52C16SE0007 OP92-167 BENNETT

REPORT ON OPAP GRANTS
OPG92-078 AND OPG92-79

GITHCHEE GUMEE GOLD
CALM LAKE WEST PROPERTY
NTS 52-C-16
FLANDERS, NW ONTARIO
CANADA

OCTOBER, 1992

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1.0 SUMMARY AND CONCLUSIONS

The Calm Lake West property, located approximately 40 kilometres west of Atikokan, Ontario underwent a summer program consisting of linecutting, geophysics, geological mapping, trenching, channel sampling and detail trench mapping. This program concentrated on the known mineralization surrounding the old shaft and pits which represents only a 1/10th of the whole property.

The VLF-EM and proton magnetometer geophysical surveys conducted on the property outlined the following:

(1) The VLF-EM survey conductors located are interpreted as conductive overburden.

(2) The proton magnetometer survey outlined thin linear layers of chemical metasediments (ironstone) intercalated with the mafic to intermediate metavolcanics parallel to foliation and two bulls-eye magnetic highs which form a saddle-type structure. This structure correlates with an amygdaloidal basaltic flow unit, near the footwall contact with the blue quartz-eye porphyritic felsic intrusive.

The geology of the property is restricted to observations made from the area covered during the 1992 mapping program. The property is underlain by a predominately east-west trending sequence of metamorphosed mafic to intermediate and felsic volcanics with minor intercalated thin units of chemical sediments. A splay fault of the Little Turtle Fault system observed as a shear zone parallels the foliation and syntectonic felsic intrusives of porphyritic tonalite composition have intruded within the shear zone.

The 1992 summer program outlined four anomalous gold-bearing zones from the channel sampling and are described below:

(1) Blue-quartz eye-feldspar porphyritic tonalite containing disseminated pyrite and minor pyrrhotite. The plagioclase feldspar is altered to sausserite with abundant iron carbonate (ankerite) and hematite are present along fractures.

(2) Sericite-carbonate-chlorite schist containing pyrite mineralization along fractures and parallel to schistosity. Hematite and iron carbonate are abundant. Later quartz and carbonate veinlets trend perpendicular to schistosity and crosscut schist and pyrite grains. This rock may represent the sheared porphyry.

(3) Carbonitized, porphyritic, mafic to intermediate metavolcanics, completely altered to carbonate-chlorite schist. Sixty percent of the rock consists of carbonate with abundant chlorite, feldspar, quartz and pyrite. This rock represents a contact aureole around the syntectonic felsic intrusives.

(4) Quartz-carbonate veins consisting of essentially grey quartz, ankerite, minor chlorite and finely disseminated pyrite along fractures parallel to foliation. Stockworks of smokey-white quartz veins and quartz-carbonate veins occur crosscutting the marginal phases of the porphyry and are accompanied by a pervasive carbonitization of the host.

The shaft is located on a quartz-carbonate vein which parallels the foliation and contains finely disseminated pyrite. This vein is less than 0.3 M. wide on surface, but increases in

size to 1.0 M at depth and assayed from 500-700 ppb Au. It is interpreted that any underground workings would have drifted north towards the blue quartz-eye porphyry which assayed from 1000-2500 ppb Au.

The best assays were obtained from the contact zone between the blue quartz-eye porphyry and the carbonitized mafic metavolcanics in Trench #6 from the channel sampling and assayed 1733 ppb across 2.45 Metres.

At the present time, the results from the 1992 summer program outlined an area of highly anomalous gold values of sub-economic grade within the carbonitized metavolcanic contact aureole and blue quartz-eye porphyritic tonalite over a 150 Metre strike length.

The author's believe that the encouraging results obtained from the program warrant additional work northwest of the shaft area and further work on the rest of the property to locate possible similar gold-bearing quartz vein/shear zone systems that are associated with syntectonic felsic intrusives. These systems have the greatest potential to host a gold deposit.

2.0 LOCATION

The property is located approximately 40 kilometres west of Atikokan, Ontario and 6 kilometres by road northwest of Flanders, a former railway station along the C.P.R.

Access to the property from Atikokan is via Highway 11 and turning north onto Flanders Road for 3 kilometres on this all weather road. At this point, turning west onto a winter logging

road which is drivable in summer with a 4-wheel drive vehicle for approximately 3 kilometres to the eastern property boundary at Long Lake. Presently, winter logging operations are extending this road across the southern portion of the property.(Figures 1-2)

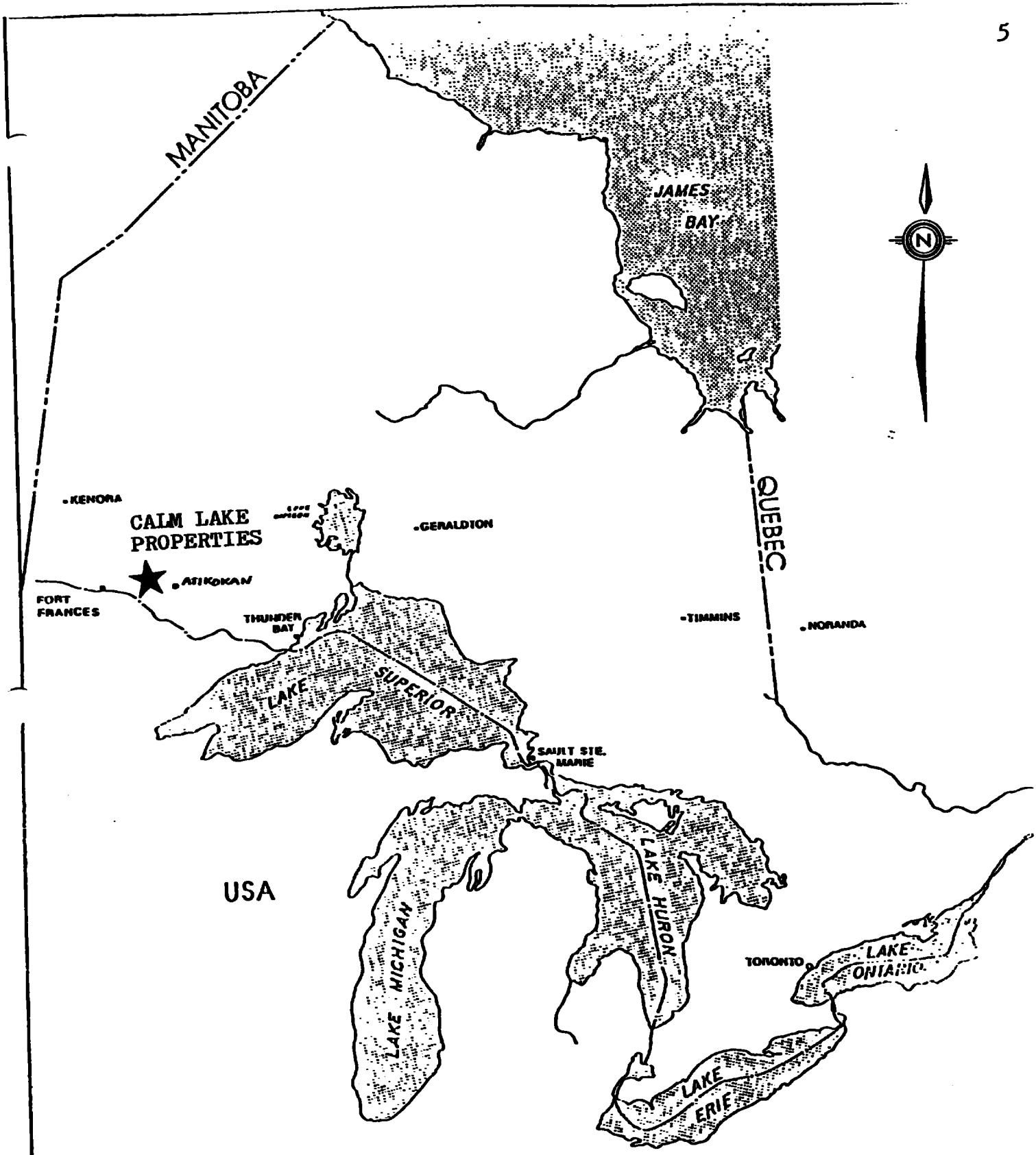
3.0 PROPERTY DESCRIPTION

The property consists of eight (8) unpatented mining claims totalling approximately 336 hectares and is located in both the Kenora and Thunder Bay Mining Divisions (see Figure 2) and are listed below:

CLAIM NO.	MINING DIVISION	CLAIM MAP SHEET	RECORDED
1188670	Thunder Bay	Hepburn Lake G-532	Nov. 4, 1991
1188671	Kenora	Bennett Twp. M-1920	Nov. 5, 1991
1188672	Kenora	Bennett Twp. M-1920	Nov. 5, 1991
1188673	Kenora	Hepburn Lake G-532	Nov. 5, 1991
1195467	T.Bay-Kenora	Hepburn Lake G-532	June 30,1992
1195468	Kenora	Hepburn Lake G-532	July 6, 1992
1195469	Kenora	Bennett Twp. M-1920	July 6, 1992
1195470	Kenora	Bennett Twp. M-1920	July 6, 1992

4.0 PROPERTY HISTORY

Prior to 1991, the only information in the area of the claims pertained to a brief paragraph in the 1912 Canadian Mining Journal (Vol.33) which stated: "... by the Calm Lake Gold Mining Company. This company has a shaft down 85 feet. At a depth of 75 feet this shaft cuts a system of veins. At this point a crosscut of 50 feet



REGIONAL LOCATION MAP

100 0 100
MILES

100 0 100
KILOMETERS

FIGURE 1

GITCHEE GUMEE GOLD
CALM LAKE WEST PROPERTY

GITCHEE GUMEE GOLD
CALM LAKE PROPERTY

1157524
1009091
1195469
1188672
1188671
1195470
1188673
1188670
1195468
1195467
SURVEY AREA

Ingiaonta Lake
TWIN LAKES
Miners Lake
Calm Lake
Fin Bay
Long Lake
Blind Pig Bay
Mills Cr.
IRON STONE
DOCK
SAND

791 × Sample number
Traverse: D. Gliddon
R. Middaugh

Scale 1:15 840
Mile ½ 0 ½ 1 Mile
Metres 100 0 0.2 0.4 0.6 0.8 1 Kilometre

Fumerton,S.L., and Bumgarner,E.L.
1981: Precambrian Geology of the Calm Lake Area, Rainy River District; Ontario Geological Survey Preliminary Map P.2405,(Revised) Geological Series, Scale 1:15,840. Geology 1980.

GITCHEE GUMEE GOLD

CALM LAKE PROPERTIES

NTS 52-C-16

CLAIMS - PROSPECTING

Date - Aug., 1992	Scale - 1:15,840
Drawn By - D.Gliddon	Figure 2

has been made to intersect the veins and make them workable. A vein known as "Number 2" was also cut through and was found to be 50 feet wide. It showed some free gold, but not entirely a free quartz. A vein dubbed "Number 3" is also expected to be cut through soon. At the surface it is wide and shows up well. Camps were built on the ground owned by this company last summer. A steam hoisting plant is also in operation and everything is in good shape for extensive exploration and developing this summer."

In the fall of 1991 while prospecting southwest of Gitchee Gumee Gold's Calm Lake property, David Gliddon found an old shaft, tailings dump and several pits which is now believed to be the mine mentioned above. This shaft was previously reported by MNDM to be 1.5 kilometres to the northeast but was never located.

The re-discovered shaft area and old pits were sampled and anomalous and ore grade gold values assayed up to 0.341 oz./ton were obtained. An initial four (4) claims totalling 128 hectares were staked covering the discovery.

In 1992, an addition four (4) claims totalling 208 hectares were staked and a comprehensive exploration program is planned for the summer field season.

The area was mapped by S.L. Fumerton, E.L. Bumarner and assistants from the O.G.S. in 1980 and released in 1985 as "Geology of the Calm Lake Area" Report 226. The O.G.S. also conducted a combined EM-Mag airborne survey over the area in 1980. (Figure 3)

5.0 SUMMER PROGRAM

O.G.S. Geophysical Series
Map 80509
Atikokan-Mine Centre Area
Western Part

Scale: 1:20 000

Metres 500 0 1 Kilometre

Mile 1/4 0 1/2 Mile

GITCHEE GUMEE GOLD

AIRBORNE GEOPHYSICS MAP

Date - Aug., 1992	Scale - 1:20,000
Drawn By - D. Gliddon	Figure 3

The exploration program commenced on June 6, 1992 and completed on July 12, 1992. The program included the following:

(1) Establishing a grid over the old mine workings which consisted of a 800 metre baseline and 400 metre survey lines at 50 metre intervals totalling 7.8 kilometres of linecutting.

(2) Geophysical surveys using a VLF-EM and magnetometer at 25 metre and 12.5 metre station intervals respectively.

(3) Geological mapping and prospecting program at a scale of 1:1000.

(4) Mechanical stripping and power washing of trenches of the mineralized zones.

(5) Detailed geological mapping at 1:100 and channel sampling in the trenches.

6.0 REGIONAL GEOLOGY

The claim group is situated within the Wabigoon Subprovince near the boundary with the Quetico Subprovince. The main part of the Wabigoon Subprovince is composed of a complex assemblage of mafic to felsic metavolcanics, which are intercalated with and largely overlain by sandstone with some interbeds of conglomerate and ironstone. These supracrustal rocks have been intruded by mafic to felsic plutonic rocks. A leuco-tonalite body and a granodiorite body intruded the supracrustal rocks prior to the tectonic-thermal event which affected the Calm Lake area. Abundant tonalite and porphyritic tonalite were emplaced during the tectonic-thermal event as lit-par-lit and stock intrusions. A diorite-tonalite

suite, followed by granite, intruded the sequence subsequent to the metamorphism of the area.

7.0 PROPERTY GEOLOGY

The Calm Lake West property is underlain dominately by an general east-west trending sequence of metamorphosed,folded and faulted Archean mafic to felsic volcanics with minor intercalated ironstone units which have undergone greenschist facies conditions of regional metamorphism. These units have been intruded by tonalite and porphyritic tonalite during the tectonic-thermal event.

The property geology described below is restricted to the area covered by the 1992 prospecting and geological mapping program, which concentrated on the shaft and old workings area and represents only a 1/10th of the claim group.

7.1 MAFIC TO INTERMEDIATE METAVOLCANICS

The mafic to intermediate metavolcanics constitute the bulk of the rocks in the survey area. Volumetrically, the most abundant type are flows and occur in the central part of the survey area. These units are typically fine grained, but aphanitic and coarser-grained (less than 2mm) varieties are common. Colour varies widely from typically olive-green, to dark green, to pale green; weathered surfaces are paler than fresh surfaces. Structural fabric ranges from massive through foliated to schistose, depending on the proximity to shear zones and to hinge zones of folds.

Amygdaloidal flows are common and are usually dark in colour,

with a fine-grained groundmass. The amygdules are filled with quartz and are subhedral to slightly elongated parallel to foliation and vary in size up to 1 cm. These flows are best exposed at the south end of Trench #3.

Mafic to intermediate pyroclastic rocks constitute most of the rocks in the northern part of the survey area. The pyroclastics have been subdivided on the size of the rock fragments into tuff-breccia (larger than 64mm), lapilli tuff (2-64mm), and tuff (less than 2mm). In all cases the matrix is fine-grained and typically has a lighter green weathered surface and a dark green fresh surface. Fragments are commonly off-white on the weathered surface, medium-green on the fresh surface, and more felsic than the matrix. However, rare fragments are darker in colour and presumably more mafic than the matrix. Fragments are usually fine-grained and, where the fragments are large, are commonly vesicular. The fragments vary in size up to 0.5 m. and are elongated parallel to foliation. These rocks are best exposed in the northern ends of Trenches #1,#4 and #6.

Heterolithic fragmental rocks are not common in the area, but a single occurrence is noted at the northern end of Trench #5. At this location approximately 20 percent of the rock by volume is made up of angular rock fragments that are randomly oriented and up to 10 cm. in size. Most of the fragments are felsic to intermediate volcanic rocks but some are more mafic than the enclosed matrix. Typically the fragments are aphanitic to fine grained, angular, rectangular, and lenticular in shape and usually

zoned. This zoning is most pronounced in the felsic fragments and appears to be an alteration phenomena formed at the time of solidification of the matrix.(Fumerton,1985) The matrix is fine-grained and medium to dark green on both the weathered and fresh surfaces. Because of the fragmental nature of this rock it is thought to be the product of a gas-charged debris flow.

Alteration of the mafic to intermediate metavolcanics is common close to shear zones and to the felsic intrusions. The alteration occurs in two forms: (1) extensive chlorite development, and (2) carbonatization. The degree of alteration is variable from barely detectable to complete replacement by chlorite and/or carbonate. In the first case the end product is green-grey, chlorite schist. In the second case the end product is massive medium-grained carbonate rock with trace amounts of pyrite or limonite and a rusty brown weathered surface.

7.2 FELSIC METAVOLCANICS

The felsic metavolcanics form a minor portion of the metavolcanics and occur in the extreme southwestern portion of the survey area consisting of pyroclastics only. Two types were noted in the survey, lapilli tuff and laminated tuff.

The lapilli tuff consists of small (less than 2 cm.) lenticular felsic rock fragments sparsely distributed in a weakly foliated matrix. This matrix is commonly off-white on both the weathered and fresh surfaces, and is very fine-grained. The lapilli tuff is best exposed on L 0+50E /1+70S.

The second type is a laminated tuff with chert fragments up

to 5cm. in size set in a very fine-grained matrix which is light green on the weathered and fresh surfaces. The laminae are less than 0.5 cm. in width, but top determinations were not observed. These tuffaceous units have undergone varying degrees of mechanical sorting and been mixed with variable amounts of detrital material. The laminated tuff is best observed on L 1+00W /1+50S.

Both varieties of pyroclastic rocks have a foliation that is parallel to bedding where present.

7.3 CHEMICAL METASEDIMENTS

Within the survey area a number of narrow units of banded ironstone are intercalated with the mafic to intermediate flows and tuffs. The principal iron-rich mineral is magnetite and the unit is dull olive-green to dark grey on fresh surfaces. Typically the individual ironstone layers are less than 1 metre thick and occur as sets of numerous thin beds. The ironstone units are extremely hard to distinguish from the fine-grained mafic flow and tuff units, and were recognized from the magnetometer survey and using a hand magnet over the units.

The only occurrence of chert is in the laminated felsic tuff unit described above. The chert is very finely laminated (less than 5mm thick) and occurs as folded boudins within the tuff.

7.4 METAMORPHOSED FELSIC INTRUSIVE ROCKS

Irregular concordant sheets and stocks of tonalite are located in the central part of the survey area between L 2+00E and L 2+00W from BLO to 1+25N. These sheets and stocks suggests that the mode of occurrence of these bodies were emplaced during a

period of tectonism that affected the supracrustal rocks.

Typically these rocks are off-white to pink and are aphanitic to fine-grained. The rocks consist of anhedral feldspar phenocrysts (less than 3mm) and subhedral blue quartz-eye phenocrysts (less than 2mm) within a fine-grained matrix. These intrusives are slightly to moderately foliated at the sharp contact margins with the metavolcanics, but are massive at the centre within the tectonic zones (shear zones). Boudinaged quartz lenses less than 2cm. thick parallel the contacts of the sheets. Some of the intrusives have local carbonitization and are cut by a network of small ladder-type quartz veins. Around these stocks, the metavolcanics are extensively carbonitized and silicification of the metavolcanics is restricted to narrow bands within the carbonate phases.

8.0 STRUCTURAL GEOLOGY

8.1 FOLIATION

The parallel alignment of platy minerals such as chlorite and sericite during metamorphism has imparted a distinct foliation within the metavolcanics. For the most part, the foliation parallels the strike and dip of the bedding planes, and is generally E-W trending and dips steeply to the north. The foliation grades into more highly developed schistosity in more intensely deformed areas such as shear zones.

8.2 MINOR FOLDS

No major folds were observed during the survey, but

numerous minor folds were observed within the mafic to intermediate metavolcanic flows and consisted of Z-folds generally plunging moderately to steeply to the west and displayed axial planar cleavage. These folds may be related to the same episode of deformation responsible for the major folds interpreted in the area. The folding on the property is interpreted to predate the faulting within the area.

8.3 FAULTING

The Little Turtle Fault System is a major east-trending wrench fault that splits into a number of east-trending splay faults at the Seine River. The main fault and splay faults of this system are typified by intense schistosity along the fault planes, all of which have steep dips, and by the extreme elongation of any primary textures in the adjacent rocks.

At least one of these splay faults exists on the property and is best observed in Trench #1 where it is represented by a 30 metre wide shear zone. The shear zone is within the mafic to intermediate metavolcanics containing abundant chlorite-carbonate alteration with several discontinuous quartz-carbonate stringers and boudins, and fine disseminated pyrite.

9.0 GEOPHYSICS

9.1 INSTRUMENTATION

(i) Electromagnetics

A VLF EM-16 unit manufactured by Geonics Limited of Mississauga, Ontario was used for this survey. Both in and out of

phase components were recorded at 25 meter intervals on the grid lines. The transmitter station used was Culter, Maine with a frequency of 24.0 KHz.

(ii) Magnetics

A proton precession magnetometer (Model Omni IV) manufactured by EDA\Scintrex Instruments of Concord, Ontario was used for this survey. The total field was read with a resolution of one gamma and all the field values were corrected for diurnal variations using another omni IV magnetometer in the base station mode. Readings were read at 12.5 meter intervals on the grid lines.

9.2 RESULTS

(i) Electromagnetics

Most of the conductive trends located within the survey area are characterized by poor conductivity with short or discontinuous strike lengths and are due to topographic features, in this case, low swampy ground. The one exception is located along the southern boundary of the survey area and is due to a weakly mineralized (pyritic) shear zone.(Figure 5)

(ii) Magnetics

Although no gradient is evident, the data indicates that the survey area is underlain by a sequence of rocks that exhibit a strong west northwest regional magnetic trend. A strong magnetic horizon that can be traced across the property located at approximately 1+00S and best exhibited on L0+50W is related to a magnetite ironstone unit. This is also true of the magnetic high located on L3+00W and L3+50W just north of the baseline. The

saddle-type shaped magnetic high located on L0+50W through to L0+50E does not seem to be related to this formation, but may be related to an amygdaloidal mafic flow seemingly unique to this area of the grid.(Figure 6)

9.3 CONCLUSIONS AND RECOMMENDATIONS

The survey area is underlain by a steeply north dipping west northwest trending sequence of volcanogenic rocks. The magnetic anomalies for the most part represent magnetite ironstone units located intercalated within the volcanic sequence. The conductive trends represent topographic features such as low swampy ground with the one exception representing a weakly mineralized (pyritic) shear zone.

Both past and present interest in the survey area is centred around anomalous gold values associated with the porphyritic felsic intrusive located on L1+00W to L0+50E from 0+75N to 1+25N. A magnetic high feature located in the same area has not been explained. Further work, such as a drill hole, in this area in order to fully understand the relationship of the magnetic feature and the anomalous gold values should be considered.

10.0 PROSPECTING

A limited amount of time was spent prospecting the property to the southwest of the survey area to determine the cause of the 5-6 channel airborne EM conductors. These conductors were determined to be do to chemical metasediments consisting of chert-ironstone intercalated within intermediate to felsic metavolcanics.

Selected grab samples from this area returned negative gold values and only background copper and zinc values (see Figure 2).

11.0 MECHANICAL TRENCHING AND CHANNEL SAMPLING PROGRAM

A total of six areas were trenched by Harold McQuaker Enterprises from Emo, Ontario with a 1080 Case Excavator to remove the overburden and to expose the porphyritic tonalite intrusions and surrounding alteration aureoles on either side of the shaft over a 350 metre strike length, between L 2+00 E and L 2+00 W.

These trenches were subsequently washed using a wajax water pump to remove loose overburden, geologically mapped at a scale of 1cm.= 2m. and channel sampled.

A total of 31 selected grab and 41 channel samples were collected from the program and were assayed by Accurassay Laboratories in Thunder Bay. These samples were assayed for gold by the FA/AA method using a 50.2 gram sample.

The channel samples collected totalled 34.45 metres of channeling and were cut with a Stihl cutoff saw equipped with a diamond blade.

11.1 TRENCH #1

Trench #1 is located along L 1+50E from 0+15N to 0+70N and is roughly rectangular (8M X 55M). This trench is also located on an old pit (2M X 2M X 2M) re-discovered during the linecutting program and assayed 200 ppb.Au from a grab sample of the dump (Figure 7).

The trenching and detailed mapping revealed a NW-trending 30M

wide shear zone dipping steeply to the north consisting of mafic to intermediate metavolcanic flows and tuffs which are altered to chlorite-carbonate schist and containing occasional quartz-carbonate boudins. To the north of the shear zone the units are tuff-breccia and to the south of the shear intercalated tuffs and flows.

A 2.4M wide biotite porphyritic tonalite intrusive is located near the southern boundary of the shear zone parallel to the foliation and is fine to medium grained, pink in colour and has sharp contacts with the metavolcanics. The metavolcanics are strongly carbonitized adjacent to the porphyry and increase in pyrite content towards the contact. The porphyry is moderately sheared at the contact and becomes more massive towards the centre containing carbonate alteration and disseminated pyrite along fractures.

No significant gold values were returned from the channel sampling within the shear zone or the porphyry.

11.2 TRENCH #2

Trench #2 is located along L 1+00E from 0+05N to 0+35N and is roughly rectangular (12M X 20M). This trench is also located on an old pit re-discovered during the 1991 prospecting program and assayed 146 ppb.Au from a selected grab sample (Figure 8).

The trenching and detailed mapping revealed a NW-trending (separate?) shear zone with steep northerly dips to the one described in Trench #1 with increasing quartz-carbonate stringers and boudins, and pyrite content towards the intrusive. Within the

shear zone minor intercalated magnetite ironstone units less than 1cm. wide were noted and contained 1-2% disseminated pyrite. The trench is bounded by a swamp to the south and west, therefore the width of the shear zone could not be determined.

The intrusive is a 2.5-4M. wide porphyritic tonalite parallel to foliation and is interpreted to be a different intrusive from the one described in Trench #1. This porphyry is strongly carbonitized, light brown in colour and contains numerous quartz-carbonate filled fractures and ladder-type quartz-carbonate-tourmaline-pyrite stringers perpendicular to the foliation. The porphyry has the same structural characteristics as in Trench #1, where the intrusive has sharp contacts with the metavolcanics and becomes more massive and coarser-grained towards the centre.

No significant gold values were returned from the channel sampling of the shear zone and the porphyry.

11.3 TRENCH #3

Trench #3 is located along L 0+50E from 0+40N to 0+65N and is roughly rectangular (8M X 25M) and is bounded to the south by the swamp. This trench is located were a selected grab sample assayed 151 ppb.Au from the geological mapping program (Figure 9).

The trenching and detailed mapping revealed a sequence of mafic to intermediate flows and tuffs striking NW-SE and dipping steeply to the north. The south portion of the trench consist of a quartz-filled amygdaloidal and carbonitized flows intercalated with minor tuffs. Within these units is a small silicified, strongly foliated to sheared zone less than 1.5M wide containing

strong sericite-chlorite alteration and finely disseminated pyrite. Structurally, these units have been folded, and Z-folds indicate a 40-70 degree plunge to the west.

The north portion of the trench consists of essentially tuffs and minor carbonitized flows along with several narrow (less than 3cm.) wide porphyry intrusives similar to the intrusive in Trench #1. At the extreme north end of the trench, a massive, medium-grained flow was noted.

Channel sampling of the strongly foliated to sheared silicified sericite-chlorite schist with 3-5% finely disseminated pyrite assayed up to 335 ppb.Au across 1.0M.

11.4 TRENCH #4

Trench #4 is located between L 0+50E and L 0+00 from 0+70N to 1+20N is roughly rectangular (8M X 50M) and separated from the northwest corner of Trench #3 by only a few metres (Figure 10).

The trenching and channel sampling revealed a NW-SE trending sequence of mafic to intermediate tuffs and flows in the south with pyroclastics (tuff-breccia) in the north and are dipping steeply to the north. In the south portion of the trench between 0+75N and 0+90N are a series of porphyritic intrusions, which vary from biotite tonalite to recrystallized quartz-feldspar porphyritic tonalite.

The recrystallized tonalite are narrow stringers less than 0.6M wide that are highly siliceous, off-white in colour, boudinaged and highly deformed. The biotite tonalite at 0+90N is very similar to that observed in Trench #1 and is 1.7M wide. At the

extreme south end of the trench the largest intrusive varies from 1.6M-3.5M wide and is strongly deformed. The contact margins of the intrusive consists of strongly carbonitized mafic flows(?). The southern contact was not observed across the total width of the trench do to overburden. In the southeast corner of the trench the footwall of the porphyry consists of sheared mafic to intermediate tuff with minor intercalated magnetite ironstone.

No significant Au assays were returned from the channel sampling of the porphyries and the sheared metavolcanics.

11.5 TRENCH #5

Trench #5 is located along L 0+50W from 0+58N to 0+78N and is roughly rectangular (5M X 30M). This trench is also located less than 10 metres west of the shaft and tailings dump (Figure 11).

Approximately 10 metres to the east of the shaft, a 1.0M wide quartz-carbonate vein with finely disseminated pyrite within a narrow sericite-chlorite shear is located along a cliff face and assayed 538 ppb.Au. This vein strikes underneath the tailings dump and Trench #5 hoped to locate the vein extension.

The channel sampling and detailed mapping revealed a NW-trending sequence of mainly mafic to intermediate flows and tuffs with very minor intercalated porphyritic (feldspar) intermediate to felsic flows and dipping steeply to the north. At the extreme northeast corner of the trench, a heterolithic debris flow was noted consisting of randomly oriented felsic to intermediate rock fragments within a fine grained matrix.

A narrow less than 1.0M wide silicified shear zone with sericite-chlorite alteration containing disseminated pyrite corresponds to the extension with the quartz vein to the east. Of note, the vein observed to the east of the shaft was not observed at the top of the cliff face, but appeared as a silicified shear less than 1.0M. wide.

One channel sample was taken across the silicified shear assayed 162 ppb.Au.

11.6 TRENCH #6

Trench #6 is located between L 1+50W and L 1+00W from 1+10N to 1+35N and is roughly square (25M X 20M). This trench is located where a selected grab sample from the 1991 prospecting program assayed 0.341 oz./ton Au.

The channel sampling and detail mapping revealed a NW-trending sequence of mafic to intermediate metavolcanic pyroclastics and flows with steep north dips intruded by two-phase blue quartz-eye porphyritic tonalite.

The metavolcanic pyroclastics consist of tuff-breccia in the northern portion of the trench with mainly felsic clasts up to 50cm. long X 2 cm. wide. Minor drag folding is noted within the units and indicate a westerly plunge. The southern portion of the trench consists of highly altered carbonitized flows and tuffs that are strongly foliated to sheared. These units are silicified and contain carbonate-chlorite alteration, and fine disseminated pyrite.

The blue quartz-eye porphyritic tonalite is massive, light

grey on the weathered surface and contains minor carbonate and pyrite and pyrrhotite mineralization. Also, xenoliths of mafic to intermediate flows and tuffs were noted within the porphyry. At 1+25N/1+25W the tonalite has been recrystallized, highly fractured with quartz-carbonate stringers displaying a sugary texture and may represent an earlier phase of the intrusion which has been undergone deformation by the later blue quartz-eye porphyritic tonalite.

The metavolcanics display a carbonitized contact aureole zone surrounding this intrusion. The carbonitized metavolcanics are reddish-brown on the weathered surface and medium to dark green on the fresh surface, contain abundant carbonate-chlorite and minor sericite alteration, and disseminated pyrite.

Channel sampling of the recrystallized tonalite and carbonitized metavolcanic aureole assayed 1733 ppb.Au over 2.45 metres and 891 ppb.Au over 1.6 metres respectively.

217001	BLO/3+00E	Grab	sheared porphyritic tonalite with carb. alt., quartz stringers and diss. py
217002	2+35E/0+60S	Grab	sheared mafic metavolcanic with chl-carb-hem. alt. minor py
217003	2+60E/1+80S	Grab	quartz-carb vein within sheared silicified mafic metavolcanic tuff
217004	2+60E/1+80S	Grab	sheared silicified mafic tuff with strong carb-chl. alt. and diss. py
217005	2+95E/1+20S	Grab	sheared mafic with strong carb. alt. and diss. py
217006	2+00E/0+95S	Grab	sheared intermediate tuff with strong carb. alt. and diss. py
217007	2+20E/1+10S	Grab	quartz-carb. boudins within sheared intermediate tuff chl-carb. alt. and diss. py
217008	2+20E/1+10S	Grab	sheared intermediate tuff with diss. py
217009	1+45E/0+30N	Grab	Old Pit (dump) porphyritic tonalite with quartz stringers containing diss. py and minor cpy., carb. along fractures
217010	1+50E/0+20N	Grab	sheared porphyritic tonalite with quartz-carb. stringers and diss. py
217011	1+50E/0+28N	Grab	sheared mafic metavolcanic tuff? with 2-3% py and chl-carb-hem. alt.
217012	1+00E/1+48N	Grab	Massive feldspar porphyry 1-2M. wide with quartz boudins and minor diss. py
217013	0+55E/0+22N	Grab	sheared porphyritic tonalite? with 5-10% diss. py and chl-sericite alt.
217014	0+30E/0+72N	Grab	Old Pit (cliff face) quartz vein 1M. wide at base with 5-10% fine diss. py and sericite-carb alt.
217015	0+70E/0+75S	Grab	sheared intermediate tuff with carb. alt. and minor py
217016	0+70E/0+25S	Grab	sheared porphyry? with strong carb. alt., quartz stringers and diss. py (BOULDER IN SWAMP)
217017	0+57E/0+33S	Grab	slightly sheared, silicified mafic tuff? with carb. alt.

SAMPLE DESCRIPTIONS (con't)

			and diss. py	
217018	0+45E/1+00S	Grab	well foliated intermediate tuff with carb. alt. and diss. py	9
217019	0+50E/1+65S	Grab	strongly altered and sheared mafic tuff boulder with 3-5% py cubes	8
217020	0+02E/1+85N	Grab	feldspar porphyry dike with diss. py and carb. along fractures	5
217021	0+55W/1+00N	Grab	blue quartz-eye porphyritic tonalite with diss. py,po	1661
217022	0+57W/0+97N	Grab	strongly foliated mafic tuff with sericite alt. and 3-5% py	203
217023	0+70W/1+05N	Grab	blue quartz-eye porphyry with 5-7% diss. py	120
217024	0+65W/1+04N	Grab	blue quartz-eye porphyry with diss. py	775
217025	1+46W/1+35S	Grab	sheared silicified mafic metavolcanic with carb. alt. and minor py	13
217026	2+98W/1+20S	Grab	strongly sheared felsic tuff with carb. alt. and minor py, rusty gossan	23
217027	1+30W/1+23N	Grab	highly silicified intrusive? with diss. py and quartz-carb stringers	378
217028	1+20W/1+12N	Grab	sheared mafic metavolcanic with abundant carb. alt. and 2-3% diss. py and quartz stringers	1518
217029	1+60W/1+23N	Grab	sheared porphyritic tonalite with carb. alt. and diss. py	149
217030	1+50W/0+62N	Grab	sheared mafic metavolcanic with strong chl-carb. alt. and minor diss. py	4
217031	1+00W/0+35N	Grab	sheared porphyritic tonalite with carb. alt. and diss. py	5
217101	TR 6 (Figure 12)	Channel	West end of trench: #1-North (0.95 M.)	22
217102	TR 6 (Figure 12)	Channel	West end of trench: #2-Centre (0.9 M.)	115
217103	TR 6 (Figure 12)	Channel	West end of trench: #3-South (0.9 M.)	10
217104	TR 6 (Figure 12)	Channel	Centre of trench: #1-North (0.75 M.)	148
217105	TR 6 (Figure 12)	Channel	Centre of trench: #2 (1.0 M.)	586
217106	TR 6 (Figure 12)	Channel	Centre of trench: #3 (0.9 M.)	956
217107	TR 6 (Figure 12)	Channel	Centre of trench: #4 (0.75 M.)	2175
217108	TR 6 (Figure 12)	Channel	Centre of trench: #5 (0.8 M.)	2068

SAMPLE DESCRIPTIONS (Con't)

217109	TR 6 (Figure 12)	Channel	Centre of trench: #6 (0.8 M.)	41
217110	TR 6 (Figure 12)	Channel	Centre of trench: #7-South (0.75 M.)	47
217111	TR 6 (Figure 12)	Channel	East end of trench: #1-North (0.7 M.)	1452
217112	TR 6 (Figure 12)	Channel	East end of trench: #2 (0.9 M.)	330
217113	TR 6 (Figure 12)	Channel	East end of trench: #3 (0.7 M.)	81
217114	TR 6 (Figure 12)	Channel	East end of trench: #4-South (0.85 M.)	9
217115	TR 5 (Figure 11)	Channel	1.0 M.	162
217116	TR 4 (Figure 10)	Channel	North end of trench: #1-North (0.5 M.)	<5
217117	TR 4 (Figure 10)	Channel	North end of trench: #2 (0.85 M.)	<5
217118	TR 4 (Figure 10)	Channel	North end of trench: #3 (0.85 M.)	<5
217119	TR 4 (Figure 10)	Channel	North end of trench: #4-South (0.5 M.)	<5
217120	TR 4 (Figure 10)	Channel	Centre of trench: (0.6 M.)	<5
217121	TR 4 (Figure 10)	Channel	South end of trench: #1-North (0.35 M.)	<5
217122	TR 4 (Figure 10)	Channel	South end of trench: #2 (0.8 M.)	<5
217123	TR 4 (Figure 10)	Channel	South end of trench: #3 (0.8 M.)	<5
217124	TR 4 (Figure 10)	Channel	South end of trench: #4-South (1.0 M.)	17
217125	TR 3 (Figure 9)	Channel	West end of trench: #1-North (0.8 M.)	10
217126	TR 3 (Figure 9)	Channel	West end of trench: #2-South (0.8 M.)	152
217127	TR 3 (Figure 9)	Channel	East end of trench: (1.0 M.)	335
217128	TR 2 (Figure 8)	Channel	West end of trench: (1.0 M.)	11
217129	TR 2 (Figure 8)	Channel	Centre of trench: #1-North (0.85 M.)	6
217130	TR 2 (Figure 8)	Channel	Centre of trench: #2 (0.85 M.)	15
217131	TR 2 (Figure 8)	Channel	Centre of trench: #3-South (0.85 M.)	53
217132	TR 2 (Figure 8)	Channel	East end of trench: #1-North (1.0 M.)	<5
217133	TR 2 (Figure 8)	Channel	East end of trench: #2-South (1.0 M.)	17

SAMPLE DESCRIPTIONS (con't)

217134	TR 1 (Figure 7)	Channel	North end of trench: #1-North (1.0 M.)	21
217135	TR 1 (Figure 7)	Channel	North end of trench: #2-South (1.0 M.)	10
217136	TR 1 (Figure 7)	Channel	South end of trench: #1-North (1.0 M.)	<5
217137	TR 1 (Figure 7)	Channel	South end of trench: #2 (1.0 M.)	<5
217138	TR 1 (Figure 7)	Channel	South end of trench: #3 (0.8 M.)	8
217139	TR 1 (Figure 7)	Channel	South end of trench: #4 (0.8 M.)	<5
217140	TR 1 (Figure 7)	Channel	South end of trench: #5 (0.8 M.)	<5
217141	TR 1 (Figure 7)	Channel	South end of trench: #6-South (1.0 M.)	7
213791	see Figure 2	Grab	south of survey area on AEM conductor	<5
213792	see Figure 2	Grab	south of survey area on AEM conductor	<5

13.0 DISCUSSION

A possible scenario for the sequence of events of the emplacement of the gold mineralization is postulated below. This sequence may or may not necessarily represent the actual events, but an attempt has been made to postulate the different observations and combine them into a logical sequence of events. Much more practical and theoretical work is required within the Calm Lake area at the academic level to unravel the complex geological features.

The sequence of events are as follows:

(1) Deposition of the volcanic rocks on an unknown basement.

(2) Deposition of the Calm Lake sediments on the volcanics.

(3) The volcanic-sedimentary sequence was overturned and folded during regional metamorphism (d1).

(4) With this event, several sub-events were occurring at and/or near the same time. These include the emplacement of the surrounding plutonic stocks overprinting regional metamorphism by contact metamorphism, regional deformation and minor refolding (d2).

(5) Major period of wrench faulting resulting in the formation of the Quetico and Little Turtle fault systems.

(6) At the waning stages of the fifth event, a series of tonalite intrusives intruded into the splay faults. During this event, the renewed heat source remobilized, recrystallized and deformed the earlier tonalite intrusives by the waning stages of deformation and emplacement of the blue quartz-eye porphyritic tonalite.

(7) Finally, a third deformational event (d3) followed as a later stage of cross-faulting.

The timing of the emplacement of gold mineralization is difficult to determine, ie. whether the gold was present within the porphyritic tonalite and/or surrounding metavolcanics or was introduced at a later date.

Two possible scenarios are (1) the gold was introduced during the waning stages of the deformational event of wrench faulting and/or (2) gold mineralization occurred at several different times during the sequence of events, ie. the quartz veining may represent one generation, remobilization within the carbonitized metavolcanic aureole representing another and finally the porphyritic tonalite intrusives.

It should be noted, that the splay fault observed on the property is represented <u>not</u> by one continuous wide zone of intense deformation, but by a series of discrete zones of deformation representing an overall wide zone. The splay fault is interpreted to trend across the property and traced from the presence of the known gold mineralization occurrences.

The author believes that the property should receive further exploration concentrating on finding other syn-tectonic porphyritic tonalite intrusives within shear zones that may contain gold mineralization within the intrusive and/or surrounding metavolcanic contact aureoles.

14.0 RECOMMENDATIONS

The Calm Lake West property has a large percentage of bedrock exposure, and although having an extensive exploration program performed on it, the work concentrated on the known gold mineralization around the old mine shaft and pits representing only a 1/10th of the property.

Therefore, a comprehensive exploration program is recommended on the rest of the property to determine if any additional shear zones/splay faults with syn-tectonic intrusions exist that contain gold mineralization, as well as continued work on the encouraging results encountered north and west of the mine shaft. A three phase program put forth for the 1993 summer field season and briefly includes the following:

PHASE 1:

(1) Extending the baseline to the east and west boundaries, establishing survey lines at 100 Metre intervals with 25 Metre station intervals covering the entire property.

(2) A proton precession magnetometer survey and VLF-EM survey over the established grid outlined above.

(3) A continuation of the geological mapping and prospecting survey at 1:1000 over the established grid.

PHASE 2:

(1) Mechanical trenching, channel sampling and detail mapping of the following areas including any new mineralized zones and/or areas outlined in Phase 1.

(i) A trench north of the shaft area to the west of L 0+50W

from 0+85N to 1+10N exposing the blue quartz-eye porphyritic tonalite where assays up to 1661 ppb.Au were obtained from grab samples.

(ii) Additional channel sampling in Trench #6 across the blue quartz-eye porphyritic tonalite.

PHASE 3:

(1) A 2000 FT. diamond drill program to test the mineralization northwest of the shaft area as well as any new mineralized zones outlined in PHASES 1 and 2.

15.0 REFERENCES

Fumerton,S.L.
1985: Geology of the Calm Lake Area, District of Rainy River; Ontario Geological Survey Report 226, 72p. Accompanied by Map 2467, scale 1:31,680.

Fumerton,S.L.,and Bumgarner,E.L.
1981: Precambrian Geology of the Calm Lake Area, Rainy River District; Ontario Geological Survey Preliminary Map P.2405, (Revised) Geological Series, Scale 1:15,840 or 1 inch to 1/4 mile. Geology 1980.

Schnieders,B.R. and Dutka,R.J.
1985: Property Visits and Reports of the Atikokan Economic Geologists, 1979-1983, Atikokan Geological Survey; Ontario Geological Survey Open File Report 5539, 512p., 2 tables, 42 figures, 2 maps and 3 appendices.

APPENDIX 1.0

CERTIFICATE OF ANALYSIS

BARRINGER LABORATORIES

BARRINGER / ACCURASSAY LABORATORIES
THUNDER BAY DIVISION

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

2-Jun-92

David Gliddon
603-199 Academy Drive
Thunder Bay, ON
P7B 5W2

Page: 1
Copy: 1 of 1
Set : 1

Attn: Mr. David Gliddon
Project:

PO #:

Received: 21-May-92 17:50

Job: 924146T

Status: Final

Rock Samples

Sample	Au FA/AA3 ppb	Cu AA ppm	Zn AA ppm	Pb AA ppm
213791	<5	---	---	---
213792	<5	70	45	<1

BARRINGER LABORATORIES

BARRINGER / ACCURASSAY LABORATORIES
THUNDER BAY DIVISION

5735 McADAM ROAD
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Attn: Mr. David Gliddon
Project:

PO #:

Received: 21-May-92 17:50

Job: 924146T

Status: Final

Abbreviations:

Parameters:

Au	: Gold
Cu	: Copper
Zn	: Zinc
Pb	: Lead

Methods:

FA/AA3	: Fire Assay/Atomic Absorption (2/3 assay ton)
AA	: Atomic Absorption

Units:

ppb	: parts per billion
ppm	: parts per million

Quality control:

<	: Less than quoted detection limit

Signed:

.....

Jeffrey Davis, B.Sc.,C.Chem.
Manager, Thunder Bay Division

ACCURASSAY LABS
A DIVISION OF ASSAY LABORATORIES SERVICES INC.

1070 LITHIUM DRIVE, UNIT 2
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6-Jul-92

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Attn: Mr. David Gliddon
Project:

Received: 2-Jul-92 10:08
PO #:

Job: 92431/1

Status: Final

Rock Samples

Sample	Au FA/AA1 ppb
21/001	124
21/002	13
21/003	127
21/004	23
21/005	5
21/006	94
21/007	247
21/008	198
21/009	200
21/010	146
21/011	19
21/012	4
21/013	151
21/014	538
21/015	4
21/016	14
21/017	13
21/018	9
21/019	8
21/020	5
21/021	1661
21/022	203
21/023	120
21/024	775
21/025	13
21/026	23
21/027	378
21/028	1518

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Rock Samples

Sample	Au FA/AA1 ppb
21/029	149
21/030	4
21/031	5

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Samples were assayed using a mass of 50.2 grams.

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14-Jul-92

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Attn: Mr. David Gliddon
Project:

Received: 9-Jul-92 10:10
PO #:

Job: 9243391

Status: Final

Rock Samples

Sample	Au FA/AA3 ppb
21/101	22
21/102	115
21/103	10
21/104	148
21/105	586
21/106	956
21/107	215
21/108	2068
21/109	41
21/110	47
21/111	1452
21/112	330
21/113	81
21/114	9
21/115	162
21/116	<5
21/117	<5
21/118	<5
21/119	<5
21/120	<5
21/121	<5
21/122	<5
21/123	<5
21/124	17
21/125	10
21/126	152
21/127	335
21/128	11

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Attn: Mr. David Gliddon
Project:

Received: 9-Jul-92 10:10

PO #:

Job: 9243391

Status: Final

Rock Samples

Sample	Au FA/AA3 ppb
21/129	6
21/130	15
21/131	53
21/132	<5
21/133	17
21/134	21
21/135	10
21/136	<5
21/137	<5
21/138	8
21/139	<5
21/140	<5
21/141	7

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Signed:

.....

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14-Jul-92

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P7B 5W2

Attn: Mr. David Gliddon
Project:

Received: 9-Jul-92 10:10
PO #:

Job: 9243391 Status: Final

Samples were assayed for Au using a sample mass of 50.2 grams.

APPENDIX 2.0

DAILY LOGS

DAILY LOG: D. GLIDDON

TYPE	DATE	WORK PERFORMED
Mobilization	June 6	Travelled to Flanders; outlined proposed grid to linecutters; returned to Thunder Bay
Mobilization	June 12	Travelled to Flanders
Prospecting	June 13	Prospected south of grid to locate AEM conductors; 2 samples taken
Trenching	June 14	Supervised excavator-walked machine to site of Trench #1 and started trenching
Trenching	June 15	Supervised excavator-finished Trench #1 and Trench #2; started to clean out trenches
Trenching	June 16	Supervised excavator-finished trenching Trenches #3 and #4; continued to clean out trenches
Trenching	June 17	Supervised excavator-started trenching Trench #6; started to wajaxing Trench #1 and #2
Trenching	June 18	Supervised excavator-finished trenching Trench #5; continued cleaning and wajaxing trenches
Trenching	June 19	Wajaxing and cleaning of Trench #3
Trenching	June 20	Wajaxing and cleaning of Trench #4
Trenching	June 21	Wajaxing and cleaning of Trench #5
Trenching	June 22	Wajaxing and cleaning of Trench #6; travelled to Thunder Bay
Remobilization	June 25	Travelled to Flanders
Geology	June 26	Started mapping grid; 8 samples taken; drafting of field map
Geology	June 27	Continued mapping grid; 6 samples taken; drafting of field map
Geology	June 28	Continued mapping grid; 10 samples taken; drafting of field map
Geology	June 29	Continued mapping grid; 2 samples

DAILY LOG: D. GLIDDON (continued)

TYPE	DATE	WORK PERFORMED
		taken; drafting of field map
Geology	June 30	Finished mapping of grid; 4 samples taken; drafting of field map; shipped rocks to Thunder Bay
Geology	July 1	Re-evaluated geology at camp and drafting of field map
Geology	July 2	Re-checked mapping of some units and completed field map
Channel Sampling	July 3	Started and completed channel sampling Trench #2; 6 samples taken
Channel Sampling	July 4	Started and completed channel sampling of Trenches #1 and #3; 11 samples taken
Channel Sampling	July 5	Started channel sampling of Trenches #4 and #6
Channel Sampling	July 6	Completed channel sampling of Trenches #5 and #6; 15 samples taken
Channel Sampling	July 7	Completed channel sampling of Trench #4; 8 samples taken; completed tagging samples from all trenches and started to demob equipment to camp
Geology	July 8	Rick and I chained in mini-grids in all the trenches for detailed mapping
Geology	July 9	Started detail mapping of trenches and completed Trenches #1 thru to #4
Geology	July 10	Gary Mercier of Mercier Limited, Inc. visited property for possible option deal
Prospecting	July 11	Prospected old showings north of tracks between Flanders and Calm Lake stations
Geology, Demobilization	July 12	Finished detail mapping of Trenches #5 and #6; packed up and travelled back to Thunder Bay
Report	July 31	Started writing technical report

DAILY LOG: D. GLIDDON (continued)

TYPE	DATE	WORK PERFORMED
Report	August 4	Continued writing technical report
Report	August 13	Started drafting final maps
Report	August 14	Finished drafting final maps
Report	August 15	Finished technical report

DAILY LOG: R. MIDDAUGH

TYPE	DATE	WORK PERFORMED
Mobilization	June 16	Travelled to Flanders
Trenching	June 17	Mobilization of equipment from camp; Wajaxing Trenches #1 and #2
Trenching	June 18	Wajaxing and cleaning of Trench #3
Staking	June 19	Staking of additional claims to group
Staking	June 20	Staking of additional claims to group
Staking	June 21	Completed staking
Geophysics	June 22	Started VLF-EM survey
Geophysics	June 23	Completed VLF-EM survey; plotted data onto field map
Geophysics	June 24	Set-up base station and started Mag survey
Geophysics	June 25	Completed Mag survey; plotted and contoured data onto field map; travelled to Thunder Bay
Remobilization	July 2	Travelled to Flanders
Channel Sampling	July 3	Started and completed channel sampling Trench #2; 6 samples taken
Channel Sampling	July 4	Started and completed channel sampling of Trenches #1 and #3; 11 samples taken
Channel Sampling	July 5	Started channel sampling of Trenches #4 and #6
Channel Sampling	July 6	Completed channel sampling of Trenches #5 and #6; 15 samples taken
Channel Sampling	July 7	Completed channel sampling of Trench #4; 8 samples taken; completed tagging samples from all trenches and started to demob equipment to camp
Geology	July 8	Dave and I chained in mini-grids in all the trenches for detailed mapping; returned to Thunder Bay
Report	August 13	Writing technical report

DAILY LOG: R. MIDDAUGH (continued)

TYPE	DATE	WORK PERFORMED
Report	August 14	Completed drafting final maps

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200

4W 3W 2W 1W 0 1E 2E 3E 4E

2N 1N 0 BL 0 1S 2S

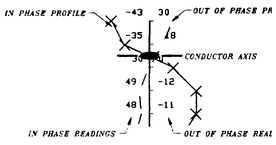
118671

118673

118670

GEOPHYSICAL LEGEND

INSTRUMENT:	GEONICS EM-16
TRANSMITTER STATION:	CUTLER, MAINE
CONDUCTOR AXIS:	
PROFILE SCALE:	1 cm = 10%
POSITIVE READINGS:	EAST OF LINE



TOPOGRAPHIC SYMBOLS

swamp

open cut (logging)

winter logging road; skidder road

claim post

0 25 50 75 100M

SCALE 1 : 1000

GITCHEE GUMEE GOLD

Calm Lake West Property

VLF-EM PROFILES

Date: July 1992	Scale: 1 : 1000
Drawn By: R.D.M.	Figure: 5

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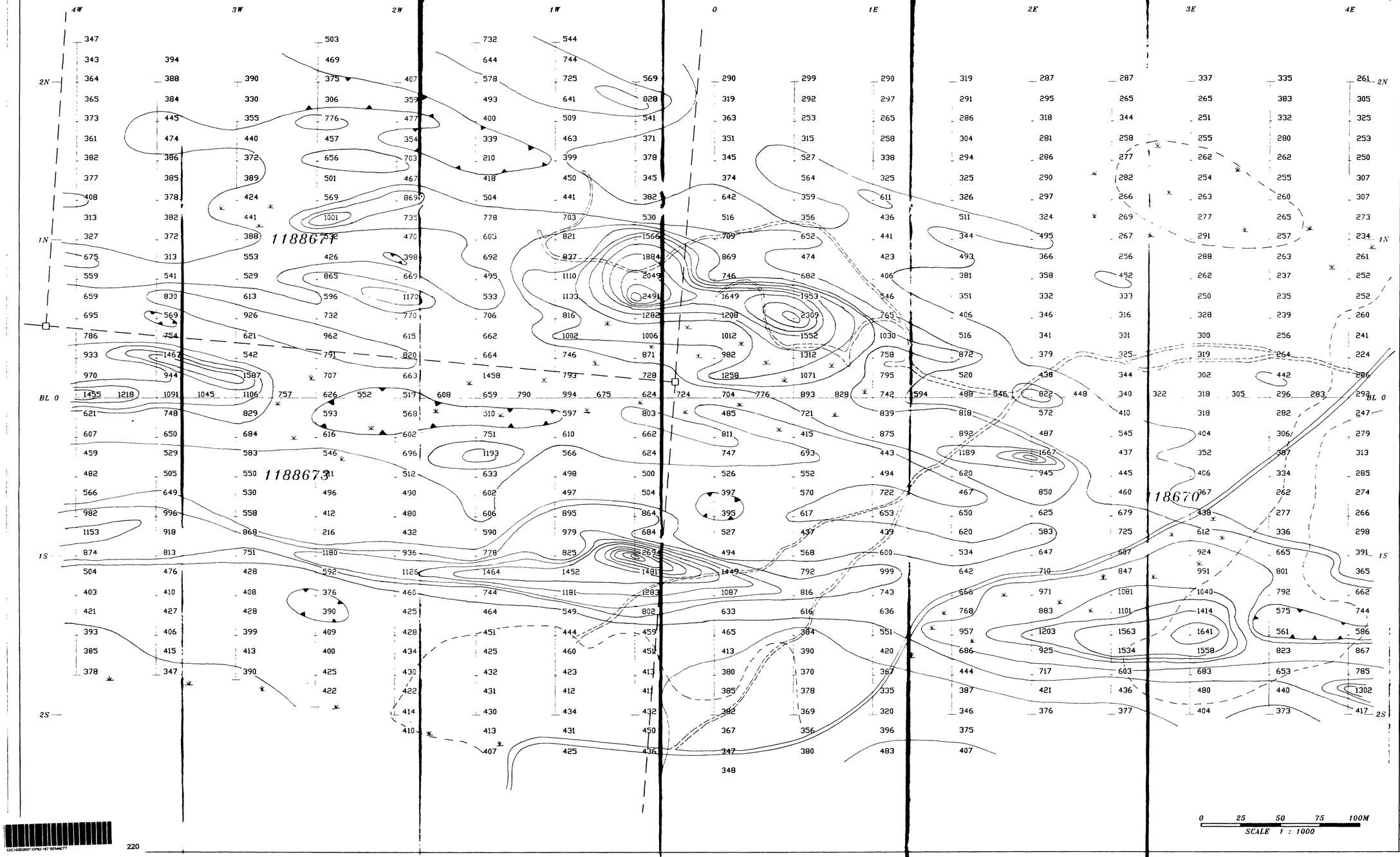

GEOPHYSICAL LEGEND

INSTRUMENT:	SCINTREX OMNI IV MAGNETOMETER
ACCURACY:	0.1 GAMMA
CONTOUR INTERVAL:	200 GAMMAS
REFERENCE FIELD:	59,230 GAMMAS
DATUM:	59,000 GAMMAS
MAGNETIC LOW:	

TOPOGRAPHIC SYMBOLS

swamp

open cut (logging)

winter logging road; skidder road

claim post

0 25 50 75 100M

SCALE 1 : 1000

GITCHEE GUMEE GOLD

Calm Lake West Property

MAGNETOMETER SURVEY

Date: July 1992	Scale: 1 : 1000
Drawn By: R.D.M.	Figure: 6

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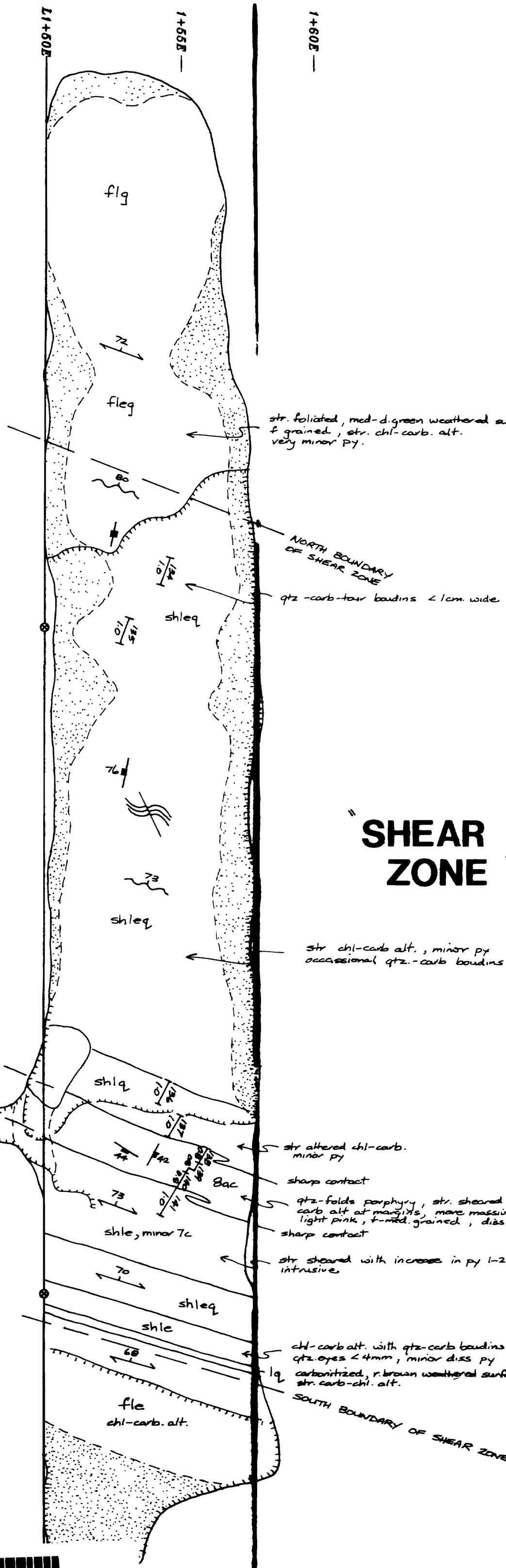


LEGEND

8 METAMORPHOSED SYNTECTONIC FELSIC PLUTONIC ROCKS
- 8a Biotite tonalite, fine to medium grained
- 8b Porphyritic (blue quartz-eye phenocrysts)
- 8e Porphyritic (feldspar phenocrysts)

7 METASEDIMENTS
CHEMICAL METASEDIMENTS
- 7e Magnetite ironstone

2 METAVOLCANICS
FELSIC VOLCANICS
- 2e Porphyritic Flow (feldspar phenocrysts)
- 2f Sericite phyllite

1 MAFIC TO INTERMEDIATE VOLCANICS
- 1b Amygdaloidal flow
- 1c Porphyritic flow (feldspar phenocrysts)
- 1d Coarse and medium-grained flows
- 1e Tuff
- 1f Lapilli-tuff
- 1g Tuff-breccia
- 1h Heterolithic debris flow
- 1q Carbonatized

SYMBOLS

- Geological contact (observed, interpreted)
- 70 — Foliation (inclined)
- 80 — Joint (inclined, vertical)
- 70 — Shear
- Kink band
- 50 — Z-fold with plunge
- 1.0 — channel sample # width (M.)
- 217013 — Grab sample
- Ledge, Cliff
- Overburden
- Swamp

ABBREVIATIONS

py	pyrite
po	pyrrhotite
qtz	quartz
tour.	tourmaline
sil.	silicification
c^c	carbonatization
chl.	chlorite alteration
ser.	sericite alteration
carb.	carbonate alteration
str.	strong

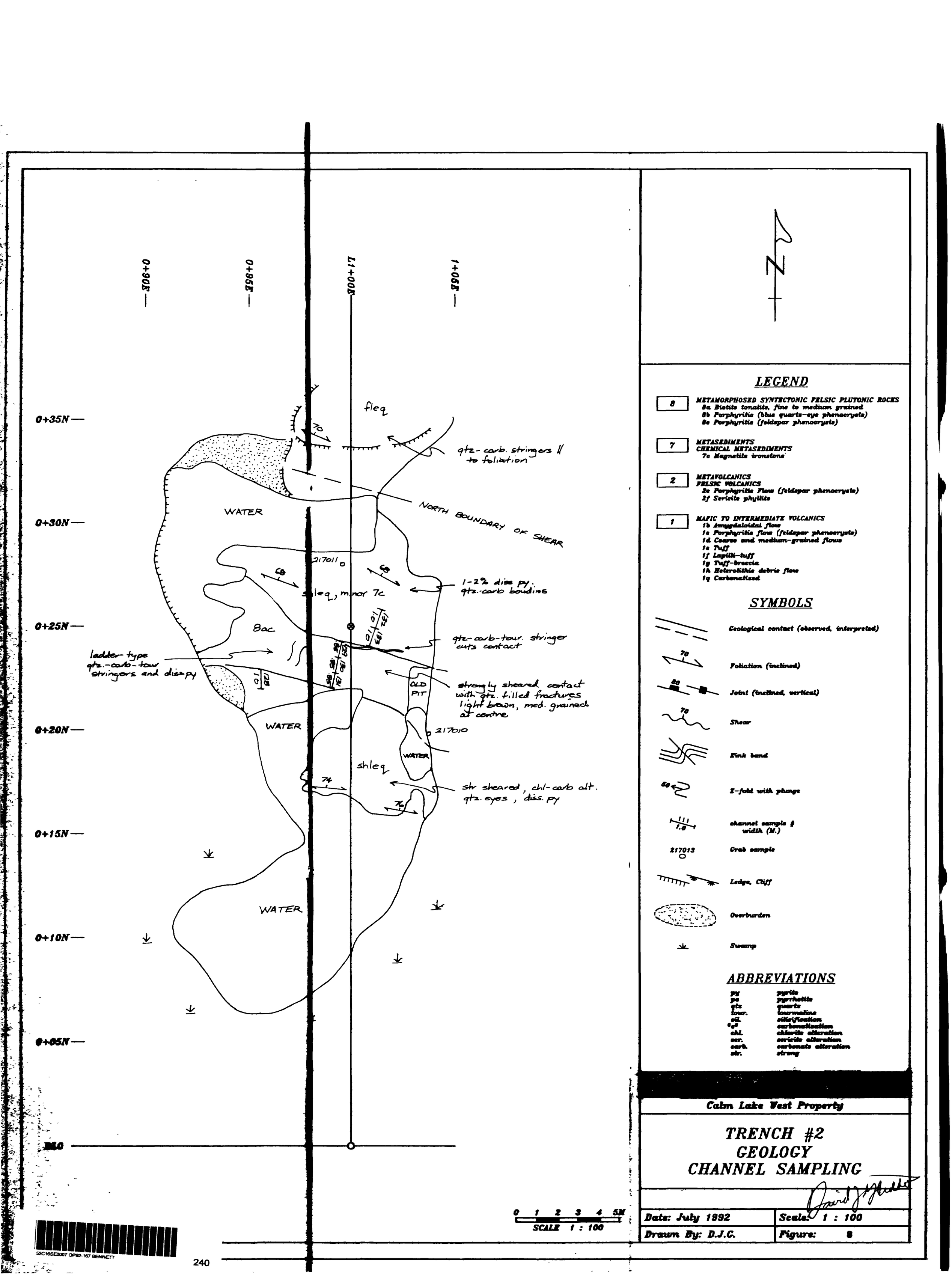
Calm Lake West Property

TRENCH #1
GEOLOGY
CHANNEL SAMPLING

David J. Bennett

Date: July 1992	Scale: 1 : 100
Drawn By: D.J.G.	Figure: 7

52C16SE0007 OP92-167 BENNETT



LEGEND

8 METAMORPHOSED SYNTECTONIC FELSIC PLUTONIC ROCKS
- 8a Biotite tonalite, fine to medium grained
- 8b Porphyritic (blue quartz-eye phenocrysts)
- 8c Porphyritic (feldspar phenocrysts)

7 METASEDIMENTS
CHEMICAL METASEDIMENTS
- 7c Magnetite ironstone

2 METAVOLCANICS
FELSIC VOLCANICS
- 2e Porphyritic Flow (feldspar phenocrysts)
- 2f Sericite phyllite

1 MAFIC TO INTERMEDIATE VOLCANICS
- 1b Amygdaloidal flow
- 1c Porphyritic flow (feldspar phenocrysts)
- 1d Coarse and medium-grained flows
- 1e Tuff
- 1f Lapilli-tuff
- 1g Tuff-breccia
- 1h Heterolithic debris flow
- 1q Carbonatized

SYMBOLS

- Geological contact (observed, interpreted)
- 70 — Foliation (inclined)
- 80 — Joint (inclined, vertical)
- 70 — Shear
- Kink band
- 50 — Z-fold with plunge
- 1.0 — channel sample # width (M.)
- 217013 — Grab sample
- Ledge, Cliff
- Overburden
- Swamp

ABBREVIATIONS

py	pyrite
po	pyrrhotite
qtz	quartz
tour.	tourmaline
sil.	silicification
carb	carbonatization
chl.	chlorite alteration
ser.	sericite alteration
carb.	carbonate alteration
str.	strong

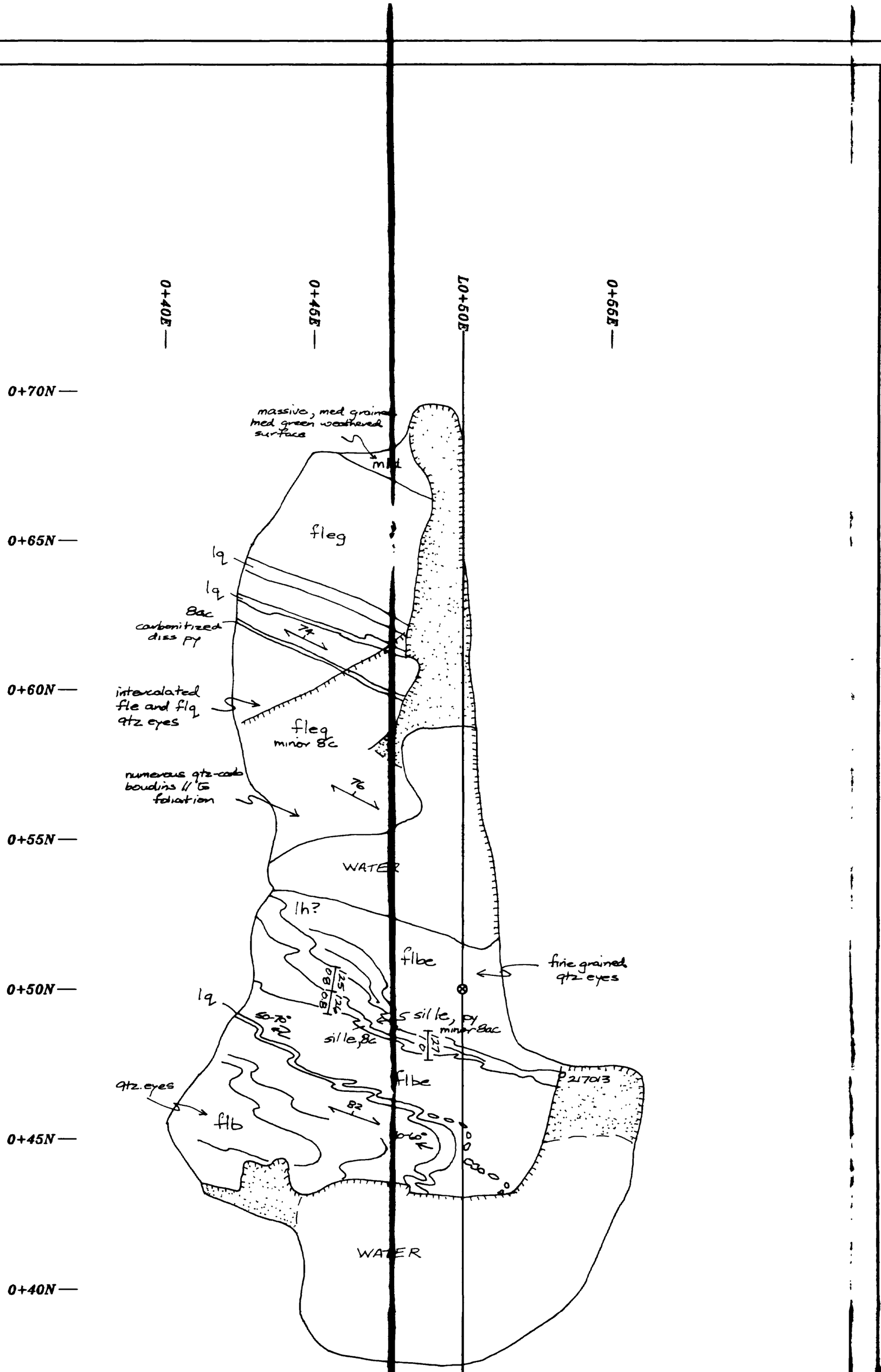
Calm Lake West Property

TRENCH #2
GEOLOGY
CHANNEL SAMPLING

David J. Bennett

Date: July 1992	Scale: 1 : 100
Drawn By: D.J.C.	Figure: 8

52C16SE0007 OP92-167 BENNETT



0 1 2 3 4 5m
SCALE 1 : 100

N

LEGEND

8 *METAMORPHOSED SYNTECTONIC FELSIC PLUTONIC ROCKS*
- *8a Biotite tonalite, fine to medium grained*
- *8b Porphyritic (blue quartz-eye phenocrysts)*
- *8c Porphyritic (feldspar phenocrysts)*

7 *METASEDIMENTS*
CHEMICAL METASEDIMENTS
- *7c Magnetite ironstone*

2 *METAVOLCANICS*
FELSIC VOLCANICS
- *2e Porphyritic Flow (feldspar phenocrysts)*
- *2f Sericite phyllite*

1 *MAFIC TO INTERMEDIATE VOLCANICS*
- *1b Amygdaloidal flow*
- *1c Porphyritic flow (feldspar phenocrysts)*
- *1d Coarse and medium-grained flows*
- *1e Tuff*
- *1f Lapilli-tuff*
- *1g Tuff-breccia*
- *1h Heterolithic debris flow*
- *1q Carbonatized*

SYMBOLS

- Geological contact (observed, interpreted)
- 70 — Foliation (inclined)
- 80 — Joint (inclined, vertical)
- 70 — Shear
- Kink band
- 50 — Z-fold with plunge
- 1.0 — channel sample # width (M.)
- 217013 — Grab sample
- Ledge, Cliff
- Overburden
- Swamp

ABBREVIATIONS

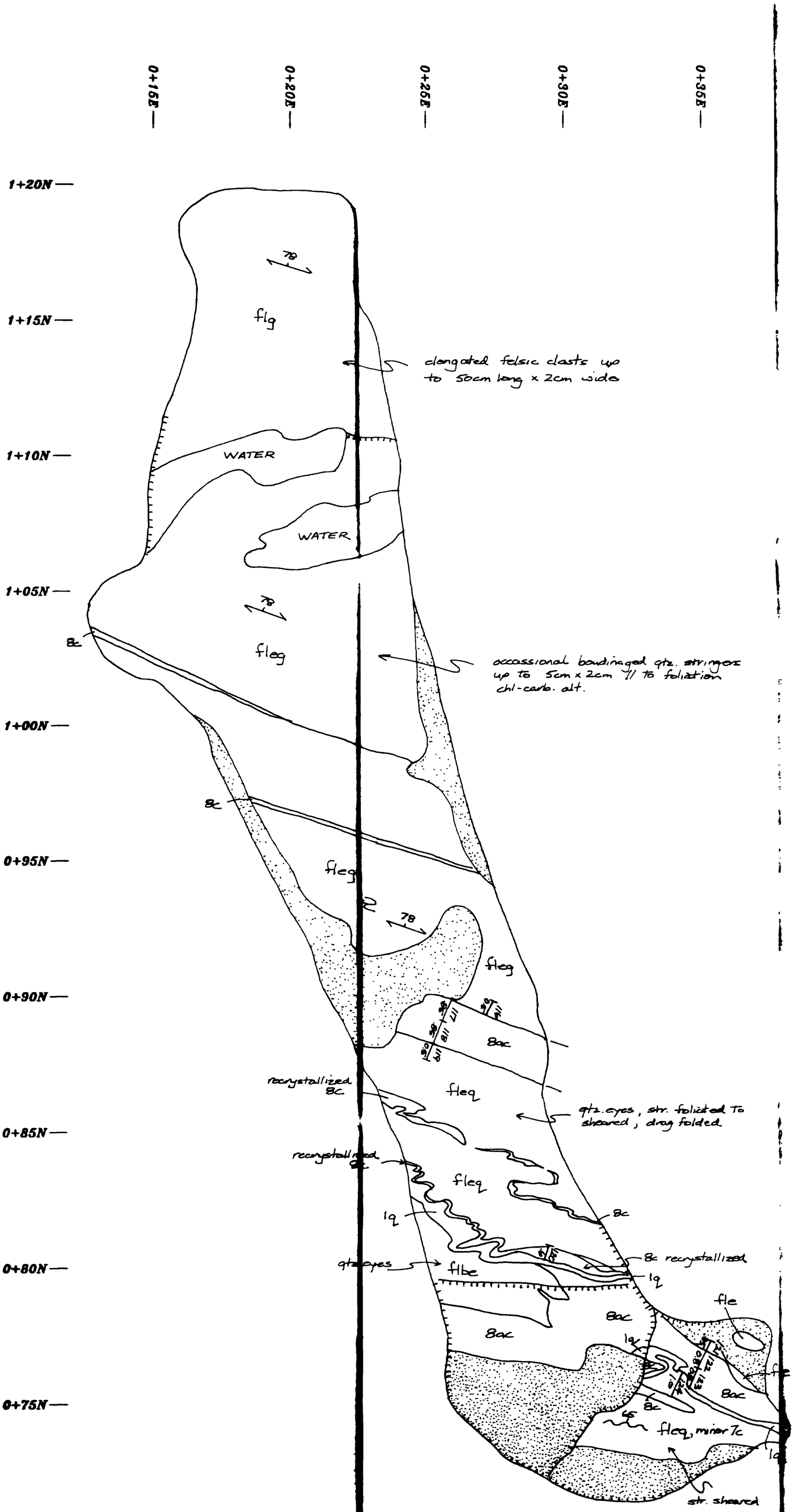
py	pyrite
po	pyrrhotite
qtz	quartz
tour.	tourmaline
sil.	silicification
carb	carbonatization
chl.	chlorite alteration
ser.	sericite alteration
carb.	carbonate alteration
str.	strong

Calm Lake West Property

TRENCH #3
GEOLOGY
CHANNEL SAMPLING

Date: July 1992	Scale: 1 : 100
Drawn By: D.J.G.	Figure: 9

52C16SE0007 OP92-167 BENNETT



LEGEND

8 *METAMORPHOSED SYNTECTONIC FELSIC PLUTONIC ROCKS*
- *8a Biotite tonalite, fine to medium grained*
- *8b Porphyritic (blue quartz-eye phenocrysts)*
- *8c Porphyritic (feldspar phenocrysts)*

7 *METASEDIMENTS*
CHEMICAL METASEDIMENTS
- *7c Magnetite ironstone*

2 *METAVOLCANICS*
FELSIC VOLCANICS
- *2e Porphyritic flow (feldspar phenocrysts)*
- *2f Sericite phyllite*

1 *MAFIC TO INTERMEDIATE VOLCANICS*
- *1b Amygdaloidal flow*
- *1c Porphyritic flow (feldspar phenocrysts)*
- *1d Coarse and medium-grained flows*
- *1e Tuff*
- *1f Lapilli-tuff*
- *1g Tuff-breccia*
- *1h Heterolithic debris flow*
- *1q Carbonatized*

SYMBOLS

- *Geological contact (observed, interpreted)*
- 70 — *Foliation (inclined)*
- 80 — *Joint (inclined, vertical)*
- 70 — *Shear*
- *Kink band*
- 50 — *Z-fold with plunge*
- 1.0 — *channel sample # width (M.)*
- 217013 — *Grab sample*
- *Ledge, Cliff*
- *Overburden*
- *Swamp*

ABBREVIATIONS

py	pyrite
po	pyrrhotite
qtz	quartz
tour.	tourmaline
sil.	silicification
c,c	carbonatization
chl.	chlorite alteration
ser.	sericite alteration
carb.	carbonate alteration
str.	strong

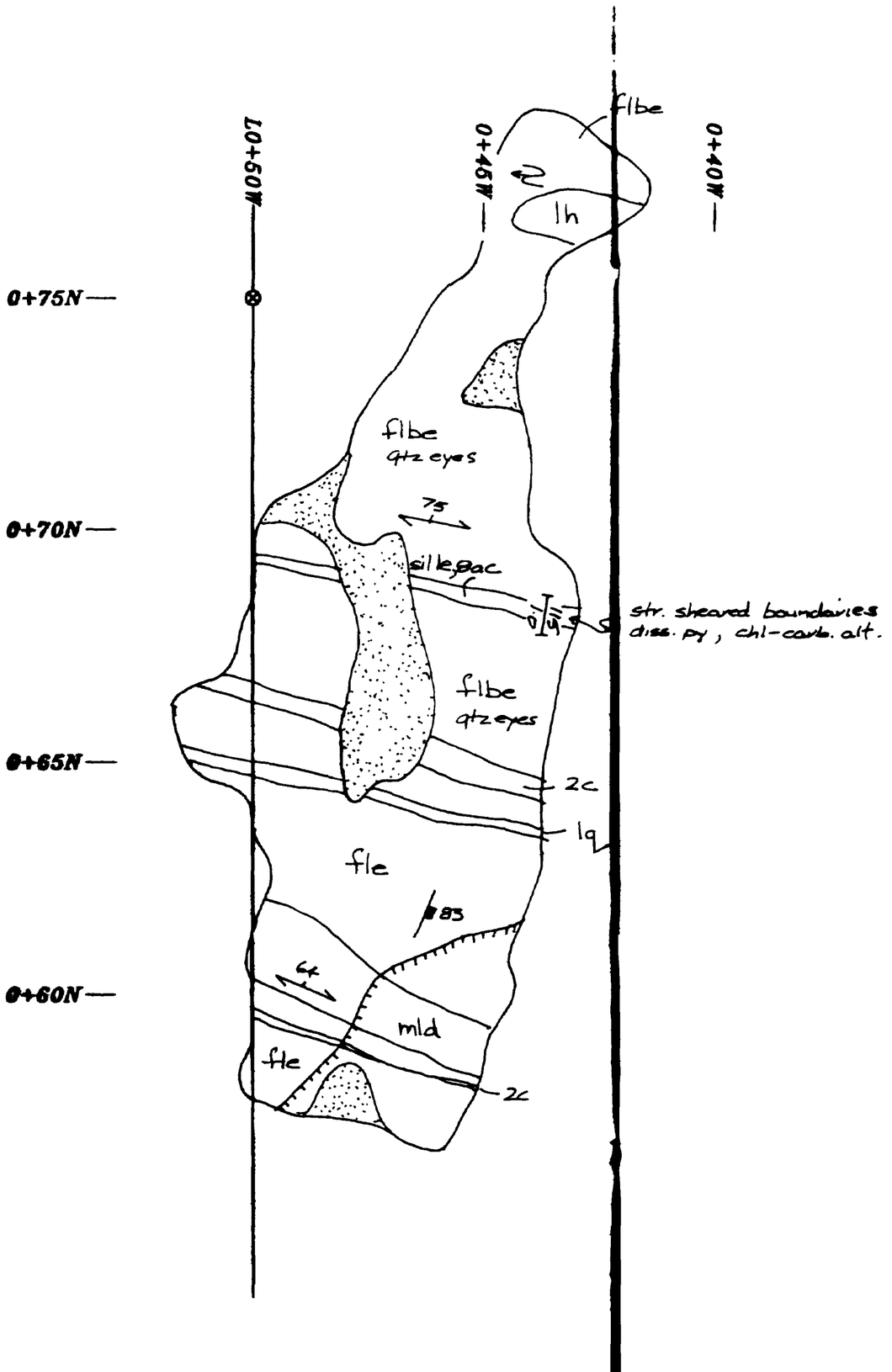
Calm Lake West Property

TRENCH #4
GEOLOGY
CHANNEL SAMPLING

David J. Gladden

Date: July 1992	Scale: 1 : 100
Drawn By: D.J.G.	Figure: 10

52C16SE0007 OP92-167 BENNETT



0 1 2 3 4 5M

SCALE 1 : 100

LEGEND

8 METAMORPHOSED SYNTECTONIC FELSIC PLUTONIC ROCKS
- 8a Biotite tonalite, fine to medium grained
- 8b Porphyritic (blue quartz-eye phenocrysts)
- 8c Porphyritic (feldspar phenocrysts)

7 METASEDIMENTS
CHEMICAL METASEDIMENTS
- 7e Magnetite ironstone

2 METAVOLCANICS
FELSIC VOLCANICS
- 2c Porphyritic Flow (feldspar phenocrysts)
- 2f Sericite phyllite

1 MAFIC TO INTERMEDIATE VOLCANICS
- 1b Amygdaloidal flow
- 1c Porphyritic flow (feldspar phenocrysts)
- 1d Coarse and medium-grained flows
- 1e Tuff
- 1f Lapilli-tuff
- 1g Tuff-breccia
- 1h Heterolithic debris flow
- 1q Carbonatized

SYMBOLS

- Geological contact (observed, interpreted)
- 70 Foliation (inclined)
- 80 Joint (inclined, vertical)
- 70 Shear
- Kink band
- 60 Z-fold with plunge
- 1.0 channel sample # width (M.)
- 217013 Grab sample
- Ledge, Cliff
- Overburden
- Swamp

ABBREVIATIONS

py	pyrite
po	pyrrhotite
qtz	quartz
tour.	tourmaline
sil.	silicification
carb	carbonatization
chl.	chlorite alteration
ser.	sericite alteration
carb.	carbonate alteration
str.	strong

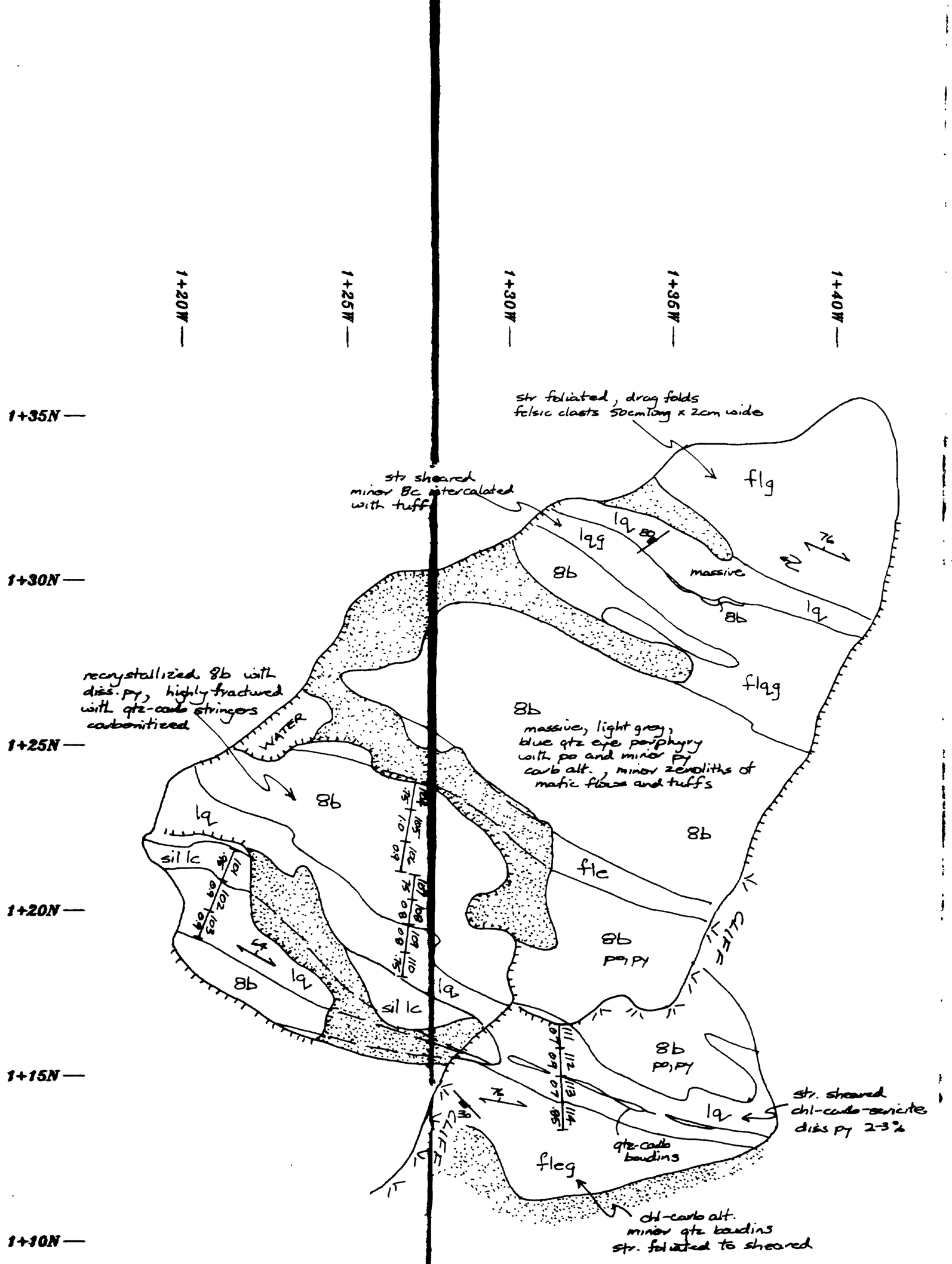
Cabin Lake West Property

TRENCH #5
GEOLOGY
CHANNEL SAMPLING

David J. Bennett

Date: July 1992	Scale: 1 : 100
Drawn By: D.J.G.	Figure: 11

52C16SE0007 OP92-167 BENNETT



LEGEND

8 *METAMORPHOSED SYNTECTONIC FELSIC PLUTONIC ROCKS*
- *8a Biotite tonalite, fine to medium grained*
- *8b Porphyritic (blue quartz-eye phenocrysts)*
- *8c Porphyritic (feldspar phenocrysts)*

7 *METASEDIMENTS*
CHEMICAL METASEDIMENTS
- *7c Magnetite ironstone*

2 *METAVOLCANICS*
FELSIC VOLCANICS
- *2c Porphyritic Flow (feldspar phenocrysts)*
- *2f Sericite phyllite*

1 *MAFIC TO INTERMEDIATE VOLCANICS*
- *1b Amygdaloidal flow*
- *1c Porphyritic flow (feldspar phenocrysts)*
- *1d Coarse and medium-grained flows*
- *1e Tuff*
- *1f Lapilli-tuff*
- *1g Tuff-breccia*
- *1h Heterolithic debris flow*
- *1q Carbonatized*

SYMBOLS

- Geological contact (observed, interpreted)
- 70 — Foliation (inclined)
- 80 — Joint (inclined, vertical)
- 70 — Shear
- Kink band
- 60 — Z-fold with plunge
- 1.1 / 1.0 — channel sample # / width (M.)
- 217013 — Grab sample
- Ledge, Cliff
- Overburden
- Swamp

ABBREVIATIONS

py	pyrite
po	pyrrhotite
qtz	quartz
tour.	tourmaline
sil.	silicification
c,C	carbonatization
chl.	chlorite alteration
ser.	sericite alteration
carb.	carbonate alteration
str.	strong

Calm Lake West Property

TRENCH #6
GEOLOGY
CHANNEL SAMPLING

David J. Bennett

Date: July 1992	Scale: 1 : 100
Drawn By: D.J.G.	Figure: 12

52C16SE0007 OP92-167 BENNETT