

MAGNETOMETER AND ELECTROMAGNETIC SURVEY REPORTS
PENSE TOWNSHIP ONTARIO
DISTRICT OF TEMISKAMING

63.2749

BY G.J. GERE



31M13SE0010 63.2749 PENSE

INTRODUCTION

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The general area first came to our attention as a result of a mineral showing indicated as copper-lead on Preliminary Geological Map No. P 159, Elk Lake- New Liskeard Sheet.

While correlating the geology surrounding this particular showing with aeromagnetic map 1494 G, N.T.S. 31 $\frac{27}{3}$, Englehart Sheet, it became apparent that the long, broad, magnetic anomaly shown at the southeast corner of this map, and striking east-west across the central section of Pense Township, must indeed be caused by other rock types than the sediments shown.

Rock sampling of the general area and an examination of the mineral showings took place in early November 1967 and at that time there was positive evidence that an anomaly investigation was in progress roughly $\frac{1}{4}$ mile to the northeast of the mineralized pits, along the Ontario-Quebec border. Claim staking was done immediately to cover the showings but when the recording applications were submitted at the Haileybury Mining Recorder's Office we were informed that the former lapsed claims had been relieved from forfeiture and now were in good standing.

The mineralized showings are in sediments and consist of pyrite, pyrrhotite with minor amounts of chalcopyrite and sphalerite; there is no apparent galena (lead) as indicated on the geological map.

Rock samples collected along the interprovincial border near the southeast corner of the north part, of the south half, Lot 11, Con. 111 proved to be serpentized peridotite, quite magnetic, thus providing the initial clue as to the probable source of the large air mag anomaly, mentioned previously, which covers this section of Pense Township.

A search of the assessment files at the Ontario Department of Mines, Toronto, provided considerable geophysical data submitted by Dominion Gulf Company in 1953-54 and supported the theory that the magnetic area was indeed underlain by one very large or several small basic or ultra-basic intrusive bodies.

Reconnaissance geophysical survey work throughout this magnetic area located several interesting, broad, magnetic anomalies, some with coinciding electromagnetic conductors. A gradual accumulation of claims began in March 1968 and at the time of writing the claim group consists of ninety-three contiguous claims in Ontario with a further eighteen whole lots (100 acres each) held along the interprovincial border in Montreuil Twp. Quebec.

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LOCATION OF SURVEYED CLAIMS

The surveyed area comprises twenty contiguous claims located north and west of the Pontleroy River in east-central Pense Township located approximately twenty-one miles northeast of New Liskeard, Ontario.

Lots, and portions of lots covered by this work are listed while claim numbers and specific claim locations are attached to this report

APPENDIX PAGE 8 South $\frac{1}{2}$ of Lot 7, Con. 111
East $\frac{1}{2}$ of North $\frac{1}{2}$ of Lot 7, Con. 111
North $\frac{1}{2}$ of Lot 8, Con. 111
North $\frac{1}{2}$ of Lot 9, Con. 111
South $\frac{1}{2}$ of Lot 8, Con. 1V
South $\frac{1}{2}$ of North $\frac{1}{2}$, Lot 8, Con. 1V

ACCESSABILITY

Two miles north of Hilliardton on Highway #569, then eastward for a distance of four miles on gravelled road following the common borders of Ingrid-Hilliard Twps. and Pense-Brethour Twps. Then north for one mile along Pense Lot 2- Lot 3 line, and one mile east along Con 1 - Con. 11 line to Broderick's farm. A tractor road leads from Broderick's farm northeastward into and through the western section of the claim area; claim T 61704 is one and one half miles distant along this road.

PROPERTY OWNERSHIP

Fourteen of these claims are on record in the name of Lloyd A. Waddell and six are held in the writer's name. All twenty claims are held in trust for the Wabi River Mining Syndicate of New Liskeard, Ontario.

PREVIOUS WORK

Little work had been done within the surveyed area mainly because of the vast amount of deep overburden, however, the ground was staked at least once previously and may have been held by Dominion Gulf Company since one substantial pit was sunk on a narrow mineralized zone on a hilltop in what appears to be an altered quartzite, This pit occurs at 30N-35 W on our grid system and the mineralization here is mainly pyrite with very minor amounts of galena and chalcopyrite.

Evidence of minor diggings occur on the base line at 32N-37W where pyrite and pyrrhotite occur in a graphitic schist.

Talisman Mines did some E.M. work in the North $\frac{1}{2}$ of Lot 9, Con 111 in 1959.

Immediately to the east of this claim block are claims which were once held and worked by Dominion Gulf Company in 1953-54. In 1959 Talisman Mines optioned the property from Emile Verrier and did electromagnetic surveying and shallow packsack diamond drilling. In September of 1968 Rio Cenex optioned this same property from Wabi River Syndicate and did

PREVIOUS WORK (CONT'D)

several geophysical surveys and diamond drilling.

The aforementioned data are available for public reference in the assessment files of the Ontario Department of Mines at Kirkland Lake, Ontario.

PURPOSE OF SURVEYS

The magnetometer and electromagnetic surveys were conducted to delineate on the ground all anomalous magnetic zones and ground conductors contained within the claim area. Any magnetic anomalies of interest would be checked for possible conductivity using suitable electromagnetic equipment. With this approach it is possible to map lenses of pyrrhotite (magnetic iron sulphides) and outline bodies of basic and ultrabasic rock.

The aeromagnetic map covering this area outlined what appeared to be a single, large, magnetic body but from our reconnaissance survey work it was learned that there were numerous magnetic zones within this major air mag anomaly and these as an aggregate contributed to cause the broad air mag response.

PROCEDURE

Although the claims are supposedly within a surveyed township no trace of a lot or concession line could be found.

Perhaps the original survey was done many years ago and forest fires have since destroyed all evidence.

In order to determine the exact location of our property a broad, well cut, base line was surveyed and chained from the Interprovincial border beginning at an iron surveyor's pin at the northeast corner of Concession 111. The starting point for this base line is called 32 (3200) NORTH - 24 (2400) EAST and agrees with the co-ordinated grid system previously established by Rio Canex, in their survey of the adjacent claims. The 32 NORTH base line was extended to 84 WEST which is the extreme west edge of our property. A second base line strikes north from 44 WEST on the 32 NORTH line and it was cut and surveyed to 72 NORTH. An "Abney" hand level was used to make slope chainage corrections along these base lines.

Grid lines are cut at 400 foot intervals along the base lines mentioned above. The grid lines were started by transit to make certain that these lines were perpendicular to the base lines. Working from the east-west striking 32 NORTH base line the grid lines are cut south, working from the north-south striking 44 WEST base line the grid lines are cut west. This change of grid line strike direction was necessary to retain a more or less perpendicular attitude to folding of the rocks in this region.

PROCEDURE (CONT'D)

Chainage pickets are spaced at 100 foot intervals along the grid lines.

Magnetometer readings were taken at 50 foot intervals along all grid lines.

Day to day diurnal corrections were made so that all magnetic readings are relative to the first base line reading taken at the beginning of the survey, furthermore, our first base line reading was tied into the adjoining Rio Canex magnetometer survey thus enabling one to fit these maps to-gether.

MAGNETOMETER SURVEY

The instrument used is a Sharpe MF 1 fluxgate magnetometer which measures the vertical component of the earth's magnetic field directly in gammas, positive or negative, over a range of 1,000 to 100,000 gammas.

This hand held magnetometer requires no orientation, and after levelling a bulls-eye type level the magnetic reading is recorded from a meter mounted on the top of the instrument.

During this particular survey most of the magnetic readings were taken in the 3,000 gamma range, however, a substantial number of readings had to be taken in the 10,000 gamma range.

Day to day diurnal corrections were made so that all magnetic readings shown are relative to the first base line reading taken at the beginning of the survey.

The contour interval on the accompanying 200 foot scale isomagnetic maps is 200 gammas.

ELECTROMAGNETIC SURVEY

A McPhar type vertical loop unit was used for this survey. This equipment operates at 1,000 cycles per second and consists essentially of a motor-generator, which energizes a vertical transmitter coil, setting up a primary electromagnetic field. The signal from the primary coil is received by a horizontal receiving coil, the readings being taken at 100 foot intervals generally along grid lines 400 and 800 feet from the transmitter.

Any conductor in the vicinity of the transmitter produces a secondary electromagnetic field distorting the primary field. This distortion is measured in terms of dip angles on a simple clinometer firmly attached to the receiving coil. These angle readings indicate the direction to the source of the secondary field with the zero degree reading (crossover) representing the point directly over a ground conductor.

The dip angle E.M. readings are plotted on a scale of 1" = 200. Left readings are plotted on the outside of the section lines furthest from the

ELECTROMAGNETIC SURVEY (CONT'D)

transmitter while right readings are plotted on the inside of the section lines closest to the transmitter.

Conductors are shown on the 200 foot scale electromagnetic map as either a series of dashed lines, representing zones of weak conductivity, or, as solid lines which represent zones of strong conductivity. The map legend should be referred to for a further breakdown of various strengths of conductive zones.

SUMMARY

To complete these geophysical surveys it was necessary to cut and survey 14,800 feet of base line. Base line cutting was done during October and November 1969.

Twenty miles of grid lines were cut by Ted Brown and his line cutting crew in December 1969.

The magnetic survey was done in the month of February 1970, and 1784 grid line stations were read as well as 34 base line stations. The instrument used was a Sharpe MF 1, fluxgate magnetometer.

The electromagnetic survey was done during late February and March 1970. A total of 1332 E.M. readings were taken. The equipment used is a McPhar Type vertical loop unit which operates at 1,000 cycles per second.

Twenty claims were covered by these surveys. Grid lines are spaced 400 feet apart and magnetometer readings were taken at 50 foot intervals along the grid lines. E.M. readings are spaced at 100 foot intervals.

Personnel involved in both surveys are Lloyd A. Waddell and Gerald J. Gereghty of the town of New Liskeard, Ontario.

CONCLUSIONS (Magnetic Survey)

All of the surveyed claims situated in Concession 111 cover portions of broad or linear, positive, magnetic anomalies, some of which appear to be quite contorted possibly outlining folding in the underlying rocks. The intensity of these anomalies varies from + 300 to +4500 gammas over and above the magnetic background value of +1700 gammas.

Disseminated magnetite in pyroxenite was found in rock outcrop along a high ridge coincident with the strong linear (+4500 gamma) magnetic zone located near the south border of the property on lines 44W, 48W, and 52W, in claims T 60311 and T 60314. Therefore, it seems reasonable to assume that within this surveyed area the strong linear type of magnetic anomaly may be caused by magnetite in pyroxenite or derivative thereof.

CONCLUSIONS (CONT'D)

At 51+50W- 26N, in claim T 60312, an outcropping of peridotite was found. This rock was sampled, proved to be quite magnetic due to contained magnetite in disseminations, and would satisfactorily explain the broad magnetic anomaly from which the sample was taken. I would conclude that the broad, uniform, magnetic anomalies in this area are caused by disseminated magnetite in peridotite or derivative thereof. The most striking anomaly of this type occurs within claims T 60313 and T 61957. Other broad peridotite type anomalies occur in claims T 61702, the north half of T 61701, and the south half of T 61700.

The magnetic picture in claim T 61211 is very complex and may be due to both peridotite and pyroxenite.

There is no apparent explanation for the lengthy, broad, magnetic anomalies lying within the six surveyed claims in lot 8, Con. IV. Exposed rock in this area is plentiful but consists entirely of pink quartzite none of which is magnetic.

Since the folding in the south part of the surveyed area indicates a swing to the northeast I would expect that the same rock types are responsible for the magnetic anomalies and that the thickness of the overlying quartzite has caused a general weakening and broadening effect on the magnetic anomalies.

CONCLUSIONS (ELECTROMAGNETIC SURVEY)

Roughly a dozen weak to medium strength, disjointed conductors were outlined and these occur almost entirely within the more magnetic section of the surveyed claim block located in Concession III.

Only one very weak conductor occurs within the six surveyed claims in LOT 8, CON. IV and although this conductor seems to favour a magnetic anomaly it is much too weak to be of any importance.

Generally speaking, the weak conductors traced may be attributed to one of the following explanations and as such are of little interest.

- (1) Weak conductive sheared zones in the disturbed rocks of this area.
- (2) Conductivity at the contact of different rock types.
- (3) Conductive clay overburden (this is the least favoured explanation).

The weak to medium strength conductors which are of interest, are associated with magnetic anomalies thought to be caused mainly by peridotite bodies. These conductors occur within the following claims: T 60313, T 61957, T 60312, T 61700 and the north part of T 61701.

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RECOMMENDATIONS

Three definite drill holes and two contingent drill holes are recommended as listed:

- | | | |
|-----------|-------------|-------------------------|
| (1) Drill | - 50o NORTH | from 36 W - 22 + 50N. |
| (2) Drill | - 50o NORTH | from 56 W - 24 - N |
| (3) Drill | - 50o WEST | from 72 + 50W - 5 + 60N |

CONTINGENT DRILLING:

- | | | |
|-----------|-------------|----------------------|
| (4) Drill | - 50o NORTH | from 48W - 16 + 70N. |
| (5) Drill | - 50o SOUTH | from 88W - 3 + 50 S. |

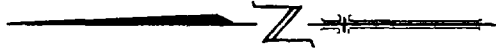
A. J. Geregthy
G.J. Geregthy.

NUMBER AND LOCATION OF CLAIMS.

T 61699	NE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 7,	Con. <u>111</u>
T 61700	SE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 7,	Con. <u>111</u>
T 61701	NE $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 7,	Con. <u>111</u>
T 61702	SE $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 7,	Con. <u>111</u>
T 61703	NW $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 7,	Con. <u>111</u>
T 61704	SW $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 7,	Con. <u>111</u>
T 61710	SE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 8,	Con. <u>1V</u>
L 212566	SW $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 8,	Con. <u>1V</u>
L 212567	NW $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 8,	Con. <u>1V</u>
T 61711	NE $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 8,	Con. <u>1V</u>
T 61712	SE $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 8,	Con. <u>1V</u>
T 61713	SW $\frac{1}{4}$	of	S $\frac{1}{2}$	Lot 8,	Con. <u>1V</u>
T 61211	NW $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 8,	Con. <u>111</u>
T 61212	SW $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 8,	Con. <u>111</u>
T 60311	SE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 8,	Con. <u>111</u>
T 60312	NE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 8,	Con. <u>111</u>
T 60313	NW $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 9,	Con. <u>111</u>
T 60314	SW $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 9,	Con. <u>111</u>
T 61957	NE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 9,	Con. <u>111</u>
T 61958	SE $\frac{1}{4}$	of	N $\frac{1}{2}$	Lot 9,	Con. <u>111</u>

A. J. Laughlin

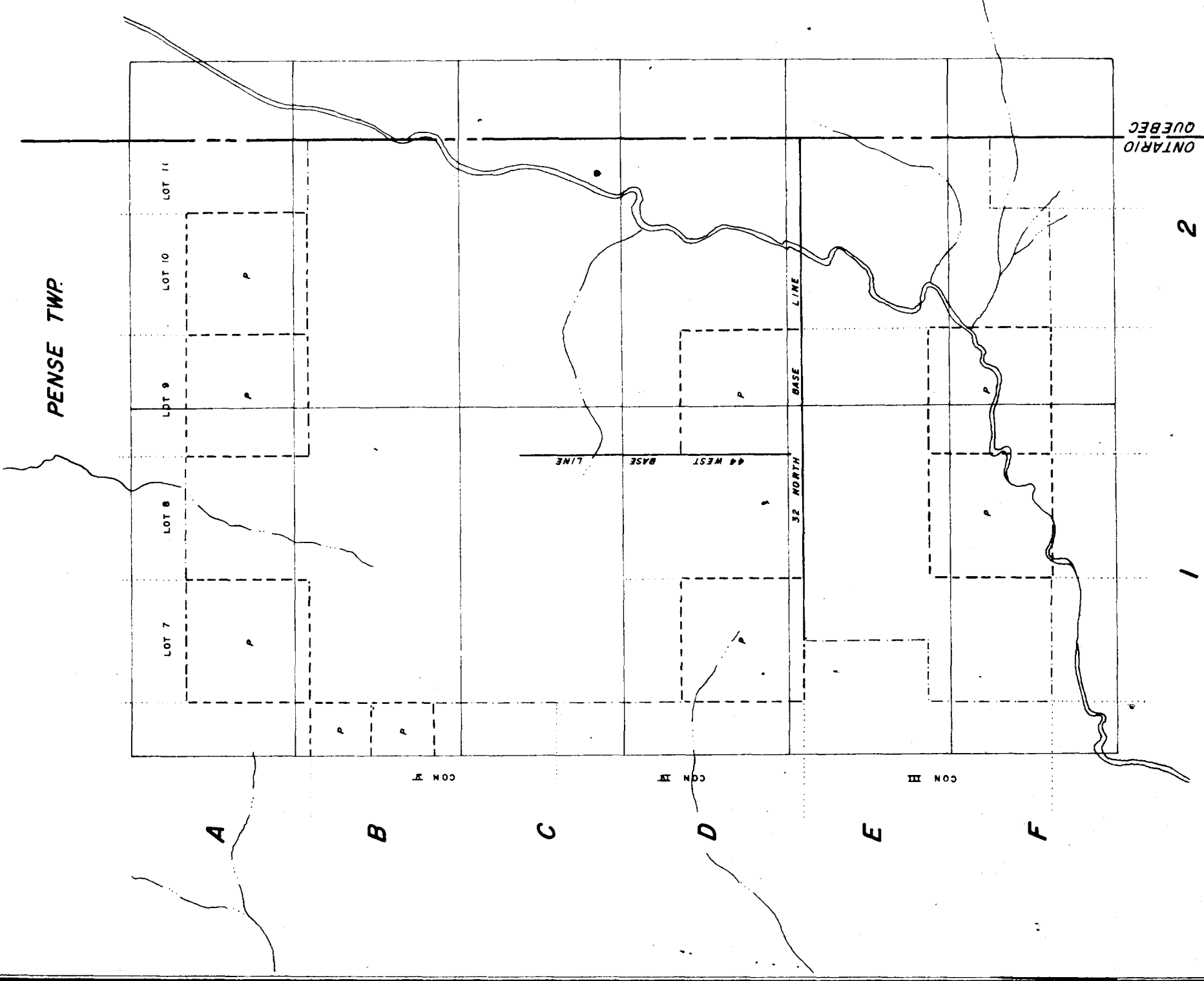
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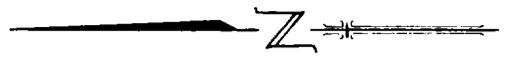
SCALE 2" = 1 MILE

LEGEND

- CLAIM POST - [Symbol: square with dot]
- CLAIM LINE - [Symbol: double line]
- ROAD - [Symbol: double line with cross-ticks]
- OUTCROP - [Symbol: dashed line]
- PIT - [Symbol: square]
- CREEK (Ravine) - [Symbol: wavy line]
- SMALL CREEK - [Symbol: thin wavy line]
- BASE LINE - [Symbol: solid line]
- E.M. UNIT - MCPHAR - [Symbol: lightning bolt]
- E.M. TRANS SET-UP - Δ 7-10
- MAGNETOMETER - MF-1
- MAG READINGS - 50' STATIONS
- MAG CONTOUR - 200 gamma
- MAGNETIC LOW - [Symbol: oval with arrow]
- SHEET SCALE - 1" = 200'
- DIAM. DRILL HOLE - [Symbol: circle with vertical line]
- SWAMP - [Symbol: wavy line with vertical lines]



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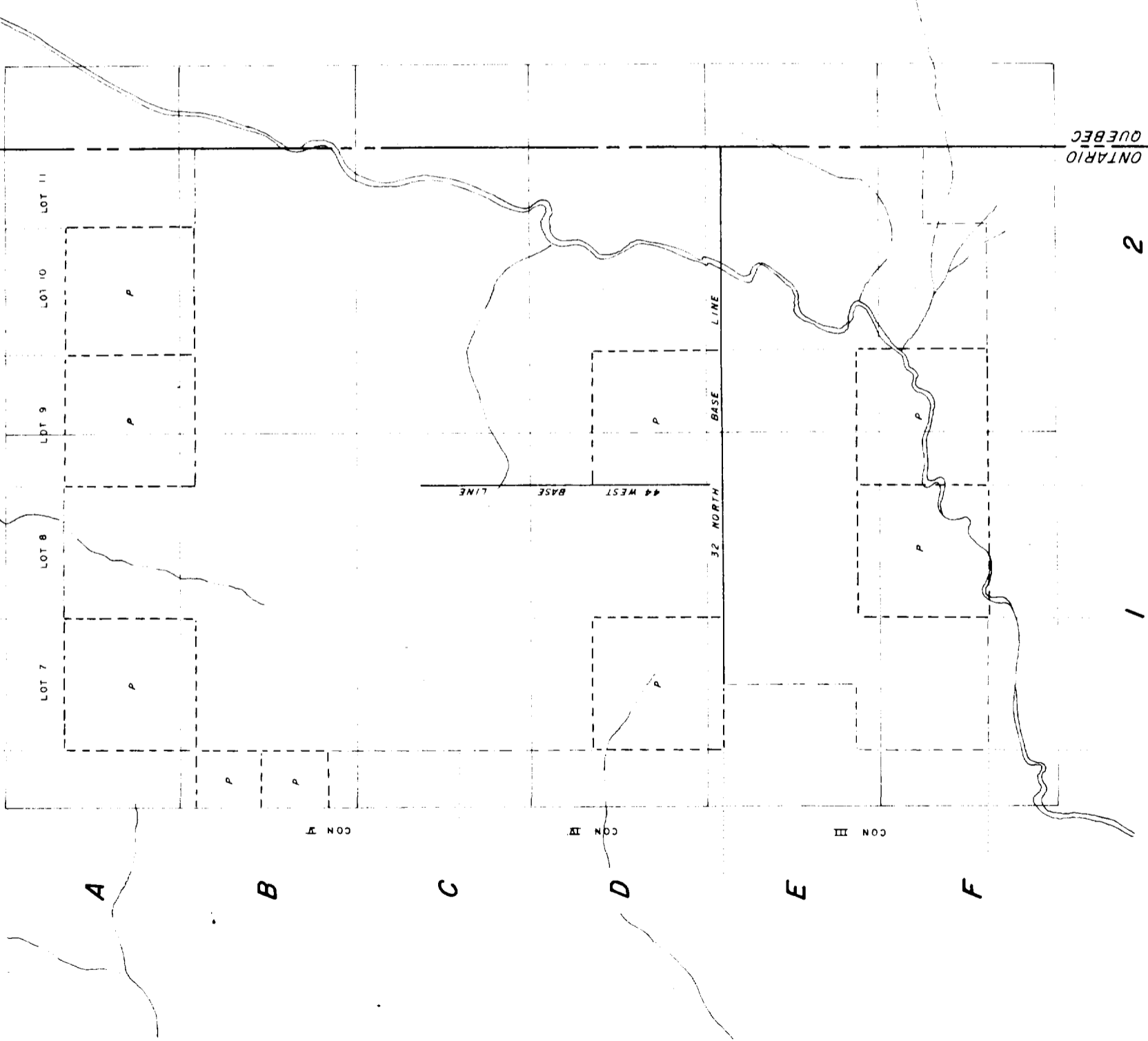


SCALE 2" = 1 MILE

LEGEND

- CLAIM POST - [Symbol]
- CLAIM LINE - [Symbol]
- ROAD - [Symbol]
- OUTCROP - [Symbol]
- PIT - [Symbol]
- CREEK (Ravine) - [Symbol]
- SMALL CREEK - [Symbol]
- BASE LINE - [Symbol]
- E.M. UNIT - McPHAR [Symbol]
- E.M. TRANS SET-UP - Δ 7:10
- MAGNETOMETER - MF 1 [Symbol]
- MAG READINGS - 50' STATIONS [Symbol]
- MAG CONTOUR - 200 gammas [Symbol]
- MAGNETIC LOW - [Symbol]
- SHEET SCALE - 1" = 200'
- DIAM DRILL HOLE - [Symbol]
- SWAMP - [Symbol]
- E.M. CONDUCTOR AXIS - [Symbol]
- E.M. READINGS - Dip angle degrees left - 45° right - 45°
- CONDUCTOR STRENGTH - weak, medium, strong [Symbol]

SENSE TWP.



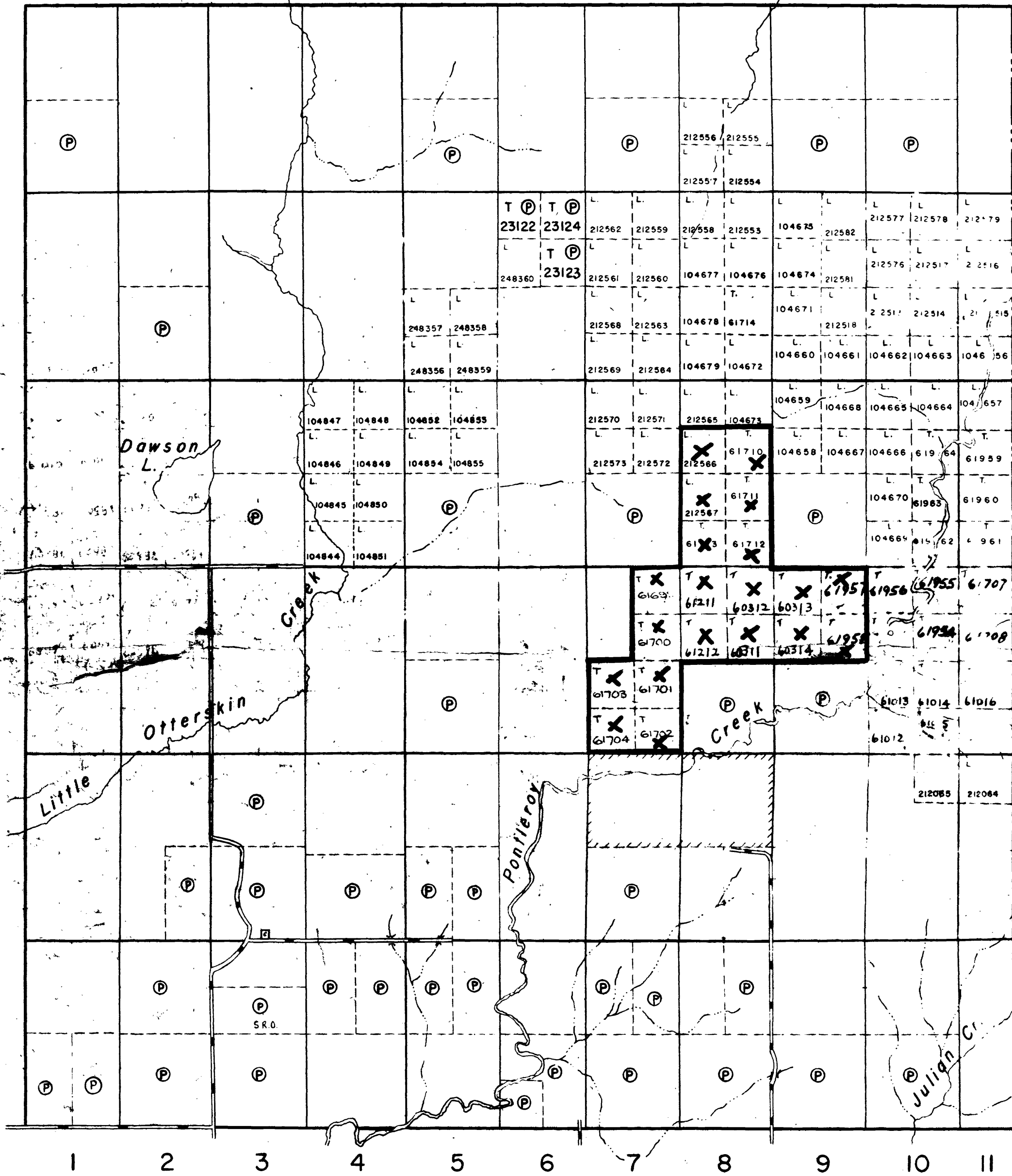
ONTARIO
QUEBEC

2

1

Mulligan Twp.

Ingram Twp.



Brethour Twp.

VI

V

IV

III

II

I

Province of Quebec

THE TOWNSHIP
CLAIM OF MAP
PENSE

DISTRICT OF
TIMISKAMING

LAFRER LAKE
MINING DIVISION

SCALE 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	P
CROWN LAND SALE	C S
LEASES	L
LOCATED LAND	Loc
LICENSE OF OCCUPATION	LO
ROADS	
IMPROVED ROADS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINING RIGHTS ONLY	M
SURFACE RIGHTS ONLY	R
CANCELLED	C

NOTES

LAND RESERVED FOR GRAVEL PURPOSES
SHOWN THUS:

400' Surface Rights Reservation around
all Lakes and Rivers.

MAY 19 1970

MAY 19 1970

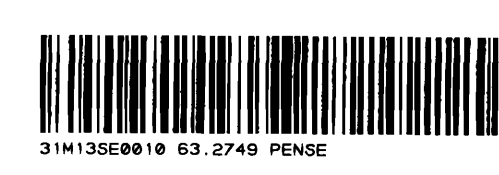
PLAN NO. — M-566

DEPARTMENT OF MINES
—ONTARIO—



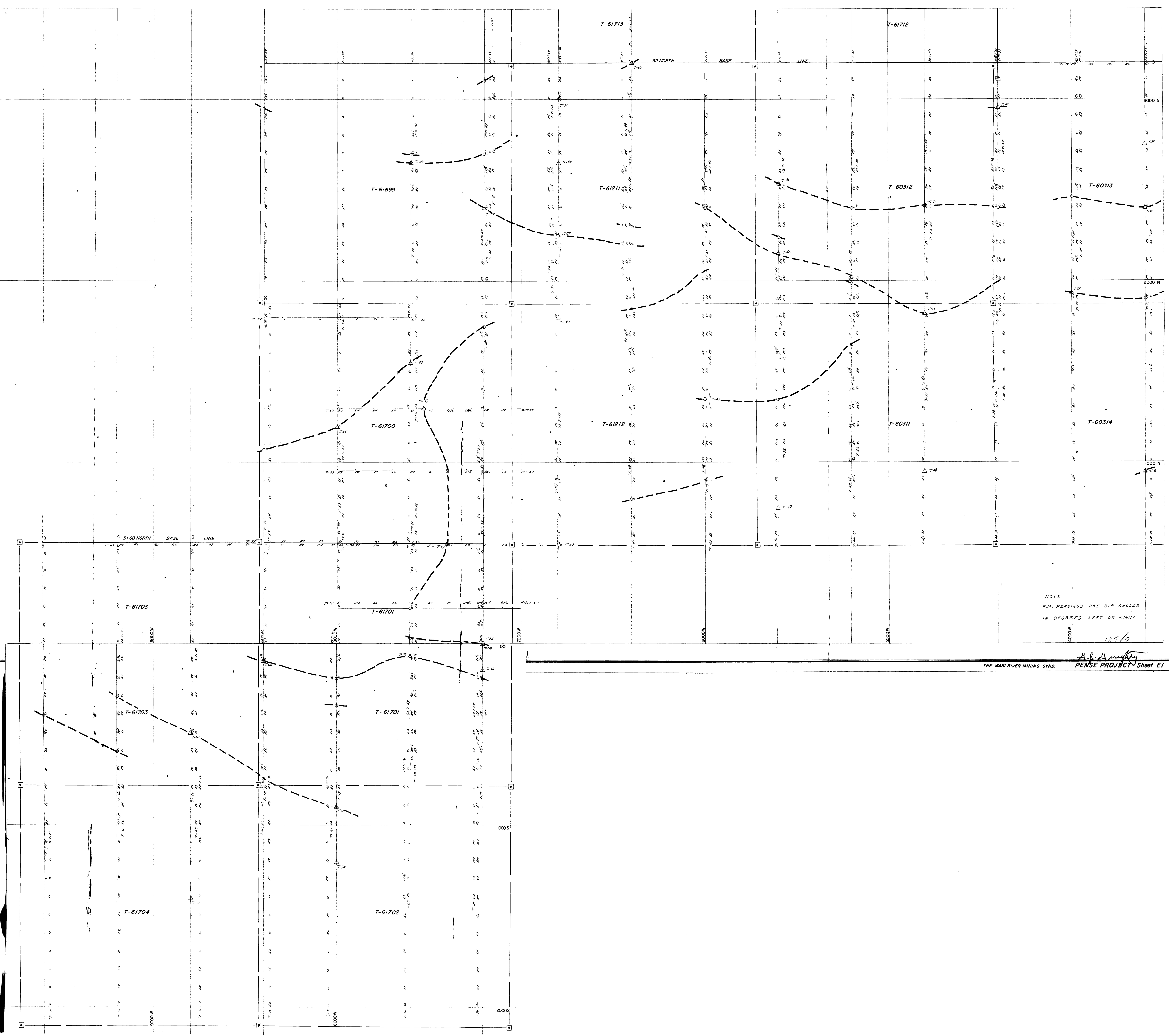
31M13SE0010 63.2749 PENSE

200



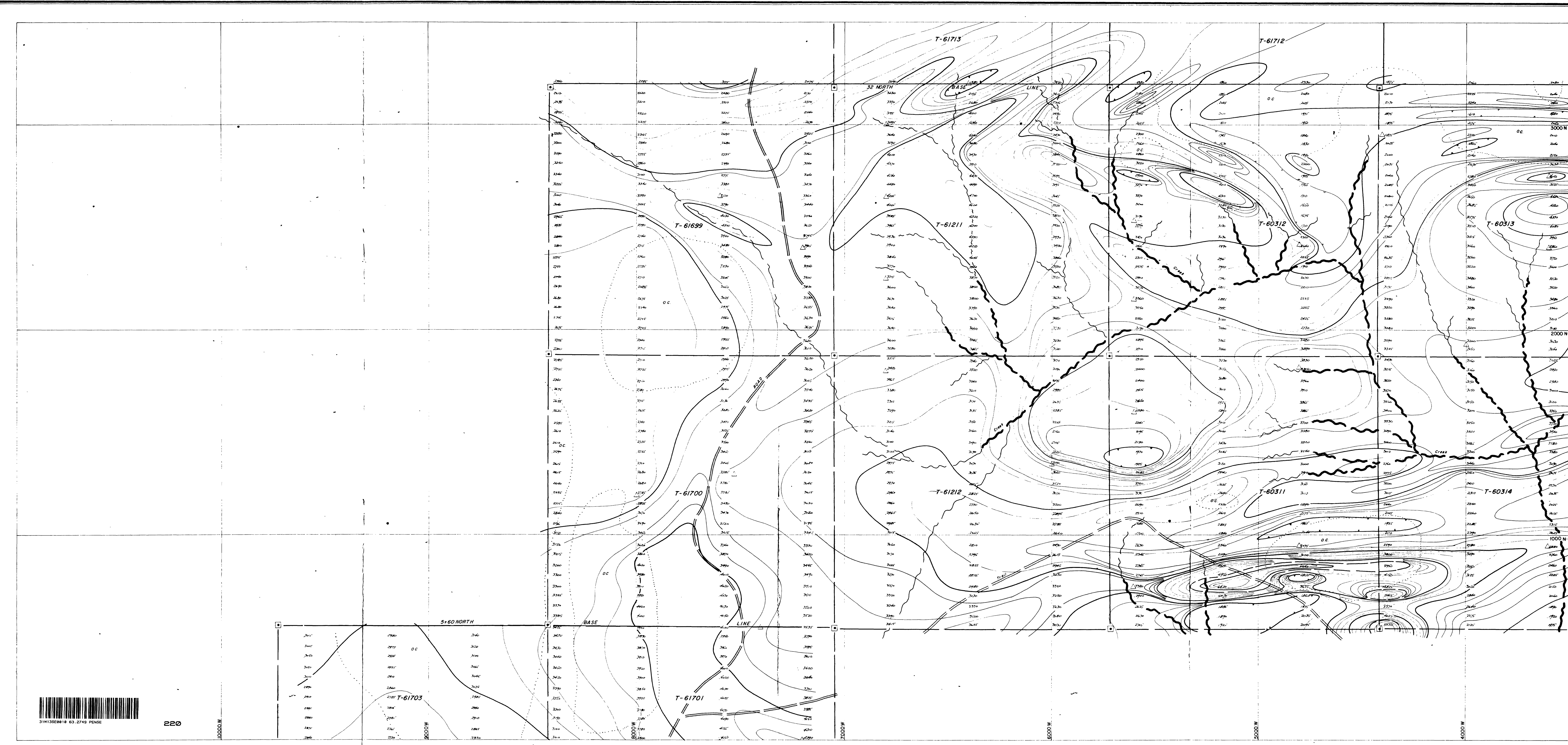
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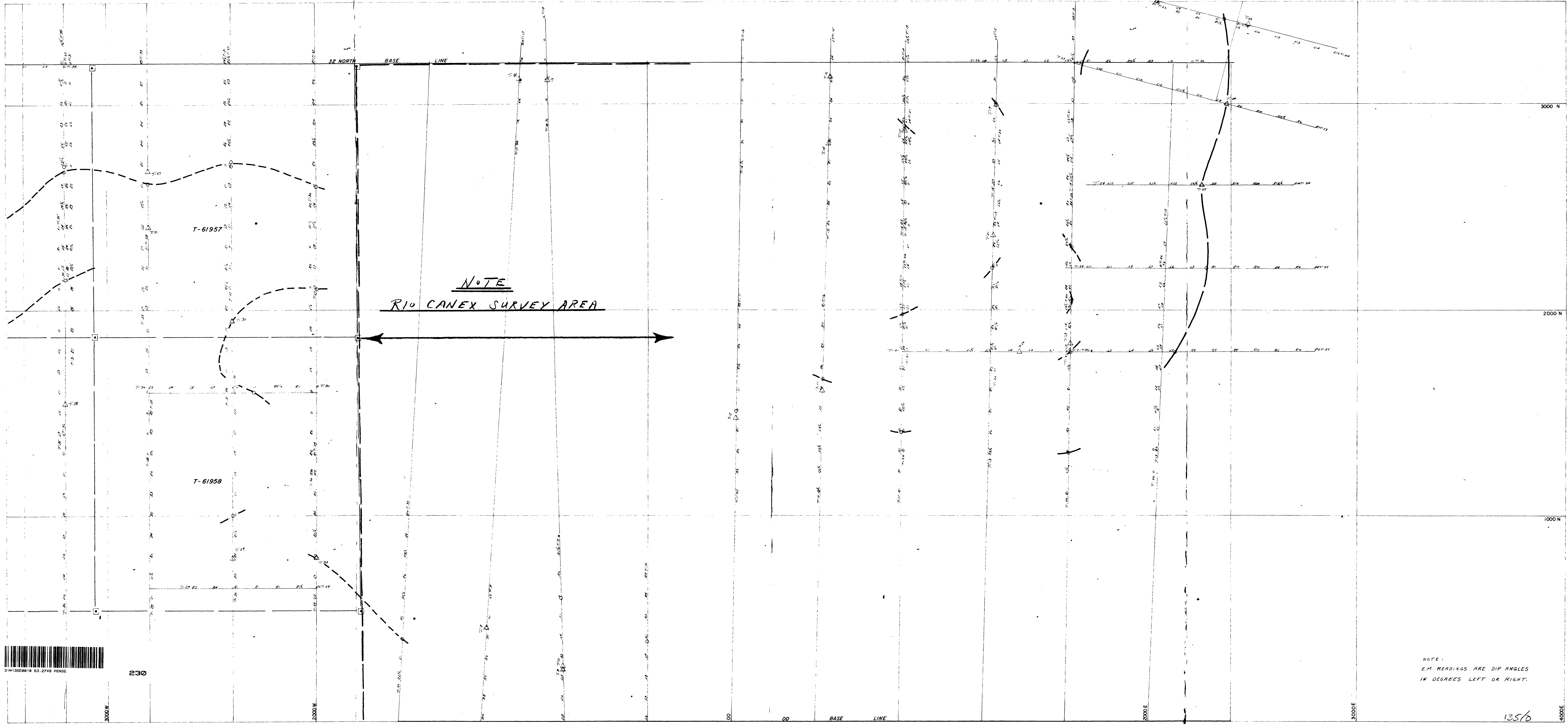
6000 W



NOTE:
 EM. READINGS ARE DIP ANGLES
 IN DEGREES LEFT OR RIGHT.

125/0

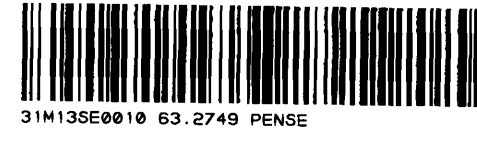




NOTE
 RIO CANEX SURVEY AREA

T-61957

T-61958

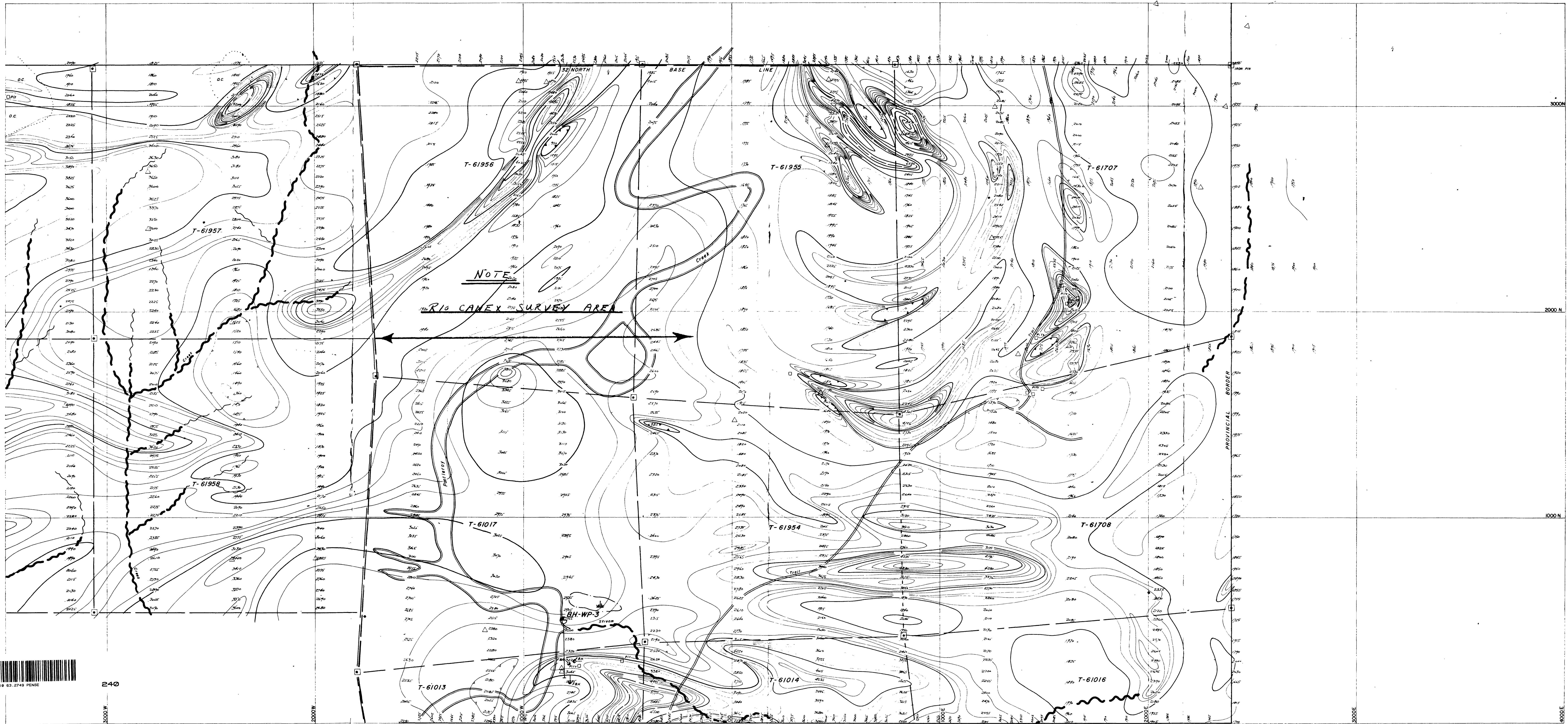


230

NOTE:
 E.M. READINGS ARE DIP ANGLES
 IN DEGREES LEFT OR RIGHT.

13570

A.P. Houghton

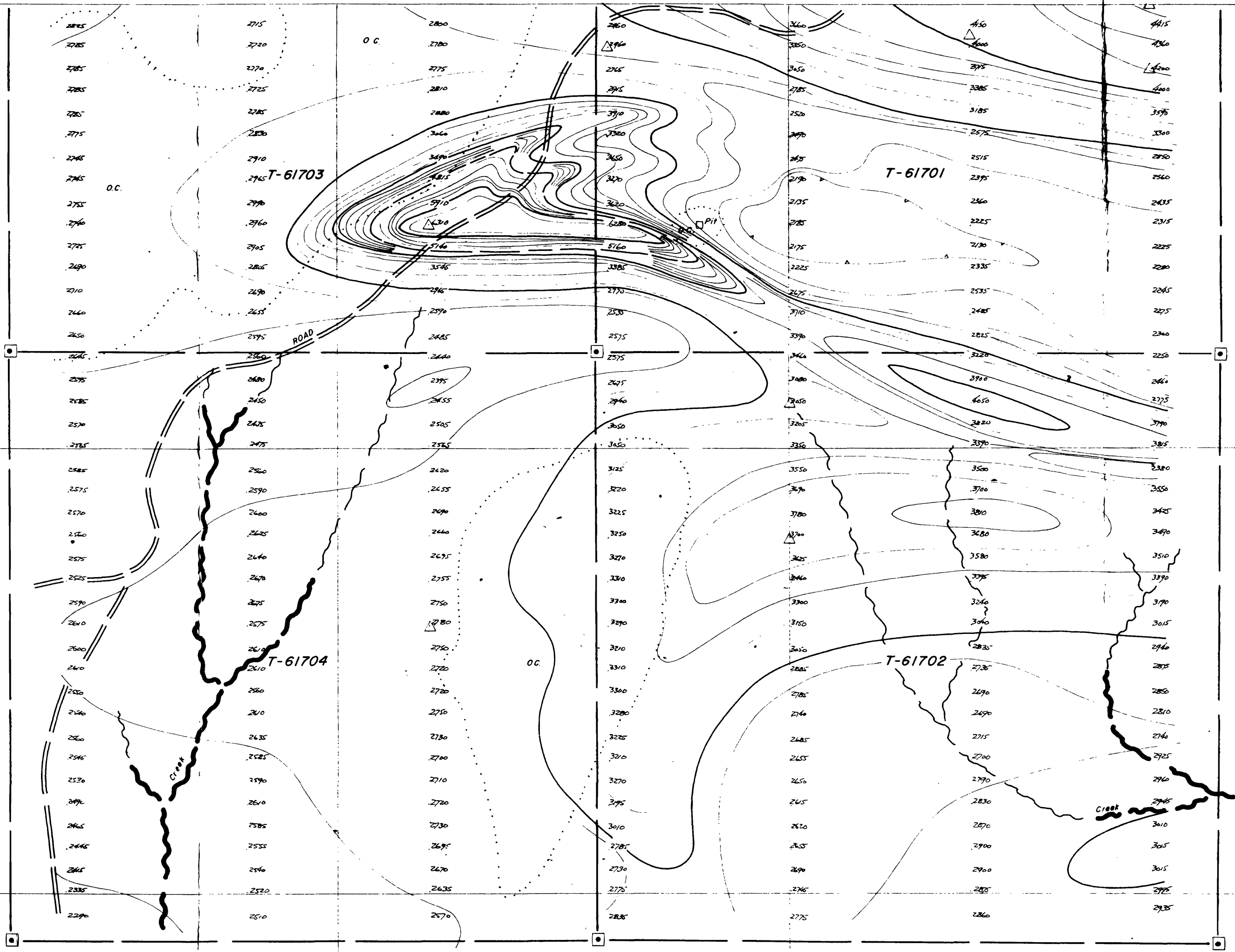


NOTE
RIO CANEX SURVEY AREA



240

THE WARBNER MINING SYNDICATE
PENSE PROJECT 2014 E2 (M)



3111350010 03.2749 PENSE

250

10000 W

9000 W

8000 W

7000 W

6000 W

5000 W

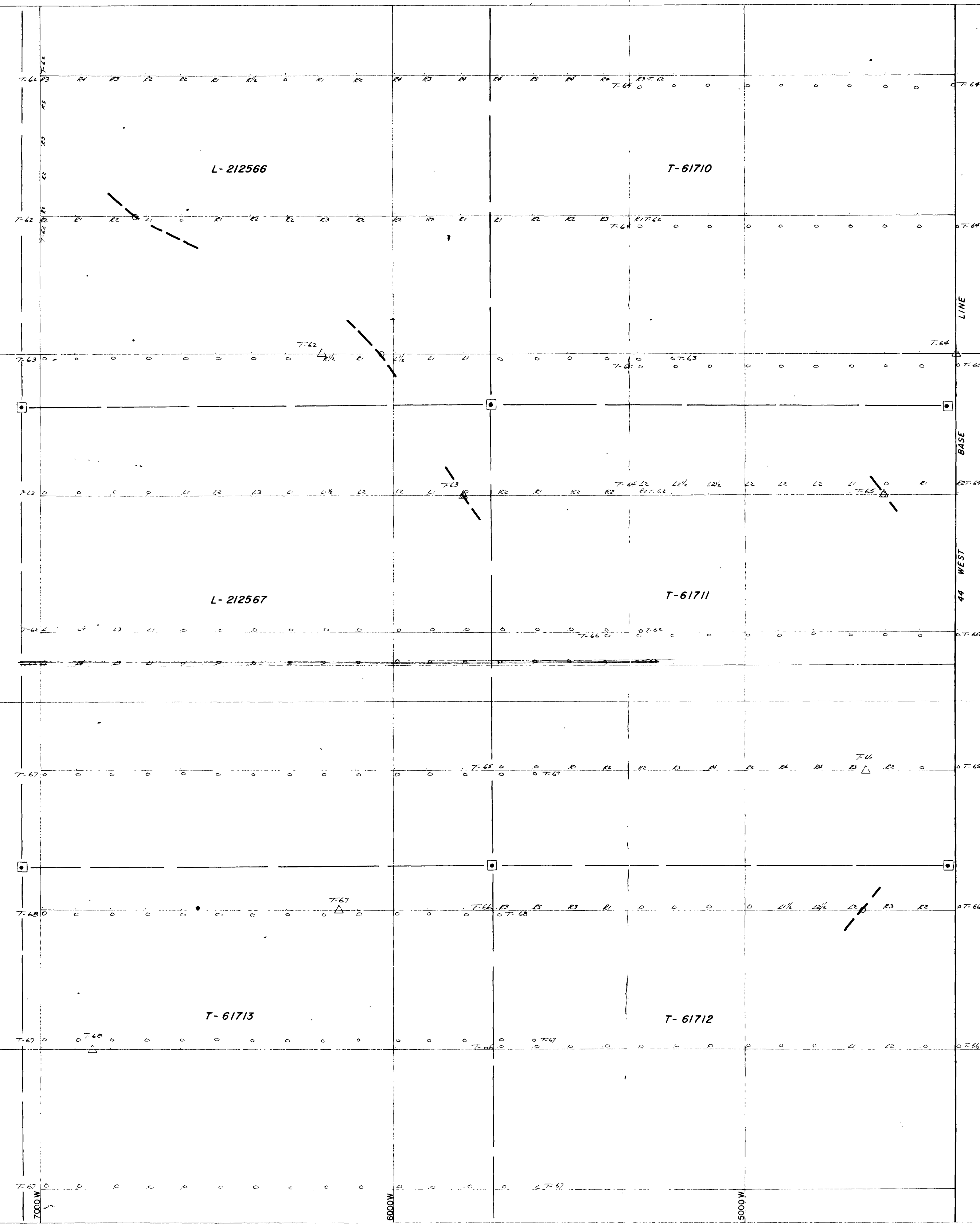
4000 W

7000 N

6000 N

5000 N

4000 N



NOTE:
EM. READINGS ARE DIP ANGLES
IN DEGREES LEFT OR RIGHT.

135/0



3141350010 63.2749 PENSE

260

10000 W

10000 W

10000 W

10000 W

10000 W

10000 W

10000 W

11000 W



270

10,000 W

8000 W

6000 W

4000 W

2000 W

1000 W

500 W

7000 N

6000 N

5000 N

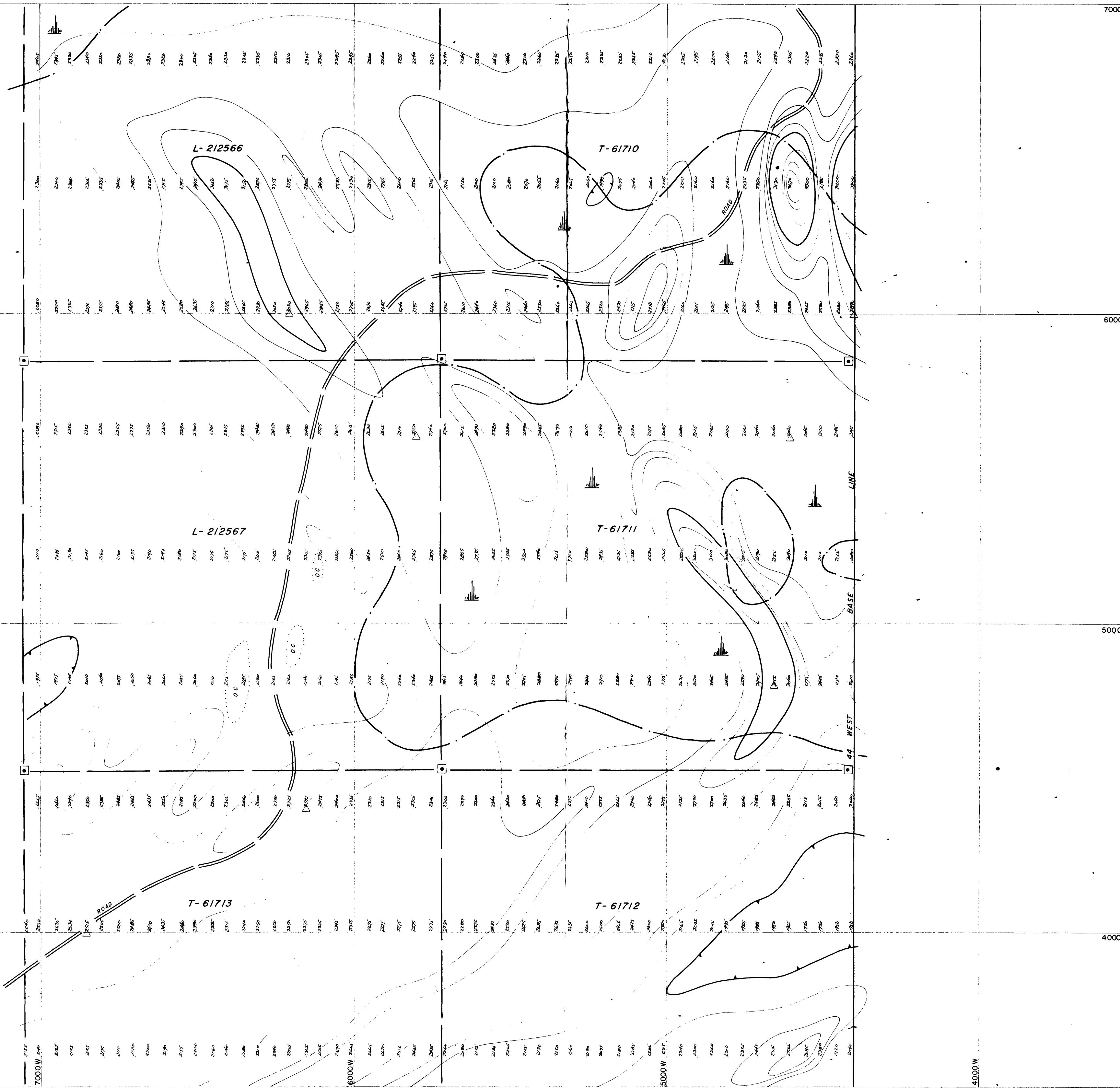
4000 N

7000 N

6000 N

5000 N

4000 N



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