

LOG NO:	DEC 0 8 1992	R:
ACTION:		
FILE NO:		

Geological Assessment Report

On The

GOLD RIDGE 2 and LATCH 1 AND 2  
TALC MINERAL CLAIMS

Located In The

Kamloops and New Westminster Mining Divisions  
Latitude 50° 4', Longitude 121° 36'  
NTS 92 I/4E

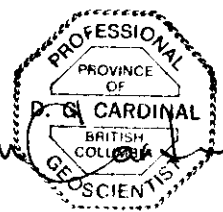
Report Prepared On Behalf Of

HIGHLAND TALC MINERALS LTD.  
Hope, B.C.

By

D.G. Cardinal, P.Geo., F.G.A.C.  
Hope, B.C.  
November 30, 1992

GEOLOGICAL BRANCH  
ASSESSMENT REPORT



22,665

## TABLE OF CONTENTS

### A. TERMS OF REFERENCE

A.1 INTRODUCTION.....	1 ✓
A.2 SUMMARY.....	2 ✓
A.3 PROPERTY INFORMATION.....	3 ✓
A.4 LOCATION AND ACCESS.....	3
A.5 PHYSIOGRAPHY AND INFRASTRUCTURE.....	4
A.6 BRIEF BACKGROUND.....	4

### B. FIELD PROGRAMMES

B.1 REGIONAL GEOLOGY.....	5 ✓
B.2 PROPERTY GEOLOGY	
b.1 South Talc Deposit.....	6
b.2 Talc Lake Deposit.....	7 ✓
b.3 North Talc Deposit.....	7
B.3 FIELD PROCEDURES.....	8
B.4 DRILLING PROGRAMME.....	9
B.5 POTENTIAL RESERVES.....	9
(6-page excerpt from P.Eng. report)	
B.6 COST BREAKDOWN.....	10

### MAP FIGURES:

1. Frontispiece ✓
2. Location Map ✓
3. Claim Map ✓
4. Property Geology ✓
5. South Talc Deposit
6. Talc Lake Deposit
7. North Talc Deposit ✓
8. P.Eng. Report Figures: 5A, 5B & 6 ✓

### APPENDICES:

- I Geological Drill Logs ✓
- II 1990 Drill Core Results ✓
- III References ✓
- IV Professional Certificate ✓



HIGHLAND TALC MINERALS LTD.	
<b>FRONTISPIECE</b>	
BY: J.W.MURTON & ASSOCIATES	
DATE: AUG. 28, 1992	MAP* 1

## A. TERMS OF REFERENCE

### A.1 INTRODUCTION

HIGHLAND TALC MINERALS LTD. is a privately held industrial mineral resource company based in Hope, B.C.. It has access to extensive reserves of crude talc favourable for future development.

Highland's future objectives are to develop and bring into production these extensive reserves and to process the crude talc into high-quality talc pigments for application in the pulp and paper, paints and, plastics industries.

Over the last 3 years Highland has initiated several key programmes in pursuing these objectives. It began exploring and outlining talc reserves on its properties and has now defined a major source of talc for future markets. In-house marketing surveys are presently ongoing. Talc as a pitch control agent, filler and coating pigment in the pulp and paper industry, is presently being addressed. Several meetings and discussions have already been held with a number of the major pulp and papermaking organizations. Lastly, in terms of processing the crude talc to meet the standards acceptable to mineral pigment end users, Highland has approached a world leading Finnish talc producing company. Two trips have already been made to Helsinki, Finland and meetings held with the Finnish company with regards to importing and using their up-to-date talc processing technology.

This report pertains to the field work conducted on the property during the 1992 season and is herein submitted for assessment work credits.

## A.2 SUMMARY

The Gold Ridge 2 and Latch 1 and 2 claim group consists of 3 contiguous mineral claims. They occur both in the Kamloops and New Westminster Mining Divisions within the NTS 92I/4E.

These claims are presently in good standing until September, 1994.

The Property's south boundary is located some 17 road kilometres northwest of Boston Bar and North Bend. However, majority of the field work conducted on the Property is located 35km from North Bend. Access is by the Nahatlatch River Forestry Road for 15km and by Nahatlatch Lookout Forestry Road and 4 Barrel Mainline logging road for additional 20km.

For infrastructure, the Property is within easy reach to electrical power and a good transportation system which includes a major highway and 2 (CN/CP) railways. Both Boston Bar and North Bend communities and the town of Hope offer skilled labour force and heavy construction machinery.

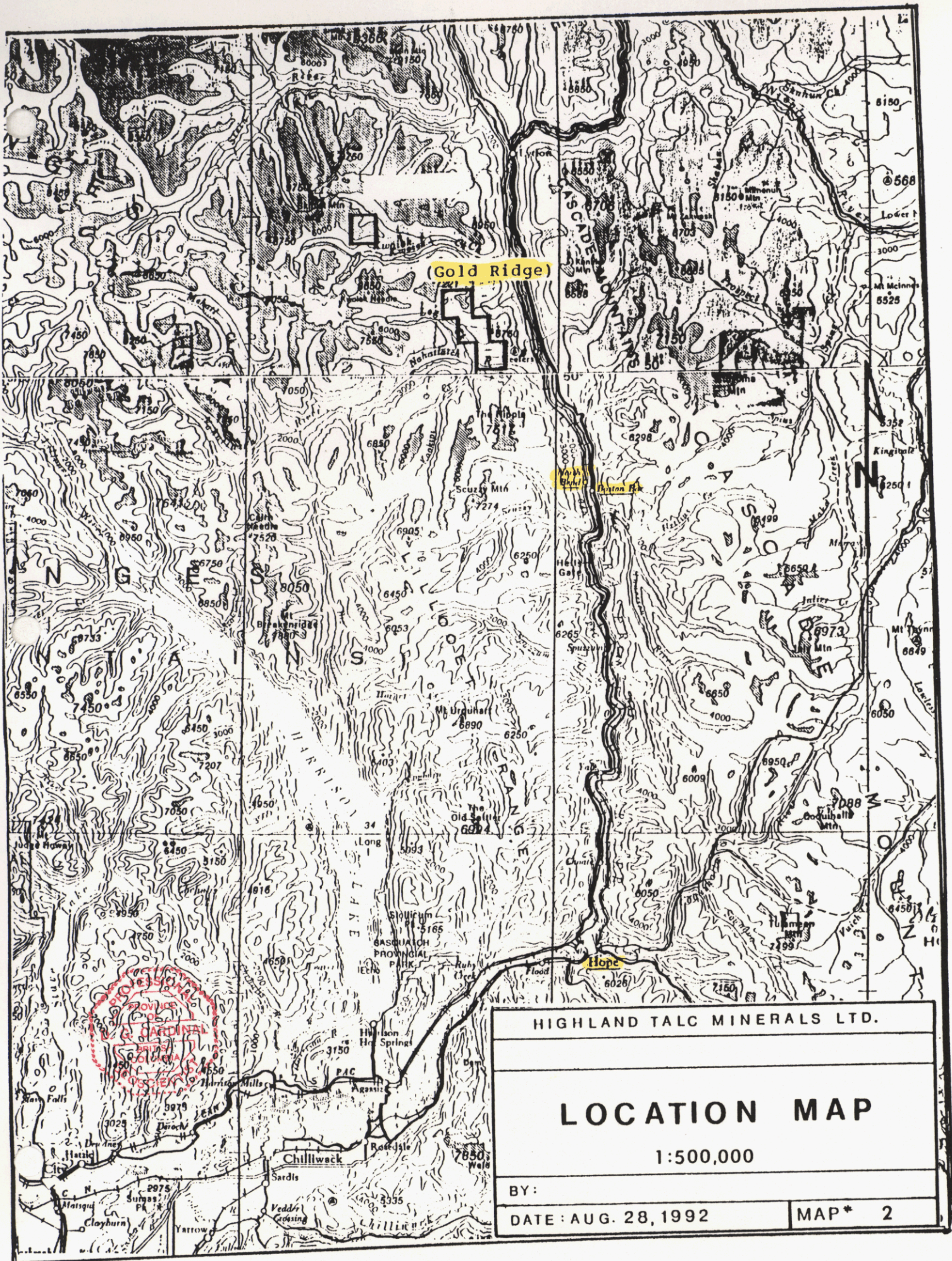
The Property hosts extensive reserves of crude talc an industrial mineral which has application in various industries such as, the pulp and paper, paint and plastics industries.

Talc mineralization was first noted in this area by the G.S.C. in 1950. In 1973-74, a company conducted talc surveys and outlined a deposit of talc. But due to limited markets at the time, further work was suspended. In 1986, Highland restaked this area. Between 1989-92, Highland has systematically conducted work from grassroots through to stripping and diamond drilling. A significant deposit of crude talc has now been defined on the Property.

Geologically, the Property is underlain by a northwesterly striking band of serpentized ultramafic rock in fault-contact with a thick sequence of phyllite, micaceous schist and greenstone. At least 3 significant zones of talc have been found to date potentially hosting large reserves of talc. Two of the deposits (North and Talc Deposits) occur along the serpentinite and phyllite fault-contact and the other (Talc Lake Deposit) occurs entirely within the serpentinite.

The deposits typically consist of homogenous admixture of talc and subordinate magnesite with minor amounts of chlorite, iron carbonates, and minor iron sulphides and oxides.





HIGHLAND TALC MINERALS LTD.

# LOCATION MAP

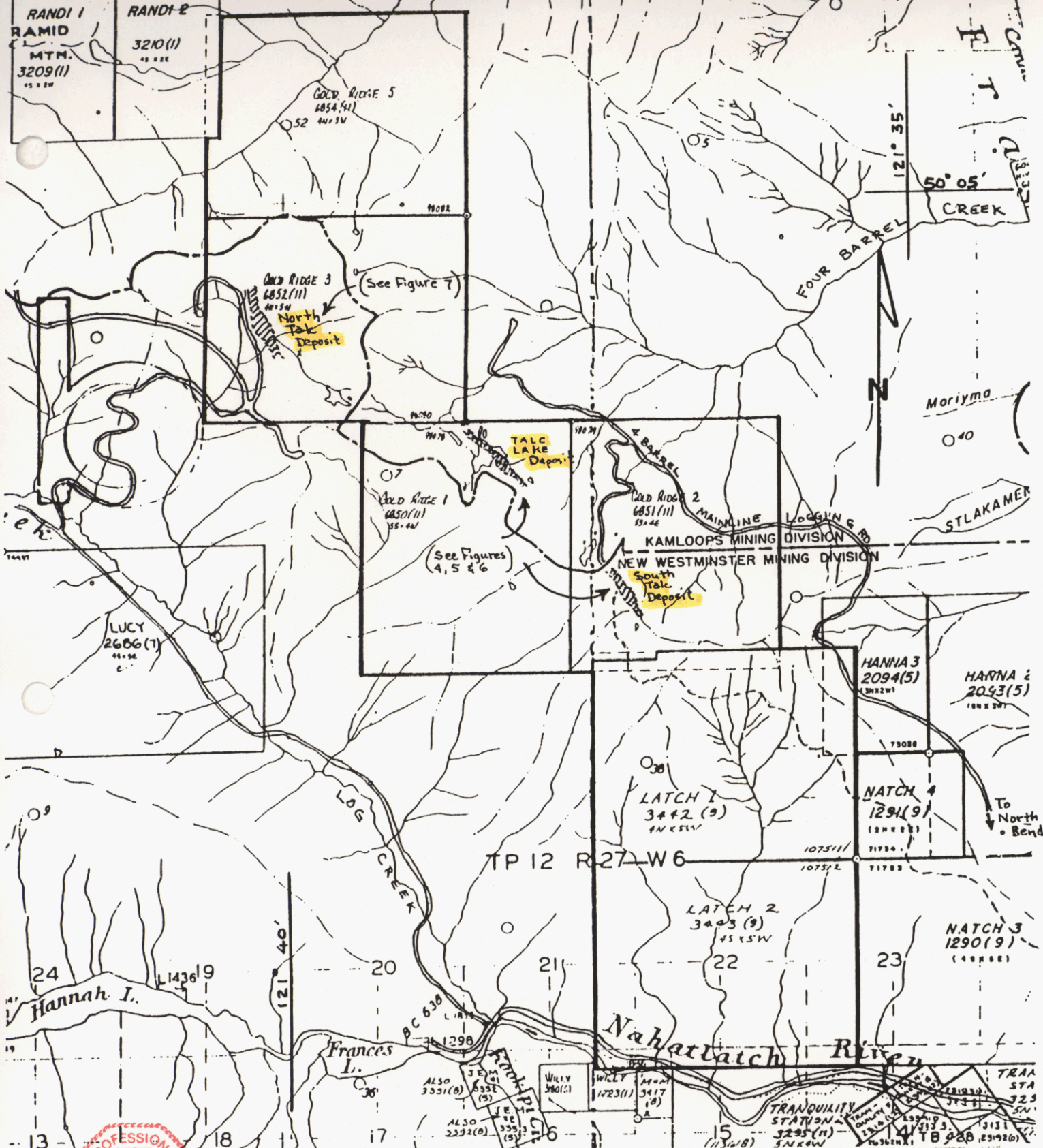
1:500,000

BY:

DATE: AUG. 28, 1992

MAP\* 2





PROFESSIONAL  
 PROVINCE OF  
 D. G. CARDINAL  
 BRITISH COLUMBIA  
 GEOSCIENTIST

0 1000 2000  
 1:50,000

HIGHLAND TALC MINERALS LTD.	
GOLD RIDGE CLAIMS	
<b>CLAIM MAP</b>	
921-4E	
BY:	
DATE: AUG. 28, 1992	MAP* 3

Based on the geological surveys, trenching, stripping and, diamond drilling to date; the Property is currently estimated to host in the order of 43 million tonnes of 60-65% talc and 30-40% magnesite.

### A.3 PROPERTY INFORMATION

The Gold Ridge 2 and Latch 1 and 2 herein referred to as the 'Property' consists of 3 contiguous mineral claims representing 60 units. The claims were filed for assessment as a 'group'.

The Gold Ridge 2 legal corner post occurs within the Kamloops Mining Division and the LCP for Latch 1 and 2 falls in the New Westminster M.D.. Majority of the field work was conducted on the Gold Ridge 2 mineral claim.

Claim information is as follows:

<u>Claim Name</u>	<u>Record Number</u>	<u>Number of Units</u>	<u>Recording Date</u>	<u>Expiry Date</u>
Gold Ridge 2	6851	20	11/17/86	09/29/94
Latch 1	3442	20	09/29/88	09/29/94
Latch 2	3443	20	09/29/88	09/29/94

The above information is also recorded in the mineral claim map, NTS 92I/4E.

Registered claim owner is D.G.Cardinal also principle owner of Higland.

### A.4 LOCATION AND ACCESS

The southern most boundary (Latch 2) of the Property is located some 17km northwest of Boston Bar and the North Bend communities. Boston Bar is located on the Trans Canada Highway 60km north of the town of Hope.

Majority of the work was carried out on the Gold Ridge 2 on the South Talc deposit. The deposit is located 35km north-northwest from Boston Bar and North Bend,

Access to the deposit is via a series of well maintained gravelled roads which begin at North Bend. The first 15km is a section of road which leads to the Nahatlatch River. This is heavily used by log haulage trucks, rural farmers and ranchers that live in the area and, by tourists that visit the Nahatlatch River valley and lakes. At the 15km sign is an intersection. The road which forks to the right is referred to as the Nahatlatch River Forestry Road and the



Four Barrel Mainline logging road. The final 20km of this road leads to the deposit and work site.

This season Highland constructed a 2km access road which ties into the Four Barrel logging road. The final 20km is a seasonally maintained road which gradually climbs to about 1500m elevation before it reaches the headwaters of Four Barrel Creek watershed. This section is normally accessible from late May to late November.

#### A.5 PHYSIOGRAPHY AND INFRASTRUCTURE

The Property is geographically situated along the northern portion of the Lillooet Range of the Coast Range Mountains and is some 3-4km west of the Fraser River Canyon.

The talc deposits found on the Property occur along a northwesterly trending ridge-like plateau. The plateau physiographically represents the height-of-land with elevation between 1500m-1600m above sea level.

Drainage tends to be poor in areas with the occasional small lake or willowed swamp and seasonal streams. Vegetation at this level consists mainly of unmerchantable timber with sparse stands of immature spruce, hemlock, balsam and fir.

The deposits are normally free of snow and open to exploration from late May-early June to late October-early November.

Over the years a well developed infrastructure has been established in the Boston Bar and Fraser Canyon area. Heavy equipment and machinery along with a skilled labour force is readily available. The Property is within only a few kilometres of a major transportation corridor which runs along the Fraser Canyon. A transportation network consisting of both the Trans Canada Highway and CN and CP Railways including hydro-electrical powerlines run through Boston Bar. This network links to the City of Vancouver and it's seaports some 210km to the southwest.

#### A.6 BRIEF BACKGROUND

The Property covers a geological belt that is favourable for precious metals and in the past has been explored for gold. In fact, the Latch 1 and 2 host an auriferous bearing structure that was first reported in 1935. In 1984-85, Hudson Bay Exploration & Development Co.Ltd. conducted

exploration surveys and limited diamond drilling over the structure.

Significant occurrences of talc mineralization was first reported in this area in the early 1950s by the Geological Survey of Canada.

In 1973, talc was first reported on-the-now Gold Ridge 2 by J.A. Chamberlain Consultants while conducting surveys in this area for nickel. Low grade (0.2%) nickel was identified over a wide area and a talc and magnesite zone was also outlined. A bulk sample obtained from the zone at the time assayed: 62% talc and 30% magnesite. This zone is now referred to as the Talc Lake Deposit.

Between 1986-88, a total of 3000 hectares of ground was staked to cover a geological structure known to host a series of talc (magnesite) lenses.

In 1989-90, Highland began conducting systematic geological surveys on the Property. In 1990, limited trenching, sampling and mapping were conducted over the Talc Lake Deposit. During the latter part of the 1990 field season a second talc zone now referred to as the South Talc Deposit was defined. Four exploratory drill holes were completed over the south deposit during this time. This season (1992), 4 follow-up drill holes were completed.

Between 1991 to present, detail geological surveys, stripping, and additional drilling have been completed and a proper access road built to the south deposit. This season a another significant zone of talc was discovered in a recently logged-clearcut area. This brings to 3 significant talc zones and 5 smaller satellite lenses of talc that have been uncovered on the Property to date.

Highland proposes to start developing these deposits in 1993.

## B. FIELD PROGRAMMES

### B.1 REGIONAL GEOLOGY

The talc mineralization is typically hosted in or immediately adjacent to a regionally northwest-southeast trending belt of serpentinized ultramafic rock.

The ultramafic belt is a semicontinuous faulted structure that can be traced for some 32km along strike. It is in fault contact with volcanic greenstones and sedimentary schists and phyllites. This complex is believed to be an alpine type metamorphic terrane which is lithologically

equivalent to the Bridge River Complex of Permian to Jurassic age (JWS Monger, G.S.C., 1980-82).

The belt now forms part of a roof pendant which is enclosed on 3 sides by Cretaceous age granites and granodiorites of the Coast Range Mountains. The southern extension of the belt is terminated by the Fraser River Fault System.

The talc deposits discovered on the Property are believed to be altered products of the magnesium-rich, serpentinized ultramafic rocks. The deposits vary in size from small, satellite, pod-like deposits potentially hosting 0.5-1 million tonnes of crude talc to, large lensoid-shaped deposits potentially hosting 20 million tonnes or more of crude talc.

## B.2 PROPERTY GEOLOGY

Majority of the work completed to date on the Property has been on the Gold Ridge 2 claim where at least 2 significant deposits of talc have been defined - the South Talc Deposit and the Talc Lake Deposit. In this area as well, are at least 5 smaller satellite deposits.

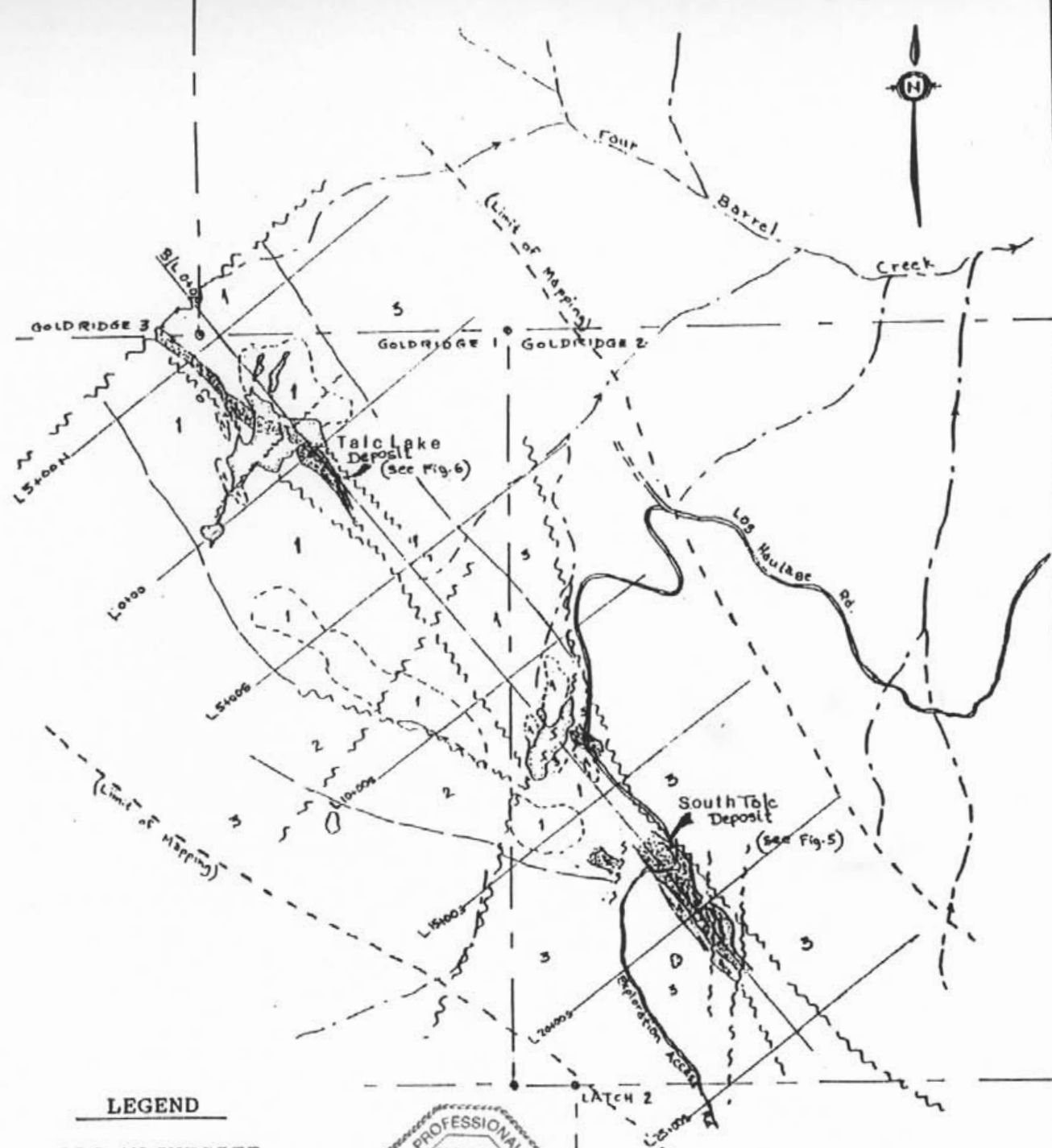
Bedrock underlying the Property consists of a northwest-southeast trending ultramafic serpentinite. On strike, the serpentinite varies in width from just a few metres to 100m. It is fault bounded by sedimentary schists, phyllites and greenstones along its western margins and by predominately phyllites along its eastern margins. A number of post northeast-southwest trending faults cut the entire sequence (see fig.4). Talc mineralization can be found hosted within the serpentinite as is the case with the Talc Lake Deposit or, along the fault-contact margins such the North and South Talc Deposits and some of the smaller satellite occurrences.

### b.1 South Talc Deposit










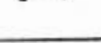
Since 1990 to present, several systematic programmes were completed on this deposit. The programmes have included: reconnaissance and detail geological surveys; detail gridline layout; bulldozer stripping, trenching and drill sites; BQ diamond drilling of 8 holes totalling 746.3m and; a new 2km access road. Included in this is the 1992 field work which includes stripping, 4 drill holes and new road.

The deposit has been traced for at least 500m along strike and varies in width from about 50m to 120m. Drilling has tested the deposit down to a depth 128m and talc continues beyond this depth. All holes drilled to date begin and end





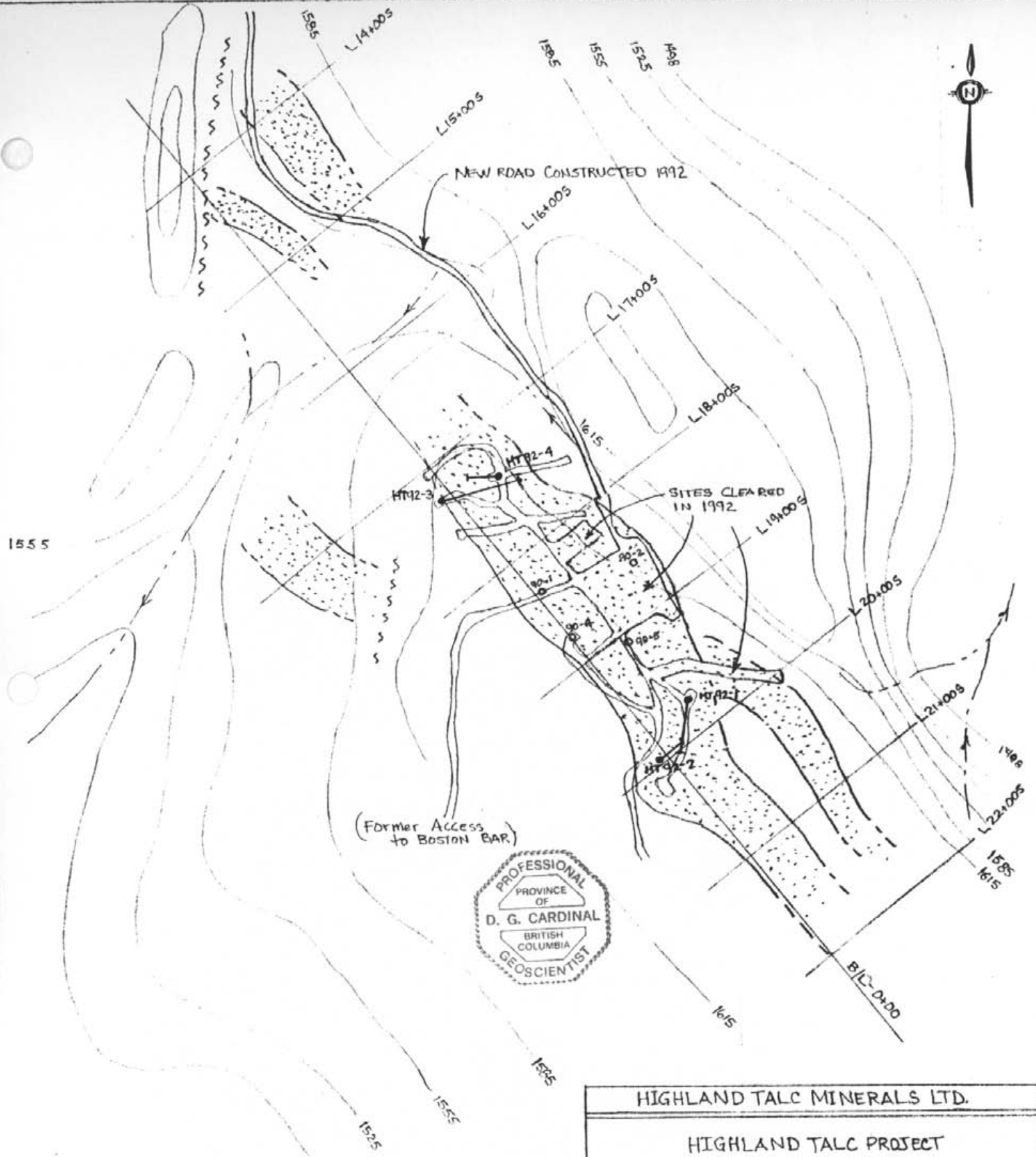
**LEGEND**

-  TALC-MAGNESITE
-  SERPENTINE
-  ANDESITIC GREENSTONE
-  PHYLLITE, MICACEOUS SCHIST
-  LIMESTONE
-  GRANITE, GRANODIORITE
-  FAULT - INFERRED
-  GEOLOGICAL CONTACT - INFERRED
-  TRENCH
-  DIAMOND DRILL HOLE



0 500 1000  
1:20,000

HIGHLAND TALC MINERALS LTD.	
GOLD RIDGE CLAIMS	
<b>PROPERTY GEOLOGY</b>	
BY:	
DATE: AUG. 28, 1992	MAP* 4



PROFESSIONAL  
PROVINCE OF  
D. G. CARDINAL  
BRITISH COLUMBIA  
GEOSCIENTIST

1992 DIAMOND DRILL HOLES  
HT92-2  
O 1990 D.D.H.  
90-2

LEGEND:  
ACCESS RD.  
STRIPPED SITES  
PROBABLE FAULT  
TALC  
MAIN DEPOSIT  
30m CONTOUR

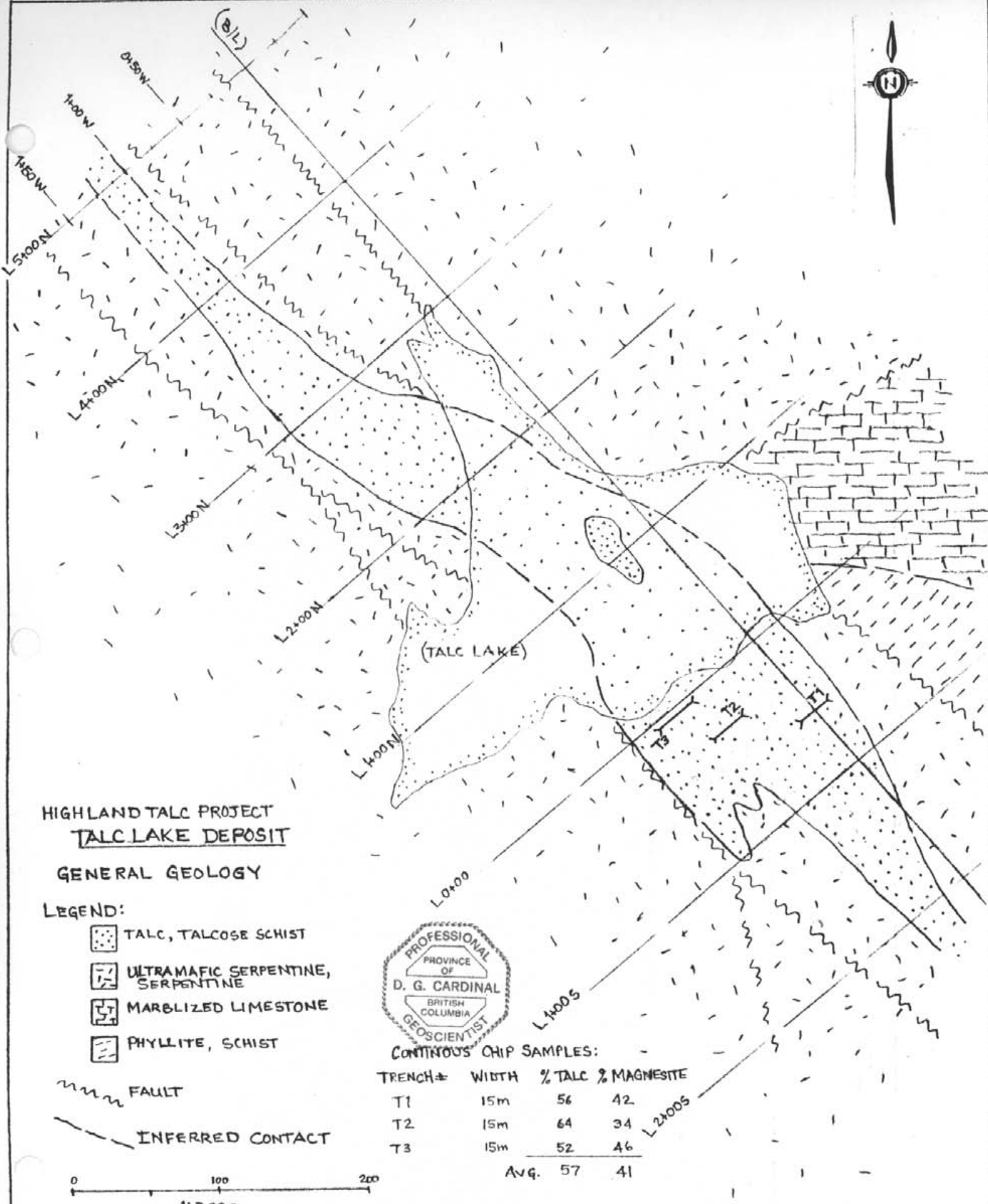
HIGHLAND TALC MINERALS LTD.

HIGHLAND TALC PROJECT  
SOUTH TALC DEPOSIT  
(PROPOSED DEVELOPMENT SITE)  
Kamloops Mining Division  
N.T.S. 92I/4E  
BOSTON BAR AREA

1:4000  
0 20 40 60 80 100 Metres

D.G. CARDINAL, P.GEO.





FIG. 5

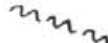



HIGHLAND TALC PROJECT  
TALC LAKE DEPOSIT

GENERAL GEOLOGY

LEGEND:

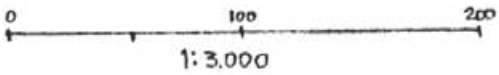
-  TALC, TALCOSE SCHIST
-  ULTRAMAFIC SERPENTINE, SERPENTINE
-  MARBLIZED LIMESTONE
-  PHYLLITE, SCHIST

-  FAULT
-  INFERRED CONTACT



CONTINUOUS CHIP SAMPLES:

TRENCH ±	WIDTH	% TALC	% MAGNESITE
T1	15m	56	42
T2	15m	64	34
T3	15m	52	46
Avg.		57	41

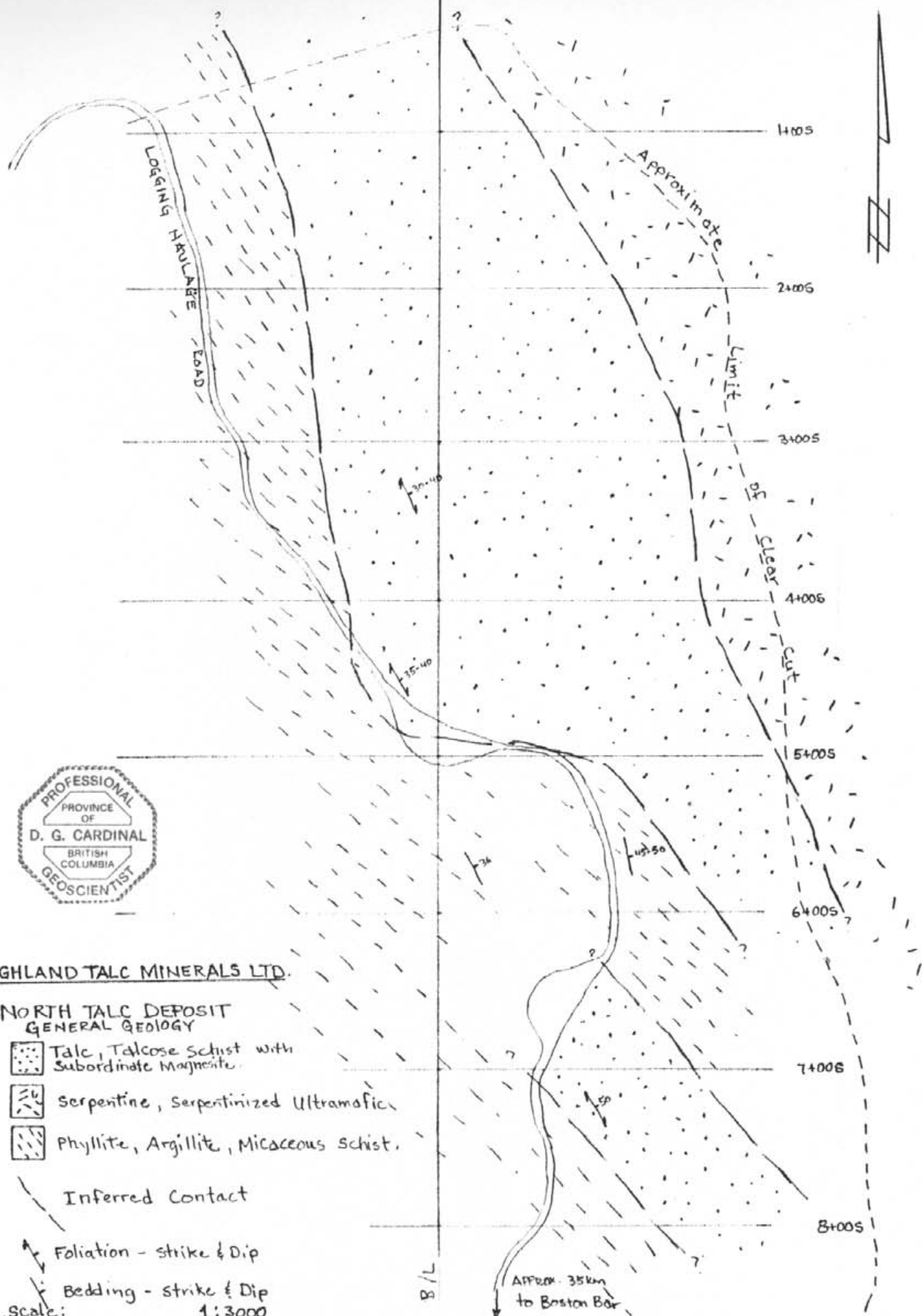


HIGHLAND TALC MINERALS LTD.

Fig. 6.









200W 100W 0 100E 200E 0100



**HIGHLAND TALC MINERALS LTD.**

**NORTH TALC DEPOSIT  
GENERAL GEOLOGY**

-  Talc, Talcose schist with subordinate Magnetite.
-  Serpentine, Serpentinized Ultramafic.
-  Phyllite, Argillite, Micaceous schist.

-  Inferred Contact
-  Foliation - strike & Dip
-  Bedding - strike & Dip

Scale: 1:3000  
0 50 100 200 m

Fig. 7.

Approx. 35km to Boston Bar

in talc mineralization. It is yet to be fully defined along strike and at depth.

A relatively thin veneer of overburden masks the deposit ranging in thickness from about 0.5m-3m. In some areas talc is naturally exposed and is usually covered with a thin (1-2cm) oxidized coating (see fig. 5).

Several sections of the 1990 drill core samples were analysed with an XRD Analyser. The results range between 50%-98% talc and 1%-48% magnesite with low percentage of chlorite and ankerite (see Appendix II). Based on the sections analysed the current average grade of the deposit is 68% talc and 28% magnesite (see Appendix II). The 1992 drill holes have yet to be analysed but based on core logging, visual talc and magnesite are estimated to range 50%-70% and 30%-40% respectively (see Appendix I)

### b.2 Talc Lake Deposit

Geological surveys were conducted over the Talc Lake Deposit (lake deposit) and a gridline survey laid out (fig.6). Three trenches were drilled and blasted by hand along the south shores of a small lake (referred in this report as 'Talc Lake') where the deposit is well exposed. The trenches show a homogenous admixture of talc and magnesite. Ten (10) metre continuous chip samples were collected from each trench. The samples were analysed with XRD and returned an average of 57% talc, 41% magnesite, 1% chlorite and, less than 0.5% siderite. Also previous sampling conducted in the same area by another company in 1973, returned 62% talc, 30% magnesite, 8% chlorite and 6% iron oxide.

The lake deposit is hosted entirely within the serpentinite and appears to be lensoid in shape. It can be traced for some 800m along strike and varies in width from about 25m to 100m. The lake deposit appears to be similar in size as the South Deposit and also has the potential of hosting significant tonnages of crude talc. The deposits are approximately 1.5km apart (fig. 4).

### b.3 North Talc Deposit

Very recent clear-cut logging has exposed a new talc zone located some 2km to the northwest of the Talc Lake Deposit along the same serpentinite belt noted above.

A baseline was established over the zone late this summer and preliminary geological surveys conducted. Although much of the area is masked by shallow (1-2m thick) overburden,

there is enough exposed talc to indicate the extent of this new zone.

At present, it has been traced for some 800m along strike and appears to range between 50m-150m wide. It is also partly exposed along 2 sections of a recently constructed logging road.

The deposit is fault bounded to the west-southwest by a thick sequence of argillite and phyllite and to the east-northeast by serpentinite (fig.7).

In general, the mineralization observed on all of the 3 above-noted deposits is relatively consistent and contains a homogenous admixture of talc and magnesite. They consist on the average of about: 60%-65% talc, 30%-40% magnesite and minor amounts of chlorite, sulphides (predominately pyrrhotite), magnetite/chromite, and iron carbonates of siderite/ankerite.

### B.3 FIELD PROCEDURES

During the 1992 field season, gridline control was established over both the North, South and Talc Lake Deposits. A 3-person crew was employed to survey out the gridlines. Hip chain measurements and compass readings were taken to properly survey in the lines.

A detail grid was established over the South Talc Deposit with station control at every 25m intervals. Drill access roads and 4 drill sites were cleared and tied to the grid system. Stripping was also conducted in order to expose a portion of the deposit. A D8 dozer was utilized to do this work.

In August, a new 2km access road was surveyed and constructed connecting to the existing Fletcher Challenge Canada Ltd.'s logging roads. The new road now serves as a proper access to the work site.

The drilling was carried out using a Long Year 28 drill machine. The drill was moved to the drill sites by a small John Deere tractor. Each hole was surveyed by chain and brunton compass both before and after the hole was completed and then tie to the grid system. Drill core size is BQ. Holes were logged by an on site geologist and temporary stored on the Property. In October the drill core was moved to Hope to prevent possible vandalism.

Systematic geological surveys were conducted using the grid as control. Surveys were concentrated on defining the 3 deposits and adjacent satellite deposits. A geologist and a



field assistant conducted the surveys during much of the field season.

#### B.4 DRILLING PROGRAMME

Between July and August of this season, a 3-man drill crew was contracted to conduct the drilling and supervised by an on-site geologist.

A 4 drill hole programme was completed over the South Talc Deposit for a total of 494.5m of BQ drill core. The holes were numbered from HT92-1 to HT92-4 (fig.5).

The deepest hole, HT92-4, angled at -80 degrees, tested the deposit to 127.5m. The remaining holes were drilled at various angles ranging between -60 to -75 degrees and to depths ranging between 112.2m to 127.4m.

Some chlorite schist lenses were intersected but all holes intersected thick sections of talc mineralization starting from the surface and ending in talc.

#### B.5 POTENTIAL RESERVES

A geological engineer (J.W. Murton & Associates, P.Eng.) was retained at the end of the programme to compile the data and to calculate potential reserves on the Property based on the drilling and geological surveys.

A 6 page excerpt from his engineering report entitled, 'Summary of the Talc Properties Of Highland Talc Minerals Ltd.' documenting the reserves, is herein included.

Based on the report, current reserve estimate stands at 43 million tonnes of combined talc and magnesite grading 60%-65% and 30%-40% respectively.

## 10. RESERVES

While the development of the claims is in a very preliminary state, it is possible to generate a reserve of talc - magnesite mineralization based on surface exposures and limited diamond drilling. This reserve cannot be construed as being proven, but portions may certainly be categorized as drill indicated and geologically inferred, while other tonnage may only be classified as possible.

Even using very conservative parameters, a significant tonnage of talc mineralization occurs on the claims, at a grade that has only been roughly established but appears to be in the range of 50% - 65% talc.

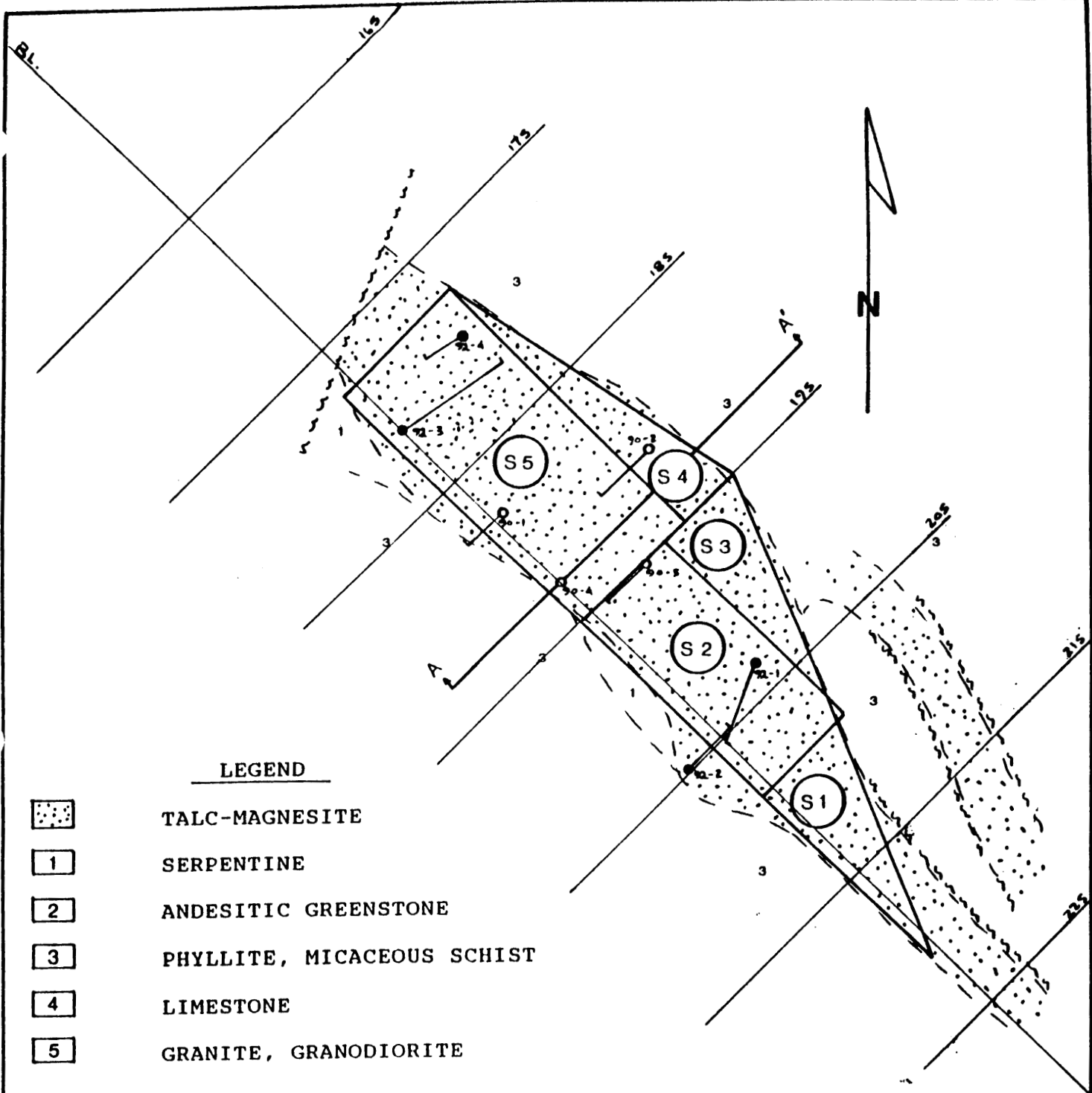
A factor of 2.9 tonnes / cubic meter has been used in all calculations

### A. GOLD RIDGE CLAIMS











#### 1.) SOUTH TALC ZONE See map #5A

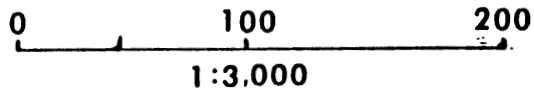
Based on diamond drill holes that are spaced between 50 - 100 m apart and the homogeneity of the deposit, an area of influence for each drill hole has been set at up to 50 m. This is more than normally would be allowed, but for a preliminary reserve calculation it will suffice.

Category	Block	L(m)	W(m)	D(m)	Tonnes
Drill Indicated	S2	135	60	145	3,406,050
Drill Indicated	S3	.5x130	50	145	1,366,625
Drill Indicated	S4	.5x175	35	145	1,287,781
Drill Indicated	S5	175	80	145	5,887,000
Total Drill Indicated					<u>11,947,456</u>
Geol. Inferred	S1	.5x120	55	145	1,387,650
Total South Talc Zone					<u>13,335,106</u>



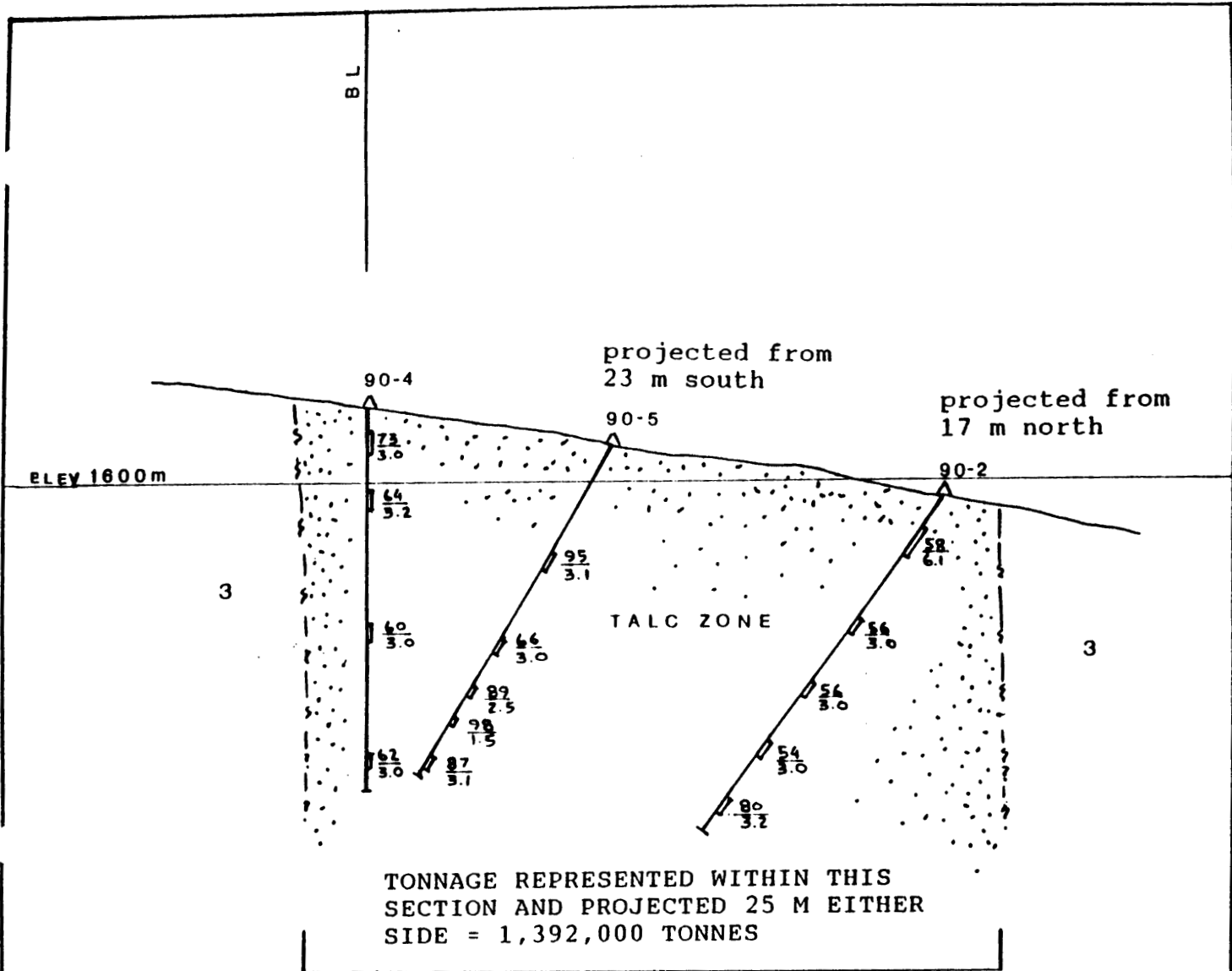
**LEGEND**

-  TALC-MAGNESITE
-  SERPENTINE
-  ANDESITIC GREENSTONE
-  PHYLLITE, MICACEOUS SCHIST
-  LIMESTONE
-  GRANITE, GRANODIORITE
  
-  FAULT - INFERRED
-  GEOLOGICAL CONTACT - INFERRED
-  TRENCH
-  DIAMOND DRILL HOLE













HIGHLAND TALC MINERALS LTD.	
GOLD RIDGE CLAIMS	
<b>RESERVE BLOCKS</b>	
<b>South Talc Zone</b>	
BY: J.W.MURTON & ASSOCIATES	
DATE: AUG. 28, 1992	MAP* 5A



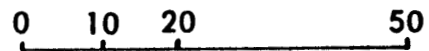


LEGEND

-  TALC-MAGNESITE
-  SERPENTINE
-  ANDESITIC GREENSTONE
-  PHYLLITE, MICACEOUS SCHIST
-  LIMESTONE
-  GRANITE, GRANODIORITE

-  FAULT - INFERRED
-  GEOLOGICAL CONTACT - INFERRED
-  TRENCH
-  DIAMOND DRILL HOLE

$$\frac{60}{3.0} = \frac{\text{TALC \%}}{\text{METERS}}$$



1:1,000

HIGHLAND TALC MINERALS LTD.	
GOLD RIDGE CLAIMS	
<b>CROSS SECTION A-A'</b>	
<b>South Talc Zone</b>	
BY: J.W.MURTON & ASSOCIATES	
DATE: AUG. 28, 1992	MAP* 6

2.) TALC LAKE ZONE      See Map #5B

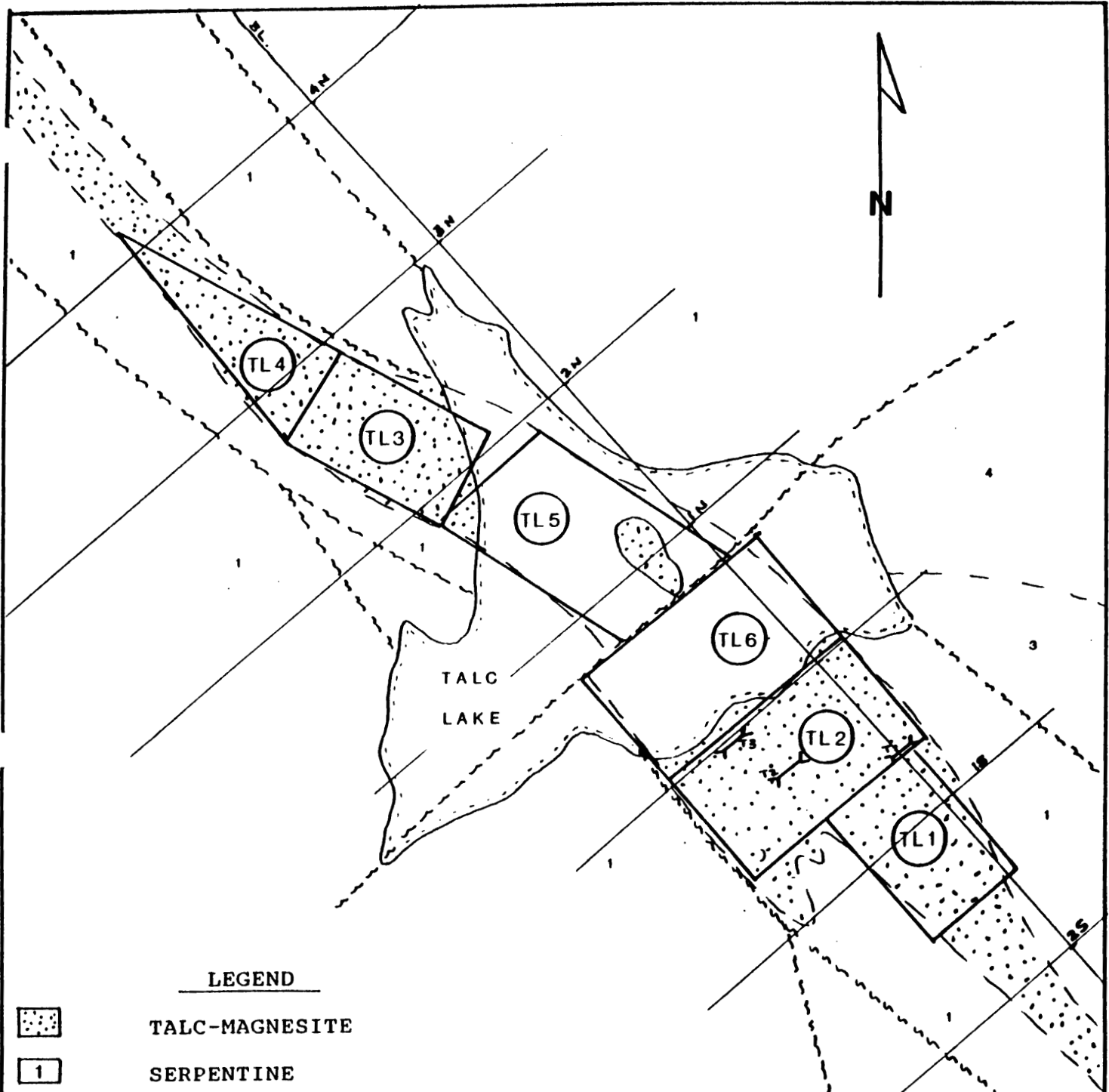
The Talc Lake Zone reserve is based solely on surface exposures and hence is categorized as geologically inferred. The possible extension of the zone under Talc Lake has been categorized as possible. A depth of 80 m below surface has been allowed for these calculations except for block TL2 which includes an additional 20 m to allow for the talc bluffs.

Category	Block	L(m)	W(m)	D(m)	Tonnes
Geol. Inferred	TL1	80	60	80	1,113,600
Geol. Inferred	TL2	65	120	100	2,262,000
Geol. Inferred	TL3	90	50	80	1,044,000
Geol. Inferred	TL4	.5x140	50	80	812,000
Total Geol. Inferred					5,231,600
Possible (lake)	TL5	120	70	70	1,705,200
	TL6	75	120	70	1,827,000
Total Talc Lake Zone					8,763,800

3.) NORTH TALC ZONE

This newly discovered area has had only a very preliminary examination, but dimensions of 200 m length, 150 m width, and a possible 150 m depth would generate:

Possible reserve ..... 13,000,000 tonnes.



**LEGEND**

- TALC-MAGNESITE
- 1 SERPENTINE
- 2 ANDESITIC GREENSTONE
- 3 PHYLLITE, MICACEOUS SCHIST
- 4 LIMESTONE
- 5 GRANITE, GRANODIORITE
- FAULT - INFERRED
- GEOLOGICAL CONTACT - INFERRED
- TRENCH
- DIAMOND DRILL HOLE

0 100 200  
1:3,000

HIGHLAND TALC MINERALS LTD.	
GOLD RIDGE CLAIMS	
<b>RESERVE BLOCKS</b>	
<b>Talc Lake Zone</b>	
BY: J.W.MURTON & ASSOCIATES	
DATE: AUG. 28, 1992	MAP* 5B

#### 4.) SATELLITE ZONES

Other "smaller" zones of talc mineralization have been identified near the larger zones discussed above. These satellite blocks have approximate dimensions of: length 100 m, width 30 m, depth say 25 m, and would contain about 2,000,000 tonnes each. There are at least 4 known areas of this type of reserve generating:

Possible reserve, 4 deposits ..... 8,000,000 tonnes.

#### 5. SUMMARY

Summary of known reserves on the Gold Ridge claims.

---

	Tonnes
1.) South Talc Zone	
Drill Indicated	11,947,456
Geologically Inferred	1,387,650
2.) Talc Lake Zone	
Geologically Inferred	5,231,600
Possible	3,532,200
3.) North Talc Zone	
Possible	13,000,000
4.) Satellite Zones	
Possible	8,000,000
<hr/>	
Total All Gold Ridge Categories	43,098,906



**B.6 COST BREAKDOWN**

1992 Field Programmes:

**Geological:**

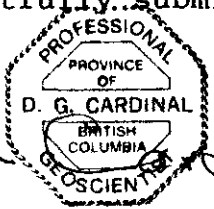
Geologist/Supervisor and mapping surveys	\$ 15,000
60 days @ \$250/d	
Field Assistant, 50 days @ \$125/d	6,250
Gridline Surveys & Line cutting, 2-person crew	2,500
10 days @ \$250/d	
Drill site preparation, clearing and stripping of bedrock, D8 Dozer, 40 hours @ \$135/hr	5,400

**Diamond Drilling:**

Long Year 28, 4 BQ drill holes, 494.5m @ \$65/m	<u>32,142</u>
---	---------------

Total	<u>\$ 61,292.00</u>
-------	---------------------

Respectfully submitted,



*D.G. Cardinal*

D.G. Cardinal, P.Geo., F.G.A.C.

APPENDIX I

Geological Drill Logs

# GEOLOGICAL CORELOG DATA SHEET

PROJECT Highland Talc  
 DATE Aug. 16/92  
 HOLE NO. HT 92-1  
 LOGGED BY D.G. Cardinal

CORE SIZE BQ.  
 HOLE LOCATION \_\_\_\_\_  
 ORIENTATION (DIP) (AZ) 202  
 % RECOVERY \_\_\_\_\_

RIG TYPE Kong/Car 2B  
 COMMENTS ID. 112.2m

TALC  MAGNESITE

DEPTH M	LITHO LOG	VISUAL GRADE ESTIMATES		SAMPLE INTERVAL NUMBER	DESCRIPTION: (Texture, Colour, Alteration Accessory Minerals)	LAB ANALYSES - HISTOGRAM											
		TALC %	MAG. %			% TALC						% MAGNESITE					
						30	40	50	60	70	80	90	20	30	40	50	60
					No drill core 0-3m oxidized broken ground												
5	[Dotted pattern]	50-60	40-50		- Homogenous admixture of flakey tal. & crystalline magnesite. - Lt. gry/grn, mottled-marble texture  1-3% finely disseminated pyrrhotite throughout much of the core.  Shear - talc gouge  Talc foliation ~70° to drill core axis.												
15	[Dotted pattern]	50	50														
25	[Dotted pattern]	60-65	30-35		• Massive homogenous talc-magnesite throughout the core - Seams of lt grn. pearly lustre, flakey talc - Crystalline magnesite also appears to impart - Fe carbonate ankerite/siderite.												
37.5-40	[Diagonal lines /]				Chlorite schist												
46.5-48.5	[Diagonal lines /]	60-65	30-35		Chlorite schist												
52.5-61	[Diagonal lines /]				Chlorite schist												

# GEOLOGICAL CORELOG DATA SHEET

PROJECT \_\_\_\_\_  
 DATE \_\_\_\_\_  
 HOLE NO. HT 92-1  
 LOGGED BY \_\_\_\_\_

CORE SIZE \_\_\_\_\_  
 HOLE LOCATION \_\_\_\_\_  
 ORIENTATION (DIP) (AZ)  
 % RECOVERY \_\_\_\_\_

RIG TYPE \_\_\_\_\_  
 COMMENTS \_\_\_\_\_  
Page 2 of 2

TALC  MAGNESITE

DEPTH m	LITHO LOG	VISUAL GRADE ESTIMATES		SAMPLE INTERVAL	SAMPLE NUMBER	DESCRIPTION: (Texture, Colour, Alteration Accessory Minerals)	LAB ANALYSES - HISTOGRAM												
		% TALC	% MAG.				% TALC						% MAGNESITE						
							20	30	40	50	60	70	80	90	20	30	40	50	60
65	/ / / / /					Chlorite schist Massive - homeg. chlorite													
65	/ / / / /	60-70	20-30			Lt grey-grn, massive talc & magnesite throughout. 1-2% fine dissemin. pyrrhotite. talc foliation ~ 70-75° to drill core axis.													
70	/ / / / /					71-72 Chlorite schist													
75	/ / / / /	60-70	20-30																
80	/ / / / /					82.0 - 83.5 Chlorite schist													
85	/ / / / /	50-60	30-40			Homogenous fine flaky talc & crystalline magnesite with probable antiperite/siderite													
90	/ / / / /					Lt grn. pearly seams talc in sections of drill core.													
95	/ / / / /	60-70	30-40																
100	/ / / / /																		
105	/ / / / /	50-60	30-40																
110	/ / / / /					Massive talc. magnesite at end of hole.													

End of Hole 112.2 m



# GEOLOGICAL CORELOG DATA SHEET

PROJECT Highland Talc CORE SIZE BQ RIGTYPE Long Year 28  
 DATE Aug. 21/92 HOLE LOCATION \_\_\_\_\_ COMMENTS T.D. 127.4m  
 HOLE NO. HT 92-2 ORIENTATION (Dip)-75 (Az.) 45  
 LOGGED BY D. Cardinal % RECOVERY \_\_\_\_\_

Page 1 of 2

TALC     MAGNESITE

DEPTH m	LITHO LOG	VISUAL GRADE ESTIMATES		SAMPLE INTERVAL	SAMPLE NUMBER	DESCRIPTION: (Texture, Colour, Alteration ACCESSORY Minerals)	LAB ANALYSES - HISTOGRAM											
		TALC %	MAG. %				% TALC						% MAGNESITE					
							30	40	50	60	70	80	90	20	30	40	50	60
						0-1.5m no drill core												
5	•••••	50-60	40-50			1.5-12 talc-magnesite drill core partly oxidized												
10	•••••	50-60	40-50			Massive, homogenous talc-magnesite w/ minor (1-2%) disseminated pyrrhotite												
15	/ / / / /					12-21.3 chlorite schist												
25	•••••	30-60	40-50			21.3-27 Lt. gry-grn, massive talc-magnesite												
30	•••••	50-60	40-50			Lt. gry-grn massive talc-magnesite												
35	•••••					narrow (0.45m) chlorite schist seam @ 32.6m												
40	•••••	50-60	40-50			Lt. gry-grn, massive talc-magnesite throughout w/ minor (1-2%) sulphides												
45	•••••					slip-sense planes ~ 50-70° to drill core axis												
50	•••••	50-60	40-50															
55	•••••																	









# GEOLOGICAL CORELOG DATA SHEET

PROJECT \_\_\_\_\_ CORE SIZE \_\_\_\_\_ RIG TYPE \_\_\_\_\_  
 DATE \_\_\_\_\_ HOLE LOCATION \_\_\_\_\_ COMMENTS \_\_\_\_\_  
 HOLE NO. HT 92-3 ORIENTATION (DIP) (AZ) \_\_\_\_\_  
 LOGGED BY \_\_\_\_\_ % RECOVERY \_\_\_\_\_

TALC     MAGNESITE

DEPTH M	LITHO LOG	VISUAL GRADE ESTIMATES		SAMPLE INTERVAL	SAMPLE NUMBER	DESCRIPTION: (Texture, Colour, Alteration Accessory Minerals)	LAB ANALYSES - HISTOGRAM											
		TALC %	MAG. %				% TALC						% MAGNESITE					
							30	40	50	60	70	80	90	20	30	40	50	60
60	-	60-70	30-40			Lt gray-grn, massive, homogeneous admixture of talc & magnesite throughout entire length of drill core. - w/ finely disseminated pyrochlore - w/ foliation & shear planes ~ 50-60° to drill core axis.												
75	-	60-70	30-40			Talc - magnesite												
95	-	60-70	30-40			talc - magnesite												
105	/					104-106 chlorite schist												



# GEOLOGICAL CORELOG DATA SHEET

PROJECT Highland Talc CORE SIZE B<sub>1</sub>Φ RIG TYPE Long Year 28  
 DATE Aug. 21 / 92 HOLE LOCATION \_\_\_\_\_ COMMENTS TD. 127.4 M  
 HOLE NO. HT 92-1 ORIENTATION (DIP)-80 (AZ) 230  
 LOGGED BY Dan Cardinal % RECOVERY \_\_\_\_\_ Page 1 of 3

TALC     MAGNESITE

DEPTH	LITHO LOG M	VISUAL GRADE ESTIMATES		SAMPLE INTERVAL	SAMPLE NUMBER	DESCRIPTION: (Texture, Colour, Alteration Accessory Minerals)	LAB ANALYSES - HISTOGRAM											
		% TALC	% MAG.				% TALC						% MAGNESITE					
							30	40	50	60	70	80	90	20	30	40	50	60
						0-2.4 m no drill core												
5	•••••	50-60	40-50			2.5 - 94 m massive, lt grey-gm homogenous talc-magnesite throughout w/ fine disseminated minor (1-2%) pyrrhotite,  Slicken side planes ~ 60 to drill core axis.												
15	•••••	50-60	40-50			massive, homogenous talc-magnesite												
25	•••••	60-70	30-40			Homogenous talc-magnesite												
40	•••••	60-70	30-40			Homogenous talc-magnesite												
50	•••••	60-70	30-40			Homogenous talc-magnesite												
55	•••••																	



# GEOLOGICAL CORELOG DATA SHEET

PROJECT \_\_\_\_\_ CORE SIZE \_\_\_\_\_ RIGTYPE \_\_\_\_\_  
 DATE \_\_\_\_\_ HOLE LOCATION \_\_\_\_\_ COMMENTS \_\_\_\_\_  
 HOLE NO. HT 92-4 ORIENTATION (Dip) (Az) \_\_\_\_\_  
 LOGGED BY D.G.S. % RECOVERY \_\_\_\_\_

TALC     MAGNESITE

DEPTH m	LITHO LOG	VISUAL GRADE ESTIMATES		SAMPLE INTERVAL	SAMPLE NUMBER	DESCRIPTION: (Texture, Colour, Alteration Accessory Minerals)	LAB ANALYSES - HISTOGRAM											
		% TALC	% MAG.				% TALC					% MAGNESITE						
							30	40	50	60	70	80	90	20	30	40	50	60
	/ / / / /					grn schist / serpentine												
115	. . . . .	60-70	30-40			Talc shear @ 114m ~ 60° to drill core axis Talc-magnesite												
120	/ / / / /					greenschist / serpentine												
125	. . . . .	60-70	30-40			massive, Lt grn-gry talc-magnesite												
						End of Hole @ 127.4m												



APPENDIX 11

---

1990 DIAMOND DRILL HOLE RESULTS

HOLE #	INTERVAL (feet)	TALC %	MAGNESITE %	CHLORITE %	ANKERITE %
90-1	18- 28	52	45	2	<0.5
	58- 68	50	48	1	<0.5
	113-123	55	41	1	1
90-2	28- 38	58	40	1	<0.5
	78- 88	56	42	1	<0.5
	118-128	56	41	1	<0.5
	158-168	54	43	1	1
	193-203	80	15	2	2
90-4	18- 28	73	24	1	<0.5
	43- 53	64	34	1	<0.5
	113-123	60	37	2	<0.5
	183-193	62	34	1	2
90-5	63- 73	95	1	1	2
	113-123	66	31	1	0.5
	143-148	89	1	9	<0.5
	163-168	98	1	<0.5	<0.5
	188-198	87	6	3	3
NUMERICAL AVERAGE		68%	28%	2%	1%

### APPENIX III

#### REFERENCES:

- Chamberlain, J.A. (1973), Geological Report, "H"Claims, Nahatlatch Area, B.C., B.C. Department of Mines and Petroleum Resources Assessment Report No. 4985.
- Duffel, S. and McTaggart, K.C. (1952), Ashcroft Map Area, Geological Survey of Canada, Memoir 262.
- Maclean, M (1988), Talc and Prophyllite in British Columbia, B.C., Ministry of Energy, Mines and Petroleum Resources, Mineral Resources Division, Geological Survey Branch.
- Monger, J.W.H. (1980-82), Bedrock Geology of Ashcroft (92I) Map Area, Scale 1:125,000, Geological Survey of Canada.
- Murton, J.W., P.Eng., J.W. Murton & Associates (Aug. 28, 1992), Summary Report on the Talc Properties of Highland Talc Minerals Ltd., Kamloops Mining Division and New Westminster Mining Division, NTS 92I/4E.

APPENDIX IV

I, Daniel G. Cardinal of the municipality of Hope, British Columbia, do hereby certify that:

I'am a Professional Geoscientist residing in Hope, address - 65661 Birch Trees Drive, P.O. Box 594, Hope, B.C., VOX 1L0.

I'am a graduate of the University of Alberta (1978) and hold a BSc. degree in Geology.

I'am registered as a Fellow of the Geological Association of Canada (F.G.A.C.); a member in good standing with the Association of Professional Engineers, Geologists and Geophysicists of Alberta (P.Geo.) and with the Professional Engineers and Geoscientists of British Columbia. (P.Geo.).

I have been practicing my profession continuously for the past 14 years.

I'am the principle owner of the mineral properties described in this report.

I have supervised the 1992 field programmes documented in this report.

and, that I'am the author of this report.



D.G. Cardinal, P.Geo., F.G.A.C.