BRITISH COLUMBIA

PROSPECTORS ASSISTANCE PROGRAM

MINISTRY OF ENERGY AND MINES

GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:	1996/1997
REPORT #:	PAP 96-6
NAME:	KAREN CAMPBELL

BRITISH COLUMBIA
PROSPECTORS ASSISTANCE PROGRAM
PROSPECTING REPORT FORM (continued)

B. TECHNICAL REPORT

- One technical report to be completed for each project area.
- **Refer to Program Requirements/Regulations, section 15, 16 and 17.**
- If work was performed on claims a copy of the applicable assessment report may be submitted in lieu of the supporting data (*see* section 16) required with this TECHNICAL REPORT.

Name KAREN CAMPBELL Reference Number 96/97 P9

LOCATION/COMMODITIES

Project Area (as listed in Part A) HOLLAND LAKE MINFILE No. if applicable 092B-131

Location of Project Area NTS 092B/13 Lat 48°57'12" Long 123°51'40"

Description of Location and Access LOCATED 2.5 KM S.E. OF LADYSMITH ON VANCOUVER ISLAND. ACCESS IS VIA THE ISLAND HIGHWAY, CHRISTIE ROAD & TIMBERWEST FOREST ROAD - SEE ACCOMPANYING REPORT

Main Commodities Searched For CU, AU, Ag, Mo, Fe, Mn in CHALCOPYRITE, MALACHITE, PYRITE, PYRRHOTITE, MAGNETITE, MOLYBDENITE + MN MINERALS

Known Mineral Occurrences in Project Area BJ - CU SHOWING IS REPORTED TO BE LOCATED IN A QUARRY ON THE PROJECT AREA - SEE ACCOMPANING REPORT

WORK PERFORMED (ALSO SEE REPORT)

1. Conventional Prospecting (area) 8.5 Km²
2. Geological Mapping (hectares/scale) 350 HECTARES - 1:10,000, 1:5,000, 1:500
3. Geochemical (type and no. of samples) STREAM SEDIMENTS/SILT - 29; ROCK (GRAB) - 15
4. Geophysical (type and line km) TOTAL FIELD MAGNETICS - 12.1 km; VLF-EM 12.1 Km
5. Physical Work (type and amount) FLAGGED GRID ESTABLISHMENT - 14.4 Km
6. Drilling (no. holes, size, depth in m, total m) —
7. Other (specify) —

SIGNIFICANT RESULTS

Commodities Ag (0.03 opt) in pyrite (Sample 170897) Claim Name unstaked

Location (show on map) Lat 48°57'16" Long 123°51'15" Elevation 820 m

Best assay/sample type 0.03 opt Ag - 170897 - grab of outcrop, plus 7 stream sediments with anomalous Au, Ag, Cu, Mn, Zn, Ni, Fe, Mo, As, see accompanying report

Description of mineralization, host rocks, anomalies Also see accompanying report - mineralization - 5 To 10% pyrite in a 10m. long and 0.5m wide zone within intermediate gneiss near a contact with rocks of the Ladysmith Pluton & Nitinat Formation volcanics. Anomalies - numerous magnetic highs & lows; 5 VLF-EM anomalous conductive zones across 2 or more lines; and two 1-line conductors representing possible shear zones.

Supporting data must be submitted with this TECHNICAL REPORT

Information on this form is confidential for one year from the date of receipt subject to the provisions of the *Freedom of Information Act.*

B. TECHNICAL REPORT (continued) - Karen Campbell

LOCATION/COMMODITIES

DESCRIPTION OF LOCATION AND ACCESS

The Holland Lake Project covers approximately 9.1 square km. surrounding Holland Lake, 2.5 km. south and east of the town of Ladysmith on Vancouver Island. The project area lies in the northwest corner of NTS Map Sheet 92 B/13. The area is forest covered. Two creeks, the Banon and South Holland, flow north and east across the property. In the central part of the project topographical relief is generally low. In the northeastern corner of the project a east-southeast trending hill exhibits relief of up to 200 meters. The northern extremities of Mount Hall and Coronation Mountain cross the western and southern boundaries.

Access to the project is by truck following Christie Road and the Timberwest Forest Road northwest, south, west-southwest and southeast from the Island Highway. Christie Road turns off of the highway 0.4 km. north of Ladysmith, joining the forestry road 1.5 km. northwest of Ladysmith. The Timberwest Forest Road trends south for 1.5 km., turns to the west-southwest for 7 km. then turns to the south, splitting by Coronation Lake. The northern route is deactivated so the western boundary is reached by taking the southern route for 4 km. This road crosses the southeastern part of the project, turning to the north at the southeast corner of Holland Lake (see Figure 1). The road follows the east and north shorelines (see Figure 2a). Numerous deactivated roads cross the southwestern two-thirds of the project area. Two cabins were found along the creeks.

KNOWN MINERAL OCCURRENCES IN THE PROJECT AREA

The BJ Cu Showing (092B-131) was reported to be exposed in a quarry north of Holland Lake. A 30 to 60 cm wide zone of massive and disseminated pyrite and minor chalcopyrite was supposed to be situated within black amphibolite and migmatite of the Nitinat Formation, in contact with rocks of the Ladysmith Pluton and Mount Hall gabbros. The quarry was found during the prospecting program, 2.5 km. north of the northeast corner of Holland Lake. Detailed prospecting and mapping in and around the quarry failed to find the reported mineralization.

WORK PERFORMED

CONVENTIONAL PROSPECTING

Except for the northern side of the hill trending east-southeast across the northeastern corner of the project, where local vertical relief of over 200 meters across 200 meters horizontally

formed impassable cliffs, the project area was prospected. An area of approximately 8.5 square km was prospected in 35 km. of traverses between June 18 and 26 and between July 24 and 28, 1996. The locations of outcrop, boulders and any mineralization-veining-deformation-alteration were noted and topographical features, lakes, creeks, swamps, cabins, claim posts, roads and trails were mapped. At various locations on the project reference points were marked by flagging. The data collected by the programs of prospecting is shown on Figures 1 (scale 1: 10,000), 2a (scale 1:5,000) and 2b (scale 1:500).

GEOLOGICAL MAPPING

Between Oct. 30 and Nov. 3, 1996, the outcrops and boulders found on the project were mapped, concentrating in areas of mineralization, veining, alteration and the in the quarry. Approximately 350 hectares were mapped and the results plotted on Figures 1, 2a and 2b, at scales of 1:10.000, 1:5,000 and 1:500, respectively.

GEOCHEMICAL SURVEYING AND ROCK SAMPLING

A total of 29 sediment/silt samples were collected from Banon and South Holland Creeks, between July 29 and Aug. 1, 1996. In Banon Creek, flowing north-northeast and east-southeast across the southeastern quarter of the project, 21 samples were collected at 100 to 150 meter intervals. Six samples were collected along the east branch of South Holland Creek which flows north-northwest from the southwest corner of Holland Lake and two in the west branch of South Holland Creek, 400 meters to the west. The samples in South Holland Creek were collected at 150 to 200 meter intervals. The samples were dried and sent to Acme Analytical Laboratories Ltd. in Vancouver. At the lab 30 gm. were sieved to 80 mesh, digested by aqua regia and ultrasonic ICP analysis performed for 34 elements (Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, AL, Na, K, W, Tl, Hg, Se, Te, and Ga). Au analysis was completed using the graphite furnace atomic absorption method.

Between Oct. 30 and Nov. 3, 1996, while the geological mapping was being completed, 15 rock grab samples were collected of mineralization, quartz veining and alteration. At the Acme Lab all the samples were assayed for Au and Ag using the fire assay method. Sample descriptions along with the assay results are presented in Table 1.

The analysis/assay certificates for the stream sediments/silts and rock samples are included in Appendix 1. The Au and Ag rock results are plotted on Figures 2a and 2b (scales 1:5,000 and 1:500). Au, Ag, Cu, Zn, Pb, Mn, and anomalous As and Fe analytical results for the stream sediment/silt samples are shown on Figure 2a (scale 1:5,000).

GEOPHYSICAL SURVEYING

Magnetometer Survey

A Gem Systems GSM 8 proton precession magnetometer was used to collect approximately 500 readings at 25 meter stations along the 12.1 km. of flagged crosslines, between July 18 to 23, 1996. The magnetic survey was performed to collect data which will help define contacts between rock units of varying magnetic susceptibilities and to delineate the locations of potential fault zones.

The GSM 8 magnetometer measures the total field intensity of the earth's magnetic field in gammas. The instrument has a sensitivity and repeatability of one gamma or better. A base station, for determining the magnetic diurnal variations, was established on line 10W at 15S. The total field readings, corrected for diurnal variations minus a base value of 55,000 gammas, were plotted on Figure 4b, at a scale of 1:5,000. The values were then contoured at 100 gamma intervals below 56,000 gammas and at 500 gamma intervals below 55,000 gammas and above 56,000 gammas.

VLF-Electromagnetic Survey

Between July 12 and 16, 1996 a very low frequency-electromagnetic survey was completed on the 12.1 km. of flagged crosslines. Approximately 500 readings were collected at stations 25 meters apart, using a Geonics EM-16 unit.

The VLF-EM survey uses powerful radio transmitters located in different parts of the world which were established for military communications. Relative to the frequencies generally used in geophysical exploration, the frequencies used in VLF-EM surveying are considered to be high. These powerful radio waves induce electrical currents in conductive bodies thousands of miles away. The induced currents produce secondary magnetic fields which are detected at surface through deviations of the normal VLF field. This secondary field from the conductor is added to the primary field vector, so that the resultant field is tilted up on one side of the field vector and down on the other side. The VLF receiver measures the field tilt, with the in-phase and quadrature components of the vertical magnetic field as a percentage of the horizontal primary field, i.e. the tangent of the tilt angle and elipticity. The Geonics EM-16 unit has a repeatability and sensitivity of 1 %.

Interpretation of the results is quite simple, the conductor is located at the point marked at the crossover from positive tilt (vertical in-phase) to negative tilt. The main advantage of the VLF method is that it responds well to poor conductors and has been proven to be a reliable tool in helping to map faults-shear zones, mineralization, conductive horizons and rock contacts. The major disadvantage is that because of the high frequency of the transmitted wave, a multitude of anomalies from unwanted sources, such as swamp edges, lakeshores, creeks and changes in topographical and bedrock relief, may be delineated. So some amount of care must be taken in interpreting the results collected in areas displaying the above-mentioned topographical features.

Because of the trends of the rock units underlying the project area and station proximity, the transmitting station at Seattle, Washington (NLK), frequency 24.8 kHz was used. The readings were collected with the instrument facing 0 degrees.

The VLF-EM in-phase and quadrature data collected was plotted in % on Figure 3a at a scale of 1:5,000. These values were then profiled at a scale of 1 cm equals 25 %. The conductor axes were determined and given labels, A, B, C. etc. No priority or significance was attached to the labeling system.

PHYSICAL WORK

Grid Establishment

Between June 27 and July 17, 1996, 14.4 km. of lines were flagged, forming a grid northeast and east of Holland Lake and an individual line (10W) 1 km west of the lake. After a program of preliminary prospecting, the area to be covered by the grid was determined to cover the contacts of the Ladysmith Pluton and the rocks of the Sicker Group and Mount Hall gabbros along strike of the rocks exposed in the quarry. A baseline was flagged at angles of 120 and 300 degrees along the top of the east-southeast trending hill, 600 meters north of Holland Lake. A similar trending tieline was established north of the lake. Crosslines were run at perpendicular to the baseline and tieline at 200 meter intervals. Intermediate lines were flagged over the quarry and across the hilltop. Line 10W was flagged south, to the southern boundary from the west branch of South Holland Creek, across the southern part of the Ladysmith Pluton and the north end of the east-northeast trending fault. Stations were flagged and marked out at 25 meter intervals along all the lines.

SIGNIFICANT RESULTS

BEST ASSAYS/SAMPLE TYPE

Sample No.	Sample Type	Best Assays/Analyses
170897	Outcrop	0.03 oz/ton Ag, <0.001 oz/ton Au
H-04	Stream sediment/silt	76.2 ppm Cu
H-05	Stream sediment/silt	56 ppb Au
H-08	Stream sediment/silt	969 ppm Mn
H-14	Stream sediment/silt	3.4 ppm As
H-20	Stream sediment/silt	68 ppb Ag, 35.8 ppm Zn and 18 ppm Ni
H-21	Stream sediment/silt	1.2 ppm Mo and 11.2 ppm Pb
H-28	Stream sediment/silt	5.88 % Fe

DESCRIPTION OF MINERALIZATION, HOST ROCKS ANOMALIES

Prospecting, Geological Mapping and Sampling

During the prospecting program two old claim posts (legal corner posts of claims JRM 9 and Nemesis) were found in the northeastern part of the project. The quarry supposed to contain the BJ Showing was discovered 250 meters north of Holland Lake. Outcrop exposure varies from poor in the west part of the project area, to moderate in the south and southeast, to very good in the northeast where the grid was established over the east-southeast trending hill.

Most of the project area is underlain by granodiorite and diorite of the southern part of the Ladysmith Pluton. Nitinat volcanic rocks and Mount Hall gabbro sills strike west-northwest through the northeast corner of the project and gneiss and schist lie between the volcanics to the south and the pluton to the north. The gabbro, volcanics and plutonic rocks contain small amounts of pyrite, up to 2 %. The sedimentary rocks, located in the north-central part of the grid, are mineralized with up to 10 % pyrite.

Nitinat Formation metavolcanics outcrop in the eastern part of the grid, in the quarry and in the eastern part of the project along Banon Creek. In the eastern part of the grid and along the creek, the mafic flows, intercalated with minor intermediate lavas, form a wedge-shaped band striking west-northwest from the east boundary to between lines 2E and 1E. The band is then slightly folded to the south, with amphibolite with minor tuff outcropping in the quarry. The band is 900 meters wide at the eastern boundary. The mafic and intermediate flows contain a few quartz stringers and veins, up to 0.5 meters wide, and trace amounts to 1% pyrite. The quarry where the BJ Showing was reported to be located lies at the folded apex of the wedge. The quarry was prospected and mapped in detail (Figure 2b). Most of the outcrop in and along the edges of the quarry is amphibolite with minor mafic tuff. The amphibolite is slightly iron stained and contains small silica, chert and epidote rich zones and trace amounts of pyrite. The andesite to basalt tuff is lightly mineralized with trace amounts of pyrite. A 10 cm. wide quartz rich zone strikes 080 degrees along the contact between amphibolite and tuff in the northeast corner of the quarry. The tuff, north of the contact, the quartz rich zone and iron-stained amphibolite was sampled, containing < 0.001 oz/ton AU and 0.01 oz/ton Ag.

Medium to coarse-grained Mount Hall gabbro was mapped south of the rocks of the Nitinat Formation, in the central part of the grid, forming a west-northwest trending sill lying along the northern edge of rocks of the Ladysmith Pluton. Smaller outcrops of fine to medium-grained gabbro lie in the quarry and along Banon Creek. The gabbros contain small quartz stringers, moderate amounts of magnetite and very little or no pyrite and/or pyrrhotite.

Granodiorite and diorite of the Ladysmith Pluton outcrop in the eastern, southern and northern parts of the grid and in the extreme southern part of the project area. In the northeastern region of the grid, along the top of the hill, outcrops of fine-grained diorite were mapped. Granodiotite surrounds the Nitinat Formation volcanics and small quartz- feldspar dykes cut the volcanics. These plutonic rocks are generally barren of sulphides, but an outcrop of diorite (sample 170899) contained 1 to 2 % pyrite.

In the northern and western regions of the grid, near the baseline and along line 2W, metamorphosed sedimentary rocks form a zone in contact with volcanics, to the south and plutonic rocks, to the north and west. The mafic biotite gneiss, intermediate gneiss and felsic quartz rich gneiss are intercalated with narrow east-northeast striking zones of iron-stained and siliceous sericite schist, The mafic gneisses contain moderate amounts of magnetite and are cut by narrow, < 10 cm., quartz stringers. A unit of intermediate gneiss was mineralized across 0.5 meter, for a length of 10 meters, with 5 to 10 % pyrite. Three samples, 170893, 170897 and 170899, collected in this mineralized zone, assayed < 0.001 oz/ton Au and up to 0.03 oz/ton Ag.

Geochemical Surveying

Seven stream sediment/silt samples exhibited elevated amounts of Au, Ag, Mo, Pb, Zn, Ni, Mn, As and Fe. Descriptions of the sample locations and possible geological settings are presented below:

H-04, H-05 and H-08 contain 76.2 ppm Cu, 56 ppb Au and 969 ppm Mn, respectively, in an area thought to be underlain by granodiorite rocks of the Ladysmith Pluton along the south end of Banon Creek.

H-14 (3.4 ppm As) was collected near line 8BE on Banon Creek, east of Holland Lake, in an area underlain by granodiorites of the Ladysmith Pluton.

H-20 (35.8 ppm Zn, 68 ppb Ag and 18 ppm Ni) and H-21 (1.2 ppm Mo and 11.2 ppm Pb) are situated near outcrops of Nitinat Formation basalt containing quartz veining along Banon Creek near the eastern boundary.

H-28 with 5.88 ppm Fe was collected near a small pond along the east branch of South Holland Creek in an area thought to be underlain by rocks of the Ladysmith Pluton.

The BC MEMPR RGS sample R41, with 8 ppb Au, was collected in Banon Creek near the locations of samples H-01 and H-11 which analysed < 1 ppb Au. Sample H-05 with 56 ppb Au was positioned 350 meters upstream from sample R41. Two of the geochemical samples, H-26 and H-28, in South Holland Creek with anomalous Au values of 6 and 10 ppb, were collected 2 to 2.2 km. upstream from RGS sample R44 (208 ppb Au).

Total Field Magnetic Survey

The data collected by the total field magnetic survey form a complex pattern of anomalies striking east to east-northeast across the surveyed area. Magnetic relief in the northern two-thirds of the grid is high, over 10,000 gammas, with background values in the range of 56,000 to 56,000 gammas. The magnetic gradient decreases to the south, to 55,600 gammas.

Three narrow, short and strong magnetic highs, over 61,000 gammas, were delineated on lines 1E, 6E and 8E, 300 to 400 meters north of Holland Lake. The high magnetic values are indicative of magnetite rich rocks, probably east trending sills of gabbro.

Individual, slightly weaker, narrow (< 50 meters) highs of 57,000 to 60,000 gammas, form 3 zones in the northern part of the grid. The shape of these highs suggests that underlying bands of mafic gneiss, containing moderate amounts of magnetite, may be responsible for these highs. Broader (100 meter wide) highs, between 56,500 and 57,000 gammas, lying south of these nar-

row highs could be caused by flows of mafic metavolcanic rocks and amphibolite. The quarry is located along the edge of one of these broad highs.

In the south and in various small areas in the northern part of the grid the magnetic values and relief are low, < 56,500 and 500 gammas, respectively. The low values and relief indicate that these areas are underlain by granodiorites of the Ladysmith Pluton.

Three narrow magnetic lows strike east-northeast across the northeast part of the grid. These 3 zones could define the locations of rock units of low magnetic susceptibility, probably intermediate to felsic gneiss, intermediate schist and/or intermediate metavolcanic flows.

The numerous breaks and distortions in the magnetic contours and the complexity of the contour pattern indicate that the rocks underlying the survey area are deformed and are possibly faulted and sheared.

VLF Electromagnetic Survey

The VLF-electromagnetic results delineated the positions of the axes of 5 anomalous zones extending across 2 or more lines and 2 individual 1-line conductors. Anomaly A has a east-northeast strike length of 1.1 km., slightly folded to the north at line 6E. This zone crosses the hill in the northeast corner of the project area and except for the extreme western end the anomaly is located in or along the edges of narrow magnetic highs. The results of the mapping and sampling show that Anomaly A lies along the southern edge of mafic to intermediate gneiss-west of line 1E, between outcrops of gneiss between lines 1E and 3E-near or across outcrops of intermediate gneiss between lines 3E and 5E and in diorite at it's eastern end. On line 4E the axis is located within 20 meters of the sulphide mineralization found in outcrop of intermediate gneiss. This anomalous zone could represent mineralized zones in gneiss and diorite.

Anomaly B lies 300 meters south of the east end of anomaly A, striking east-northeast within a narrow magnetic low. It lies along the edges of outcrops of diorite and granodiorite near line 10E and could be caused by a shear in rocks of the Ladysmith Pluton.

Anomalies C and D are parallel, east-northeast striking zones, located 200 meters apart near the northwest shore of Holland Lake. The conductors lie in broad, weak magnetic highs and lows and could define the positions of 2 small shear zones in granodiorite.

Anomalous Zone E is situated east of Holland Lake, in a broad magnetic low. The west end overlies Banon Creek. This conductor could be caused by a small shear in rocks of the Ladysmith Pluton.

Two 1-line conductors were delineated on lines 10E and 10W, in areas of low magnetic relief. The conductor on line 10E is situated along an intermittent creek and appears to be caused by conductive overburden or a change in topographical relief. On line 10W the conductor is located in an area containing large granodiorite boulders, suggesting that this anomaly could be the result of a small shear in granodiorites of the Pluton.

TABLE 1 - ROCK SAMPLE DESCRIPTIONS

Number	Type	Assay Results	Sample Descriptions
170855	Grab	< 0.001 oz/ton Au 0.01 oz/ton Ag	Amphibolite in the quarry, siliceous, chert and epidote rich with 10 cm. iron-stained zone.
170856	Grab	< 0.001 oz/ton Au < 0.01 oz/ton Ag	Quartz rich 10 cm. wide zone, striking 060 degrees and dipping vertically, located along an amphibolite-andesite contact, trace pyrite, from the quarry.
170857	Grab	< 0.001 oz/ton Au 0.02 oz/ton Ag	Altered andesite along contact with amphibolite due north of 170856, trace pyrite, from the quarry.
170886	Grab	< 0.001 oz/ton Au < 0.01 oz/ton Ag	Fine-grained diorite with granodiorite, trace pyrite.
170887	Grab	< 0.001 oz/ton Au < 0.01 oz/ton Ag	Felsic, quartz-rich gneiss, trace pyrite.
170888	Grab	< 0.001 oz/ton Au 0.01 oz/ton Ag	Intermediate metavolcanic, siliceous andesite-dacite with trace pyrite.
170891	Grab	< 0.001 oz/ton Au 0.01 oz/ton Ag	40 cm. wide quartz vein in mafic metavolcanics with pyrite.
170892	Grab	< 0.001 oz/ton Au 0.01 oz/ton Ag	Felsic to intermediate biotite-rich gneiss, trace pyrite
170893	Grab	< 0.001 oz/ton Au 0.02 oz/ton Ag	Intermediate fine-grained gneiss, rusty, 3 to 5 % pyrite, finely disseminated.
170895	Grab	< 0.001 oz/ton Au 0.01 oz/ton Ag	Intermediate fine-grained rusty, gneiss, 5 to 8 % pyrite.
170896	Grab	< 0.001 oz/ton Au < 0.01 oz/ton Ag	10 cm wide iron-stained quartz vein in biotite gneiss, trace pyrite.
170897	Grab	< 0.001 oz/ton Au 0.03 oz/ton Ag	Intermediate fine-grained rusty gneiss with 5 to 8 % pyrite.
170898	Grab	< 0.001 oz/ton Au < 0.01 oz/ton Ag	Fine-grained mafic gneiss, trace pyrite, slightly magnetic.
170899	Grab	< 0.001 oz/ton Au < 0.01 oz/ton Ag	Fine-grained diorite, 1 to 2 % pyrite.
170900	Grab	< 0.001 oz/ton Au 0.01 oz/ton Ag	Series of 10 cm. wide bands of felsic sericite schist, iron-stained, trace pyrite.

APPENDIX 1

ANALYSES/ASSAY CERTIFICATES

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

ASSAY CERTIFICATE

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413 Victoria Road, Nanaimo BC V9R 4R2

SAMPLE#	Ag** oz/t	Au** oz/t
170855		.01	<.001
170856	<.01	<.001
170857		.02	<.001
170886	<.01	<.001
170887	<.01	<.001
170888		.01	<.001
170891		.01	<.001
170892		.01	<.001
170893		.02	<.001
RE 170893		.02	<.001
170895		.01	<.001
170896	<.01	<.001
170897		.03	<.001
170898	<.01	<.001
170899	<.01	<.001
170900		.01	<.001
STANDARD R-1/AU-1	2.92	.095

AG** & AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE.
- SAMPLE TYPE: P1 ROCK P2 SILT
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: NOV 20 1996 DATE REPORT MAILED: Dec 2/96 SIGNED BY: ..D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Date 12 FA VAC

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL EXTRACTION-ANALYSIS CERTIFICATE

Karen Campbell PROJECT HOLLAND LAKE File # 96-6129 Page 2

413 Victoria Road, Nanaimo BC V9R 4R2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppb	Se ppm	Te ppm	Ga ppm	Au+ ppb
H-01	.7	35.6	3.9	25.0	30	11	14	665	3.54	1.7	<5	<1	22	.15	<.2	<.1	124	.64	.078	6	27	.27	77	.09	3	1.08	.02	.02	<2	<.2	81	.5	<.2	4.2	<1
H-02	1.0	53.4	5.6	27.8	51	13	18	770	4.77	2.1	<5	1	22	.19	.2	<.1	170	.63	.085	7	35	.32	81	.10	<2	1.43	.03	.04	<2	<.2	134	.6	<.2	6.5	<1
H-03	.4	30.6	2.9	21.3	<30	10	11	383	4.77	1.3	<5	<1	16	.06	<.2	.1	175	.49	.068	5	33	.24	55	.09	<2	.90	.02	.02	<2	<.2	62	<.3	<.2	5.1	<1
H-04	.3	76.2	1.8	31.7	<30	15	10	318	3.06	1.7	<5	1	31	.05	<.2	<.1	104	.90	.107	9	24	.52	78	.15	2	1.52	.05	.07	<2	<.2	43	<.3	<.2	5.3	1
H-05	.5	31.0	3.4	25.4	36	11	12	478	4.16	1.3	<5	1	21	.09	<.2	<.1	148	.63	.088	6	30	.26	74	.09	<2	1.20	.02	.03	<2	<.2	77	.4	<.2	4.6	56
H-06	.2	21.6	1.0	16.5	<30	8	6	231	2.27	1.1	<5	1	24	.03	<.2	<.1	87	.79	.094	8	18	.28	40	.11	2	.75	.04	.04	<2	<.2	25	<.3	<.2	3.2	<1
H-07	.3	39.8	1.5	23.3	<30	12	8	276	2.96	1.2	<5	2	23	.04	<.2	<.1	106	.71	.078	7	23	.39	66	.12	<2	1.15	.04	.05	<2	<.2	49	<.3	<.2	4.4	1
H-08	.9	49.6	6.2	32.2	49	14	21	969	4.44	2.0	<5	<1	25	.16	<.2	<.1	156	.68	.081	7	33	.40	105	.12	<2	1.61	.03	.04	<2	<.2	103	.5	<.2	6.3	<1
H-09	.3	40.2	1.8	22.1	<30	11	8	273	2.82	.8	<5	2	25	.04	<.2	.1	101	.80	.098	7	22	.35	68	.12	<2	1.09	.05	.05	<2	<.2	25	<.3	<.2	3.9	1
H-10	.6	34.6	3.5	21.9	<30	11	10	362	3.99	1.5	<5	<1	20	.08	<.2	<.1	143	.57	.073	5	30	.31	79	.10	<2	1.17	.03	.04	<2	<.2	58	.3	<.2	5.3	<1
H-11	.9	27.7	1.8	21.2	<30	10	9	176	2.42	1.3	<5	<1	17	.06	<.2	.1	91	.47	.056	7	25	.34	67	.11	2	1.46	.03	.02	<2	<.2	55	.5	<.2	5.6	<1
H-12	.5	20.3	2.4	16.7	<30	8	7	272	3.36	1.6	<5	1	17	.06	<.2	<.1	98	.58	.077	7	21	.26	50	.10	<2	.93	.02	.03	<2	<.2	46	.3	<.2	3.6	<1
H-13	1.0	16.7	3.2	19.5	<30	9	6	212	3.08	1.7	<5	1	17	.07	<.2	.1	116	.43	.032	3	21	.27	58	.15	<2	1.05	.02	.02	<2	<.2	44	<.3	<.2	6.9	3
H-14	1.0	33.4	5.0	32.7	42	13	16	500	3.78	3.4	<5	1	23	.14	<.2	.1	124	.64	.066	6	28	.38	103	.12	<2	1.58	.03	.03	<2	<.2	80	.4	<.2	6.1	2
H-15	.8	30.1	4.0	30.6	<30	12	12	506	3.40	1.7	<5	<1	23	.10	<.2	.1	113	.64	.069	6	27	.37	97	.12	<2	1.50	.03	.03	<2	<.2	72	.4	<.2	5.6	<1
RE H-06	.2	21.5	1.4	17.5	<30	9	6	240	2.37	1.3	<5	2	25	.04	<.2	<.1	89	.82	.101	8	20	.30	42	.11	2	.77	.05	.03	<2	<.2	19	<.3	<.2	3.3	<1
H-16	.6	24.0	4.1	23.1	<30	11	10	399	4.09	1.4	<5	1	19	.07	<.2	.1	147	.55	.062	5	31	.28	64	.11	<2	1.04	.02	.02	<2	<.2	48	.3	<.2	4.9	<1
H-17	.8	23.6	4.4	22.8	<30	10	9	359	2.42	1.7	<5	1	19	.07	<.2	.1	83	.55	.054	5	19	.32	68	.11	2	1.19	.02	.03	<2	<.2	66	<.3	<.2	4.9	1
H-18	.8	28.6	5.9	23.4	30	11	10	425	2.34	1.8	<5	<1	20	.09	<.2	.1	83	.57	.064	6	19	.34	76	.11	2	1.37	.02	.02	<2	<.2	66	.3	<.2	5.5	<1
H-19	.7	20.5	4.2	19.7	<30	10	9	411	3.94	1.5	<5	<1	17	.08	<.2	.1	142	.47	.048	4	30	.25	52	.11	<2	.98	.02	.02	<2	<.2	51	<.3	<.2	4.8	1
H-20	1.2	52.3	8.3	35.8	68	18	12	353	2.48	2.5	<5	1	27	.13	.2	.1	87	.67	.081	10	30	.59	121	.17	3	2.77	.03	.05	<2	<.2	115	.6	<.2	8.6	1
H-21	.6	19.4	11.2	18.8	<30	10	7	229	2.62	1.5	<5	1	18	.08	<.2	.1	94	.50	.061	5	22	.26	55	.10	2	.99	.02	.01	<2	<.2	51	<.3	<.2	4.2	<1
H-22	.4	20.8	3.5	19.4	<30	9	6	183	2.37	1.7	<5	2	20	.05	<.2	.1	83	.52	.096	8	22	.27	74	.11	<2	1.48	.02	.03	<2	<.2	50	.3	<.2	5.5	<1
H-23	.5	13.7	5.7	21.0	<30	8	11	700	2.93	1.7	<5	<1	19	.13	<.2	<.1	98	.41	.061	5	22	.20	64	.09	<2	1.12	.02	.01	<2	<.2	58	.3	<.2	5.0	2
H-24	.5	12.2	3.7	17.7	<30	8	7	574	2.05	1.3	<5	1	16	.06	<.2	.1	62	.45	.064	5	15	.19	42	.08	2	.86	.02	.02	<2	<.2	37	.3	<.2	3.1	1
H-25	.9	11.7	4.1	17.9	<30	7	9	612	2.58	1.7	<5	<1	16	.07	<.2	<.1	78	.41	.063	5	18	.18	43	.08	2	.98	.01	.01	<2	<.2	45	<.3	<.2	3.6	<1
H-26	.7	14.7	4.9	17.5	<30	7	7	498	2.54	1.5	<5	<1	17	.08	<.2	<.1	81	.49	.080	6	19	.20	47	.09	2	.98	.02	.01	<2	<.2	62	.3	<.2	4.2	6
H-27	.3	14.6	2.1	14.4	<30	8	6	211	3.18	.9	<5	1	15	.04	<.2	<.1	110	.48	.077	6	26	.19	37	.09	<2	.77	.02	.02	<2	<.2	34	<.3	<.2	3.1	<1
H-28	.5	18.7	3.4	19.4	<30	9	10	643	5.88	1.1	<5	<1	16	.07	<.2	<.1	192	.46	.078	5	41	.16	42	.08	<2	.83	.01	.01	<2	<.2	58	<.3	<.2	4.3	10
H-29	.4	16.3	2.9	13.3	<30	8	5	189	2.11	1.1	<5	1	15	.04	<.2	<.1	74	.43	.070	6	19	.21	37	.09	2	1.08	.01	.02	<2	<.2	36	<.3	<.2	3.6	<1
STANDARD	25.5	125.0	102.1	290.8	1958	31	18	1054	4.27	78.1	22	19	54	2.17	10.3	21.6	73	.70	.108	16	54	1.17	245	.13	26	2.29	.04	.64	19	2.2	475	.6	2.2	6.4	53

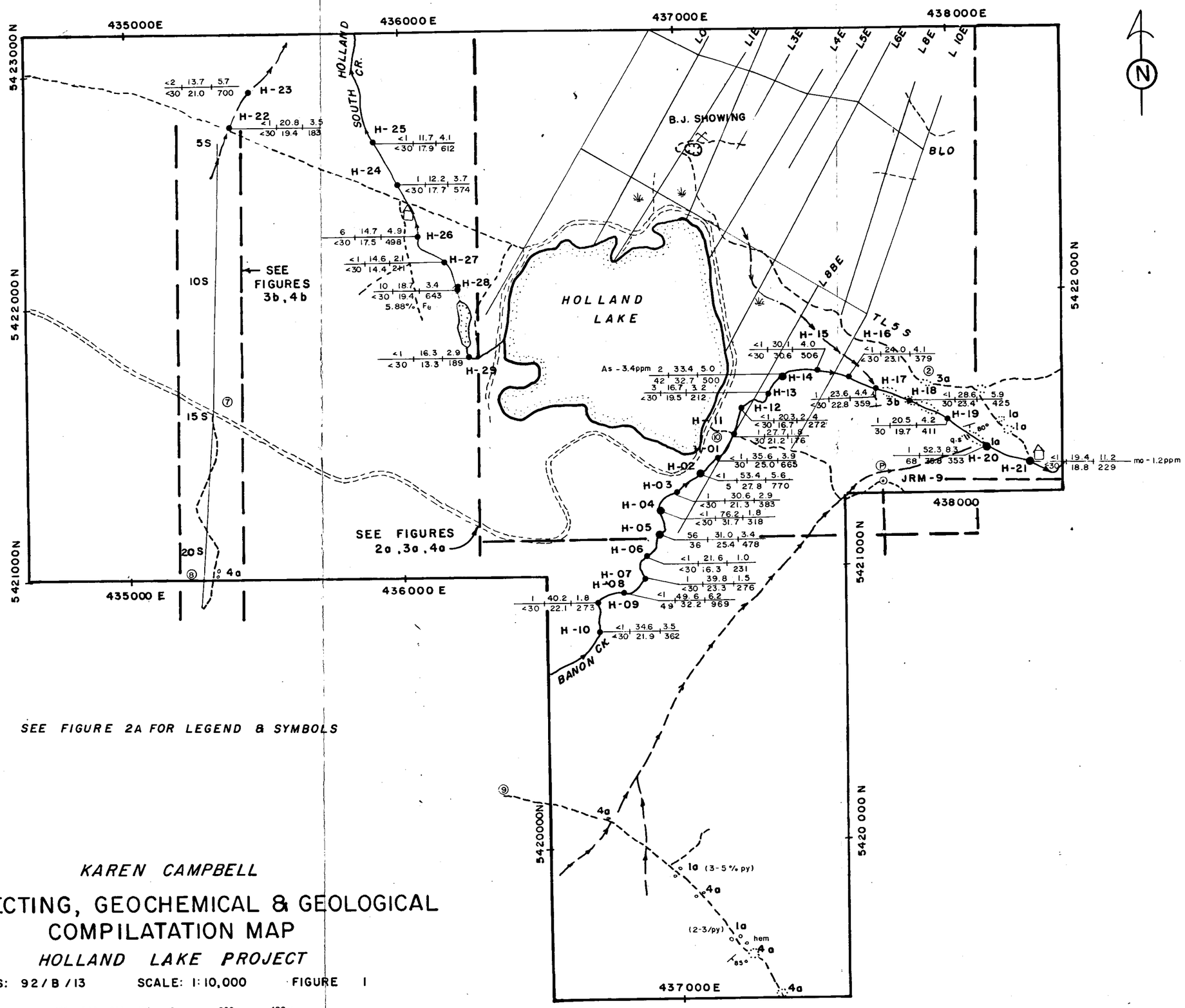
Standard is STANDARD D2/MG-500/AU-S.

ICP - 15 GRAM SAMPLE IS DIGESTED WITH 90 ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 300 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K GA AND AL. SOLUTION ANALYSED DIRECTLY BY ICP. MO CU PB ZN AG AS AU CD SB BI TL HG SE TE AND GA ARE EXTRACTED WITH MIBK-ALIQUAT 336 AND ANALYSED BY ICP. ELEVATED DETECTION LIMITS FOR SAMPLES CONTAIN CU,PB,ZN,AS>1500 PPM,Fe>20%.

- SAMPLE TYPE: P1 ROCK P2 SILT AU+ - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: NOV 20 1996 DATE REPORT MAILED: Dec 2/96 SIGNED BY ...D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA



NOTE: SEE FIGURE 2A FOR LEGEND & SYMBOLS

KAREN CAMPBELL

PROSPECTING, GEOCHEMICAL & GEOLOGICAL COMPILATATION MAP

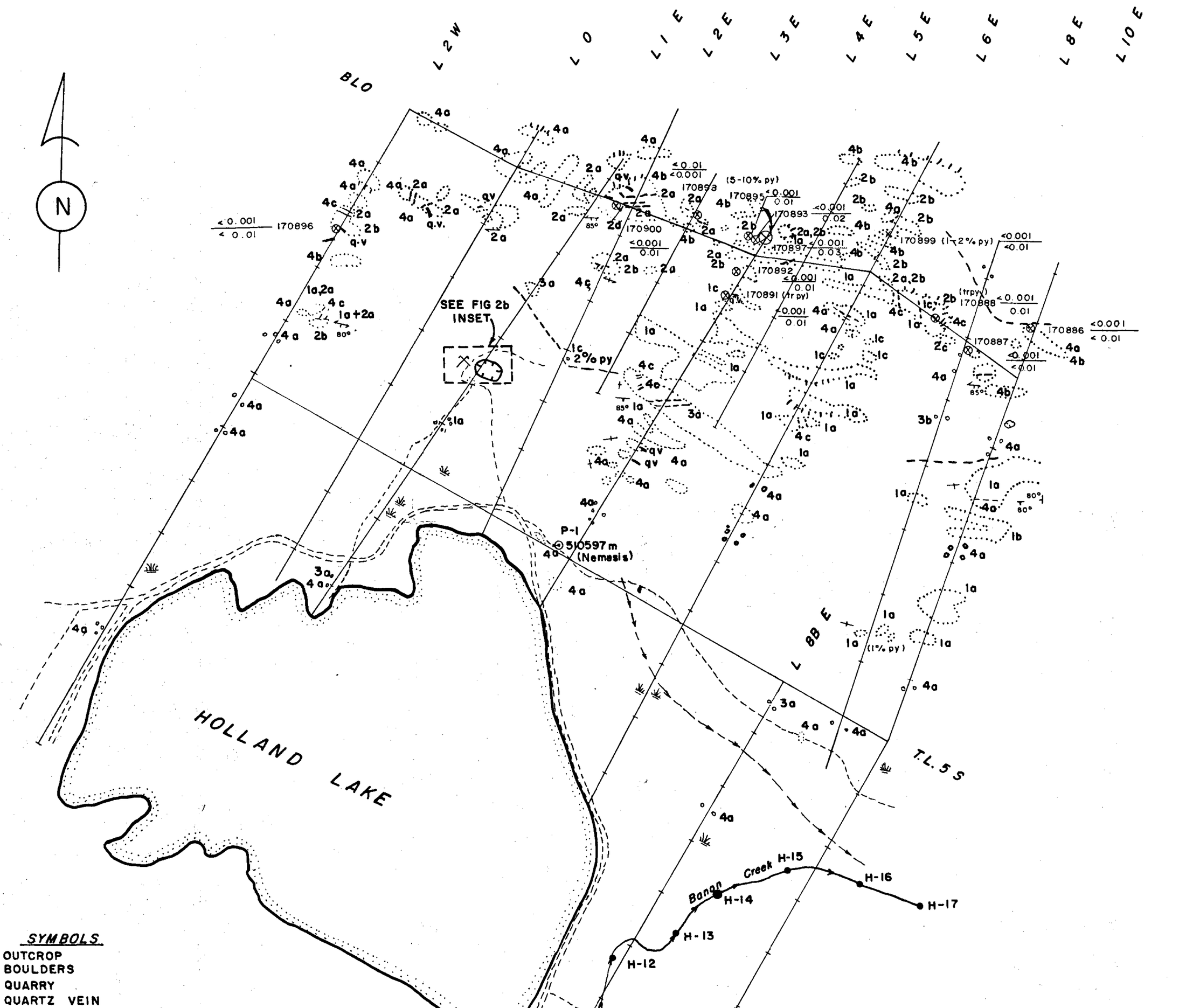
HOLLAND LAKE PROJECT

NTS: 92/B/13 SCALE: 1:10,000 FIGURE 1

m 400 300 200 100 0 200 400 m

SCALE: 1:10,000

96-06 (1)



SYMBOLS

- OUTCROP
- BOULDERS
- QUARRY
- q.v. QUARTZ VEIN
- CONTACT
- CLIFF
- STRIKE, DIP FRACTURE
- STRIKE, DIP LINEATION
- ROCK SAMPLE LOCATION WITH NO.
- ASSAY RESULTS (Au oz/ton / Ag oz/ton)
- ANOMALOUS ROCK SAMPLE LOCATION
- CLAIM POST
- DRIVABLE ROAD
- TRAIL
- LAKE, POND
- CREEK
- INTERMITTANT CREEK
- SWAMP
- STREAM SED SAMPLE WITH NO
- ANOMALOUS "
- GEOCHEM RESULTS (Au(ppb) Cu(ppm) Pb(ppm) / Ag(ppb) Zn(ppm) Mn(ppm))
- py PYRITE
- GRID LINE
- hem HEMATITE
- CABIN
- POINT OF REFERENCE (indicated in bush)
- SHOWING
- CLAIM LINE

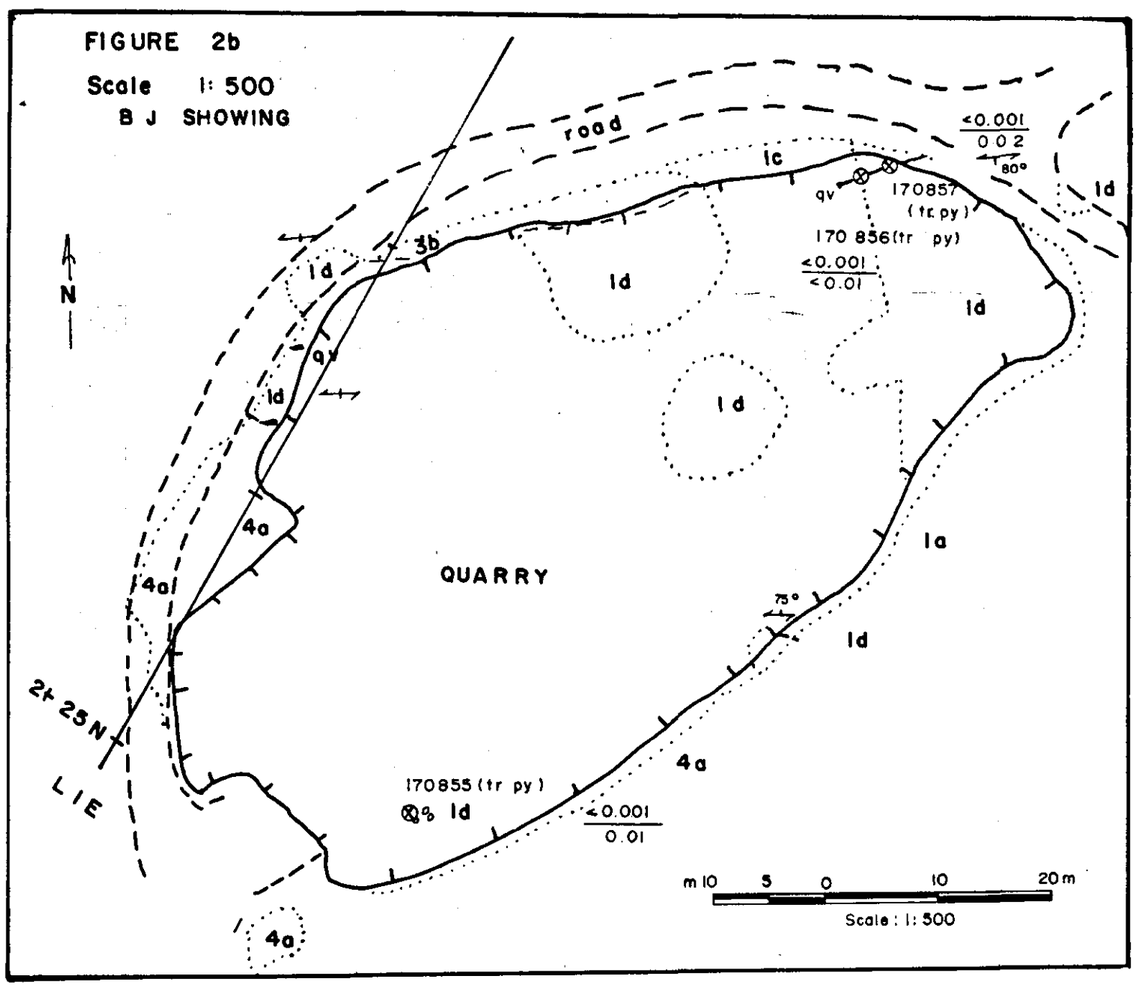
LEGEND

- 4 ISLAND PLUTONIC SUITE
- 4a GRANODIORITE
- 4b DIORITE (FINE-GRAINED, GNEISSIC)
- 4c QUARTZ-FELDSPAR DYKES
- 3 MOUNT HALL GABBRO
- 3a GABBRO (MEDIUM-COARSE GRAINED)
- 3b GABBRO (FINE-GRAINED)
- 2 SEDIMENTARY ROCKS
- 2a MAFIC BIOTITE GNEISS
- 2b INTERMEDIATE GNEISS
- 2c FELSIC-QUARTZ RICH GNEISS
- 2d INTERMEDIATE SCHIST
- 1 NITINAT FORMATION VOLCANICS
- 1a MAFIC FLOW
- 1b INTERMEDIATE FLOW
- 1c MAFIC TUFF

FIGURE 2b

Scale 1: 500

B J SHOWING



KAREN CAMPBELL

DETAILED PROSPECTING - GEOLOGY

HOLLAND LAKE PROJECT

NTS: 92/ B / 13 SCALE: 1: 5,000 FIGURE 2A

m 200 150 100 50 0 100 200 m

SCALE: 1: 5,000

96-06 (2)

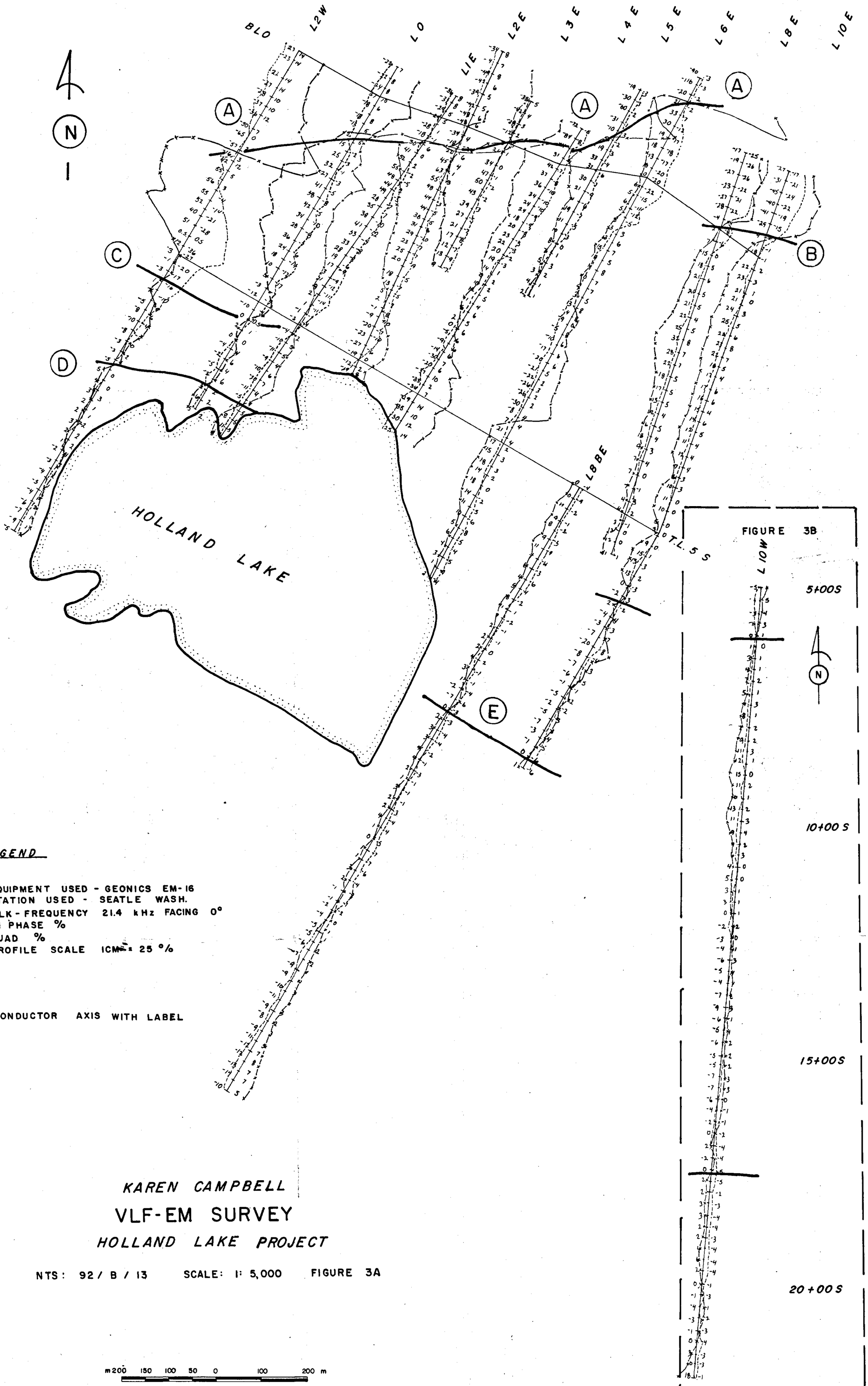


FIGURE 3B

LEGEND

EQUIPMENT USED - GEONICS EM-16
STATION USED - SEATLE WASH.
NLK - FREQUENCY 21.4 kHz FACING 0°
IN PHASE %
QUAD %
PROFILE SCALE 1CM = 25 %

line

CONDUCTOR AXIS WITH LABEL

KAREN CAMPBELL

VLF-EM SURVEY

HOLLAND LAKE PROJECT

NTS: 92 / B / 13 SCALE: 1: 5,000 FIGURE 3A

m 200 150 100 50 0 100 200 m

SCALE : 1:5,000

Scale : 1:5, 000

96-06 (3)

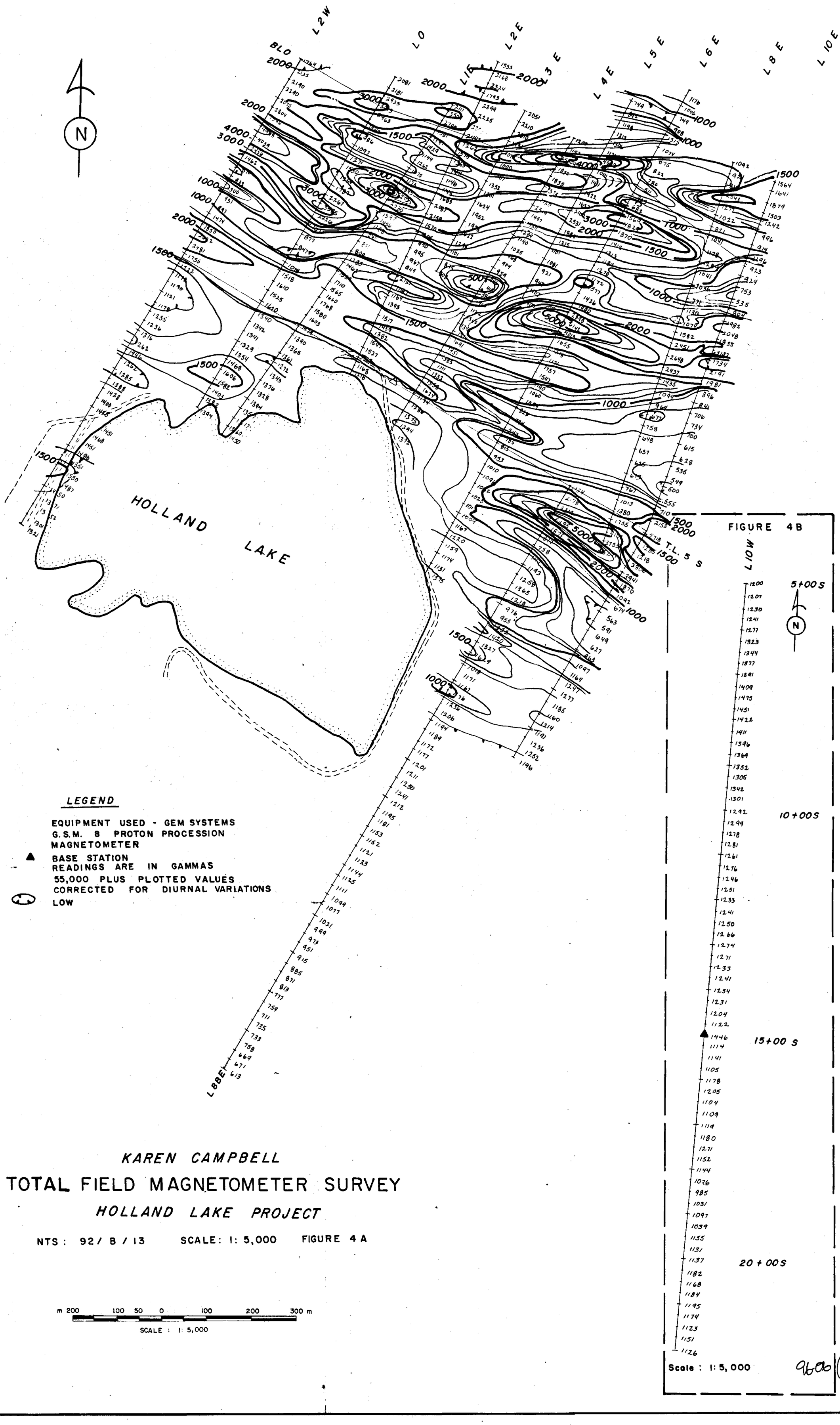


FIGURE 4B

KAREN CAMPBELL

TOTAL FIELD MAGNETOMETER SURVEY

HOLLAND LAKE PROJECT

NTS : 92 / B / 13 SCALE: 1: 5,000 FIGURE 4 A

m 200 100 50 0 100 200 300 m

SCALE : 1: 5,000

Scale : 1: 5,000

9606 (4)