

**BRITISH COLUMBIA**  
**PROSPECTORS ASSISTANCE PROGRAM**  
**MINISTRY OF ENERGY AND MINES**  
**GEOLOGICAL SURVEY BRANCH**

PROGRAM YEAR: 2000/2001

REPORT #: PAP 00-26

NAME: JEFFREY BOYCE

PHYROXENITE

Source:  
GSC Open File 1433  
Evenchick  
Map #2

WHITEHORSE

CANADA  
USA

KLUKWAN

BRADY GLACIER

RUBY CREEK

NAHLIN

INKLIN

JUNEAU

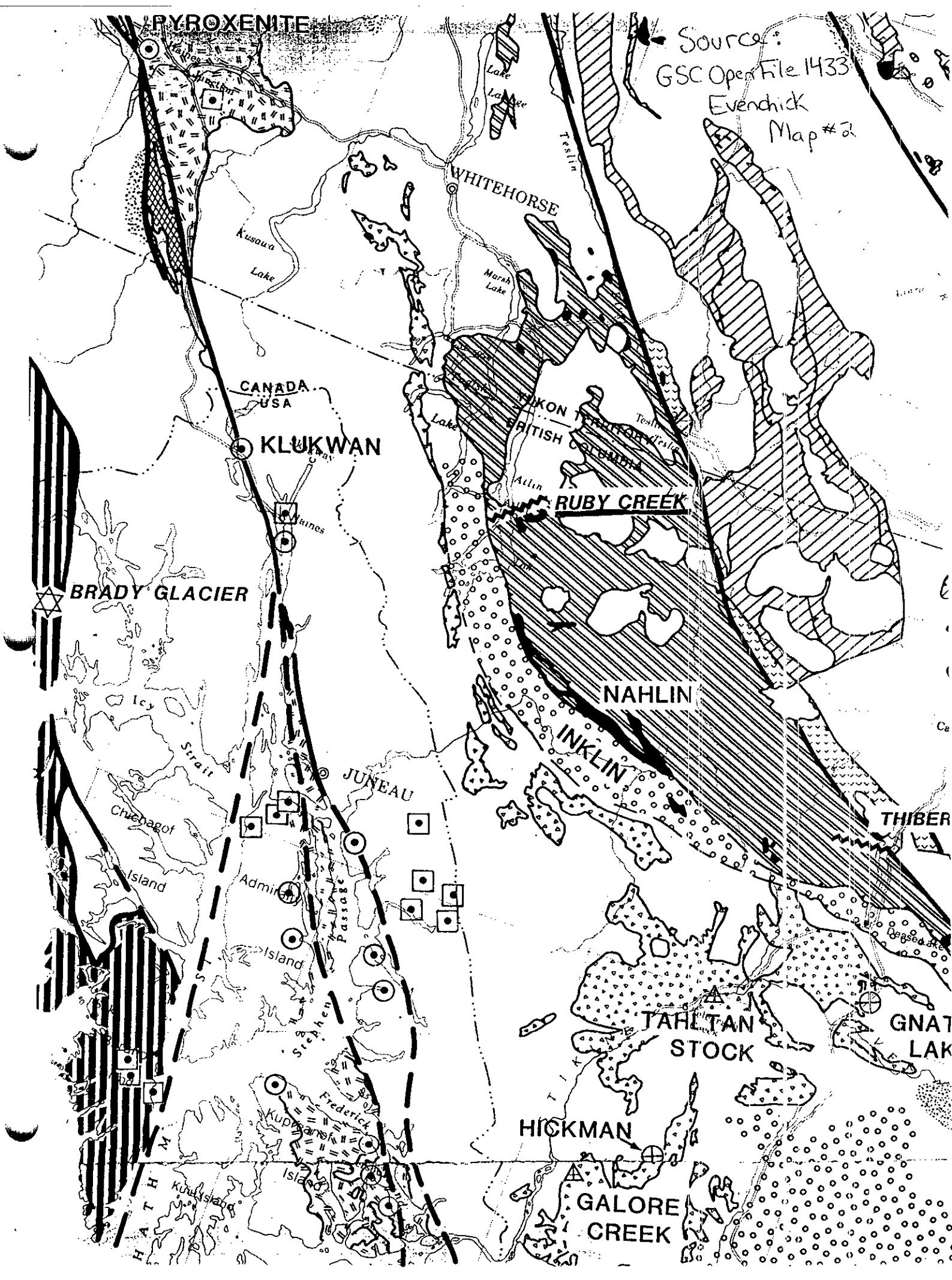
THIBER

TAHLTAN  
STOCK

GNAT  
LAK

HICKMAN

GALORE  
CREEK



Source: GSC Open File 1433 Evenchick

LEGEND AND SUMMARY OF POSSIBLE PGE HOST-ROCKS AND THEIR ASSOCIATED ASSEMBLAGES OR TERRANES

Map #2

terrane and assemblage age and rock type  
Tert. Cret. Jur. Trias. Paleoz.

**OCEANIC TERRANES**

Slide Mountain



Cache Creek



Bridge River



Outer terranes



hosts target rocks

**VOLCANIC TERRANES**

Quesnel

Nicola-Takla Group  
(Upper Triassic)



Stikine

Takla-Stuhini Group  
(Upper Triassic)



Wrangell

Nicolai-Karmutsen  
(Upper Triassic)



Sicker Group  
(Dev.- Perm.)



Skolai Group  
(Penn.-Perm.)



Alexander

Gravina-Nutzotin  
(Jura-Cretaceous)



**Basins**

Jurassic:



Cretaceous and Tertiary:



Recent placers with

PGE showings:



**Types of Intrusions**

Alpine-type:



Alaskan-type:



Alkaline intrusion:



Large stratiform:



other:



please note Ruby Creek

Note: PGE occurrences on the map are labeled in italics

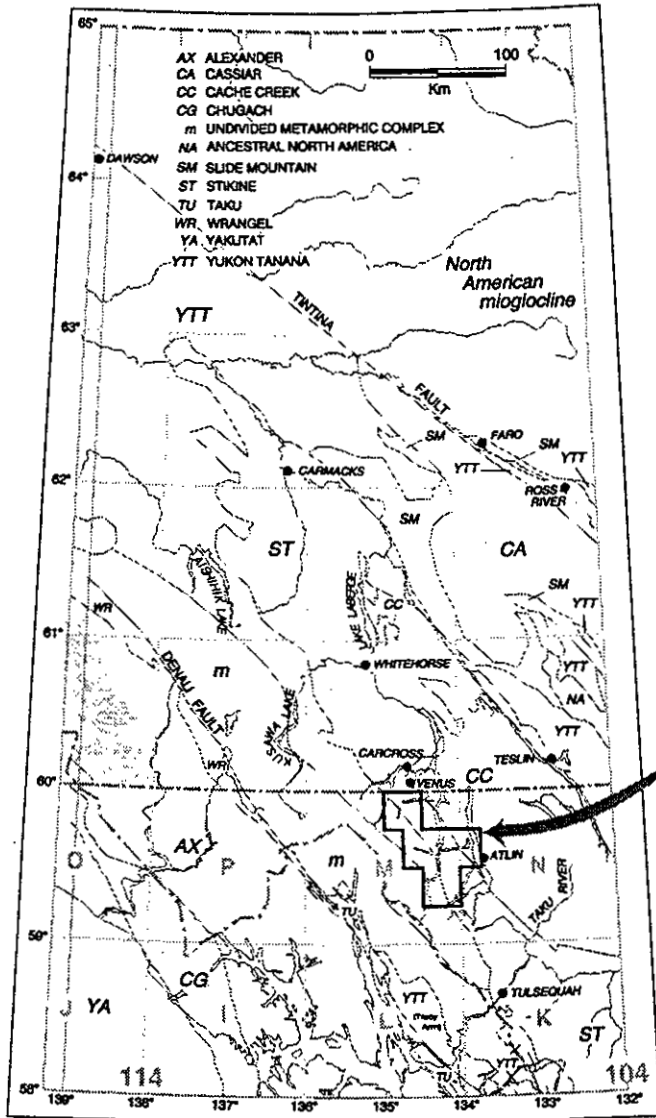
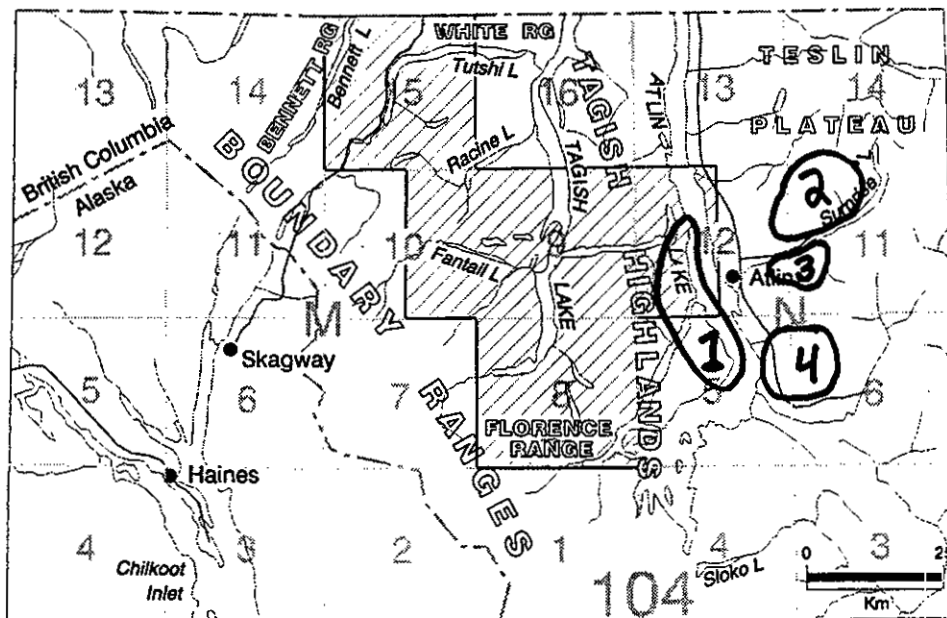


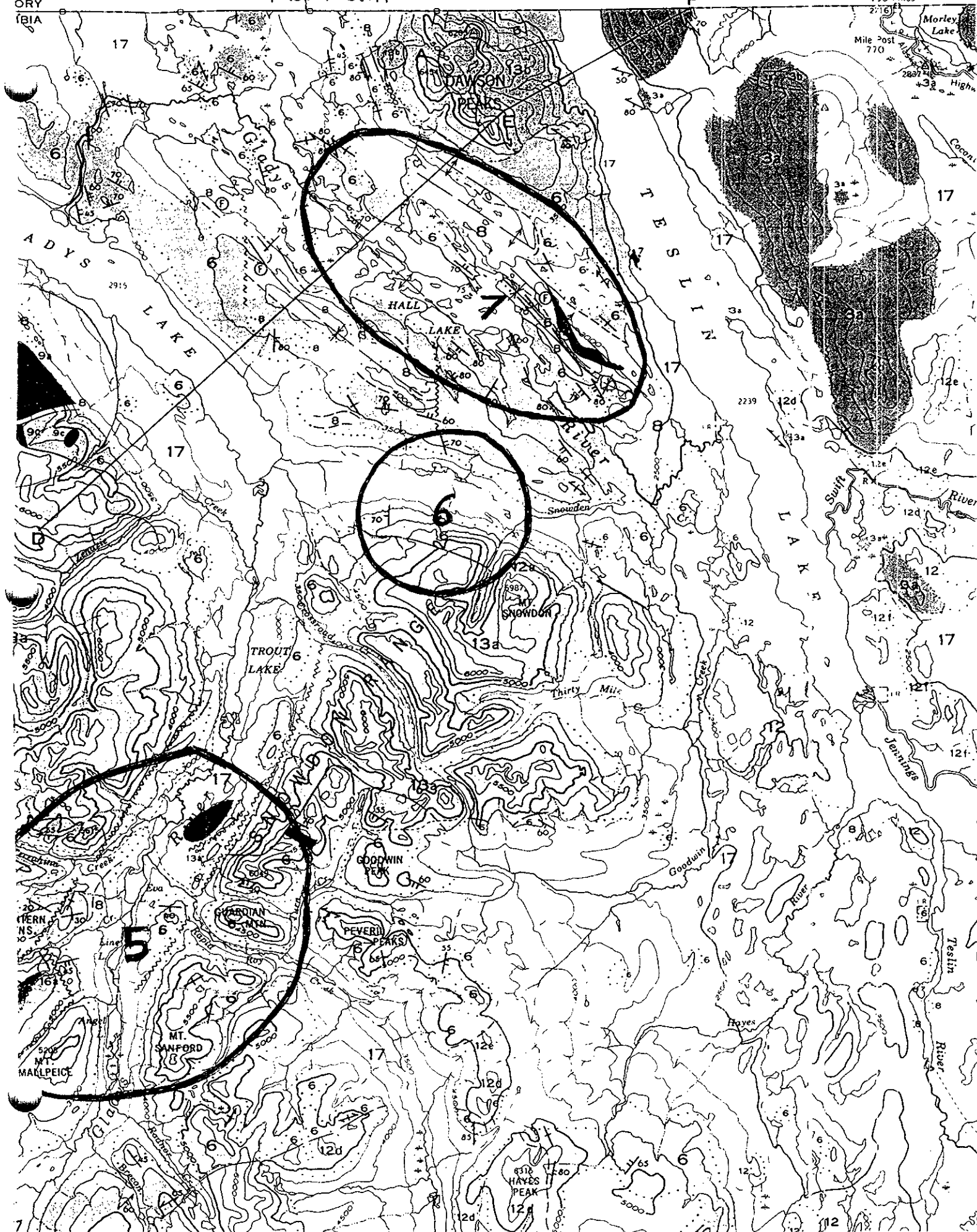
Figure 1-1. (a) Location map of the map area within British Columbia. (b) Regional geograph / and terranes modified after Wheeler and McFeeley (1991). (c) 1:250 000 and 1:50 000 map sheets, place names and physiographic subdivisions referred to in the text.



Targets  
1, 2, 3, 4  
from Mihalyov  
Bulletin 105



ORY  
IBIA



Morley Lake  
Highway  
Mile Post 770

Coron

Swift River

Thirty Mile

Jennings

Testin River

Hayes

Hayes Peak

112

Number: 2000/2001 P113

## **ATLIN AREA PGE PROSPECTING PROJECT B.C. PROSPECTORS ASSISTANCE PROGRAM**

**Jeffrey D. Boyce**

### **Days**

1) Atlin PGE project 104N: 25 prospecting days + 5 travel days = 30 days total

### **Positive results:**

1) Stream sediment and rock assays and area history and geology point to three areas with potential for a hard-rock PGE source:

- 1) Ruby Mountain and its slopes (104N/11)
- 2) Monarch mountain (104N/12)
- 3) the east slopes of Atlin mountain, north of Torres Channel (104N/12)

2) Some of the analytical data supports the hypothesis that Atlin area placer miners should be paying more attention to the PGE potential in their concentrates.

3) Also supported is the hypothesis that magnetic separation may be separating a magnetic alloy (isoferriferous platinum) of platinum from the gold cleanup.

## **Location/commodities:**

### **Project Area:**

I am viewing my field work as one project with (initially) seven targets inside the project area.

Atlin Map Sheet, 104N

NTS

Lat: various

Long: various

### **Description of location:**

#### **Target locations were as follows:**

Please see attached geology maps (especially Map 1082A; Atlin 1960 with targets marked) for project location.

Could not complete targets 7 and 6 (Hall lake) because boat motor broke while working on Atlin lake and could not get another (inexpensive!) motor to use on Teslin Lake to access these targets.

Also, target 5 was dropped after speaking with Frank Tvetter (a local prospector) and his partners about the discovery potential in this area in the lowlands. There was too much snow up high to prospect effectively and safely.

### **Prospecting assistants:**

Greg Roberts: several years bush experience in exploration and other camps. 3 years working on the Brewery Creek property and mine near Dawson City, Yukon.

Pascal Roi-Levesque: degree in Geography with minor in Geology. Worked with Parks with specialty in surficial geology, last two years in Skagway and Kluane Park on staff.

Joshua Bailey: many years prospecting and mapping experience with Aurum, Amerok Geosciences, Yukon Geology Program among others. Currently finishing Geology Degree at Memorial University. Worked one week as unpaid helper for experience in Atlin area.

### **Main commodities searched for:**

- 1) Platinum Group Elements (Pt, Pd, Os, Rh, Ir)
- 2) Au, Ni, Cu, Podiform Chromite (Mineral Deposit Profile M03), UM hosted Chrysotile Asbestos (Mineral Deposit Profile M06)

### **Known mineral occurrences:**

Too many to list as this has traditionally been a big placer gold area and much prospecting has been done trying to find the source, -but occurrences of PGEs are only found in old placer recovery records.



## Work:

Conventional prospecting: prospecting traverses with rock and stream sediment sampling performed. Also streams panned for fines for ID where possible.

Please see 3 field maps for:

1) **Traverses marked in yellow** (note: the Atlin lakeshore was closely followed using a zodiac, with stops at all visible outcrop)

2) **Assayed Rock samples sites as numbered black points**

example: "R2J001" where:

"R" designates rock

"2" designates year 2000

"J" designates sampler's initial

"001" designates number 001

Note: sampling labels changed to "MC01" at mid point in program due to strange and bad decisions which will not be repeated!

3) **Assayed Stream Sediment sample sites are numbered black points**

example: "D2J001" where:

"D" designates sediment

the rest as above

4) **Assayed Placer Concentrate sites are numbered with the approximate area-of-recovery circled**

example: "C2J001" where:

"C" designates concentrate

the rest as above

5) **Non-assayed sites of Rock & Sediment with un-numbered "X", and non-assayed concentrates with un-numbered "X" within circled area**

6) **Samples with anomalous Au/PGE values are highlighted in Orange**

Geochemical: Lab work by ACME Analytical Laboratories Ltd.

Fire assay on concentrates: 4 samples

Fire assay of rock samples 41 samples

Stream sediment samples 7 samples

Interviews with local placer miners and prospectors re. mineral occurrences, types of heavies recovered and PGE potential for area. Some concentrates of black sand pre and post-magnetic separation were collected from placer operations.

## Best discovery:

No major discovery was made. Please see prospecting and geo-chemical results below for best prospects.

## Feedback:

Comments and suggestions:

Excellent program but it would be extremely helpful to have permission and money available sooner for planning the field season and starting work in May if the spring is mild.

Also, it would be good if any unused portions of grant money from the program were available for prospectors to assay extra samples (they would have to submit a mini-proposal explaining the merit of follow up lab work).

## Location of project area:

Please see maps and above

## Program Objective/Rationale:

To test the potential of ultramafic units of the Atlin Map sheet to host economic concentrations of Platinum Group Elements. (a secondary objective was to test the same units for economic Gold potential)

This was to be done by covering as much ground and as many prospective drainages as possible, with special attention paid to geo-chemical anomalies.

It is my belief that PGE potential of northern B.C./southern Yukon is largely untapped. Partially this results from a historical lack of geochemical testing methods for PGE, and lab analysis has been, and remains, very expensive for these elements and their pathfinders. In addition, most RGS did not test for Cr, let alone Sb, Ti, or V.

At the moment, world PGE prices are holding at very high values. South African production has been down due to labour/management problems and increasing depth and costs, and Russian production was completely halted due to political/legal problems. Presently demand exceeds supply and the high-tech and automotive industries see increased demand for Pt/Pd. If a promising property were found in north-west B.C. it would be possible to attract investment for further exploration or option agreements.

The targets 1 to 4 are well suited to property promotion as they have historical Platinum recovery, are located close to the highway, and are accessible year round.

## Target Selection:

1) In my research I found evidence that silt geochemistry anomalies were effective exploration tools for PGE. Take the placers of Florence Creek located in 115H/15, 16 for example:

*Remarkable concentrations of "black sand" have been recovered with non-magnetic HMC assay of 32 oz/t gold and 70ppm platinum.*

*NGR regional stream sediment geochemistry reveals a multi-element anomaly of Cu, Fe, Ni, As, Co, V, on a tributary entering Florence Creek from the South. This element association may be important in characterizing source rocks for alluvial PGM grains. (Templeman-Kluit, 1974).*

In "Eastern Wrangellia- A New Ni-Cu-PGE Metallogenic Terrane with Special Reference to Recent Findings in Alaska" L. Hulberts states:

*A strong correspondence between the behavior of NiO and TiO<sub>2</sub>, and their enrichment in zones of anomalous sulphides, have been detected. Mineralized ultramafic rocks and intrusions were also found to contain a greater frequency of chromites with elevated Fe<sup>3+</sup> ratios than their unmineralized counterparts. The refractory nature of chromite makes it amenable to regional stream geochem and heavy mineral surveys when exploring for this type of deposit.*

Unfortunately, the geochem data for this area is somewhat limited (I used Open File 517; Geochemical Reconnaissance Map 9-1977) and only assayed for Cu, Ni, Co, and Fe. I used only values of over the 95th percentile for choosing my targets.

In addition, there is some more detailed data on Cr available from a study that was part of a (Open File 2390; Exploration Geochemistry Workshop 1991, J.M.Franklin et al. This data shows Spruce and Birch Creeks to have very anomalous Cr values.

Lastly, as part of Ash's 1994 Bulletin 94 there is some nice detailed mapping at the 1:20,000 scale on a map including Table 1 of very useful assay results from this area. It is the only source of correlated geochem data for Au, Co, Ni, Cr, As and Sb.

It is my belief that placer platinum is closely related to bedrock sources

*Mertie (1969) discusses platinum placers in great detail. He concludes that placers containing PGE are commonly derived from dunite and serpentinite, in which PGE are sparsely and irregularly distributed. Mertie also reports that platinum alloys "rarely migrate far downstream from their bedrock sources, unless they are so fine grained as to be moved by swift water or floated by surface tension". "Generally,*

however, ordinary detrital grains of platinum or gold work rapidly downward through alluvial deposits, and come to rest near, on, or in bedrock".

Note: Glaciation will affect the platinum placers and the Atlin area was glaciated.

I selected the Alpine Ultramafic deposit model as the PGE target deposit.

*Almost all of the world's reserves of Platinum Group Elements occur in layered mafic and ultramafic complexes in Africa, the U.S.S.R., and North America. I have studied numerous PGE deposit models, both for placer and hardrock. A number of these models could be applied to the Atlin area (as in the case of the Ruby Creek property.). For this grant work I targeted Alpine-Type Ultramafic deposits. The following is an excerpt from GSC Open File 1433 by Evenchick:*

*In the Cordillera, Alpine-type ultramafics appear to have originated as part of newly formed ocean floor (ophiolitic sequence). They are associated with other oceanic lithologies (including mafic pillowed volcanics, ribbon chert, argillite, and limestone) and occur in oceanic terranes. Oceanic rocks that formed in basins between other terranes were intensely folded and faulted during amalgamation of the terranes, and as a result Alpine-type ultramafics (dunite, pyroxenite, peridotite, hazburgite, gabbro, serpentinite) are referred to as "tectonically emplaced". The oceanic terranes in the Cordillera, Slide Mountain, Cache Creek, Bridge River, and several "Outer" terranes, all contain numerous bodies of ultramafic rocks. PGE's are concentrated in the dunite and pyroxinite cumulates.*

*The Nahlin ultramafic body in the Cache Creek Terrane is the largest Alpine-type ultramafic in the Canadian Cordillera. It is dominantly dunite peridotite, but cumulates are rare. The ultramafic rocks of the Cache Creek Terrane in northern B.C. are probably the source of PGE's in the placers of Ruby and Thibert creeks*

*(Please note the attached map #2 showing the Cache Creek [Oceanic Terrain] overlying parts (target 1) of the Atlin area)*

I have selected Altered Ultramafic Hosted Au as my gold target deposit

As stated in Bulletin 105: "Geology and Mineral Resources of the Tagish Lake Area" by Mitch Mihalym:

*Ultramafic rocks of the Cache Creek Terrane have historically been called the "Gold Series" in order to underscore their persistent association with the placer gold camps. In the prolific Atlin camp no lode deposits have yet been discovered that could explain the spectacular placer gold recovery from surrounding streams. Despite the historical lack of success of lode gold exploration, the Atlin area still holds significant promise. Two metallogenic environments warrant particular attention. These are: quartz-carbonate-mariposite altered mafic and ultramafic units, and altered zones surrounding secondary intrusive bodies with particular focus on lamprophyres.*

*Quartz-carbonate-mariposite alteration of ultramafic units is common in the Atlin Complex. In the study area, virtually every major occurrence of ultramafic is locally altered to some degree - particularly adjacent to significant fault zones (Ash 1994).*

*In "Stratigraphy of the Placers in the Atlin Placer Mining Camp" Proudlock, P.J. and Proudlock, W.M. discuss placer source rocks:*

*It is also necessary to consider the potential for bedrock in the area to yield gold to the placer environment. Ash and Arksey(1990a) have suggested a probable connection between altered ultramafic rocks (listwanites) and lode and placer gold production in the Atlin area.*

#### **Methodology:**

The sediment silt surveys were conducted to test drainages for their PGE/Au potential

The rock samples were taken for 2 reasons:

- 1) to test geochemical anomalies of elements believed to be indicators of PGE potential (ie: Co, As, Ni, Cr, Fe) (Monarch and Union mountains, for example, seemed to have excellent potential with high Cr, Ni & Co. Please see map 104N/12)
- 2) to test prospective rock units above creeks with known anomalous PGE levels in their silt sediments. The goal was to identify a local PGE source rock. (the work above Ruby and Boulder creek is an example)

The concentrates were collected from various placer miners and tested with 3 objectives:

- 1) to test the PGE potential of the drainages where they were working (in effect massive silt samples).
- 2) to test the theory that magnetic separation was removing significant amounts of PGE out of the potential precious metals recovery.
- 3) the amounts of recovered Pt and Pd, when compared, can give an indication of the hard rock source and deposit model to target.

### Prospecting results:

A large amount of rock samples were collected representing various mafic and ultramafic rocks along the traverses. The large program area contains intermixed igneous and volcanic units which are many degrees more complicated than the available regional geological mapping. I have not tried to map out all the units encountered as it is beyond my technical ability and time.

Unfortunately, the only findings of economic mineralization were:

- 3 showings of minor amounts of Chrysotile Asbestos (samples R2J029 & R2J030)(see photo) occurred in a very magnetic serpenized UM.

- 1 showing of Molybdenite (mapped as "new molybdenite showing" (sample R2J027) at the head of Ruby Creek on map 104N/11. The Moly occurred as small flecks, only visible with a hand lense but positive ID, in a intermediate volcanic rock. As this was not a target metal, I have not yet assayed this sample).

In some of the panned fines there were the predictable heavies such as magnetite and garnets, but only twice were specks of Au found. In two samples (draining into Ruby creek) small flat silver grey grains of high density were found but cannot be positively identified as Pt at this time

### Geochemical results:

#### Geochem Objectives:

#### Potential host hard-rock Geochem:

Au values of 177ppb found in sample MC6

Pt/Pd values (ppb) from samples:	MC17	9/14
	MC34	16/18
	R2J052	13/14
	R2J053	13/9
	D2J001	15/14

#### Stream sediment/silt Geochem:

Sample D2J001 had anomalous Pt (15ppb) and Pd (14ppb)

#### Concentrate Geochem:

C2J001 showing anomalous Au (29.62 gm/mt) and Pt (0.96 gm/mt) values left in post-magnetic-seperation discard from placer operation on creek

C2J003 showing anomalous post-magnetic-seperation Au (1581.14 gm/mt) and Pt (4.03 gm/mt) values from creek. In this case the black sands were stored to be run through a bull mill later so, presumably, more of the Pt would be recovered.

## **Conclusion:**

The field and assay results suggest that there is not a huge, obvious PGE deposit along the traverses or in some of the drainages studied. However, they do give anomalous values suggesting that the potential is still there. Unfortunately, it is most likely that PGEs, while present, will not be easy to find in economic concentrations.

Most importantly, in almost all samples assayed the Pt/Pd values were very similar, suggesting that an Alpine deposit model (which is often Pd rich) does make sense in this area, as the Alaskan type PGE model (please see excellent description by G.Nixon in Geological Survey Mineral Profile M05) has no significant Pd present.

From ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R1  
 Jeffrey D. Boyce, B.C. Prospectors Assistance Program, 2000

Acme file # A100815 Received: MAR 23 2001 \* 29 samples in this disk file. **Rock**

ELEMENT	Au**	Pt**	Pd**
SAMPLES	ppb	ppb	ppb
MC6	177	2	6
MC7	13	3	3
MC8	25	2	6
MC14	9	4	6
MC16	36	6	6
MC17	21	6	14
MC19	8	5	6
MC24	7 < 2		6
MC29	7	4	10
MC31	4	7	7
MC34	19	16	18
MC35	11	7	7
RE MC35	8	4	5
R2J011	5	5	8
R2J013	< 2	4	7
R2J014	4	4	5
R2J015	< 2	3	7
R2J017	4 < 2		7
R2J022	< 2	4	8
R2J025	< 2	< 2	< 2
R2J029	9 < 2	< 2	
R2J032	7	4	8
R2J033	5 < 2	< 2	
R2J038	7	2	4
R2J040	2 < 2	< 2	
R2J043	22 < 2		3
R2J047	< 2	< 2	< 2
R2J052	6	13	14
R2J053	3	13	9
STANDAR	506	479	504

From ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R1  
Jeffrey Boyce; B.C. Prospectors Assistance Grant

Acme file # A100816 Page 2 Received: MAR 23 2001 \* 14 samples in this disk file. **Rock**

ELEMENT Au**	Pt**	Pd**	
SAMPLES ppb	ppb	ppb	
MC2	6	2 < 2	
MC9	8	2	3
MC37	4 < 2	< 2	
MC40	4 < 2		3
MC41	3 < 2	< 2	
MC49	4	3 < 2	
<del>D2J001</del>	32	15	14
<del>D2J007</del>	4	2 < 2	
<del>D2J008</del>	12 < 2		2
RE D2J008	9 < 2	< 2	
<del>D2J009</del>	15 < 2	< 2	
<del>D2J010</del>	4 < 2	< 2	
<del>D2J012</del>	3	3 < 2	
<del>D2J019</del>	11	6	2
STANDAR	479	463	466

From ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R  
Jeffrey Boyce; B.C. Prospectors Assistance Grant

Acme file # A100816 Page 1 Received: MAR 23 2001 • 8 samples in this disk file. *Sediment-*

ELEMENT	Au	Pt
SAMPLES	ppb	ppb
MC11	1.4 < 2	
D2J011	7.7	3
D2J011B	7.6	2
D2J016	7.1 < 2	
D2J042	30 < 2	
D2J051	2.8 < 2	
D2J060	14.5	2
RE D2J060	7.6	2
STANDAR	202.6 < 2	



From ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R1  
Jeffrey D. Boyce, B.C. Prospectors Assistance Program

Acme file # A100817 Received: MAR 23 2001 \* 5 samples in this disk file. *Concentrate*

ELEMENT	Au**	Pt**	Pd**
SAMPLES	gm/mt	gm/mt	gm/mt
C2J001	29.62	0.96	0.01
C2J002	660.63	0.03	0.03
C2J003	1581.14	4.03	0.03
C2J004	1254.62	0.07	0.02
RE C2J004	1094.08	0.03	< .01
STANDAR	0.49	0.51	0.49

*Boulder*  
*Birch*  
*Spruce ck*

**D. TECHNICAL REPORT**

One technical report to be completed for each project area.

Refer to Program Regulations 15 to 17, pages 6 and 7.



Information on this form is confidential subject to the provisions of the *Freedom of Information Act.*

**SUMMARY OF RESULTS**

This summary section must be filled out by all grantees, one for each project area

Name Jeffrey D. Boyce Reference Number 2000-2001 P13

**LOCATION/COMMODITIES**

Project Area (as listed in Part A) \_\_\_\_\_ MINFILE No. if applicable \_\_\_\_\_

Location of Project Area NTS \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_

Description of Location and Access \_\_\_\_\_

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)

Main Commodities Searched For \_\_\_\_\_

Known Mineral Occurrences in Project Area \_\_\_\_\_

**WORK PERFORMED**

- 1. Conventional Prospecting (area) \_\_\_\_\_
- 2. Geological Mapping (hectares/scale) \_\_\_\_\_
- 3. Geochemical (type and no. of samples) \_\_\_\_\_
- 4. Geophysical (type and line km) \_\_\_\_\_
- 5. Physical Work (type and amount) \_\_\_\_\_
- 6. Drilling (no. holes, size, depth in m, total m) \_\_\_\_\_
- 7. Other (specify) \_\_\_\_\_

**Best Discovery**

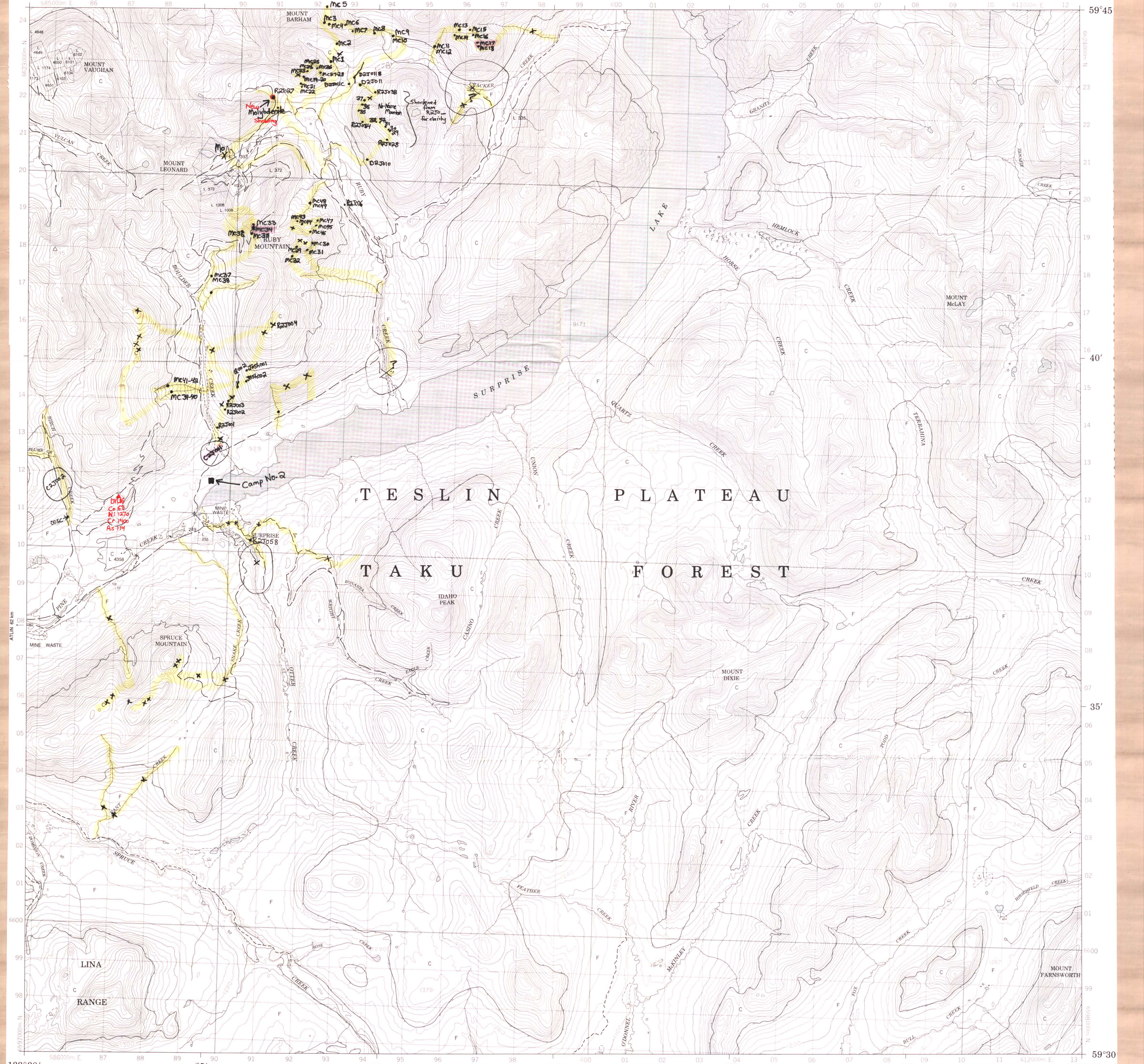
Project/Claim Name \_\_\_\_\_ Commodities \_\_\_\_\_

Location (show on map) Lat. \_\_\_\_\_ Long \_\_\_\_\_ Elevation \_\_\_\_\_

Best assay/sample type \_\_\_\_\_

Description of mineralization, host rocks, anomalies \_\_\_\_\_

**FEEDBACK:** comments and suggestions for Prospector Assistance Program \_\_\_\_\_



PRODUCED BY THE SURVEYS AND MAPPING BRANCH  
DEPARTMENT OF ENERGY, MINES AND RESOURCES  
OTTAWA. CULTURE CHECK 1983. PUBLISHED IN 1984.  
© 1984 HER MAJESTY THE QUEEN IN RIGHT OF CANADA  
DEPARTMENT OF ENERGY, MINES AND RESOURCES

ELEVATIONS IN METRES ABOVE MEAN SEA LEVEL  
CONTOUR INTERVAL ..... 20 METRES

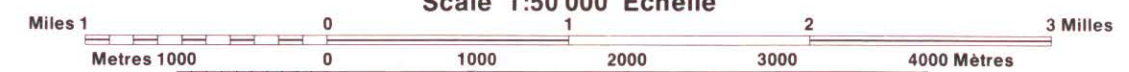
NORTH AMERICAN DATUM 1927  
TRANSVERSE MERCATOR PROJECTION

INFORMATION CONCERNING BENCH MARKS AND HORIZONTAL SURVEY MONUMENTS CAN BE OBTAINED FROM GEOLOGIC SURVEY, SURVEYS AND MAPPING BRANCH, OTTAWA.

### SURPRISE LAKE

CASSIAR LAND DISTRICT  
BRITISH COLUMBIA COLOMBIE-BRITANNIQUE

Scale 1:50 000 Échelle



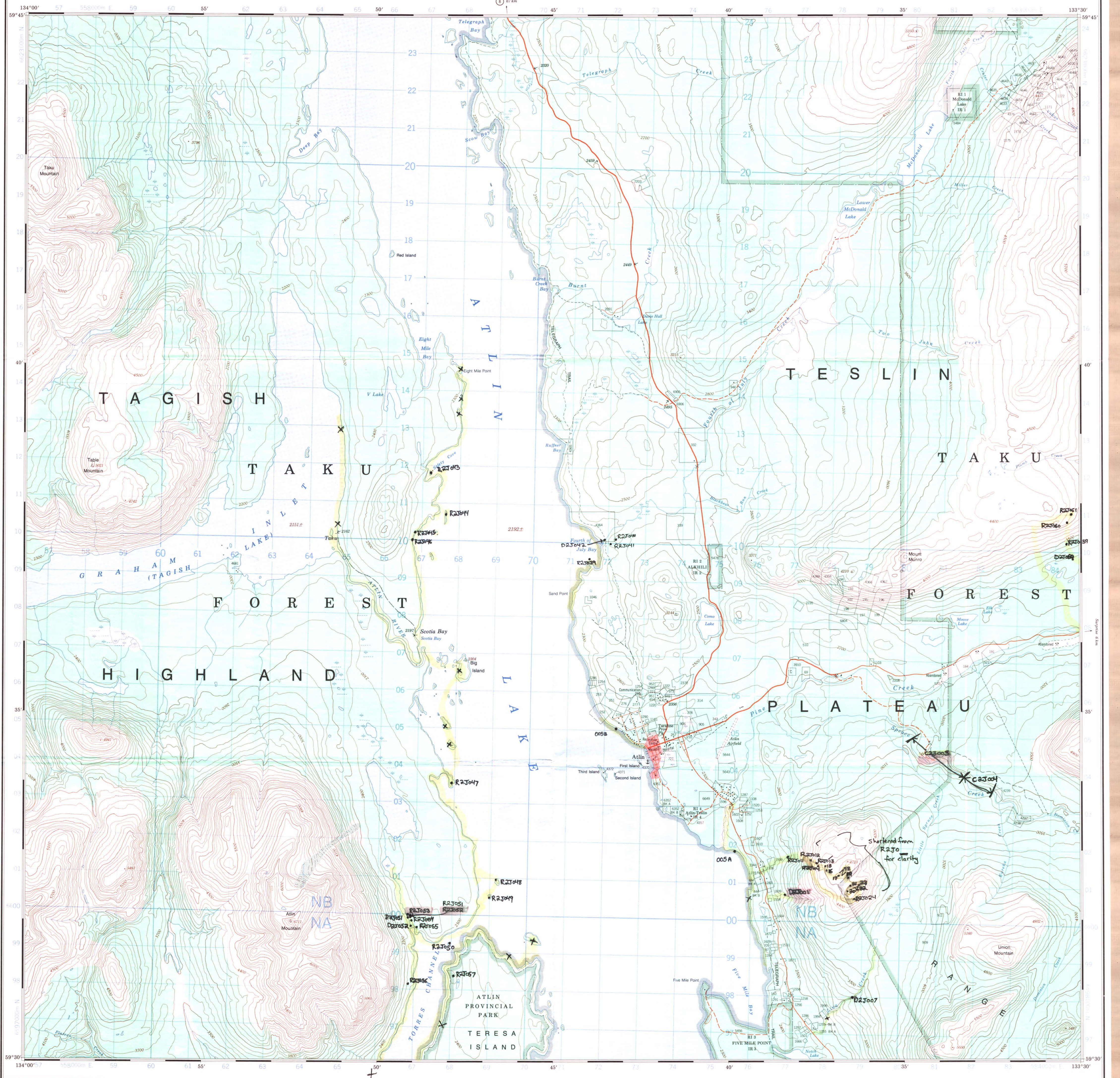
ALTITUDES EN MÈTRES  
EQUIDISTANCE DES COURBES ..... 20 MÈTRES

SYSTÈME DE RÉFÉRENCE GÉODÉSIQUE NORD-AMÉRICAIN 1927  
PROJECTION TRANSVERSE DE MERCATOR

POUR TOUT RENSEIGNEMENT CONCERNANT LES RÉPÈRES ET BORNES ALTIMÉTRIQUES, S'ADRESSER AUX LEVÉS GÉODÉSQUES, DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, OTTAWA.

ÉTABLI PAR LA DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE  
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES  
OTTAWA. VÉRIFICATION DES OUVRAGES EN 1983. PUBLIÉE EN 1984.  
© 1984 SA MAJESTÉ LA REINE DU CHEF DU CANADA  
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES

00-26 ①



Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Updated from aerial photographs taken in 1979. Culture check 1981. Published in 1982.

Copies may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, or your nearest map dealer.

© 1985. Her Majesty the Queen in Right of Canada, Department of Energy, Mines and Resources.

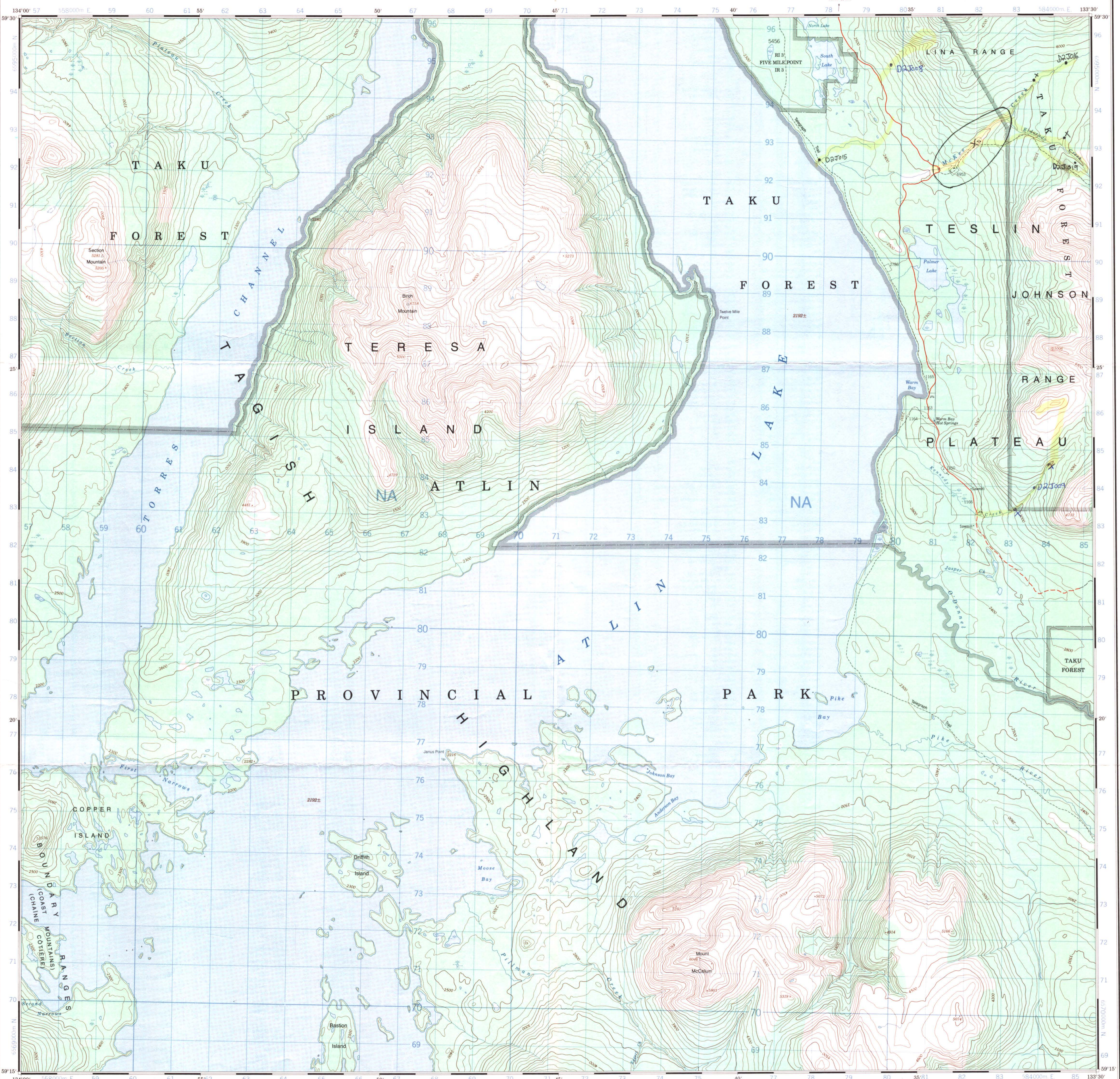
Roads: loose or stabilized surface, all weather, loose surface, dry weather, unclassified road or street, cart track, trail, cut line or portage. Routes: gravel, agglomeré, toute saison, de gravier, temps sec, route non classée ou rue, sentier, percée ou portage. Contours: 2 lines or more, 2 voies ou plus, moins de 2 voies, moins de 2 voies.

ATLIN CASSIAR LAND DISTRICT BRITISH COLUMBIA COLOMBIE-BRITANNIQUE Scale 1:50 000 Échelle 1:50 000. Includes conversion scales for elevations in feet and metres, and contour intervals.

Information concerning bench marks and horizontal survey monuments can be obtained from Geodesic Survey, Surveys and Mapping Branch, Ottawa. CONVERSION SCALE FOR ELEVATIONS. ECHELLE DE CONVERSION DES ALTITUDES. COLOUR INTERVAL 100 FEET. ÉQUIDISTANCE DES COURBES 100 PIEDS.

Établi par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES. Mise à jour à l'aide de photographies aériennes prises en 1979. Vérification des courbes en 1981. Publié en 1982. Ces cartes sont en vente au Bureau des Cartes du Canada, ministère de l'Énergie, des Mines et des Ressources, Ottawa, ou chez le vendeur le plus près. © 1985. Sa Majesté La Reine du Chef du Canada, Ministère de l'Énergie, des Mines et des Ressources.

80-26 2



Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Updated from aerial photographs taken in 1979. Culture check 1981. Published in 1985.

Copyright © 1985 Her Majesty the Queen in Right of Canada, Department of Energy, Mines and Resources.

Roads: loose or stabilized surface, all weather; loose surface, dry weather; unclassified road or street; cart track; trail, cut line or portage.

Routes: gravel, aggloméré, toute saison; de gravier, temps sec; route non classée ou rue; de terre; sentier, percée ou portage.

2 lignes ou moins: moins de 2 voies; 2 lignes ou plus: plus de 2 voies.

**TERESA ISLAND**  
 CASSIAR LAND DISTRICT  
 BRITISH COLUMBIA COLOMBIE-BRITANNIQUE

Scale 1:50 000 Échelle

Miles 1 0 1 2 3 Miles  
 Metres 1000 0 1000 2000 3000 4000 Metres

Information concerning bench marks and horizontal survey monuments can be obtained from Geodetic Survey, Survey and Mapping Branch, Ottawa.

CONVERSION SCALE FOR ELEVATIONS  
 Metres 30 20 10 0 50 100 150 200 250 300 Metres  
 Feet 100 50 0 50 100 150 200 250 300 Feet

ÉCHELLE DE CONVERSION DES ALTITUDES  
 150 200 250 300 Mètres

CONTOUR INTERVAL 100 FEET  
 Elevations in Feet above Mean Sea Level  
 North American Datum 1927  
 Transverse Mercator Projection

Pour tout renseignement concernant les repères et bornes altimétriques, s'adresser aux levés géodésiques. Direction des levés et de la cartographie, Ottawa.

Établi sur la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES. Mise à jour à l'aide de photographies aériennes prises en 1979. Vérification des ouvrages en 1981. Publié en 1985.

Ces cartes sont en vente au Bureau des Cartes du Canada, Ministère de l'Énergie, des Mines et des Ressources, Ottawa, ou chez le vendeur le plus près.

© 1985 Sa Majesté La Reine du Chef du Canada, Ministère de l'Énergie, des Mines et des Ressources.

00-26 (3)

Éner Resc