014802

93H[redacted]·07 Mosquito Creek
010

PROPERTY FILE

Red Gulch No. 1, 2, 7, Willow No. 10, Port
Seattle, Mosquito, Mosquito Fraction, Vanco
and Brookford No. 6 and No. 7 Mineral Lea
centered one mile east of Wells
Cariboo Mining Division, Central British Co
Latitude 53°07'N; Longitude 121°36'W
N.T.S. 93H/4E
on behalf of the
Mosquito Creek Gold Mining Company Limited
Field Work between Aug. 23 and Sept. 27,

93H/4E

GEOPHYSICAL REPORT on the
Red Gulch No. 1, 2, 7, Willow No. 10, Port Hope,
Seattle, Mosquito, Mosquito Fraction, Vancouver,
and Brookford No. 6 and No. 7 Mineral Leases
centered one mile east of Wells
Cariboo Mining Division, Central British Columbia
Latitude 53°07'N; Longitude 121°36'W
N.T.S. 93H/4E
on behalf of the
Mosquito Creek Gold Mining Company Limited (N.P.L.)
Field Work between Aug. 23 and Sept. 27, 1971

93H/4E

Survey by:

D. R. Cochrane, P.Eng.

Report by:

D. R. Cochrane, P.Eng.
October 15, 1971,
Delta, B.C.

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APPENDIX

FIGURES

PART A:

A-1 Preamble

During August and September, 1971, a field crew employed by D. R. Cochrane, P.Eng. completed some 16 line miles of Induced Polarization Surveys in the Wells area of British Columbia, and on behalf of the Mosquito Creek Gold Mining Company Limited. The survey covered a zone about one half a square mile in an historic placer and lode gold mining center, in and around Mosquito and Red Gulch Creek, immediately west of the town of Wells, and north of Jack of Clubs Lake. The purpose of the work was to detect "replacement" type gold deposits, characterized by massive pyrite, and minor arsenopyrite, (often only a few thousand tons), and which usually occur close to the Baker-Rainbow geologic contact.

This report is a documentation and discussion of the geophysical work, and is divided into four parts. Part B describes the General Setting, Part C the Field Procedures, and Part D discusses the results obtained. Geophysical maps are included in the map pocket and form an integral part of this report.

A-2 Summary and Conclusions

Geophysical surveying on the Mosquito Creek property was completed with a Hewitt Pulse Type (time domain) induced polarization unit. Reconnaissance work was conducted on 29 cross lines, 3,000 feet long and spaced 150 feet apart. These lines were directed north 30 degrees east. A Wenner array with an "a" spacing of 150 feet was deployed. In this field arrangement current electrodes are spaced 3 "a" or 450 feet apart, readings were taken every 150 feet, and the depth of exploration is roughly 150 feet.

The grid was layed out within Mosquito and Red Gulch Creek Valleys, on the northeast flank of Island Mountain, situated immediately east of the town of Wells. Reconnaissance geophysical surveying showed that the survey area may be divided into two separate geophysical divisions characterized by distinctive self potential, apparent resistivity and chargeability response. The southern response zone lies south of the base line, trends northwesterly and is characterized by anomalously low self potential, low apparent resistivity and high chargeability values. It coincides with an area believed to be underlain by the Rainbow member of the Cariboo Series. The high chargeability and low S.P. and apparent resistivity results in this area are most probably caused by carbonaceous material (graphite) in Rainbow rocks.

The zone in and around the baseline, and north of it, is characterized by low to moderate self potential change, relatively high apparent resistivity and low chargeability. It coincides with an area believed to be underlain by Baker rocks.

The boundary between these two geophysical divisions is somewhat blurred and this is due to the shallow to moderate dip of the geological contact. For example, even at some distance from the contact, on the Baker side, (at our particular exploration depth), information on Rainbow rocks will be recorded during surveying. The boundary is also somewhat complicated by the presence of disruptions and discontinuities in the data which are interpreted as due to the presence of north trending major faults.

The "replacement" type bodies are reported to be--

(a) near the Rainbow-Baker vontact,

(b) of rather limited size,

(c) often in limestone lenses.

This geologic situation would manifest itself geophysically as--

(a) a small lobe of moderately high chargeability extending outward from the high chargeability Rainbow zone,

(b) coincident with a small discontinuous moderate to high amplitude apparent resistivity peaks,

(c) possibly coincident with negative self potential response.

The "showing" area, in and around 0 + 00 on the base line is almost an ideal case. It is featured as a "lobe" of plus 10 millisecond chargeability extending northerly from the high chargeability "Rainbow" zone into the low chargeability "Baker" zone. It is flanked to the east by a small patch of moderately high resistivity, but self potential response is not particularly diagnostic, (further discussion on the S.P. in Section D-1).

Several other areas exhibit similar geophysical response, and are therefore additional exploration targets. The most notable occurs at 13.5 west, in and around the base line.

Depth probing and detailed survey work was conducted on the "showing" and in and around 13.5 west. The depth probe results showed a peak chargeability of 18.8 milliseconds, centered some 40 feet or so below surface. The peak value is situated on the crest of an unusual, arcuate shaped iso-apparent resistivity band which resembles a small anticlinal fold.

Detailed work at an "a" spacing of 75 feet outlined two areas which are somewhat similar to the results obtained in the showing area.

Respectfully submitted,

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. R. COCHRANE

D. R. Cochrane, P.Eng.,
Delta, B.C.,
October 15, 1971.

PART B:

B-1 Location and Access

The Mosquito Creek property is situated in the Cariboo Mining Division, 40 air miles east of the town of Quesnel, and 275 air miles north-northeast of Vancouver, British Columbia. Facile access by vehicle is made by travelling east from Quesnel on the Barkerville Highway to the town of Wells; thence northwest along the Hardscrabble Road for one mile to Mosquito Creek; and then southwest for a few thousand feet to the center of the survey area. The national topographic system code for the area is 93H/4E, and the Latitude is 53°07'N, and Longitude 121°36'W.

B-2 Property

The mineral property consists of several mineral leases in an irregularly shaped contiguous block centered on Red Gulch and Mosquito Creeks. The following list names claims and lease numbers on which the survey was conducted:

Claim Name	Number
Seattle	L 10358
Port Hope	L 10357
Vancouver	L 10356
Mosquito	L 10355
Mosquito Fraction	L 10359
Red Gulch No. 1	L 10360
Red Gulch No. 2	L 10361
Red Gulch No. 7	L 10366
Brookford No. 6	L 10352
Brookford No. 7	L 10353

LOCATION MAP

FIG. 1

MAP NO 15D

The work was performed on behalf of the Mosquito Creek Gold Mining Company Limited (N.P.L.) with an office on the 9th floor, 475 Howe Street, Vancouver 1, B.C.

B-3 General Setting

The Mosquito Creek property is situated within the Quesnel Highland physiographic subdivision of the Interior Plateau system of British Columbia. It is a fairly gently rolling upland surface, locally ranging from just below 4,000 feet above sea level to just over 6,000 feet. The major valleys are reasonably broad and U shaped, but tributary stream valleys are often rugged and deeply incised. Mosquito and Red Gulch Creeks are easterly flowing tributaries of the Willow River, and are situated on the northeast flank of Island Mountain. The mountainside is fairly gentle, rising about 1,000 feet within one mile.

Outcrops within the survey area are extremely rare, but a number of trenches to bedrock, excavated several years ago, were used for previous geological mapping purposes, and the Island Mountain Mine has underground workings close by. Thus, the general geology is reasonably well known. The area is underlain by sedimentary rocks of the Baker and Rainbow members of the Cariboo Series. The Baker is made up of argillites, quartzites and limestones whose beds are variable lithologically, and pinch and swell considerably within short distances. The Rainbow is characterized by bands of dark grey to black quartzite separated by thin argillaceous partings. The Baker contains only limited numbers of thin dark argillaceous bands and thus light colours predominate. The Baker lies above the Rainbow, and both strike in a general northwest direction, and dip northeast at moderate angles. Both members are highly folded and faulted.

The geophysical work was designed to locate replacement gold bearing sulphide bodies (Mantas or Pipes) lying within limestone pods. At the Island Mountain Mine these ore shoots are reported as having cross sectional areas in the order of 100 square feet, and extended down plunge for a distance of 1,000 feet or so. Thus, detection by geophysical induced polarization techniques is certainly feasible if "a" spacing is sufficiently small. However, a small "a" separation limits the depth of exploration, and as a compromise, an "a" spacing of 150 feet was employed in reconnaissance work, (electrode separation therefore of 3 x "a" or 450 feet, since a Wenner array was deployed).

PART C: PROCEDURES

C-1 Linecutting

Linecutting was conducted by the D. R. Cochrane field crew, and consisted of some 29 parallel cross lines spaced 150 feet apart, and extending 1,500 feet on each side of a central base line. The base line was turned off by Brunton Compass, and runs at azimuth 300 degrees (true) through the showing area, and is nearly parallel to the Seattle-Port Hope common claim boundary (and approximately 500 feet north-northeast of the claim line). Cross lines extend to 27 + 00 north (actually northwest) and to 15 + 00 south. Alternate cross lines are cut, blazed picketed and chained, with stations (flags) at 150 foot intervals, and adjacent lines were flagged and chained during survey operation, with the front electrode man maintaining direction with a compass. Stations north-northeast of the base line are marked "north" in 100s of feet units (i.e. 1.5N; 3.0N: 4.5N, etc.) Stations south-southwest of the base line are marked "south" in similar units with the base line as zero. Just over 16 line miles of ground control grid was layed out, flagged, and chained.

C-2 Reconnaissance Induced Polarization Procedure

A standard Wenner array was deployed, and in this method current electrodes are placed outside the receiving pots and at a total distance of 3 "a" spacings from each other. The two receiving pots are placed one "a" from the front electrode, and one "a" from the rear electrode and are themselves one "a" apart. The "a" spacing for reconnaissance work was set at 150 feet, and for detailed work at 75 feet. The front electrode position is electrically positive and the rear electrode negative. The transit interval was equal to the "a" spacing in each case.

At the start of each days survey, the electrode men and rear pot man (front pot man is also instrument operator) moved to their appropriate positions on the lines. The pot men cleared a strip of ground and seated the pots and the electrode men excavated a shallow depression, spread out a sheet of aluminum foil and buried the foil. Salt water was poured on the foil to assure good contact.

Communications with the instrument operator was facilitated by small tranceivers and when all positions were reported read, the operator commenced measurement. First the self potential between the two receiving pots was bucked out and the value (in millivolts) recorded. A four second pulse was then initiated during which the transmitter current (I in milliamperes) and impressed EMF between the receiving pots (dV in millivolts) was recorded. On cessation of the square wave current pulse, an integrated value of the residual decay voltage is automatically registered on the receiver galvanometer. This value was recorded (IP in millivolts) along with the position of the instrument, RC filter, integration function setting, output voltage of the transmitter, notes on the terrain, steadiness of SP, and sharpness of IP response. Normally integration function one was used, and on this setting the decay voltage is integrated for 0.8 seconds commencing 0.3 seconds after current pulse termination. Often an 8 second current pulse was used in various combinations of filters and integration times to assist in the interpretation of the results.

After completion of several pulse cycles the order was then given to move an "a" distance to the next set up position where the procedure was repeated.

C-3 Detailing

Detailed induced polarization work was conducted in two areas: (a) over the showing, where six cross lines were run with an "a" spacing of 75 feet, and one depth probe was completed on the showing itself, and (b) in and around line 13.5 west close to the base line where four lines were run at a = 75 feet.

In addition, the base line was surveyed by gradient self potential so that an iso-potential surface could be prepared.

The depth probe over the showing was completed by using three receiving pots, one central stationary pot at 0 + 15W; 0 + 40S, (designated P_o) and two receiving pots at ½ "a" from the central pot. This array, which was layed out parallel to line 0 (the test line), was expanded from a = 10', to a = 25'; 50'; 75' and 200 feet.

C-4 Data Processing

Chargeability values were normalized and apparent resistivities were calculated in the field at the end of each days work. Calculations were completed by slide rule. After the field work was completed, these calculations were checked in the office by keying the data into a Diehl Programmable Calculator, and it is on the basis of the later data processing that the final maps were produced.

In addition, the data from lines 12 West, 0, and 12 East were punched on paper tape, and standard statistical programs, prepared by D. R. Cochrane personnel, were applied to aid in the interpretation of data. The programs calculated the arithmetic mean, standard deviation, coefficient of correlation and prepared frequency histograms of the self potential, apparent resistivity and chargeability information.

Since gradient self potential survey was completed on the base line, it was possible to further process the self potential survey data. Each line was normalized by:

(a) correction of the signs so that the positive pole was north;

(b) algebraically adding the gradient information along each line;

(c) adjusting the lines by adding or subtracting the base line value so that each line has a common base.

Thus, each plotted self potential value is relative to an arbitrary 'zero' located on the base line at 10.5 west.

PART D: DISCUSSION OF RESULTS

D-1 Reconnaissance Self Potential

The reconnaissance self potential "Equipotential Plan" accompanies this report as Figure 3. Plotted values are in millivolts, and are relative to an arbitrary "zero" located at 10.5 west on the base line.

Response ranged from a high of +130 to a low of -871 millivolts, a total range in potential of just over one volt. This very large change in the self potential measurements is quite rare. Normally, S.P. "anomalies" are in the order of a hundred millivolts or so. The equipotential surface (Figure 3) may be divided into two sections, each section characterized by quite different features. The area south and east of the base line is almost entirely negative and contains large zones of less than -200 m.v. response. These S.P. "anomalies" are predominantly northwest trending, and are parallel to the lithologic trend. The survey area in and around the base line, and north of it, is a relatively flat equipotential surface with positive values predominating in the northwest survey quadrant. Isopotential trends are not as obvious, and response ranges from -164 to +130 millivolts.

The area in and around the "showing" (close to 0 + 00 on the base line) is not particularly anomalous or unusual.

This may be explained by the fact that the S.P. survey interval was 150 feet, rather large in relation to the width of the showing. It was observed during depth probe work on the showing itself, that anomalous S.P. readings were not encountered at large electrode spacings. The following table illustrates this feature. (Note P_0 receiving electrode was positioned on the sulphide "showing" itself, P_1 receiving electrode was south, and P_2 was north (down Mosquito Creek) from P_0. (Values are in millivolts)

"a" spacing	S.P. (P_1-P_2)	S.P. (P_0- P_1)	S.P.(P_0-P_2)
200 feet	+ 19	- 30	+ 46
100 feet	- 27	- 32	+ 15
75 feet	-156	- 29	-134
50 feet	0	- 28	+ 31
10 feet	-150	+100	-300

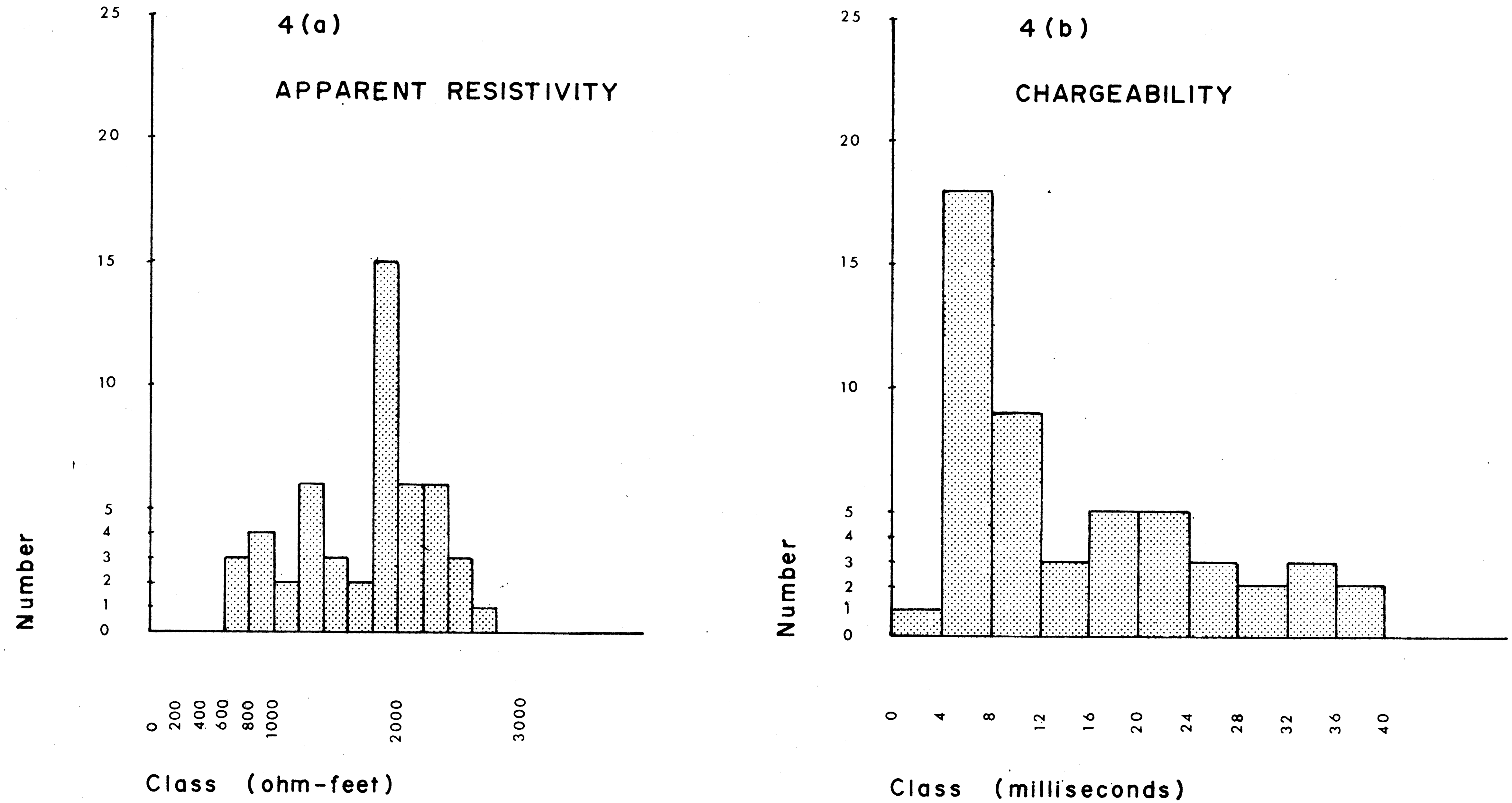
Thus, it is indicated that if a self potential survey alone is employed in the detection of these bodies, the measuring interval should be quite small.

A rather unusual feature is noticeable north of the showing, where values on line 1.5 west are positive in potential, and values on line 0 + 00 are negative. This results in long, north directed equipotential trends that at first appear to be survey line bias. However, the cross lithologic equipotential trend may be due to two physical features; (a) Mosquito Creek, along which line 0 runs, whereas line 1.5 west is predominantly on the west bank of the stream; (b) the presence of the Mosquito Creek Fault. (Note-Geophysical evidence for the presence of a fault along Mosquito Creek is discussed in a later section). Equipotential self potential bias was not observed along Red Gulch possibly because the vast majority of the water is tapped off into the pipeline, thereby leaving Red Gulch dry.

The widespread and highly anomalous negatives situated south of the base line are believed to be caused by the presence of graphite (or carbonaceous material) within the Rainbow member. Graphite is highly reducing, and when interfaced with a "clean" lithologic unit produces a half cell reaction necessary for the production of large natural earth currents. Sato and Mooney (Electrochemical Mechanisms of Sulphide Self Potentials, Geophysics Vol. 25, pp. 226-249, 1960) reported the maximum potentials are: graphite, 780 m.v.; pyrite 730 m.v.; and galena, 330 m.v. Thus, the large negative self potential anomalies are believed to coincide with graphite bands.

D-2 Reconnaissance Apparent Resistivity

The reconnaissance apparent resistivity results accompany this report as Figure No. 5 (map pocket). A frequency histogram of a sample of the results is designated Figure 4 (a) and was constructed from a total of 51 values. Apparent resistivity response ranged from a high of 13,060 to a low of 300 ohm-feet. The arithmetic mean is 1735 and standard deviation 508 ohm-feet. The frequency histogram is multimodal, and positively skewed. The primary mode lies in the 1,800 to 2,000 ohm-feet range, and encompasses 30 percent of the sample population. A secondary mode lies in the 1,200 to 1,400 ohm-feet range and encompasses 12 percent of the sample population. The frequency distribution diagram shows that at least two "families" are present, and are believed to represent the two bedrock units. The Rainbow member family is characterized by low apparent resistivity with a mode in the 800 to 1,000 range and another in the 1,200 to 1,400 foot range. The average probably lies somewhere between the two modes. The upper limit of this apparent resistivity family is assumed to be close to 1,600 ohm-feet. (i.e., the majority of that survey area characterized by less than 1,600 ohm-feet is probably underlain by Rainbow rocks, although some overlap is bound to occur). The second resistivity family is the Baker which contains response up to 3,000 ohm-feet, and has a very prominent mode in



D. R. COCHRANE
PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA

Figure 4(a) & 4(b)

FREQUENCY HISTOGRAMS

the 1,800 to 2,000 ohm-foot range. The lower boundary of this family is believed to lie close to 1,600 ohm-feet. The division between these two resistivity families is readily apparent in Figure 5. The survey area south of the base line is a low response zone, whereas that north of the baseline is relatively high. The chargeability and apparent resistivity data at and near the actual Rainbow-Baker contact will be slightly blurred since the contact is only gently to moderately dipping. Thus, at the reconnaissance exploration depth (approximately 150 feet) at no time will one receiving pot be entirely within Baker and one in Rainbow rock receiving zone. Even at some distance from the contact, say on the Baker side, information (at depth) will be recorded from the Rainbow. However, the contact is presumed to lie close to the 1,600 ohm-foot contour, and/or along a steep gradient apparent resistivity change. The iso-apparent resistivity trends featured in Figure 5, are not particularly lithologically biased, and presumably so because of the influence of the variation in depth of overburden and subsurface moisture which are especially effective at relatively small "a" spacings.

The replacement bodies, the targets of the survey, are presumably often situated in Baker limestone bands, which, the author understands, are quite variable in thickness and discontinuous along strike. This type of body would be manifested by relatively high apparent resistivities, whose iso-resistivity outlines are parallel to the lithologic trend, narrow, and "patchy". An example of such an apparent resistivity feature is centered at the base line on line 1.5 east. A resistivity peak of 3,150 ohm-feet at this point is surrounded by values in the 2,200 to 2,400 ohm-feet range. A similar feature is noticeable at 4 south of line 13.5 west. In this area, an isolated 5,800 ohm-foot peak is observable. A similar apparent resistivity high was located at 2.25 north on line 27 west.

Several major discontinuities occur in the resistivity data and are possibly due to the presence of major faults. One such disruption of the data occurs along a line subparallel to Mosquito Creek. A similar feature trends northerly from 13.5 south; 13.5 west, to 22.5 west on the base line. A third resistivity linear impinges from the east onto the survey area, and cuts the base line at an oblique angle near 4.5 east. The apparent resistivity linears are coincident with changes in the direction of self potential and chargeability trends.

D-3 Reconnaissance Chargeability

The chargeability data at a = 150 feet is presented in plan view as Figure 6. A frequency histogram of a sample of 51 values is designated Figure 4(b).

Chargeability results ranged from a minimum of 3.2 to a high of 86.7 miiliseconds. The sample mean is 14.9 and standard deviation 9.8 milliseconds. The frequency histogram is multimodal and positively skewed. A primary mode lies in the 4 to 8 millisecond class and represents 35 percent of the sample population. A secondary mode lies in the 16 to 20 and 20 to 24 millisecond classes.

As with the apparent resistivity data, at least two families of chargeability results are represented. The"Baker" family is characterized by relatively low chargeability response and primarily in the 4 to 12 millisecond range. The "Rainbow"chargeability family is characterized by relatively high chargeabilities often in excess of 20 milliseconds. The boundary between the two families is a rather broad zone in the 12 to 20 millisecond zone.

As with the apparent resistivity results, the chargeability families are believed to represent different geophysical responses to different lithologic units. The increase in chargeability background in the Rainbow member is presumably due to graphite and other carbonaceous materials.

The identification of a sulphide replacement body, on the basis of chargeability alone is rather difficult, because of the bast difference in chargeability backgrounds. As may be observed in Figure 6, the "showing" is not featured as a distinct, discrete chargeability peak, but rather as a higher chargeability "lobe" protruding north into the low chargeability response Baker rocks. Similar features occur south of the base line on lines 13.5 east, 10.5 east and near the base line on line 13.5 west.

A rather unusual feature occurs in the extreme northwest survey quadrant. Two areas of above 20 millisecond response are present, but presumably lie within Baker rocks. The southernmost moderately high zone, just north of Red Gulch is fairly broad and coincident with moderately high apparent resistivity. The cause of this feature is not known, but is presumably lithologic in nature since it is a rather broad feature. The second plus 20 millisecond area, situated at the north end of lines 25.5 and 27 west coincides with moderately low resistivity and anomalously low self potential response. Thus this area responds geophysically in a manner similar to the response across the Rainbow-Baker contact.

Disruptions in the chargeability data, apparent in Figure 6, occur along similar linears described in the preceding section. As previously mentioned, the discontinuities are presumably due to faulting.

D-4 Correlation of Reconnaissance Geophysical Data

The qualitative correlation of the reconnaissance (a = 150 feet) geophysical data is readily observable when comparing Figures 3 (Self Potential), 5 (Apparent Resistivity) and 6 (Chargeability).

To measure the correlation more accurately, the three sets of data along line 4.5 west were punched onto paper tape and the coefficient of correlation between each "set" was calculated on a standard program prepared by Mr. Scott for the Diehl Programmable Calculator. A coefficient of correlation of 0.0 implies no correlation; that of +1.0 a perfect positive correlation; and that of -1.0 a perfect negative correlation. (i.e., the latter implying as one variable increases in amplitude the other decreases in proportion).

The following table presents the results:

Variables	Coefficient of Correlation
Chargeability-Resistivity	- 0.68
Chargeability-Self Potential	- 0.71
Resistivity-Self Potential	+ 0.49

Thus correlation is extremely good. In any given area, then, if the chargeability increases, apparent resistivity has a strong tendency to decrease, and the self potential to decrease.

In view of the total geophysical response over the showing, the following would constitute an ideal target:

(a) an isolated moderate chargeability high, or a "lobe" of moderate chargeability extending outward into a lower chargeability response zone;

(b) the above coincident with a "patch" of moderately high apparent resistivity,

(c) and possibly coincident with moderate negative self potential response.

D-5 Detailing - 13.5 West

A few readings were taken on lines 14.25, 13.5, 12.0 and 11.25 west close to the base line, with an "a" spacing of 75 feet.

Reconnaissance work showed a lobe of moderately high chargeability coincident with moderately high apparent resistivity in the area. The reconnaissance self potential data shows a small negative (-27 m.v.) at 1.5 south on line 13.5 west.

The results of the detailed work (at "a" = 75') are shown in **Figure** 7. Chargeability peaked at 17.3 between 3 and 4 south on line 13.5 west, and the apparent resistivity is moderately high on the adjacent line to the west. The self potential gradient change was a modest -40 to +13 immediately north of the chargeability peak, and then -51 and -24 immediately to the south. The geophysical data indicates then that this area is an ideal "target".

D-6 Detailing - Showing Area

Detailed geophysical work in and around the showing was conducted by surveying several lines at an "a" spacing of 75 feet,

APPENDIX I

Certificates

Name: COCHRANE, Donald Robert
Education: B.A.Sc. - U. of T.
M.Sc. (Eng.) - Queen's University

Professional Associations: Professional Engineer of B.C., Ontario, and Saskatchewan. Member of C.I.M.M., G.A.C., M.A.C., Geological Eng.

Experience: Engaged in the profession since 1962 while employed with Noranda Exploration Co. Ltd., Quebec Cartier Mines Ltd., and Meridian Exploration Syndicate.

Name: SCOTT, Alan R.

Education: B.Sc. - Geophysics, U.B.C.

Experience: Two summers - crew member and operator with Geo-X Surveys Ltd. Presently employed with D.R. Cochrane - Geophysicist

Professional Associations: Member of S.E.G.

Name: GRIFFITH, David

Education: B.A. (English), Queen's, 1970

Experience: 1 Field Season, general experience in mining exploration.
1 Field Season with D.R. Cochrane - Chief Operator

Name: CHASE, William

Age: 20

Education: Grade 12 Diploma

Experience: Employed since September, 1970 and engaged in EM and IP surveying. Previous experience at the Anvil Mine, Y.T. Summer, 1970.

Name: ESTACAILLE, N.

Age: 24

Education: Grade 12 Diploma

Experience: One-half year exploration experience with Huntec.

Name: ELLIOTT, David
Education: Presently - student B.C.I.T. - Computer Technology
Experience: 2 years - Geology - Geophysics - U.B.C.
5 years - Field Work and Geological Drafting

APPENDIX III

Cost Breakdown

By contract, dated August 27, 1971, between D. R. Cochrane, and Mosquito Creek Gold Mining Company Limited (N.P.L.), for geophysical (I.P.) surveys on claims in the Wells area, Cariboo M.D., B.C.;

(a)	Reconnaissance Surveying: 16.7 line miles @ $425.00/line mile	$ 7,097.50
(b)	Detailing:	
	Sept. 16, ½ day	
	Sept. 17, 1 day	
	Sept. 18, 1 day	
	Sept. 19, ½ day	
	Sept. 20, ½ day	
	Sept. 26, ½ day	
	Total 4 days @ $355.00	1,420.00
	Total	$ 8,517.50

D. R. Cochrane, P.Eng.

APPENDIX IV (a)

Instrument Specifications - IP

Transmitter Unit

Current pulse period (D.C. Pulse) Manual initiated timer	1 - 10 seconds
Current measuring ranges	0 - 500 0 - 1000 milliamperes 0 - 5000
Internal voltage converter 27 volt D.C. 350 watt output with belt pack batteries	250 500 volts D.C. 1000 Nominal

500 watts using 27 volt aircraft batteries

Transmitter can switch up to 3 amps at 1000 volts from generator or battery supply with resistive load. The switching is done internally in the transmitter unit. Remote control output can switch up to 10 kilowatts of power by using a separate control unit. A remote control cord is supplied with auxiliary equipment.

Receiver Unit

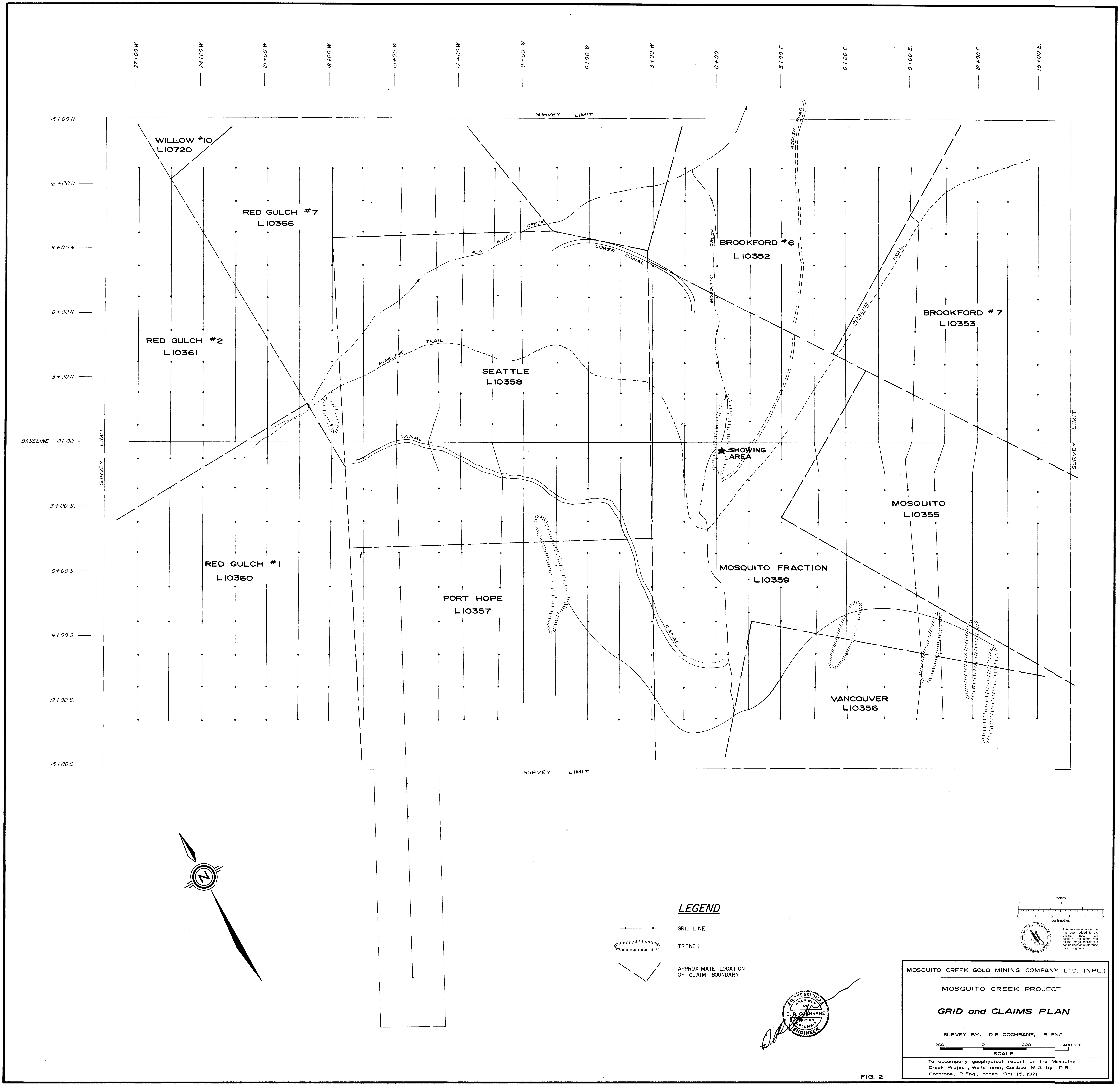
Self Potential Range	0 - 1000 millivolts 1 millivolt resolution
Integration time periods	.8 seconds 1.6 seconds
Tandem Integration time periods	1.6 seconds 3.2 seconds
Input filtering	3 ranges plus 4 integration combinations
Delay time from cessation of current pulse	.3 seconds

(Combined Photo Electric Coupled Receiver and Transmitter)

Operation Temperature	.25°F - 120°F

POWER SUPPLY

Receiver Unit	4 Eveready E136 Mercury Batteries 2 Eveready E134 " " 2 Eveready E401 " "
Transmitter Unit (recon. mode)	Sealed Rechargeable 8 amp. hr. belt pack capable of driving the converter at 350 watts for a minimum of one day's operation before recharge.
Transmitter Unit (med. power mode)	Aircraft 11 amp. hr. Battery
Battery Charger	Custom Automatic cutoff for charging sealed batteries.



27+00 W
24+00 W
21+00 W
18+00 W
15+00 W
12+00 W
9+00 W
6+00 W
3+00 W
0+00
3+00 E
6+00 E
9+00 E
12+00 E
15+00 E
15+00 N
12+00 N
9+00 N.
6+00 N.
3+00 N.
BASELINE 0+00
3+00 S.
6+00 S.
9+00 S.
12+00 S.
15+00 S.
SURVEY LIMIT
SURVEY LIMIT
SURVEY LIMIT
SURVEY LIMIT
WILLOW #10
L 10720
RED GULCH #7
L 10366
RED GULCH #2
L 10361
SEATTLE
L 10358
BROOKFORD #6
L 10352
BROOKFORD #7
L 10353
RED GULCH #1
L 10360
PORT HOPE
L 10357
MOSQUITO FRACTION
L 10359
MOSQUITO
L 10355
VANCOUVER
L 10356
RED GULCH CREEK
LOWER CANAL
MOSQUITO CREEK
ACCESS ROAD
PIPELINE TRAIL
PIPELINE TRAIL
CANAL
CANAL
SHOWING AREA
N
LEGEND
GRID LINE
TRENCH
APPROXIMATE LOCATION OF CLAIM BOUNDARY
inches
0
1
2
0
1
2
3
4
5
centimetres
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PROVINCE OF BRITISH COLUMBIA
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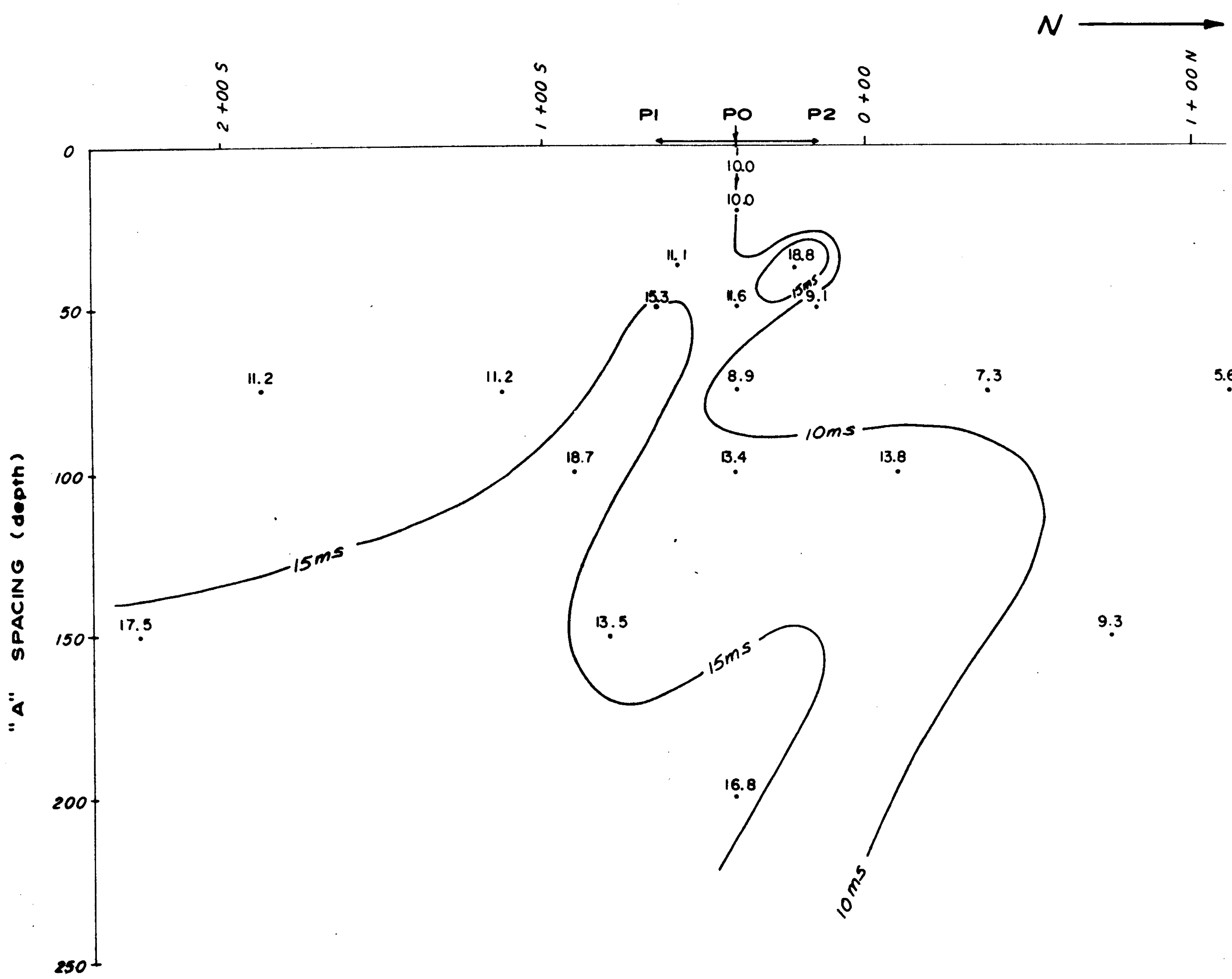
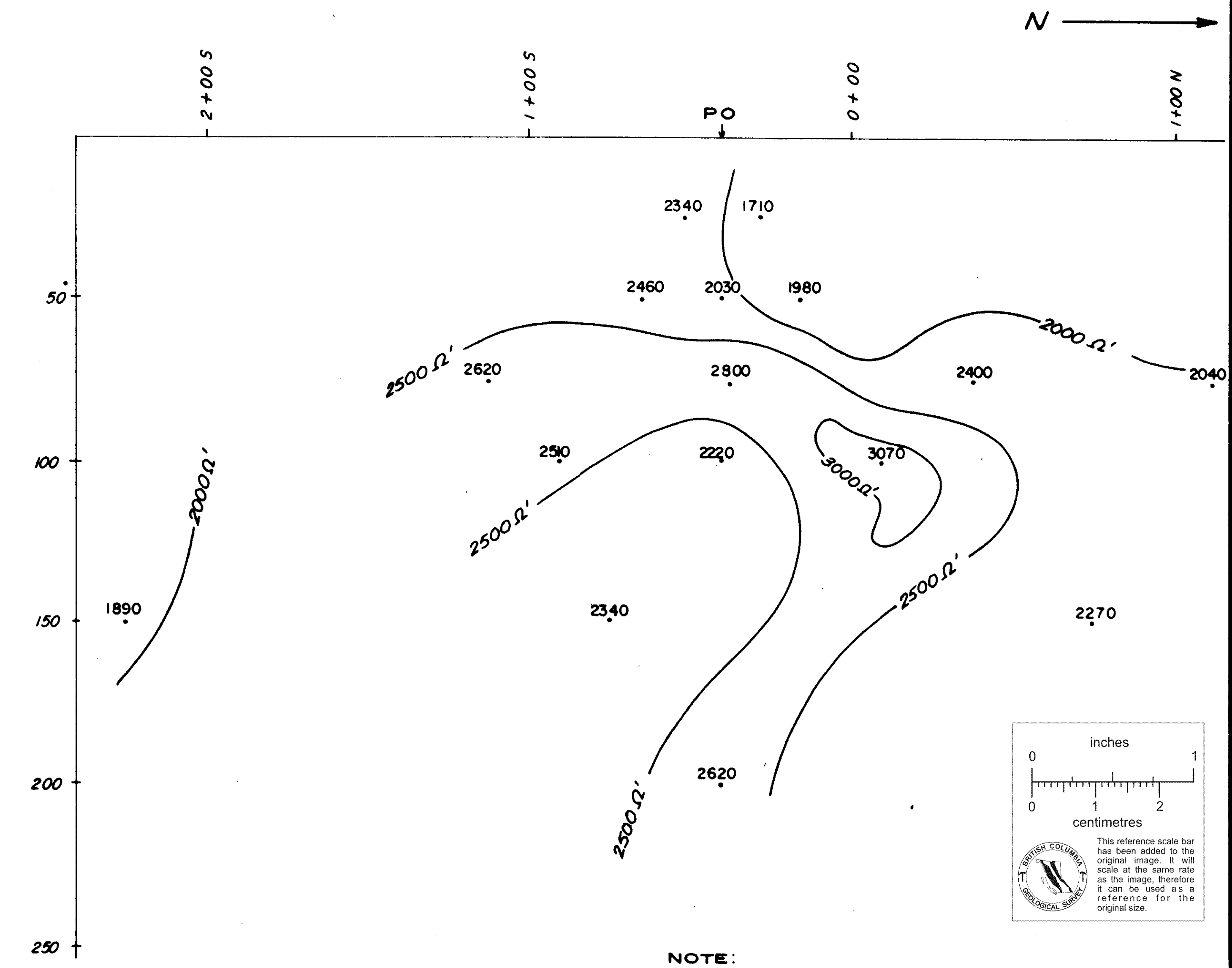
MOSQUITO CREEK PROJECT
GRID and CLAIMS PLAN
SURVEY BY: D.R. COCHRANE, P. ENG.
200
0
200
400 FT
SCALE
To accompany geophysical report on the Mosquito Creek Project, Wells area, Cariboo M.D. by D.R. Cochrane, P. Eng., dated Oct. 15, 1971.

FIG. 2

CHARGEABILITY PROFILE
SHOWING AREA



APPARENT RESISTIVITY PROFILE
SHOWING AREA



NOTE:

Position Po at 0+40, 0+10 S of 0+00 on line O

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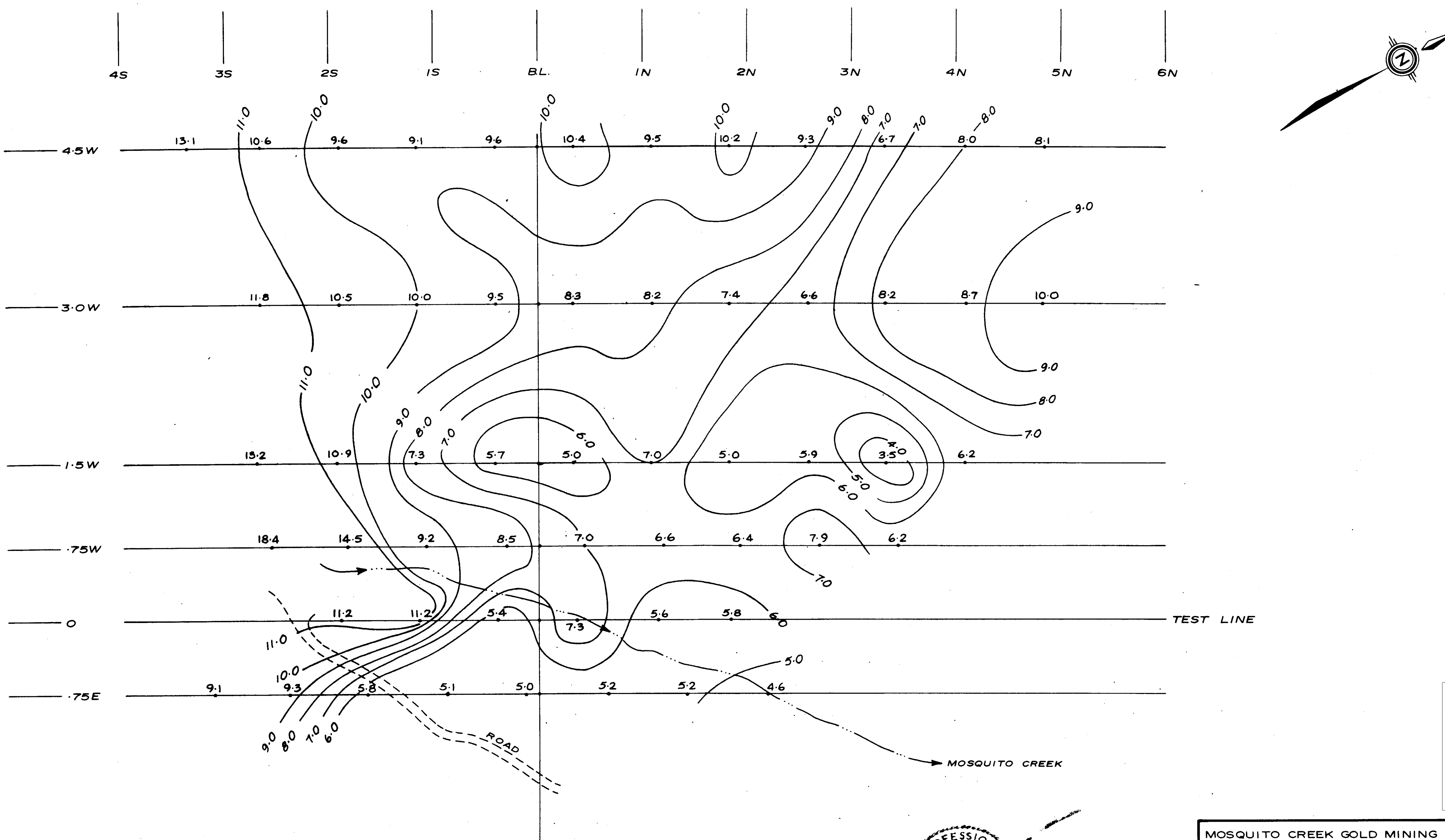
MOSQUITO CREEK PROJECT
DEPTH PROBE SHOWING AREA
SURVEY BY: D. R. COCHRANE, P. ENG FT. 25 0 50 100 FT SCALE
FIG. 13



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MOSQUITO CREEK PROJECT

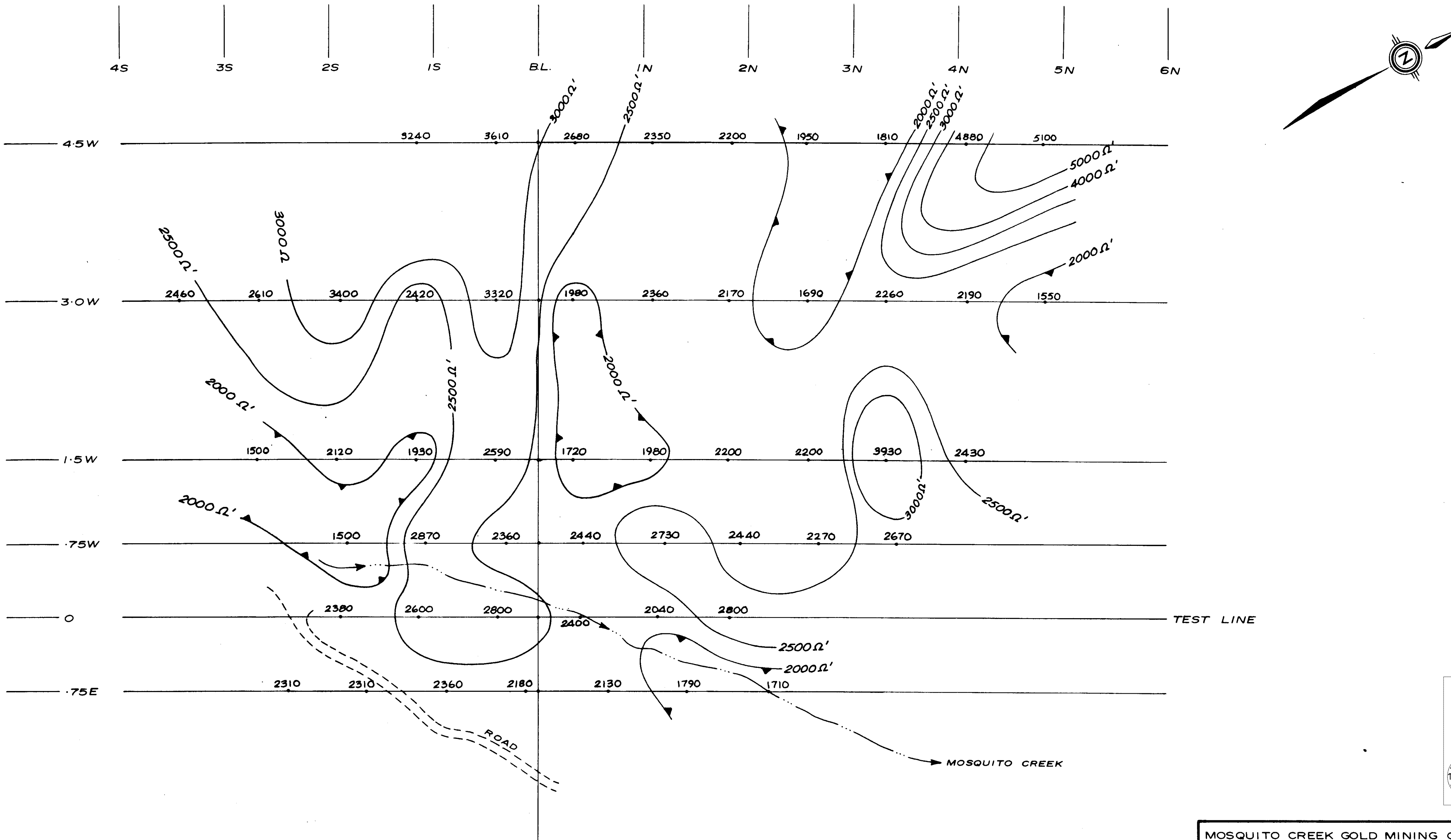
CHARGEABILITY DETAIL SHOWING AREA

MILLISECONDS (ms); a = 75'

SURVEY BY: D. R. COCHRANE, P. ENG.

50 0 100 200 FT
SCALE

FIG. 12



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MOSQUITO CREEK PROJECT

APPARENT RESISTIVITY DETAIL

SHOWING AREA

OHM-FEET (Ω'); a = 75'

SURVEY BY: D. R. COCHRANE, P. ENG.

50 0 100 200 FT
SCALE

FIG. 11

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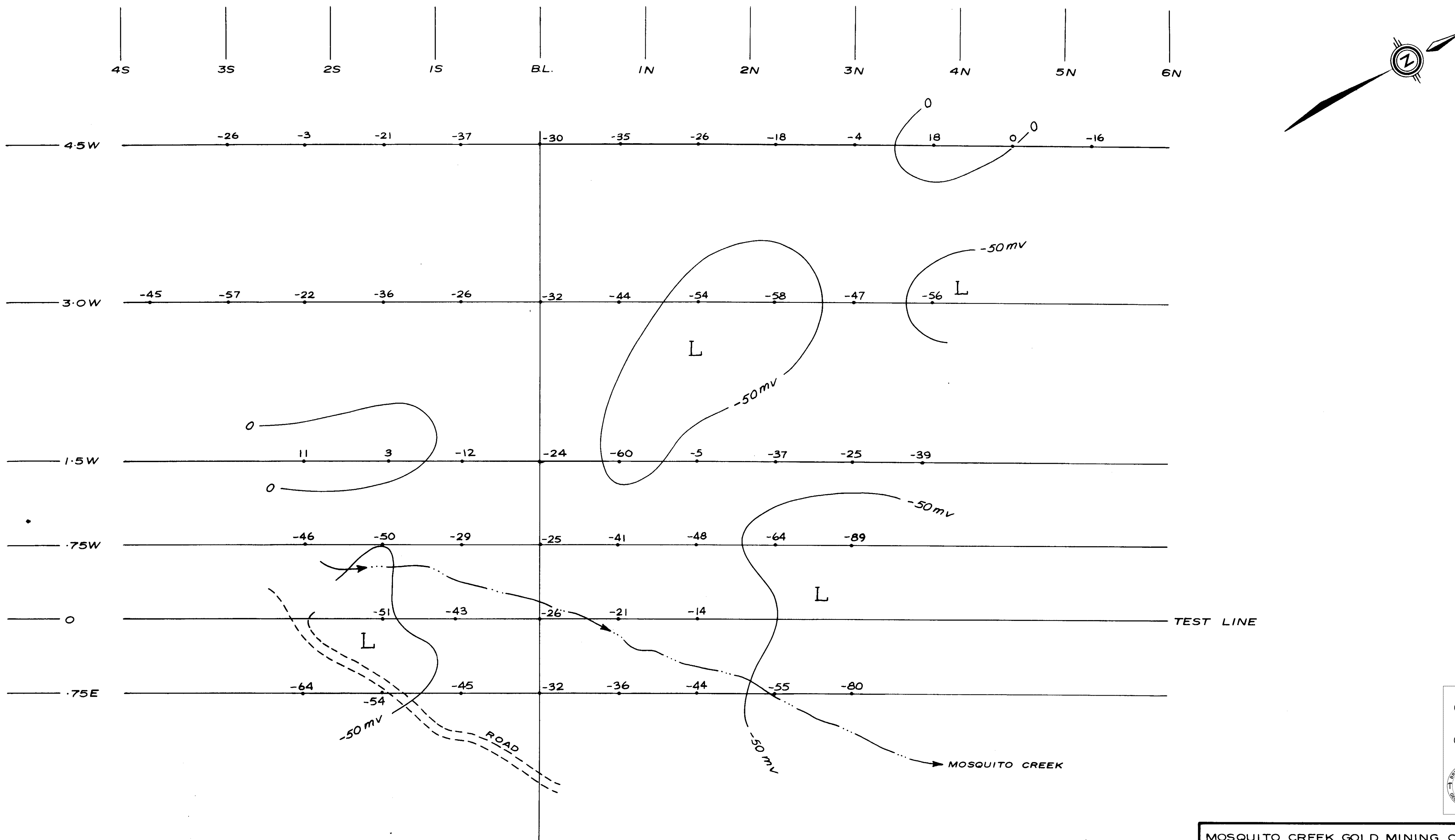

inches
0 1
0 1 2
centimetres

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MOSQUITO CREEK PROJECT

SELF POTENTIAL DETAIL SHOWING AREA

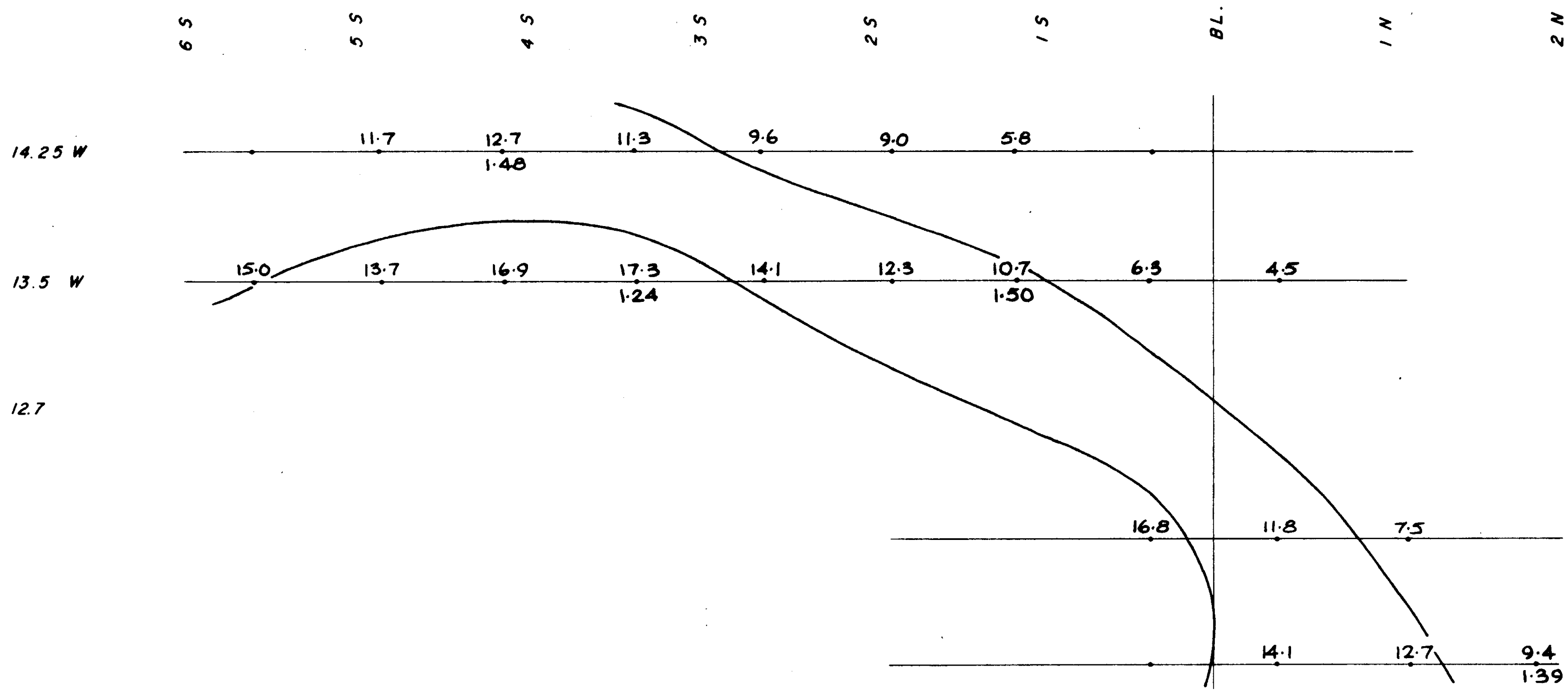
MILLIVOLTS (mv)

SURVEY BY: D. R. COCHRANE, P. ENG.

50 0 100 200 FT

SCALE

FIG. 10



inches 0 1
centimetres 0 1 2

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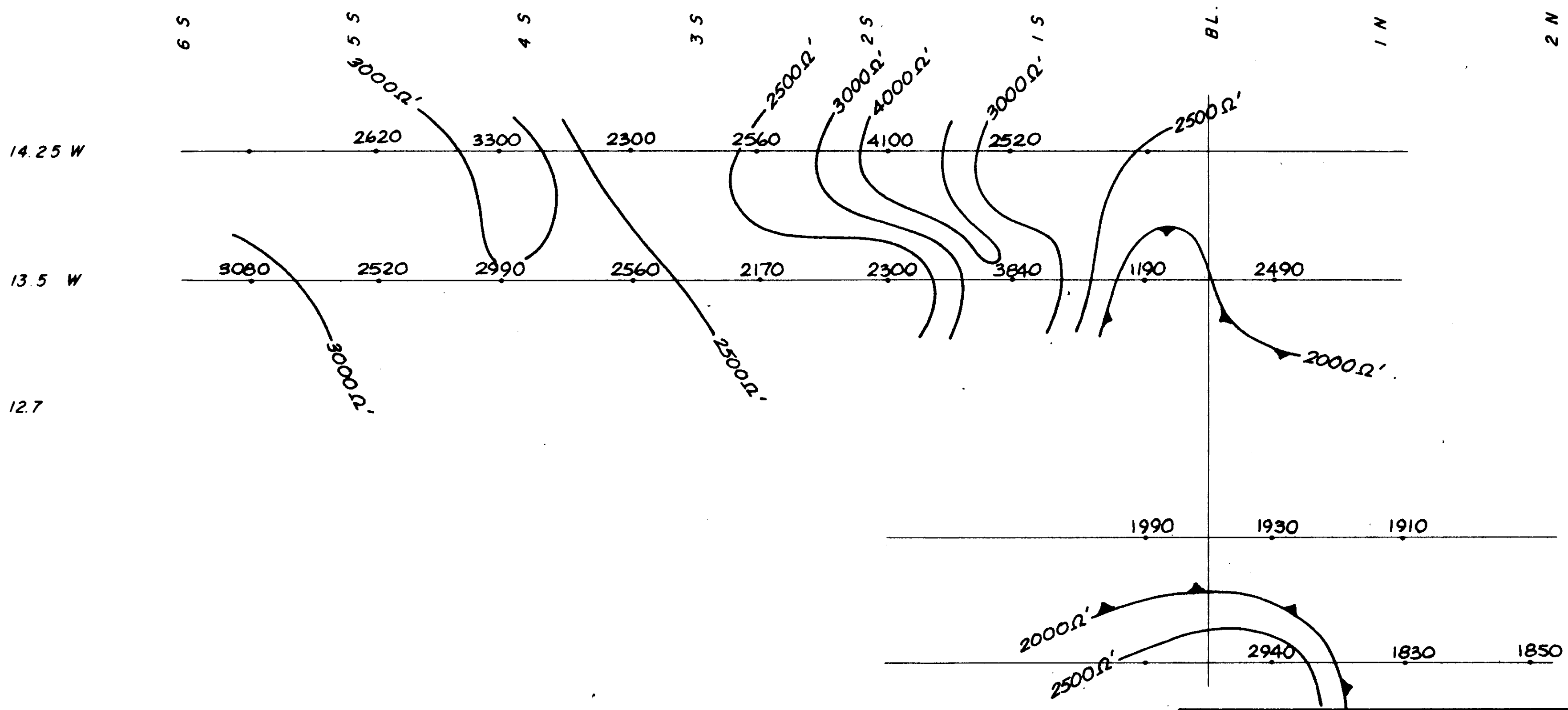
CHARGEABILITY DETAIL
13·5 W

ABOVE LINE – MILLISECONDS
BELOW LINE 8/4 SEC. RATIOS
a = 75'

SURVEY BY: D. R. COCHRANE, P. ENG.

FT. 50 0 100 200 FT.
SCALE

FIG. 9



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APPARENT RESISTIVITY DETAIL

13·5 W

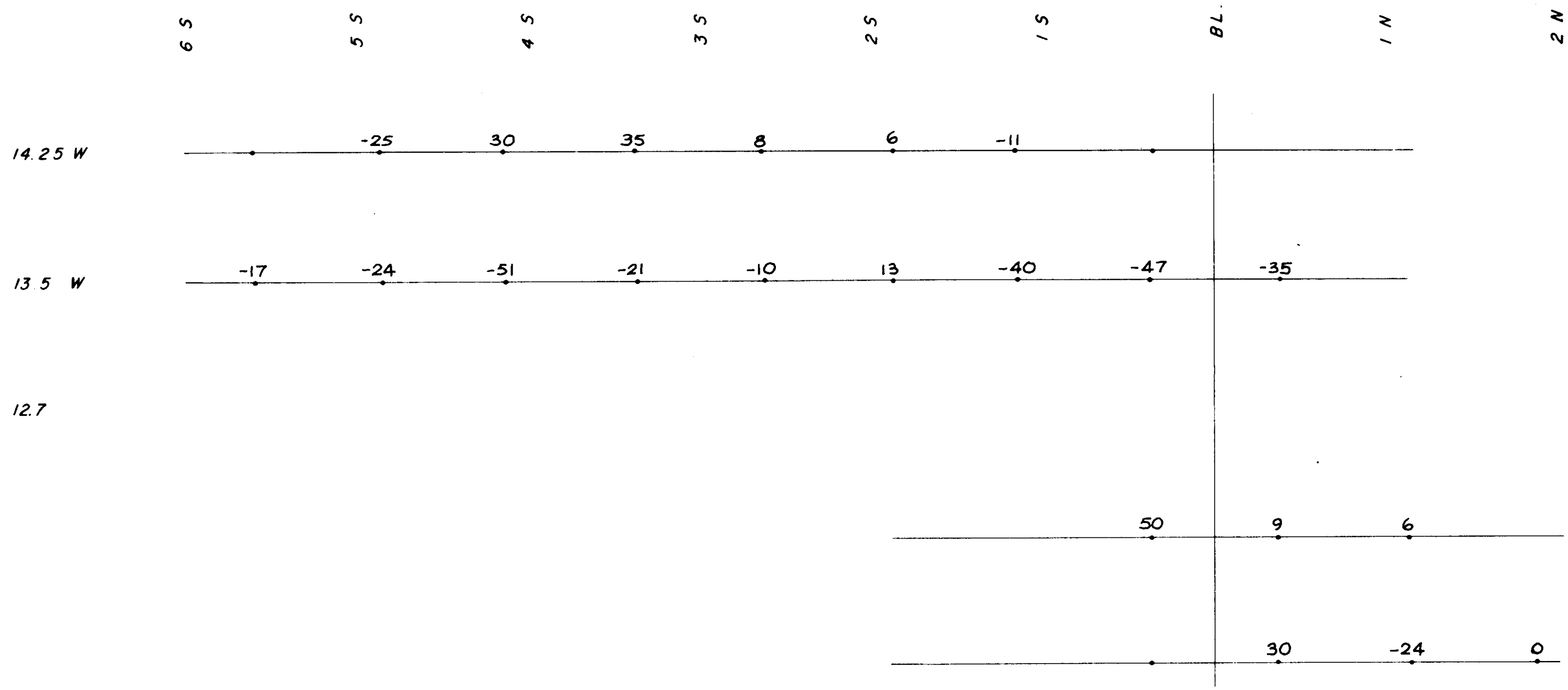
OHM-FEET (Ω'); a = 75'

SURVEY BY: D. R. COCHRANE, P. ENG.

FT. 50 0 100 200 FT.

SCALE

FIG. 8



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MOSQUITO CREEK PROJECT

SELF POTENTIAL DETAIL
13·5 W

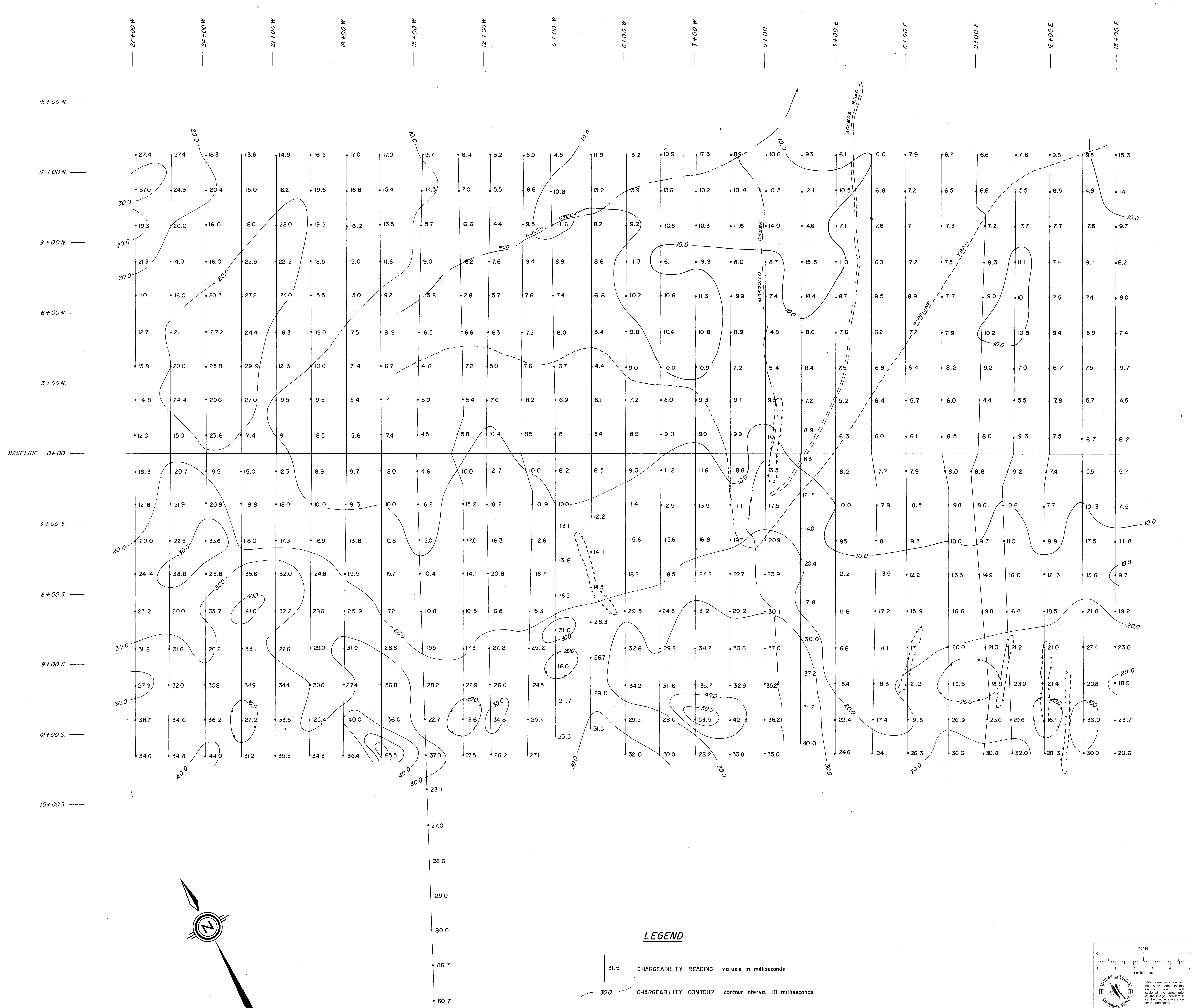
MILLIVOLTS (mv); a = 75'

SURVEY BY: D. R. COCHRANE, P. ENG.

FT. 50 0 100 200 FT.

SCALE

FIG. 7



LEGEND

- 31.5 CHARGEABILITY READING – values in milliseconds
- 30.0 CHARGEABILITY CONTOUR – contour interval 10 milliseconds.
- TRENCH
- ROAD
- PIPELINE TRAIL
- CREEK

MOSQUITO CREEK GOLD MINING COMPANY LTD. (N.P.L.)

MOSQUITO CREEK PROJECT

CHARGEABILITY PLAN

SURVEY BY: D.R. COCHRANE, P. ENG.

SCALE

FEET 200 0 200 400 FEET

To accompany report by D.R. Cochrane, P. Eng. on the Mosquito Creek Project dated Sept 30/71 at Delta, B.C.

FIG. 6

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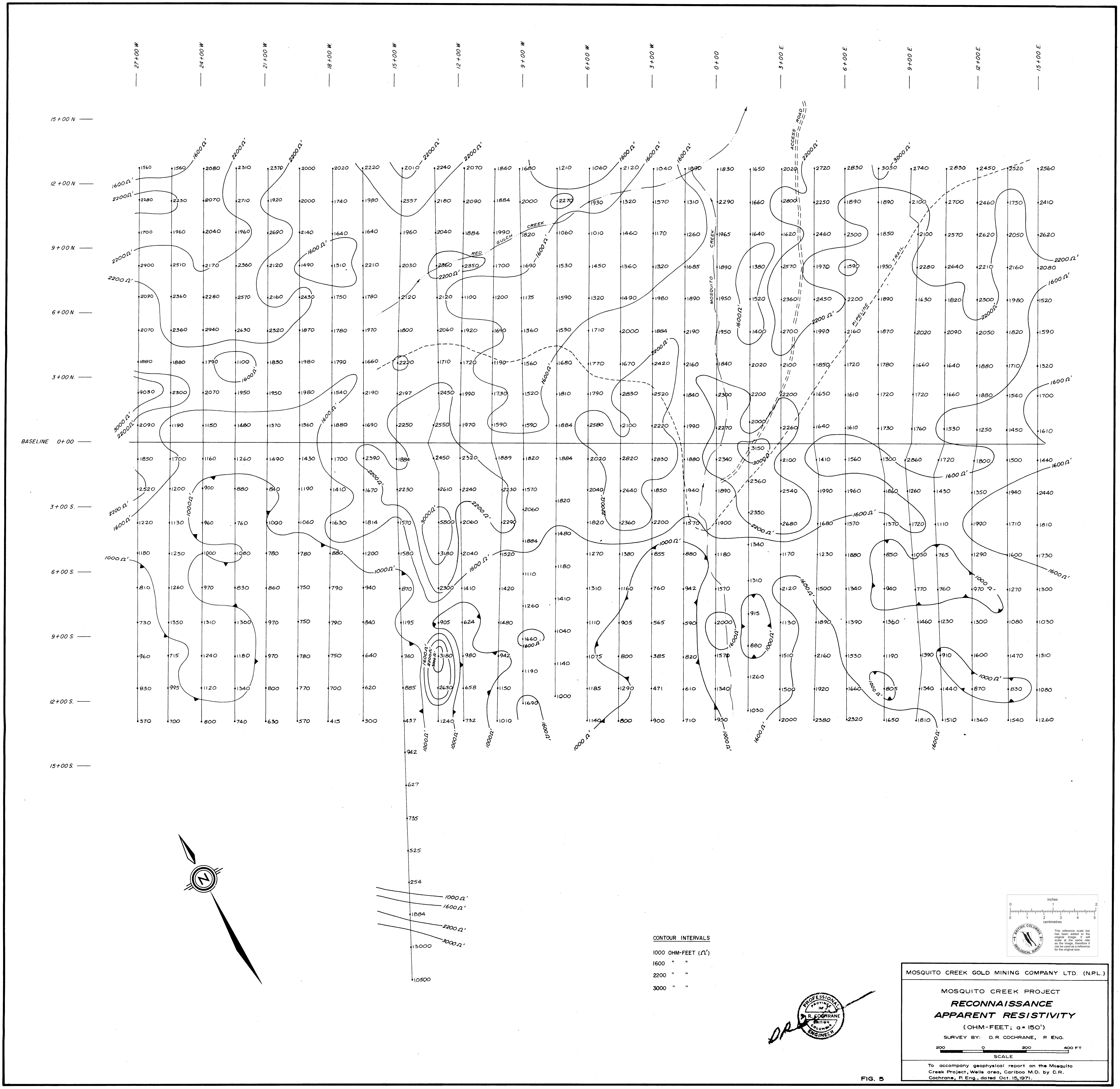

MOSQUITO CREEK GOLD MINING COMPANY LTD. (N.P.L.)

MOSQUITO CREEK PROJECT

RECONNAISSANCE APPARENT RESISTIVITY

(OHM-FEET; a = 150')

SURVEY BY: D. R. COCHRANE, P. ENG.

200 0 200 400 FT
SCALE

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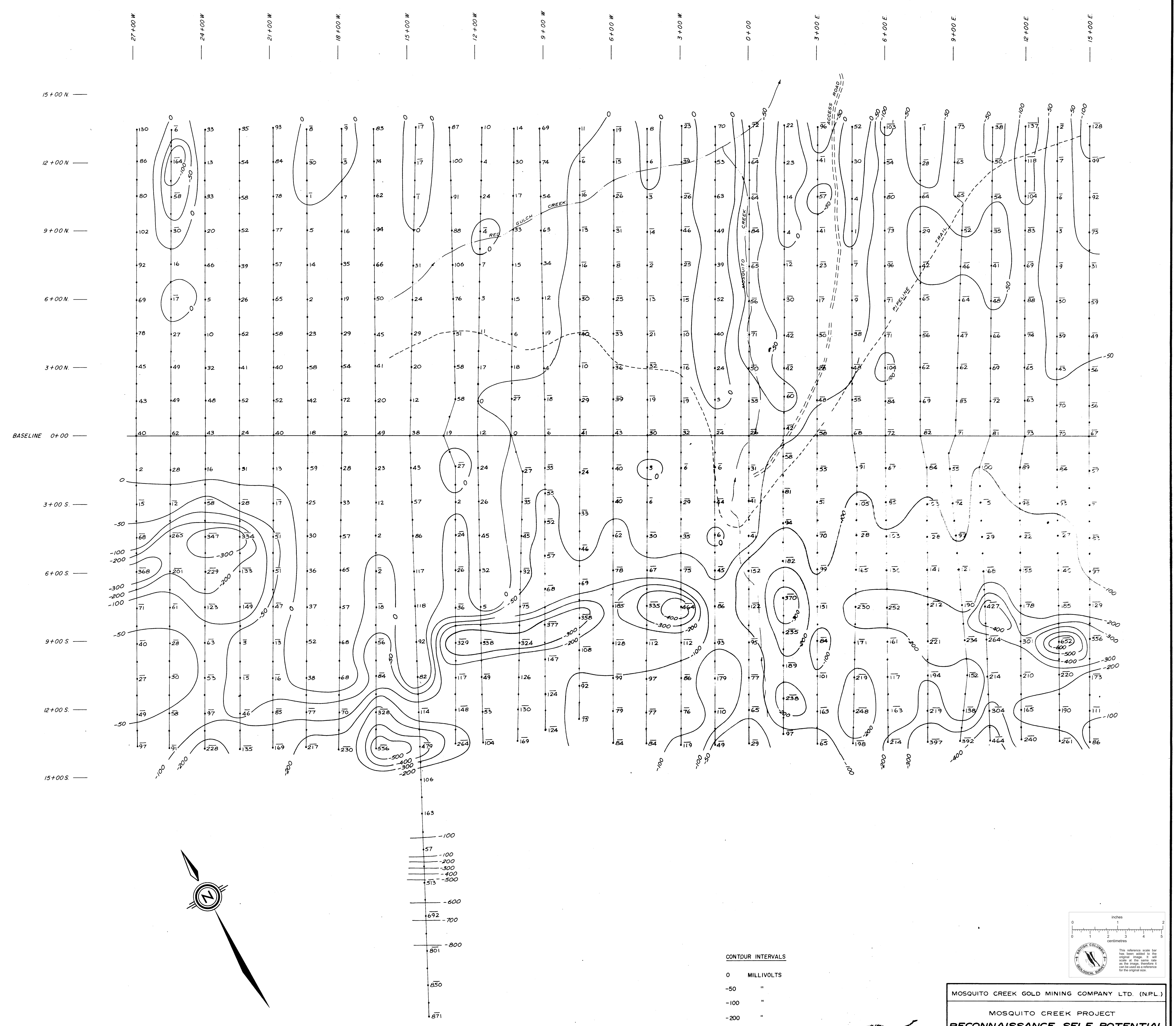

CONTOUR INTERVALS

0	MILLIVOLTS
-50	"
-100	"
-200	"
-300	"
-400	"
-500	"

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. R. COCHRANE

FIG. 3

MOSQUITO CREEK GOLD MINING COMPANY LTD. (N.P.L.)

MOSQUITO CREEK PROJECT

RECONNAISSANCE SELF POTENTIAL EQUIPOTENTIAL PLAN

(MILLIVOLTS)

SURVEY BY: D. R. COCHRANE, P. ENG.

200 0 200 400 FT
SCALE

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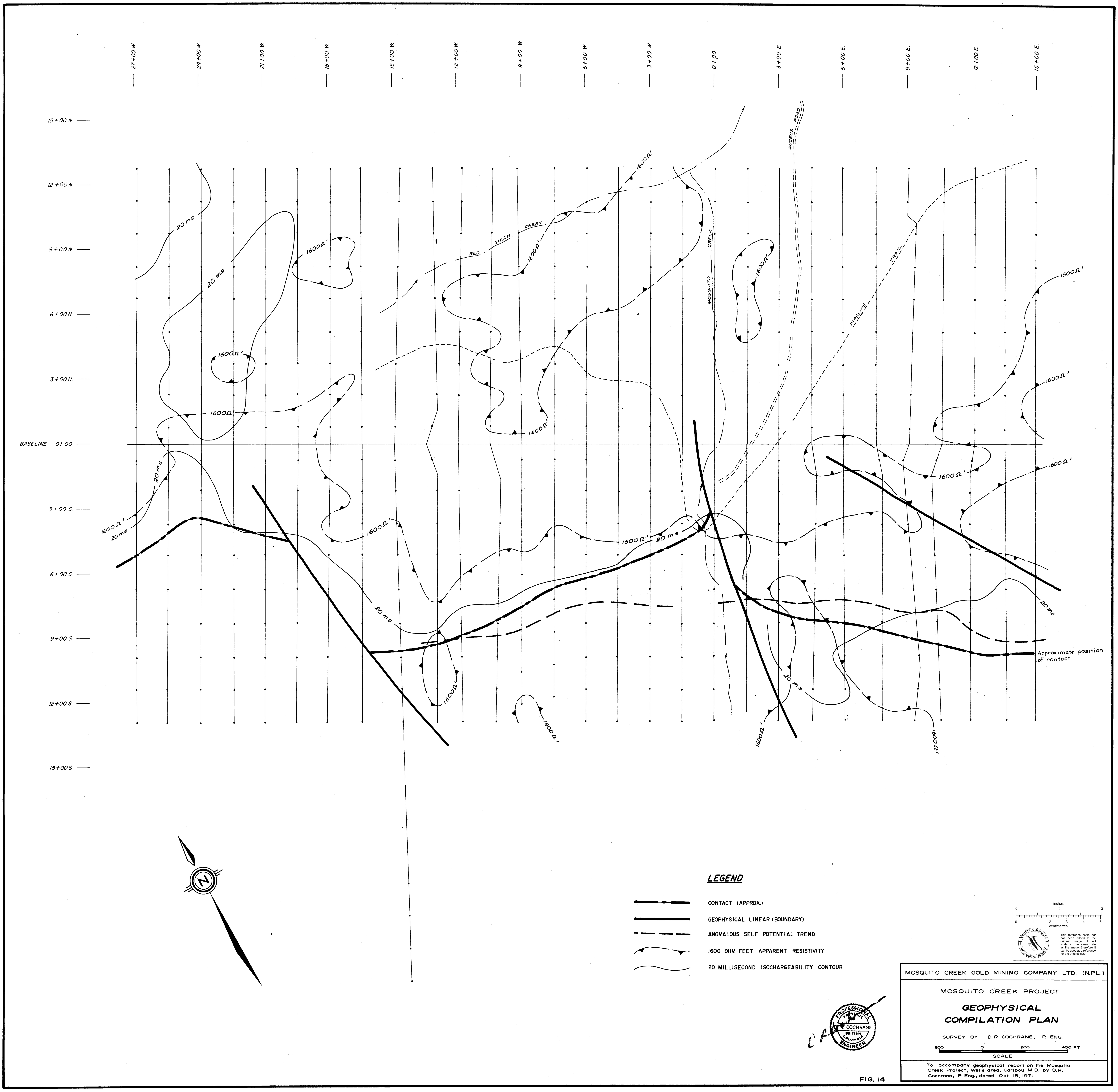

MOSQUITO CREEK GOLD MINING COMPANY LTD. (N.P.L.)

MOSQUITO CREEK PROJECT

GEOPHYSICAL COMPILATION PLAN

SURVEY BY: D.R. COCHRANE, P. ENG.

To accompany geophysical report on the Mosquito Creek Project, Wells area, Cariboo M.D. by D.R. Cochrane, P. Eng., dated Oct. 15, 1971

FIG. 14