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MANNELLA - McLEAN GRAPHITE PROJECT

LAURIER TOWNSHIP



31E14NW9762 63.5755 LAURIER

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by

Paul C. McLean M.A.Sc.
Consulting Geologist

November 30, 1990.



31E14NW9762 63.5755 LAURIER

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MANNELLA - McLEAN GRAPHITE PROJECT

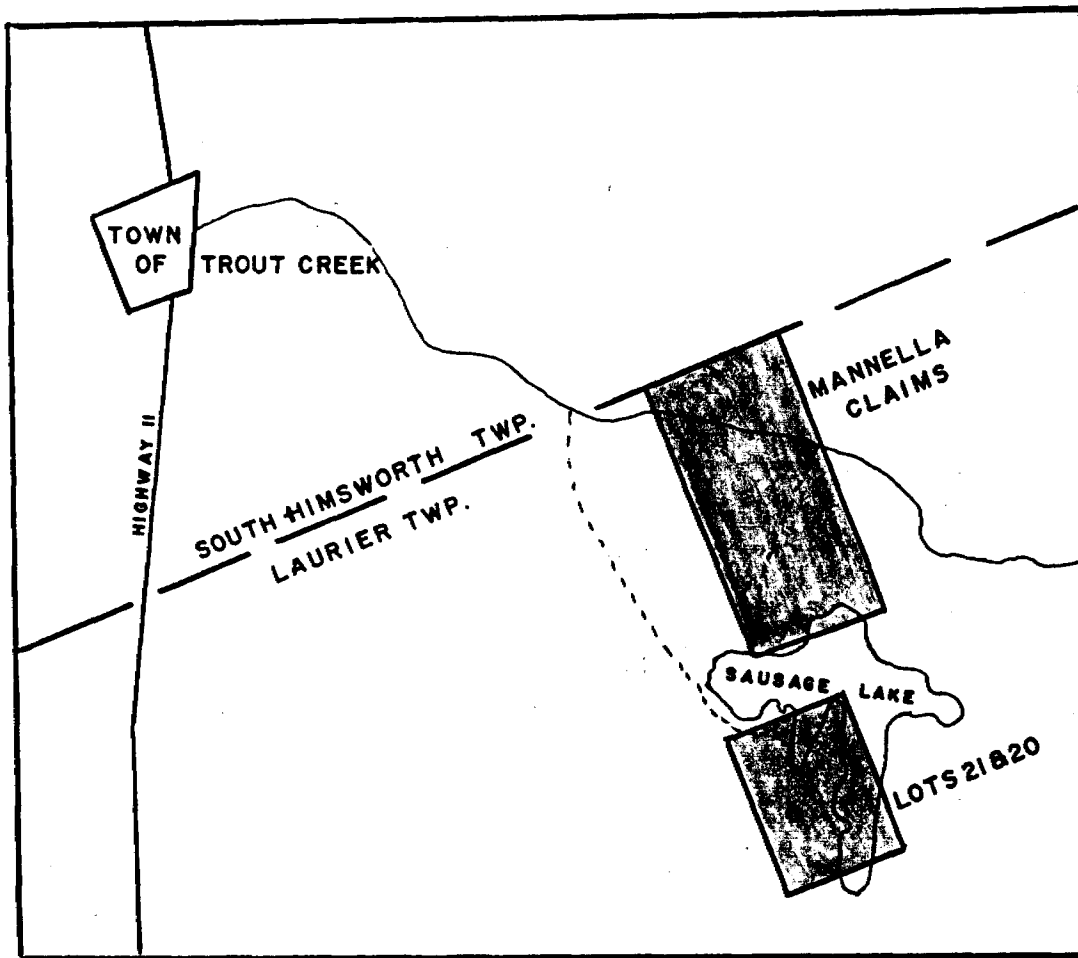
LAURIER TOWNSHIP

Introduction:

With the assistance of a grant from the Ontario Prospectors Assistance Programme, the writer and his partner Bruno Mannella, have completed an exploration programme on the Mannella claims, and on lots 20 and 21 Con. XII, Laurier Township, Ontario. The object of the programme was to confirm previously reported gold values within the graphite bearing horizon in the area, and to further explore this horizon beyond the Mannella claims. On these claims, rock samples and a series of soil samples were taken for gold across the graphite horizon on the existing picket line grid. Some self potential surveying was also completed in the area to the north, beyond a previous self potential survey. As the graphitic horizon had previously been extensively trenched and sampled for graphite, the main focus of the programme in this area was to determine if anomalous gold values were present. Unfortunately we were unable to confirm the previously reported gold assays.

The graphitic horizon was observed to continue to the south across Sausage Lake on lots 20 and 21, Con. XII. As these are patent lots an agreement was made with the owners to extend the exploration programme into this area.

With the exception of a small prospect pit, there does not appear to have been any exploration work carried out on these lots. A geological map was completed, and a self potential survey was carried out on the property, which resulted in the location of several interesting anomalies



KEY MAP.

SCALE 1:50,000

Location and Means of Access:

The Mannella claims are situated in the north central part of Laurier Township, in lots 21-22-23 and 24 Con. XIV, and lots 21-22 and 23 in Con. XIII. The property consists of 2 leased and 6 unpatent mining claims numbered P.S.-5043, P.S.-5165, S.O. 1000261 to 266 inclusive. The group is readily accessible via a forest access road which runs from the Town of Trout Creek and passes through the property some 5 Km. east of the Town. A secondary road traverses the south section of the property.

Lots 20 and 21 Con. XII are also readily accessible from the forest access road via a secondary road which runs along the south shore of Sausage Lake. A bush road runs south from this road through the west side of lot 20.

History of the Property:

The original work was done on the Mannella claims by S. Bruno Mining Co. Ltd. in 1924. Some test pits were sunk, and a value of 1.36 oz of gold per ton was obtained near Sausage Lake.

Astwood Park Resources Inc. carried out a programme of trenching sampling, mapping, and a self potential survey during the 1988 field season. This work indicated a disseminated flake and a vein type graphite deposit with a known strike length of at least 1 Km. and a width of about 150 M. The average grade of the sampled trenches was 2.67% graphitic carbon. A total of 212 channel and grab samples were assayed for graphitic carbon and of those, 42 were also assayed for gold. Gold values ranged from 10 to 75 ppb.

During 1982, two drill holes were completed and some trenching was done. During 1984, Copconda-York Co. completed two additional drill holes near the forest access road. Although no assays are available from these holes, widespread graphite mineralization was described in the drill logs, with visual estimates up to 10% to 15% graphite.

On lots 20 and 21 Con.XII, no exploration work appears to have been done, with the exception of a small prospect pit observed during the geological mapping.

Geology of the property:

The area of interest is underlain by Grenville gneisses, including quartz-feldspar-biotite-garnet gneiss, (meta-arkose) and by quartz-feldspar-biotite-graphite gneiss (meta-quartzite). These gneisses have been invaded by dykes, sills and stocks of hornblende and/or biotite granite, which is generally fresh and non gneissic in appearance. The meta-arkose is medium grained, and is pinkish in colour due to pink feldspar. The meta-quartzite is light to dark grey on the fresh break, and is weathered rusty brown on the surface due to considerable fine pyrite.

On the north section of the Mannella claims, a granite intrusive was observed to interrupt the graphitic meta-quartzite horizon to the south of line 16+00N for several hundred meters.

In the area south of Sausage Lake, a large stock of granite had displaced the graphitic meta-quartzite horizon some 800 feet north of the south boundary of lot 20. Prospecting to the south of this intrusive has shown that the graphite horizon continues on lot 19 Con. X.

The 1990 Field Season:

Work on the Mannella claims was directed toward confirming the previously reported anomalous gold values within the graphitic meta-quartzite horizon, and to determine if this horizon extended as far as the north boundary of the claims.

A total of 19 rock samples were assayed for gold, 2 were also assayed for silver, 1 for copper, 1 for tin, 1 for graphitic carbon, and 1 for spectrographic analysis. The best gold value obtained was .002 oz per ton. A value of 10 ppb. was obtained from the dump of an old pit near the south side of Sausage Lake, where a value of 1.32 oz per ton had previously been reported.

A total of 69 soil samples were taken for gold across the graphitic meta-quartzite horizon, on lines 1+00N, 6+00N and 9+50N. In addition, 18 of these samples were also run for arsenic. The best gold value was 18 ppb. while the best arsenic value was 12 ppm.

The self potential survey was completed as far as possible on claim S.O.-1000264, to near the north boundary of the group. An anomaly was encountered near the boundary, indicating that the graphite horizon does continue to the north of the group.

On lots 20 and 21 Con. XII, the objective of the programme was to trace the graphitic meta-quartzite horizon as far as possible to the south and to determine if self potential anomalies were present.

A base line bearing N20°W was flagged on the lot line between lots 20 and 21 and was extended south for 4,000 feet to the south end of the lots.

Cross lines were flagged at 200 foot intervals, normal to the base line and footage was marked every 200 feet. A sub base line bearing N20°E was also flagged from line 14S to cover the peninsula on lot 21. Cross lines were flagged at 200 foot intervals.

Geological mapping was carried out on these grids, and the graphitic horizon was traced to the south for a distance of 3,200 feet before being interrupted by the granite stock. Eleven grab samples were taken and assayed for graphitic carbon. Values ranged from .23% to 4.64% graphitic carbon. Four samples were assayed for gold, with negative results. Two samples were assayed for copper and returned a trace. By eliminating the three very low samples, the remaining eight samples averaged 2.53% graphitic carbon, which compares with the average grade of 2.67% obtained from rock trenches on the Mannella claims.

The Self Potential Survey:

Except for the granite stock at the south end of lot 20, a self potential survey was carried out over the two grids. The equipment used was a micronta digital multimeter and two porous pots filled with a copper sulphate solution. The pots were placed 50 feet apart and voltage readings were taken between them. Readings were taken at 50 foot intervals, and at 25 foot intervals where anomalous values were obtained. A total of 7.67 miles of readings were completed on the lots.

Fourteen anomalies were encountered within the meta-quartzite horizon. In some cases these anomalies occur near outcrops of the graphitic material, while in other cases they are completely covered by glacial drift.

In the area of line 26 south, from the base line east to the lake shore, three strong parallel anomalies occur, bearing N20°E. The central anomaly, which is 1,400 feet in length, lies close to a series of outcrops at the south end which occur as steep cliffs. The most easterly anomaly is drift covered, and was traced for 800 feet before running under the east bay of Sausage Lake.

On the west side of the property, two strong anomalies were found to be present. These anomalies, which have a combined length of 1,600 feet occur on strike, and are thought to be the same structure. There are no outcrops in the vicinity of these anomalies, however they appear to lie along the west boundary of the graphitic meta-quartzite horizon. The horizon has widened considerably from approximately 450 feet on the Mannella claims to about 1,900 feet on these lots.

Conclusions:

On the Mannella claims, trenching of strong self potential anomalies has shown a series of narrow high grade graphite veins 3 to 4 feet in width. A bulk sample from one of these structures returned 34.4% graphitic carbon. Trenching and sampling has indicated fine flake graphite throughout the meta-quartzite horizon. As this formation has not been adequately explored by diamond drilling, there appears to be a good chance that areas of premium coarse flake graphite may be present.

On lote 20 and 21, the thickening of the graphitic meta-quartzite horizon to approximately 1,900 feet presents a very large area in which to explore for coarse flake graphite. Some of the strong self potential anomalies are likely caused by high grade veins similar to those found on the Mannella claims.

Recommendations:

In view of the fact that the graphitic meta-quartzite horizon appears to extend beyond the Mannella claims to the north, it is recommended that 4 additional claims be staked to cover the on strike projection of the horizon.

Two cross sections should be drilled on the Mannella claims across the graphite formation, on lines 3+50N and 8+00N. A total of 1,600 feet of drilling will be required in 4 holes drilled at -45° .

On lots 20 and 21, all of the major self potential anomalies should be tested by diamond drilling. Sections should be drilled through these anomalies on lines 10S west of the base line, and on line 18S west of the base line. Also on line 14S east of the base line, and on line 26S east and west of the base line. A total of 2500 feet of diamond drilling will be required to complete this phase of the programme.

Costs:

A total of 4,100 feet of BQ diamond drilling will be required in order to complete the recommended programme

4100 feet of BQ diamond drilling @ \$25.00 per foot	102,500.00
Engineering and assaying 20%	20,500.00
	<hr/>
	123,000.00
contingencies 10%	12,300.00
	<hr/>
total cost of the programme	\$135,300.00

Respectfully submitted,



Paul C. McLean M.A.Sc.
Consulting Geologist

APPENDIX

References:

Ontario Geological Survey, Open File Report 5649
Graphite in the Central Gneiss Belt of the Grenville Province, Ontario
by M.I. Garland.

1988 Spring Exploration Programme, Laurier Township Graphite Prospect
for Astwood Park Resources Inc. by T. Dickson B.Sc. and P.A. Hartwick
B.Sc. Derry, Michener, Booth & Wall. August 1988.

1988 Summer Exploration Programme, Laurier Township Graphite Prospect
for Astwood Park Resources Inc. by T. Dickson B.Sc. and I.D. Tinder
B.Sc. Derry, Michener, Booth & Wall. January 1989.

Maps:

The following maps are appended to this report:

A plan of the Mannella claims showing soil sample locations and results,
rock sample locations and results, and the self potential traverses on
a scale of 1:2500.

A coloured plan of Geology lots 20 and 21 Con. XII on a scale of 1 inch to
100 feet.

A coloured plan of the self potential survey lots 20 and 21 Con. XII
on a scale of 1 inch to 100 feet.

Profiles of the self potential survey, lots 20 and 21 Con. XII
Horizontal scale 1 inch to 100 feet, vertical scale 1 inch to 100 millivolts.

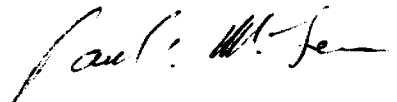
CERTIFICATE

I Paul C. McLean, of the Township of Machar, in the District of Parry Sound do hereby certify as follows:

1. I am a consulting Geologist, residing in the Township of Machar Parry Sound District, Ontario.
2. I am a graduate of the University of Toronto, Faculty of Applied Science and Engineering, in the course of Mining Geology, 1950. I hold the degrees of B.A.Sc. and M.A.Sc. in Mining Geology.
3. I am a practicing mining exploration consultant for the past 35 years.
4. The accompanying report was written with reference to a government publication and company reports and assessment files, and also with reference to the Author's knowledge of the area.

Dated at South River, Ontario.

this 30th day of November, 1990.



Paul C. McLean M.A.Sc.
Consulting Geologist.

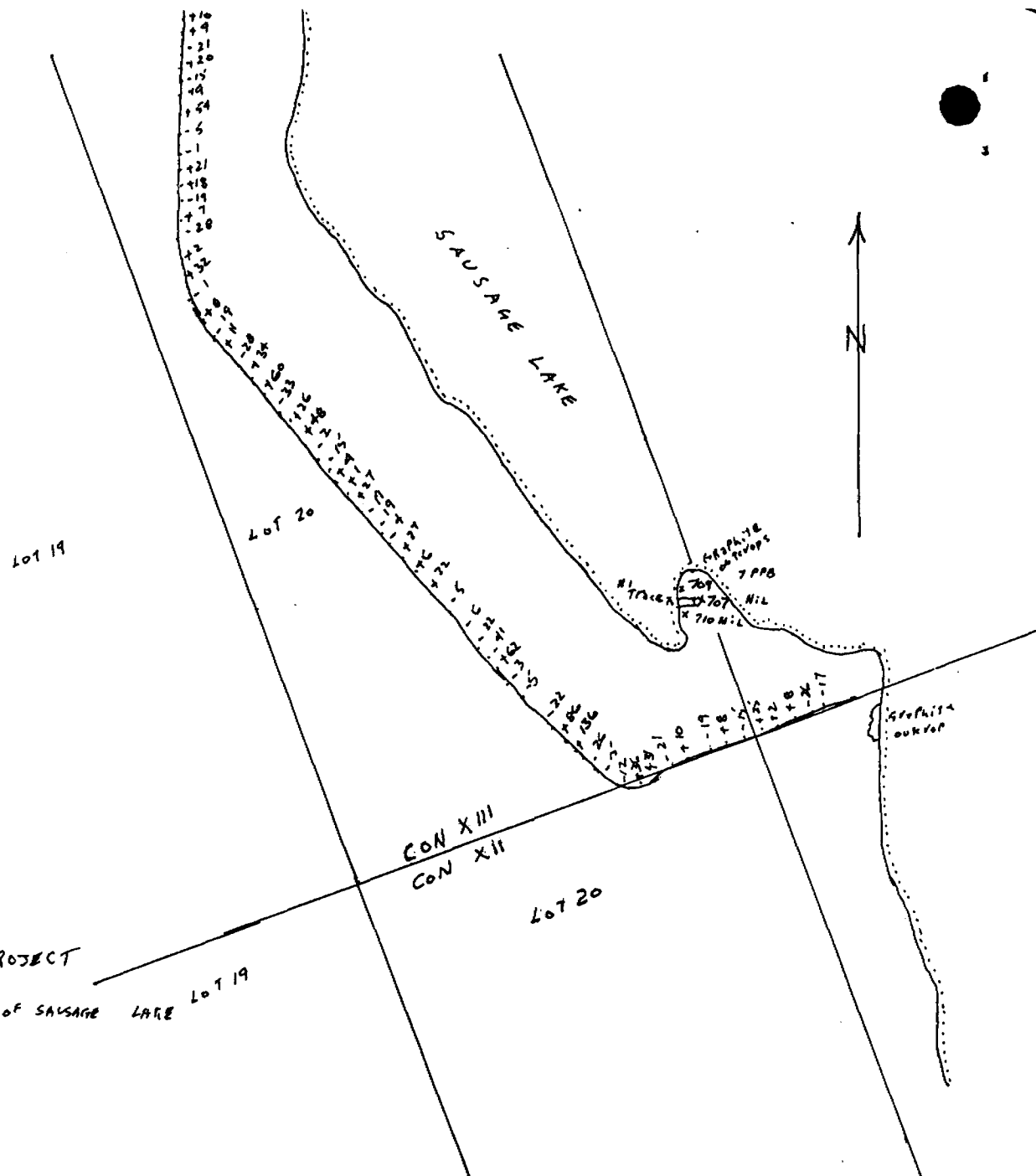
MANNELLA-MCLEAN GRAPHITE PROJECT

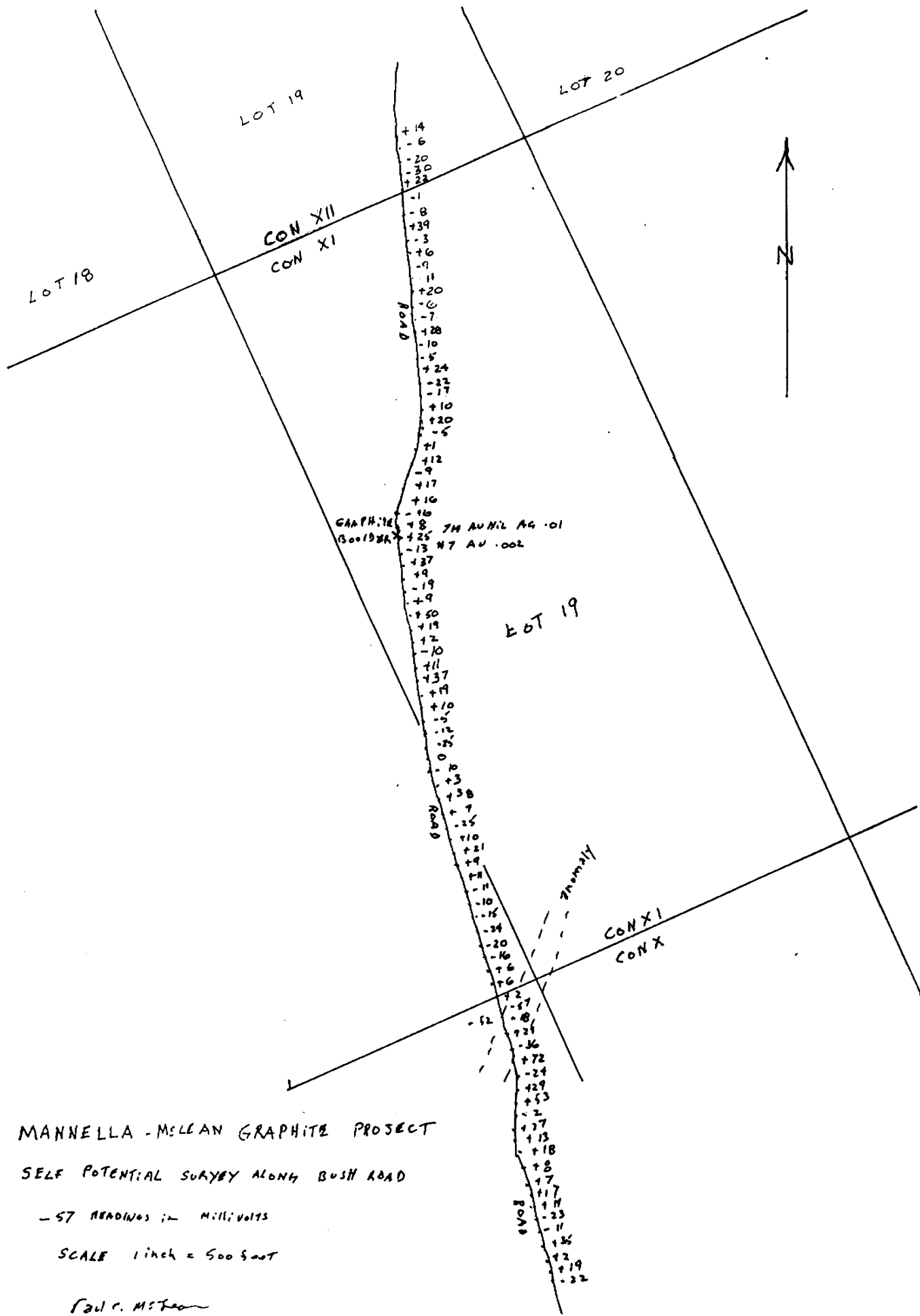
SELF POTENTIAL SURVEY ALONG ROAD SOUTH OF SAUSAGE LAKE

+ 134 READINGS IN MILLIVOLTS

SCALE 1 inch = 500 Feet

Paul C. McLean





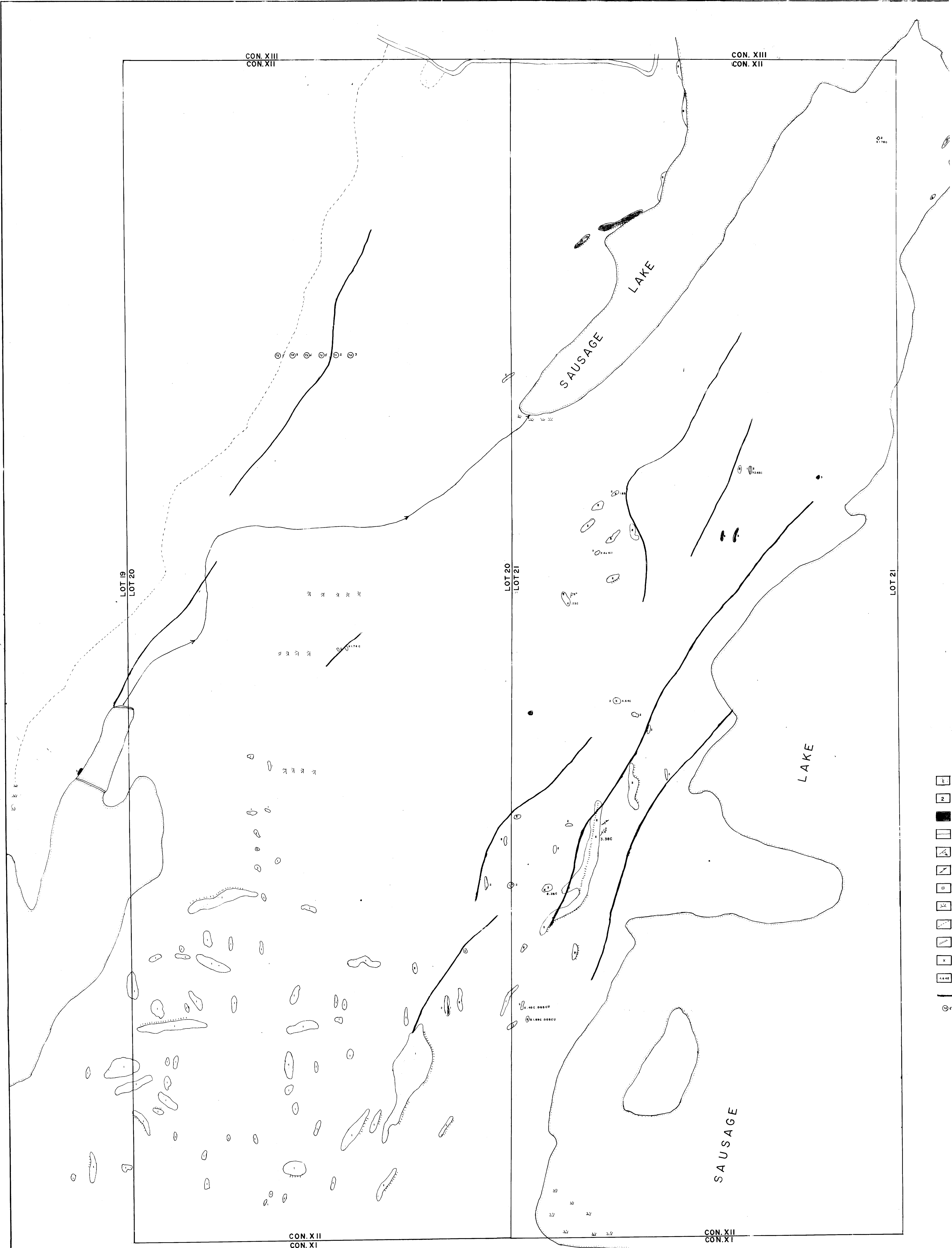
MANNELLA - McLEAN GRAPHITE PROJECT

SELF POTENTIAL SURVEY ALONG BUSH ROAD

- 57 READINGS IN MILLIVOLTS

SCALE 1 inch = 500 Feet

Paul C. McLean



PLAN OF GEOLOGY

MANNELA - McLEAN GRAPHITE PROJECT

Laurier Twp.

LOTS 20&21 CON. XII

1"=100'

63.5755

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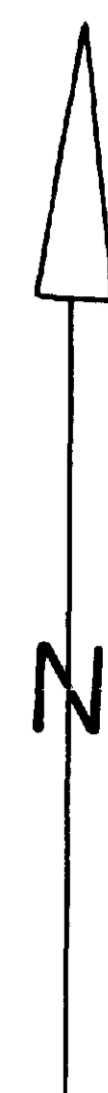


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1:2500

*John
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SP*

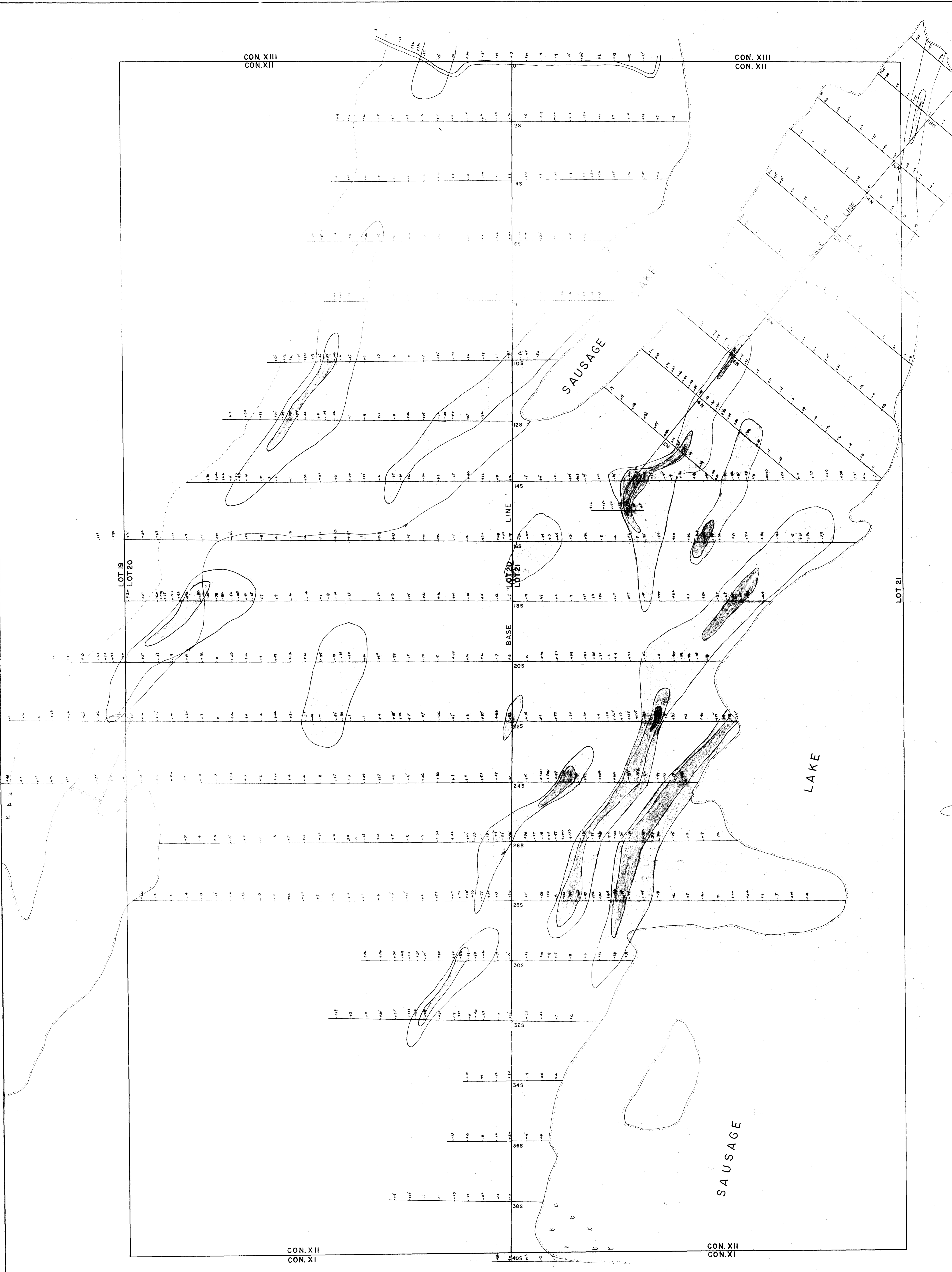


LEGEND

Scale 1:2500

- Soil sample gold value ppb, arsenic ppm
- Self potential values in millivolts
- Gold assay ounces per ton or ppb
- Swamp





SELF POTENTIAL SURVEY

MANNELLA-McLEAN GRAPHITE PROJECT

LAURIER TWP.

LOTS 20 & 21 CON. XII

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SELF POTENTIAL SURVEY PROFILES
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LAURIER TWP.

1" = 100' LOTS 20 & 21 CON. XII



CON. XIII
CON. XII

CON. XIII
CON. XII

SAUSAGE
LAKE

LAKE

SAUSAGE

LOT 20
LOT 21

LOT 21

LEGEND

Scale: 1 inch = 100 feet

- 1 Biotite, hornblende granite not gneissic
- 2 Graphitic metaquartzite gneiss
- Meta arkose gneiss
- Geological contact
- Strike and dip
- Shearing
- Prospect pit
- Swamp
- Trail
- Cliff or steep hill
- Sample location
- % Graphitic carbon
- Crest of Self Potential Anomaly
- Soil sample Gold Value PPM

CON. XII
CON. XI

CON. XII
CON. XI

PLAN OF GEOLOGY

MANNELA - McLEAN GRAPHITE PROJECT

LAURIER TWP.

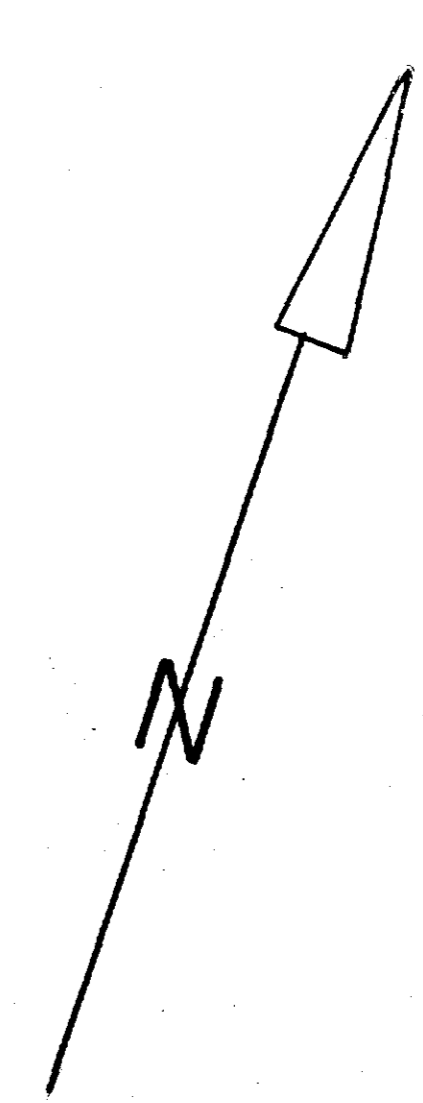
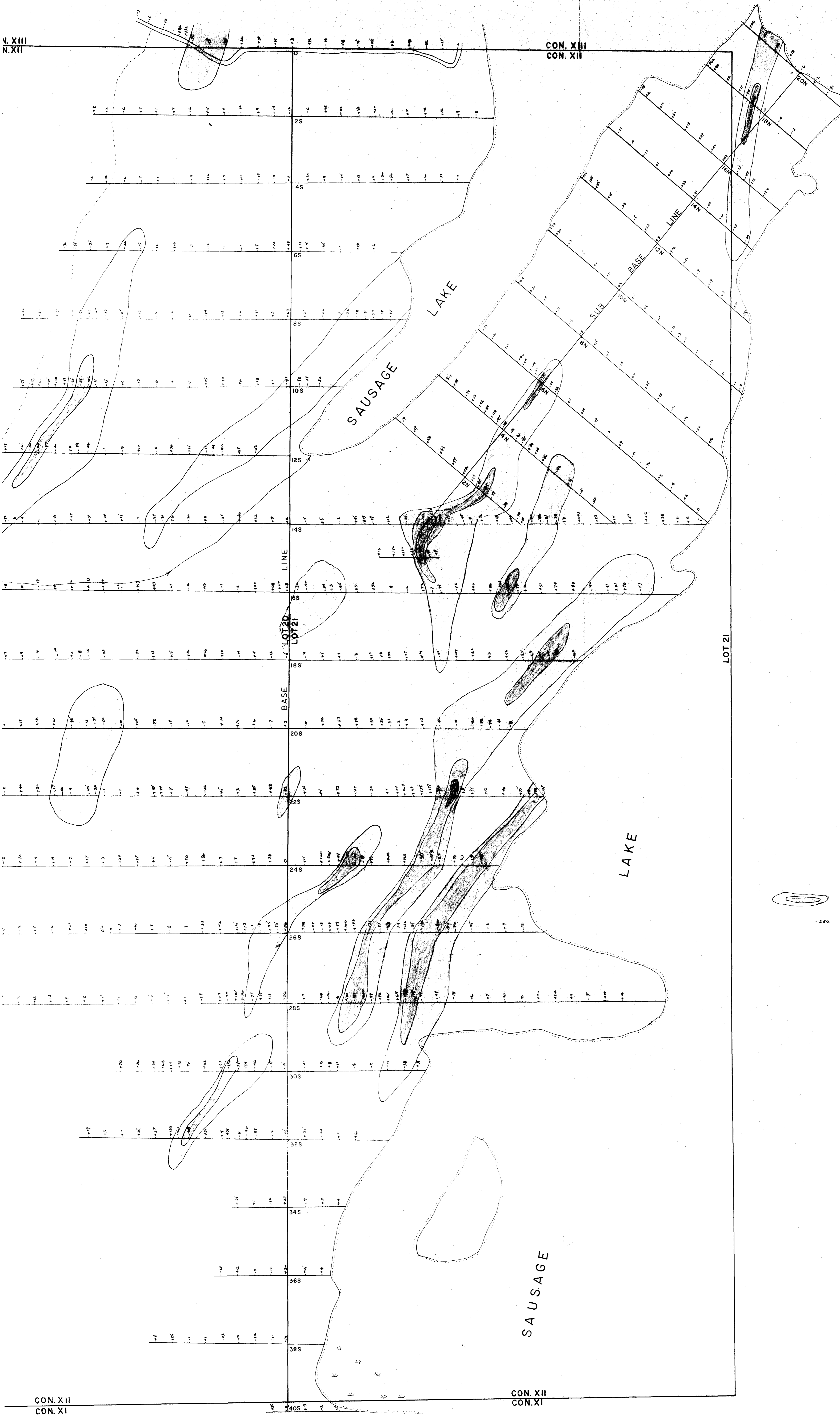
LOTS 20&21 CON. XII

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1"=100'


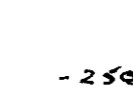
PAUL C. McLEAN M.A.S.C.

NOVEMBER 1990



LEGEND

Scale: 1 inch = 100 feet

-  Self Potential Anomaly
-  Reading in millivolts

SELF POTENTIAL SURVEY

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LAURIER TWP.

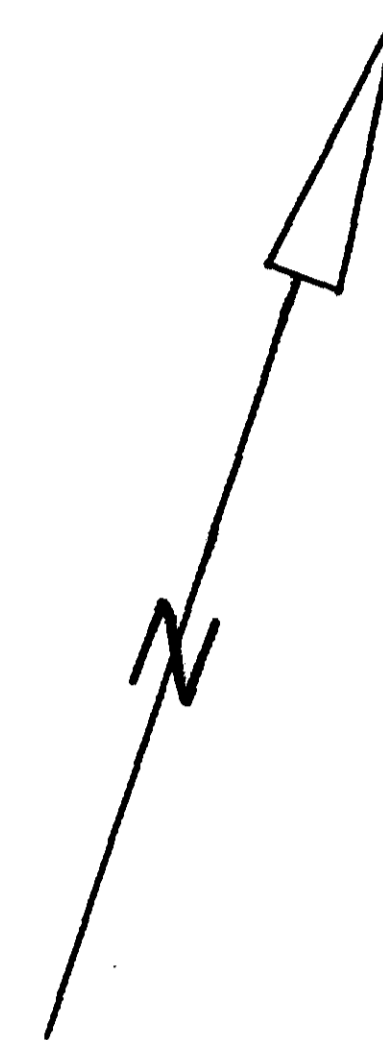
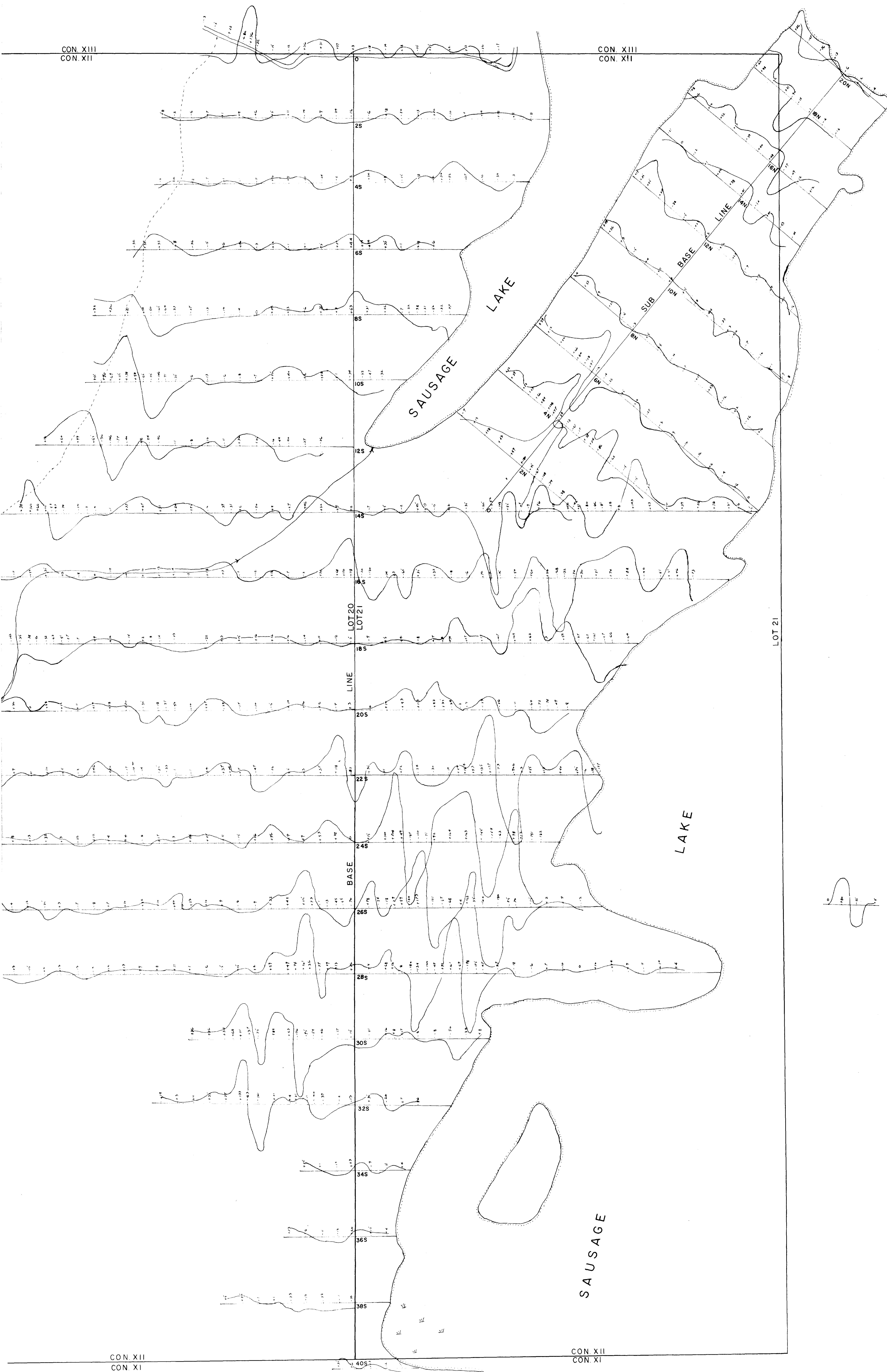
LOTS 20 & 21 CON. XII

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CON. XIII
CON. XII

CON. XIII
CON. XII



LEGEND

Horizontal Scale: 1 inch = 100 feet

Vertical Scale: 1 inch = 100 millivolts



SELF POTENTIAL SURVEY PROFILES

MANNELLA-McLEAN GRAPHITE PROJECT

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1" = 100' LOTS 20 & 21 CON. XII