31M04NE0046 63.350 BEST 010C

REPORT

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R E P O R T

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Acana Mines Limited,
Ontario Street,
Montreal, Quebec.

Gentlemen:

The following report describes electrical resistivity and magnetic surveys conducted by Geo-Technical Development Company Limited over a group of claims controlled by Acana Mines Limited and located in Best Township, Ontario. The results of these surveys are depicted on Plans Nos. 1 and 2 accompanying this report.

The presence of chalcopyrite mineralization on some of the claims included in this group has been known for a number of years. The chalcopyrite is sometimes accompanied by pentlandite and appreciable values in both copper and nickel are reported from surface sampling. Exploration work carried out on the claims group has been very limited and has been confined to two shallow shafts or pits and several trenches.

The magnetometer and resistivity surveys discussed in this report were conducted over the entire claims group. The resistivity survey has indicated several good conducting zones some of which coincide very well with known mineralized zones. It is of interest to note that at least relatively low resistivity readings were obtained in the vicinity of all the known mineralized zones shown on the accompany plans. The magnetometer survey also showed favourable results over the known mineralized zones but this survey did not pick up geological contacts as well as was desired. The combined results of both surveys can be considered very encouraging and the property definitely warrants further exploration work.

Property:

The property discussed in this report is made up of two groups of claims, the first including fourteen claims comprising approximately 500 acres and the second adjoining immediately to the north including two claims and comprising 50 acres. Both claims groups are located in Best Township, Ontario, and are further described as follows:

Group No. 1: T31703, T31704, T31705, T31459, T33216, T33217, T33218, T33219, T33189, T33240, T33241, TRT-5164, TRT-5165, TRT-6904

Group No. 2: T31210 and T31197

Location and Accessibility:

The property is located in the extreme southeast corner of Best Township, Timagami District, Ontario. Highway No. 11, the main Provincial highway extending from North Bay to Kirkland Lake, extends through the claims group. This highway passes through the town of Timagami, located about 7½ miles south of the property. The main line of the Ontario Northland Railway extending north from North Bay and servicing Northern Ontario and Quebec parallels No. 11 Highway and also passes through the claims group under discussion.

Topography:

The topography on the property covered by this report is typical of the general Timagami area and is characterized by rocky hills and well timbered muskeg. The claims group includes a part of Granite and Petraut Lakes. A fairly large stream flows in a southerly direction in the east part of the claims group and empties into Petraut Lake. There is a considerable amount of rock outcrop in the east half of the property especially around the shores of Granite and Petraut Lakes. The topography east of the large stream mentioned above is characterized by high rocky hills almost void of vegetation. The west part of the claims group is lower ground and for the most part covered with a heavy second growth of spruce and jackpine.

General Geology:

The regional geology of the Best Township area is shown on Map 35c, Anima-Nipissing Lake Area published by the Ontario Department of Mines in 1926. This map accompanies a report by E. W. Todd, Volume XXXV, Part 3. A more recent report has been published by the Ontario Department of Mines covering the area immediately to the south and west of Best Township. This report, referred to as the Northeastern portion of Timagami Lake Area, Volume LI, Part 6, was published in 1942. Map 51e published on the scale of 1 inch to 1 mile accompanies this report.

The consolidated rocks in the area are all of Precambrian age and vary from Keewatin volcanics to Keweenawan diabase. The following table taken from the Ontario Department of Mines Report Volume XXXV, Part 3, 1926, shows the various rock types in the area classified according to their relative age relationship, the youngest being placed at the top:

QUATERNARY	
Glacial and Recent:	Sand, gravel, and swamp of glacial and recent origin.
	Unconformity
PRE-CAMBRIAN	(Olivine and quartz diabase dikes.
	Intrusive contact
Keweenawan:	(Nipissing diabase: (Red rock aplite dikes. (Quartz-diabase sill.
	Intrusive contact
Animikean: (Cobalt series)	(Upper Cobalt series: Quartzite, arkose. (Lower Cobalt series: (Slate-like greywacke. (Conglomerate, quartzite, greywabke.
	Unconformity
Matachewan:	Diabase dikes.
	Intrusive contact
Algoman:	(Syenite. (Massive pink and grey granite. (Quartz and feldspar porphyry. (Some of the quartz and feldspar porphyry may be older than the Algoman.)
Algoman-Keewatin Complex:	(A complex misture of dark-coloured granitic rocks, Keewatin volcanics and pink granite.
Haileyburian(?):	Serpentine, diabase.
	Intrusive contact
Keewatin:	(Altered basalt and diabase, amygdaloidal lavas, acid volcanics, agglomerate, banded tuff.

Map 35c shows the general area of the property discussed in this report to be underlain by Keewatin volcanics which have been intruded by Algoman granite. Both the Keewatin volcanic and Algoman granite are in turn intruded by Matachewan diabase. This entire series was formerly overlain by Cobalt and later sediments but these have now been largely eroded away and Cobalt sediments now only overly the extreme eastern portion of the property.

The Keewatin volcanics include basalt, andesite and more acid types along with associated pyroclastics. As these volcanics appear to form a small mass within the granite intrusive, it might well be expected that they are very highly altered and granitized especially near the volcanic intrusive contact. In places the basic types are quite chloritic and resemble diabase in colour and texture. The general appearance of the rock is similar to the material composing some of the dykes of the Matachewan series. However, no definite boundaries suggestive of dykes are in evidence and instead a gradual transition in texture occurs and the rocks grade into typical basic volcanics in some cases showing pillow structure.

The more siliceous type lavas appear to be fairly well fractured with fine stringers and threads of pyrite and pyrrhotite. These sulphides are oxidized on surface and show up as an intricate network of fine rusty threads. This condition is well exposed along No. 11 Highway about 500 feet north of the camps.

The granite outcropping in the area is normal massive pink hornblende to biotite variety with no particular features. The quartz content of the granite varies somewhat and in places approaches that of a granodiorite.

Map 35c shows Matachewan diabase occurring in the immediate area of the property discussed herein. On a recent visit to the property the writer observed considerably more diabase than suggested on Map 35c but it was not possible to determine on this short visit whether the diabase is all of Matachewan age or if some of it should be classified as Haileyburian.

The eastern portion of the property is underlain by conglomerate and greywacke believed to represent a lower member of the Cobalt series. The contact of this rock follows a large stream flowing in a southerly direction through the eastern portion of the claims group.

The majority of mineralized zones observed in the vicinity of Granite Lake occur in the Keewatin volcanics and usually occur either near the volcanic-granite contact or near a contact between volcanics and diabase. Several showings known to contain appreciable amounts of copper and nickel and associated with pyrite and pyrrhotite have been discovered on the claims group discussed in this report. The copper and nickel occur as chalcopyrite and pentlandite respectively.

The writer visited the property in the middle of October of this year for the purpose of examining the known mineralized zones to acquire firsthand information to aid in the interpretation of the geophysical results. In all, nine showings were observed and are shown on the accompanying plans numbered 1 to 9 inclusive. The No. 1 showing is located in the No. 2 claims group whereas the other 8 are in the No. 1 group.

The No. 1 showing consists of 3½ to 4 feet of heavy pyrite and pyrrhotite with considerable chalcopyrite and occurring in sheared and silicified basic volcanics. The shearing strikes N 10°E and dips 75°W.

The No. 2 showing is referred to as the shaft zone and consists of pyrite and pyrrhotite mineralization associated with a diabase volcanic contact. The mineralization, although quite strong, is somewhat irregular and it is difficult to determine the actual contacts. This mineralization was picked up along a southerly strike for about 250 feet. A fair amount of chalcopyrite is associated with pyrite and pyrrhotite and appreciable assays in nickel have been reported. A shallow shaft was sunk by hand methods several years ago near the northern end of this zone.

The No. 3 showing is located about 200 feet south of the No. 1 showing and slightly to the west. This showing is well sheared across a width of 12 to 15 feet with fairly heavy pyrite and pyrrhotite mineralization carrying considerable chalcopyrite. Minor amounts of sphalerite and galena were also observed. The zone is highly oxidized on surface and the host rock appears to be either rhyolite or silicified andesite. The shearing appears to be similar in strike and dip to that of the No. 1 zone. A pit about 12 feet deep and now partially filled with water and debris was sunk on this showing several years ago.

The No. 4 showing occurs in the same zone as the No. 2 and is located about 250 feet to the south.

The No. 5 showing is located about 1,200 feet west of the south end of Granite Lake on Claim T-31705. This showing consisting of a shear about 12 to 15 feet wide and fairly well mineralized with pyrrhotite and pyrite occurs near a volcanic-granite contact. A fair amount of chalcopyrite is in evidence and good values in copper, nickel and platinum are reported. The shearing strikes in a general north-south direction and dips steep west.

The No. 6 showing located 1,150 feet north of No. 5 consists of a well fractured weakly sheared lava exposed in a narrow trench and fairly well mineralized with pyrite and some pyrrhotite. Minor amounts of chalcopyrite were observed in this trench.

The No. 7 showing is located 350 feet south of east from the No. 6 showing. The host rock and mineralization is quite similar to that in the No. 6 showing and the shear was observed to strike N 28^{o}W and dip vertical. It is not known whether this is the actual strike or whether it is just local flecture in the strike of the regional shear.

The No. 8 showing located 300 feet to the north of the No. 7 is quite similar in structure and observed mineralization.

The No. 9 showing occurs 400 feet south of the No. 7 showing and appears to be associated with shearing near a contact between basic volcanic and diabasic rocks. The mineralization in this zone is not particularly impressive but there is a fair amount of disseminated pyrite and pyrrhotite with minor amounts of chalcopyrite.

The writer did not cut any samples as most of the zones were recently channel sampled. Assays from this sampling returned appreciable values in copper and nickel with some silver.

General Discussion:

Prospecting has been carried on throughout the Timagami area intermittently for a number of years and although several mineral showings of merit have been discovered there has been no significant production from the area to date.

The most advanced properties in the immediate area are located in Strathy Township adjoining to the south of Best Township. The mineral deposits in this township include iron, nickel, copper, molybdenum, pyrite, arsenic, gold and silver but apart from a small amount of arsenic, copper-nickel matte and pyrite there has been no significant production from this township to date.

The major showings in Strathy Township and in the areas to the south and west are discussed in the Fifty-First Annual Report of the Ontario Department of Mines, Part IV, published in 1942.

The favourable rock types found in Strathy Township also occur in Best Township. The types of mineralization found in Best Township are quite similar to those found in

Strathy Township and include iron, nickel, copper, pyrite, arsenic, gold and silver. Minor amounts of galena and sphalerite are also reported on the property discussed in this report.

Probably the most advanced property in the area is that formerly held by Ontario Nickel Corporation Limited and now included in the property of Trebor Mines Limited. This property was developed by shaft to a depth of 245 feet and 2,200 feet of lateral workings. A pilot smelter was operated in 1936 and produced 212,118 pounds of nickel-copper matte. This matte yielded 77.6% copper and nickel, 37 ounces gold, 52.7 ounces platinum, 196.3 ounces palledium and 910 ounces silver. Trebor Mines Limited carried out 38,857 feet of diamond drilling on their properties in 1950 and report 4,979,000 tons of ore having an estimated value of approximately $23,000,000 at current metal prices but the actual grade of this ore was not available. The property of Trebor Mines Limited is located in the same general geological belt and about 6 miles southwest of the property discussed in this report.

The property of Penrose Gold Mines Limited formerly held in part by Manitoba and Eastern Mines Limited and located about 5 miles south has been the scene of considerable development work in the past. A shaft was sunk to a depth of 500 feet on this property and ore reserves are estimated to be 60,000 tons averaging .21 ounces of gold above the 400 foot level.

The large Township area known as Gillies Limit adjoins immediately to the north and east of Best Township. Gillies Limit was a very important mining area during the active period of the Cobalt camp.

Most of the claims included in the group discussed herein have been held for a number of years. The most important showings are located a few hundred feet east of the highway in Claim TRT-5165. A shallow shaft was sunk on one of the showings several years ago and some high grade copper and pyrrhotite mineralization is in evidence on the dump. The pyrrhotite is reported to carry pentlandite which is an important nickel-bearing mineral. Several other showings carrying similar type mineralization are also located in this claim as well as in Claims T-31703 and T-31705 on the west side of Granite Lake.

Explanation of Resistivity Interpretation:

On most electrical resistivity surveys, considerable differences in resistivity or conductivity are encountered. The factors governing these differences form the basis for the interpretation of the geophysical survey. To assist the reader in understanding these interpretations, an explanation of the various conditions is given below:

1) Areas of "highs" always denote the presence of rock near the surface. Comparison may be made between zones of "highs" beneath water or overburden and outcrop areas whereby some idea of the depth of drift mantle may be established.

2) Areas of "lows" denote either one or more of a combination of three conditions; i.e. sulphide mineralization, deep overburden, or the conjunction of shears or faults. In this case it will be readily understood that the junction of shears and faults with minor amounts of sulphide emplaced therein could produce an area of "lows" whereas deep pot-holes or eroded areas in rock which are filled with stagnant mineralized water could also give this effect.

3) Shears and faults are always shown by a linear continuity of "lows" and the relative order of conductivity of these "lows" will depend on three further factors:

(a) The original resistance of the formation in which the fault or shear occurs.

(b) The degree of shear and consequent relative porosity.

(c) Sulphide and/or moisture content.

Massive sulphides show field resistivities up to approximately 10,000 ohm-centimeters or 10×10^3. The actual resistance of any mixture is not determined by the mass alone, but by the relative continuity of the sulphides within the mass. Thus a well-fractured rock with a 5% sulphide content along the fracture plane could become a fair conductor.

Disseminated sulphides are usually found to have a conductivity in the order of 20,000 to 50,000 ohm-centimeters or 20 to 50×10^3 as a result of which some comparative estimate as to the relative possible sulphide content of any conducting zone may be determined. These figures, however, should be accepted with some reserve because as stated above other factors such as topography and shearing affect the resistivity readings.

In dealing, however, with the interpretation of resistivity contours, the "apparent resistance" values are obtained and these are expressed in terms of resistance for one centimeter of the material measured. Thus in the case of 250,000 ohm-centimeters this would be expressed on the plan as 25×10^4 or 250×10^3, the choice being decided according to the contour interval required to indicate the more important structural features. For simplicity the zeros are dropped and the legend should be consulted to determine the factor used.

Referring again to the resistivity axiom mentioned above, some additional detail will be required and this is set forth below:

1) Resistivity readings measure to variable depths which is assumed for general purposes to be approximately 300 feet. Let us, therefore, imagine that when measuring a 300 foot vertical column with 100 feet of overburden included in the upper portion of this column, that a reading of 100×10^3 is obtained. As the overburden decreases in depth or as the bed rock occupies a greater portion of this vertical column, the resistance increases because the resistance of rock is much greater than that of the overburden. Therefore it may be accepted that insofar as locating drill holes is concerned, if the collar of the hole can be spotted near the high resistance measurement, a minimum of overburden will be encountered.

Again, in the case of a submerged scarp where the elevation of the sub-surface rock formations differs considerably, resistivity readings show this picture quite clearly. Let us assume that beneath 50 feet of overburden we have the bed rock lying in a horizontal position and suddenly this bed rock drops off to a depth of 100 feet but the surface of the overburden remains essentially at the same elevation. The effects here noted on the resistivity readings are a sudden drop off in resistance from a zone of "highs" to an area of relative "lows", with an intense concentration of contours along the area of the submerged scarp. Frequently, but not always, such scarps represent faults.

2) Areas of sulphide mineralization can in most cases be definitely established by the relative intensity of the readings. Assuming that a sulphide deposit of reasonable dimensions exists, readings may be encountered within a range of 0.5 to 10×10^3 ohm-centimeters. Since disseminated sulphides are somewhat higher, ranging up to perhaps 50×10^3, depending on the relative sulphide content, these are not so readily determined because similar effects may be obtained from local sub-surface depressions in the bed rock in which moisture has accumulated. As a rule, however, these "border line cases" can be eliminated. One difficulty in the interpretation of "border line sulphide cases" is the intersection of two shears which in themselves form a structural control. It may therefore be expected that in such a location the ground would be badly broken and consequently a much better conductor than the surrounding medium. Therefore, depending on the

degree of shearing at this focal point, the resistance may vary considerably. If sulphides are present at the apex of these shears as is sometimes the case, a considerable increase in conductivity will be noted.

3) Shears and faults are located by their apparent continuity over a considerable distance, and the actual resistance values obtained along these structures are not so important. Such lines of weakness may cut rocks of varying competency and a fault crossing rhyolite may occur as a mere crack or fracture. Thus the resistance would be "high" due to the fact that the rhyolite is a dense formation with a low moisture content. The same fault intersecting schistose andesite would show up as an excellent conducting zone due to the fact that this formation, being more schistose and less competent than the rhyolite member, would contain a higher moisture content.

Again, the resistance of a shear or fault zone will depend on the proximity of this structure to the surface. As has been mentioned above, the resistance increases as the bed rock approaches the surface or as the depth of the overburden decreases. Consequently, the resistance of the rocks in which the fault occurs would increase, as would the resistance of the fault zone itself. In the interpretation of such structures it is, therefore, necessary to attempt to follow a linear zone of "lows" across several lines and the term "low" must be regarded in an entirely relative sense; i.e. the readings will be "low" in comparison with the adjacent readings.

It has been stated above that the resistance of these faults and shear zones depends on the formation in which they occur. The degree of shear and the relative porosity also affect the measured values since this factor controls the percentage of water which may accumulate along the zone. The conductivity of the zone is further influenced by sulphides, if present.

Naturally, sulphides do not necessarily have to occur along the entire plane of the fault and they usually show up as lenticular masses in some local structural feature which may occur along the fault. These areas show a much lower resistance than parts of the fault plane and it is such locations that are recommended for drilling.

It is impossible to determine the dip of the fault zone with the resistivity method particularly if the structures are steeply inclined. However, some idea of the direction of dip may be obtained from pronounced variations in topographical features.

The effect of resistivity readings over a flat-dipping fault, in the order of 20 to 30 degrees has been noted on several surveys. In such cases the foot or hanging walls of the structure appear as sharp sub-surface scarps and the zone between the foot and hanging wall, which of course has been subjected to considerable movement and is thus well-fractured, simulates a zone of variable "lows". Flat dipping faults, depending on their true width, can show a wide area of surface expression, which is often encountered after they have been subjected to erosion especially along the hanging wall contact. In such instances, if the depth of overburden is in the order of 50 to 100 feet, a considerable error in the actual emplacement of the fault may occur but the outlines are usually conformable with the true conditions.

Interpretation of Geophysical Survey:

The following discussion describes the results of electrical resistivity and magnetic surveys conducted over two groups of claims located in Best Township, Timagami area, Ontario. The No. 1 group includes fourteen claims and the No. 2 group two claims. The No. 2 group ties on to the north of the No. 1 group.

The resistivity and magnetic surveys were conducted over the entire area included in the No. 1 claims group but only a portion of the No. 2 group was covered. The results of the electrical resistivity survey conducted over both groups is shown on Plan No. 1 accompanying this report and the results of the magnetic work on Plan No. 2. The resistivity readings are expressed in ohm-centimeters x 10^3 wheras the magnetic readings are expressed in gammas. As the resistivity and magnetic surveys were conducted in conjunction with one another, the results will be jointly discussed.

The electrical resistivity survey has indicated several conducting zones trending in a general north-south direction and interpreted as representing shearing. Several anomalous conditions showing quite low resistivity readings occur throughout the surveyed area. Most of these resistivity "lows" are associated with the interpreted shear zones. Magnetic anomalies were for the most part obtained over areas where low resistivity readings were observed.

The conducting zone located immediately south of the base line in the north part of Group No. 1 and extending into Group No. 2 follows a linear trend of low resistivity. This zone, identified on Plan No. 1 as the "A" zone, coincides with the No. 1 and No. 3 showings. Resistivity readings as low as 45,000 ohm-centimeters were observed along this zone and immediately over the No. 1 showing. This low reading over observed mineralization serves to indicate the resistivity reaction that can be expected over even narrow mineralized zones.

The linear trend of low conductivity which marks the "A" zone or "A" shear appears to fade out about Line 6-S but continues to the north off the surveyed area. The magnetometer survey showed a high magnetic anomaly directly over the No. 3 showing and a sharp negative anomaly over the No. 1 showing suggesting a di-pole effect. High magnetic readings were also obtained immediately to the east and west of the resistivity low which marks the "A" zone on Group No. 2. Low magnetic readings are often obtained over shear zones in the absence of magnetic mineralization such as pyrrhotite or magnetite.

The second or "B" conducting zone is located near the west boundary of claim T-31459 and is identified on the accompanying plan as the "B" anomaly. This "B" anomaly shows two isolated resistivity lows which coincide with the No. 2 showing generally referred to as the shaft area and the No. 4 showing located on the southward extension of this same mineralized zone. The nature of the resistivity readings suggests the mineralization in this area to occur as isolated lenses. The magnetic survey indicated magnetic anomalies in the immediate area with a sharp magnetic high in the vicinity of the No. 4 showing and negative magnetic readings at the No. 2 showing suggesting di-pole effect.

The "C" zone located immediately west of Granite Lake is defined by a pronounced linear trend of relatively low resistivity extending from claim TRT-6904 off the north end of the surveyed area. This zone coincides with the No. 7 and No. 9 showings where strong shearing was observed in the field. A low reading obtained over the "C" zone on Line 26-S occurs in the immediate vicinity of a mineralized trench. A second interpreted shear believed to be a branch structure of the "C" zone occurs 250 feet to the west and coincides with the No. 6 showing. Weak shearing and fracturing with some sulphide mineralization was observed in a trench on the No. 6 showing. Magnetic anomalies were obtained in the immediate vicinity and line up very well with the results of the resistivity survey and observed mineralization.

The No. 8 showing located about 300 feet north and slightly east of the No. 7 showing and about 100 feet east of the interpreted shear did not show up in the electrical survey but a very strong magnetic anomaly was obtained on strike and about 300 feet to the north.

A very pronounced linear conducting trend striking in a north direction through the east part of claims T-33189, T-31704 and T-31705 is interpreted as representing strong shearing and coincides with the No. 5 showing. This conducting trend is referred to on the accompanying plans as the "D" zone and is believed to represent the north-south continuation of a strong mineralized shear about 12 to 15 feet wide exposed at the No. 5 showing. The magnetic results along this zone are not particularly impressive.

The conducting trend referred to on the accompanying plans as the "E" zone is marked by a series of isolated resistivity lows rather than a continuous conducting trend. These isolated resistivity anomalies line up fairly well to form a continuous linear trend and are believed to mark a north-south shear. The isolated conducting zones could represent concentrations of sulphide mineralization associated with the shearing. The magnetometer survey did not indicate any strong magnetic effects along this "E" zone.

The "F" zone located about 300 to 400 feet to the west of the "E" zone is more or less parallel and quite similar in structure and degree of conductivity. A fairly strong magnetic anomaly coincides with the "F" zone and extends from Line 8-S to Line 2-N, a distance of approximately 1000-feet. A fairly sharp conducting zone showing resistivity readings as low as 47,000 ohm-centimeters is located immediately north of Granite Lake and 300 feet west of the "F" zone. This resistivity anomaly, which also shows up very sharply in the magnetic survey, is just off the Company's property.

A very pronounced resistivity anomaly showing readings as low as 7,000 ohm-centimeters occurs in the north-west corner of claim T-31704. This conducting zone is identified on the accompanying plans as the "G" anomaly. The readings over this "G" anomaly are sufficiently low to suggest the presence of massive sulphide mineralization. A fairly strong magnetic high was also obtained in the immediate vicinity of the low resistivity readings over this "G" anomaly. This anomaly appears to be associated with an interpreted north-south shear, open to the north but possibly terminating against granite intrusive in the vicinity of Line 32-S.

A strong linear conducting trend located in the east portion of the claims group and referred to as the "H" zone extends in an almost unbroken continuity in a north-south direction across the entire surveyed area. The north half of this zone is somewhat weakly defined but this section is believed to be overlain by Cobalt sediments which would tend to mask the effect of the resistivity survey. In the south portion immediately north of Petraut Lake where the Cobalt sediments have been completely eroded exposing the Keewatin volcanics, the conducting zone stands out as a strong linear trend suggesting strong shearing. Readings were obtained in this part of the zone sufficiently low to suggest the presence of appreciable sulphide mineralization. The magnetic results obtained over this zone are somewhat inconclusive but an isolated magnetic anomaly was obtained on Line 23-S coinciding very well with the electrical resistivity results.

Conclusions and Recommendations:

The results of the electrical resistivity survey conducted over the two groups of claims discussed herein can be considered very encouraging. The magnetic survey added geophysical significance to some of the anomalies outlined by the electrical resistivity survey but the results were not as conclusive as the resistivity work. The discouraging feature of the magnetic survey is the fact that it did not define geological contacts as well as was anticipated.

Resistivity lows or good conducting zones were obtained over all but one of the observed mineralized showings. The survey suggested a fairly strong shear extending through the area of the No. 1 and No. 3 showings which conforms very well with observed structures. The shaft zone or the No. 2 showing shows up in the resistivity survey as an isolated anomaly suggesting a lens of sulphide mineralization. The No. 4 showing occurs in an isolated anomaly about 200 feet to the south. The entire "B" anomaly does not appear to be associated with a shear structure. Favourable anomalous conditions somewhat similar to those obtained over the observed No. 2 and No. 4 showings were obtained about 300-feet to the north.

The "C" and "D" zones are believed to represent fairly strong shearing. This interpretation is verified by observed field conditions. The resistivity readihgs along the "D" zone suggest a strong north-south shearing which could represent the continuation of the favourable structures disclosed on the No. 5 showing.

The "E" and "F" zones are interpreted as parallel shear zones occurring on the east side of Granite Lake. Shearing and sulphide mineralization have been observed along certain sections of the "E" zone but the structure interpreted as the "F" zone is based entirely on geophysical data.

The most impressive resistivity readings observed throughout the entire surveyed area were obtained over the "G" anomaly. Readings as low as 7,000 ohm-centimeters, which are in a range almost always indicative of heavy to massive sulphide mineralization, were observed over this zone. This anomaly also appears to be associated with a north-south shear. This shear is open to the north but terminates quite sharply at Line 32-S where it is possibly cut off by the granite intrusive.

A fairly strong linear conducting trend for the most part following the bed of a large stream in the east part of the claims group is identified on the accompanying plans as the "H" zone and is interpreted as representing strong north-south shearing. This zone is somewhat weakly defined in the north part where it is believed to be overlain by Cobalt sediments. In the south, however, where the sediments have been completely eroded exposing the Keewatin volcanics, the zone stands out quite sharply and an anomaly on Line 23-S showing resistivity readings as low as 27,000 ohm-centimeters suggests the presence of sulphide mineralization.

The results of the electrical resistivity and magnetic surveys conducted over these two groups of claims definitely suggests these properties to warrant further exploration work. The significance of the anomalous conditions delineated, especially by the resistivity survey, is greatly enhanced by known geological conditions and observed mineralization.

It is recommended that diamond drilling be carried out to investigate the favourable indications suggested by the geophysical surveys and the locations of nine proposed drill holes are shown on the accompanying plans. These nine holes should constitute about 2,500 feet of drilling. Further diamond drilling can best be decided on completion of these first nine proposed holes.

It is also recommended that these claims groups be mapped to provide more detailed geological information.

Survey Data:

Electrical resistivity and magnetic surveys were conducted over two groups of claims located in Best Township, Timagami area, Ontario. The first or No. 1 group includes fourteen claims and comprises a total of approximately 500 acres and the second or No. 2 group includes two claims comprising approximately 50 acres.

These surveys were conducted by Geo-Technical Development Company Limited during the period from September 23rd to October 20th, 1952 and the work was under the supervision of W. Sharpe.

A north-south baseline was established through both claims groups. East-west traverse lines were turned off at foot intervals on the No. 2 group and in the north two ims of No. 1 group. Over the remainder of the No. 1 group traverse lines were spaced 300 feet apart. Resistivity dings were taken at 50 foot intervals along these traverse es and magnetometer readings at 100 foot intervals.

A total of 12.2 miles of electrical resistivity rveying was conducted over Group No. 1 and 1.5 miles over group No. 2. A total of 12.1 miles of magnetic surveying was conducted over group No. 1 and 1.7 miles over group No. 2.

The number of eight-hour man days required to complete this work is as follows:

	(8 Hour) MAN DAYS	ATTRIBUTABLE TO ASSESSMENT WORK
Line Cutting & Chaining	46 x 4	184
Electrical Resistivity Survey		
Laying spread wire	12 x 4	48
Operating resistivity survey	40 x 4	160
Operating magnetic survey	35 x 4	140
Calculation and Interpretation	9 x 4	36
Drafting	14 x 4	56
Office typing and Supervision	4 x 4	16
TOTAL	160	640

16 claims

Respectfully submitted,

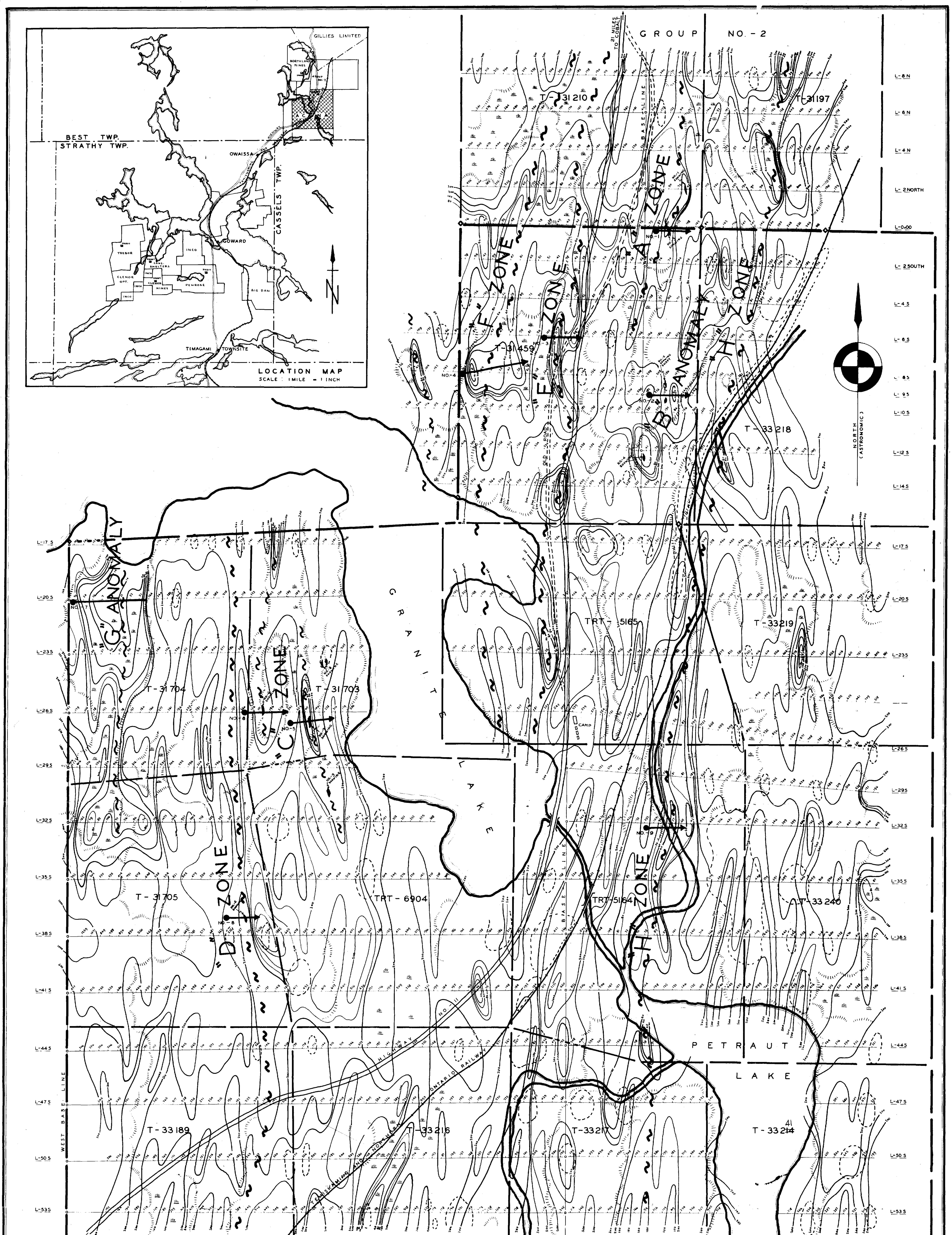
GEO-TECHNICAL DEVELOPMENT COMPANY LIMITED

J. D. McCannell

J. D. McCannell,
Geologist

October 23, 1952
Toronto, Ontario.

JDMcC/hfp



LEGEND

LINES CUT AND CHAINED, RESISTIVITY READINGS OBSERVED	0 - 40 OHM-CM x 10
RESISTIVITY CONTOUR	40 - 60
SHEAR OR FRACTURE ZONE INFERRED FROM RESISTIVITY SURVEY	60 - 100
PROPOSED DRILL HOLE	100 - 200
MINERALIZED SHOWING	200 - 500
SHAFT OR PIT	500 - 1000
	1000 - UP

PROPERTY BOUNDARY AND CLAIM POST LOCATION
OUTCROP
OUTLINE OF HIGHER GROUND
SWAMP
HIGHWAY
RAILROAD

ACANA MINES LIMITED

RESISTIVITY CONTOURS AND GEOLOGICAL INTERPRETATION

BEST TOWNSHIP
DISTRICT OF NIPISSING
ONTARIO

ELECTRICAL RESISTIVITY SURVEY BY:

GEO-TECHNICAL DEVELOPMENT COMPANY LIMITED

PLAN NO.-1 OCT. - 1952

SCALE: 1" = 200'

200

63.358

46-10-52