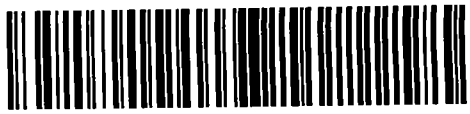


COMPILATION

REPORT ON

1984-85 DIAMOND DRILL PROGRAM

BAD VERMILION LAKE PROPERTY

AREA OF BLISS LAKE

KENORA MINING DIVISION, ONTARIO

FOR

TITAN TITANIUM INTERNATIONAL INC.

TORONTO, ONTARIO

JOHN E. LONDRY, P. ENG.

April 25, 1985

CONTENTS

REPORT ON

1985 DIAMOND DRILL PROGRAM

BAD VERMILION LAKE PROPERTY

AREA OF BLISS LAKE

KENORA MINING DIVISION, ONTARIO

FOR

TITAN TITANIUM INTERNATIONAL INC.

TORONTO, ONTARIO
April 1, 1985

JOHN E. LONDRY, P. ENG.

CONTENTS

SUMMARY

Titan Titanium International Inc. holds three contiguous groups comprising a total of 45, forty acre mining claims, to make a total of one thousand and eight hundred (1,800) acres in the areas of Bad Vermilion Lake and Bliss Lake in Northwestern Ontario. The property is just south of highway #11, near the community of Mine Centre and about 24 miles east of Fort Frances.

The claims are located in a gabbro-anorthosite complex, which carry zones of titaniferous mineralization.

A drill program of 3,605 feet in 11 holes, drilled during the months of September to November, 1984, has indicated the presence of several titaniferous mineralized zones with grades ranging up to 25% titanium oxide.

Another drill program completed between January 29 and February 16, 1985 has completed another 2,031 feet of diamond drilling to complete a total of 5,636 feet of drilling.

The 1984 program has a drill indicated tonnage estimate of 2,740,000 tons, of which 560,000 tons will grade well over 15% with the remainder containing an average mining grade of about 10% titanium oxide. The 1985 drilling program has indicated an additional 710.000 tons grading between 15 to 17% titanium oxide making a total of 3,450,000 tons in all, of which

1,270,000 tons will be grading between 15 to 17% titanium oxide.

In addition to the titanium oxide is the presence of high levels of iron mineralization found in association with the TiO_2. This represents a valuable additional by-product in connection to the commercial mining operation of the TiO_2.

This indicated reserve suggests a production rate of at least 42 years at a mining rate of one hundred tons per day.

A feasibility study is recommended for the purpose of going into production.

INTRODUCTION

Between January 29 and February 16, 1985, Titan Titanium International Inc. completed 2,031 feet of diamond drilling in seven holes on the Bliss Lake and central groups of the Bad Vermilion Lake property in the Kenora Mining Division of northwestern Ontario.

This program was initiated to further delineate and sample some of the hi-grade titanium zones that had been located with a magnetometer survey and also to provide sufficient work credits so that these claims may be brought to lease.

DESCRIPTION OF PROPERTY

The Titan Titanium International Inc., property consists of three contiguous groups of forty (40) acre mining claims. They are the Bad Vermilion Lake group, the Central group and the Bliss Lake group comprising a total of forty-five claims making a total area of about one thousand and eight hundred (1,800) acres.

The diamond drilling completed during January and February of 1985, was done on the Central and Bliss Lake groups in order to complete the required 200 days of work credits required.

The claims are composed of three separate groups within the total, which are described as follows:

1. Bad Vermilion Lake group consists of twenty-one (21) mining claims that are numbered K-671262 to K-671264 and K-671266 to K-671283 inclusive. These claims have each had over the two hundred (200) of the required days expended on them and they are in the process of being brought to lease.

2. Bliss Lake group consists of fifteen (15) claims that are numbered K-715222 to K-715236 inclusive. They are located to the southwest of the Bad Vermilion Lake group and have had one hundred and forty-five days of work completed on each claim during 1984.

One thousand and eighty-nine (1,091) feet of diamond drilling was done on this group to complete the required 200 days work needed to bring the claims to lease.

3. The Central group consists of nine (9) claims that are numbered K-629151, K-629184 to K-629188 inclusive, K-670152, K-751057 and K-751066. This group is located at the southwest end of Bad Vermilion Lake and between the other two groups These claims were purchased by Titan Titanium International Inc. during the first week of January, 1985. They each had eighty (80) days of assessment credits and an additional 942 feet of drilling

was completed on this group, which provides this group with adequate work credits to enable the claims to be brought to lease.

LOCATION AND ACCESS

The property is located in northwestern Ontario 24 miles east of the town of Fort Frances and about two hundred (200) miles west of the city of Thunder Bay. The property extends along the north shore of Bad Vermilion Lake and continues for over a mile southwest of the lake. Highway #11 passes about two miles north of the claims which are accessible by boat from either of two roads that connect the lake from highway #11.

The village of Mine Centre, on highway #11 is situated about a half mile north of the northeast end of Bad Vermilion Lake; and the C.N. railroad passes through Mine Centre just north of highway #11.

A contract to construct a new all-weather bush road is being negotiated at this time and construction should start immediately following the spring break-up.

This road will extend from highway #11 to the area of the mineralized zone drilled by holes #T-85-15, 16 and 17.

TOPOGRAPHY

The local terrain is characterized by spruce swamps and marshes, interspersed with a series of rocky hills and ridges ranging up to a hundred feet and more above the average elevation of the landscape.

One such ridge extends along the north shore of Bad Vermilion Lake and continues in a subdued form beyond the lake to the southwest. It is along this particular ridge that most of the titanium mineralization is located.

GEOLOGY

The area is underlain by metavolcanic and intrusive rocks of precambrian age. A large gabbro-anorthosite body, centered around Bad Vermilion Lake has intruded the metavolcanics and in turn has been intruded by granitic rocks along its margins. The granitic intrusive along the margin of the gabbro-anorthosite complex consists of a coarse grained pinkish and porphyritic granite rock with phenocrysts of white feldspar.

The north contact of this gabbro-anorthosite complex with the granite porphyry roughly parallels the north shore-line of the lake at a distance of several hundred feet from the shore. The gabbro-anorthosite complex is exposed on the rocky ridges between the contact and the lake. It is intermingled with volcanics ranging

in composition from fine grained andesites to basalts which in turn have been altered to chlorite schists in many areas.

It is in this area near the north contact of the volcanics and gabbro-anorthosite complex with the granite porphyry that the titaniferous mineralization is found. It occurs concentrated in lenses and sheets up to one hundred feet in thickness, which may have been formed by a settling of the titanium and iron to the base of the intrusive formation and later brought to a near vertical position by a tilting of the structure through ninety degrees.

DIAMOND DRILL PROGRAM

On the Bliss Lake group, holes T-85-12 and T-85-13 were drilled on claim K-715232 and hole T-85-14 was drilled on claim K-715229.

On the Central group, holes T-85-15 and T-85-18 were drilled on claim K-670152. Holes T-85-16 and T-85-17 were drilled on claim K-629187.

A total of 2,031 feet of diamond drilling was completed. The holes are described in the accompanying logs and they are shown on the accompanying plan and sections. This drilling was completed between January 29 and February 16, 1985.

DRILL RESULTS (1985)

Holes T-85-12, 13 and 14.

Two parallel zones about one hundred feet apart were located. The northwesterly zone is 30 to 35 feet wide, has a strike length of at least 300 feet and can be presumed to have a depth of at least 200 feet. The grade is over 18% TiO_2 and it contains at least 180,000 tons down to a 200 foot depth.

The more southerly zone averages over ten feet wide with a grade of over 18% TiO_2. It should contain over 60,000 tons down to a depth of 200 feet.

Holes T-85-15, 16 and 17, drilled on the Central group, have cut a long zone that still has not been delimited.

The zone is at least 700 feet long, has a minimum width of 30 feet and down to a depth of 200 feet would contain at least 420,000 tons grading over 17% TiO_2.

Hole T-85-18 cut another zone about 150 feet to the southeast that grades 14.8% TiO_2 over a width of 25 feet. This zone has an indicated 50,000 tons down to a depth of 200 feet.

The total tonnage indicated in this drill program is 710,000 tons, in four zones, all grading 15% TiO_2 or better.

Further to this TiO_2 mineralization is the high iron content found in association with the titanium oxide. As shown in the assay results, in several areas grades range higher than 55% Fe. Throughout these zones the iron content averages out to approximately 45% Fe and constitutes a valuable by-product in addition to the titanium oxide.

TONNAGE ESTIMATE

The total indicated tonnage from the 1984 and 1985 diamond drilling is estimated at 1,270,000 tons of mineralization grading over 15% TiO_2 and 45% Fe.

A grade of 15% TiO_2 will produce about a ton of titanium oxide for every seven tons mined. Therefore one hundred tons of mined material should produce about fourteen tons of titanium oxide and about 40 tons of iron.

All these tonnage estimates have been calculated to a depth of 200 feet. The mineralization has not been delimited at this depth and deeper diamond drilling will certainly indicate greater tonnages.

At a daily production rate of one hundred tons, the life expectancy of the mineralization, drill indicated to date, will be about 42 years.

CONCLUSIONS

The 1985 drill program has indicated the presence of an additional 710,000 tons of titanium oxide that will produce an average grade of over 15%.

Sufficient zones of a high enough grade have now been drill indicated to suggest the potential for creating a viable production project.

RECOMMENDATIONS

The inauguration of a feasibility study should be considered, for the purpose of planning the establishment of a producing mining operation.

Respectfully submitted

John E. Londry, P.Eng.

C E R T I F I C A T E

I, John E. Londry, do hereby certify that:

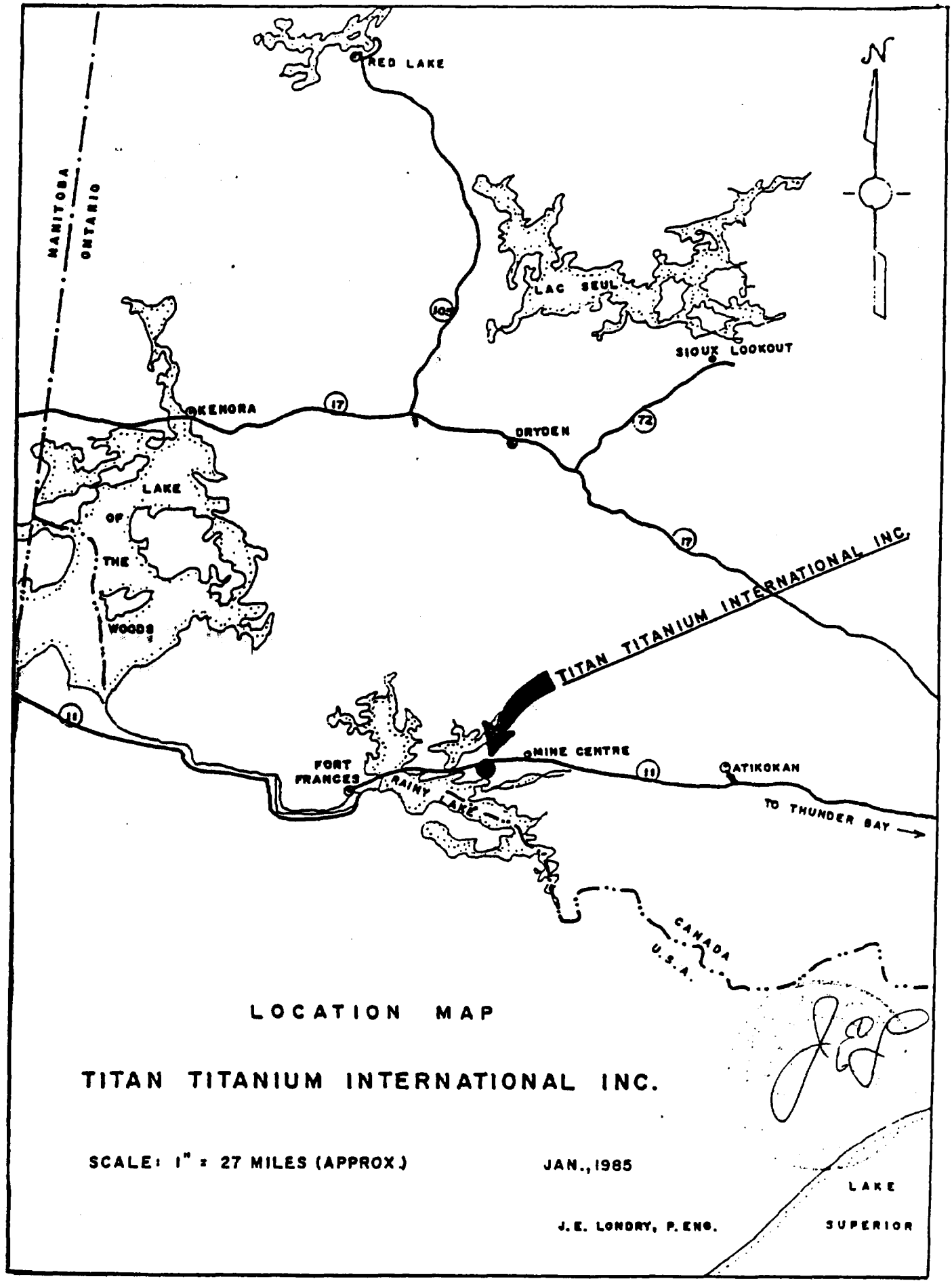
1. I am a geological engineer residing at PH3, 77 Howard Street, Toronto, Ontario.
2. I am a member of the Association of Professional Engineers of Ontario.
3. I graduated from Queen's University with a B.Sc. degree in Geology and Mineralogy, 1949.
4. I have been practising my profession continuously for the past 35 years.
5. I have no interest, direct or indirect, in the mining claims which are the subject of this report.
6. The accompanying report is based on knowledge gained from a study of previous reports of the area and personal supervision of the diamond drill program.

Toronto, Ontario

April 1, 1985

John E. Londry

John E. Londry, P.Eng.



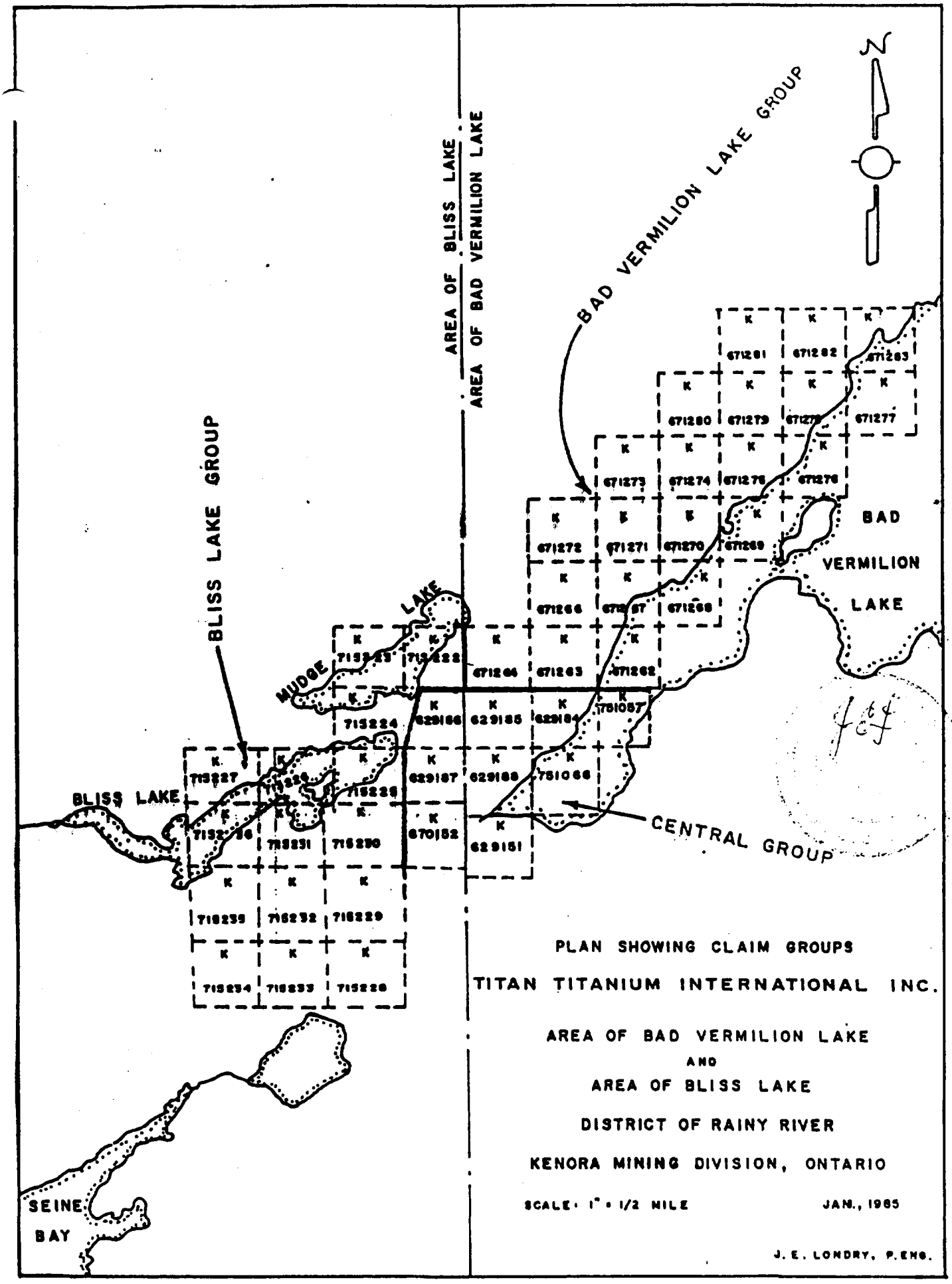
LOCATION MAP

TITAN TITANIUM INTERNATIONAL INC.

SCALE: 1" = 27 MILES (APPROX.)

JAN., 1985

J.E. LONDRY, P. ENG.


N
AREA OF BLISS LAKE
AREA OF BAD VERMILION LAKE
BAD VERMILION LAKE GROUP
BLISS LAKE GROUP
BAD VERMILION LAKE
MUDGE LAKE
BLISS LAKE
CENTRAL GROUP
SEINE BAY
PLAN SHOWING CLAIM GROUPS
TITAN TITANIUM INTERNATIONAL INC.
AREA OF BAD VERMILION LAKE
AND
AREA OF BLISS LAKE
DISTRICT OF RAINY RIVER
KENORA MINING DIVISION, ONTARIO
SCALE: 1" = 1/2 MILE
JAN., 1985
J. E. LONDRY, P.ENG.

ASSAYERS (ONTARIO) LIMITED
32 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No: LO-10/ #3836 Date: February 27, 1985

Received: Feb 20/85 . 31 Samples of: Drill Core

Submitted by: Mr. J. Londry

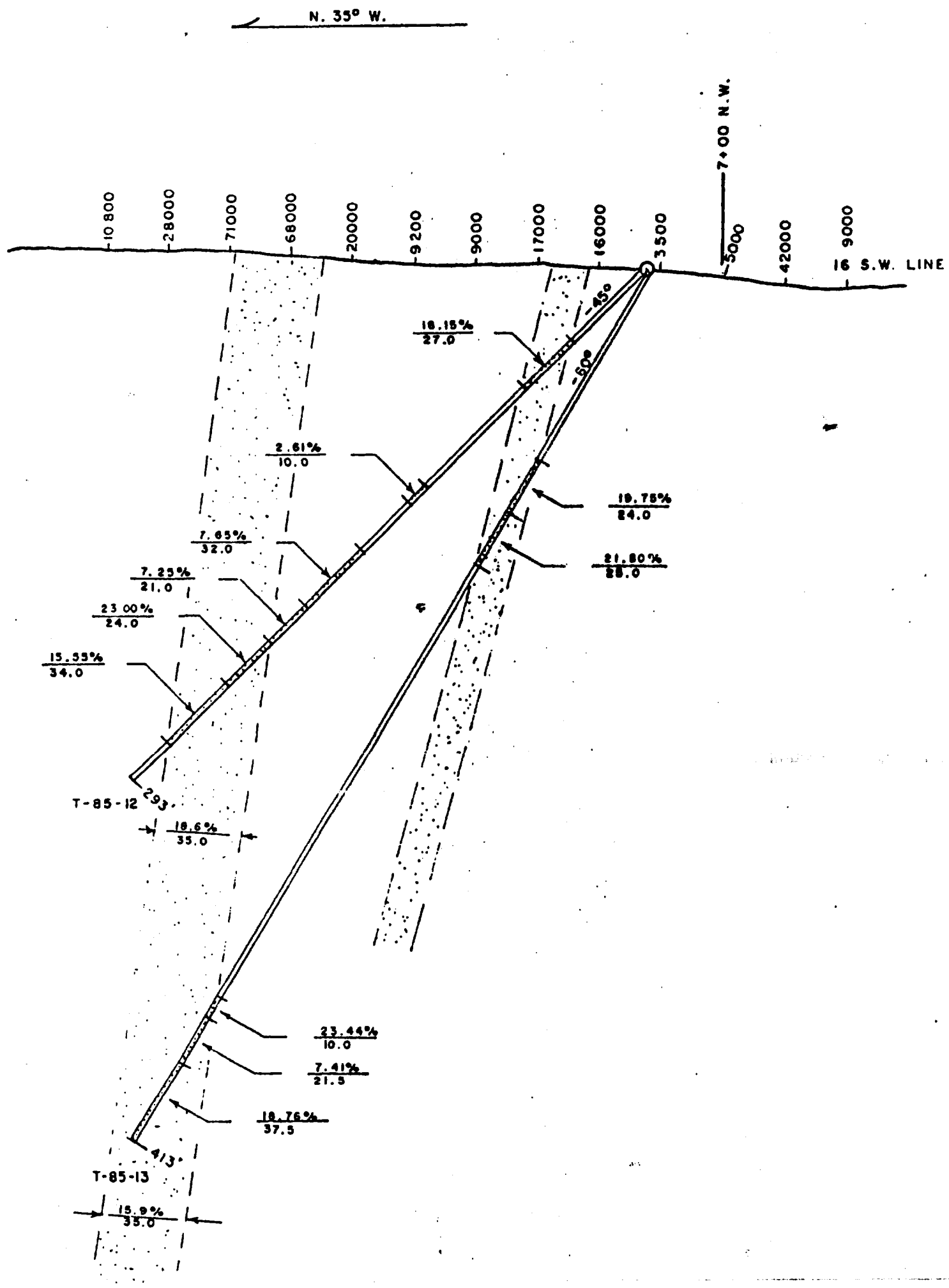
Sample No.	TiO_2 %	Total Fe %	Sample No.	TiO_2 %	Total Fe %
7001	18.15	54.11	7017	19.21	46.79
7002	2.61	22.02	7018	9.54	37.44
7003	7.65	32.09	7019	20.51	46.95
7004	7.25	31.95	7020	14.07	38.79
7005	23.00	47.91	7021	8.39	32.00
7006	15.55	42.43	7022	18.74	39.85
7008	19.75	58.18	7023	11.74	37.02
7009	21.80	57.91	7024	10.22	36.00
7010	23.44	53.82	7025	25.26	51.29
7011	7.41	31.14	7026	22.20	47.42
7012	18.76	47.05	7027	12.53	36.56
7013	22.33	57.74	7028	12.45	38.06
7014	4.38	23.43	7029	10.68	32.39
7015	5.65	19.79	7030	16.15	39.56
7016	24.38	51.57	7031	12.29	34.18

7007 .022 Au oz/ton

ASSAYERS (ONTARIO) LIMITED

Per

J. van Engelen Mgr.

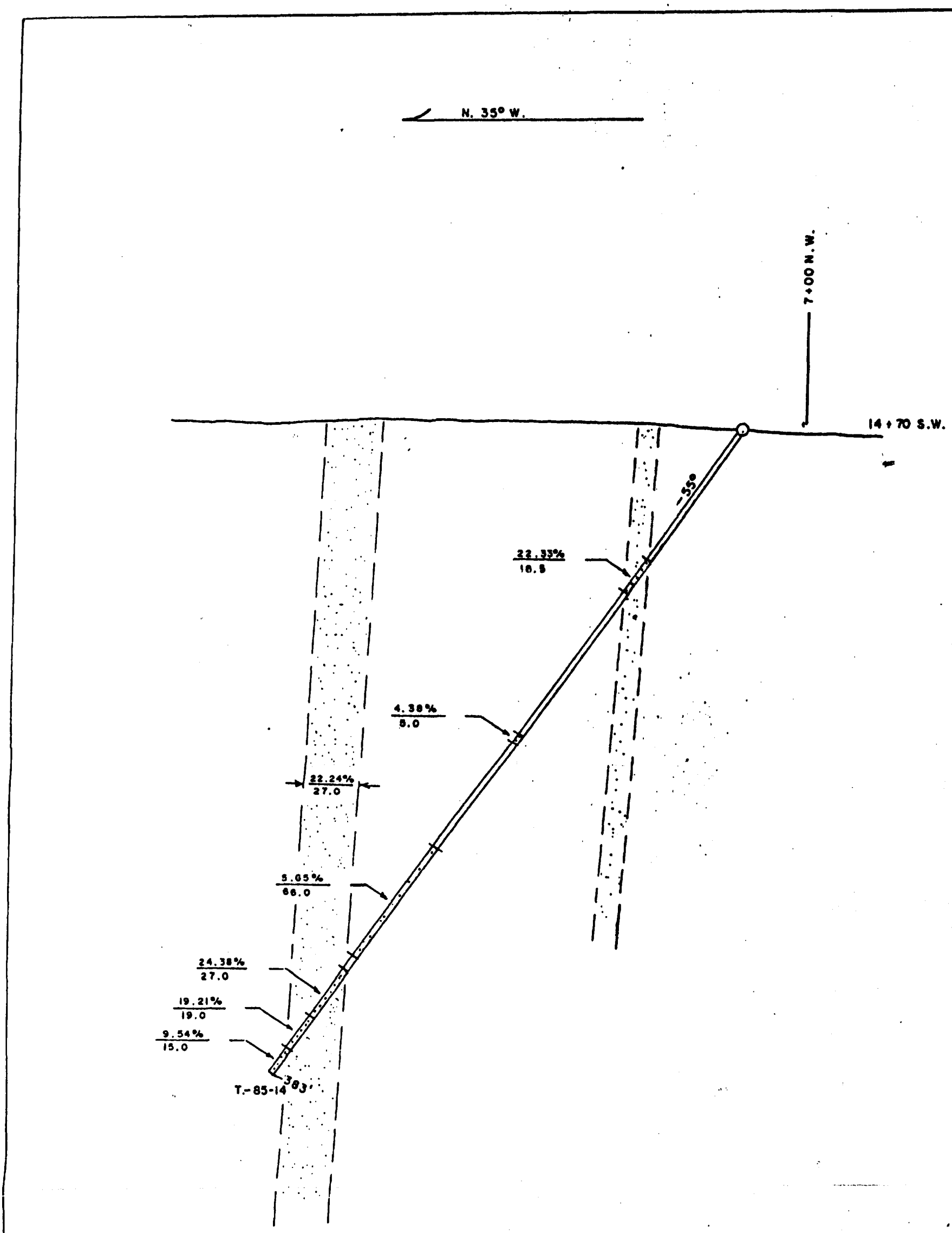


SECTION SHOWING DIAMOND DRILL HOLES
No. T-85-12 and T-85-13
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' March, 1985

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

John E. Londry, P.Eng.

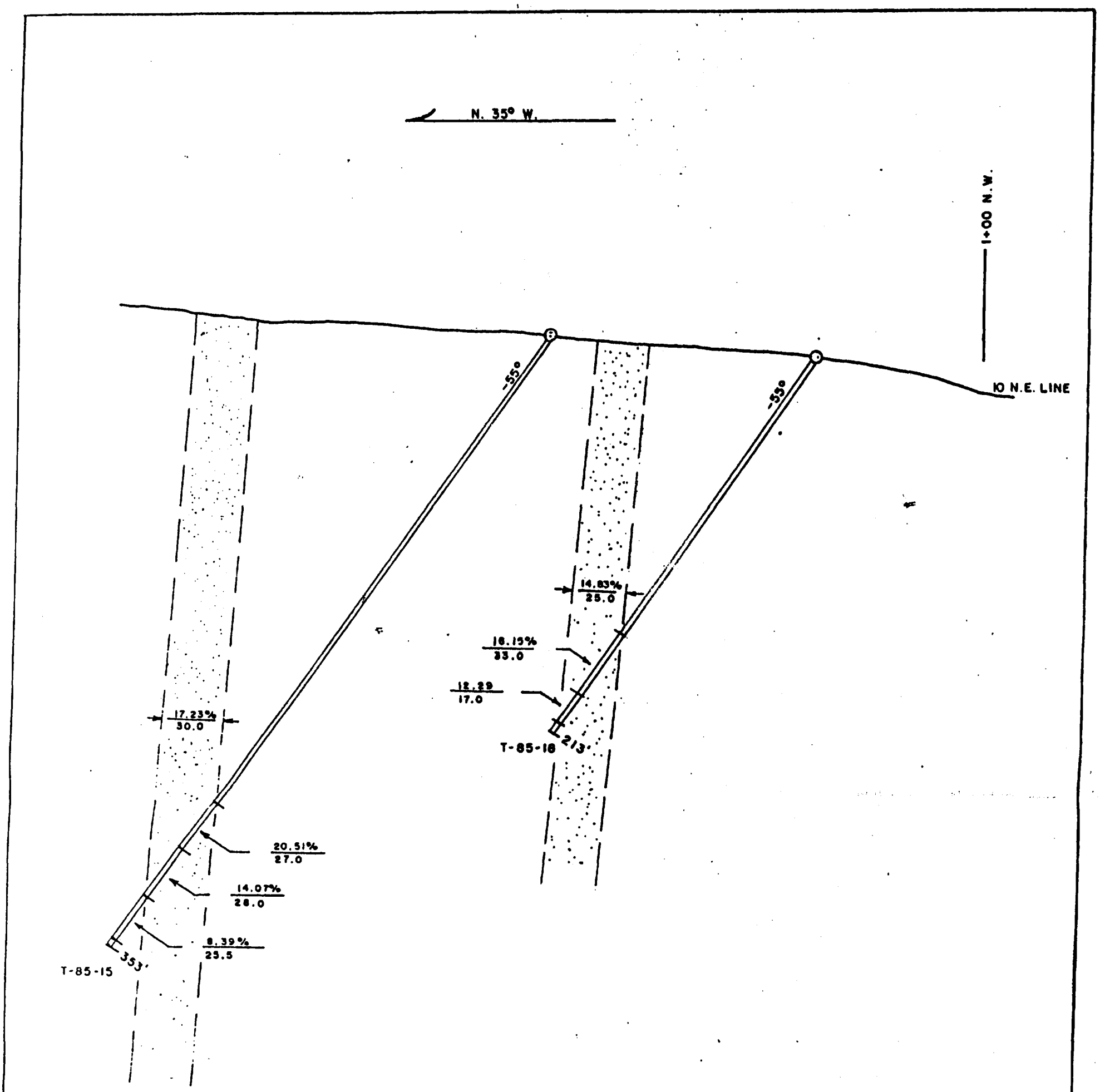


SECTION SHOWING DIAMOND DRILL HOLE
No. T-85-14
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' March, 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng.

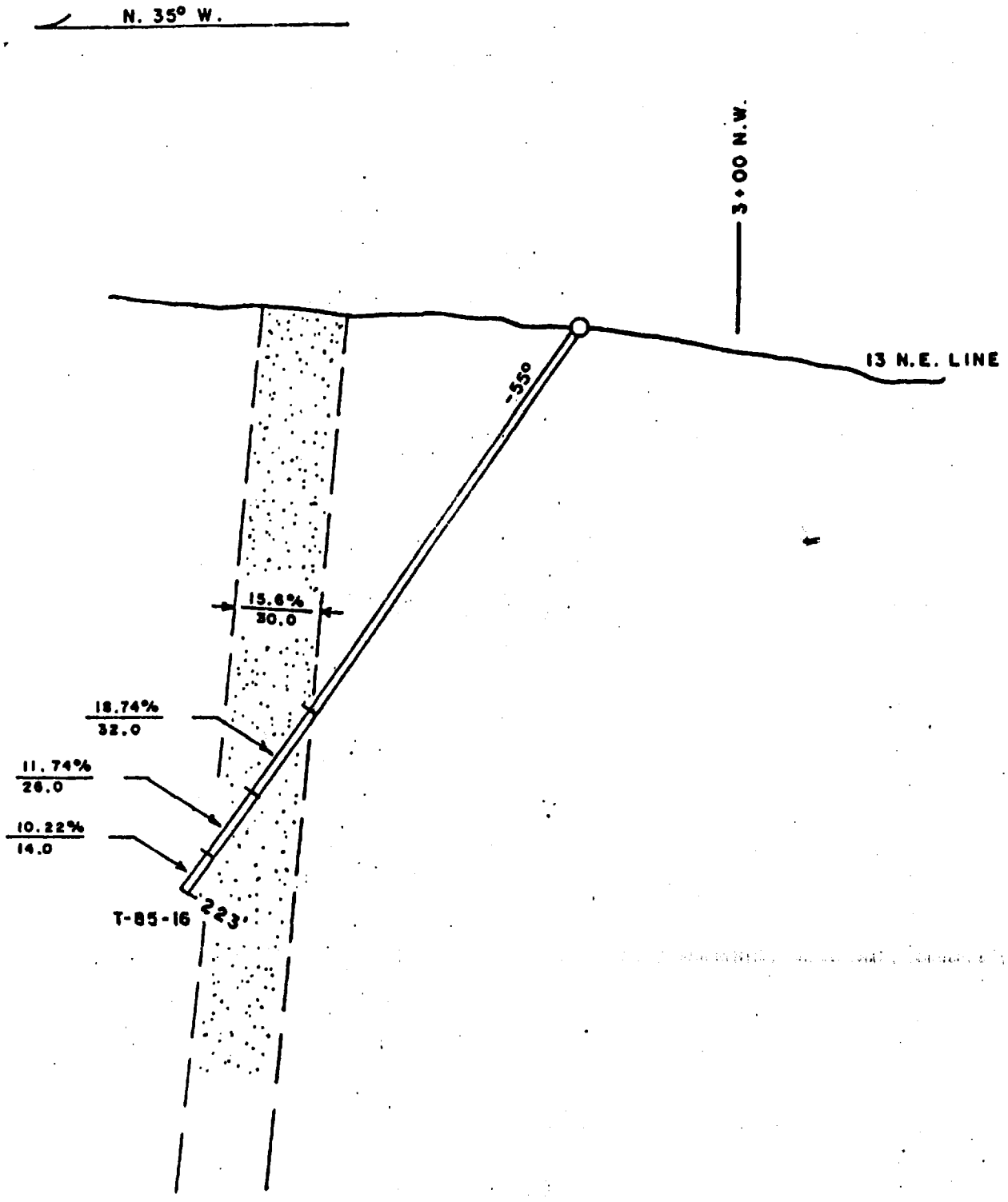


SECTION SHOWING DIAMOND DRILL HOLES
No. T-85-15 and T-85-18
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' March, 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng.

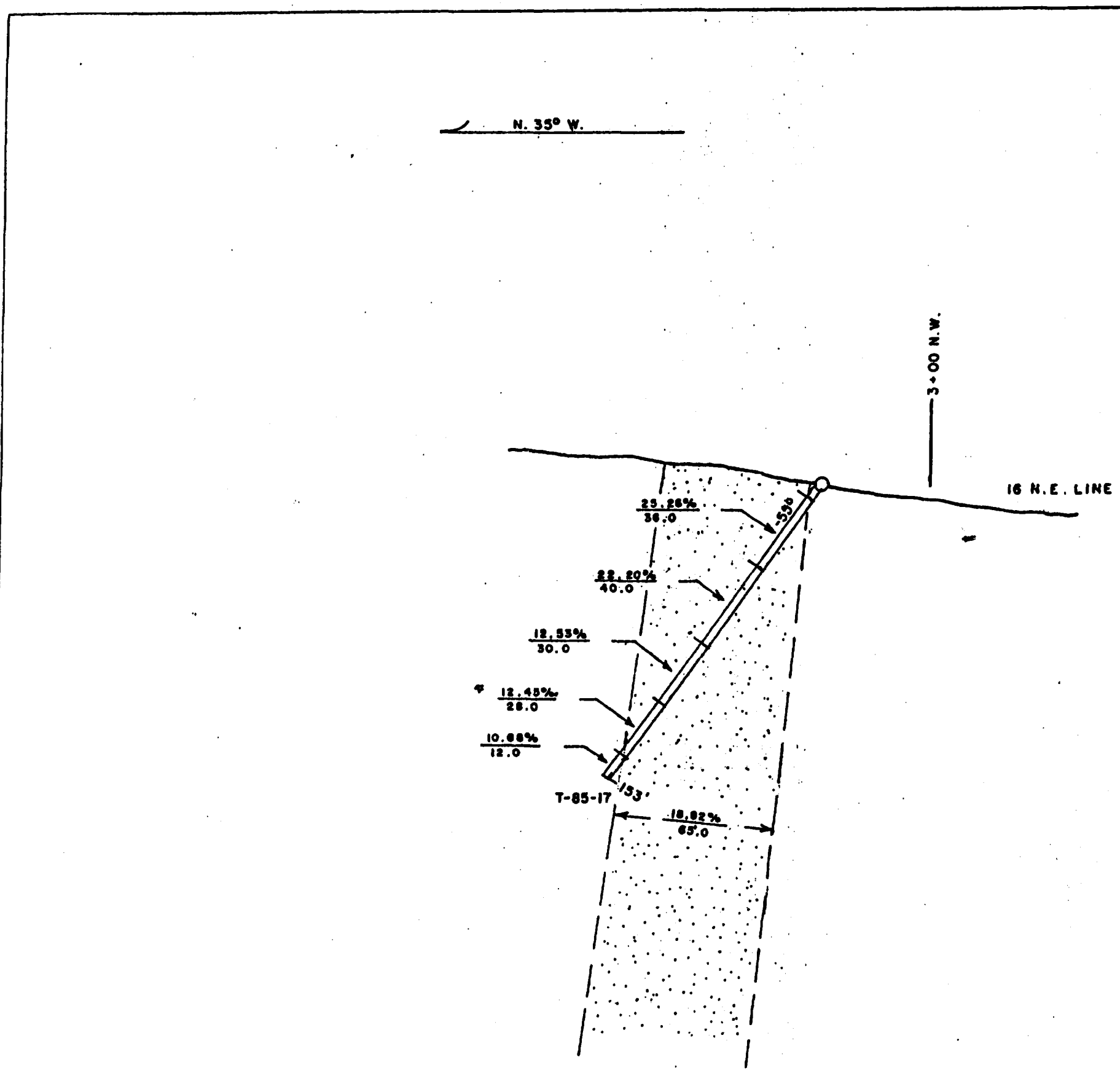


SECTION SHOWING DIAMOMD DRILL HOLE
No. T-85-16
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' March, 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng.

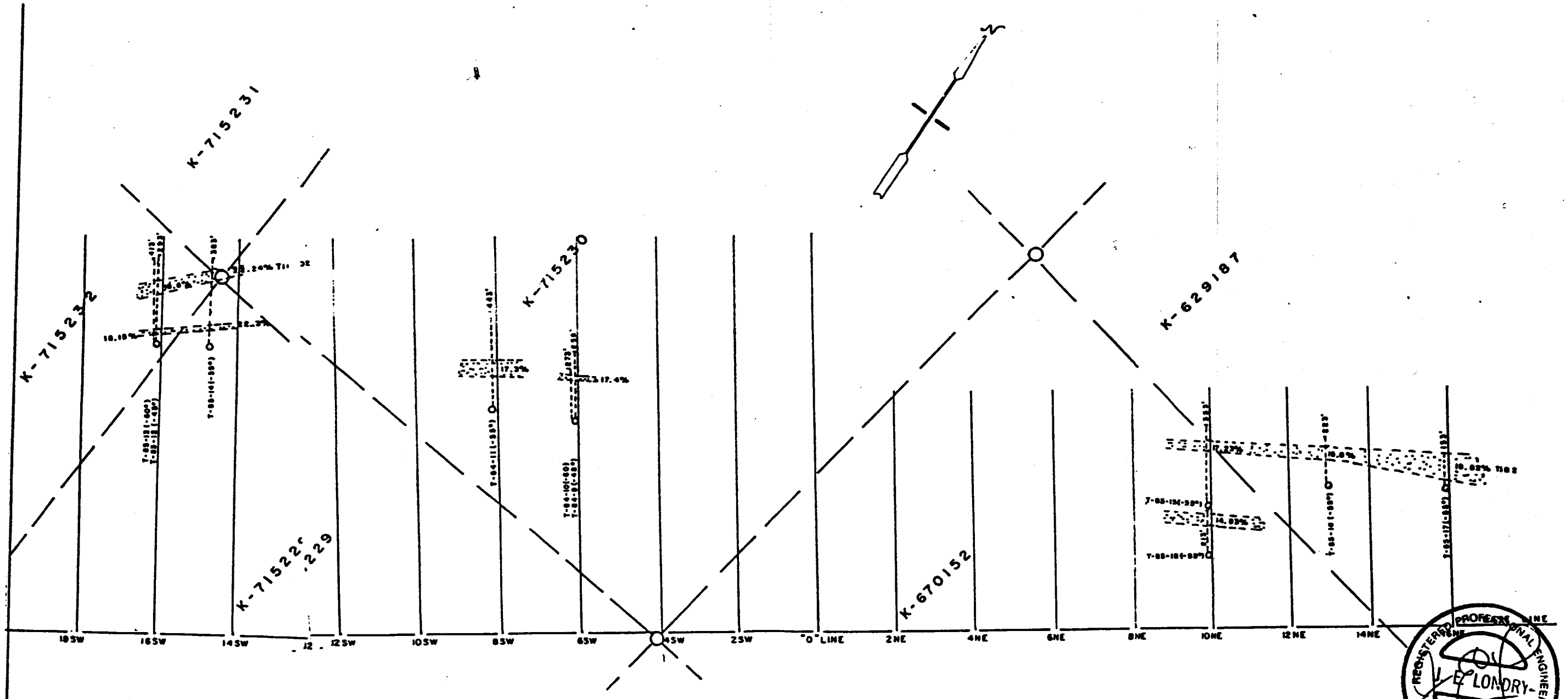


SECTION SHOWING DIAMOND DRILL HOLE
No. T-85-17
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' March, 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng.



PLAN SHOWING DIAMOND DRILL INTERSECTIONS

TITAN TITANIUM INTERNATIONAL INC.

AREA OF BLISS LAKE

KENORA MINING DIVISION, ONTARIO

SCALE 1" = 200' MARCH, 1985

J E LONDRY, P.EN

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

PROGRESS REPORT

ON

BAD VERMILION LAKE PROPERTY

DISTRICT OF RAINY RIVER

KENORA MINING DIVISION, ONTARIO

FOR

TITAN TITANIUM INTERNATIONAL, INC.

TOTONTO, ONTARIO
January 31, 1985.

JOHN E. LONDRY, P. ENG.

CONTENTS

S U M M A R Y

Titan titanium International Inc. holds three contiguous groups comprising a total of 45, forty acre mining claims, to make a total of one thousand and eight hundred (1,800) acres in the areas of Bad Vermilion Lake and Bliss Lake in northwestern Ontario. The property is just south of highway #11, near the community of Mine Centre and about 24 miles east of Fort Frances.

The claims are located in a gabbro-anorthosite complex, which carry zones of titaniferous mineralization.

A drill program of 3,605 feet in 11 holes, drilled during the months of September to November, 1984, has indicated the presence of several titaniferous mineralized zones with grades ranging up to 25% titanium oxide.

The drilling in the Bad Vermilion Lake group has indicated the presence of one million, seven hundred and forty thousand tons in three zones.

In the Bliss Lake group, another one million tons have been indicated in the limited drilling in that area.

The total indicated tonnage of both groups is two million, seven hundred and forty thousand tons, which contain an average mining grade of about 10% titanium Oxide, of which 560,000 tons will grade well over 15%.

These claims are currently in the process of being brought to lease.

INTRODUCTION

During the months of September to November, 1984, a diamond drill program was completed on the Bad Vermilion Lake group of twenty-one (21) mining claims. The program consisted of eight holes to make a total of 2,631 feet drilled in this area.

Later, in November, 1984, a further 974 feet were drilled in three holes on the fifteen (15) claims of the Bliss Lake group.

The total footage drilled was 3,605 feet and the purpose of this initial drilling was to confirm the presence of titanium mineralization in sufficient grade and tonnage to indicate the potential for developing a viable mining operation.

DESCRIPTION OF PROPERTY

The Titan Titanium International Inc. property consists of a contiguous group of forty-five (45) unpatented and unleased mining claims of about forty (40) acres each; comprising a total area of about eighteen hundred (1,800) acres.

The claims are composed of three separate groups within the total, which are described as follows:

1. Bad Vermilion Lake group consists of twenty-one (21) mining claims that are numbered K-671262 to K-671264 and K-671266 to K-671283 inclusive. These claims have each had over the

two hundred (200) of the required days expended on them and they are in the process of being brought to lease.

2. Bliss Lake group consists of fifteen (15) claims that are numbered K-715222 to K-715236 inclusive. They are located to the southwest of the Bad Vermilion Lake group and have had one hundred and forty-five days of work completed on each claim during 1984.

An exploration program of diamond drilling was commenced during the latter part of January, 1985, that will provide sufficient days worked to enable this group to be brought to lease.

3. The Central group consists of nine (9) claims that are numbered K-629151, K-629184 to K-629188 inclusive, K-670152, K-751057 and K-751066. This group is located at the southwest end of Bad Vermilion Lake and between the other two groups. These claims were purchased by Titan Titanium International Inc. during the first week of January, 1985. They each have eighty (80) days of assessment credits and additional exploration work in the next few weeks should provide adequate credits to enable these claims to be brought to lease.

LOCATION AND ACCESS

The property is located in northwestern Ontario 24 miles east of the town of Fort Frances and about two hundred (200) miles west of the city of Thunder Bay. The property extends along the north shore of Bad Vermilion Lake and continues for over a mile southwest of the lake. Highway #11 passes about two miles north of the claims which are accessible by boat from either of two roads that connect the lake from highway #11.

The village of Mine Centre, on highway #11 is situated about a half mile north of the northeast end of Bad Vermilion Lake; and the C.N. railroad passes through Mine Centre just north of highway #11.

TOPOGRAPHY

The local terrain is characterized by spruce swamps and marshes, interspersed with a series of rocky hills and ridges ranging up to a hundred feet and more above the average elevation of the landscape.

One such ridge extends along the north shore of Bad Vermilion Lake and continues in a subdued form beyond the lake to the southwest. It is along this particular ridge that most of the titanium mineralization is located.

GEOLOGY

The area is underlain by metavolcanic and intrusive rocks of precambrian age. A large gabbro-anorthosite body, centered around Bad Vermilion Lake has intruded the metavolcanics and in turn has been intruded by granitic rocks along its margins. The granitic intrusive along the margin of the gabbro-anorthosite complex consists of a coarse grained pinkish and porphyritic granite rock with phenocrysts of white feldspar.

The north contact of this gabbro-anorthosite complex with the granite porphyry roughly parallels the north shore-line of the lake at a distance of several hundred feet from the shore. The gabbro-anorthosite complex is exposed on the rocky ridges between the contact and the lake. It is intermingled with volcanics ranging in composition from fine grained andesites to basalts which in turn have been altered to chlorite schists in many areas.

It is in this area near the north contact of the volcanics and gabbro-anorthosite complex with the granite porphyry that the titaniferous mineralization is found. It occurs concentrated in lenses and sheets up to one hundred feet in thickness, which may have been formed by a settling of the titanium and iron to the base of the intrusive formation and later brought to

a near vertical position by a tilting of the structure through ninety degrees.

DIAMOND DRILL PROGRAM

A total of eleven diamond drill holes were drilled between the dates of September 19, 1984 and November 15, 1984. Eight holes were drilled on claims K-671267 and K- 671268 in the Bad Vermilion Lake group, for a total of2,631 feet drilled. Three holes were drilled on claim K-715230 in the Bliss Lake group for a total of 974 feet. The footage drilled on both groups is three thousand, six hundred and five (3,605) feet.

Drilling was stopped after Hole #T-84-11 because of the winter freeze-up; but more drilling should be done to further delineate the mineralized zones.

DRILL RESULTS

The diamond drilling to date on the Bad Vermilion Lake group has indicated the presence of at least two large and several smaller zones of titanium mineralization.

The two larger zones are best shown on the drill section on line 2 N.E., where hole #T-84-8 cut the north zone and hole #T-84-7 cut the south zone. Holes #T-84-1 and 2, drilled on line "0", two hundred feet to

the southwest, were both drilled to cut the more northerly zone, as the south zone extends under the lake on this line.

Drill holes #T-84-3 and 4 and #T-84-5 and 6, drilled along lines 4 N.E. and 6 N.E. respectively, all cut zones of mineralization, but they indicate that it is diminishing to the northeast.

To the southwest, drilling has not yet been done beyond line "0", and the two large zones appear to be continuing in this direction.

On the Bliss Lake group hole #T-84-11 cut mineralization throughout the entire hole, with a one hundred and eight foot section assaying at 17.30% titanium oxide.

Of the 443 feet drilled in this hole, 395 feet averages 9.71% titanium oxide. More drilling is needed to further delineate this zone.

TONNAGE ESTIMATE

In the Bad Vermilion Lake group, diamond drill holes #T-84-1,2 and 8 have cut a mineralized zone that has an average width of 100 feet. It has a vertical dimension of at least 400 feet. A length of 300 feet will give it a volume of 12,000,000 cubic feet. A factor

of 10 cubic feet to the ton then indicates the presence of 1,200,000 tons that contain high-grade sections that assay over 20% titanium oxide. An average mining grade of the 1,200,000 tons of this zone should exceed 10% TiO_2, but a 30 foot wide high-grade zone, containing at least 360,000 tons should grade over 15% TiO_2.

The other large zone to the south, cut in hole #T-84-7, extends into the lake between lines 2 N.E. and "O", but with a length of only 150 feet, a width of 70 feet and a vertical depth of 400 feet, about 420,000 tons are indicated that average close to 10% titanium oxide.

A small zone cut in holes #T-84-3 and 5 on lines 4 and 6 N.E. respectively, indicate another 120,000 tons that should average about 13% titanium oxide. And other high-grade intersections cut in these holes will also add tonnage when more is known of their dimensions.

The total drill indicated tonnage equals 1,740,000 tons in this area.

On the Bliss Lake group, hole #T-84-11 has indicated the presence of another 1,000,000 tons grading close to 10% titanium oxide.

The central area of this zone consists of high grade over fifty (50) feet wide. This zone above should yield a minimum of 200,000 tons down to a depth of 400 feet and grading over 17% TiO_2. More drilling is needed to

further delineate this zone.

Thus the tonnage estimate to the present time from drilling on both the Bad Vermilion Lake and the Bliss Lake groups is 2,740,000 tons that should contain a mining grade of about 10% titanium oxide.

However, the high-grade zones alone indicate good mining widths of at least 560,000 tons of mineralization that will grade between 15% to 17% TiO_2. At the mining rate of 100 tons per day, this high-grade alone indicates an 18 year reserve.

CONCLUSIONS

The limited drill program on the two groups of claims has indicated the presence of 2,740,000 tons of titanium oxide grading close to 10%; further, the high grade zones alone, indicate a reserve of over 560,000 tons grading between 15 to 17%.

As drilling is continued on these and other zones, the indicated reserves will be dramatically increased

RECOMMENDATIONS

1. More diamond drilling should be done in order to increase the tonnage reserve and to further delineate the known zones.
2. Bulk samples should be taken from the surface for metallurgical testing, now that the location of several mineralized zones is known.
3. The nine claims in the central group should be brought to lease as soon as the required work is completed.

Respectfully submitted,

John E. Londry

John E. Londry, P.Eng.

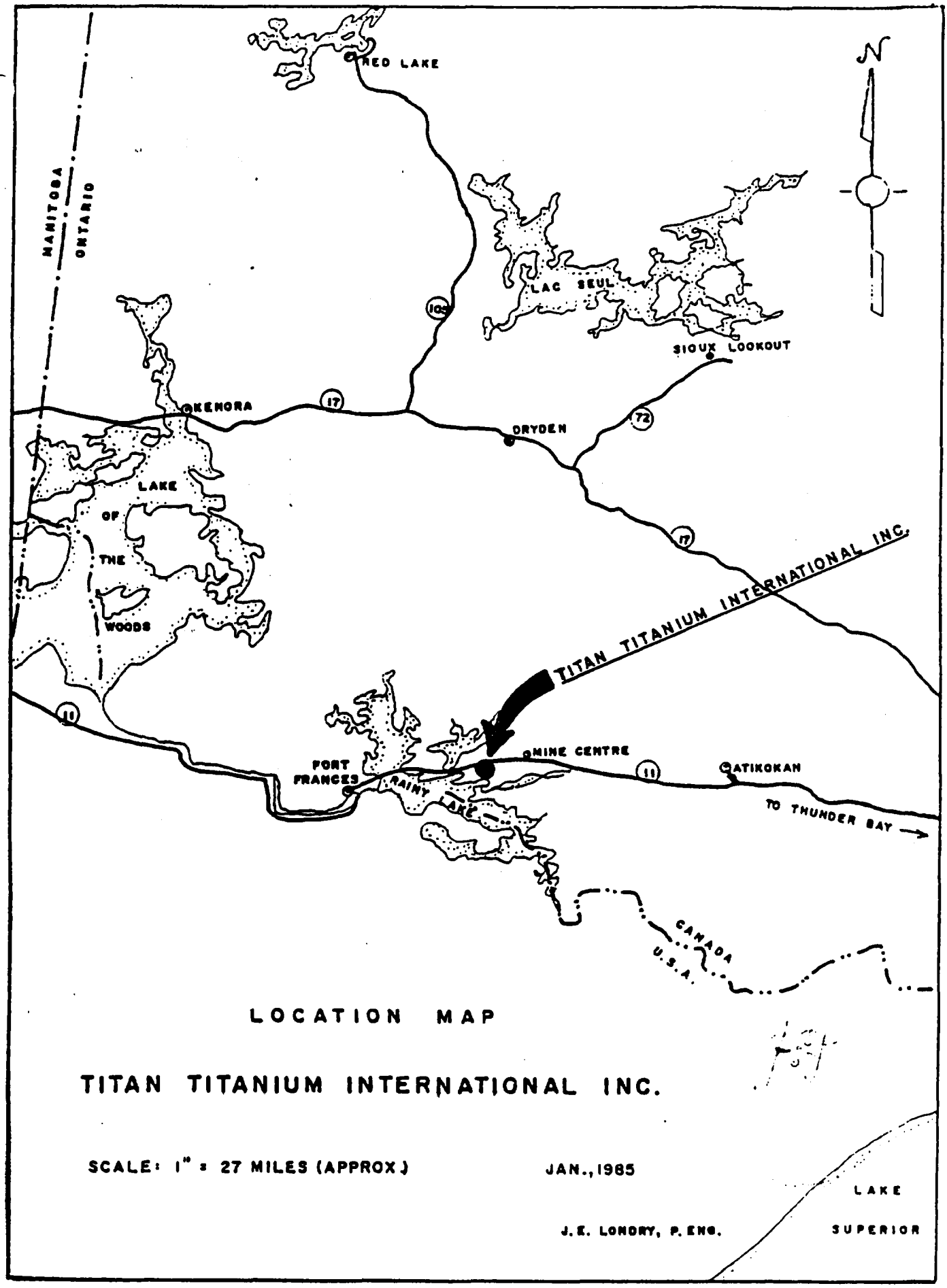
C E R T I F I C A T E

I, John E. Londry, do hereby certify that:

1. I am a geological engineer residing at PH3, 77 Howard Street, Toronto, Ontario.
2. I am a member of the Association of Professional Engineers of Ontario.
3. I graduated from Queen's University with a B.Sc. degree in Geology and Mineralogy, 1949.
4. I have been practising my profession continuously for the past 35 years.
5. I have no interest, direct or indirect, in the mining claims which are the subject of this report.
6. The accompanying report is based on knowledge gained from a study of previous reports of the area and personal supervision of the diamond drill program.

Toronto, Ontario
January 31, 1985.

John E. Londry, P.Eng.



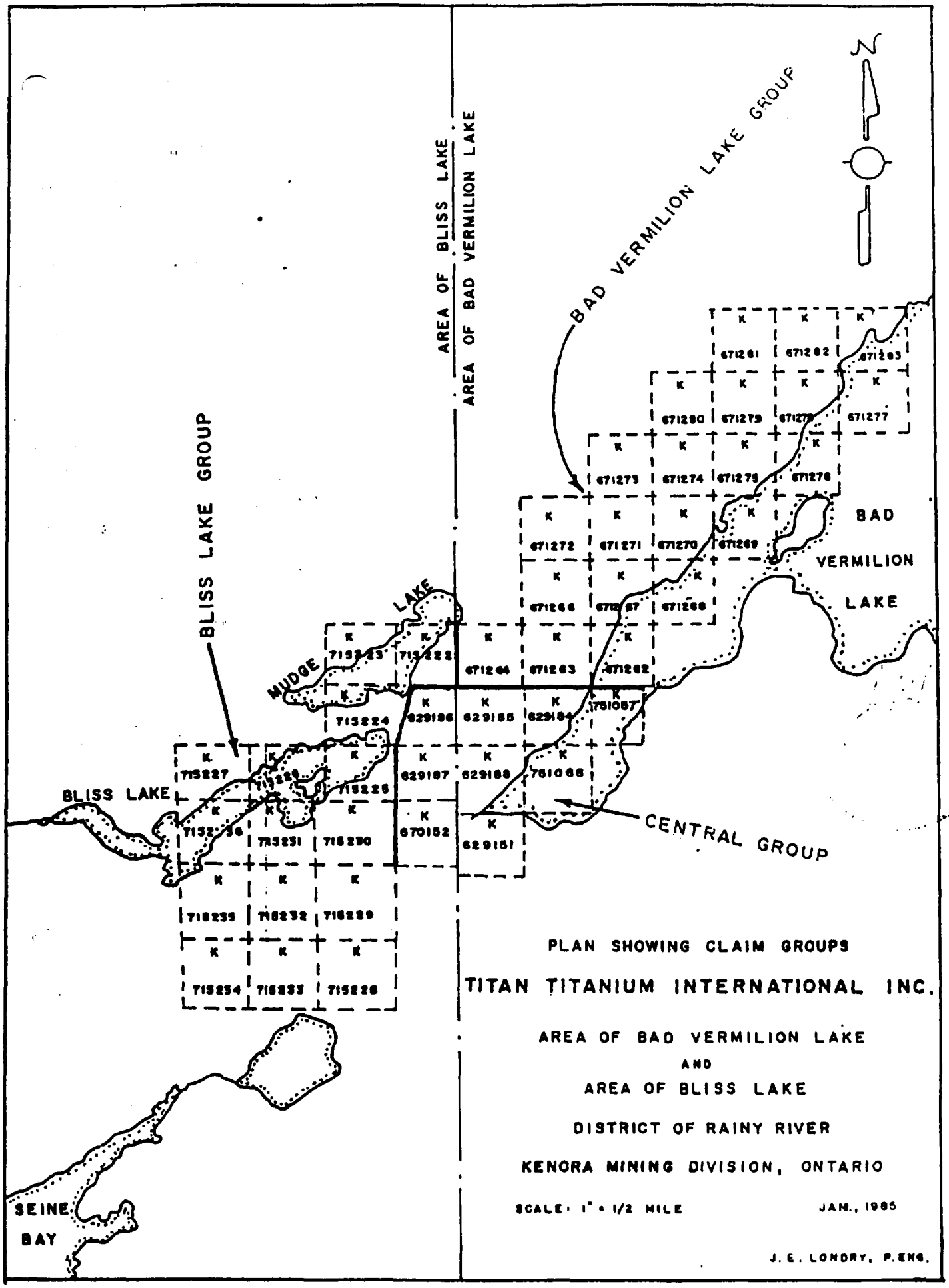
LOCATION MAP

TITAN TITANIUM INTERNATIONAL INC.

SCALE: 1" = 27 MILES (APPROX)

JAN., 1985

J.E. LONDRY, P. ENG.


AREA OF BLISS LAKE
AREA OF BAD VERMILION LAKE
BAD VERMILION LAKE GROUP
BLISS LAKE GROUP
BAD VERMILION LAKE
MUDGE LAKE
BLISS LAKE
CENTRAL GROUP
SEINE BAY
PLAN SHOWING CLAIM GROUPS
TITAN TITANIUM INTERNATIONAL INC.
AREA OF BAD VERMILION LAKE
AND
AREA OF BLISS LAKE
DISTRICT OF RAINY RIVER
KENORA MINING DIVISION, ONTARIO
SCALE: 1" = 1/2 MILE
JAN., 1985
J. E. LONDRY, P.ENG.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. LO-04/ #3482 Date: October 5, 1984

Received Oct. 2/84 16 Samples of Drill Core

Submitted by Mr. J. Londry

Sample No.	TiO_2 %	Au oz/ton	Ag oz/ton
20	20.81		
21	17.00		
22	20.49		
23	10.01		
24	23.36		
25	21.36		
26	23.12		
27	19.78		
28	19.93		
14101	16.74	.010	.03
14102	19.16		
14103	2.61		
14104	3.05	.002	
14105	5.23		
14106	20.65		
14107	4.73		

ASSAYERS (ONTARIO) LIMITED

Per

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. LO-05/ #3482 Date: October 5, 1984

Received Oct. 2/84 14 Samples of Drill Core

Submitted by Mr. J. Londry

Sample No.	TiO_2 %	Au oz/ton
14108	12.63	.001
14109	5.59	
14110	18.68	.001
14111	5.89	
14112	7.54	
14113	4.67	
14114	8.82	
14115	5.95	
14116	6.66	
14117	7.28	.001
14118	6.19	
14120	4.21	
14121	13.49	
14122	18.07	

ASSAYERS (ONTARIO) LIMITED

Per

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. LO-06/ #3516 Date: October 17, 1984

Received 26 Samples of Drill Core

Submitted by Mr. John Landry

Sample No.	TiO_2 %	Total Fe %	Sample No.	TiO_2 %	Total Fe %
14119	5.06	28.65	14135	13.69	34.88
14123	.79	15.02	14136	10.29	32.82
14124	4.67	26.80	14137	6.90	31.48
14125	1.96	16.49	14138	7.83	34.15
14126	18.46	42.40	14139	8.70	32.91
14127	12.65	38.67	14140	10.95	38.16
14128	6.57	28.14	14141	8.20	39.20
14129	13.82	38.32	14142	7.90	35.52
14130	11.41	35.30	14143	8.99	38.41
14131	7.69	31.05	14144	9.16	36.80
14132	7.13	28.31	14145	7.53	36.46
14133	7.27	29.98	14146	8.14	37.93
14134	6.03	26.45	14147	10.40	40.60

ASSAYERS (ONTARIO) LIMITED

Per

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. LO-07/ #3639 Date: November 23, 1984

Received 29 Samples of Drill Core

Submitted by Mr. John Londry

Sample No.	TiO_2 %	Sample No.	TiO_2 %
14148	10.80	14166	9.86
14149	7.99	14168	2.59
14150	14.51	14169	4.72
14151	1.22	14170	17.44
14152	6.79	14171	3.08
14153	22.94	14172	16.50
14154	9.39	14173	5.52
14155	5.62	14178	7.24
14156	1.03	14179	18.08
14158	1.90	14182	4.65
14159	1.00	14183	20.41
14161	21.04	14184	24.52
14162	23.12	14185	18.40
14163	22.78		
14164	18.90		
14165	12.10		

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

Certificate No. LO-08 /#3663 Date: November 28, 1984

Received 12 Samples of Diamond Drill core

Submitted by Mr. John Londry

Sample No.	TiO_2
14167	4.82
14174	2.56
14175	14.72
14176	4.14
14180	4.81
14181	4.88
14186	14.62
14187	10.25
14188	8.38
14189	6.23
14190	5.95
14191	5.59

ASSAYERS (ONTARIO) LIMITED

Per _____

J. van Engelen Mgr.

ASSAYERS (ONTARIO) LIMITED
33 CHAUNCEY AVENUE TORONTO, ONTARIO M8Z 2Z2 · TELEPHONE (416) 239-3527

Certificate of Analysis

RE: L0-03,05,07,08 / #3841

Certificate No. 57

Date: February 28, 1985

Received Mr. J. Londry

Samples of Recuts

Submitted by

Sample No.	Total Fe %	Sample No.	Total Fe %	Sample No.	Total Fe %
6	31.44	14152	19.16	14179	46.28
7	32.00	14153	36.87	14182	27.33
8	31.89	14154	20.95	14183	48.14
9	32.66	14155	15.48	14184	46.78
10	34.78	14156	11.74	14185	43.83
11	34.16	14158	14.73	14167	21.68
12	34.11	14159	16.22	14174	15.17
14108	30.84	14161	39.10	14175	33.48
14109	21.85	14162	45.77	14176	16.23
14110	48.61	14163	46.75	14180	17.72
14111	33.41	14164	39.16	14181	18.87
14113	25.09	14165	33.94	14186	34.88
14114	33.52	14166	31.95	14187	31.04
14115	33.09	14168	20.86	14188	25.65
14121	37.53	14169	21.45	14189	23.22
14122	43.04	14170	48.11	14190	25.31
14148	27.39	14171	21.03	14191	21.96
14149	24.58	14172	42.42		
14150	29.20	14173	20.08		
14151	13.46	14178	25.30		

ASSAYERS (ONTARIO) LIMITED

Per

J. van Engelen Mgr.

DIAMOND DRILL RECORD

NAME OF PROPERTY: Titan Titanium International Inc.
HOLE NO. T-84-9 LENGTH 258
LOCATION Area of Bliss Lake
LATITUDE 530 N.W. DEPARTURE 600 S.W.
ELEVATION ____ AZIMUTH N 35° W DIP - 45°
STARTED Nov. 10, 1984 FINISHED Nov. 11, 1984

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. T-84-9 SHEET NO. 1
REMARKS BQ core

LOGGED BY M. Labchuk

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SAMPLE SULPHIDES	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	TiO2 %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	14	Casing									
14.0	34.0	Shear zone, carbonated and chloritic									
34.0	63.0	Carbonated chlorite schist, weak mineralization	14168		52.5	63.0	10.5	2.59			
63.0	126.0	Same mineralization; at 80', 6 blobs of mineralization 90 - 92; massive mineralization 107 - 109; massive mineralization Same mineralization continues to 126.0	14169		143.0	153.0	10.0	4.72			
126.0	138.0	Quartz - porphyry dike									
138.0	143.0	Low mineralization									
143.0	166.0	Low mineralization									
166.0	180.0	Massive mineralization	14170		166.0	180.0	14.0	17.44			
180.0	258.0	Andesite; no mineralization									
		End of hole at 258'									

LANGRIDGES – TORONTO – 346-1168

DIAMOND DRILL RECORD

NAME OF PROPERTY: Titan Titanium International Inc.
HOLE NO.: T-84-10 LENGTH: 273'
LOCATION: Area of Bliss Lake
LATITUDE: 530 N.W. DEPARTURE: 600 S.W.
ELEVATION: AZIMUTH: N 35° W DIP: -60°
STARTED: Nov. 11, 1984 FINISHED: Nov. 12, 1984

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. T-84-10 SHEET NO. 1
REMARKS: BQ core
LOGGED BY: M. Labchuk

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	SULPHIDES %	SAMPLE FOOTAGE FROM	SAMPLE FOOTAGE TO	SAMPLE FOOTAGE TOTAL	TiO2 %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	10	Casing									
10	113.0	Gabbro, highly sheared; chloritic									
113.0	123.0	Carbonated chlorite schist									
123.0	190.5	Carbonated chlorite schist - low mineralization									
190.5	199.5	Quartz-porphyry dike	14171		123.0	133.0	10.0	3.08			
199.5	252.0	Carbonated chlorite schist									
252.0	254.5	Carbonated chlorite schist; heavy mineralization									
254.5	273.0	Andesite, fine grained, no mineralization									
		End of hole at 273'									

ANGRIDGES – TORONTO – 386-1168

DIAMOND DRILL RECORD

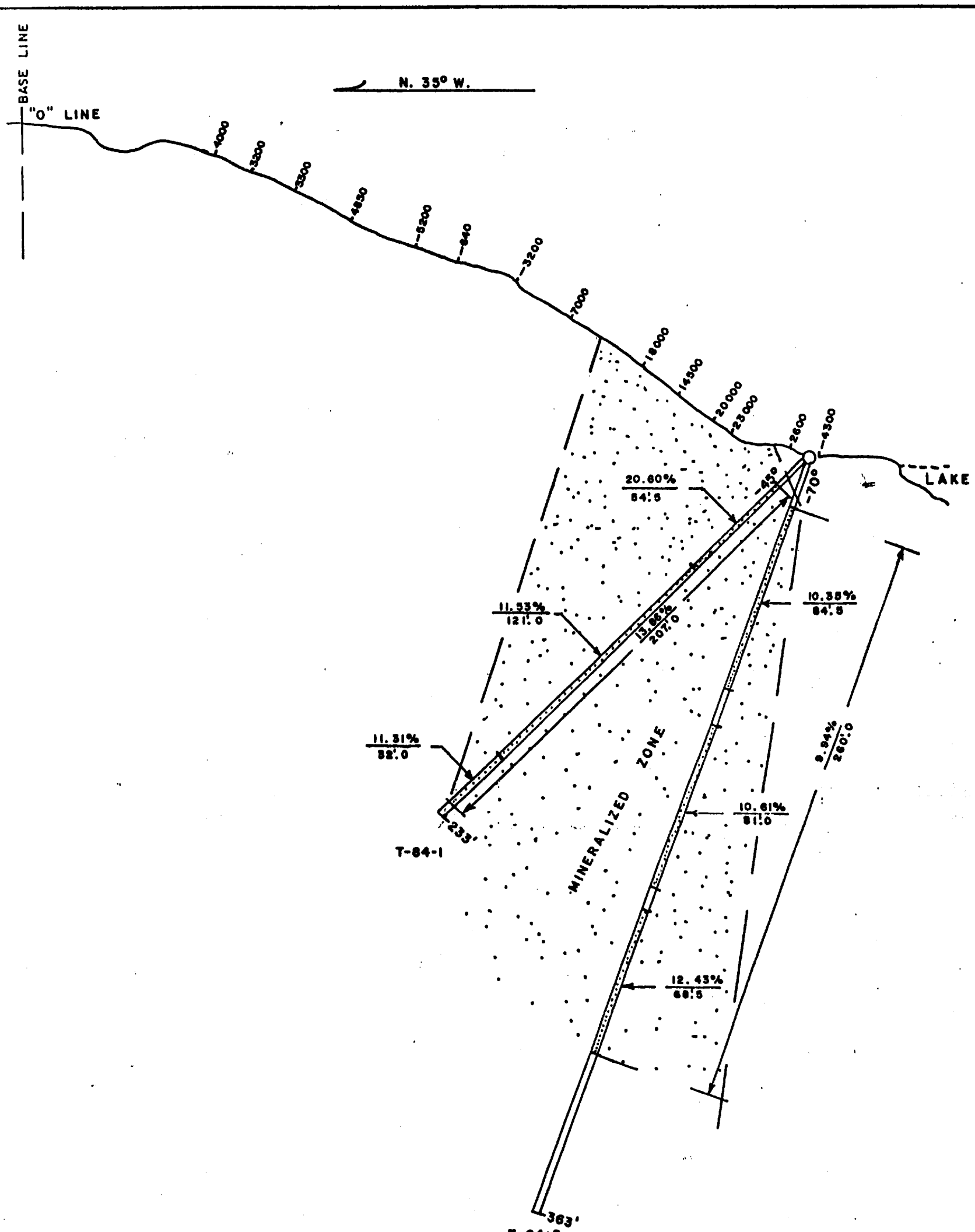
NAME OF PROPERTY Titan Titanium International Inc.
HOLE NO. T-84-11 LENGTH 443'
LOCATION Area of Bliss Lake
LATITUDE 560 N.W. DEPARTURE 800 S.W.
ELEVATION _____ AZIMUTH N 35° W DIP - 55°
STARTED Nov. 12, 1984 FINISHED Nov. 15, 1984

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

HOLE NO. T-84-11 SHEET NO. 1
REMARKS BQ core

LOGGED BY M. Labchuk

FOOTAGE FROM	FOOTAGE TO	DESCRIPTION	SAMPLE NO.	% SULPHIDES	FOOTAGE FROM	FOOTAGE TO	FOOTAGE TOTAL	TiO2 %	ASSAYS %	ASSAYS OZ/TON	ASSAYS OZ/TON
0	9	Casing									
9	34	Massive, gabbro, minor pyrite	14172		8.0	34.0	26.0	16.50			
34	53	Sheared gabbro, chloritic, very low mineralization	14173		34.0	53.0	19.0	5.52			
53	62.5	Gabbro; some shearing, chloritic; low mineralization	14174		53.0	62.5	9.5	2.56			
62.5	73.0	Massive gabbro to 69'; from 69 to 73 chloritic schist; low mineralization	14175		62.5	73.0	10.5	14.72			
			14176		73.0	83.0	10.0	4.14			
73.0	139.0	Chlorite schist - low mineralization	14178		127.0	134.0	12.0	7.24			
139.0	141.5	Porphyry - dike?	14179		141.5	149.0	7.5	18.08			
141.5	149.0	Massive gabbro	14180		149.0	173.0	24.0	4.81			
149.0	173.0	Chlorite schist, low mineralization	14181		173.0	203.0	30.0	4.88			
173.0	203.0	Gabbro, slight increased mineralization	14182		203.0	215.0	12.0	4.65			
203.0	215.0	Chlorite schist; low to medium mineralization	14183		215.0	233.0	18.0	20.41			
215.0	303.0	Gabbro, massige mineralization	14184		233.0	253.0	20.0	24.52			
303.0	443.0	Gabbro; occasional band of chlorite schist, varying from one to three feet in width and carrying some mineralization	14185		253.0	273.0	20.0	18.40			
			14186		273.0	303.0	30.0	4.62			
			14187		303.0	323.0	20.0	0.25			
			14188		323.0	343.0	20.0	8.38			
		End of hole at 443'	14189		343.0	363.0	20.0	6.23			
			14190		363.0	383.0	20.0	5.95			
			14191		383.0	403.0	20.0	5.59			

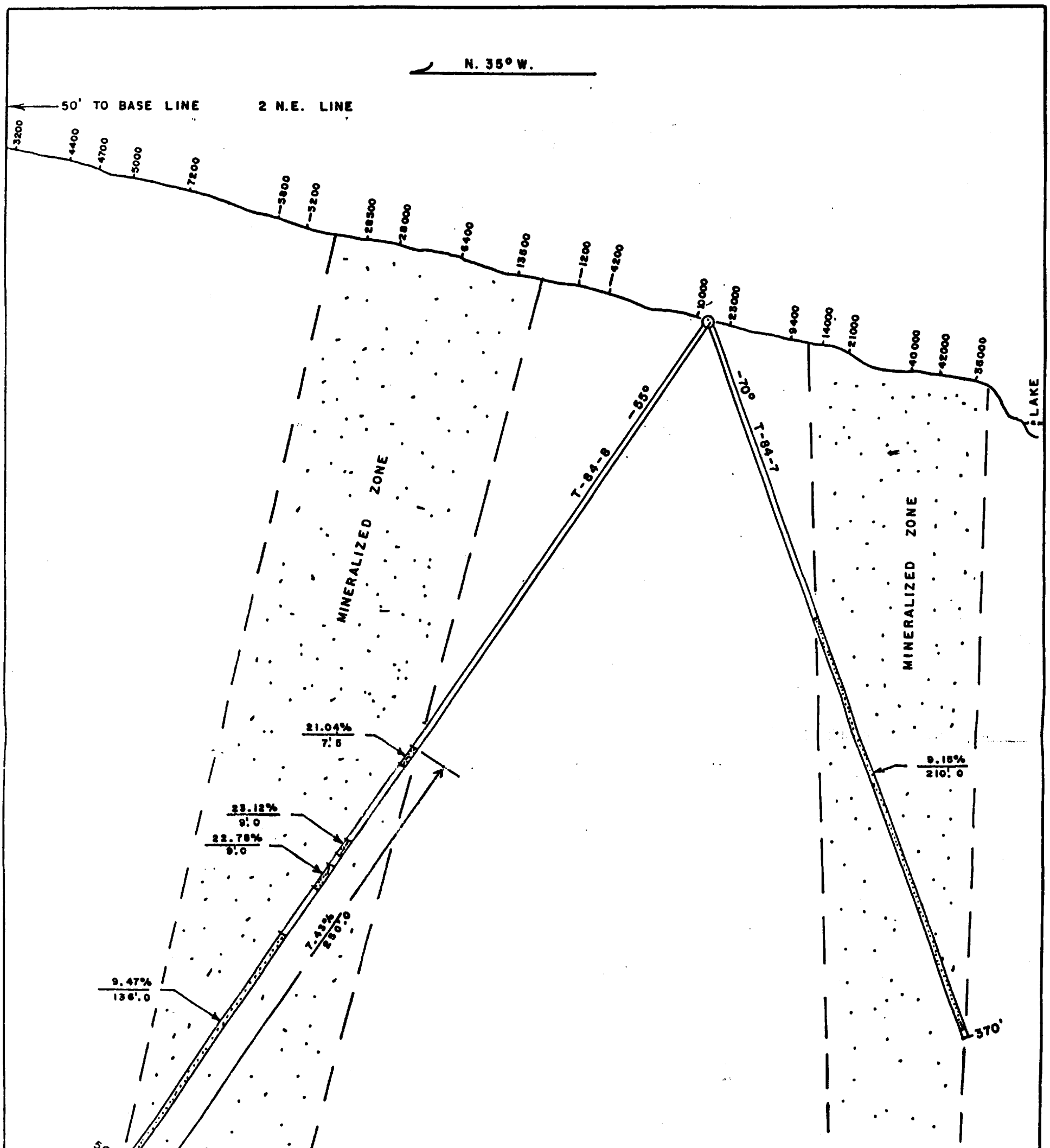


SECTION SHOWING DIAMOND DRILL HOLES
No. T-84-1 and T-84-2
TITAN TITANIUM INTERNATIONAL INC.
Area of Bad Vermilion Lake
Kenora Mining Division

Scale: 1" = 50' Jan., 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

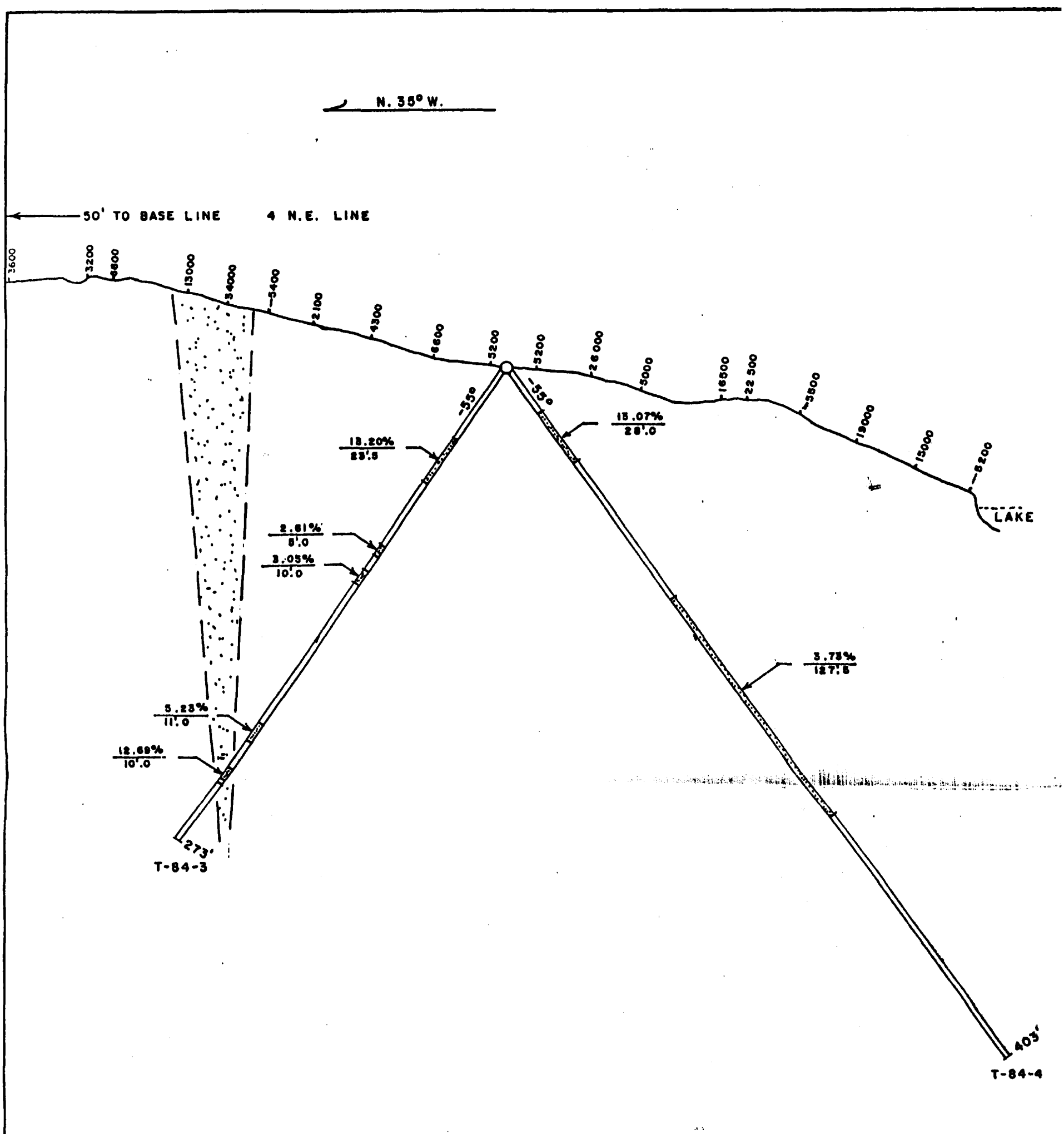
John E. Londry, P.Eng



SECTION SHOWING DIAMOND DRILL HOLES
No. T-84-7 and T-84-8
TITAN TITANIUM INTERNATIONAL INC.
Area of Bad Vermilion Lake
Kenora Mining Division

Scale: 1" = 50' Jan., 1985

John E. Londry, P.Eng.

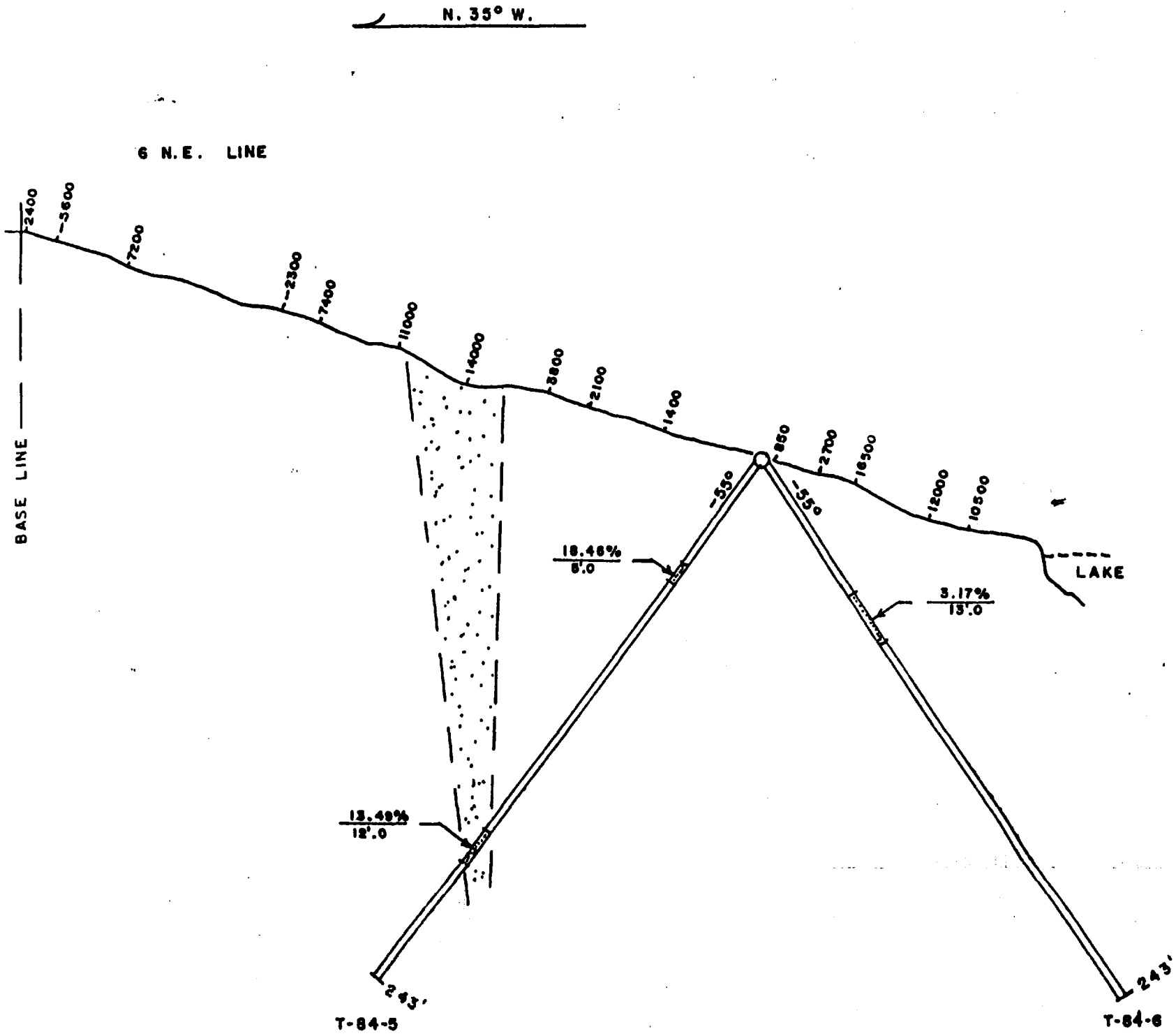


SECTION SHOWING DIAMOND DRILL HOLES
No. T-84-3 and T-84-4
TITAN TITANIUM INTERNATIONAL INC.
Area of Bad Vermilion Lake
Kenora Mining Division

Scale: 1" = 50' Jan., 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng.

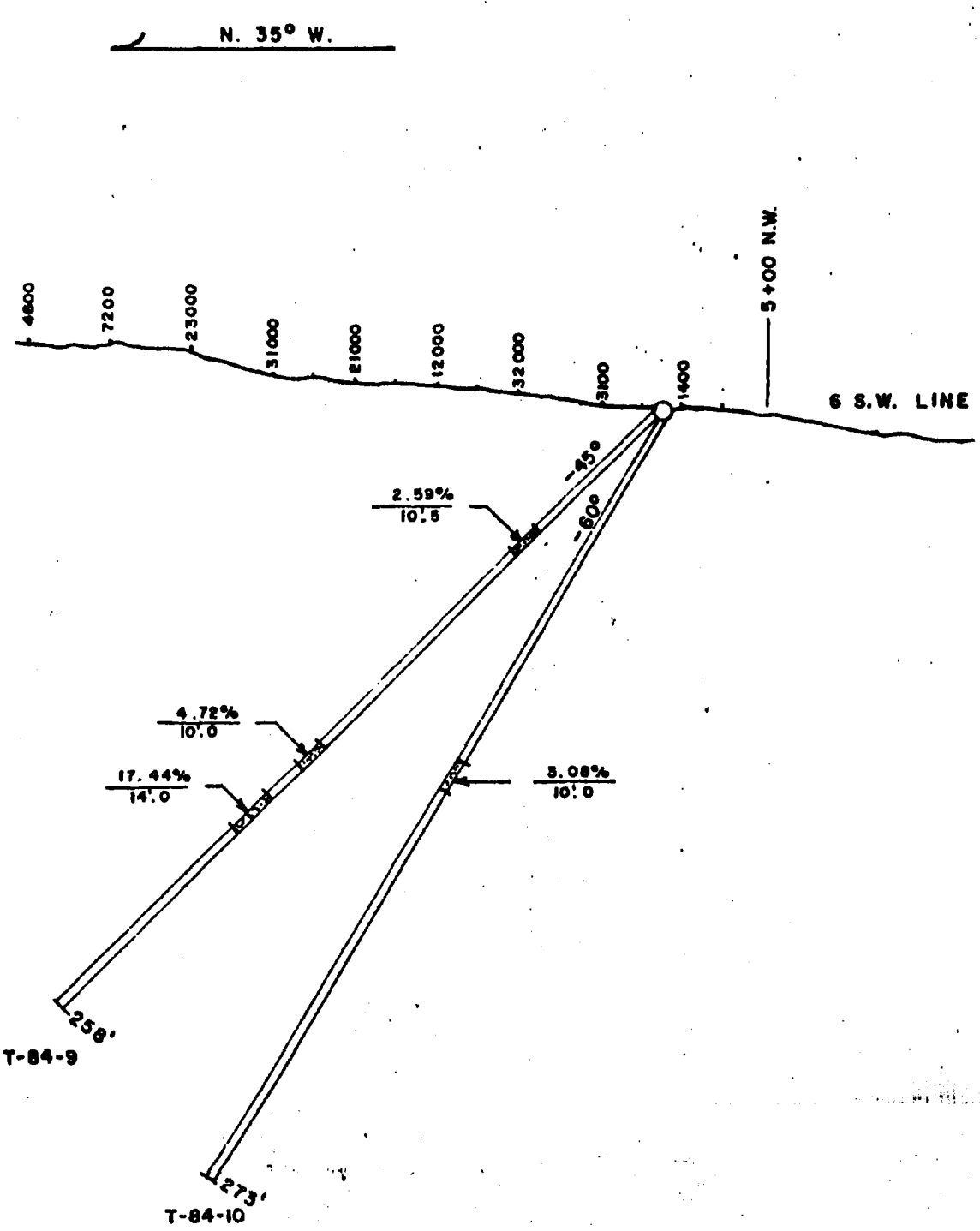


SECTION SHOWING DIAMOND DRILL HOLES
No. T-84-5 and T-84-6
TITAN TITANIUM INTERNATIONAL INC.
Area of Bad Vermilion Lake
Kenora Mining Division

Scale: 1" = 50' Jan., 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng

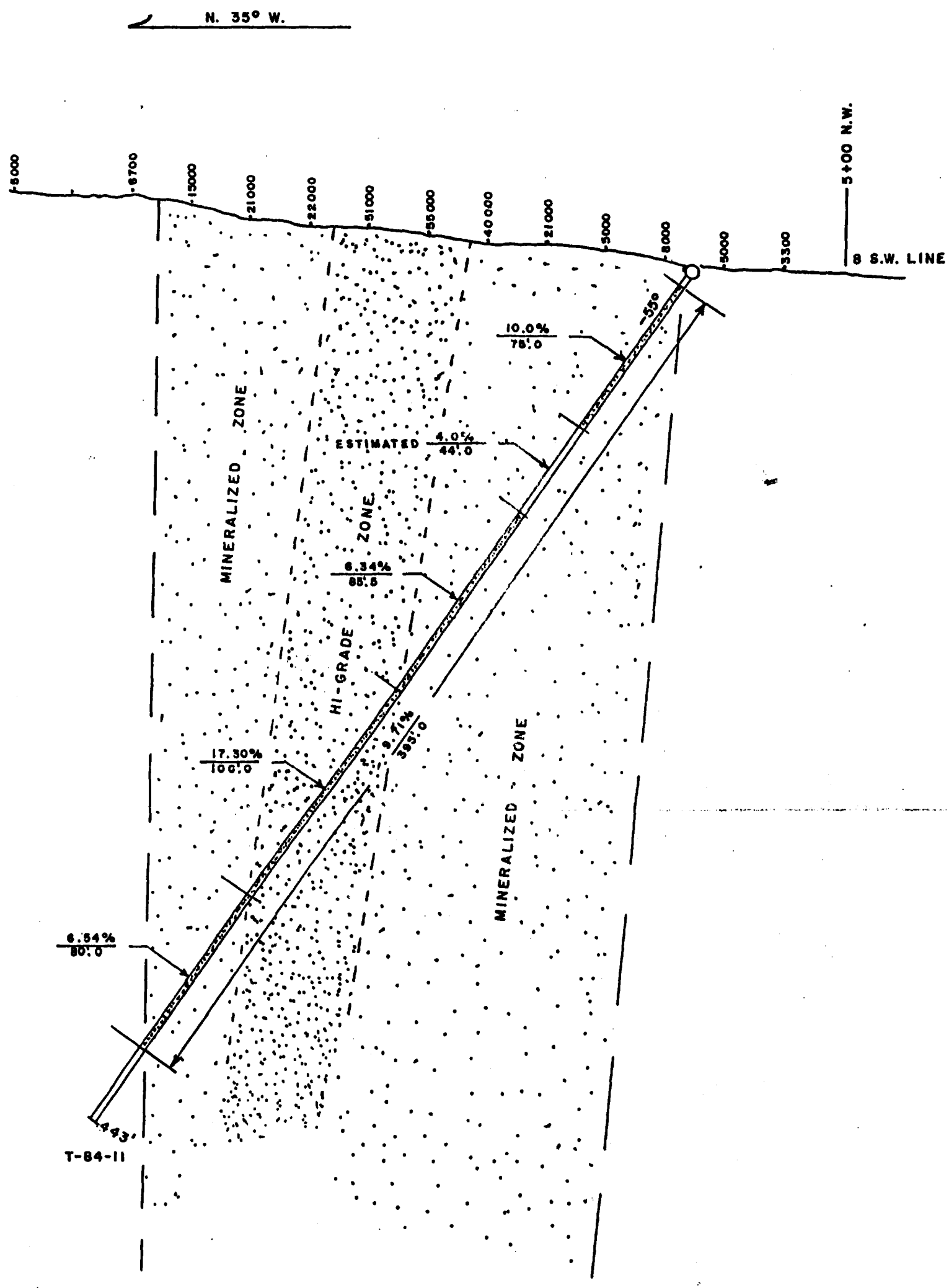


SECTION SHOWING DIAMOND DRILL HOLES
No. T-84-9 and T-84-10
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' Jan., 1985

REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

John E. Londry, P.Eng.

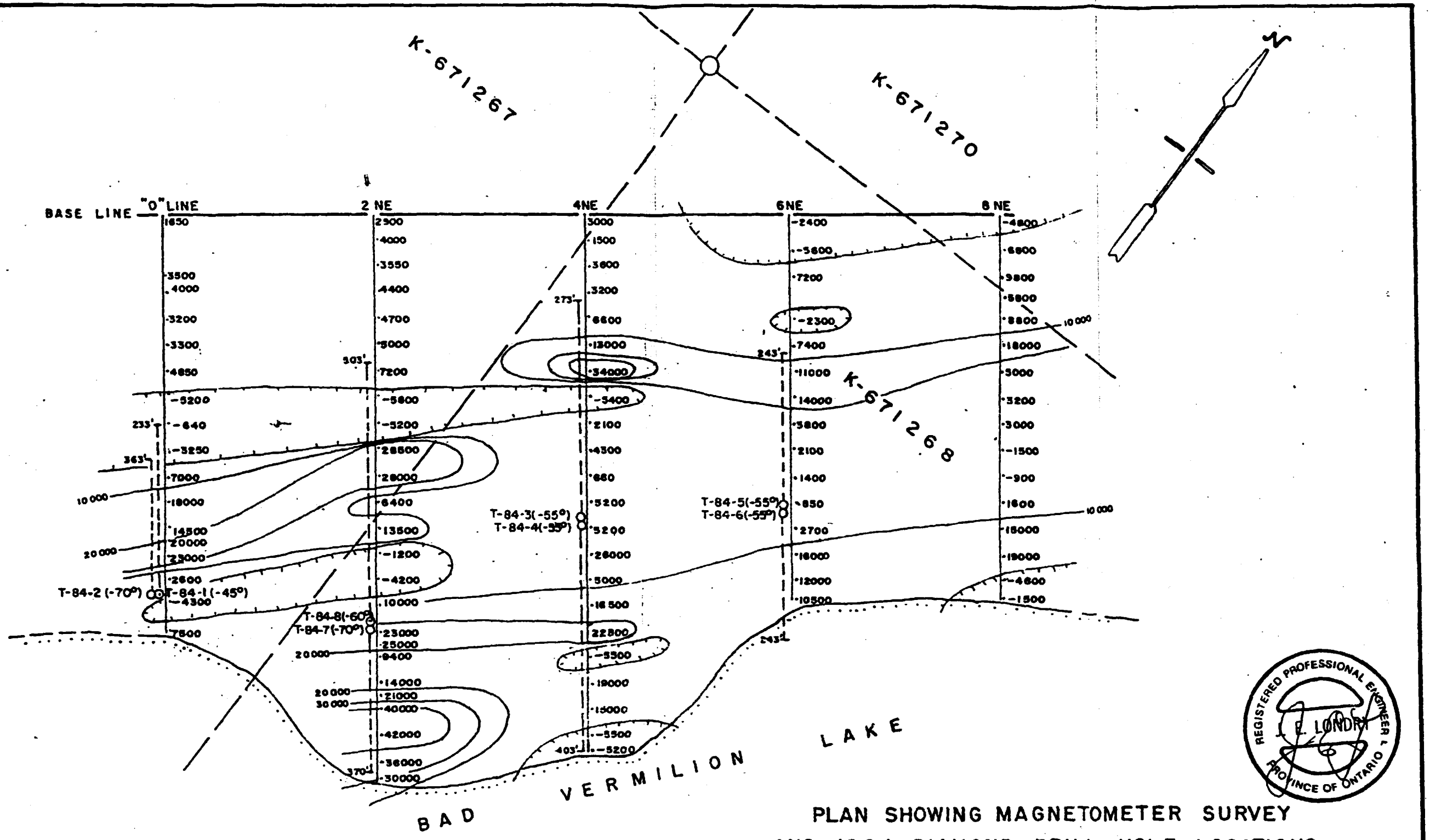


SECTION SHOWING DIAMOND DRILL HOLE
No. T-84-11
TITAN TITANIUM INTERNATIONAL INC.
Area of Bliss Lake
Kenora Mining Division

Scale: 1" = 50' Jan., 1985

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

John E. Londry, P.Eng.



REGISTERED PROFESSIONAL ENGINEER
J. E. LONDRY
PROVINCE OF ONTARIO

PLAN SHOWING MAGNETOMETER SURVEY AND 1984 DIAMOND DRILL HOLE LOCATIONS

TITAN TITANIUM INTERNATIONAL INC.

AREA OF BAD VERMILION LAKE

KENORA MINING DIVISION, ONTARIO

SCALE: 1" = 100' JANUARY, 1985.

J.E. LONDRY, P. ENG.

REPORT ON AN AIRBORNE MAGNETIC AND VLF-EM SURVEY BAD VERMILLION LAKE KENORA MINING DIVISION, ONTARIO

for

Titan Titanium International Inc.

by

TERRAQUEST LTD.
Toronto,

March 5, 1985

TABLE OF

1. INTRODUCTION

A combined airborne magnetic and VLF-EM survey was carried out on a block of 45 claims located in the Bliss Lake - Bad Vermillion Lake Ares, in the Kenora Mining Division, Ontario. The claim holder is Titan Titanium International Inc., Ontario. The work was carried out by Terraquest Ltd., 111 Richmond Street West, Toronto during the period December 4, 1984 to March 3, 1985.

The survey area was covered by a grid of parallel flight lines spaced 100 metres apart and aligned N45°W.

The purpose of the survey was to assist in mapping geology and to explore for shear zones, faults, and other structures potentially favourable to gold or base metal mineralization.

2. THE PROPERTY

The property is composed of 45 contiguous claims arranges in a staircase fashion along the north side of Bad Vermillion Lake. Trans-Canada Highway 11 passes to within 2 km of the northern boundary of the property and it may easily be reached by water from the settlement of Mine Centre on Bad Vermillion Lake approximately 6 km to the east.

Latitude and longitude are 48°43' and 92°45' respectively and the NTS reference is 52 C/10.

The claim numbers are: TB 671262-4 TB 670151-2

671266-283 715222-236

629184-88 751057

751066

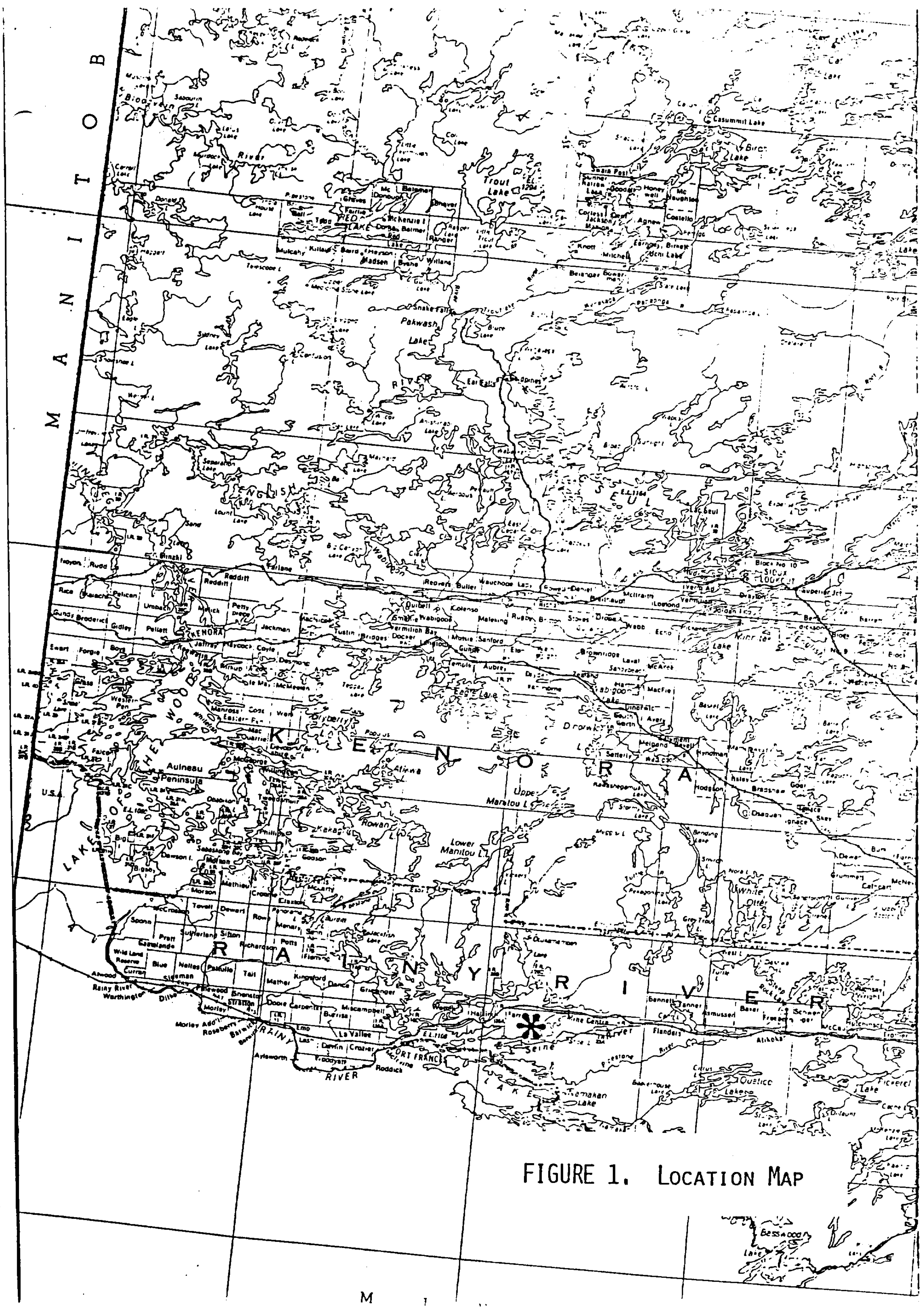


FIGURE 1. Location Map

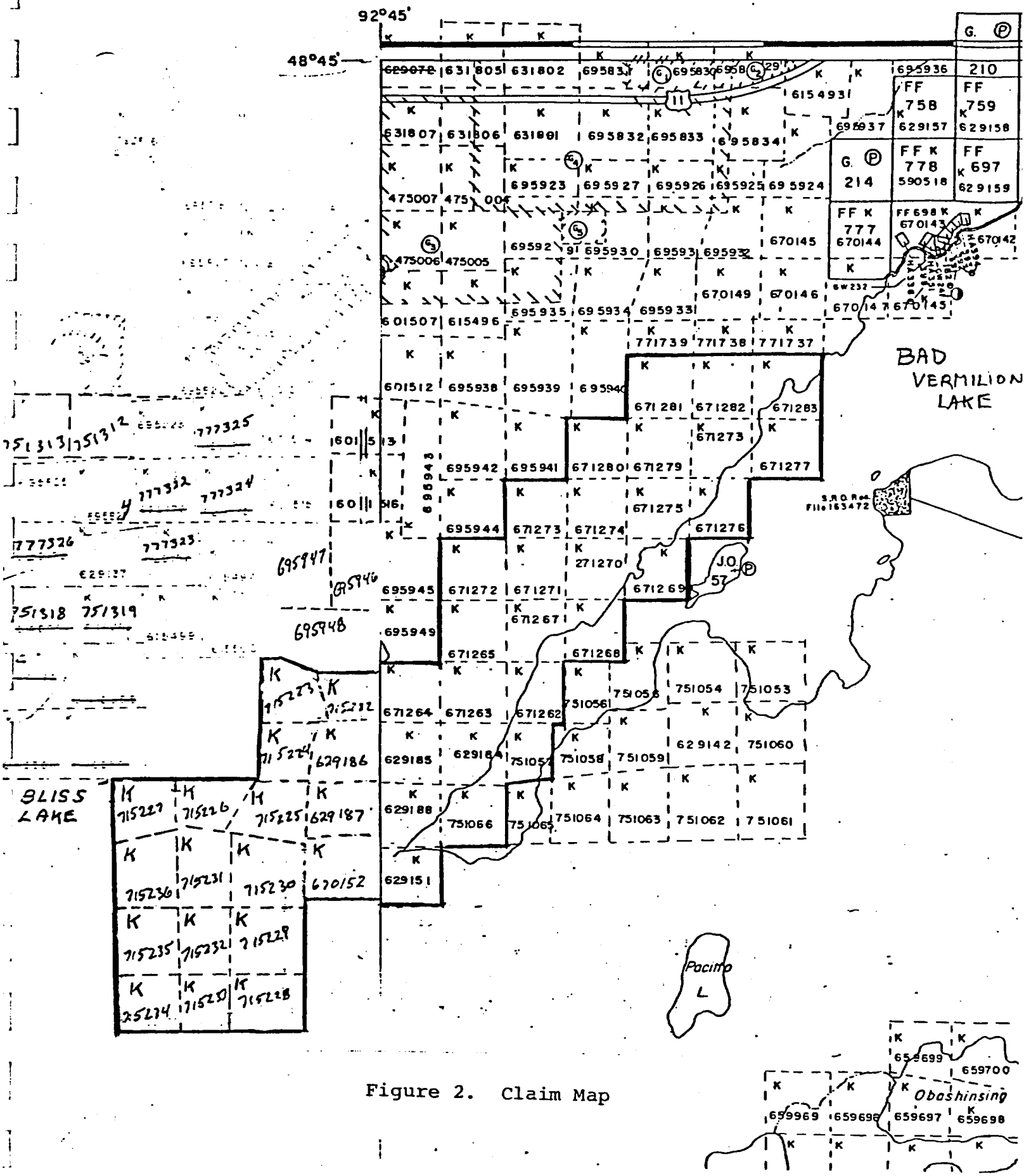


Figure 2. Claim Map

3. GEOLOGY

Map References

1. P-2201, Mine Centre area, O.G.S., 1:15,840, 1980.

The claim group is underlain by a number of intrusive rock types which have intruded felsic volcanics. The youngest is a gabbro containing approximately 5% magnetite lying along the center of the claim group. Granitic rocks including trondhjemite and granodiorite lie on either side of this formation. A deposit of iron and titanium and vanadium is located on the lakeshore near the center of the claim block. Pyrite occurs within the granodiorite at the north end of the claims.

The economic geology notes on map 2201 state "the most obviously favourable host rock for auriferous quartz veins is the metamorphosed granitic unit; however, the potential of the other rocks, including the gabbroic bodies, should not be discounted".

4. SURVEY SPECIFICATIONS

4.1 Instruments

The present survey was carried out using airborne instruments with the sensor elements mounted in the wing tips of a Cessna 182 aircraft, registration C-FAKK. The magnetic field was measured with a proton precession magnetometer model GSM-8BA, manufactured by GEM Systems, Toronto. The VLF-EM field was measured with a three component total field strength instrument, model TOTEM-2A, manufactured by Herz Industries Ltd., Toronto. Terrain clearance is measured by a King KRA-10A Radar Altimeter. Data from these three instruments are processed by a UDAS-100 data processor, manufactured by Urtec Ltd. and then recorded onto a ninetrack tape recorder, and printed as profiles on a thermal printer in real time on the aircraft (Fig. 3). A Geocam video tape system is used to follow the flight path, and fiducial numbers generated by the UDAS-100 are recorded onto the video images.

Full specifications of the instruments are given in Appendix A.

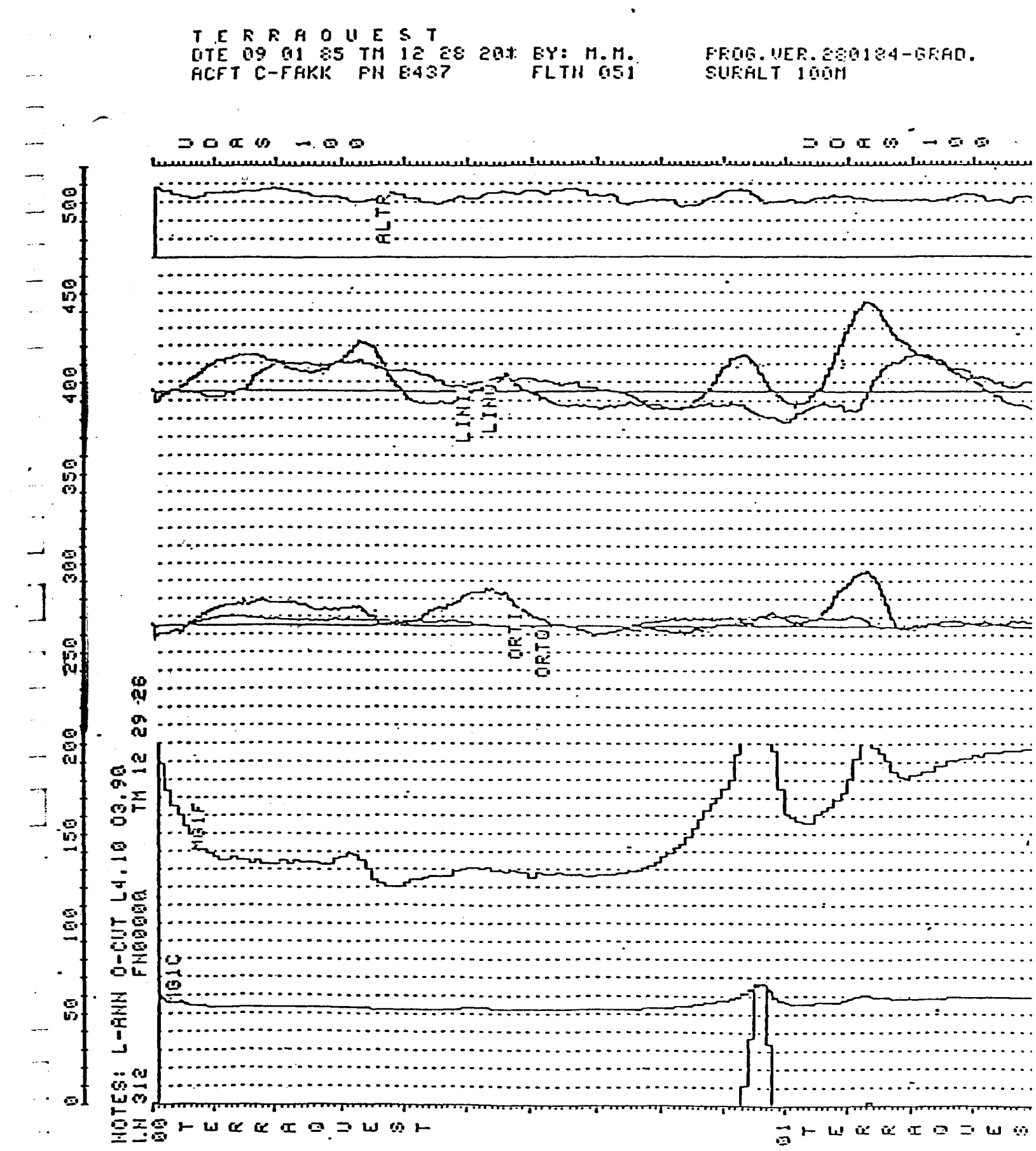


FIGURE 3. SAMPLE OF ANALOGUE DATA

4.2 Lines and Data

a) Line spacing 100 metres

b) Line direction 315 degrees (astr.)

c) Flying height 100 metres

d) Flying speed 156 km/hr

e) Data point interval:

- magnetic 42 metres
- VLF EM 21 metres

f) Tie Line interval. 2 kilometres

g) VLF transmitter tuned in Ch.1 (Line)- Jim Creek, Wa., 24.8 kHz

h) VLF transmitter tuned in Ch.2 (Ortho) - Cutler, Me., 24.0 kHz

i) Line kilometres within the claim boundaries - 84

j) Line kilometres over total survey area - 177

4.3 Tolerances

a) Line spacing: Any gaps longer than one kilometre and wider than twice the line spacing were reflown.

b) Flying height: Portions of line longer than one km which were above 125 metres were reflown if safety considerations were acceptable.

c) Magnetic diurnal: Less than twenty gammas (nanotesla) deviation from a smooth background over a period of two minutes or less as seen on base station analogue record.

d) Manoeuvre noise: approximately $\pm$5 gammas.

4.4 Photo mosaics

For navigating the aircraft and recovering the flight path, photo mosaics were made at final map scale from existing air photos. In order to provide a semi-controlled base the airphotos were laid down on a topographic map which had been photographically adjusted to match the photo scale. The laydown was then photographed and printed at 1:10,000 scale for navigating and flight path recovery.

5.0 Data processing

Flight path recovery was carried out in the field using a video tape viewer to observe the flight path as recorded by the Geocam video camera system. The flight path recovery was completed daily to enable reflights to be selected where needed for the following day.

The remaining data processing was carried out in the offices of Dataplotting Services Inc. in Toronto.

Magnetic levelling was computed in the standard manner by tieing survey lines to the tie lines. The VLF-EM data was corrected by applying the following formula:

(A) Total Field Strength

$$V = \frac{SM + 100}{K} \quad \text{where} \quad K = \frac{S(A - 2R) + 100}{100}$$

V = final corrected value in %

M = raw data value from the magnetic tape

S = scale factor

A = average of all M on a given line.

R = standard deviation of A

(B) Quadrature

$$Q = \frac{SN}{K} \quad \text{where } K = \frac{SB + 100}{100}$$

N = raw data

B = average of all N

The vertical magnetic gradient is computed from the total field data using a widely accepted method of transforming the data set into the frequency domain, applying a transfer function to calculate the gradient, and then transforming back to the spatial domain. The method is described by a number of authors including Grant, 1972, and Spector, 1968.

Grant, F. S., Review of data processing and interpretation methods in gravity and magnetics, Geophysics, August 1972.

Spector, A., 1968, Spectral analysis of aeromagnetic maps: unpub. University of Toronto thesis.

These calculations, and all other corrections and map contouring were carried out by Dataplotting Services Inc. of Toronto.

6.0 INTERPRETATION

The magnetic contour pattern on both the total field and the vertical gradient clearly defines the magnetite-rich gabbro formation traversing the full length of the claim group. Its contacts with the granitic rocks to the north and the mafic intrusives to the south were mapped using the gradient data. It ranges in width from 200 to 300 metres and contains the showing of titaniferous magnetite. Several lateral displacements of this unit shown on the magnetic map are interpreted as faults.

Several moderate magnetic anomalies at the north end of the claim group are believed to be expressions of the gabbro (Unit 4d) and some of the displacements in these linear anomalies can be related to the proposed faulting in the iron-rich gabbro unit to the south. The granodiotite, the mafic intrusives to the south and the felsic volcanics to the north have very little magnetic expression and cannot really be distinguished from each other.

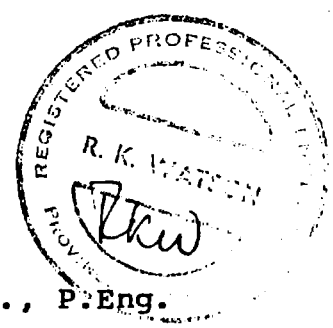
The VLF data shows a number of electrical conductors on the property. In the western half near the north boundary, two strong conductors can be related directly to Bliss Lake and are believed

to be caused by lake bottom sediments. However, the entire length of the iron-rich gabbro unit is conductive. This could be caused by the magnetite alone or by the combination of magnetite and sulphide minerals. Investigation on the ground would be needed to resolve this by means of conventional electromagnetic or induced polarization methods. One short weak VLF anomaly lies in the west part of the claims near a pyrite occurrence and could be an expression of this mineral. It is recommended that this anomaly and the strongest anomalies within the iron-rich gabbro would be investigated further on the ground.

7. SUMMARY

The claim group was covered by a magnetic VLF-EM readings at a density of approximately 1 mile per mineral claim. The iron-rich gabbro and other gabbro units were carefully mapped from the magnetic data and a number of faults are proposed. The iron-rich gabbro was found to be conductive at VLF frequencies and recommendations were given for further investigation of this long anomaly on the ground.

TERRAQUEST LIMITED



Roger K. Watson, B.A.Sc., P.Eng.
Geophysicist

APPENDIX A

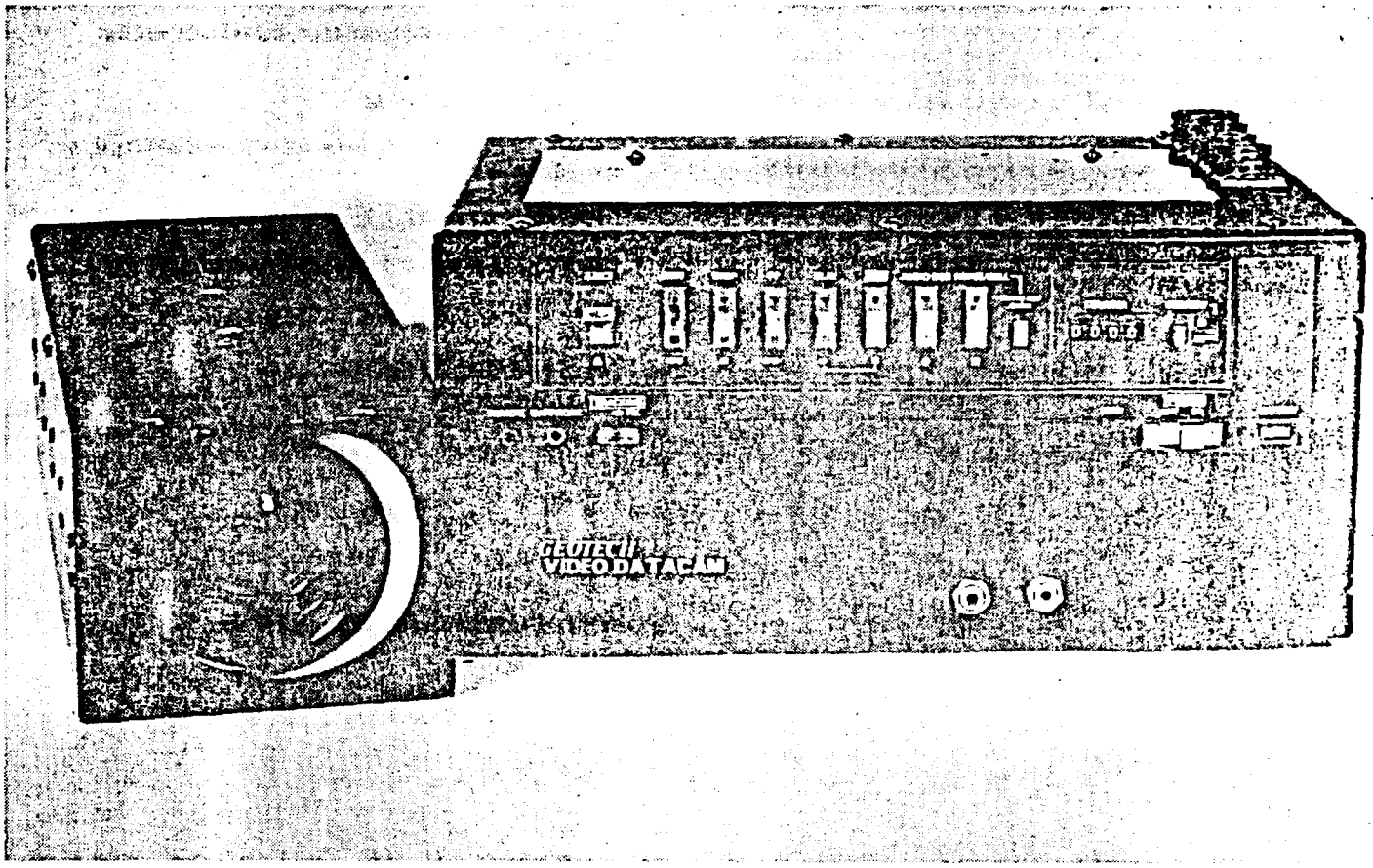
GSM - 8 BA AIRBORNE PROTON MAGNETOMETER

SPECIFICATIONS

solution:	0.5 gamma
Accuracy:	± 1 gamma over operating range
Range:	20,000-100,000 gamma in 23 overlapping steps
Gradient Tolerance:	Up to 5,000 gamma/meter
Output:	VISUAL: 5 digit 1 cm (0.4") high Liquid Crystal Display, visible in any ambient light DIGITAL: Multiplied precession frequency and gating pulse ANALOGUE: 0-99 gamma (optional)
External Trigger:	Externally triggered cycling with period of 1.00 sec.
Power Requirements:	28V DC, 8Ws per reading
Operating Temperature:	-40 to +55C
Dimensions:	Console: 15x8x15 cm (6x3¼x6") Sensor: 14x7 cm dia (5 3/4x2 3/4" dia) Staff: 175 cm (70") extended, 53 cm (21") collapsed or sectional 45 cm (18") each section
Weight:	2.7 kg (6 lb) complete, 2.3 kg (5 lb) in back-pack mode
Manufacturer:	Gem Systems Inc. 105 Scarsdale Rd. Don Mills, Ontario M3B 2R5

Geotech

Geotech Datacam Video Flight Recorder System



The Geotech Datacam System provides an innovative method of recording the flight path together with data from the user's acquisition equipment on video cassette tape instead of the usual 35 mm film. The system consists of a data interface, video camera and a video cassette recorder. All data and video are available for review immediately after each flight since no processing is required. The B&W video camera is fitted with a super wide angle lens and automatic iris for accurate exposure control, even under low light conditions, with no operator adjustment. Usable video can be obtained with only 0.1 foot candles of light.

The video cassette recorder is designed for easy loading and can store data such as real time, day and date, fiducial numbers, values of magnetometer, VLF and other information on the top portion of each frame. All data and video images are available for immediate review after each flight without processing. Each cassette provides two hours of recording time when run at normal speed. Longer recording times are available with some sacrifice in resolution. Interfacing Datacam to the data acquisition system of the user will be required.

Features

- Datacam pays for iteself in one season due to savings in film
- Reusable magnetic tape cassettes
- Instant playback in field giving total confidence in data recorded
- Same weight as conventional 35 mm film equipment
- Automatic exposure control
- Super wide angle lens
- On board video monitor
- Selection of normal or low tape speeds

Specifications

Weight	8.5 kg camera and recorder
Size	9 x 11 x 26 cm for camera 14 x 25 x 29 cm for recorder
Lens	5.5 cm super wide angle with automatic iris
Temperature range	0 to 40° C
Format	VHS B&W
Power requirements	28 Vdc, 2A

Specifications subject to change without notice.

Geotech Datacam Video Flight Path Recovery System

The Geotech Datacam video flight path recovery system complements the Datacam recorder system and is used to locate the flight path points recorded on the video cassette by means of the self-contained B&W CRT monitor. A single control knob selects all playback functions; high speed forward and reverse; slow motion forward and reverse; or single frame. Various forward and reverse speeds are provided to enable the operator to quickly locate the frame of specific interest. A separate push button advances the frames in still mode. Advanced circuitry produces a sharp screen image and eliminates all noise and blur even on slow motion or still frames regardless of tape speed.

Operation of the Datacam recovery system is simplified by the use of an infra-red type remote control unit which duplicates all functions of the control knob. The remote control unit has a range of 6 m extending over an arc of 60°. An optional power unit adapts the recovery unit for operation from any power supply in use throughout the world.

Features

- Convenient wide selection of forward and reverse speeds enables operator to quickly locate frames of interest
- Slow motion and still frames reproduced without blur or noise
- Instant plaback in the field
- All controls duplicated by infra-red remote control unit for ease of operation
- Rugged construction
- Optional power supply for world wide use

Specifications

Weight	19 kg
Size	56 x 33 x 33 cm
Remote control	Infra-red, hand held

Specifications subject to change without notice

Geotech

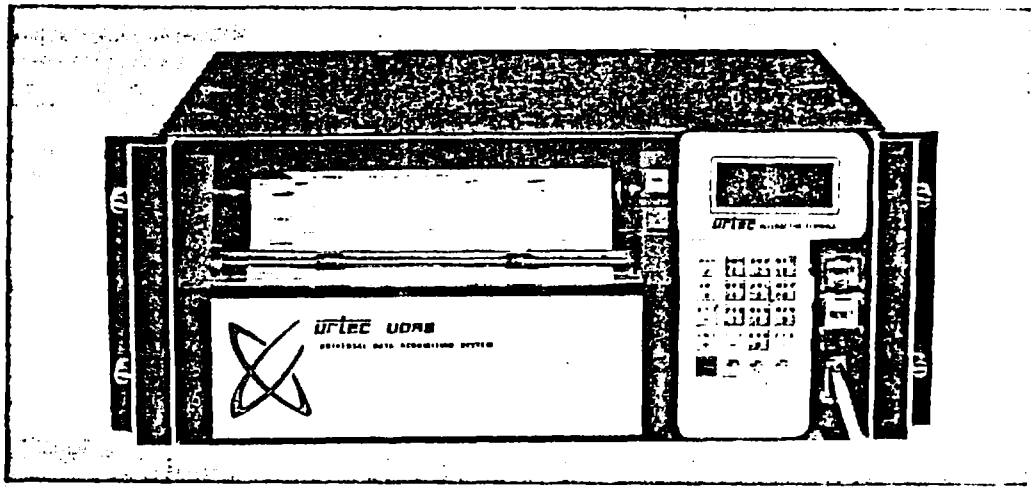
GEOTECH LTD.
2–210 Don Park Road,
Markham, Ontario, Canada
L3R 2V2

Telephone:
Sales: (416) 475-6999
Service: (416) 498-5845

PRINTED IN CANADA

UNIVERSAL DATA ACQUISITION SYSTEM

UDAS 100



FEATURES

- INTEGRATED GEOPHYSICAL MULTI SENSOR SYSTEM DESIGN
- SYSTEM CAN MEASURE, COLLECT, RECORD, VERIFY, REPLOT AND PROCESS A VARIETY OF GEOPHYSICAL DATA.
- ANALOG AND DIGITAL RECORDING COMBINED IN ONE COMPACT LIGHTWEIGHT CONSOLE.
- PROGRAMED AS A COMBINED DATA ACQUISITION SYSTEM OR AS A FULLY INTEGRATED AIRBORNE SURVEY SYSTEM INCLUDING SPECTROMETER AND MAGNETOMETER.
- INTELLIGENT INTERACTIVE HAND HELD TERMINAL WITH KEYBOARD AND DISPLAY CAN BE FIXED TO CONSOLE OR OPERATED IN A REMOTE POSITION.
- LIGHTWEIGHT, COMPACT AND LOW POWERED.

The Universal Data Acquisition System, or UDAS, is the most advanced and versatile programable data acquisition system available for ground and airborne geophysical survey applications. This small, lightweight system will accept data in virtually any format — analog or digital, serial or parallel — from any number of simultaneous sensors and sources.

The UDAS combines both digital and analog recording functions into a single compact lightweight console. All recorded data can be simultaneously registered on any 9-track magnetic tape unit as well as being recorded in analog form on an internal printer/recorder. The printer/recorder operates under software control, it can register up to 16 separate traces with total flexibility as to channel width and position.

The UDAS can be supplied as a combined digital/analog recording system or as a fully integrated geophysical survey system. With the addition of an interface and control console the UDAS is programed to handle a dual (upward/downward) full spectrum gamma ray spectrometer capable of accommodating up to 14 crystal detectors in a coincidence or anti-coincidence mode. It also includes a proton magnetometer featuring automatic tuning with 0.1 gamma sensitivity. The system can also be programed to process the signal or frequency from cesium and fluxgate magnetometers.

All functions are controlled via a hand held terminal with keyboard and a 24 alphanumeric character display. The terminal can be fixed to the console or operated in a remote position.

The system inputs and outputs include a 24 character alphanumeric display, 2 RS232 input/output ports, 16 input analog channels, 30 separate input/output ports and 56 input/output lines for BCD and binary data, 3 accumulator inputs for frequency and pulse counting and a CPIB - IEEE-488 high speed data BUS. Optional features include an interface to dual floppy disk converting the basic UDAS to a software development or data processing system.

The system can be interfaced to any number of recording devices such as magnetic tape drive, external chart recorder, cartridge tape drive, CRT display and plotter/printer.

In addition to its main function as a lightweight, compact data acquisition system for airborne geophysics, the versatility of the UDAS hardware and software makes it suitable for a variety of additional applications such as marine geophysics, truckborne geophysics, field editing tape copy and processing, base station monitoring, borehole logging, environment and industrial monitoring as well as a stand alone software development system.

SPECIFICATIONS: UNIVERSAL DATA ACQUISITION SYSTEM URTEC MODEL — UDAS-100

BASIC UDAS

MICROPROCESSOR AND MEMORY:
- Texas Instruments TMS 9900 - 16 BIT with built in multiply and divide hardware.
- Total memory expandable to 32k words.
- Basic system contains:
  - — 16k - 16 bit word RAM
  - — Up to 8k - 16 bit word EPROM
  - — Cartridge program loading
  - — 12k - Bytes of non volatile RAM program storage (optional)

INPUTS AND OUTPUTS
- Analog input: 16 differential input channels with 12 bit resolution at ± 5V full scale
- Analog output - up to 16 channels (optional)
- 30 addressable ports for multiple byte transfer
- 56 input/output lines for BCD and binary data information (transferred in multiples of 8 bit bytes)
- 3 pulse accumulator inputs for frequency and pulse information. (eg. — Doppler navigation and radar altimeter).
- 2 digital spectrometer inputs. (eg. upward and downward detectors selectable at 256 or 512 channels)
- 1 RS 232 serial port for interactive keyboard and display
- 1 RS 232 serial port for addition of CRT floppy disks and other terminals.
- 1 same protocol as RS 232 with TTL level
- 1 operator controlled fiducial input (switch or keyboard activated)
- Y output for graphic display on oscilloscope
- High speed data transfer-lines GPIB — IEEE-488 compatible

INTERFACES:
- Magnetometer control and signal input for proton or cesium magnetometers
- Error condition indicator level for remote monitoring of diagnostic tests.
- Controller and outputs for two 9 track ½ inch magnetic tape units.
- Printer/Recorder controller.
- Digital interface to navigation camera (8 digits of fiducial and coding information).
- Controller for magnetic tape cartridge (program loader)
- Disk storage interfaced via RS-232 or GPIB — IEEE-488 BUS

CONTROLS:
- System power on/off switch
- Keyboard with 24 character alphanumeric display. Keyboard/display can be operated on main console or remotely
  Manual start and load of Julian clock and fiducial numbers.
- All control functions interrogate with YES or NO answer.

SOFTWARE:
The basic system is supplied with the necessary programs (on magnetic cartridge) to execute routine operational functions and standard survey requirements. Additional dedicated programs are also included to provide:

- Spectrometer Calibration
- Automatic resolution check
- Full spectra printout on recorder/printer
- Continuous monitoring of system gain using natural "K" photopeak
- Automatic window adjustments
- Fast total count sampling (0.1 sec) for point sources resolution.
- Selective graphic display options.
- Read after write data verification.
- Selective data tape dump
- Magnetic tape copy (optional)
- Data processing and plotting program (optional)
- Diagnostic test programs
- A variety of additional special functions programs are available on request.

PRINTER/RECORDER

CONTROLS
- Power on/off switch
- Automatic paper feed
- Print contrast control
- On/off print head control
- Automatic take-up spool

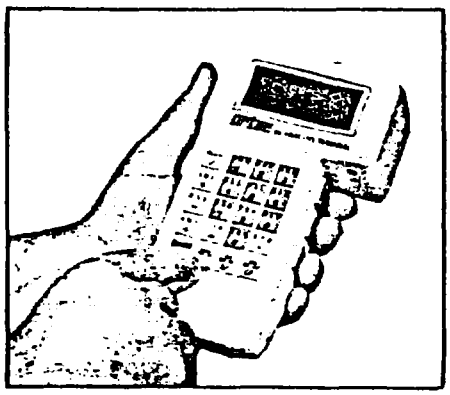
FORMATS
- Alphanumeric, complete ASCII character set. Thermal 5 x 7 dot matrix
- Graphics 70 x 70 dots per inch resolution
- Software programable under UDAS control
- Records up to 16 analog traces each with variable O and F.S. setting. Traces can be stacked or overlapping. Software controlled. Trace position and amplitude can be adjusted via interactive keyboard.
- Overflow is automatic by digital stepping.
- Complete alphanumeric annotations can be printed on recording chart (eg. name of project and survey area details, fiducial numbers, time, recording scales and parameters etc.)

PAPER
- Thermosensitive paper 222mm (8.75 in.) wide, 30 meter (100 ft.) long
- Thermal print head is board mounted and easy to replace

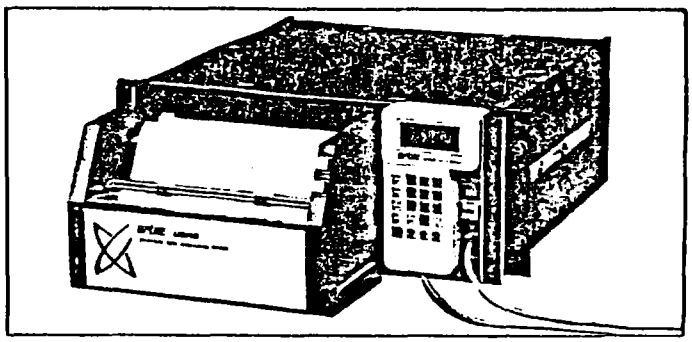
POWER
- 24 - 28VDC 3.0 A average

WEIGHT
- 15.6 kg. 35 lbs.

DIMENSIONS
- 48.2 cm (19 in.) wide, 17.8 cm (7.0 in.) high, 40.6 cm (16 in.) deep (standard rack mount).



Hand Held Interactive Terminal



UDAS-100 Console with Printer/Recorder Extended

FOR FURTHER INFORMATION CONTACT

urtec INSTRUMENTS SALES LIMITED

Totem 2A

Multi channel

VLF Electromagnetic airborne survey instrument

Specifications

Introduction.

The Totem-2A measures basically the same parameters and shares the same package configuration as the well established Totem-1A.

This new generation instrument, however, measures multiple parameters on two channels simultaneously, with less noise and greater accuracy. These advancements have been achieved while maintaining the simple installation and operating procedures of the 1A model.

The Totem-2A employs state of art digital and linear integrated circuits to implement the functions of crystal controlled phase locked loop frequency synthesizers, dual frequency heterodyne conversion and proprietary time domain sampling vector computation techniques.

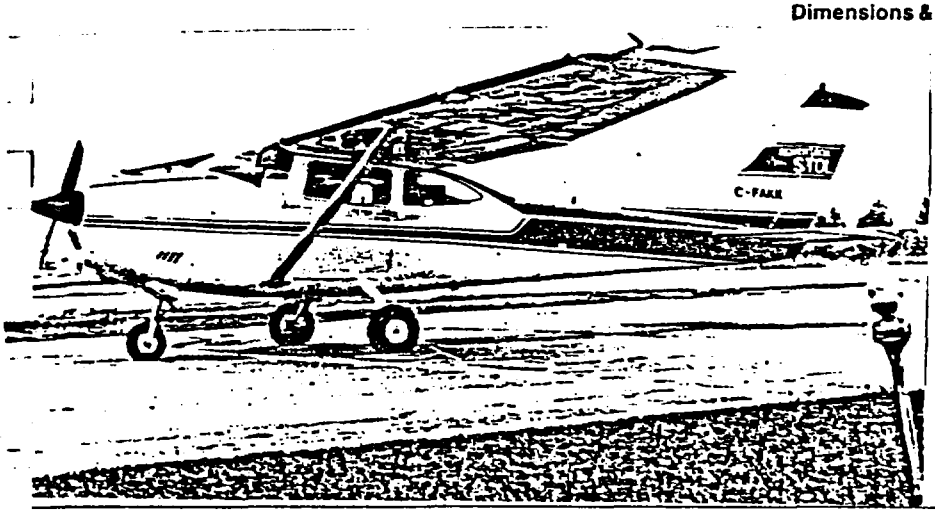
Features.

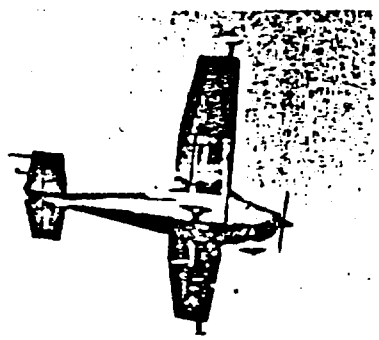
The principal parameters measured are the change in total field and the vertical quadrature field. Parameters also available are the total field gradient (from sensors in two locations) and the horizontal quadrature field. The quadrature polarity is defined by the direction of flight relative to the field. The total and quadrature magnitudes are insensitive to sensor orientation in pitch, roll and yaw.

One obvious advantage of dual frequency operation is that primary sources can be selected to ensure good coupling with conductors of any orientation. Potential uses of the gradient mode are enhanced interline contouring and deliniation of multiple conductors with horizontal and vertical gradient respectively.

Specifications subject to change.

Primary source:	Magnetic field component radiated from VLF radio transmitters (one or two simultaneously).
Parameters measured:	Total field, vertical quadrature, horizontal quadrature, gradient.
Frequency range:	15kHz to 25kHz front panel selectable for each channel in 100Hz steps.
Sensitivity range:	130uV/m to 100mV/m at 20kHz, 3dB down at 14kHz and 24kHz.
VLF signal bandpass:	-3dB at ± 80Hz, < 4% variation at ± 50Hz.
Adjacent channel rejection:	300 to 800Hz = 20 to 32dB, 800 to 1500Hz = 32 to 40dB, > 1500Hz > 40dB (for < 2% noise envelope).
Out of band rejection:	10kHz to 2.5kHz = $5x10^{-4}$A/m to $5x10^{-1}$A/m < 2.5kHz rising at 12dB octave 30kHz to 60kHz = $5x10^{-4}$A/m to $8x10^{-3}$A/m > 60kHz rising at 6dB octave (for no overload condition).
Output span:	± 100% = ± 1.0V
Output filter:	Time constant 1sec for 0 to 50% or 10% to 90%, noise bandwidth 0.3Hz (second order LP).
Internal noise:	1.3uV/m rms (ambient noise will exceed this).
Sferics filter:	Reduces noise contribution of impulse interference.
Electric field rejection:	< 0.5% error for 20m tow cable.
Controls:	Power switch, frequency selector switches (line & ortho) level controls (line & ortho), meter switch (total/quad) sferics filter switch.
Displays:	Meters (line & ortho), sferics light, overload light.
Inputs:	Power, 23 to 32 Vdc fused 0.5Amp. Signal, Sensor upper, Sensor lower.
Outputs:	Total, quad, gradient, multiplexed (line & ortho). Audio monitor, stereo line & ortho.
Dimensions & weight:	Console 19" rack mounted, 4.5cm high x 34cm deep, 3.8kg. Sensor and pre-amplifier assembly 15cm dia. and 46cm long, 1.5kg.





Herz Industries Ltd.
197 Fenn Avenue
Willowdale/Ontario
M2P 1Y1
Tel: (416) 221-8908

HERZ Manufacturers of geophysical instruments

OM84-5-C-232

22/06/87

THIS SUBMITTAL CONSISTED OF VARIOUS REPORTS, SOME OF WHICH HAVE BEEN CULLED FROM THIS FILE. THE CULLED MATERIAL HAD BEEN PREVIOUSLY SUBMITTED UNDER THE FOLLOWING RECORD SERIES (THE DOCUMENTS CAN BE VIEWED IN THESE SERIES):

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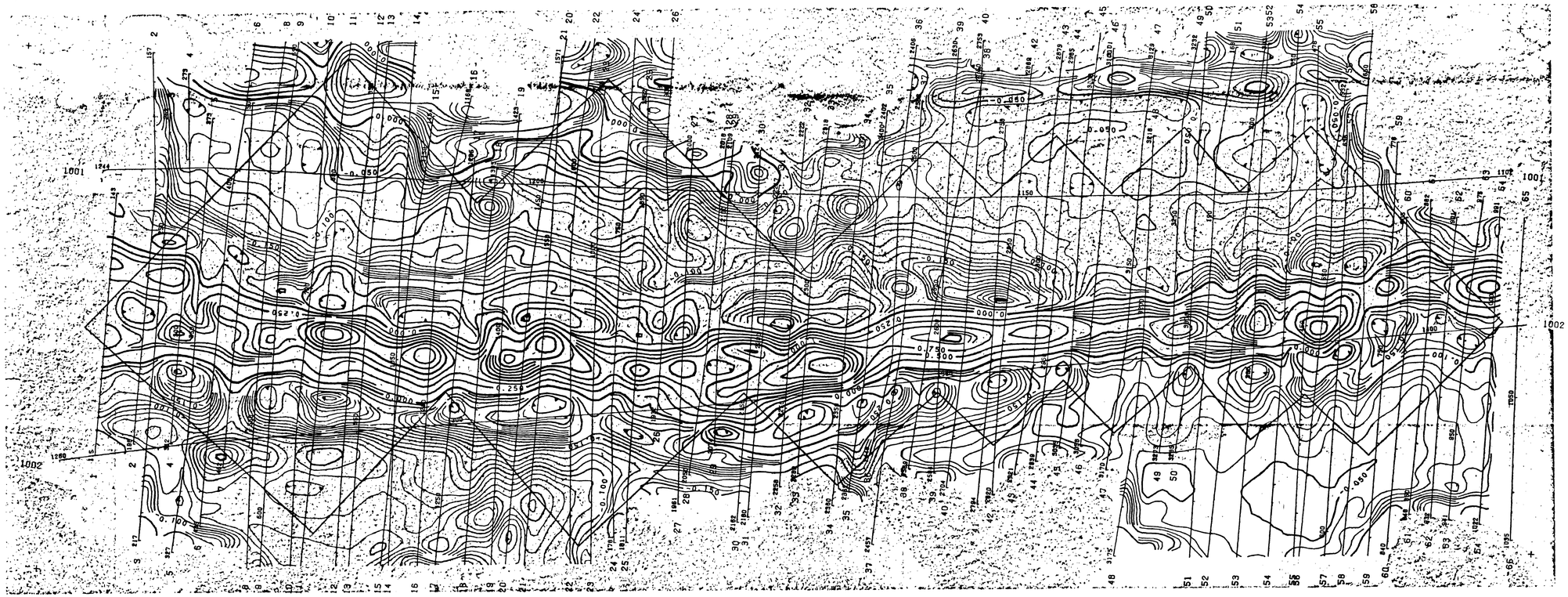
TORONTO FILE:

D.D. Records → T-85-12 to T-85-18
of Report, "1984-1985 Diamond Drill Program
Bad Vermilion Lk. Property." → BLISS LK. D.D. # 11

TITAN TITANIUM INT. INC. JAN.-FEB. 1985

D.D. Records → T-84-1 to T-84-8
of Report, "1984-1985 Diamond Drill Program
Bad Vermilion Lk. Property."

TITAN TITANIUM INT. INC. SEPT.-OCT., 1984 → BAD VERMILION LK. D.D. # 86.



LEGEND
TERRAIN CLEARANCE ..... 100 meters
LINE SPACING ..... 100 meters

1.0 gammas / meter
.25 gammas / meter
05 gammas / meter
01 gammas /meter

Claim Boundary

ON84-3-C-232
#63.4573

TITAN TITANIUM INTERNATIONAL INC.

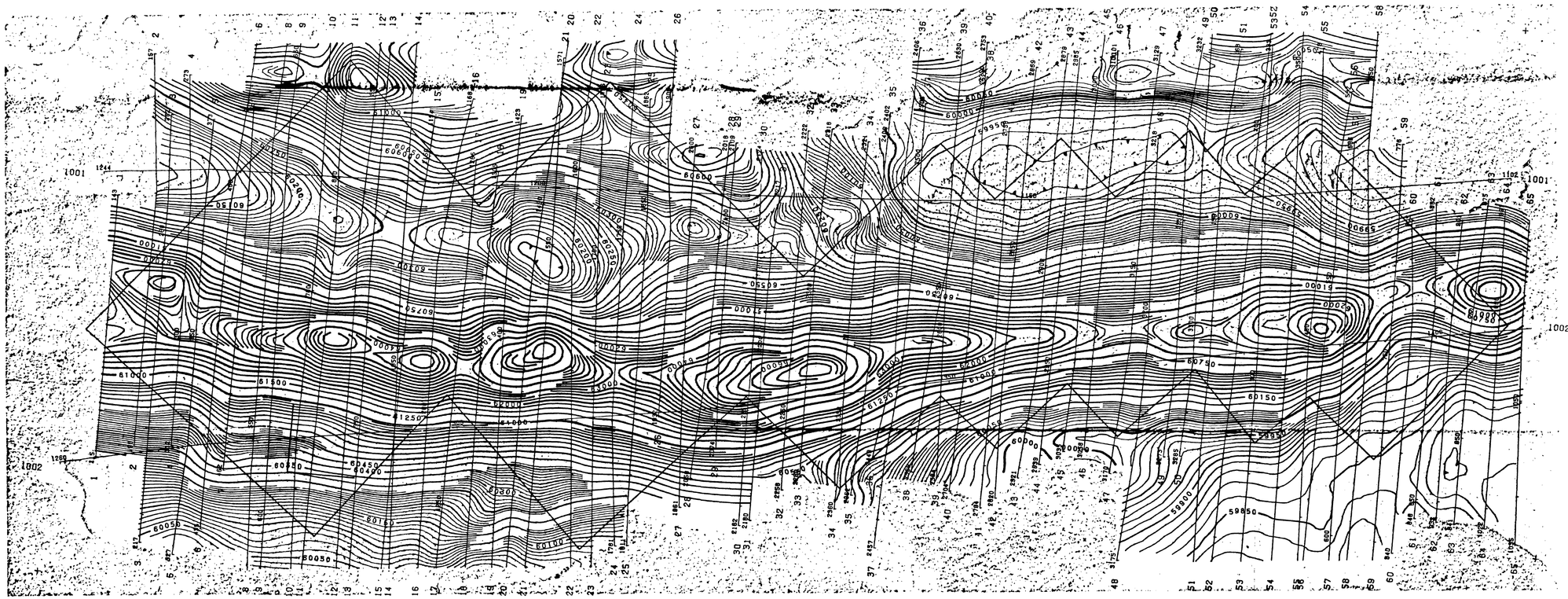
AIRBORNE MAGNETIC SURVEY
VERTICAL MAGNETIC GRADIENT
Calculated From Total Field

BAD VERMILION–BLISS LAKE GROUP
KENORA MINING DIVISION, ONTARIO

N.T.S. NO: 52 C/12	DRAWING NO. B 421–2
SCALE 1 : 10,000	DATE: FEB 1985

TERRAQUEST
TORONTO, CANADA

48° 44' N
92° 45' W



LEGEND
TERRAIN CLEARANCE ..... 100 meters
LINE SPACING ..... 100 meters

1000 gammas
250 gammas
50 gammas
10 gammas
Claim Boundary

OM84-3-C-232
*63.4573

TITAN TITANIUM INTERNATIONAL INC.

AIRBORNE MAGNETIC SURVEY
TOTAL MAGNETIC FIELD

BAD VERMILLION–BLISS LAKE GROUP
KENORA MINING DIVISION, ONTARIO

N.T.S. NO:	52 C/10	DRAWING NO	B 421-1
SCALE	1 : 10,000	DATE:	FEB 1985

TERRAQUEST
TORONTO, CANADA

48° 44' N
92° 45' W

R. K. WATSON

LEGEND
TERRAIN CLEARANCE ..... 100 meters
LINE SPACING ..... 100 meters

FIELD STRENGTH
50 %
10 %
2 %

Claim Boundary

QUADRATURE
+10%
-10%

ON84-3-C-232
#63.4573

TITAN TITANIUM INTERNATIONAL INC.

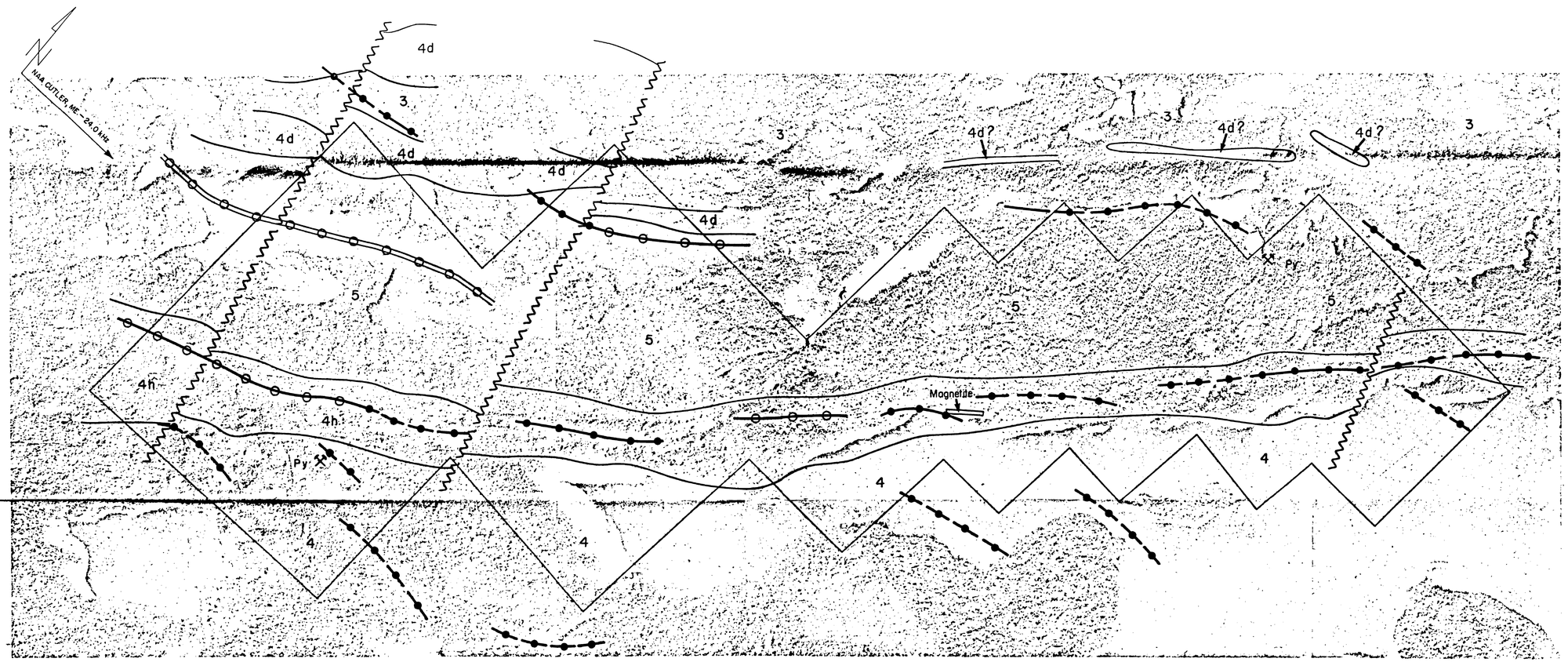
AIRBORNE VLF-EM SURVEY
CONTOURS OF TOTAL FIELD STRENGTH
PROFILES OF QUADRATURE

BAD VERMILLION-BLISS LAKE GROUP
KENORA MINING DIVISION, ONTARIO

N.T.S. NO:	52 C/10	DRAWING NO.	E 421-3
SCALE	1 : 10,000	DATE:	FEB 1985

TERRAQUEST
TORONTO, CANADA

48° 44' N
92° 45' W



GEOPHYSICAL INTERPRETATION LEGEND

CONTACT
FAULT
(NAA) VLF CONDUCTO AXES
MAJOR
DEFINIT
MINOR
INDICATS QUADRATURE RESPONSE

5	TRONDHJEMITE, GRANODIORITE
4	MAFIC INTRUSIVE
4d	GABBRO
4h	FE_3O_4 RICH GABBRO
3	FELSIC VOLCANICS

OM84-3-C-232
63.4573

R. K. WATSON
REGISTERED PROFESSIONAL ENGINEER

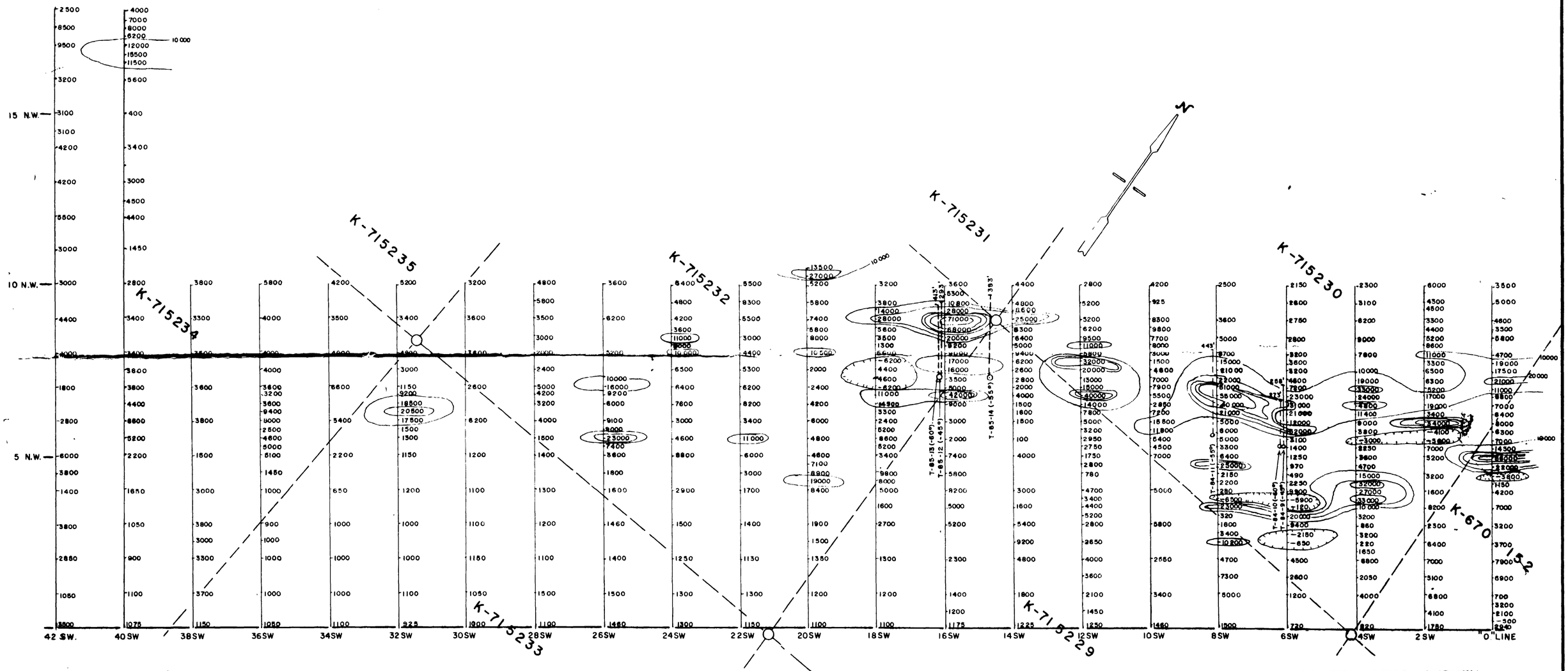
TITAN TITANIUM INTERNATIONAL INC.

INTERPRETATION

BAD VERMILLION–BLISS LAKE GROUP
KENORA MINING DIVISION, ONTARIO

N.T.S. NO:	52 C/10	DRAWING NO.	B 421-4
SCALE	1 : 10,000	DATE:	FEB 1985

TERRAQUEST
TORONTO, CANADA



CONTOUR INTERVAL = 10,000 GAMMAS

= MAGNETIC LOW

PLAN SHOWING MAGNETOMETER SURVEY AND 1984 DIAMOND DRILL HOLE LOCATIONS

TITAN TITANIUM INTERNATIONAL INC.

AREA OF BLISS LAKE

KENORA MINING DIVISION, ONTARIO

SCALE: 1" = 200' JANUARY, 1985

J.E. LONDRY, P.ENG.

OM84-3-C-232

#63.4573