb stringers			126169	182	186	4	Tr							<
186	360	More massive mafic metavolcanic flow		<1-3		168	170	2								mud assay
		Hematite staining along fractures														
		Only minor <1' silicified zones.														
		some medium grained portions														
		217- becomes medium grained														
		Probably diorite in old logs.														

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-34-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		Minor C.G. 6-3" zones.													
		Same qv.													
		1° phases													
		ep-hem alteration locally													
		Local shears <1°													
		amphibolitized - middle zone													
		T.D. 360 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-35-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15 PAGE 1 of 6

LATITUDE EASTING 10,595 DEPARTURE NORTHING 12,389 AZIMUTH 360 DIP -45° DEPTH 255' ELEVATION 9970.3

INCLINATION AND TROPARI TESTS

DEPTH 250' AZIMUTH 360° DIP -41° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Moore CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 29 JULY 1987 DATE COMPLETED 30 JULY 1987

DRILLING COMPANY Norex CASING in hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	5	Casing													
5	8	Boulders, broken core													
8	43	FG mafic, massive to wkly fol. ~~Sed?~~ vdk gy a few rand orient cb str's. The odd speck or small bleb of py. Occasional flow bd.		<1											
		→ 16.5 - 18.5 ~~Felsic sill~~ Highly alt'd quartz vn., ab hematite staining, Host rock incl's, small felds crysts													
		25-26 - very pale white qz vn w odd chlorite rich band.													
43	46	V Finely bedded tuff gy to dk gy lower portion very broken core - sheared	45°	<1											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-35-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
46	~~52.5~~ ~~49~~ 50	FG mafic. str-~~mod fol~~ v dk gy - blackish grn. Contorted fol at up cont. + low cont. ab dk chlorite - biot? - especially at lo contact wk silic. Py as str's + along blebs on fol. 46-50		3	1189	46	50	4.0	[illegible]						
50	~~72.5~~ 67	FG mafic mod-str fol. decr w depth occasional chlor. rich band. dk grnsh gry → 53 - dk chlor rich band with rotated and fragmented garnet blasts ~2mm, highly alt'd qz veinlet		<1											
67	72.5	FG mafic massive to wkly fol. dk gy		<1											
72.9	75.9	V.FG mafic mod ~~str~~ fol. str chloritized v dk grn wk ~~[illegible]~~ silic. a few cb str's along fol.													
75.9	83	VFG to FG mafic wk fol. mod silic dk gy. ab small (≤1mm) hard light greenish yellow crysts. Pref orient w fol. a few cb str's - thin fract. infil		<1											

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-35-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
83	116.5	FG mafic mod to vstr fol. dk gnsh gy			1190	86.3	88.6	2.3	<.010						
						88.6	92.5	3.9							
		86.3-88.6 str fol - some contorted whly silic		1-2	1191	92.5	95	2.5	Tr						
		py str's along fol													
					1192	95.5	97.3	1.8	<.002						
		92.5-95 str fol wk silic odd mod		2											
		band. Some str chlorit bands py + po as str's			1193	97.3	99	1.7	<.002						
		95.5-97.3 str to vstr silic'd, folia		5	1194	99	100	1	<.004						
		marked - maybe swirled. Py as blebs, elongate blebs													
		+ str - quite random orient			1195	100	102.5	2.5	0.006						
		97.3-99 mod to str fol. mod silic py		2-4	1196	102.5	105.2	2.7	Tr						
		as blebs and str's some po - same													
		99-100 v str silic'd - alt'd qz vn? tuff?													
		chlorite + host rock bands. Po - dis +		5-7											
		as strs													
		100-102.5 MG mafic wk-mod fol. lg py		2-3											
		blebs + some str's in mod fol													
		102.5-105.2 - str fol, mod to str silic													
		tuffaceous interbed. banded fol. Chlorite													
		rich bands													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-35-97 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	From	To	Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
		105.2 - 106.5 similar to 99.10 but		<1	1197	105.2	106.5	1.3	Tr						
		with little or no po. More ab light grn													
		muscovite - Fuchsite? The odd py speck			1198	106.5	108.75	2.25	Tr						
		106.5 - 108.75 str silic - some similar		2-3											
		to above. Diss po in str silic section.			1199	171.5	172.5	1	Tr						
		the odd along py bleb in section sim to above													
					1200	172.5	175.5	3	0.010						
116.5	136.5	FG mafic. Mod silic w ab small Felds		<1											
		Phenocrysts 1-2mm, pref orient w wk to													
		mod fol. vdk gy													
	→	114-117 FG mafic - lacking p-crysts	50°												
		& few cb str. More ab at brecc to contact													
136.5	199.6	FG mafic wk-mod fol. wk to mod		<1		136	140	4							
		silic. Vdk gy. Occasional 1-2' red				140	144	4							
		interbed - dk chlorite streaks. lighter gy				144	148	4							
		& odd granitiferous horizon 1-2mm				148	152	4							
		Basal contact - fault gouge - clay + granule pebbles				152	156	4							
	→	164.7-169 mudstone w v ab contorted													
		and inviled chl str's + flames													
		171.5 - 172.5 mod silic. diss py + po,		3											
		+ the odd small str													
		172.5 - 175.5 v str silic'd, Py as		~~10~~											
		str's + elongated blebs. ~~Some mo~~ ab		7-10											

Moly in one band - 173.5

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-35-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
		175.5 - 176.5 wk - mod silic, diss py +		2	1401	175.5	176.5	1	0.008						
		odd short str													
					1402	196.3	197.3	1	Tr						
		196.3 - 197.3 wkly to non silic'd, the		1											
		odd thin py str, quite a few cb str's - random			1403	197.3	198.3	1	0.090						
		197.3 - 198.3 str silic'd, diss py +		7-10											
		diss str's + str's			1404	198.3	199.3	1	0.002						
		198.3 - 199.3 wkly to non silic'd diss py		2											
		flecks			1405	193.5	195.5	2	0.046						
		193.5 - 195.5 mod to str silic mod fol.		3-5	1406	195.5	197.1	1.6	0.002						
		py - diss - diss str blebs + str's + blebs													
					1407	197.1	199.6	2.5	0.169						
		195.5 - 197.1 mod silic, str fol. py as		1-2											
		str's + elongated blebs. a couple of lg blebs - str's			126197	199.6	202.7	3.1	0.010						
		at all'd qz vn - 196.8			126198	202.7	205.7	3	Tr						
		197.1 - 199.6 str - v str silic'd. Tuffaceous		5-7											
		interbeds?. A few bands of folds													
		clasts or crysts. Py mostly as small diss													
		crystals or grains along fol plains. Some blebs													
		+ diss veins.													
		3 usual fault gouge													

0.119 / 0.5

0.98 / 12.2

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-35-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
199.6	203	→ 199.6 - 200 breccia, chloritized - sub angular			1408	205.7	208	2.3	0.116						
		clasts (1-20 mm) in mudstone matrix													
		of wkly silic^d			1409	208	209.3	1.3	0.367						
	→	200 - 200.25 wackestone													
	→	200.25 - 200.6 similar to 199.6 - 200			1410	209.3	211.5	1.2	Tr						
	→	200.6 - 201 dk. mudstone swirled bedding													
		large rectangular basal xenoliths - weathered surface?													
	→	201 - 203 broken core, wackestone													
203	205.7	FG mafic mod fol dk grysh grn													
		wackestone?													
205.7	212	FG mafic - str - vstr silic^d, tuffaceous interbeds		5											
		gry to light gry													
		205.7 208 str to vstr silic^d similar to tuffaceous? (197-199)		5-7											
		~~208~~ 209.3 similar to above but all vstr silic		7-10											
		209.3 - 211.5 mod silic^d. crenulated fol^n		3											
		py as short elongate blobs + str's +													
		diss grains													
212	255 EOH	F-M.G mafic wkly fol hmgns gy		<1											
		Visible feldspar in matrix - often sericitized													

→ 232 - Large corroded feld cryst .5 - 2 cm Feldspar porphyry

TD - 255'

$\frac{0.21}{3.6}$

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-36-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS 53F/15 PAGE 1 of 3

LATITUDE EASTING 10,595 DEPARTURE NORTHING 12,319 AZIMUTH 360° DIP -80° DEPTH 351' ELEVATION 9970.3

INCLINATION AND TROPARI TESTS

DEPTH 350' AZIMUTH 360° DIP -76° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY R.P. BOWEN CLAIM NO. PA 6134 MINING DIVISION KENORA RED LAKE DATE STARTED 30 JULY 87 DATE COMPLETED 31 JULY 87

DRILLING COMPANY NOREX DRILLING LTD. CASING IN HOLE CORE STORED AT LINGMAN LAKE

FOOTAGE		ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE				ANALYTICAL RESULTS						
From	To				Number	From	To	Length	Au	Ag	Cu	Pb	Zn	As	Sb
0	[illegible]	Casing - overburden. broken rock, boulders													
8	14.6	Mafic metavolcanic - m.g. to f.g. Fe chlorite in	30°												
		very blocky & fractured to 12'													
		Qtz-carb stringers < 0.5" < 1%													
		Mod. foliation													
		Greenish gr to Dk. grn gr													
14.6	23.25	Silicified feldspar to quartz feldspar													
		porphyry granite to monzonite													
		Pale reddish brown to moderate reddish orange													
		Hematized: Feldsphenos to 2mm - 25%													
		Mafics < 10% bio-chlor ± amp													
		2-4" mafic metavolcanic xenoliths													
		at 16' & 19'													

R.P. BOWEN ENGINEERING INC.
DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-36-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
23.25	217.5	Mafic metavolcanic flow													
		Qtz. carb stringers < 0.5" < 1% &		< 1%											
		narrow granitic dikelets.													
		66.75 Flow boundary tops up hole	20°												
		or to the south													
		94 hematized granitic dikelet 6" wide													
		Amp. < 1mm 60% chloritized													
		plag < 1mm 40%													
		103 Flow boundary													
		113 Breccia zone & 4" wide													
		125 foliated sheared lighter green													
		chlr ± py along fol. planes													
		127 more m.g. & less gn more gr-													
		135 More gn ± brecciated qtz carb 137													
		137 Flow? shear? f.g. to 141	30°												
		149 Breccia - flow contacts tops up	65°												
		hole or south.													
		169-171 sheared & contorted	~~45~~			169	171	2							
		172 - Flow contact - foliated	45°			171	174	3							
		174 - Flow contact	40°			174	178	4							
		178 - flow contact	30°			178	182	4							
		183 - flow contact - sheared	40			182	186	4							

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-36-87 COMPANY MASSIVE RESOURCES INC. PROPERTY TWIN GOLD MINES LTD. NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb	
		213 disseminated py - po ± leucoxene		<1												
217.5	222.5	Qtz - carb - chlr zone py - po	35°	3-5	1201	217.5	222.5	5	Tr							
		Streaked - compositional banding?														
222.5	351	Mafic metavolcanic flow ± tuff.														
		dk gn gr.														
		231 Shear Breccia @ 10°				230	234	4								
		Very little change in character														
		of color or grain size with														
		< 1" breccia zone														
		328 m. qtz carb veining increases			[illegible]	328	332	4	Tr							
		py - po		1-3	[illegible]	332	337	5	<.005							
					[illegible]	337	341	4	Tr							
					[illegible]	341	345	4	Tr							
					[illegible]	345	351	6	<.005							

T.D. 351 feet

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-37-87 COMPANY Massive Resources Inc. PROPERTY Lingman Lk NTS 53F/15 PAGE 1 of 7

LATITUDE EASTING 10,501 DEPARTURE NORTHING 12,350 AZIMUTH 360° DIP -45° DEPTH 250' ELEVATION 9.963.5'

INCLINATION AND TROPARI TESTS

DEPTH 250' AZIMUTH 360° DIP -36° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY P. Neil CLAIM NO. PA 6134 MINING DIVISION Red Lake/Kenora DATE STARTED 31 JULY 1987 DATE COMPLETED 1 AUGUST 1987

DRILLING COMPANY Norex Drilling CASING in hole CORE STORED AT Lingman Lk

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	17	Casing														
17	49.3	lightly foliated mafic to inter. volc.	60°													
		chloritized + lightly silicified														
		qtz.-carb stringers ≃ 1mm to 10mm														
		along foliation														
		40.8 to 42.3 → fracture filling Py			1249	40.8	42.3	1.5'	Tr							
		moderately foliated	80°													
49.3	50.8	strongly foliated maf. to inter. volc.	60°													
		chloritized + moderately silicified														
		with qtz. stringer along foliation														
		from .5cm to 1cm wide			1250	49.3	50.8	1.5	0.030							
		approx. 1% diss. Py ≃ 1mm to 5mm		1%												
50.8	96.1	f. gr. lightly fol. maf. to inter. volc.														
		chloritized with scattered qtz.-														
		carb stringers stretched along														
		foliation														
		57.7 to 64.0 diss. Py + Po ≃ 2-3%	60°	2-3%	1251	57.7	64.0	6.3'	Tr							

along foliation; <1mm to 10mm

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-37-87 COMPANY Massive Res. Inc. PROPERTY Lingman Lk. NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULPIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
50.8	96.1	continued													
		80.7-81.0 smoky qtz. vein													
96.1	99.1	strongly foliated maf. to inter. volc.	~60°	~1%	1252	96.1	98.7	2.6	Tr						
		chloritized + silicified													
		intermixed with qtz vein ≥ 6" wide		~10%											
		with ≃10% Py, highly chloritized													
		Py stringers ≃ 1mm to 3mm wide													
		along foliation lines													
99.1	104.4	qtz-carb vein; hardness ≃ 5 to 6													
		with chlorite (fuchsite?) stringers			1253	102.5	103.4	0.9'	0.02						
		- dark green and soft													
		mafic material from 102.7 to 103.3 →	~60°	2-3%											
		- highly foliated with 2-3% Po													
		highly chloritized + silicified													
104.4	107.	highly foliated to sheared mafic volc.	~55%												
		1-2% sulphides → Po, Py, Cpy		1~2%	1254	104.4	107.	2.6'	0.002						
		chloritized + silicified													
		with chlorite, qtz., qtz.-carb. stringers													
		from ~1mm to 10mm wide													
107	109.6	qtz.-carb vein (has 99.1 to 104.4)	~70%												
		109.3 to 109.3 sheared mafic material			1255	108	109.6	1.6	Tr						
		highly chloritized + silicified, stringer													
		along foliation													

≃2% Py

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-37-97 COMPANY Massive Res. Inc. PROPERTY Lingman NTS# 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
109.6	120.4	lightly foliated maf. to inter. volc	~75°												
		lightly chloritized + silicified													
		qtz.-carb. stringers <1mm to 5mm													
120.4	132.4	highly silicified mafic to inter. volc.	~55°												
		lightly foliated with chlorite													
		stretched along fol.													
		~30% qtz. eyes from 1mm to 3mm													
132.4	139.0	moderatly foliated, highly silicified	55°	≤1%		~~132.2~~	~~139.3~~	~~7.1'~~							
		mafic to inter. volc.			1256	132.2	136.0	3.8'	006						
		≤1% sulphides stretched along fol.			1257	136.0	139.3	3.3'	Tr						
		from 1mm to 5mm → Py, Po, Cpy													
139	140.4	lightly foliated mafic to inter volc.	60°												
		chloritized + lightly silicified													
		qtz. carb. eyes ≥ 2mm; ≃5%													
140.4	145.6	same as 132.4 to 139.0	55°		1258	140.2	145.6	5.4	.002						
		with chlorite along foliation													
		+ ~1% Po, Py													
145.6	149.3	rather massive mafic volc.													
		lightly chloritized + silicified													
		qtz.-carb stringers → occasional													
149.3	150.4	qtz. carb-vein with ≃30%			1259	149.3	150.4	1.1	0002						
		chlorite													
		<1% sulphides													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-37-97 COMPANY Massive Res. Inc. PROPERTY Lingman NTS# 53F/15 Page 4 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
[illegible]	164.3	moderately foliated mafic to inter. volc.													
		from 20% to 40% qtz-carb str.	60°												
		along foliation ≃ 2mm													
		diss. Py ≃ 1%; <1mm to 10mm →			1260	151.5	152.7	1.2	Tr						
		diss. Py ≃ 1%; <1mm to 12mm stretched			1261	157.0	159.9	2.9	0.002						
		along fol., qtz-carb vein from →													
		158.1 to 158.5													
164.3	167.5	lightly foliated mafic to inter. volc.	15°												
		with secondary M folds @ 15°													
		chloritized + lightly silicified													
		≃ 10% Py near contact @ 167.5													
		for ≃ 0.3'													
167.5	170.0	Ore Zone ? (mafic to inter. volc)	50°	20-30%											
		~~highly~~ strongly silicified and foliated with			1262	167.2	170.3	3.1	0.002						
		sericitic stringers ≃ 1mm to 3mm													
		from 20% t 30% sulphides → Py													
		occasional chlorite stretched along													
		foliation													
170	172.2	mafic volc.	60°		1263	170.3	172.2	1.9	Tr						
		lightly foliated; moderatly chloritized													
		+ lightly silicified													
		Py @ ≃ 172' ≃ 20%													
		from 1mm to 3cm													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-37-87 COMPANY Massive Res. Inc. PROPERTY Lingman NTS# 53F/15 Page 5 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
172.2	173	strongly foliated mafic to inter. volc.	52°	10-15%	1264	172.2	173.8	1.6	Tr						
		highly silicified, lightly chloritized													
		chlorite + sulphides stretched													
		along foliation ≃10% to 15% Py													
		+ Po													
173	185.5	lightly foliated mafic volc.	~65°												
		lightly chloritized + silicified			126170	176.6	178.8	2.2	0.002						
		178.8 to 180.3 ~1% Py		1%	1265	175.5	176.6	1.1'	Tr						
		175.5 to 176.6 ~1% Py		1%	1266	178.8	180.3	1.5	0.002						
		rare qtz. carb. str.			126171	180.3	184	3.7	Tr						
185.5	198.8	lightly to moderately foliated mafic volc.	60°	<1%	126172	184	187	3	0.316						
		lightly chloritized + silicified			126173	187	190	3	0.018						
		minor diss. Py <1%			126174	190	194.4	4.4	0.002						
198.8	196.5	qtz. vein with mafic inclusions													
		chloritized, ≃5% to 10% Py			1267	194.4	196.7	2.3'	0.04						
196.5	198.5	moderately foliated mafic to inter. volc.	65°	5%											
		chloritized + lightly silicified													
		≃5% diss. Py			1268	196.7	198.5	1.8'	0.042						
198.5	200.5	moderately foliated mafic to felsic volc.	66°	5%											
		strongly silicified + moderately chloritized													
		≃5% Py stretched along foliation			1269	198.5	201	2.5'	0.04						
		from 1mm to 5mm			126175	201	202.1	1.1	Tr						

0.192
5
0.316
3

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. S-37-87 COMPANY Massive Res. Inc. PROPERTY Lingman Lk NTS: 53F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	ANALYTICAL RESULTS Au	Ag	Cu	Pb	Zn	As	Sb
200.5	203.3	lightly foliated mafic volc., f.gr.	75°		1270	202.1	202.8	0.7'	Tr						
		chloritized + lightly silicified													
		202.3 to 202.6 → qtz. carb. vein													
		with maf. material, chloritized													
		≃ 2% sulphides → Py		2%											
203.3	225.4	basaltic feldspar porphyry (leopard).	60°												
		from 203.3 to 213.[illegible] gradual													
		increase in size of felds. pheno.													
		also feldspars concentrated along													
		foliation lines: < 1mm to 15mm													
		lightly chloritized; occasional													
		diss. Py.													
225.4	229.3	moderately foliated mafic volc.	65°												
		lightly chloritized + silicified													
		occasional pink K-spar phenocrysts													
		≃ 10mm in size													
		qtz.-carb. elongated eyes along foliation													
		" ≃ 3mm long.													
		225.2 to 226 → Py at contact →	50°	2-3%	1271	225.2	226.1	0.9'	0.032						
		occasional qtz. eye → from 1cm to 3cm													
		230 to 231.2 ≃ 2% Py @ contact →	60°	2%	1272	230	231.2	1.2'	Tr						

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-37-87 COMPANY Massive Res. Inc. PROPERTY Lingman Lk NTS# 53F/15 Page 7 of 7

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
2283	250	Ultramafic to Mafic Intrusive (Gabbro)													
		50% → dark (amphiboles) minerals													
		50% → greenish ~~feldspar~~ white K-spar													
		medium grained - Thick flow?													
		lightly chloritized													
		occasional, qtz, qtz.-carb., epidote													
		stringers													
		238.6 to 239.1 → large K-spar pheno.													
		with ≤1mm matrix → basaltic K-spar.													
		porphyry													
	250	E.O.H.													
		T.D 250 feet													

R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-38-87 COMPANY Mussini Resources PROPERTY Turn Gold NTS# 53F/15 PAGE 1 of 3

LATITUDE EASTING 10,408 DEPARTURE NORTHING 12,428 AZIMUTH 360° DIP -45° DEPTH 252' ELEVATION 9,961.4'

INCLINATION AND TROPARI TESTS

DEPTH 252' AZIMUTH 360° DIP -41° DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP DEPTH AZIMUTH DIP

LOGGED BY James Mars CLAIM NO. PA 6134 MINING DIVISION Kenora Red Lake DATE STARTED 2 AUGUST 1987 DATE COMPLETED 2 AUGUST 1987

DRILLING COMPANY Norex CASING in hole CORE STORED AT Lingman Lake

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb	
0	12	Casing			1273	31.5	33.5	2	<.002							
12	22.5	FG mafic str. mod fol^d. (cb broken		<1	1274	33.5	34.5	1	Tr							
		core - iron staining on surface - 12-20')														
		dk grnsh gy			1275	34.5	37.3	2.8	0.024							
22.5	46.8	FG mafic mod wkly fol^d dk gry. 2k odd cb str		<1	1276	39.7	40.7	1	Tr							
		~~30.5 - 31.5 mgn unit~~														
		31.5 - 33.5 py as a network of str^s and		5%												
		blebs. Mod fol. More ab cb. Also Po - 50%														
		33.5 - 34.5 mgn unit														
		34.5 - 37.3 Wh to mod silic^d. diss		3-5												
		po + as stringers. Also ab cpas specks and short str^s														
		Sulph assoc generally w diss cb str^s														
		39.7 40.7 wk silic^d, ab cb str^s. Py														
		Po + cp mostly as blebs + specks														

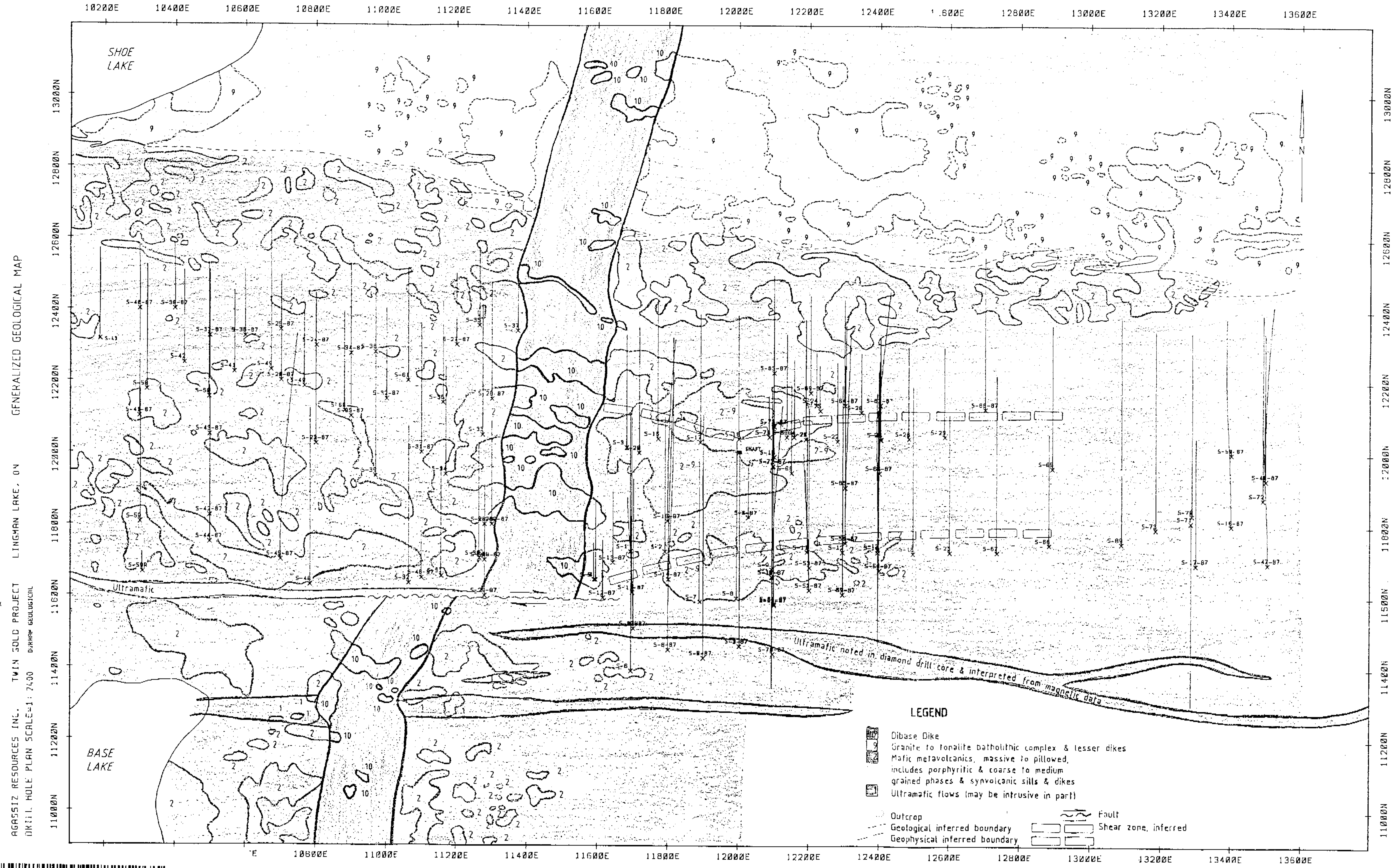
R.P. BOWEN ENGINEERING INC.

DIAMOND DRILL HOLE LOG

DRILL HOLE NO. 5-38-87 COMPANY Massive Resources PROPERTY Twin Gold NTS# 53 F/15

FOOTAGE From	FOOTAGE To	ROCK TYPE AND DESCRIPTION	CORE ANGLE	PERCENT SULFIDES	SAMPLE Number	SAMPLE From	SAMPLE To	SAMPLE Length	Au	Ag	Cu	Pb	Zn	As	Sb
	→	46-46.8 alt'd qz ~~vein~~ vn. ab chlor			1277	69	71	2	Tr						
		str's													
					1278	71	73	2	Tr						
46.8	49	FG mafic · massive to wkly fol^d sed?	~~50~~	<1											
49	56	FG mafic - metased? . mod to str fol.	50-5?°	<1											
		Many qz-cb str's - // to fol. The odd py sp													
56	64	FG mafic - porphyritic · ab small ~~an~~, euhedral		<1											
		to ~~subround~~ subhedral felds p-crysts 1-5mm													
		Somewhat Corroded. Mod to str silic^d - hard													
		Mostly broken core													
64	98	FG mafic wk to mod ~~[illegible]~~ fol - metased?													
		ab cb str's - mostly random but // w̄													
		fol^n in mod fol. zones													
		69-71 mod fol. mod silic^d. Po, Py		1-2											
		+ cp as diss blebs + short str's.													
		71-73 - Same as 69-71 - more ab sulph		3-5											
	→	87-98 Banded appearance from ab cb zones													
		and ab dk chlor (bt?) bands. odd q-cb													
		vn w̄ ab pale grn mica													
98	119.5	FG mafic. mod fol. v dk grn. ab		<1											
		dk chlorite as thin bands w̄ fol^n. Grn chlor also													
		str carb^d w̄ ab thin str's along fol^n. The odd													

chloritized QZ. vnlet



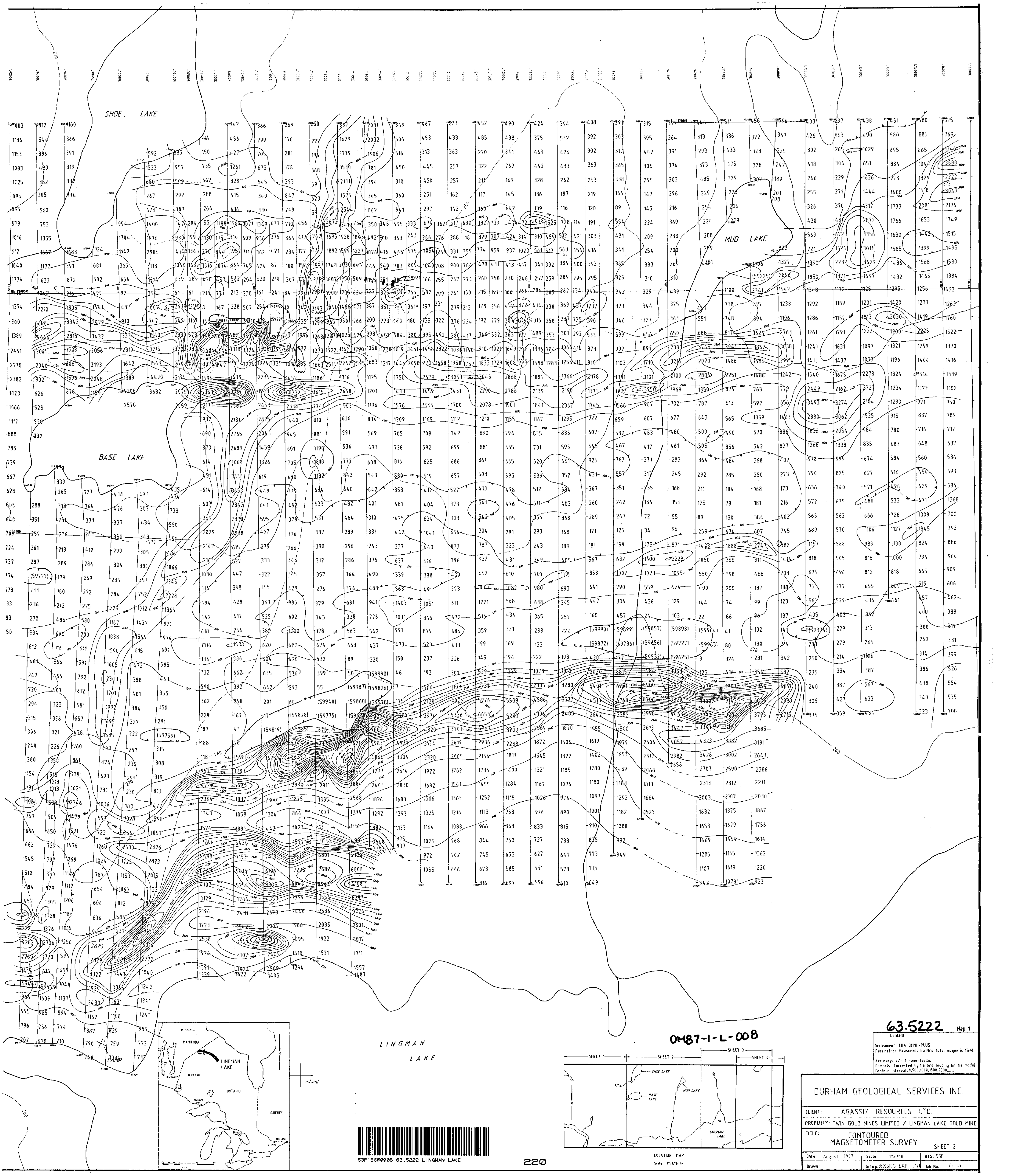
53F15NW0006 63.5222 LINGMAN LAKE

200

OM87-1-L-008

635222


BASE LAKE
SEEBER RIVER
53F15SW0006 63.5222 LINGMAN LAKE
210
LOCATION MAP
MANITOBA
LINGMAN LAKE
ONTARIO
QUEBEC
63.5222
Map 1
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: CONTOURED MAGNETOMETER SURVEY
SHEET 1
OM87-1-L-008
LEGEND
Instrument: EDA OMNI-PLUS
Parametres Measured: Earth's total magnetic field,
Accuracy: +/- 1 nano-teslas
Contour interval: 0,500,1000,1500,2000,....
Scale: 1" 200'
Job No.:



63.5222 Map 1

LEGEND

Instrument: EDA OMNI-PLUS
Parametres Measured: Earth's total magnetic field.

Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by tie line looping (in tie mode)
Contour Interval: 0,500,1000,1500,2000,........

DURHAM GEOLOGICAL SERVICES INC.

CLIENT: AGASSIZ RESOURCES LTD.

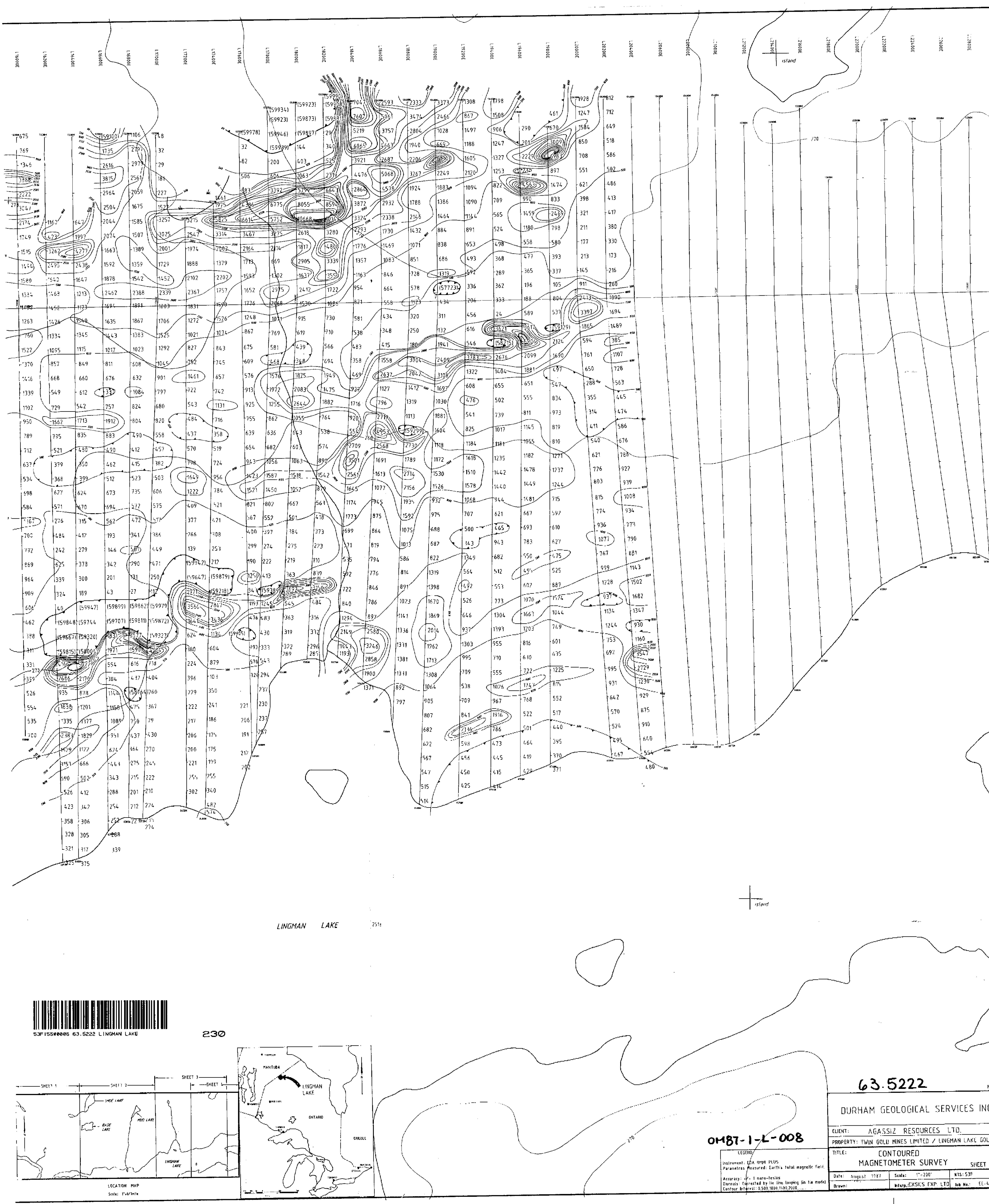
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE

TITLE: CONTOURED MAGNETOMETER SURVEY SHEET 2

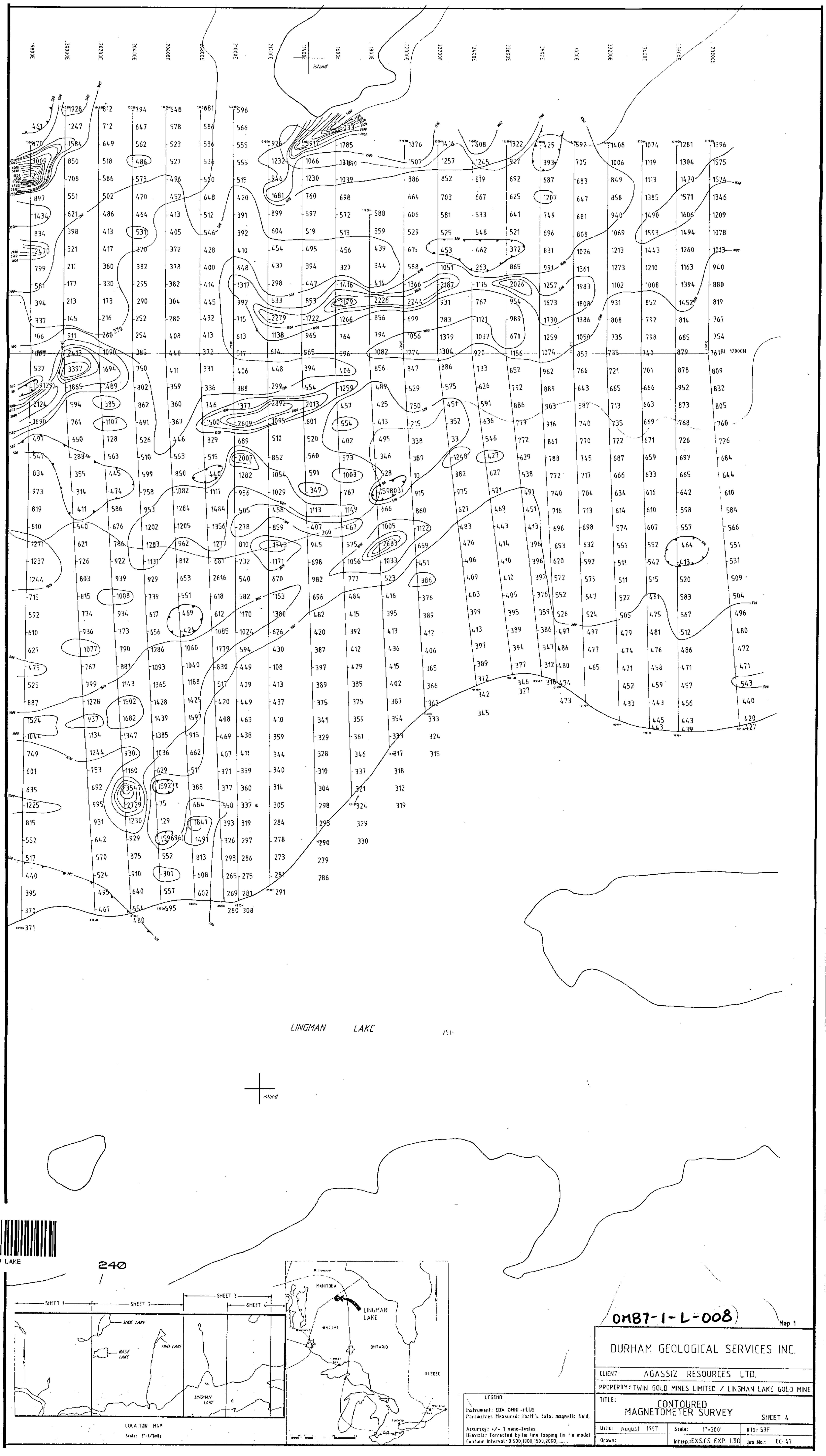
Date: August 1987	Scale: 1"=200'	NTS: 53F
Drawn:	Interp.: EXSICS EXP [illegible]	Job No.: [illegible]

53F15SW0006 63.5222 LINGMAN LAKE

220

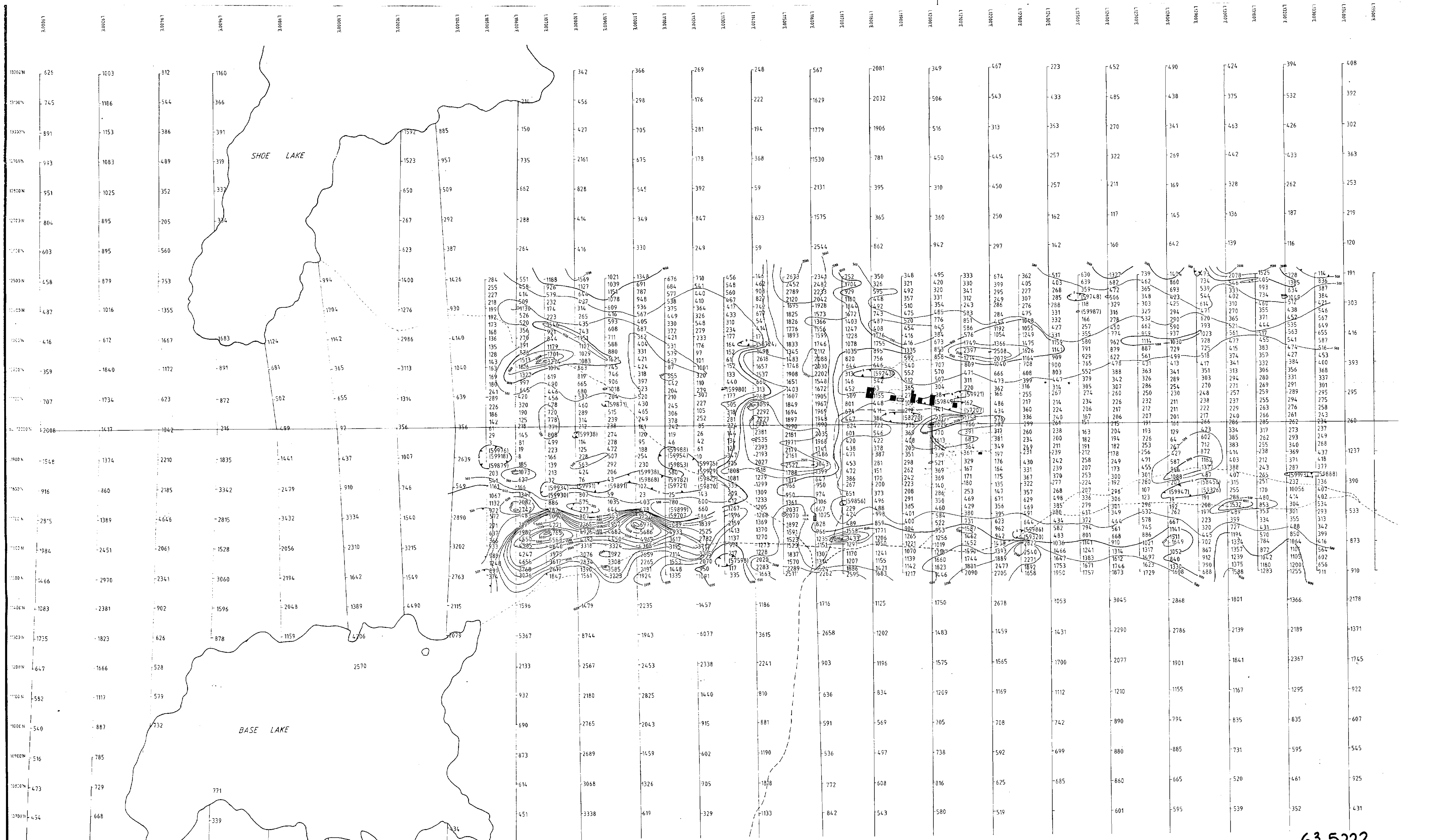

LINGMAN LAKE
53F15SW0006 63.5222 LINGMAN LAKE
230
LOCATION MAP
MANITOBA
ONTARIO
LINGMAN LAKE
63.5222
Map 1
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: CONTOURED MAGNETOMETER SURVEY
SHEET 3
Date: August 1987
Scale: 1"=200'
NTS: 53F
Drawn:
Interp.: EXSICS EXP. LTD
Job No.: EE-47
OM87-1-L-008
LEGEND
Instrument: EDA OMNI PLUS
Parametres Measured: Earth's total magnetic field
Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by tie line looping (in tie mode)
Contour Interval: 0,500,1000,1500,2000,.......

240



LINGMAN LAKE
island
LOCATION MAP
SHEET 1
SHEET 2
SHEET 3
SHEET 4
MANITOBA
ONTARIO
QUEBEC
LINGMAN LAKE
LEGEND
Instrument: EDA OMNI-PLUS
Parametres Measured: Earth's total magnetic field,
Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by tie line looping (in tie mode)
Contour Interval: 0,500,1000,1500,2000,......
OM87-1-L-008
Map 1
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: CONTOURED MAGNETOMETER SURVEY
SHEET 4
Date: August 1987
Scale: 1"=200'
NTS: 53F
Drawn:
Interp.: EXSICS EXP. LTD
Job No.: EE-47

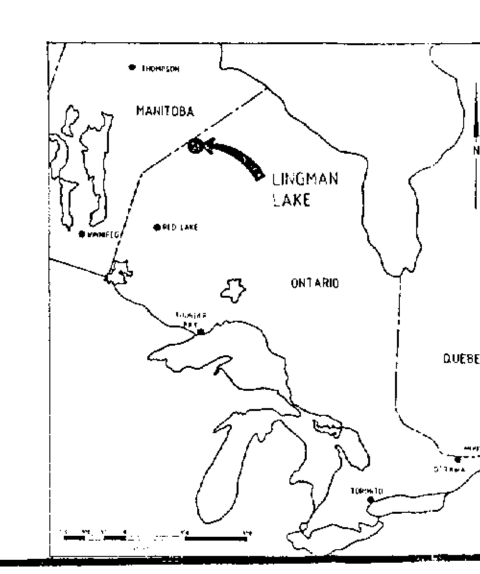
63.5222



63.5222

LEGEND

SCALE
1" = 100'



OM87-1-L-008

LEGEND

Instrument: EDA OMNI-PLUS
Parametres Measured: Earth's total magnetic field,
Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by tie line looping (in tie mode)
Contour Interval: 0,500,1000,1500,2000,.......

DURHAM GEOLOGICAL SERVICES INC.

CONTOURED
MAGNETOMETER SURVEY

DETAIL OF SHEET 2

CLIENT:
MASSIVE RESOURCES INC.

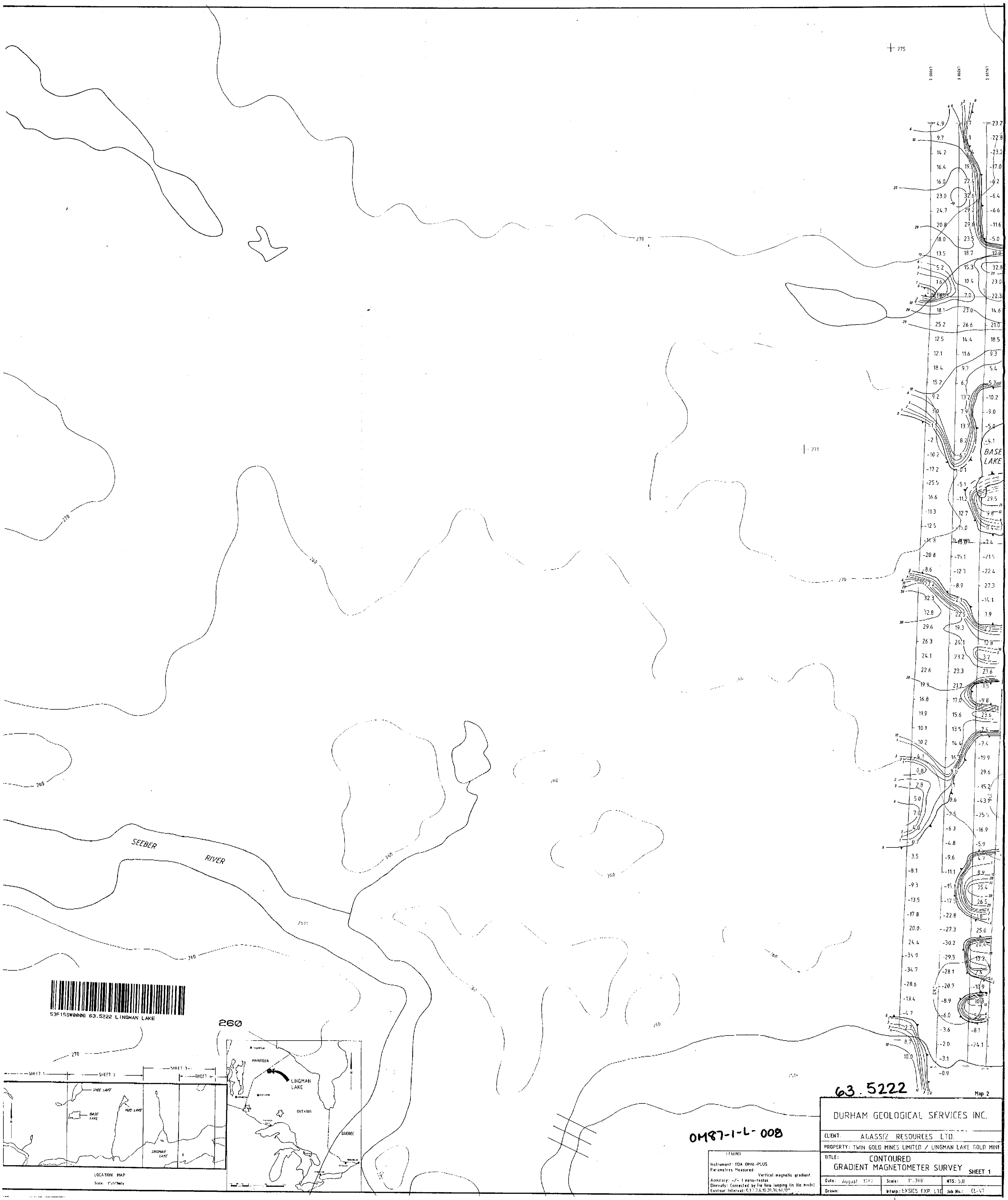
PROPERTY:
TWIN GOLD MINES LIMITED
LINGMAN LAKE GOLD MINE

NTS: 53F

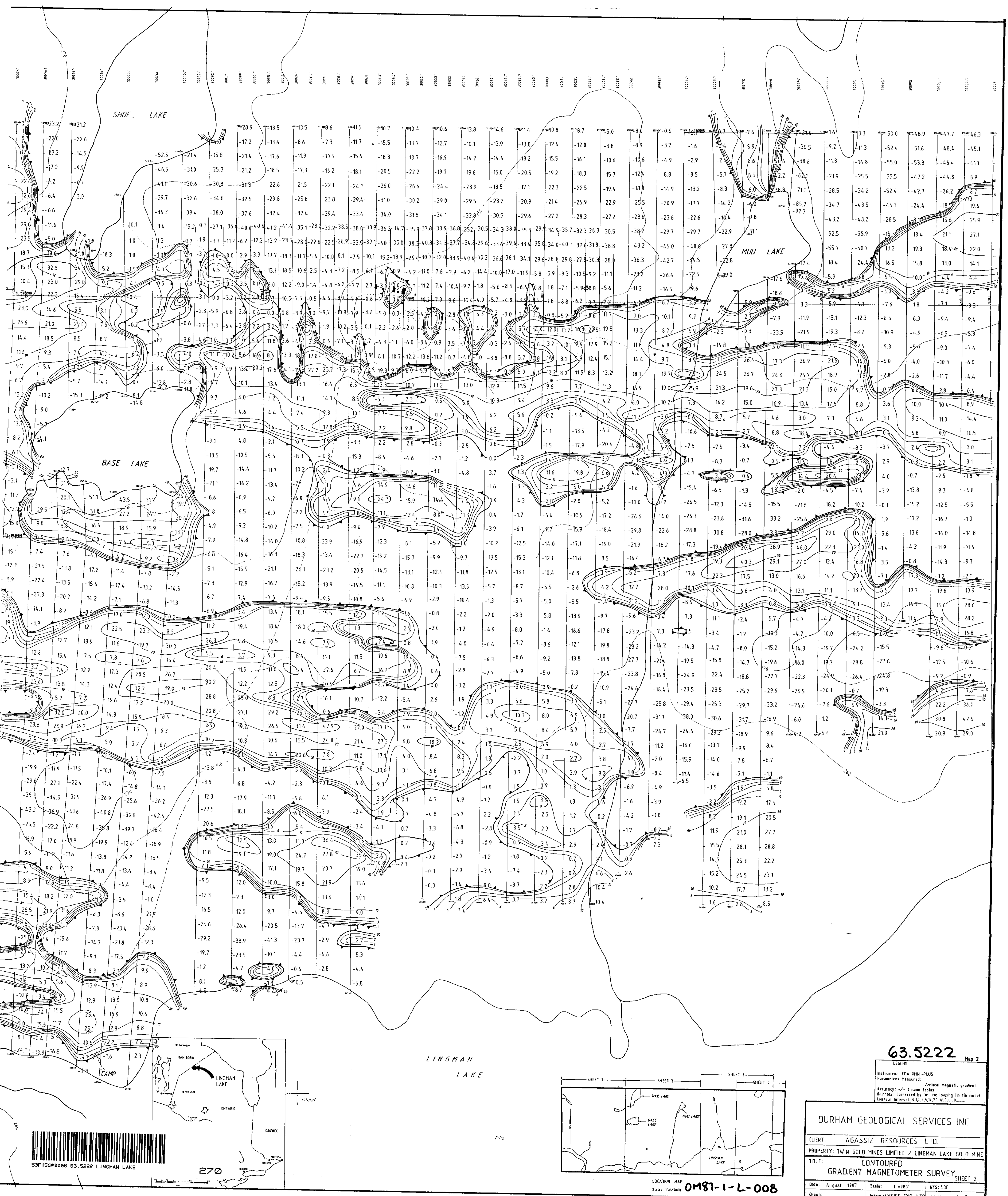
SCALE	DRAWN BY	APPROVED BY	DA
1"=100'	EXSICS EXPLORATION LTD.		'E

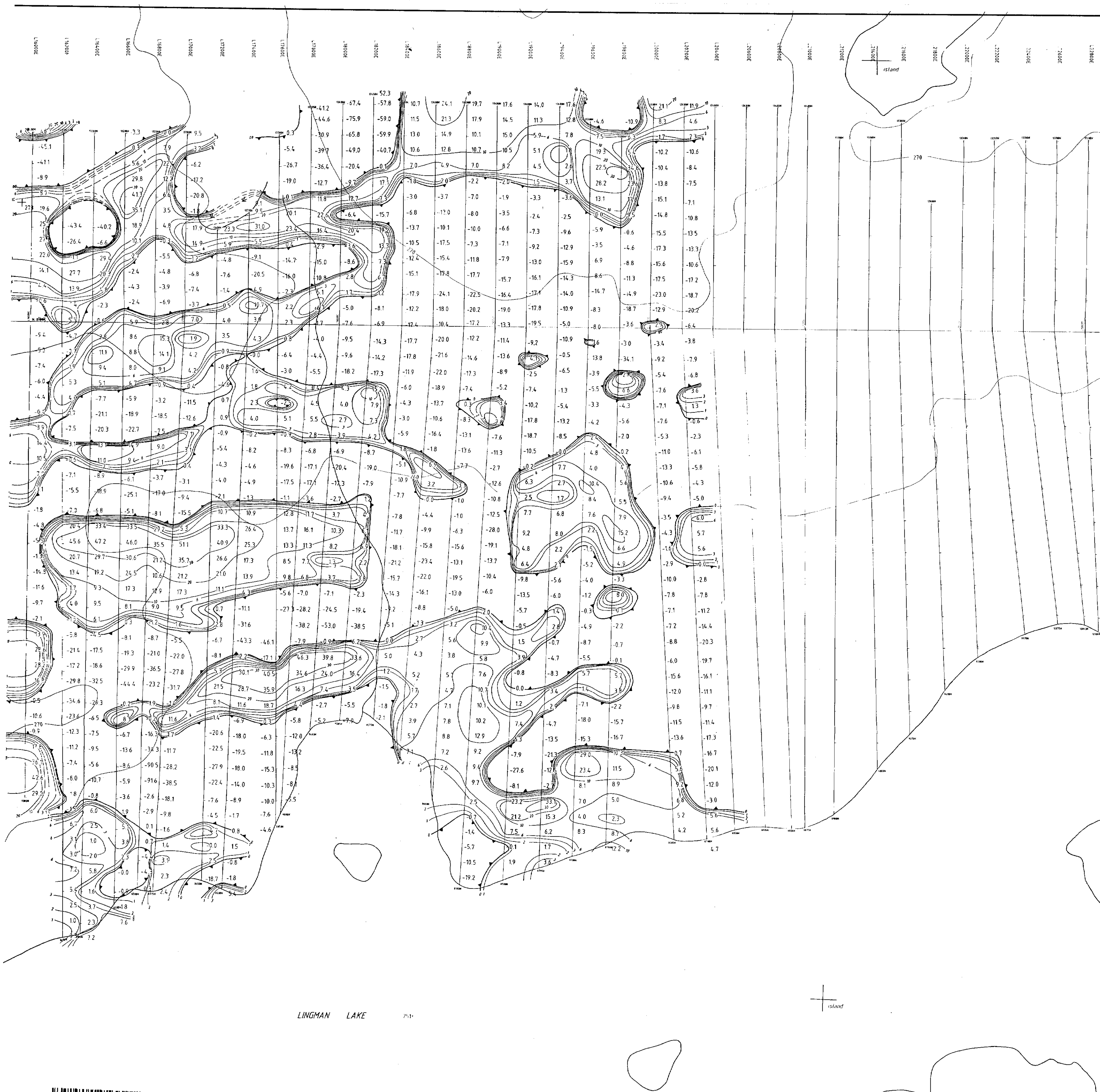
53F15SW0006 63.5222 LINGMAN LAKE

250

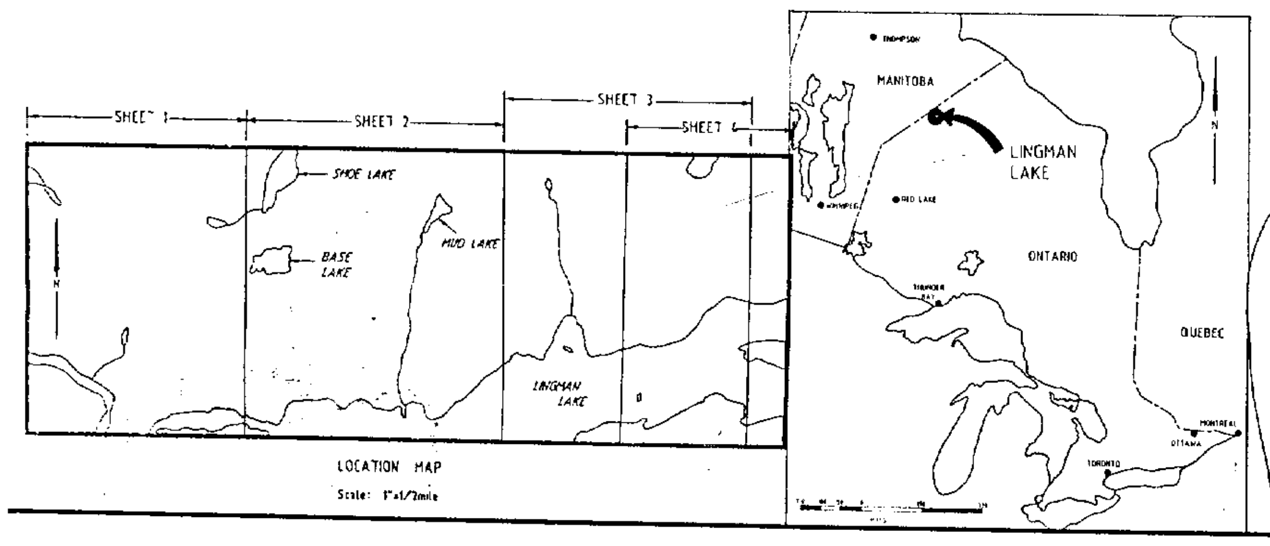


SEEBER RIVER
BASE LAKE
270
260
53F15SW0006 63.5222 LINGMAN LAKE
LOCATION MAP
MANITOBA
LINGMAN LAKE
ONTARIO
QUEBEC
63.5222
Map 2
0M87-1-L-008
LEGEND
Instrument: EDA OMNI-PLUS
Parametres Measured:
Vertical magnetic gradient.
Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by Tie line looping (in tie mode)
Contour Interval: 0,1,2,3,6,10,20,30,60,100
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: CONTOURED
GRADIENT MAGNETOMETER SURVEY
SHEET 1
Date: August 1987
Scale: 1"=200'
NTS: 53F
Drawn:
Interp.: EXSICS EXP. LTD
Job No.: CL-47


SHOE LAKE
BASE LAKE
MUD LAKE
LINGMAN LAKE
CAMP
MANITOBA
ONTARIO
QUEBEC
LINGMAN LAKE
63.5222
Map 2
LEGEND
Instrument: EDA OMNI-PLUS
Parameters Measured:
Vertical magnetic gradient.
Accuracy: +/- 1 nano-teslas
SHEET 1
SHEET 2
SHEET 3
SHOE LAKE
BASE LAKE
MUD LAKE
LINGMAN LAKE
LOCATION MAP
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: CONTOURED GRADIENT MAGNETOMETER SURVEY SHEET 2
Date: August 1987
Scale: 1"=200'
NTS: 53F
OM87-1-L-008
53F15SW0006 63.5222 LINGMAN LAKE
270



53F15SW0006 63.5222 LINGMAN LAKE



63.5222

Map 2

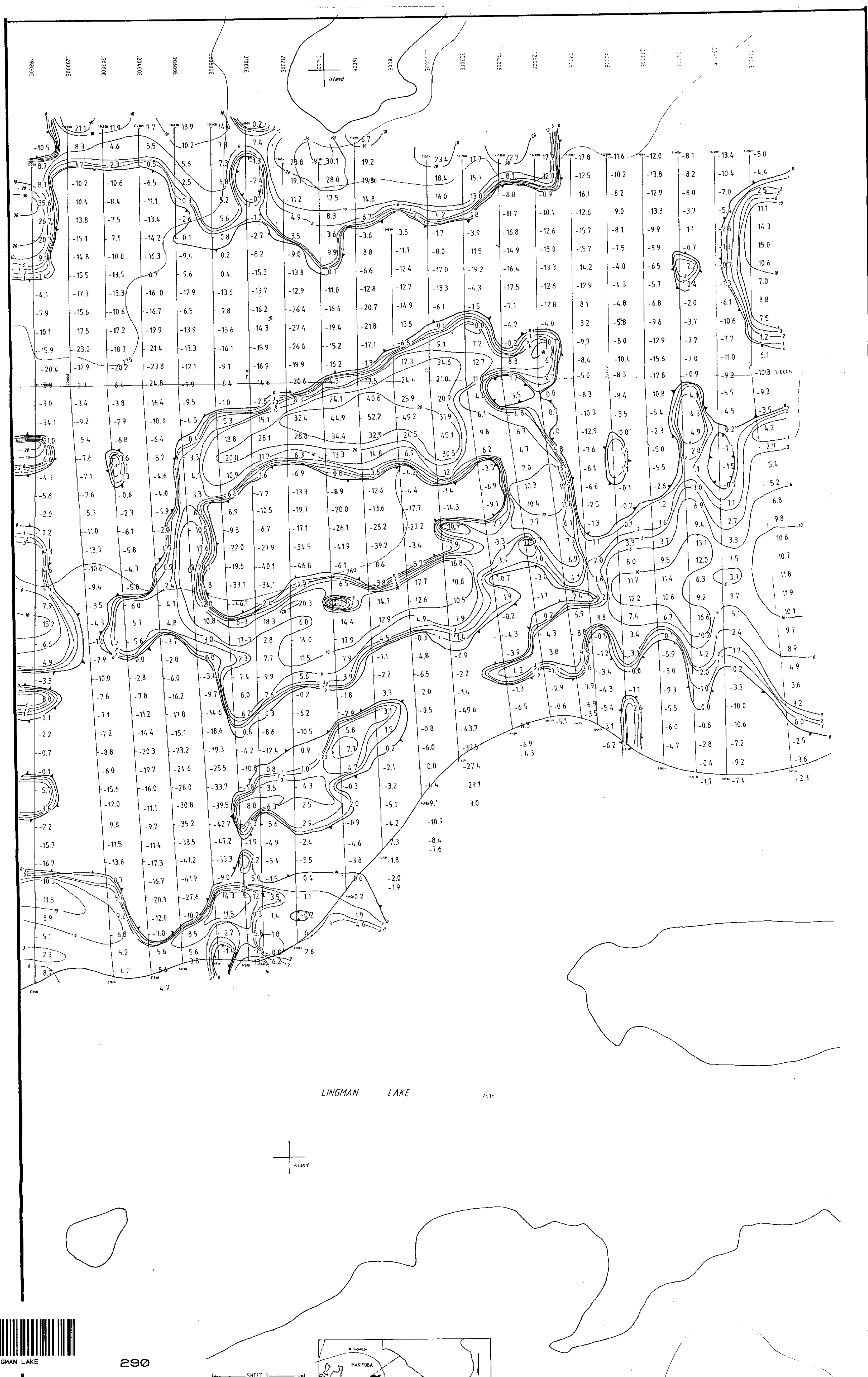
LEGEND

Instrument: EDA OMNI -PLUS
Parametres Measured: Vertical magnetic gradient.
Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by tie line looping (in tie model)
Contour Interval: 0,1,2,3,6,10,20,30,60,100,......

DURHAM GEOLOGICAL SERVICES INC.

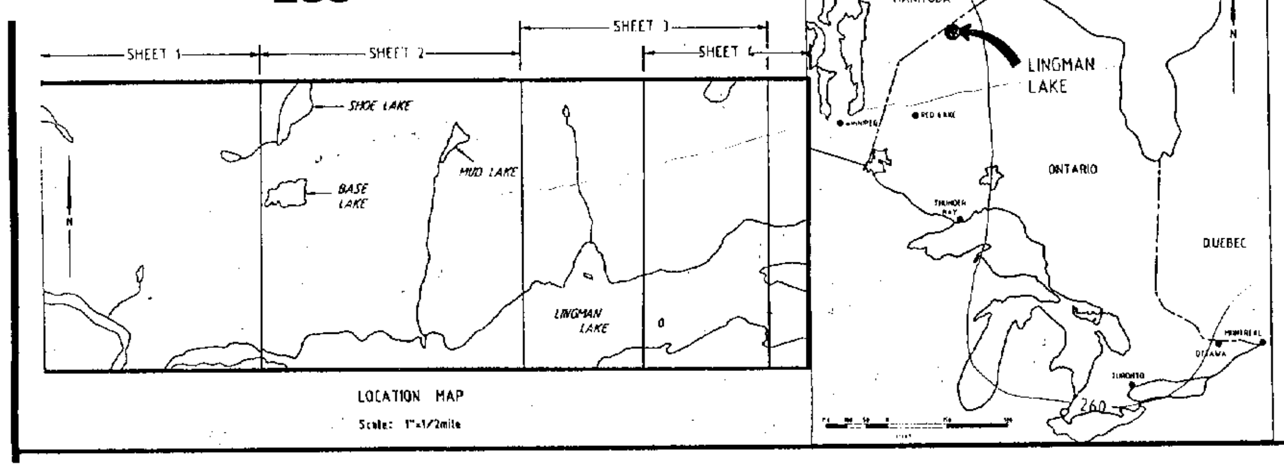
CLIENT: AGASSIZ RESOURCES LTD.		
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE		
TITLE: CONTOURED GRADIENT MAGNETOMETER SURVEY SHEET 3		
Date: August 1987	Scale: 1"=200'	NTS: 53F
Drawn:	Interp.: EXSICS EXP. LTD	Job No.: EE-47

OM87-1-L-008



53F15SW0006 63.5222 LINGMAN LAKE

290



LEGEND

Instrument: EDA OMNI-PLUS
Parametres Measured:
Vertical magnetic gradient.
Accuracy: +/- 1 nano-teslas
Diurnals: Corrected by tie line looping (in tie mode)
Contour Interval: 0,1,2,3,6,10,20,30,60,100,.......

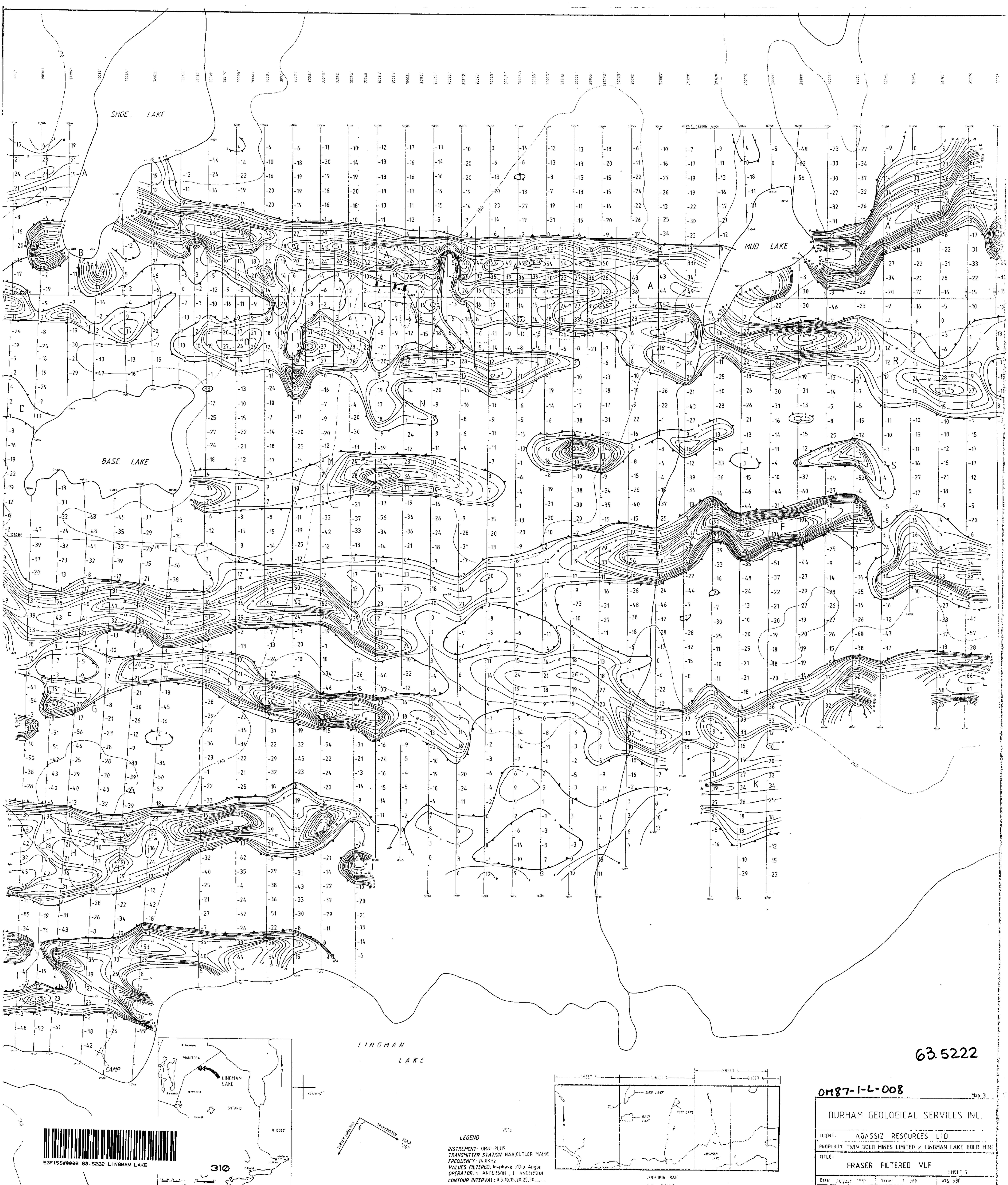
OM87-1-L-008

Map 2

63.5222

DURHAM GEOLOGICAL SERVICES INC.		
CLIENT: AGASSIZ RESOURCES LTD.		
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE		
TITLE: CONTOURED GRADIENT MAGNETOMETER SURVEY SHEET 4		
Date: August 1987	Scale: 1"=200'	NTS: 53F
Drawn:	Interp.: EXSICS EXP. LTD	Job No.: EE-47


SEEBER
RIVER
BASE
LAKE
270
260
251±
53F15SW0006 63.5222 LINGMAN LAKE
300
LINGMAN LAKE
MANITOBA
ONTARIO
QUEBEC
LOCATION MAP
SHEET 1
SHEET 2
SHEET 3
SHEET 4
63. 5222
Map 3
OM87 1-L-008
TRANSMITTER NAA 120°
SURVEY DIRECTION
LEGEND
INSTRUMENT: OMNI-PLUS
TRANSMITTER STATION: NAA, CUTLER MAINE
FREQUENCY: 24.0 KHz
VALUES FILTERED: IN-phase / Dip Angle
OPERATOR: S. ANDERSON , L ANDERSON
CONTOUR INTERVAL: 0,5,10,15,20,25,30,........
DURHAM GEOLOGICAL SERVICES INC
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: FRASER FILTERED VLF
SHEET 1
Date: August 1987
NTS: 53F
Drawn:
Interp: EXSICS EXP. LTD



63.5222

LEGEND

INSTRUMENT: OMNI-PLUS
TRANSMITTER STATION: NAA, CUTLER MAINE
FREQUENCY: 24.0KHz
VALUES FILTERED: In-phase / Dip Angle
OPERATOR: S. ANDERSON, L. ANDERSON
CONTOUR INTERVAL: 0,5,10,15,20,25,30,.........

OM87-1-L-008

Map 3

DURHAM GEOLOGICAL SERVICES INC.

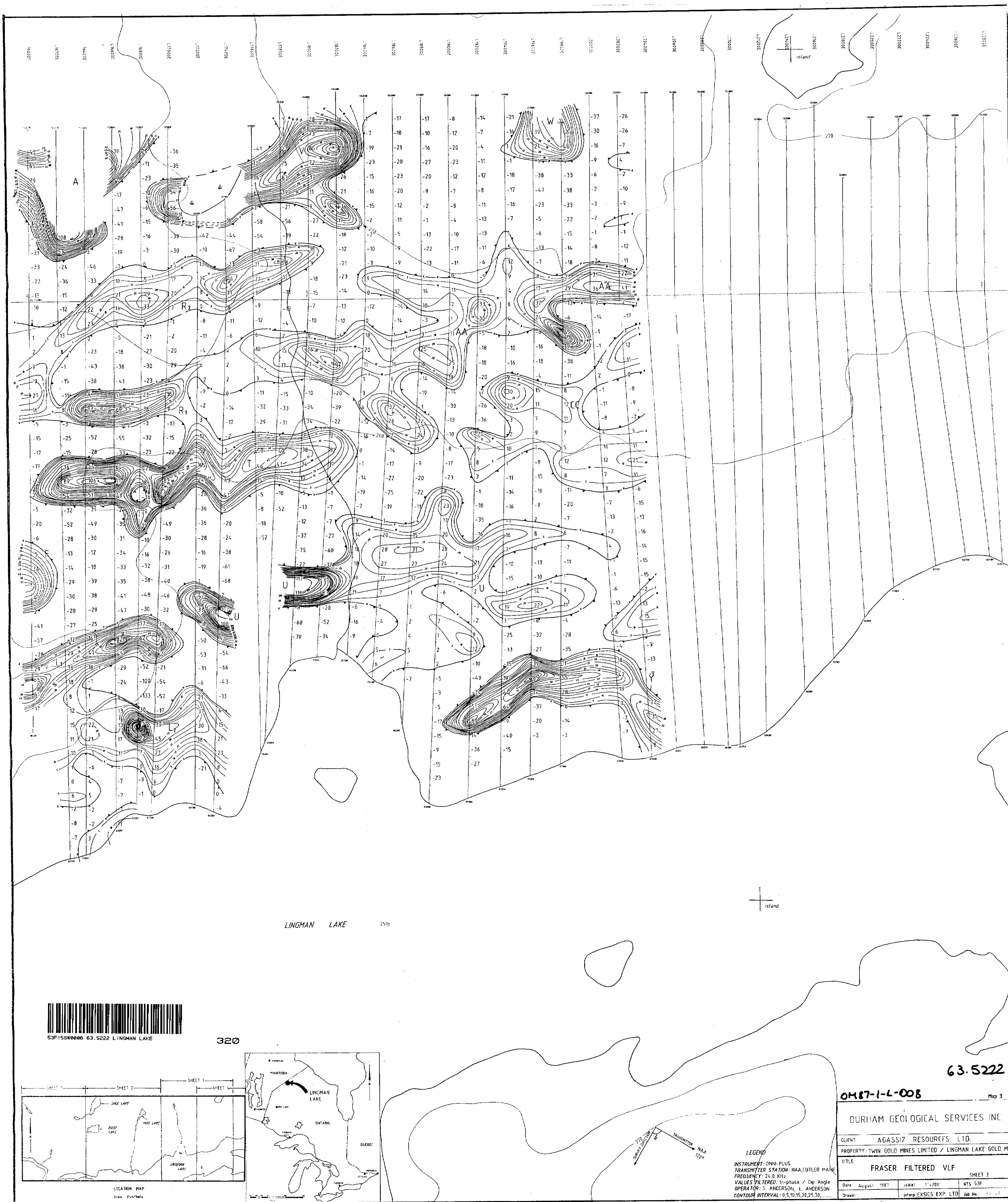
CLIENT: AGASSIZ RESOURCES LTD.

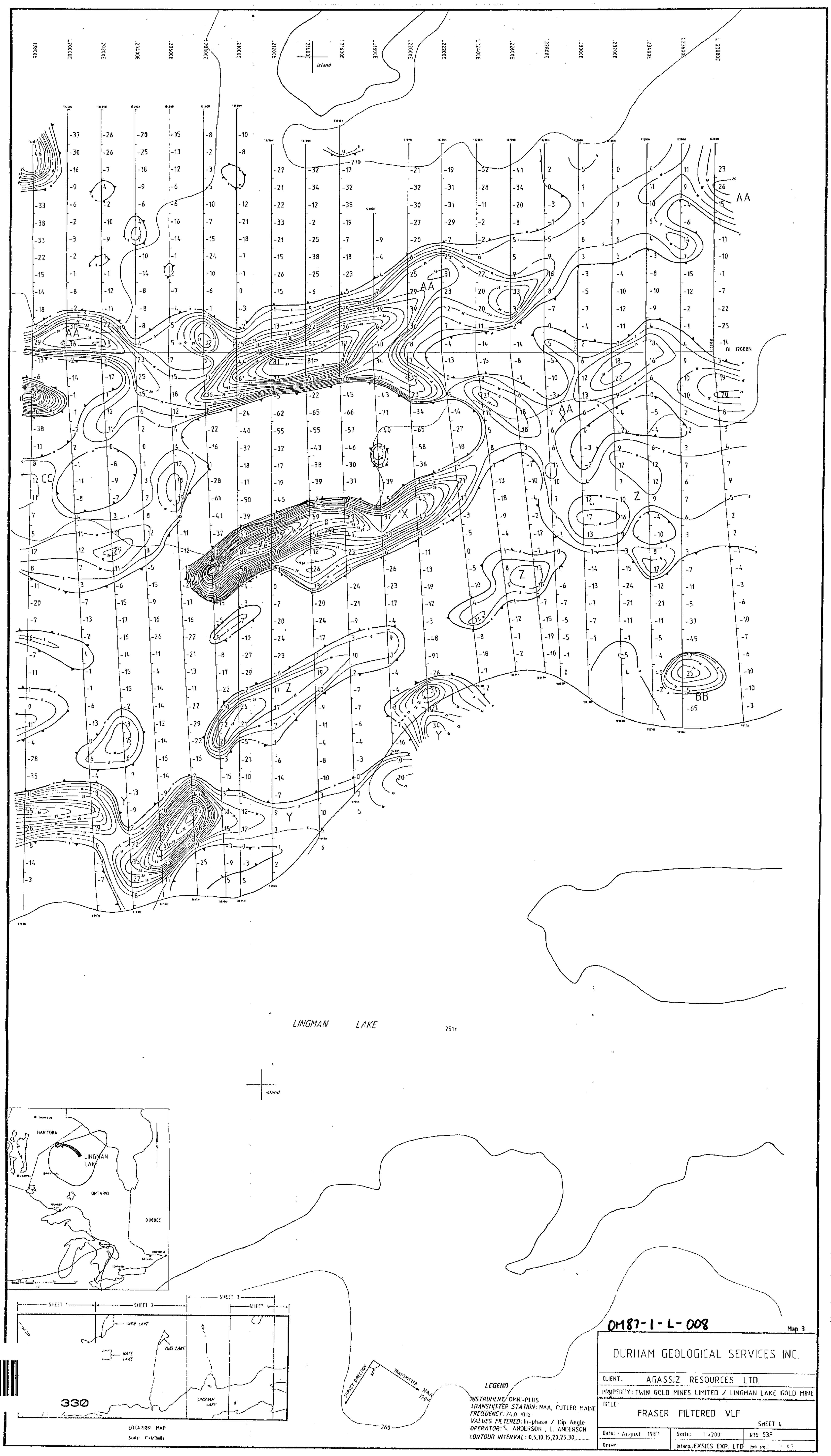
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE

TITLE: FRASER FILTERED VLF

SHEET 2

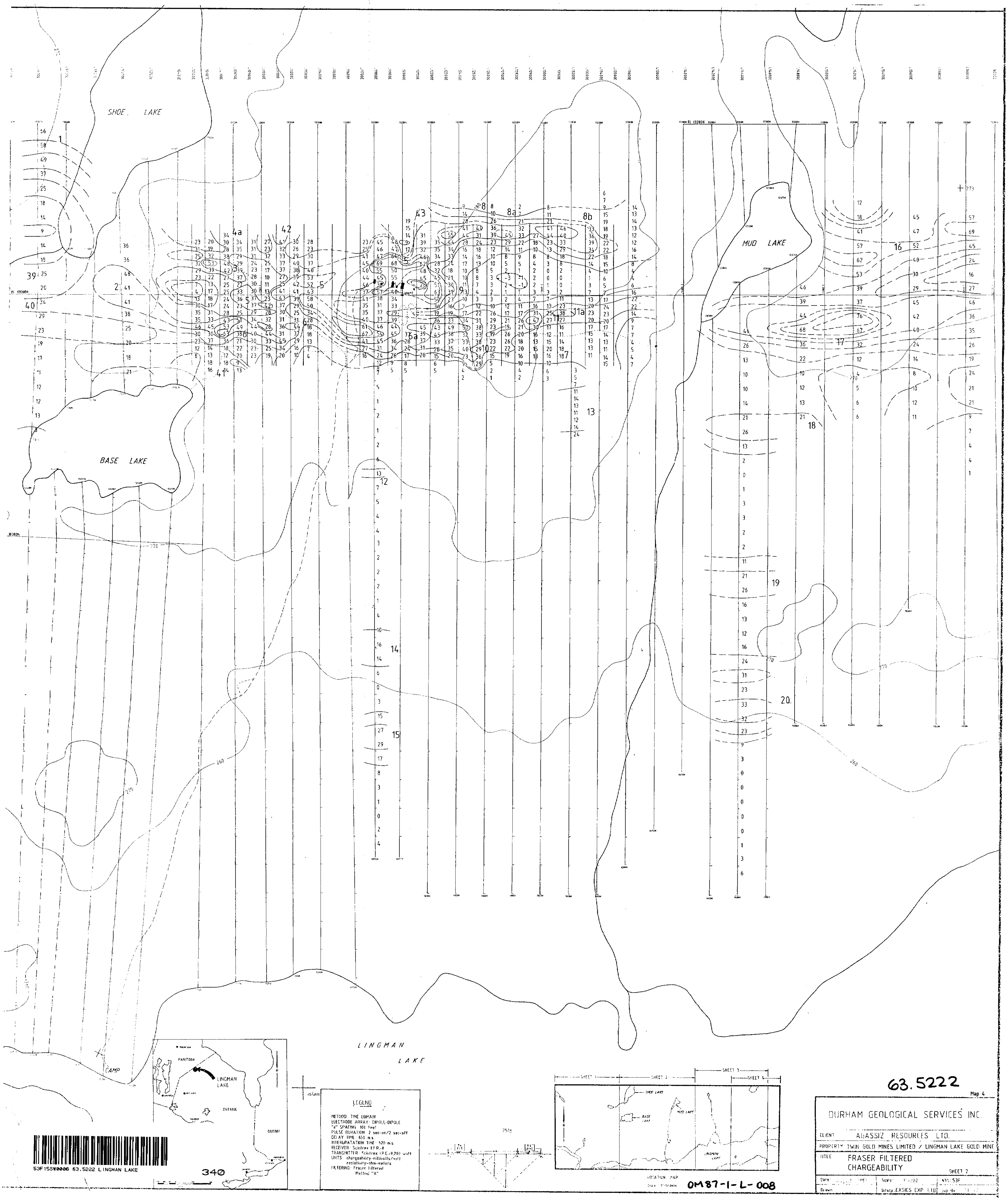
Date: | Scale: | NTS: 53F
Drawn: | Interp. EXSICS EXP. LTD.

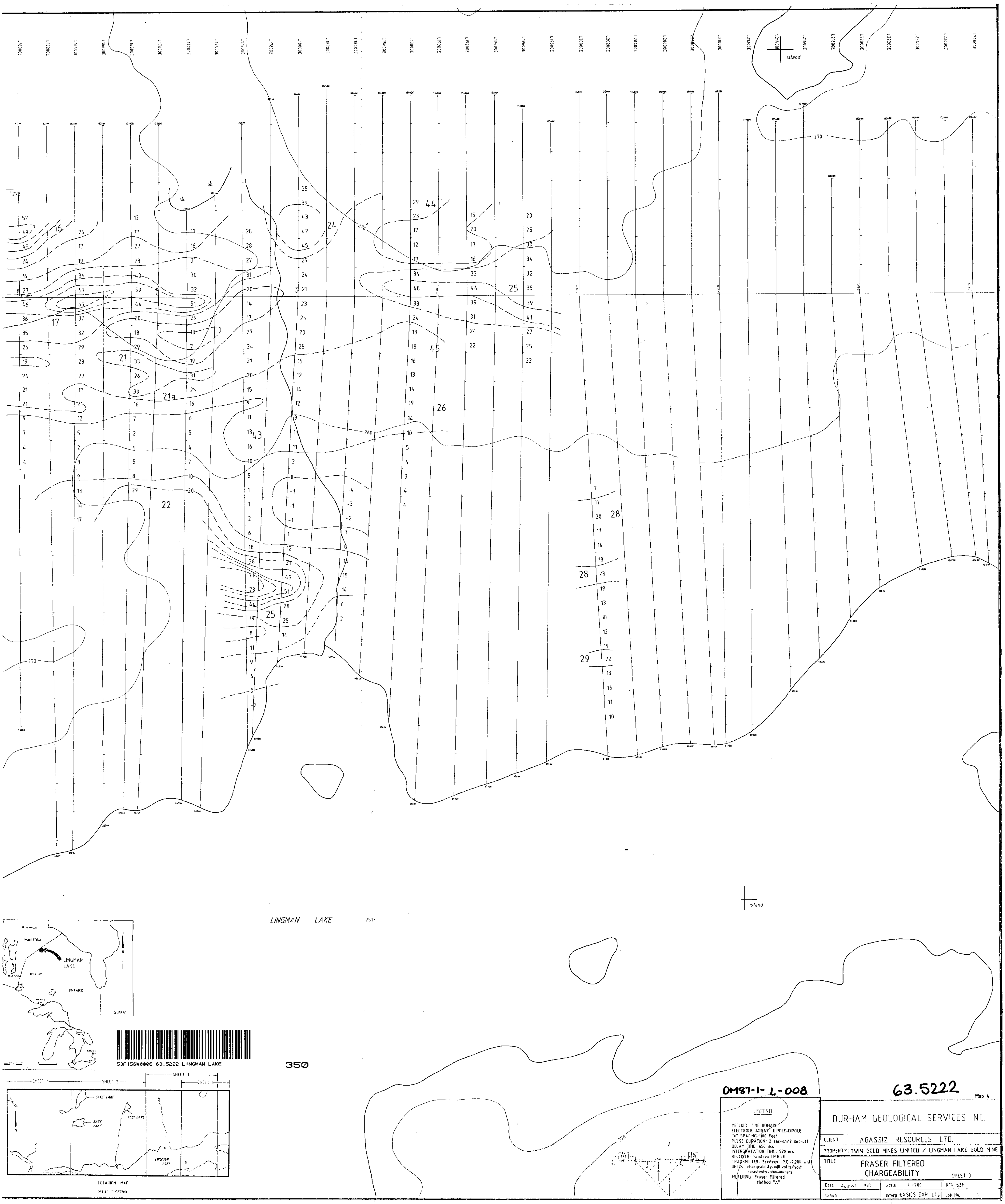

LINGMAN LAKE
island
53F15SW0006 63.5222 LINGMAN LAKE
320
63.5222
OM87-1-L-008
Map 3
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: FRASER FILTERED VLF
SHEET 3
Date: August 1987
Scale: 1"=200'
NTS 53F
Drawn:
Interp.:EXSICS EXP. LTD
Job No.:
LEGEND
INSTRUMENT: OMNI-PLUS
TRANSMITTER STATION: NAA,CUTLER MAINE
FREQUENCY: 24.0 KHz
VALUES FILTERED: In-phase / Dip Angle
OPERATOR: S. ANDERSON, L. ANDERSON
CONTOUR INTERVAL: 0,5,10,15,20,25,30,........
LOCATION MAP
MANITOBA
ONTARIO
QUEBEC
LINGMAN LAKE



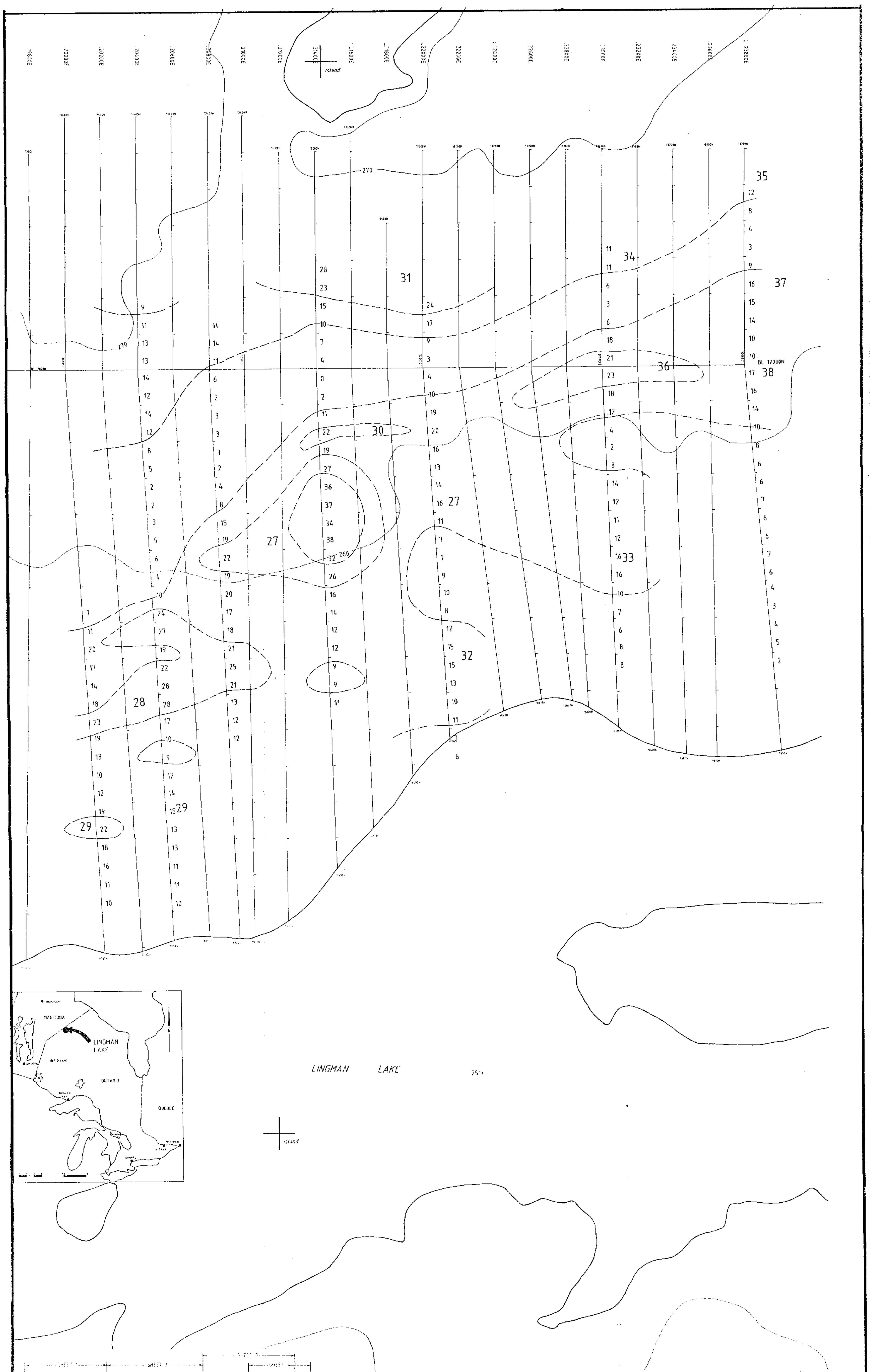
AA
BB
CC
X
Y
Z
BL 12000N
LINGMAN LAKE
island
MANITOBA
LINGMAN LAKE
ONTARIO
QUEBEC
SHEET 1
SHEET 2
SHEET 3
SHEET 4
LOCATION MAP
LEGEND
INSTRUMENT/ OMNI-PLUS
TRANSMITTER STATION: NAA, CUTLER MAINE
FREQUENCY: 24.0 KHz
VALUES FILTERED: In-phase / Dip Angle
OPERATOR: S. ANDERSON , L. ANDERSON
CONTOUR INTERVAL: 0,5,10,15,20,25,30,.........
OM87-1-L-008
Map 3
DURHAM GEOLOGICAL SERVICES INC.
CLIENT. AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: FRASER FILTERED VLF
SHEET 4
Date: August 1987
Scale: 1"=200'
NTS: 53F
Drawn:
Interp.: EXSICS EXP. LTD
Job no.:

63.5222


SHOE LAKE
MUD LAKE
BASE LAKE
LINGMAN
LAKE
CAMP
island
MANITOBA
ONTARIO
LINGMAN LAKE
LEGEND
METHOD: TIME DOMAIN
ELECTRODE ARRAY: DIPOLE-DIPOLE
"a" SPACING 100 Feet
PULSE DURATION 2 sec-on/2 sec-off
DELAY TIME: 650 m.s.
INTERGRATATION TIME: 520 m.s
RECEIVER: Scintrex I.P.R.-8
TRANSMITTER: Scintrex I.P.C.-9,200 watt
UNITS chargeability-millivolts/volt
resistivity-ohm-meters
FILTERING: Fraser Filtered
Method "A"
SHEET 1
SHEET 2
SHEET 3
SHEET 4
LOCATION MAP
63.5222
Map 4
DURHAM GEOLOGICAL SERVICES INC.
CLIENT AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE FRASER FILTERED CHARGEABILITY
SHEET 2
NTS: 53F
Drawn
Interp.: EXSICS EXP. LTD.
Job No.
53F15SW0006 63.5222 LINGMAN LAKE
340
OM87-1-L-008



LINGMAN LAKE
island
53F15SW0006 63.5222 LINGMAN LAKE
350
LINGMAN LAKE
MANITOBA
ONTARIO
QUEBEC
LOCATION MAP
SHEET 1
SHEET 2
SHEET 3
SHEET 4
OM87-1-L-008
63.5222
Map 4
LEGEND
METHOD: TIME DOMAIN
ELECTRODE ARRAY: DIPOLE-DIPOLE
"a" SPACING: 100 Feet
PULSE DURATION: 2 sec-on/2 sec-off
DELAY TIME: 650 m.s
INTERGRATATION TIME: 520 m.s
RECEIVER: Scintrex I.P.R.-8
TRANSMITTER: Scintrex I.P.C.-9,200 watt
UNITS: chargeability-millivolts/volt
resistivity-ohm-meters
FILTERING: Fraser Filtered
Method "A"
DURHAM GEOLOGICAL SERVICES INC.
CLIENT: AGASSIZ RESOURCES LTD.
PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE
TITLE: FRASER FILTERED CHARGEABILITY
SHEET 3
Date: August 1987
Scale: 1"=200'
NTS 53F
Drawn:
Interp.: EXSICS EXP. LTD.
Job No.:



63.5222 Map 4

LEGEND

METHOD: TIME DOMAIN
ELECTRODE ARRAY: DIPOLE-DIPOLE
"a" SPACING: 100 Feet
PULSE DURATION: 2 sec-on/2 sec-off
DELAY TIME: 650 m.s
INTERGRATATION TIME: 520 m.s
RECEIVER: Scintrex I.P.R. 8
TRANSMITTER: Scintrex I.P.C.-9,200 watt
UNITS: chargeability-millivolts/volt
resistivity-ohm-meters
FILTERING: Fraser Filtered
Method "A"

DURHAM GEOLOGICAL SERVICES INC

CLIENT: AGASSIZ RESOURCES LTD.

PROPERTY: TWIN GOLD MINES LIMITED / LINGMAN LAKE GOLD MINE

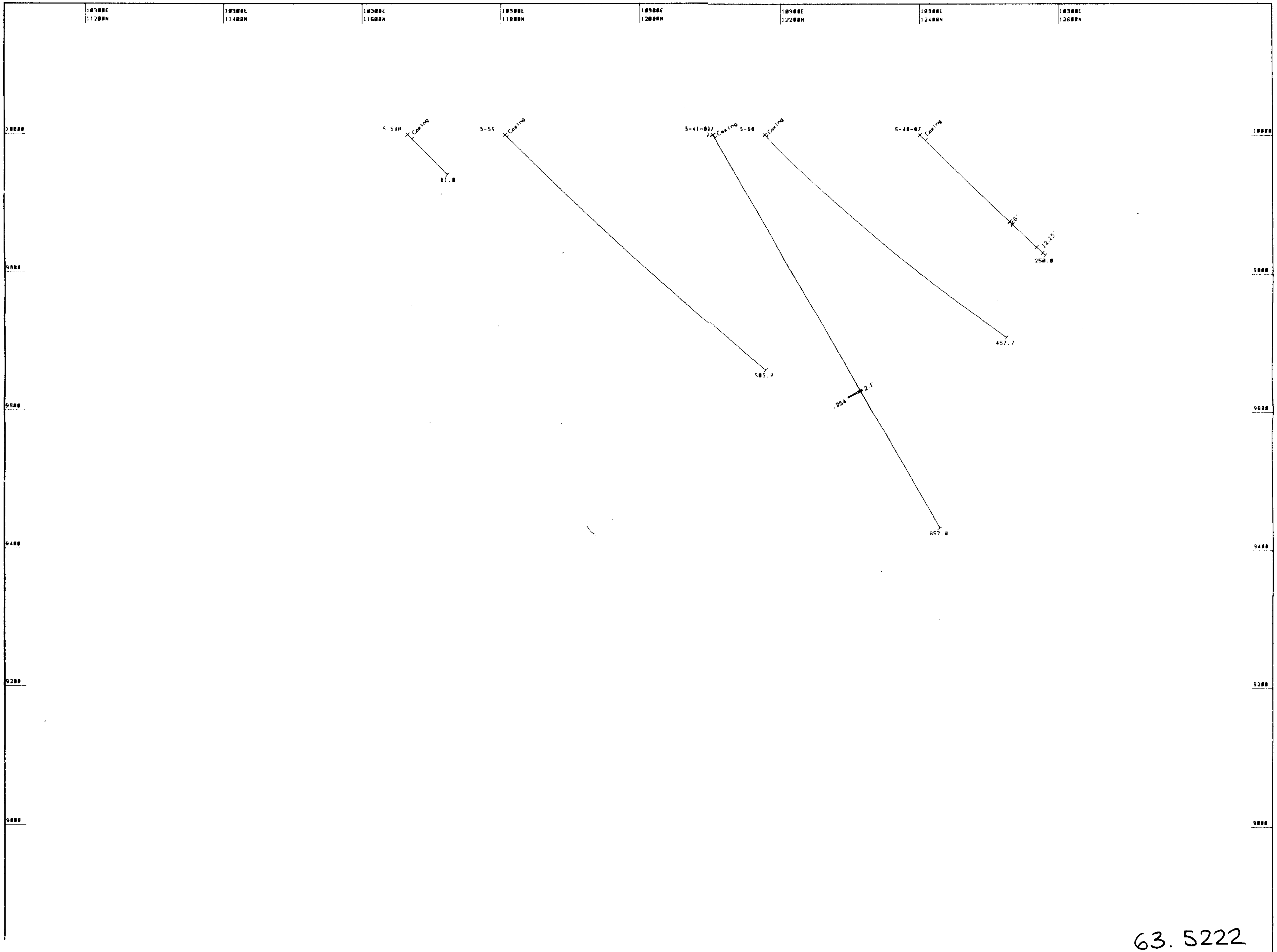
TITLE: FRASER FILTERED CHARGEABILITY

SHEET 4

Date: | Scale: | NTS: 53F
Drawn: | Interp. EXSICS EXP. LTD. | Job No.

OM87-1-L-008

360



63.5222

53F15SW0026 63.5222 LINGMAN LAKE

370

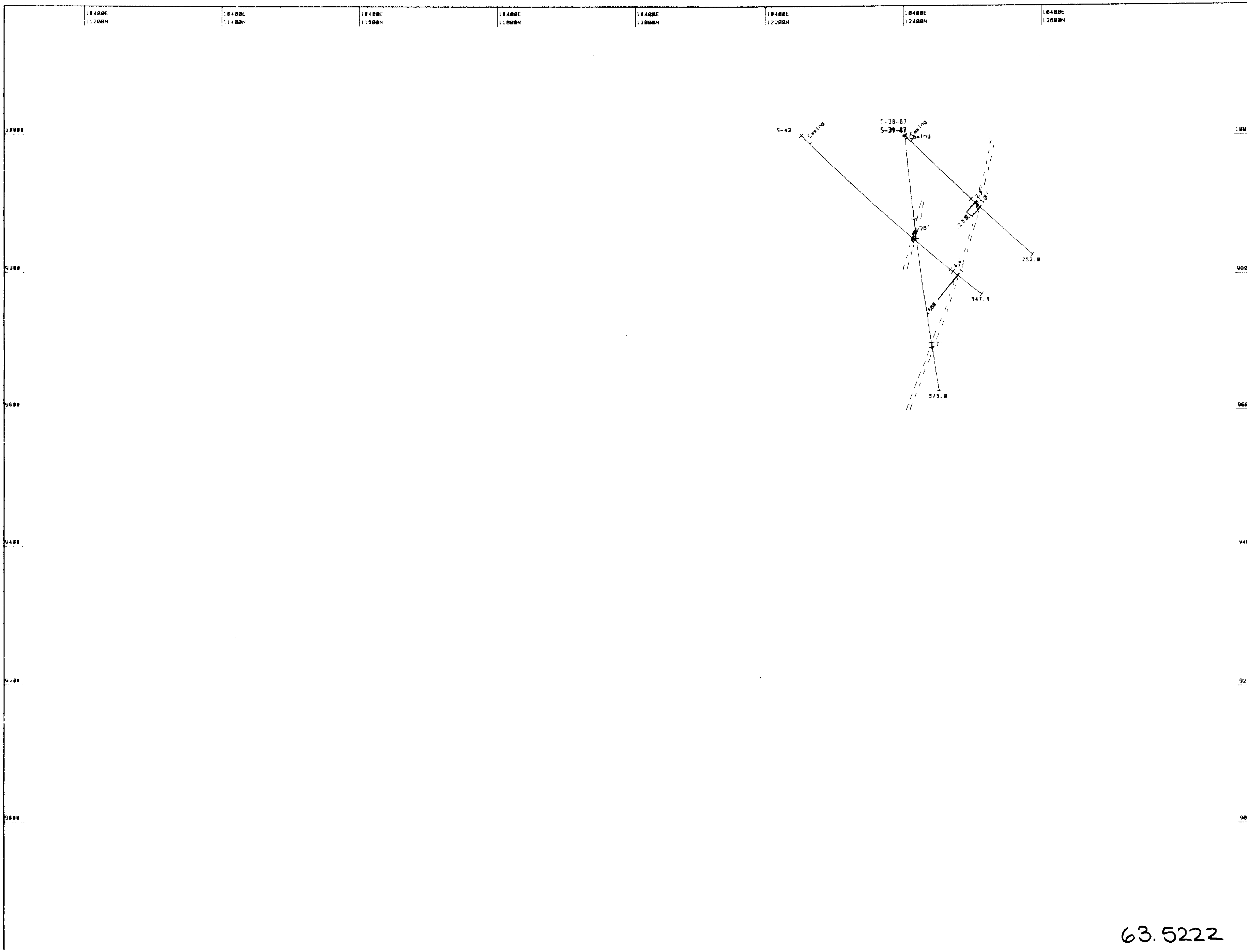
LINGMAN LAKE SECTION 10,300 EAST

SCALE=1:1200

DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008



63.5222

LINGMAN LAKE SECTION 10,400 EAST

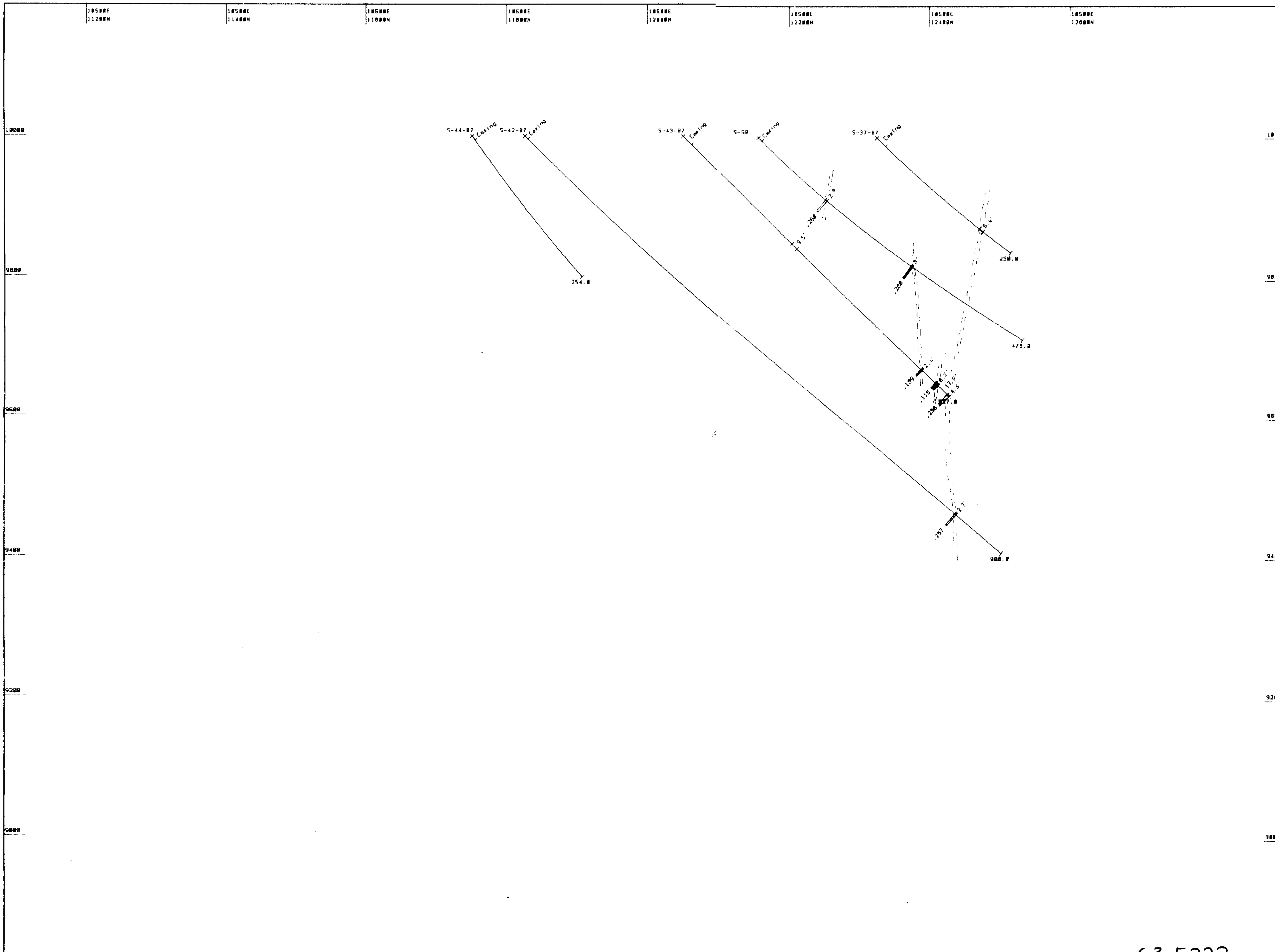
SCALE = 1 : 1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES LTD

OM87-1-L-008

53F15SW0006 63.5222 LINGMAN LAKE

380



63.5222

LINGMAN LAKE SECTION 10,500 EAST

SCALE=1: 1200

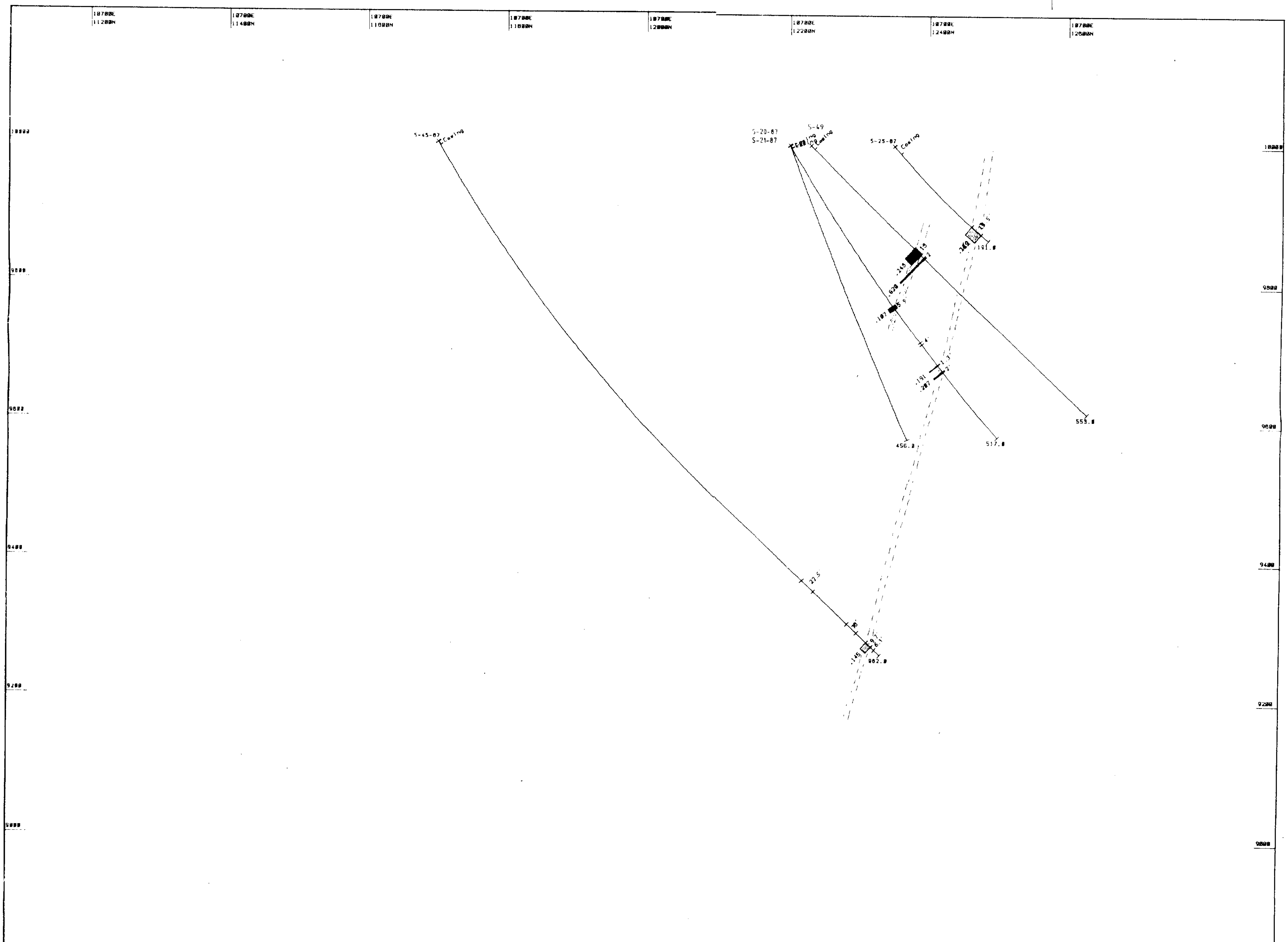
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008

53F15SW2006 63.5222 LINGMAN LAKE

390



63.5222

S3F SSW0006 63.5222 LINGMAN LAKE

400

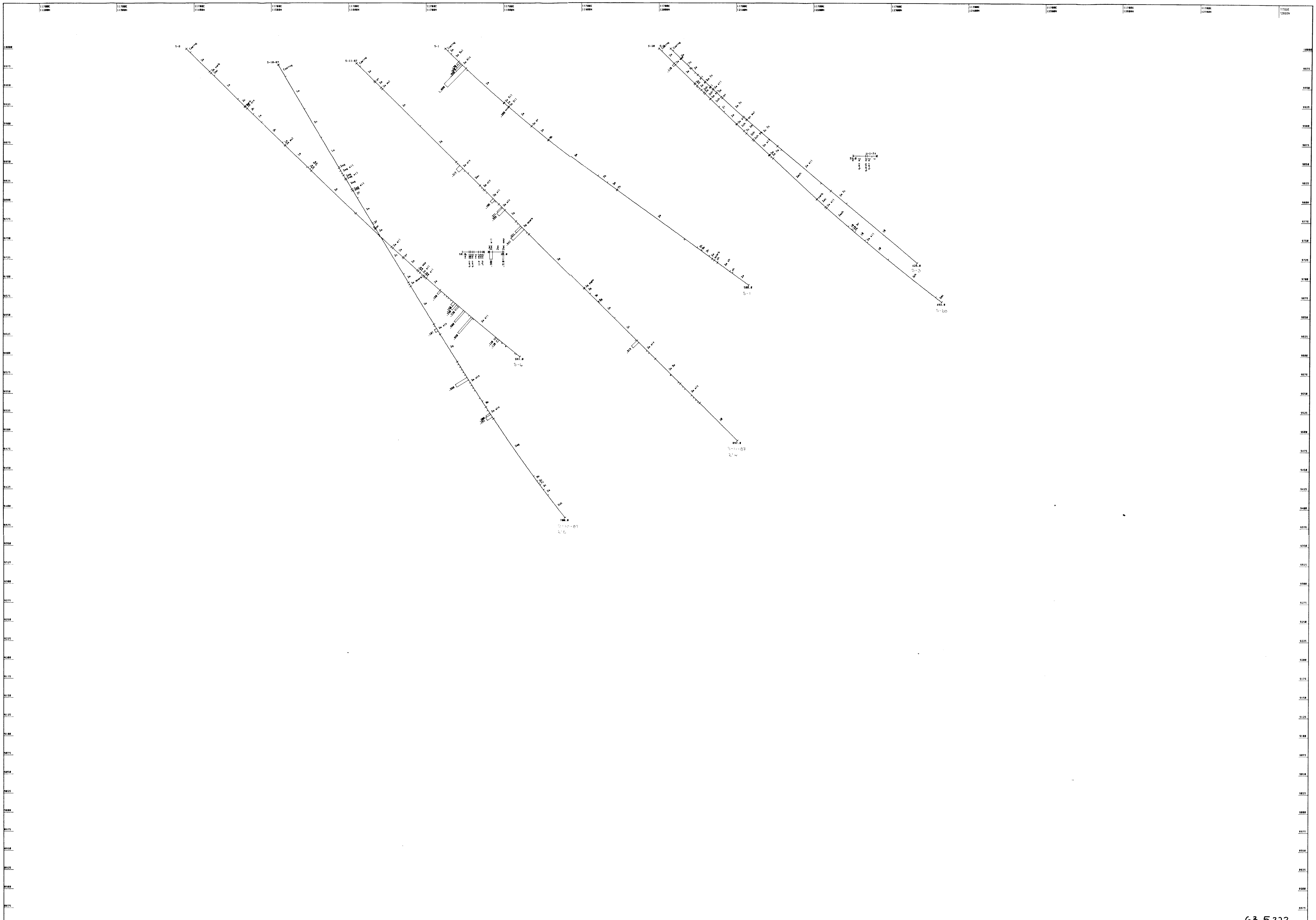
LINGMAN LAKE SECTION 10,700 EAST

SCALE=1:1200

DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008



63.5222

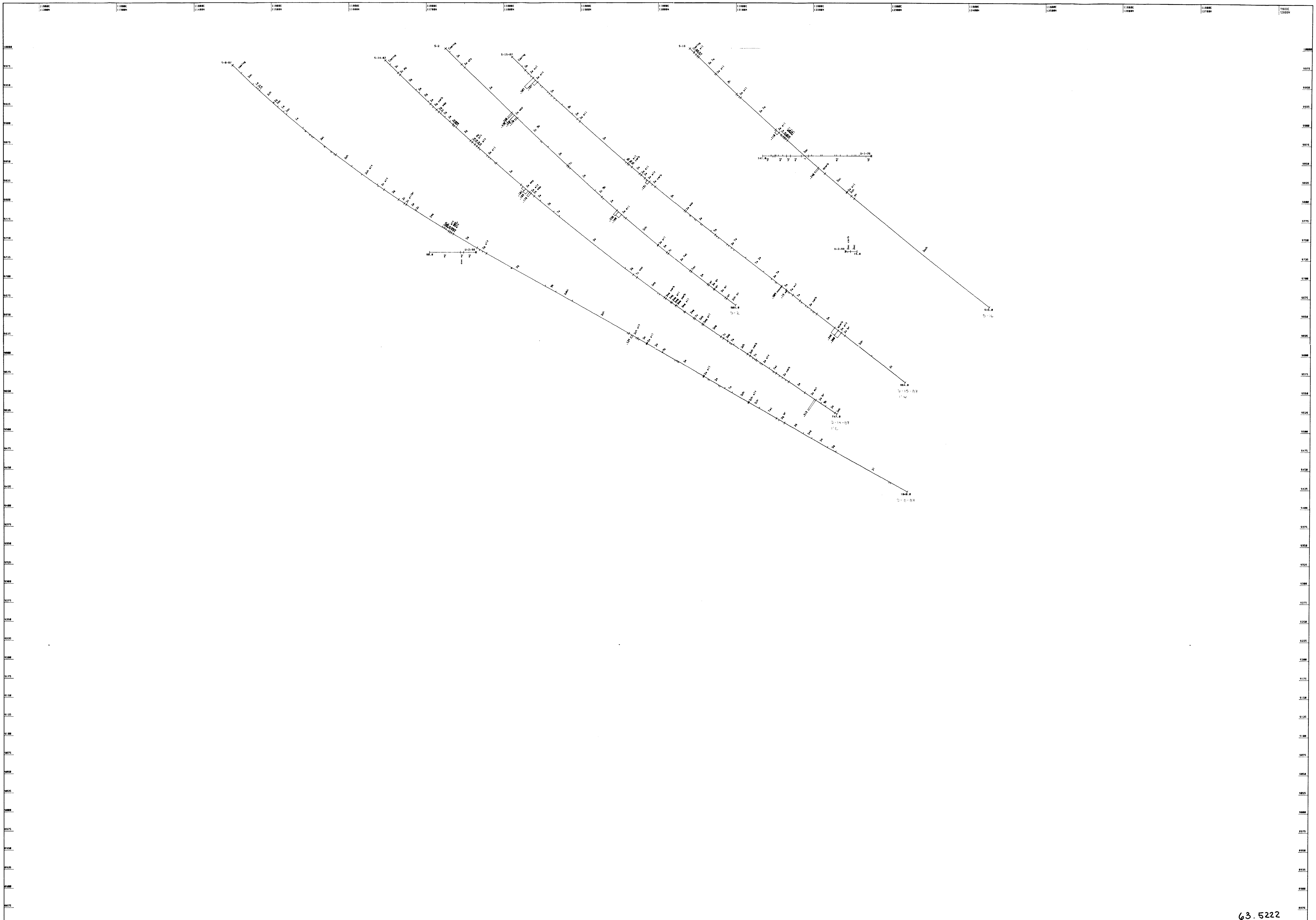
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

LINGMAN LAKE SECTION 11,700 EAST

SCALE=1:480 or 1"=40'

OM87-1-L-008

410



63.5222

AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

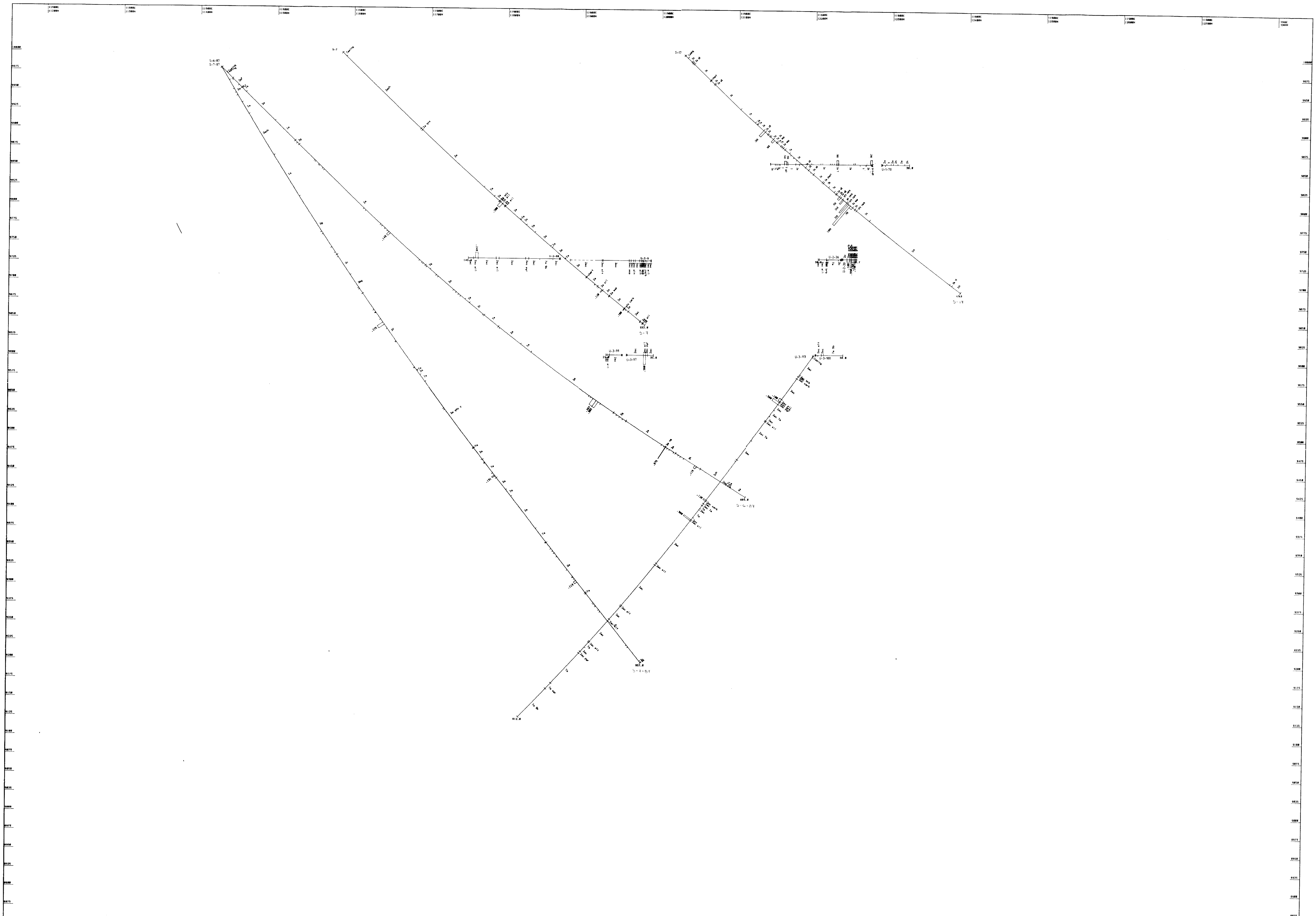
LINGMAN LAKE SECTION 11,800 EAST

SCALE=1: 480 or 1"=40'

DURHAM GEOLOGICAL

OM87-1-L-008

420



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

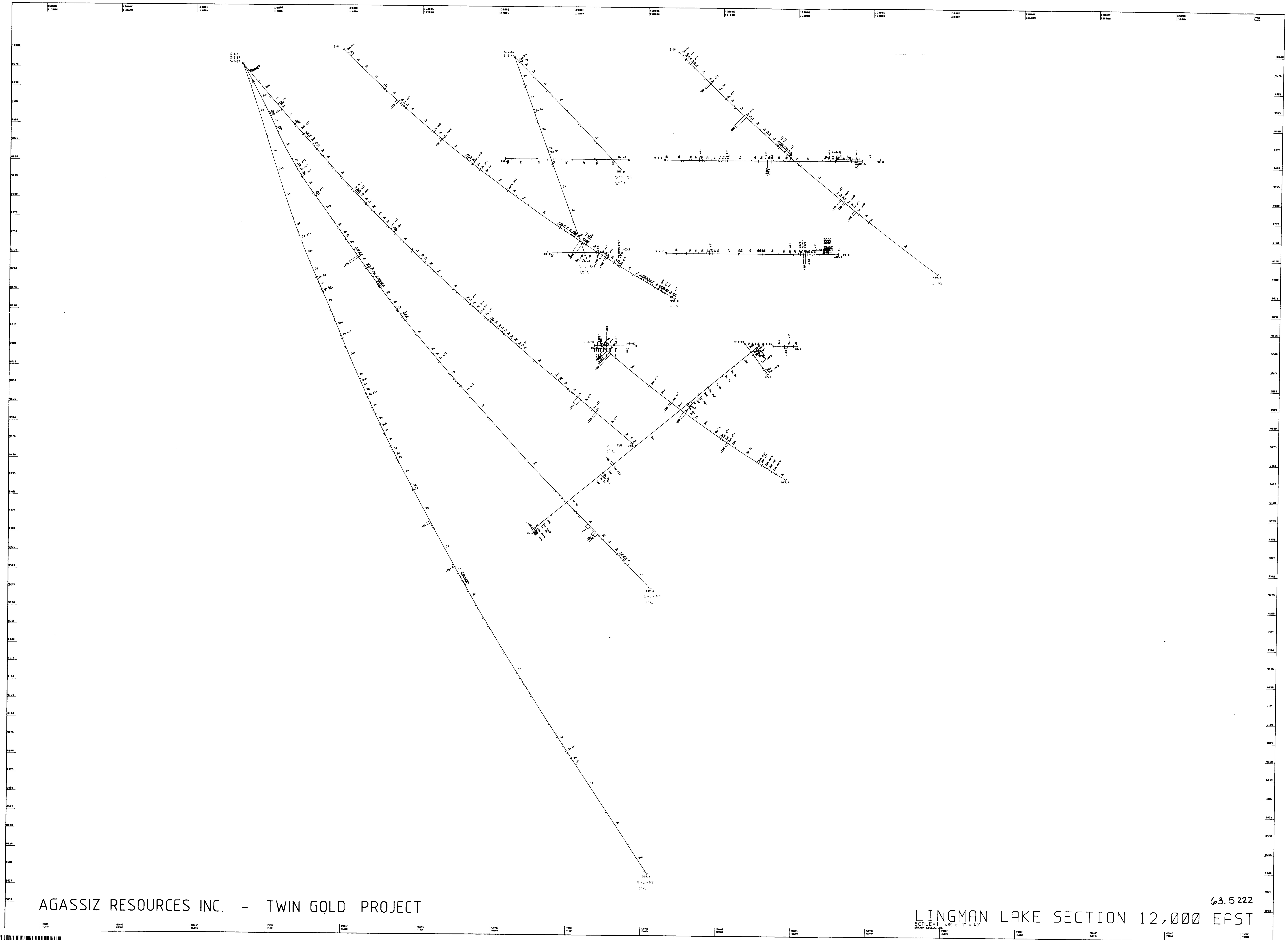
LINGMAN LAKE SECTION 11,900 EAST

SCALE = 1:480 or 1"=40'

63.5222

OM87-1-L-000

430



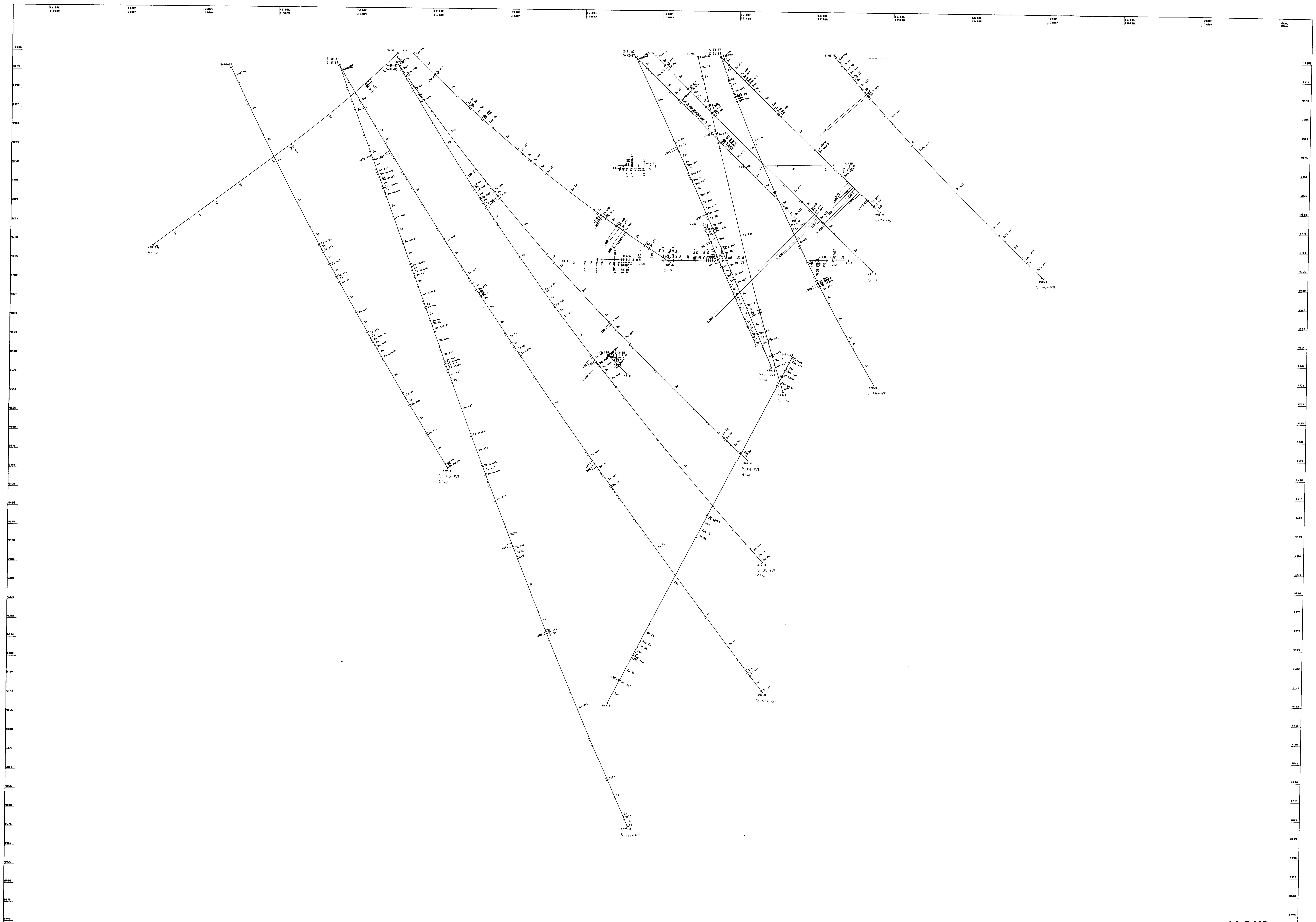
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

63.5222

LINGMAN LAKE SECTION 12,000 EAST

OM87-1-L-008

440



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

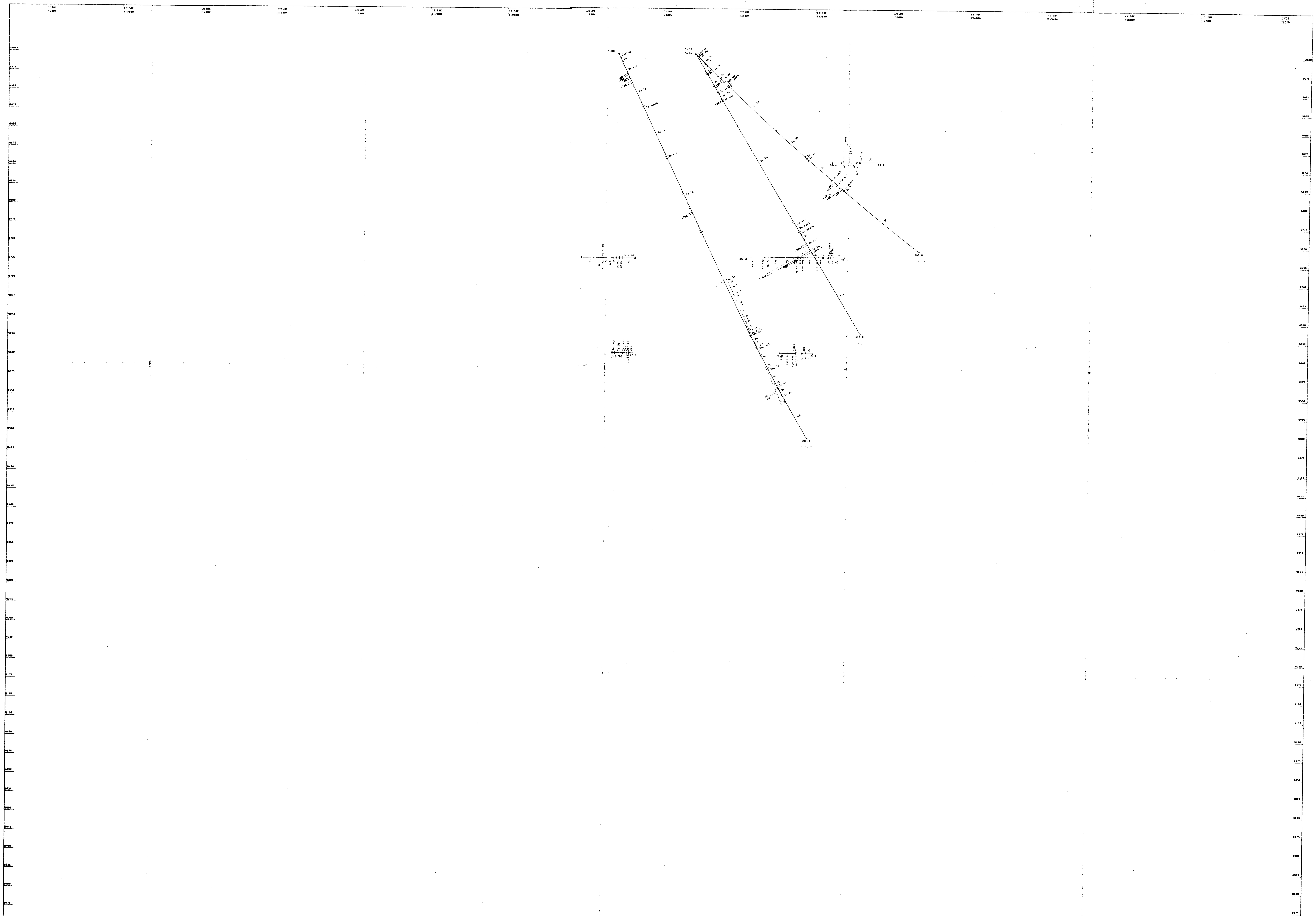
63.5222

LINGMAN LAKE SECTION 12,100 EAST

SCALE=1:480 or 1"=40'

450

OM87-1-L-008



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

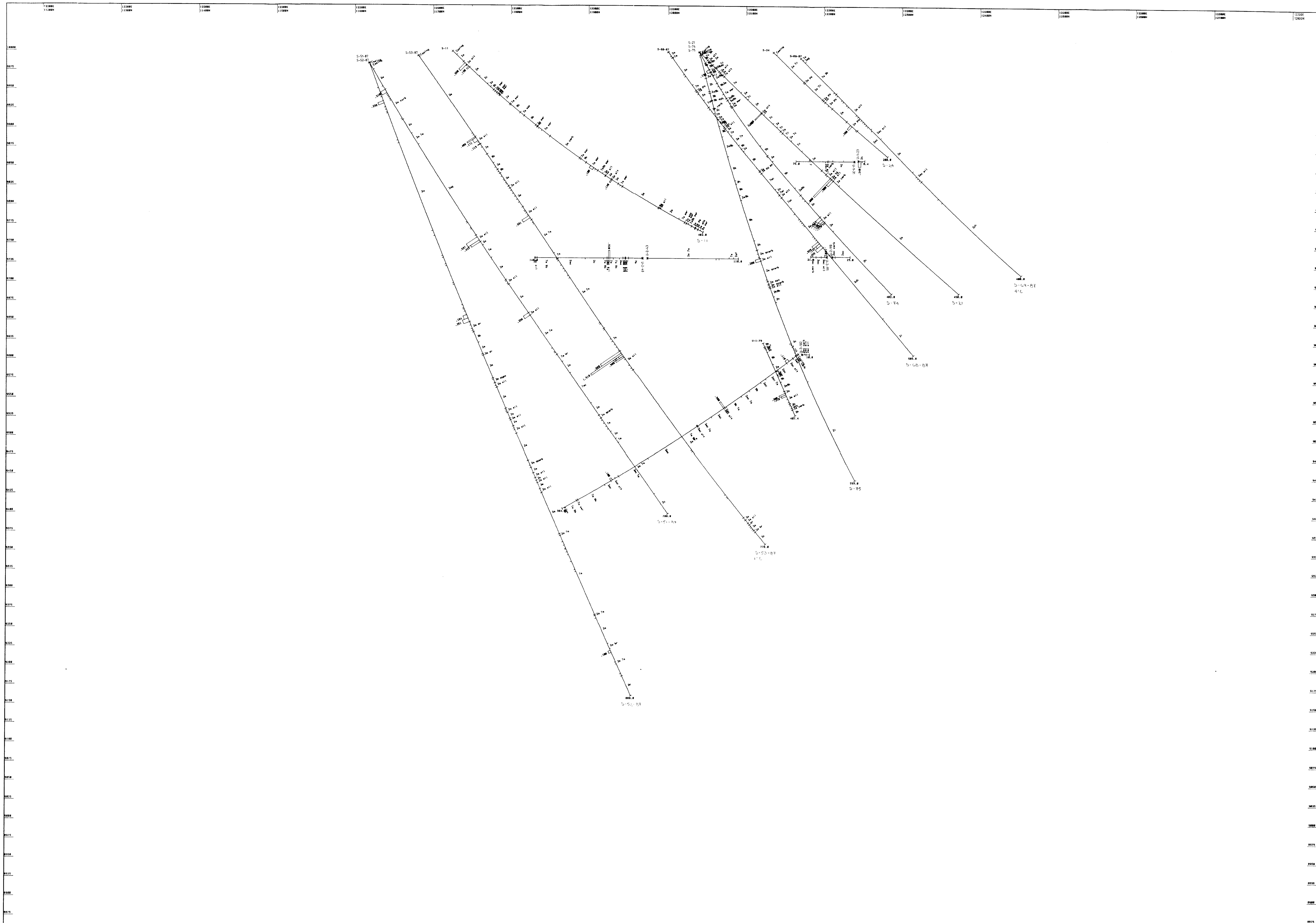
63.5222

LINGMAN LAKE SECTION 12,150 EAST

SCALE=1:480 or 1"=40'

OM87-1-L-008

460



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

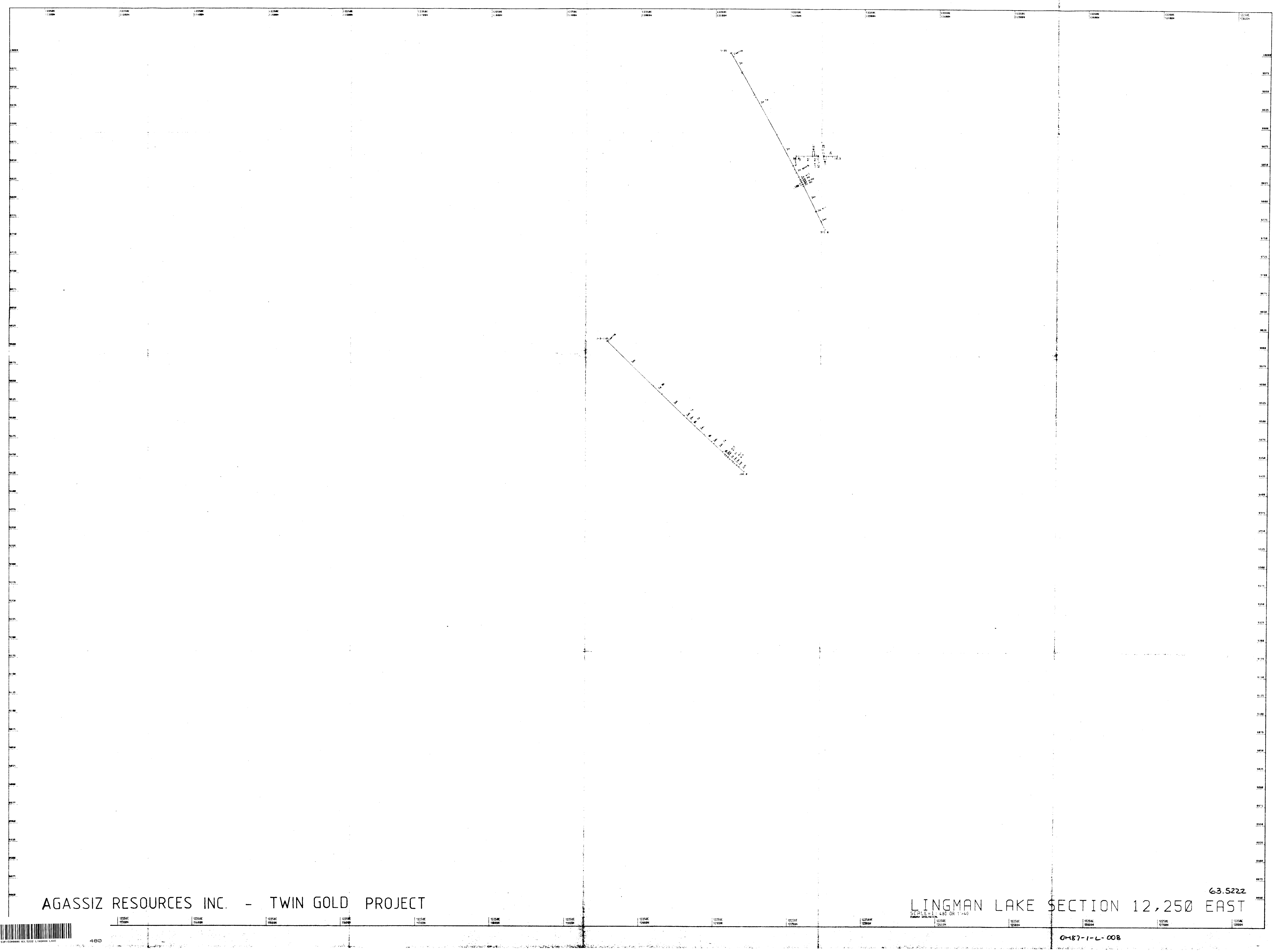
63.5222

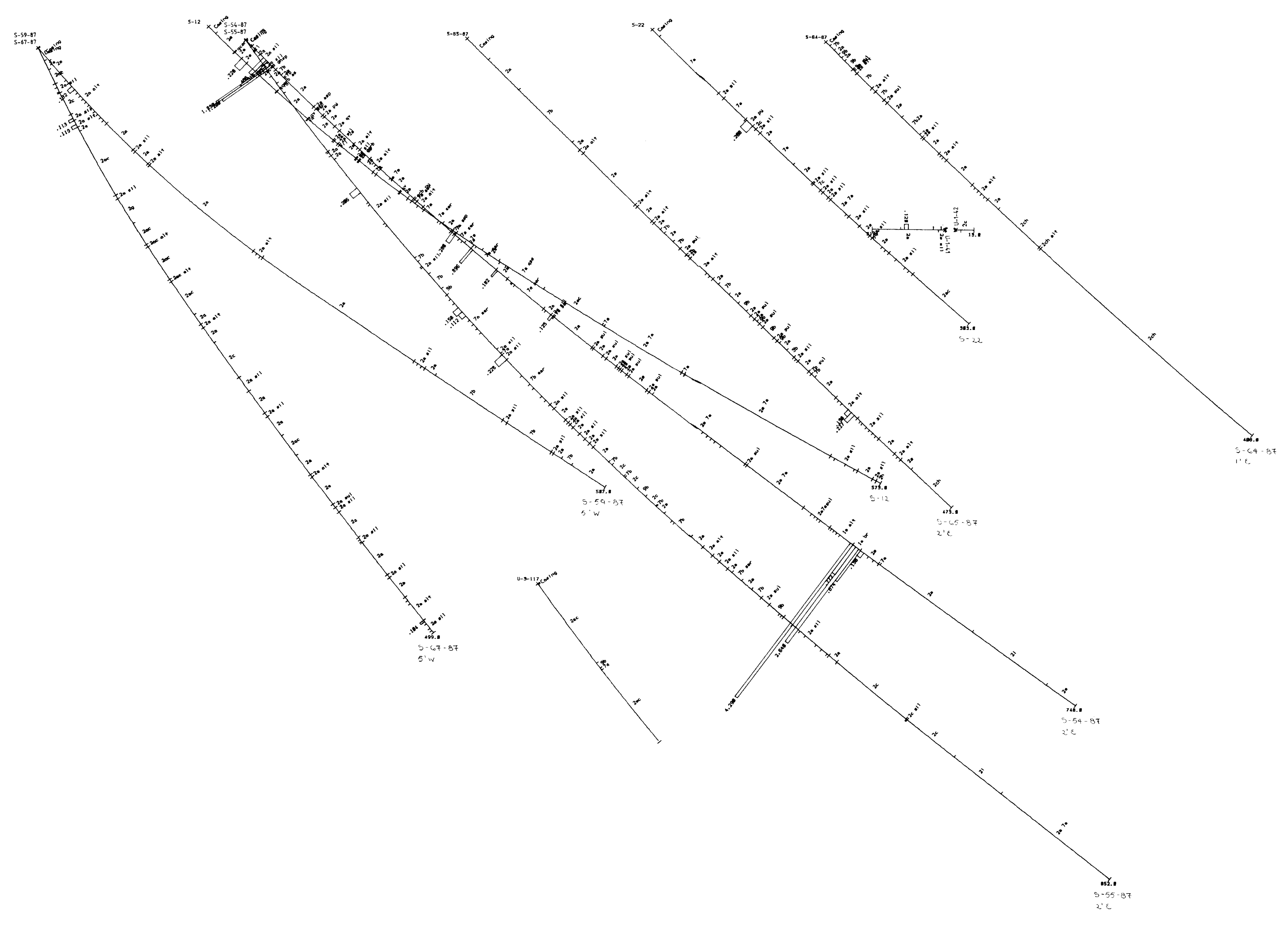
LINGMAN LAKE SECTION 12,200 EAST

SCALE = 1: 480 or 1"=40'

OM87-1-L-008

470


AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT
LINGMAN LAKE SECTION 12,250 EAST
63.5222
0M87-1-L-008
480



63.5222

AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

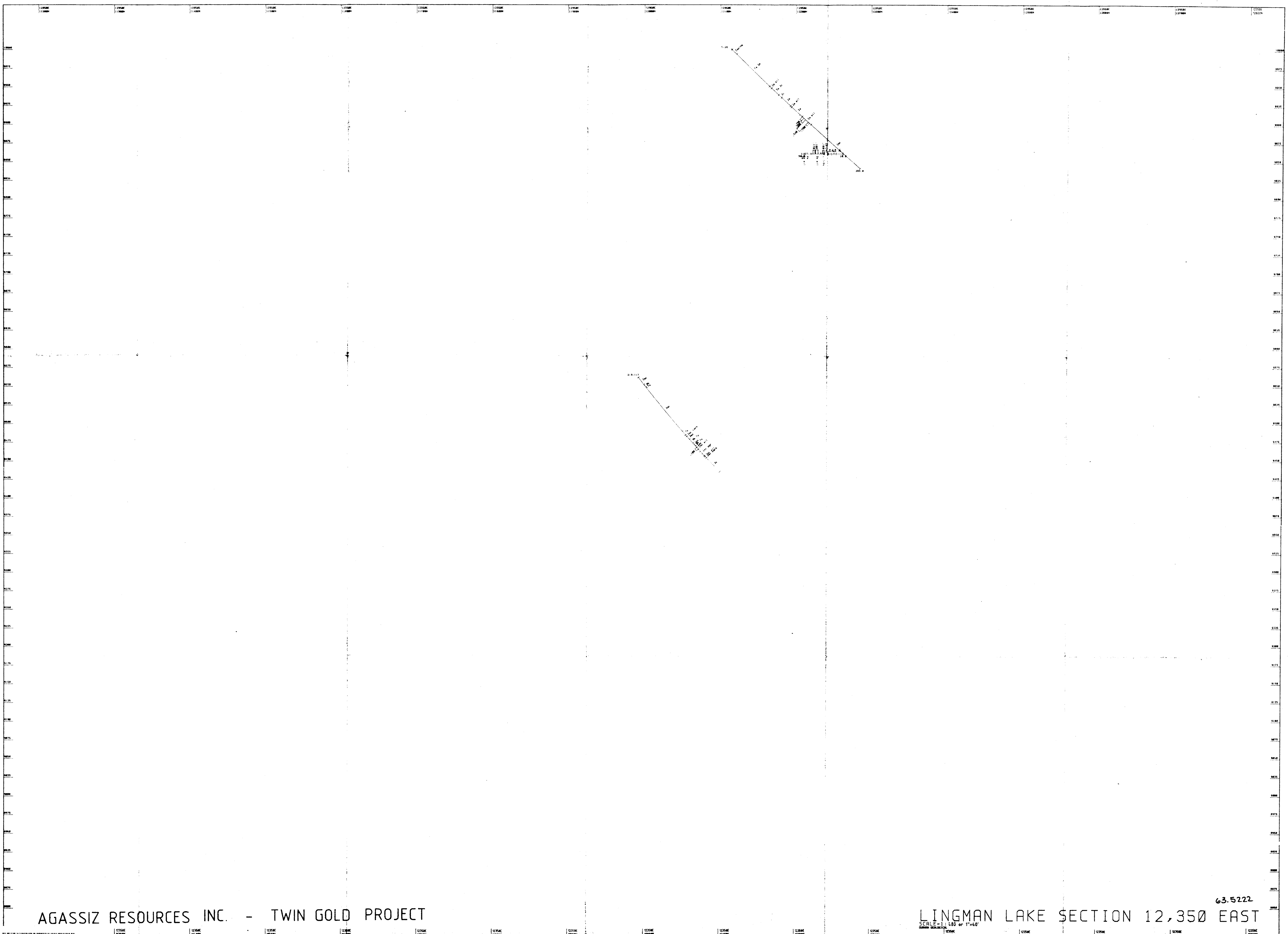
LINGMAN LAKE SECTION 12,3ØØ EAST

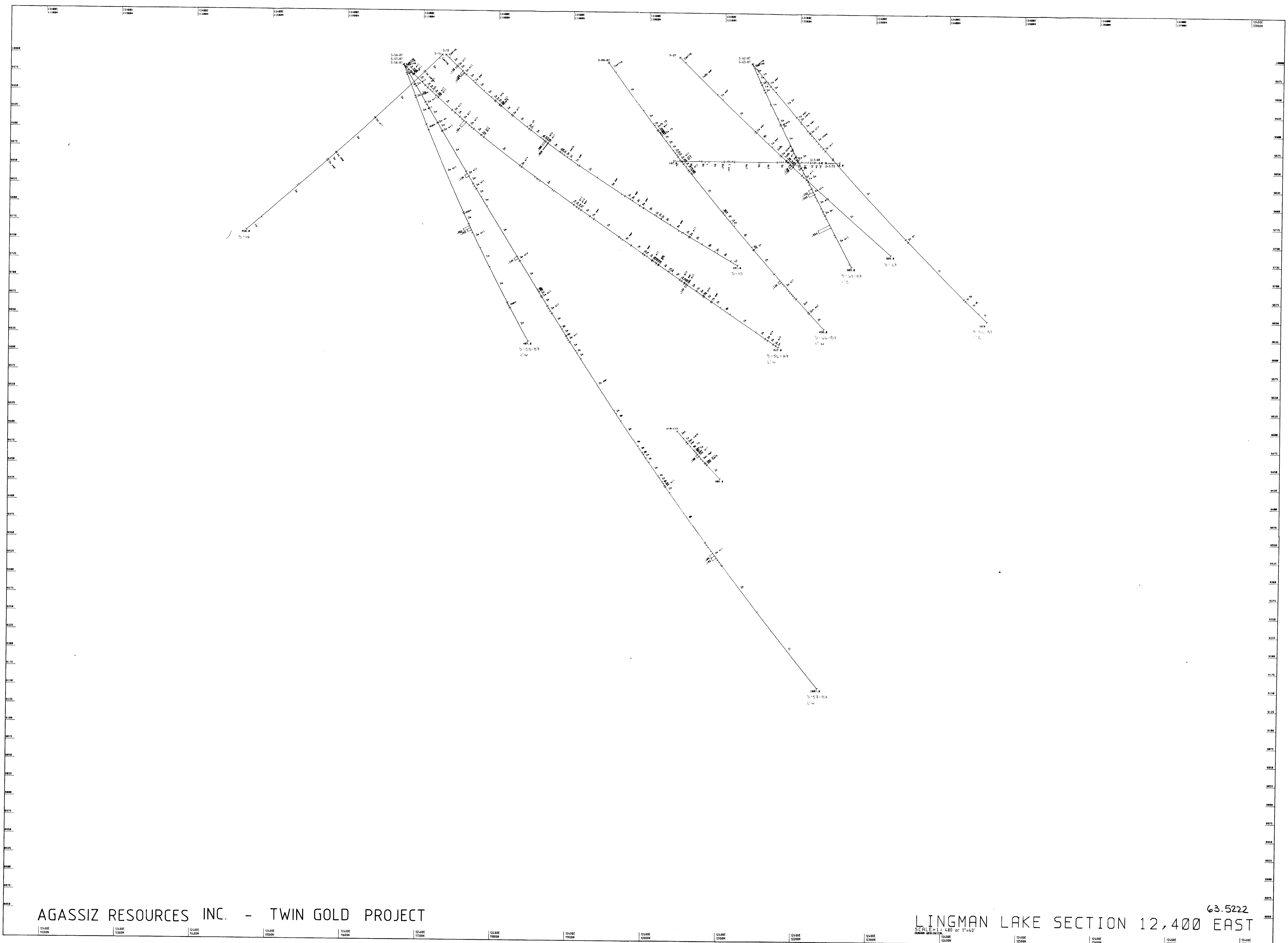
SCALE=1 : 480 or 1"=40'

DURHAM GEOLOGICAL

OM87-1-L-008

490


AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT
LINGMAN LAKE SECTION 12,350 EAST
SCALE=1:480 or 1"=40'
63.5222
OM87-1-L-008
500



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

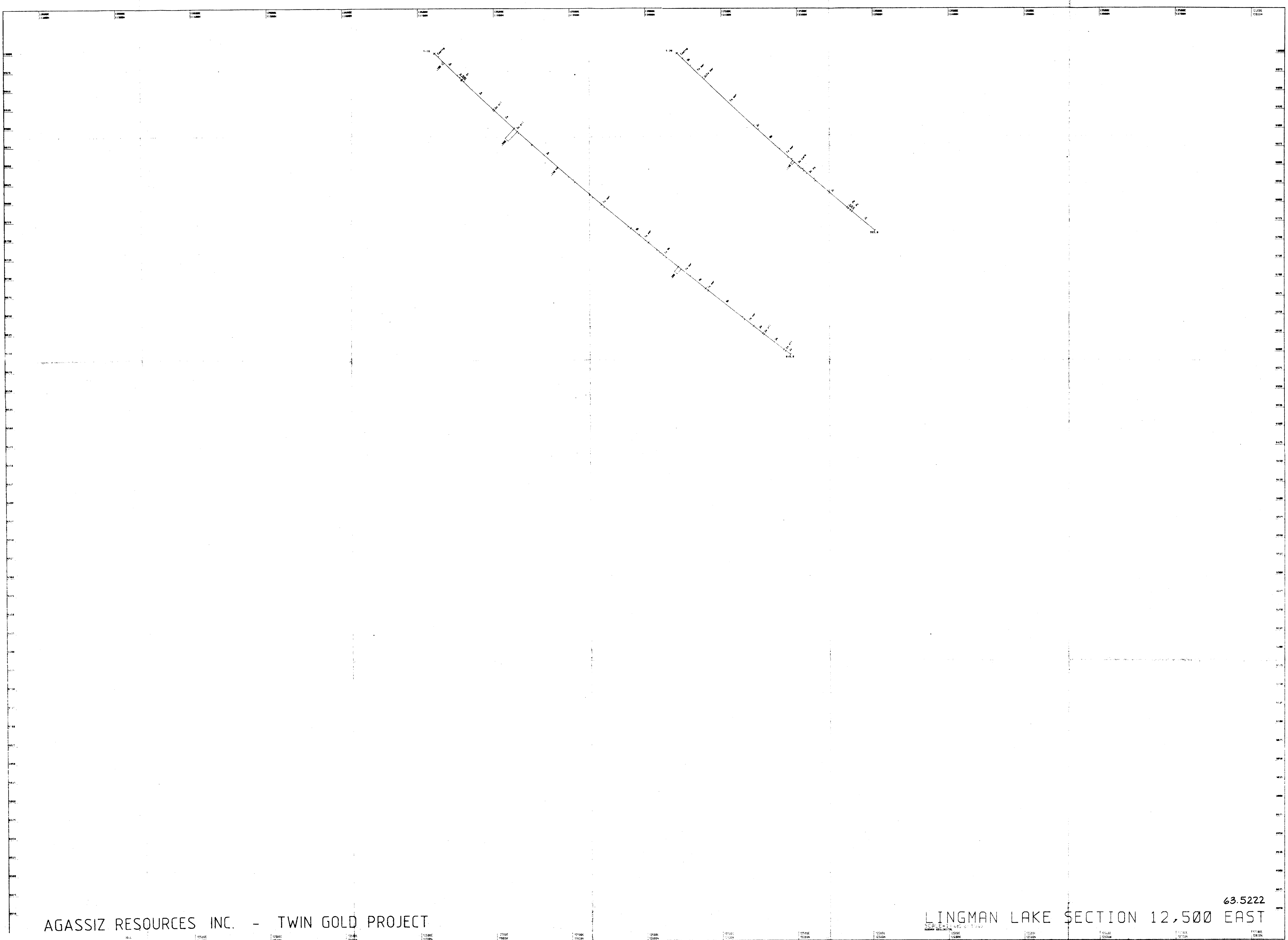
LINGMAN LAKE SECTION 12,400 EAST

SCALE=1:480 or 1"=40'

63.5222

OM87-1-L-008

510



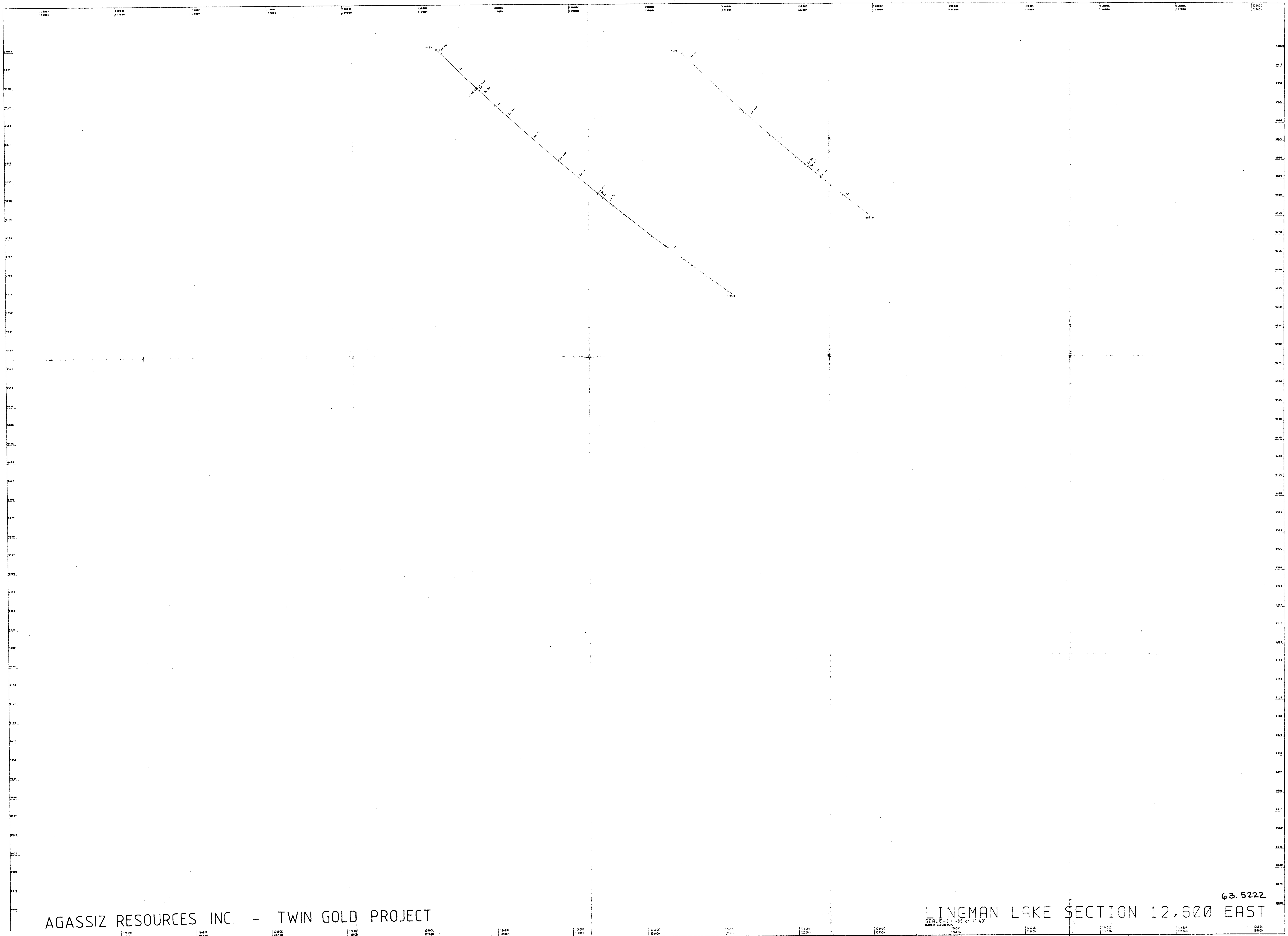
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

63.5222

LINGMAN LAKE SECTION 12,500 EAST

OM87-1-L-008

520



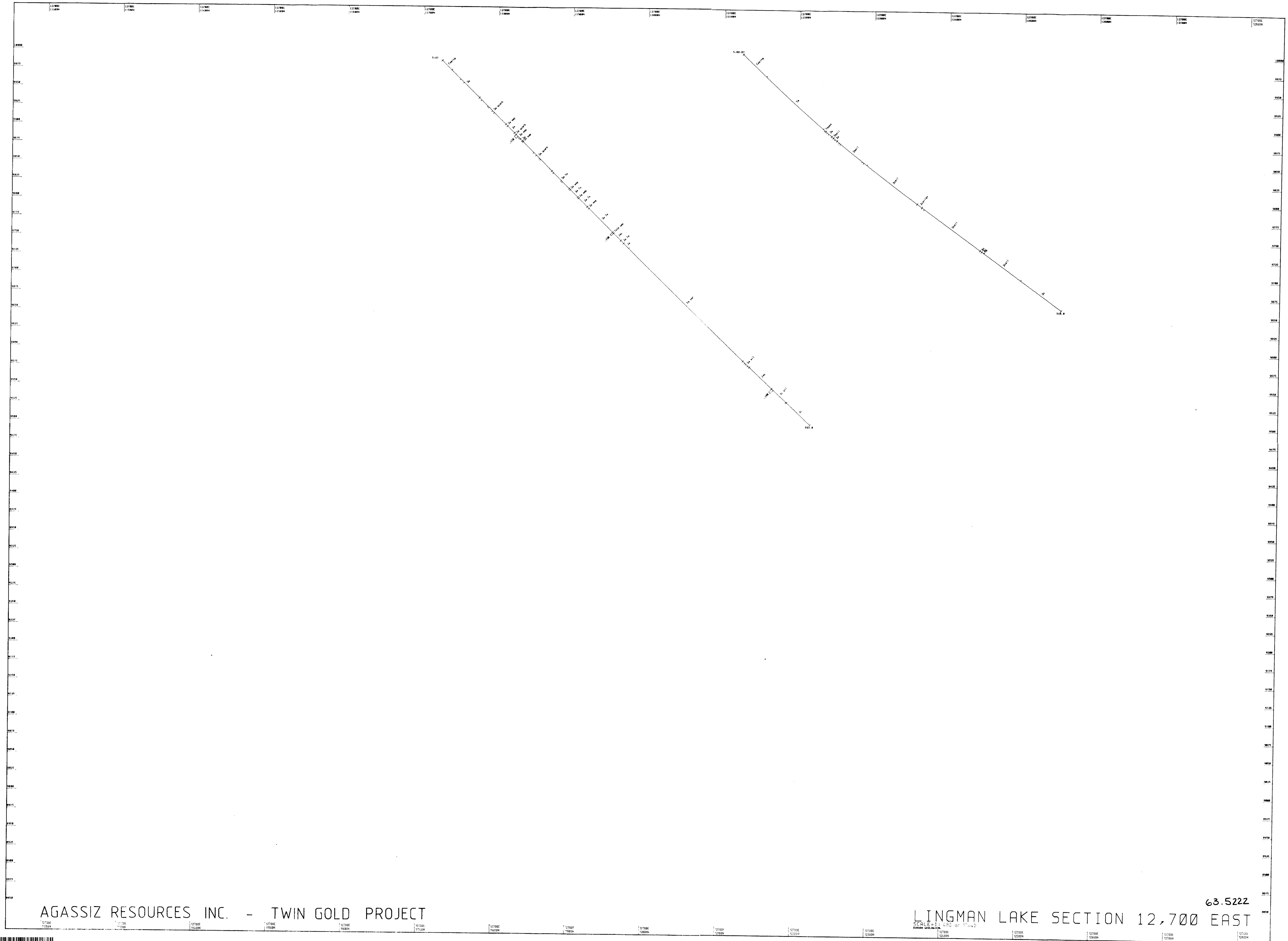
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

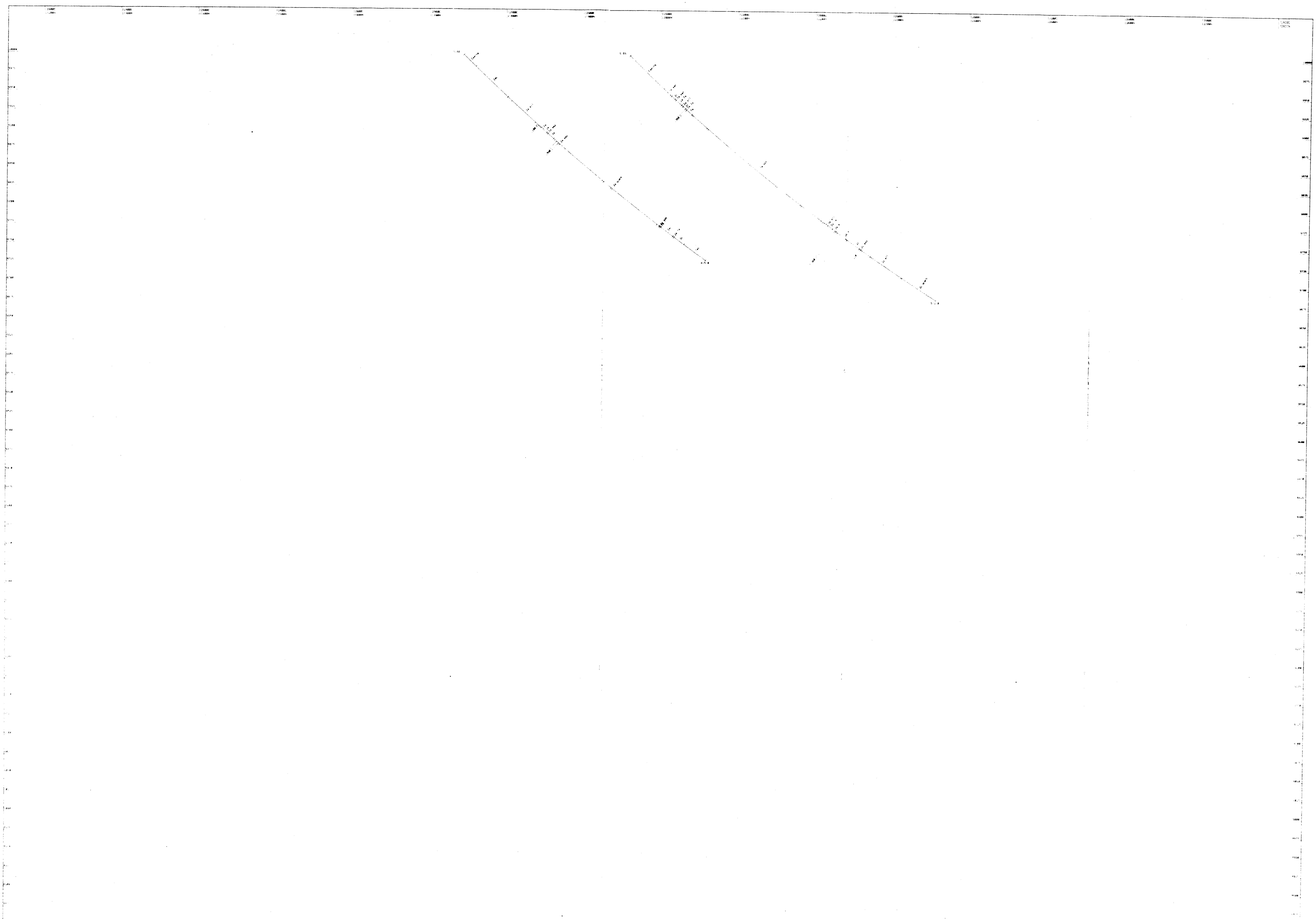
LINGMAN LAKE SECTION 12,600 EAST

63.5222

OM87-1-L-008

530


63.5222
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT
LINGMAN LAKE SECTION 12,700 EAST
OM87-1-L-008
540



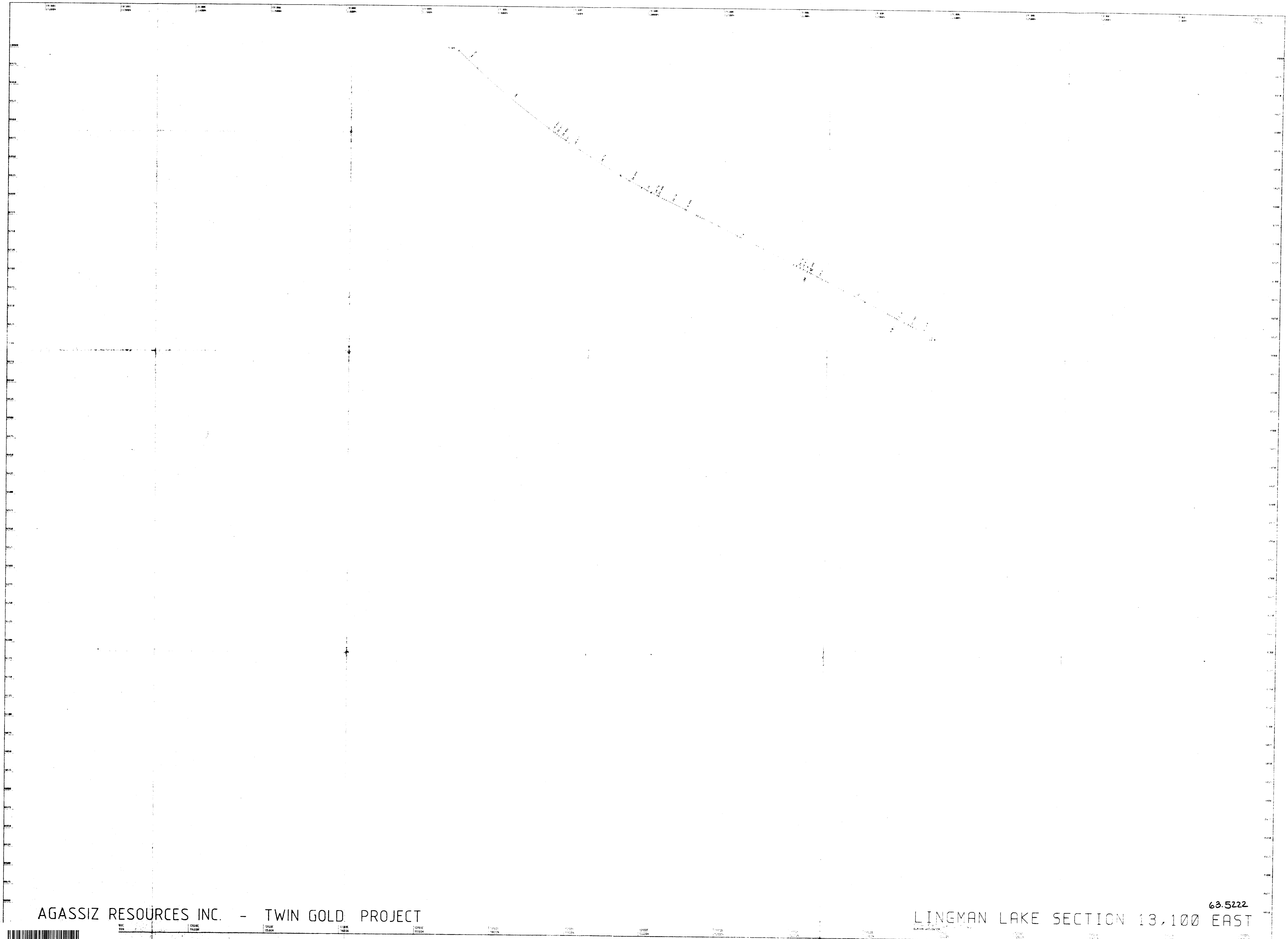
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

LINGMAN LAKE SECTION 12,900 EAST

63.5222

OM87-1-L-008

550



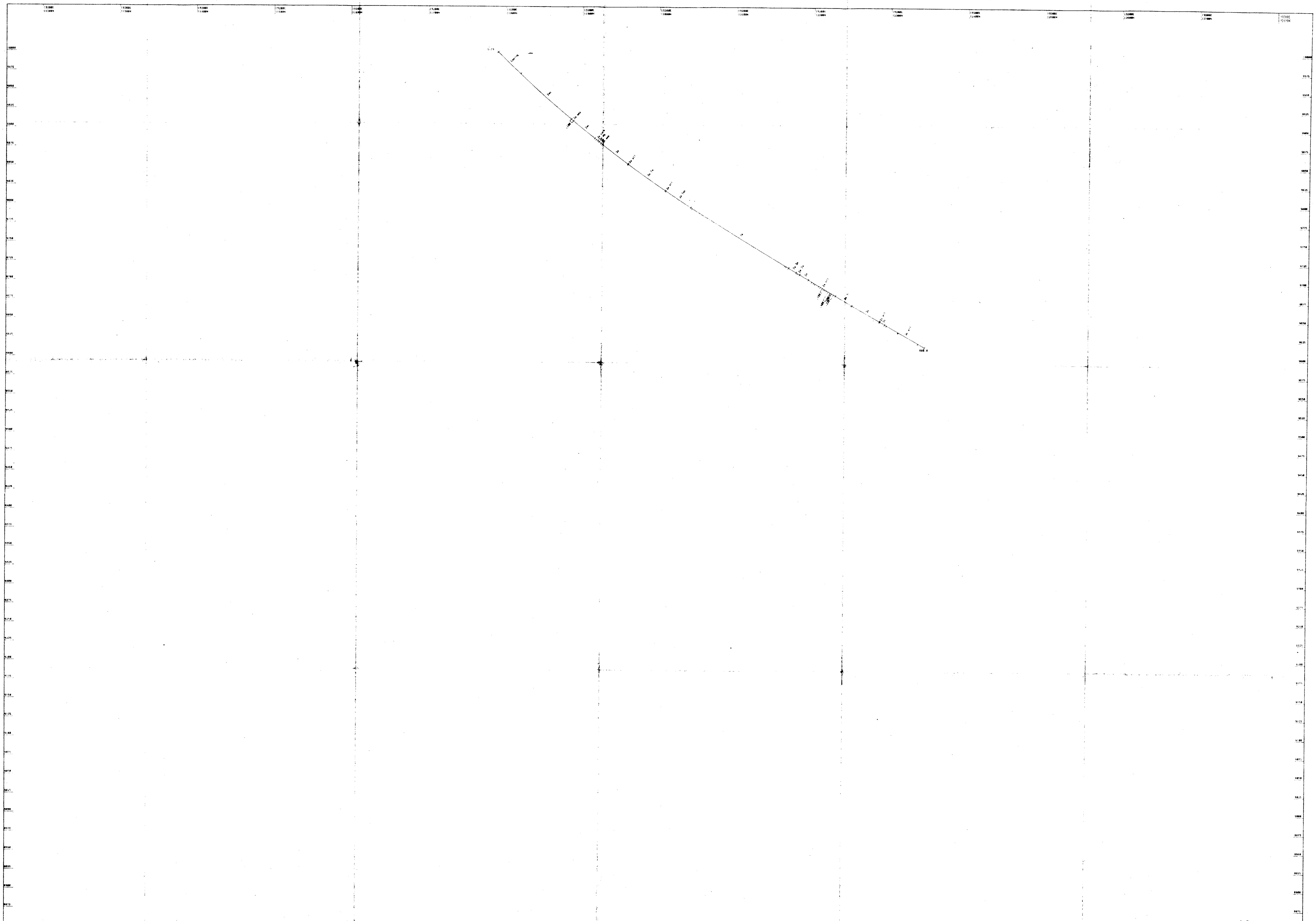
AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

LINGMAN LAKE SECTION 13,100 EAST

63.5222

560

OM87-1-L-008



63.5222

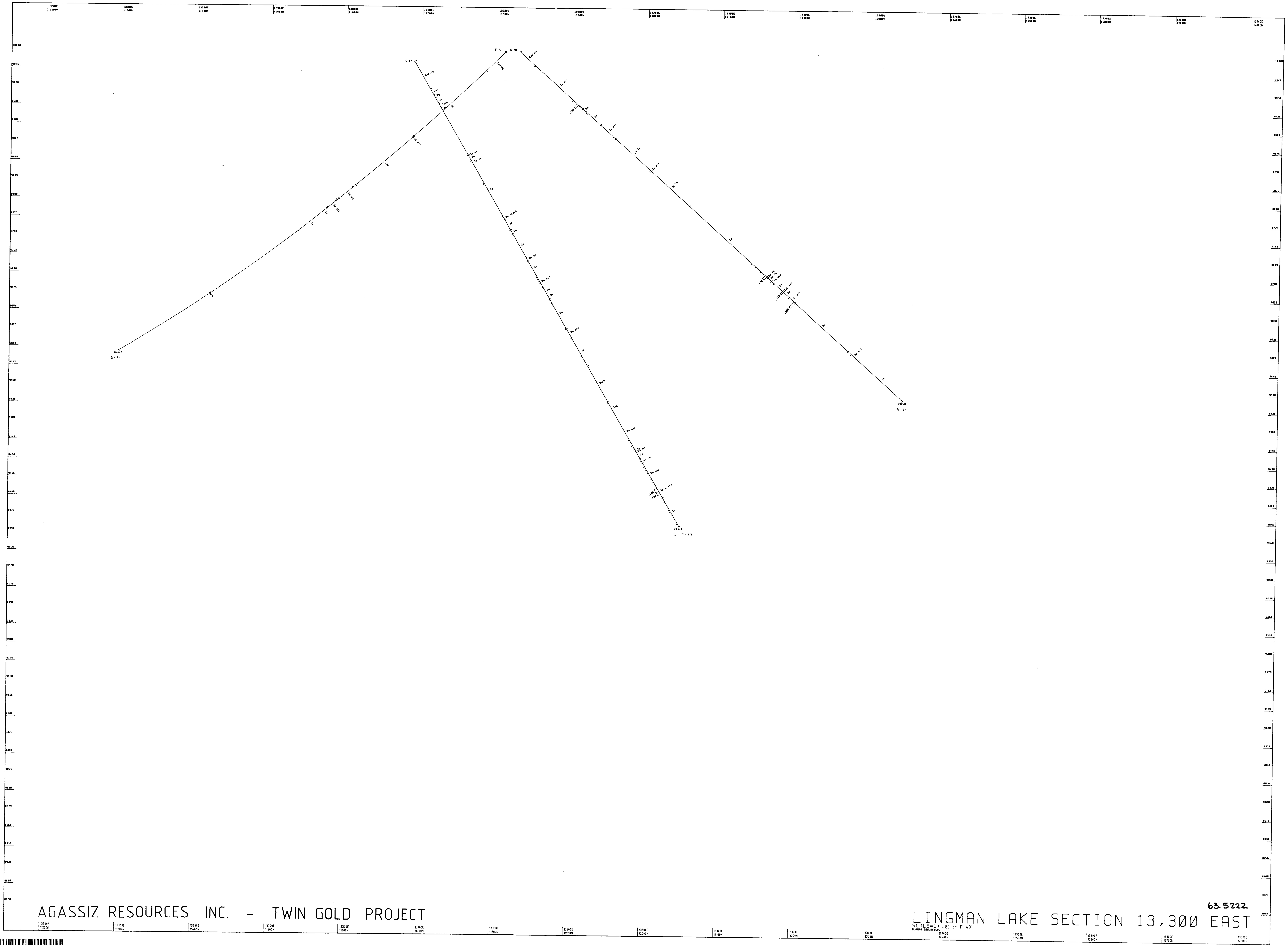
LINGMAN LAKE SECTION 13,200 EAST

SCALE=1 : 480 or 1"=40'

DURHAM GEOLOGICAL

OM87-1-L-008

570



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

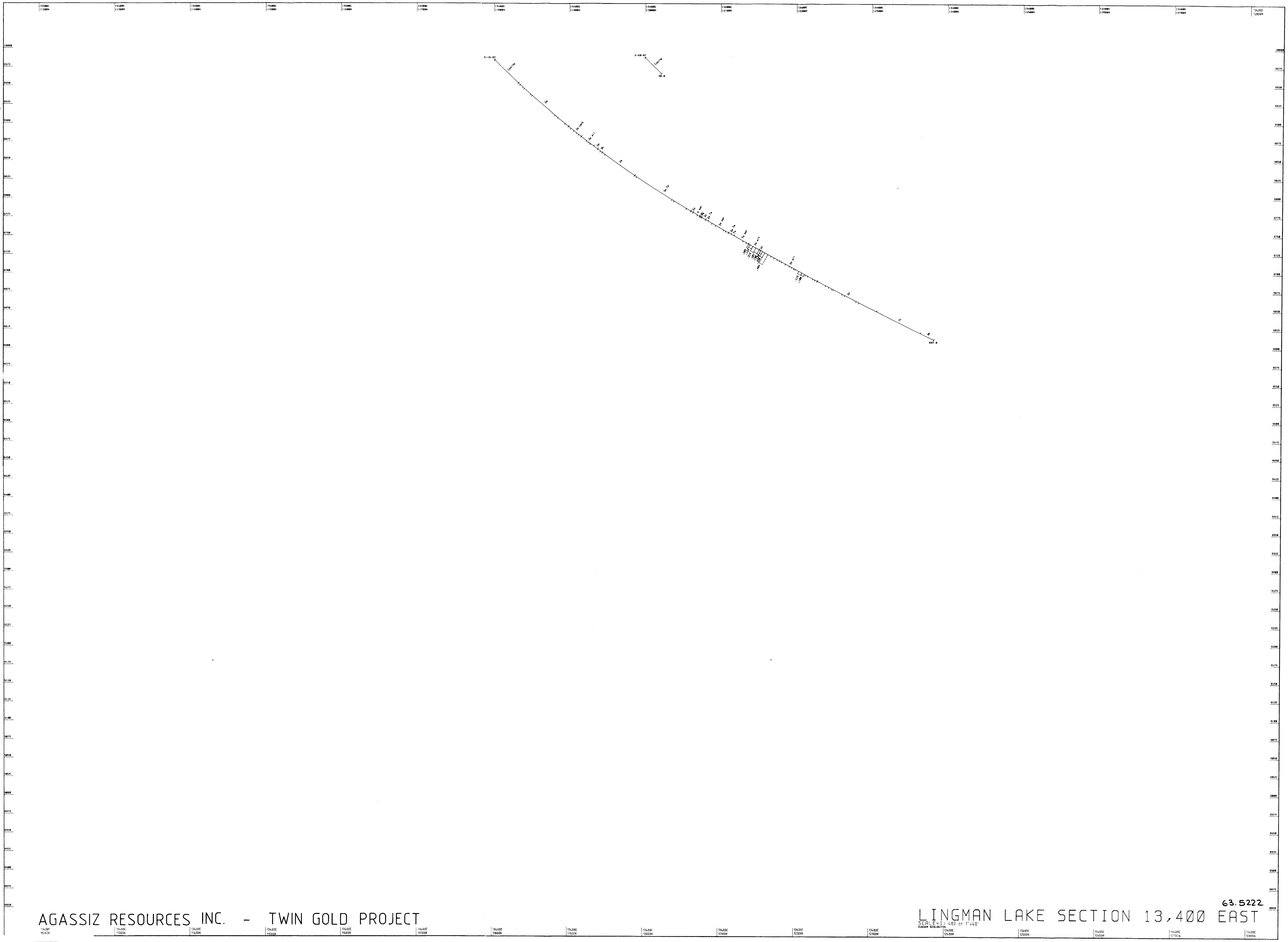
LINGMAN LAKE SECTION 13,300 EAST

SCALE=1:480 or 1"=40'

63.5222

OM87-1-L-008

580



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

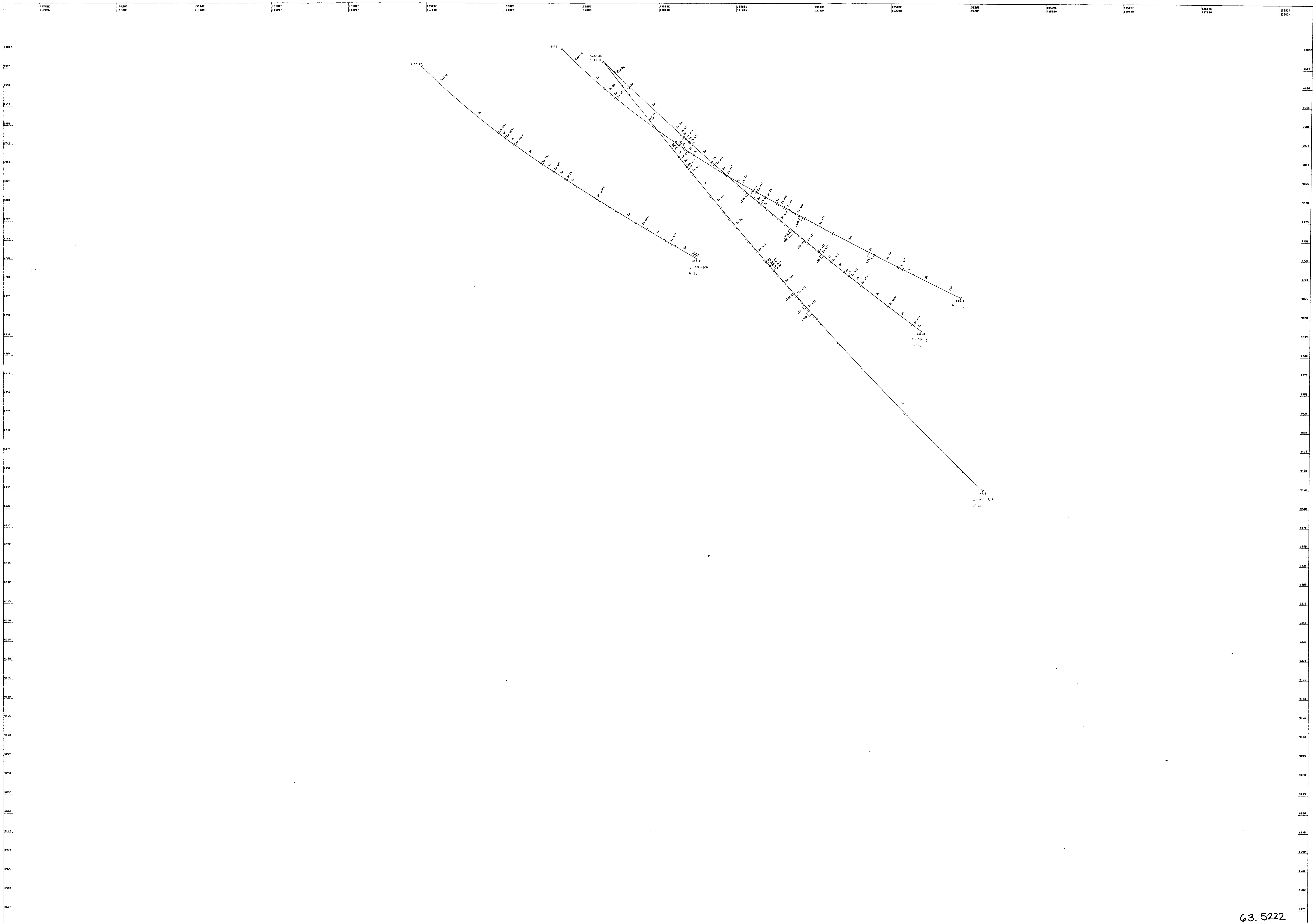
LINGMAN LAKE SECTION 13,400 EAST

SCALE=1:480 or 1"=40'

63.5222

0M87-1-L-008

590



AGASSIZ RESOURCES INC. - TWIN GOLD PROJECT

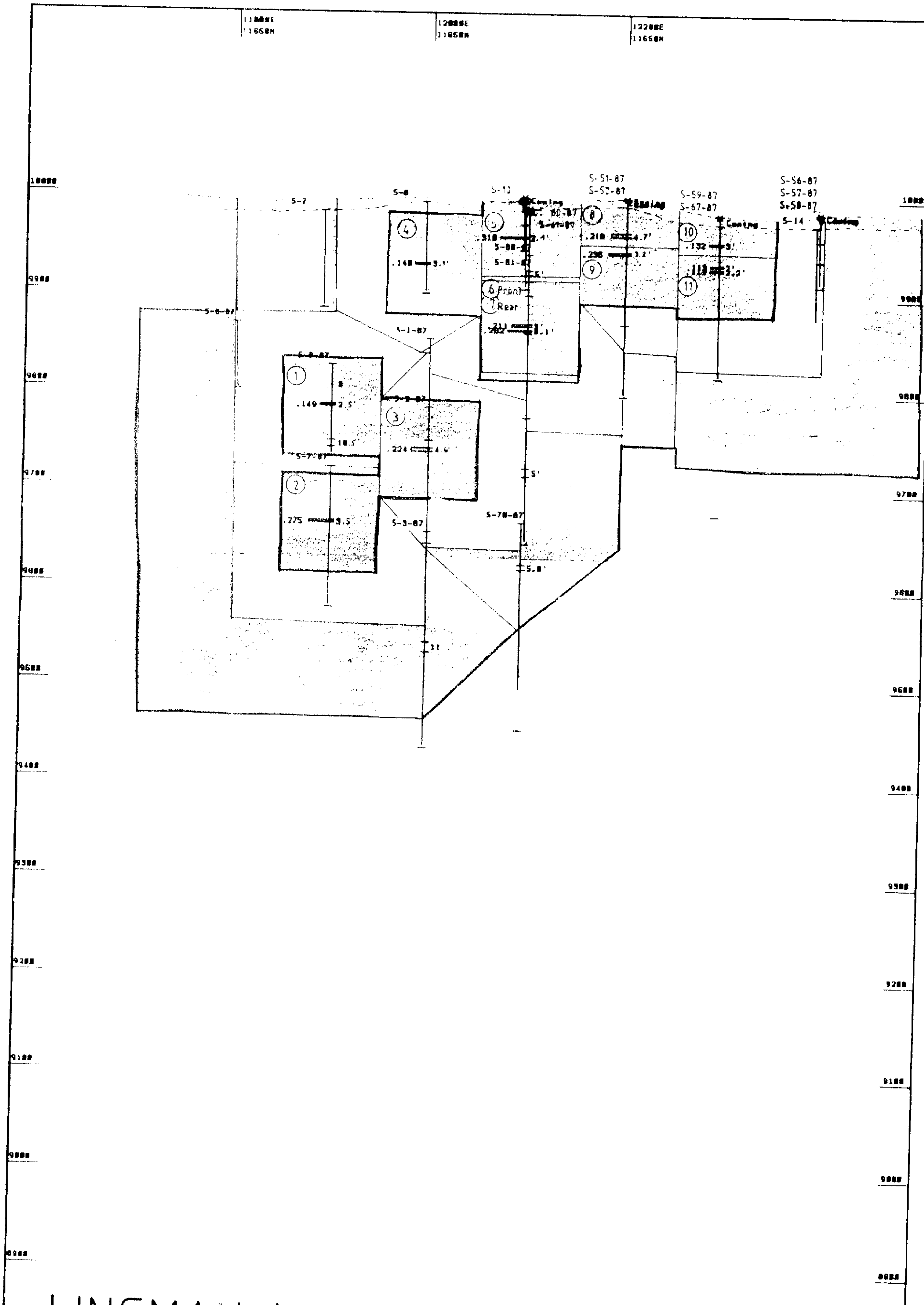
LINGMAN LAKE SECTION 13,500 EAST

SCALE=1:480 or 1"=40'

63.5222

OM87-1-L-008

600



LINGMAN LAKE

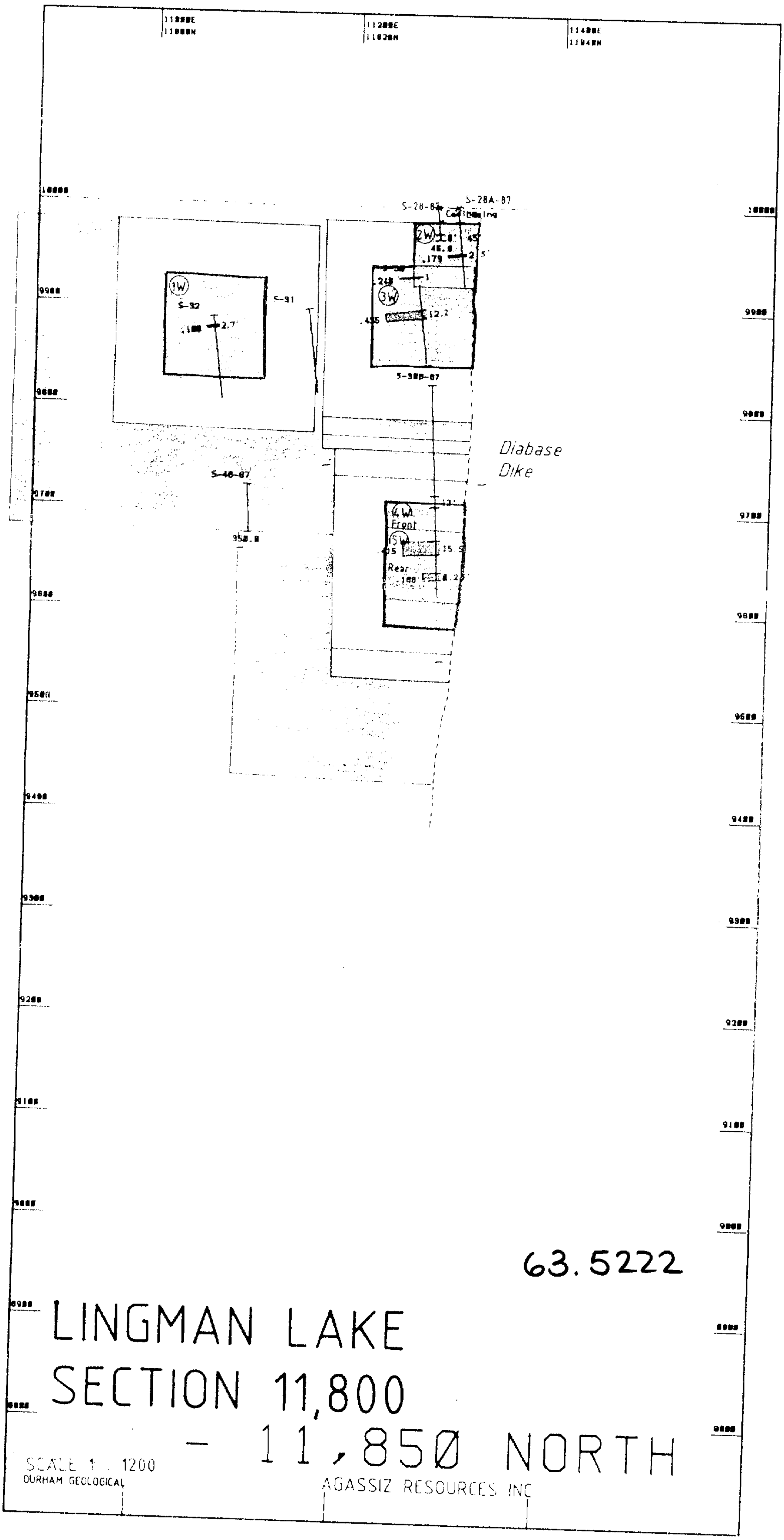
63.5222

SECTION 11,650 NORTH

SCALE 1 : 1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008



DM87-1-L-008

53F15SW0006 63.5222 LINGMAN LAKE

63.5222

53F15SW0006 63.5222 LINGMAN LAKE

630

LINGMAN LAKE SECTION 11,775 NORTH

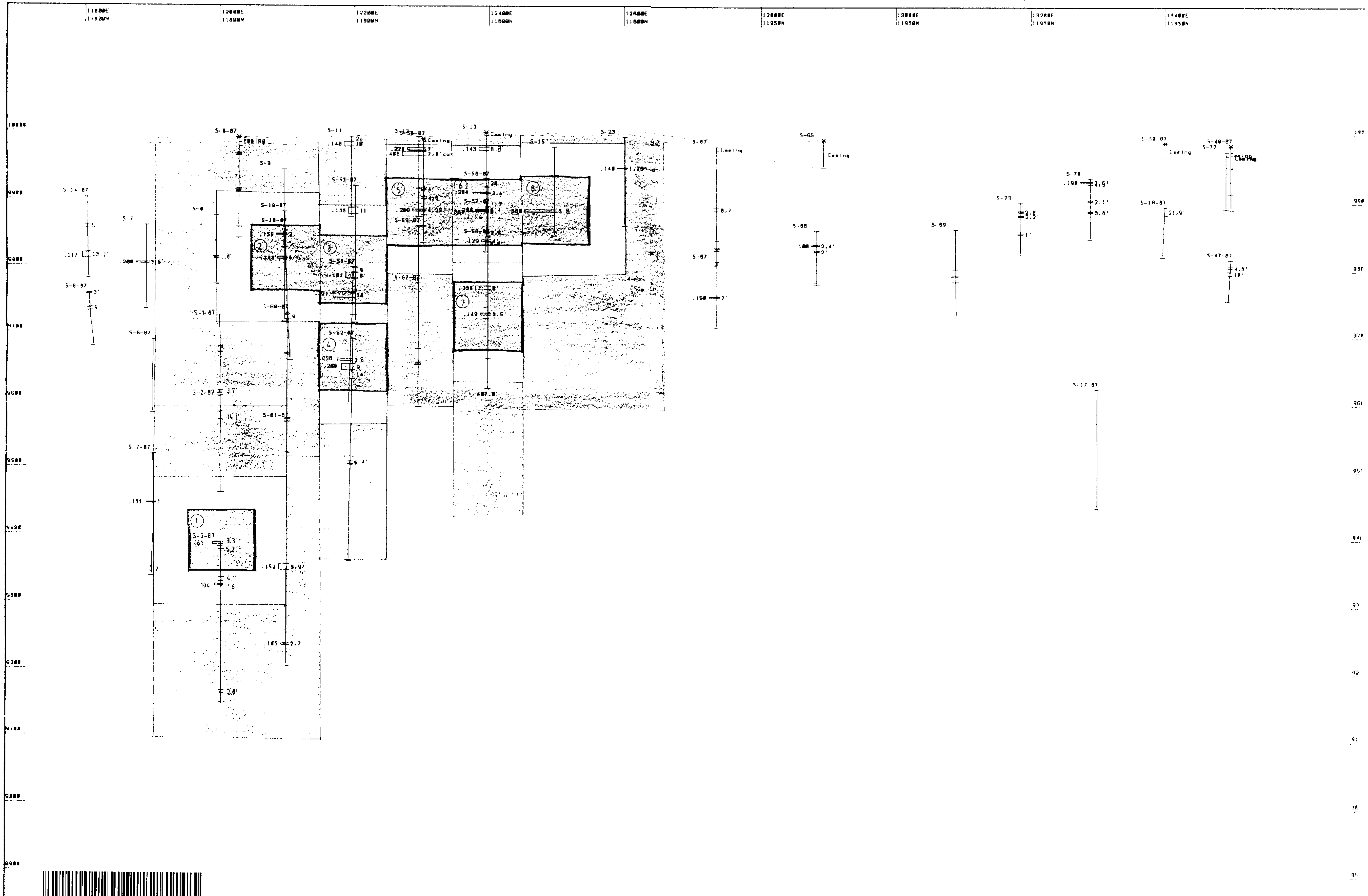
SCALE=1:1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

11,900 north

SCALE=1:1200
DURHAM GEOLOGICAL

OM87-1-L-008



53F15SW0006 63.5222 LINGMAN LAKE

640

63. 5222

LINGMAN LAKE SECTION 11,800 NORTH

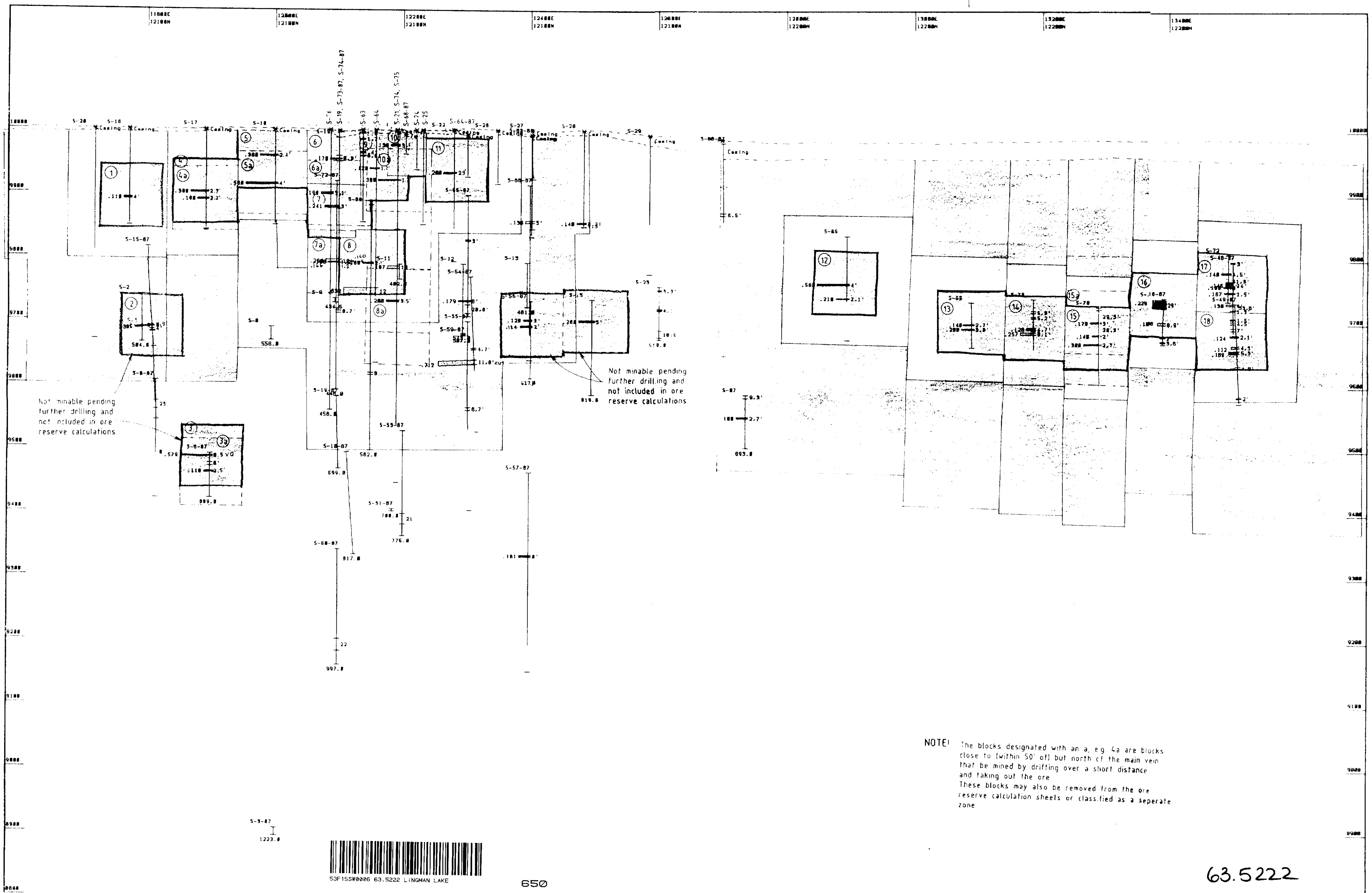
SCALE=1:1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

11,950 NORTH

SCALE=1:1200
DURHAM GEOLOGICAL

OM87-1-L-008



NOTE! The blocks designated with an a, e.g. 4a are blocks close to (within 50' of) but north of the main vein that be mined by drifting over a short distance and taking out the ore
These blocks may also be removed from the ore reserve calculation sheets or classified as a seperate zone

650

63.5222

LINGMAN LAKE SECTION 12,100 NORTH

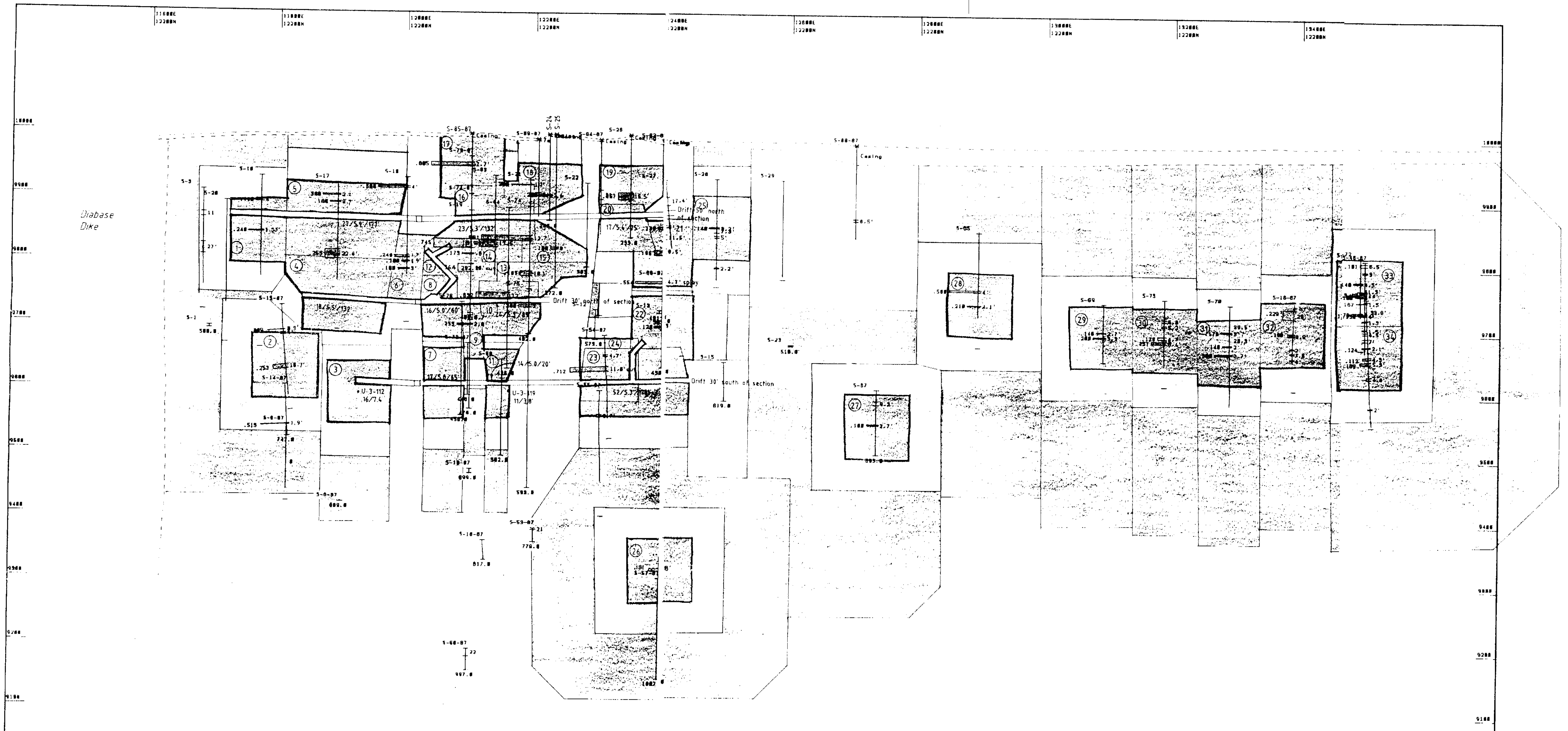
SCALE=1:1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

12,200 NORTH

SCALE=1:1200
DURHAM GEOLOGICAL

OM 87-1-L-008



63. 5222

LINGMAN LAKE 12,200 NORTH

SCALE=1:1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

53P15SW0020 63.5222 LINGMAN LAKE

660

OM87-1-L-008

53F15SW0006 63.5222 LINGMAN LAKE

670

63.5222

LINGMAN LAKE SECTION 11,900 NORTH

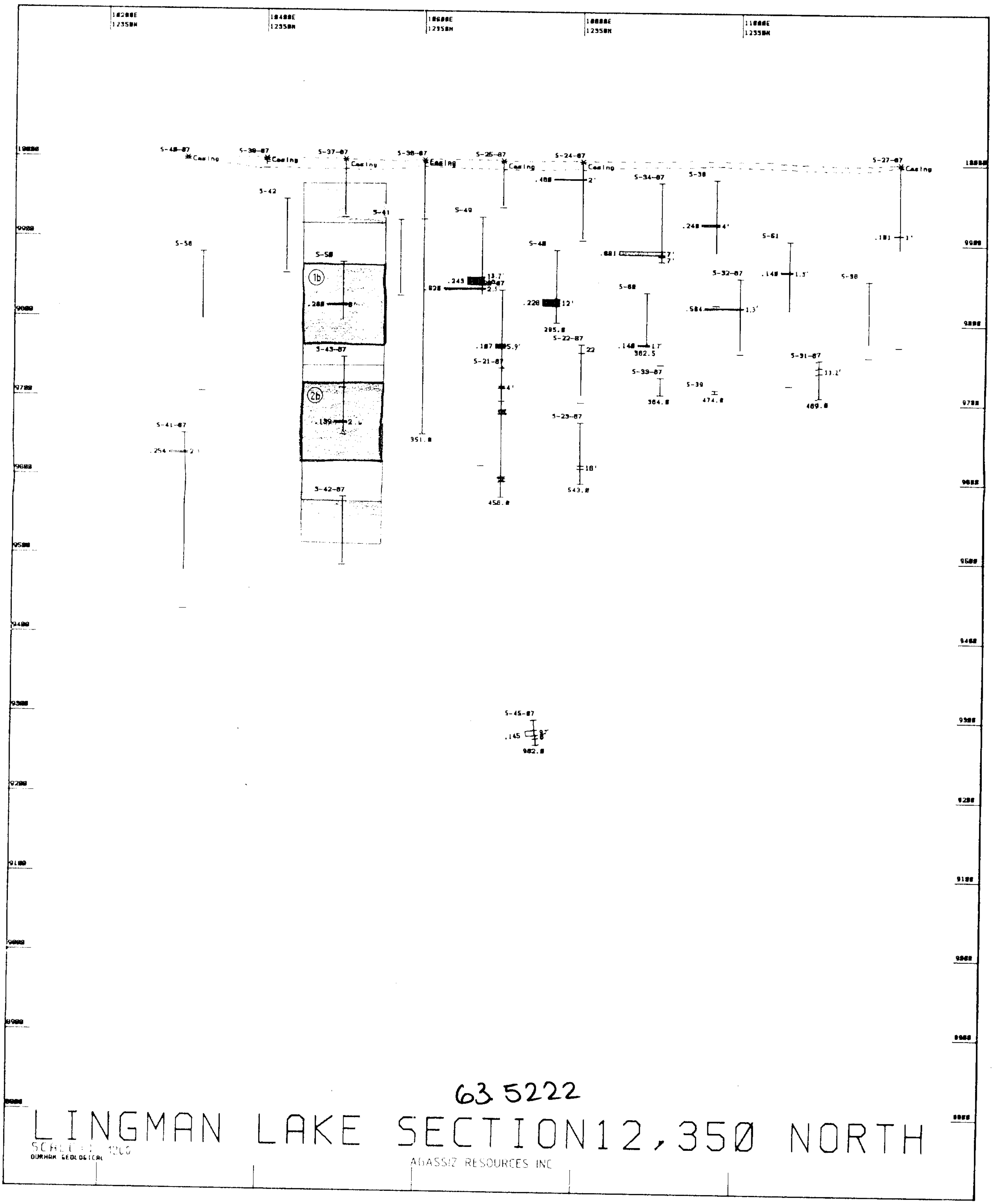
SCALE=1:1200
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

12,050 NORTH

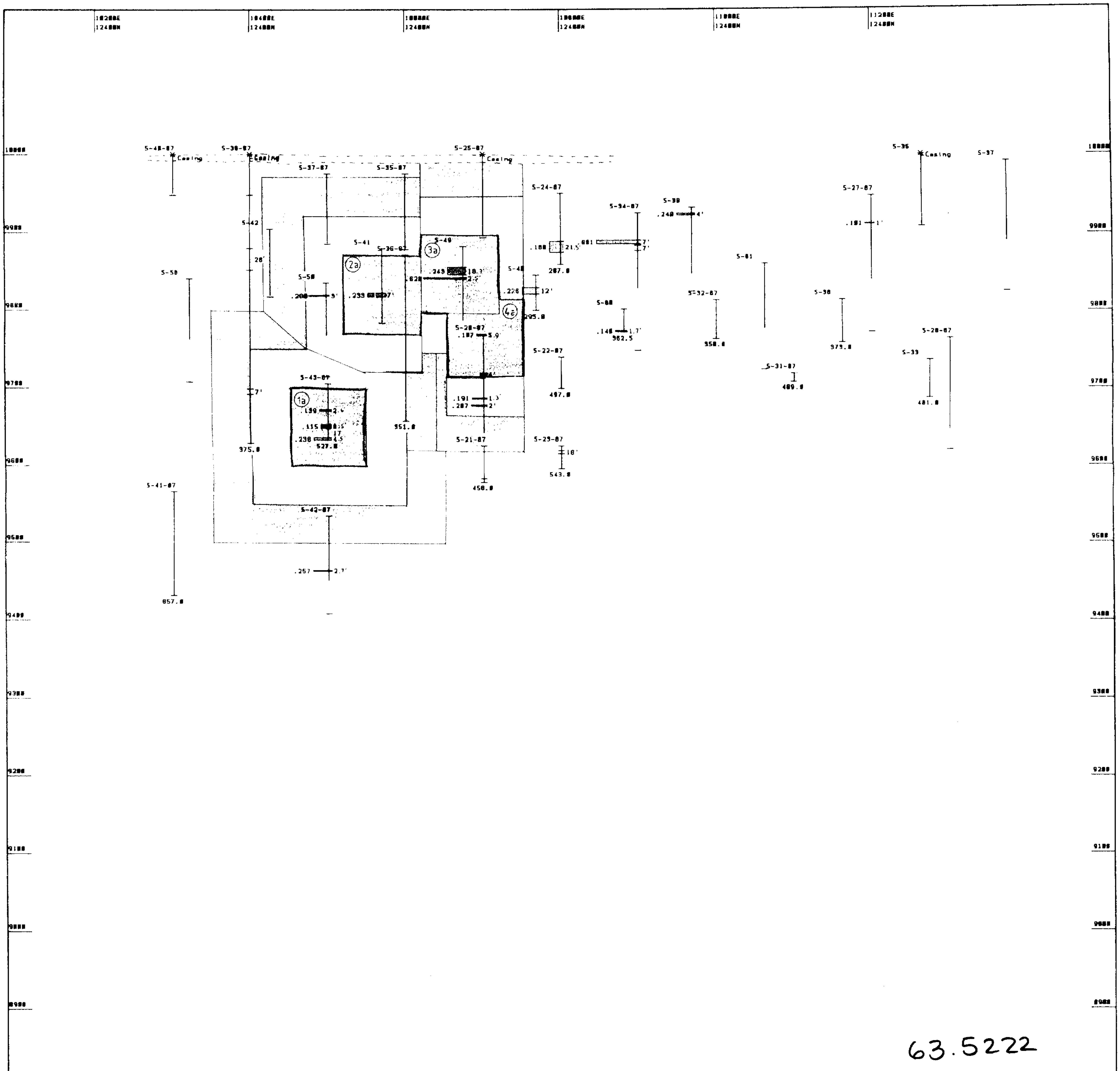
SCALE=1:1200
DURHAM GEOLOGICAL

OM87-1-L-008



OM87-1-L-008

680



63.5222

LINGMAN LAKE SECTION 12,400 NORTH

SCALE=1 : 1200

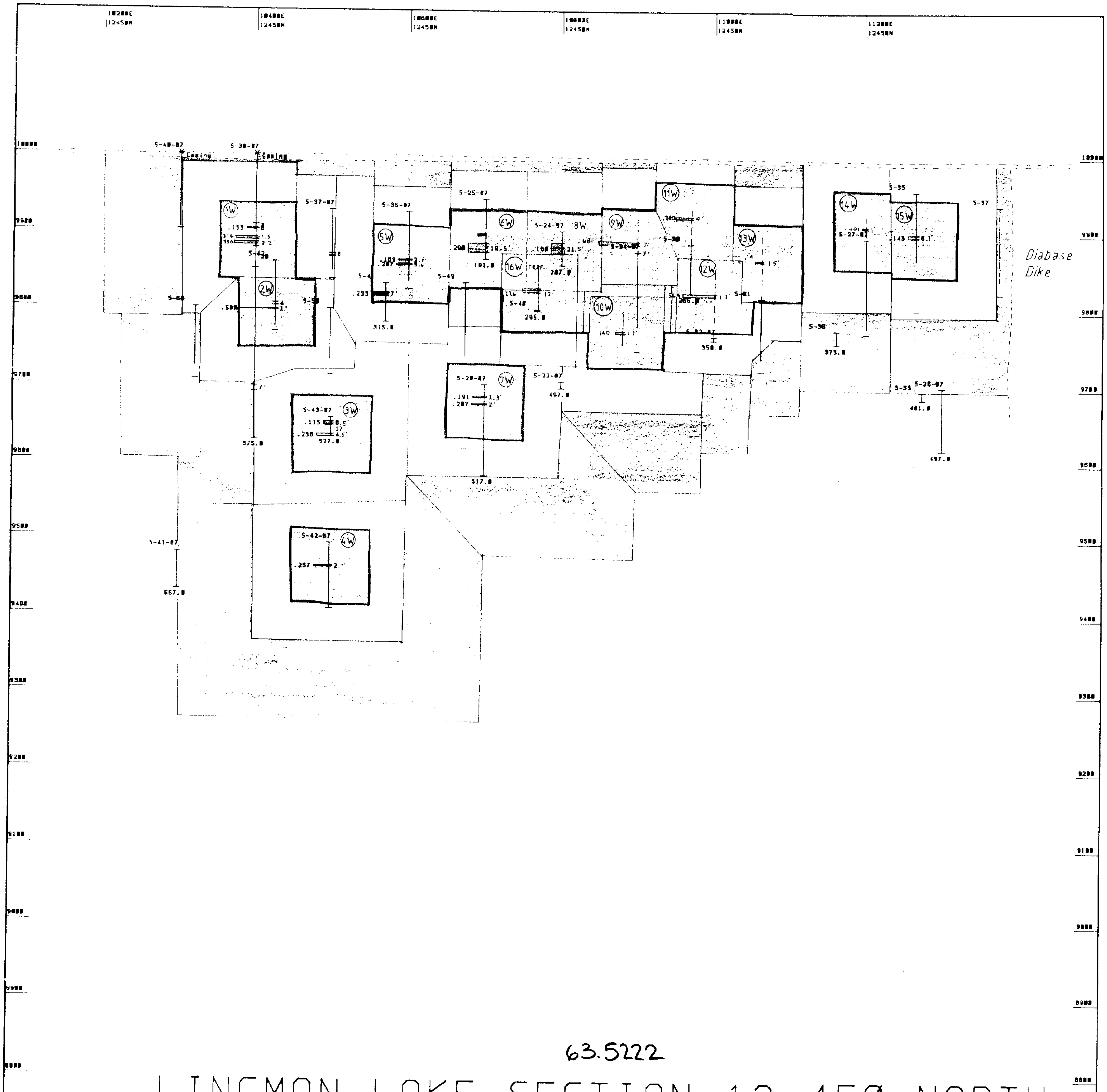
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008

690

63.5222



LINGMAN LAKE SECTION 12,450 NORTH

SCALE=1:1200

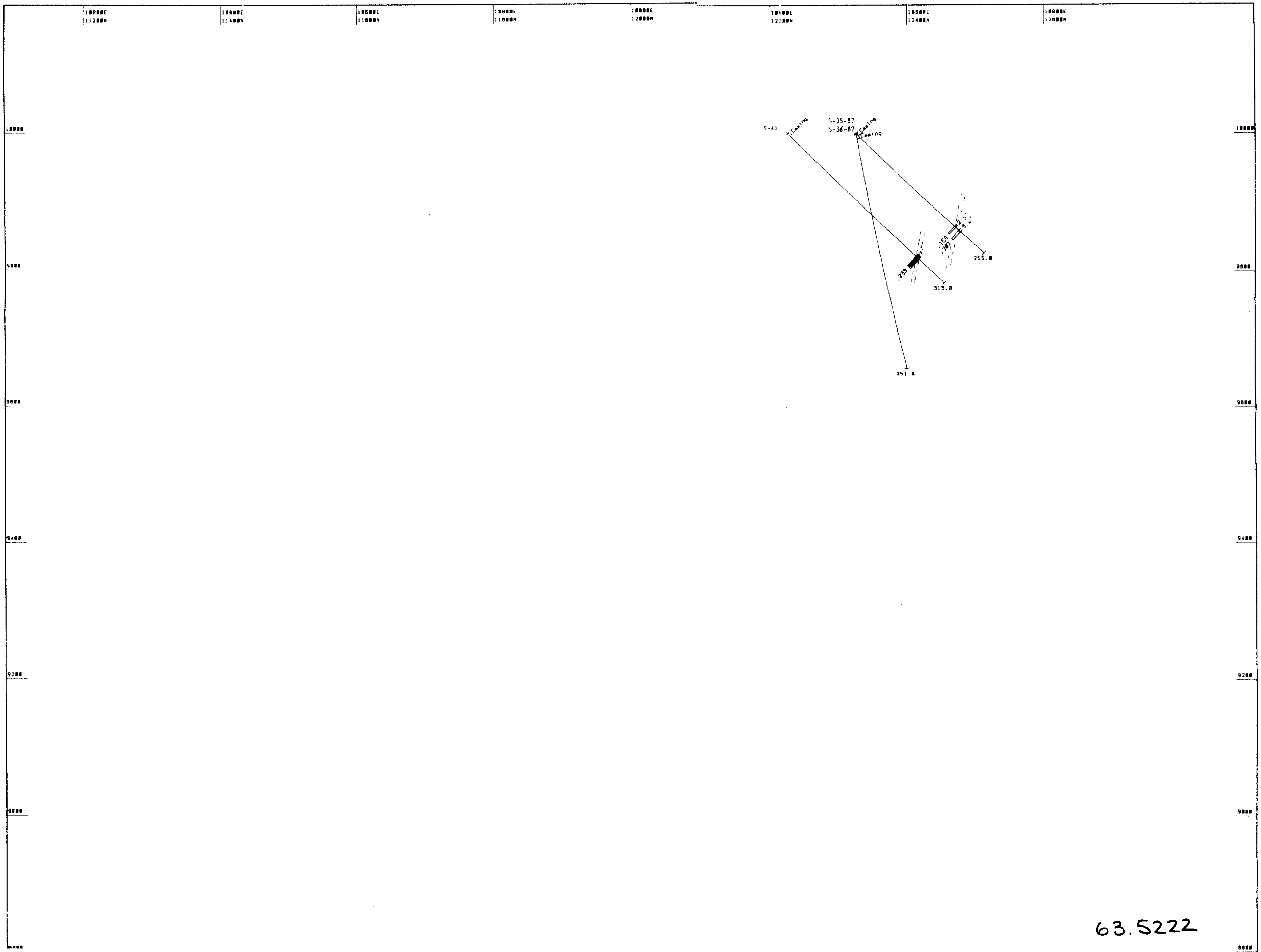
DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008

53F15SW0006 63.5222 LINGMAN LAKE

700



63.5222

LINGMAN LAKE SECTION 10,600 EAST

SCALE=1:1200

DURHAM GEOLOGICAL

AGASSIZ RESOURCES INC

OM87-1-L-008

53F15SW0006 63.5222 LINGMAN LAKE

710