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COMINCO LTD

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WESTERN CANADA  
20 October 1993

**ASSESSMENT REPORT**

**DIAMOND DRILLING ON PAR 7 MINERAL CLAIM**

**PAR PROPERTY**

**OMINECA MINING DIVISION, BRITISH COLUMBIA**

**LATITUDE: 56°07'**

**LONGITUDE: 125°00'**

**WORK PERFORMED**

**JULY 9-12, 1993**

**OWNER AND OPERATOR - COMINCO LTD.**

**FILMED**

**M.G. WESTCOTT**

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**23,094**

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## ASSESSMENT REPORT - PAR PROPERTY (PAR 7 CLAIM)

### INTRODUCTION

The Par 7 mineral claim is part of a large contiguous claim group, comprising 46 claims (826 units) which collectively make up Cominco Ltd's 100% owned Par property. Cominco Ltd. staked the Par 1-7 claims in 1990, following discovery of soils anomalous in Pb, Zn, Ag and Fe over an area of 3.5 km x 4.5 km. The soil anomaly is underlain by a north-northwest trending package of Lower Cambrian to Middle Devonian carbonates and clastics. In 1991 the remainder of the Par property claims were staked to cover extensions of the prospective stratigraphy.

Exploration programs in 1990 and 1991 involved: grid soil sampling, geological mapping, airborne and ground geophysics and trenching. Results from the geochemical and geophysical surveys collectively defined a northerly trending zone deemed prospective for hosting Pb/Zn mineralization. Trenching within this zone exposed mineralized bedrock, including a 17.2 m interval containing 3.5% Pb, 8.4% Zn and 14.2 g/t Ag. In 1992 a diamond drilling program was carried out in the vicinity of trenches and along the zone of coincident geophysical (EM) and geochemical (Pb,Zn,Ag,Fe) anomalies. In addition to diamond drilling in 1992, soil surveys were conducted over other portions of the claim group, including the Osilinka 6 claim, where an extensive, high magnitude Pb + Zn soil anomaly was discovered.

In 1993, a program involving geophysics (HLEM + IP), geological mapping and diamond drilling was carried out on the northeast portion of the property (Osilinka 6 claim). In addition, and a single diamond drill hole (205 m) was drilled on the Par 7 claim. This report pertains to diamond drill hole DDH93-21, located on the Par 7 claim, and declares related expenditures for assessment credit applicable to Par 7 and adjoining claims.

### LOCATION, ACCESS AND PHYSIOGRAPHY

The Par property is located 220 km northwest of Mackenzie, B.C. and 10 to 40 km north-northwest of Germansen Landing (figure 1). The property is in the Omineca Mining District on NTS map sheets 94C/2,3 and 93N/15,16 and is centred about latitude 56°03' N and longitude 124°50' W.

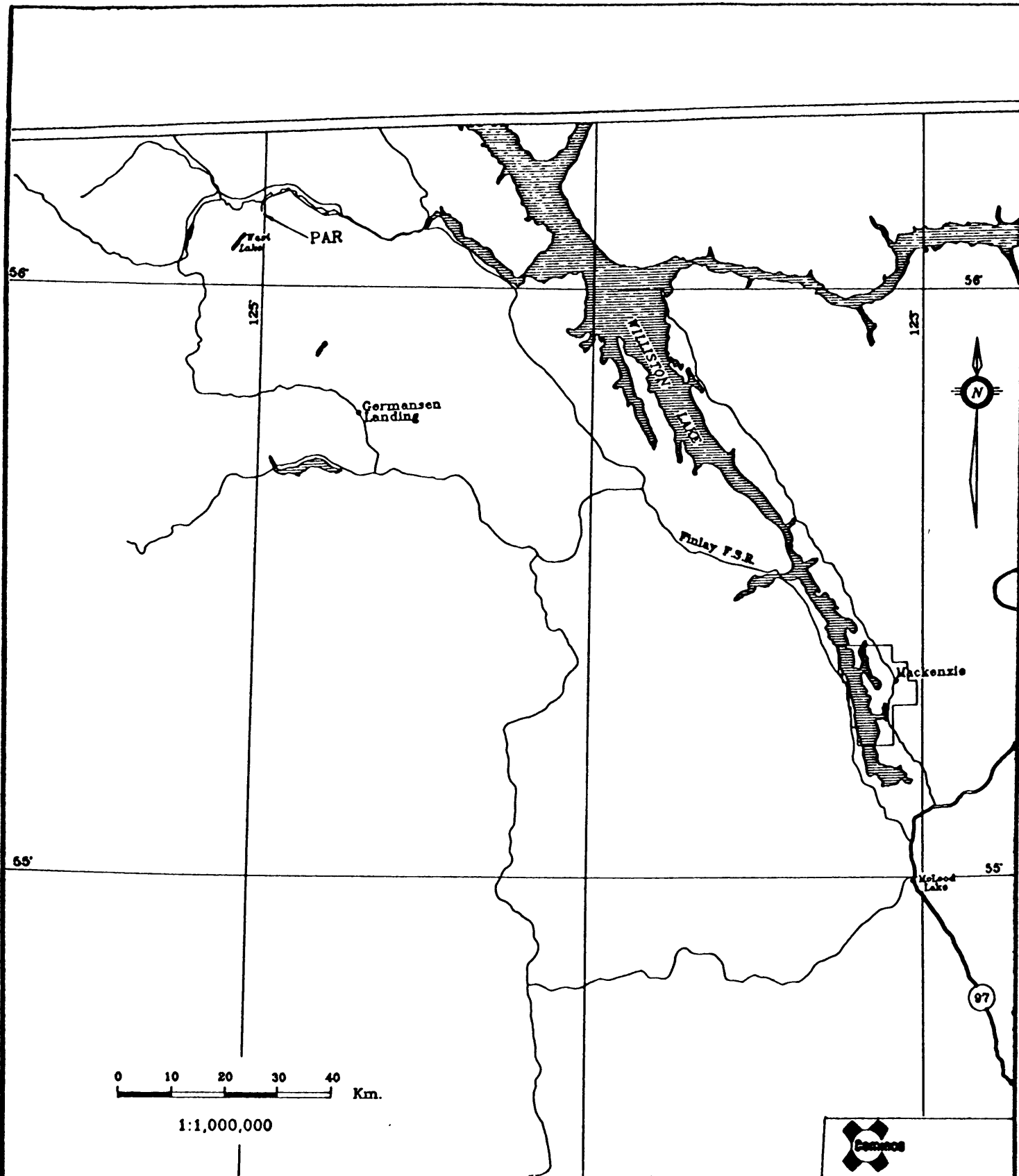
A well maintained network of logging roads stemming from the Fort St. James and Mackenzie areas provide access to the northern half of the property, while much of the area further south requires helicopter support. Tenahiki airstrip, located at Osilinka logging camp, 9 km northwest of the property, is presently in good condition and can accommodate mid-sized aircraft. Topography in the area is moderate to steep, ranging from 825 to 1900 metres elevation. Tree line is at 1700 m, below which vegetation consists primarily of mature stands of spruce, pine and hemlock. Underbrush is typically sparse and doesn't usually inhibit navigation. Portions of the property have recently been logged.

### TENURE

The Par property consists of the following claims, all are 100% owned by Cominco Ltd, 700 - 409 Granville Street, Vancouver, B.C. V6C 1T2.

2.

<u>Claim Name</u>	<u>Record No.</u>	<u>Size</u>	<u>Date/Rec</u>	<u>Date Due</u>
Osilinka 1	303712	20	91/08/29	95/08/29
Osilinka 2	303713	20	91/08/29	96/08/29
Osilinka 3	303714	18	91/08/29	96/08/29
Osilinka 4	303715	18	91/08/28	96/08/28
Osilinka 5	303716	18	91/08/29	96/08/28
Osilinka 6	303717	18	91/08/29	96/08/29
Osilinka 7	303718	18	91/08/25	96/08/25
Osilinka 8	203719	20	91/08/27	96/08/27
Osilinka 9	303720	5	91/08/30	96/08/30
Par 1	12072	18	90/06/22	99/06/22
Par 2	12073	20	90/06/22	99/06/22
Par 3	12521	20	90/09/10	99/06/10
Par 4	12522	20	90/09/08	99/09/08
Par 5	12523	20	90/09/08	99/09/08
Par 6	12524	20	90/09/09	99/09/09
Par 7	12525	20	90/09/09	99/09/09
Par 8	303721	20	91/08/26	95/08/26
Par 9	303722	20	91/08/27	95/08/27
Par 10	303723	9	91/08/31	95/08/31
Par 11	303724	4	91/09/01	95/09/01
Par 12	303725	20	91/09/02	97/09/01
Par 13	303726	20	91/09/03	95/09/03
Wasi 1	303727	20	91/08/31	97/08/31
Wasi 2	303728	20	91/08/31	97/08/31
Wasi 3	303729	20	91/08/30	97/08/30
Wasi 4	303730	20	91/08/31	97/08/31
Wasi 5	303731	20	91/08/30	97/08/30
Wasi 6	303732	10	91/08/30	97/08/30
Whistler 1	12071	20	90/06/17	94/06/17
Whistler 2	303733	18	91/08/25	94/08/25
Whistler 3	303734	20	91/08/25	94/08/25
Whistler 4	303735	20	91/08/25	94/08/25
Whistler 5	303736	20	91/08/27	94/08/27
Whistler 6	303737	20	91/08/27	94/08/27
Whistler 7	303738	20	91/08/27	94/08/27
Whistler 8	303739	20	91/08/27	94/08/28
Whistler 9	303740	12	91/09/01	94/09/01
Echo 1	303741	15	91/09/03	94/09/03
Echo 2	303742	18	91/09/02	94/09/02
Echo 3	303743	20	91/09/04	95/09/04
Echo 4	303744	20	91/09/04	95/09/04
Echo 5	303745	20	91/09/04	95/09/04
Echo 6	306622	20	91/12/02	94/12/02
Echo 7	306623	20	91/11/30	93/11/30
Echo 8	306624	18	91/11/30	93/11/30
Echo 9	306625	9	91/11/01	94/12/01



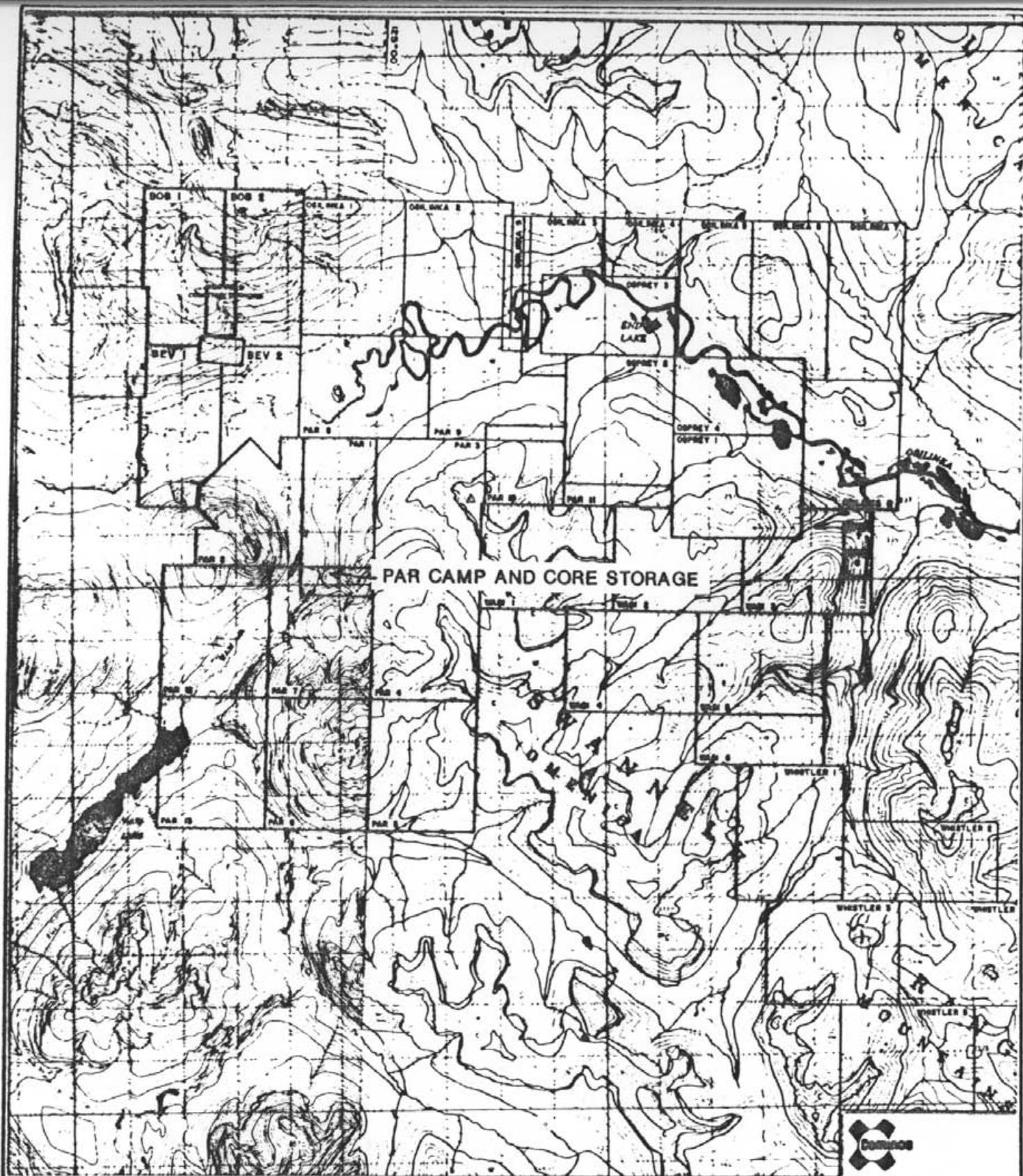
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Revised by	Date	Revised by	Date

## PAR PROPERTY LOCATION MAP

Scale: 1,000,000

Date: Oct, 1992

FIGURE 1



PAR CAMP AND CORE STORAGE

Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

PAR PROPERTY CLAIM MAP

Scale: 1:100,000

Date: OCT. 1993

Plate: FIGURE 2

3.

## HISTORY

The area currently comprising Cominco Ltd's Par property covers a number of mineral showings that were previously staked and have been restaked and worked intermittently. All showings are described as carbonate-hosted stratabound lead, zinc, silver +/- barite, +/- hydrozincite styles of mineralization. An inventory of these and other showings has recently been compiled by Ferri, F. et al (1992) as part of BCDM Open File Paper 1992-1.

In 1990 Cominco Ltd carried out a reconnaissance program in the area, in part involving silt and soil sampling stratigraphic extensions of Lower Cambrian to Middle Devonian carbonates hosting known mineral occurrences. In the course of this program the area in the vicinity of the Weber showing, located at latitude 56°07'23" and longitude 125°01'31", was staked (Par 1 and 2) and evaluated. The Weber showing, originally staked in 1929, consists of patchy and disseminated galena, sphalerite and barite in Lower Cambrian dolomite. Contour and grid sampling defined an extensive Pb, Zn, Ag, Fe anomaly and an additional five claims (Par 3-7) were staked.

In 1991 a program involving geological mapping, grid soil sampling, backhoe trenching, airborne EM and ground geophysics (HLEM, Mag, IP, VLF) was carried out and defined an area (4.5 km x 1.0 km) with anomalous soil geochemistry (Pb,Zn,Ag,Fe) and several conductors. Additional claims (668 units) were staked to cover the extension of prospective stratigraphy.

In 1992 an area with coincident geochemical and geophysical (HLEM conductors) anomalies was drill tested with 16 holes, totalling 1346 m. Concurrent with diamond drilling, geological mapping and soil geochemical surveys were conducted over other portions of the property.

## WORK PERFORMED IN 1993

1993 exploration efforts were focused on the northeastern corner of the property, on the Osilinka 6 claim, where 1992 soil surveys defined a large Pb + Zn anomaly. On the Osilinka 6 claim, geological mapping, line cutting (19.5 km), road (2.0 km) and drill pad (4) construction, ground geophysics (HLEM 16.8 km, IP 7.2 km), and diamond drilling (4 holes, 313m), was carried out in the period June 18 to July 9. During the period July 9 to July 12, a single diamond drill hole (205 m) was drilled on the Par 7 claim.

## GEOLOGY

### Regional

The Par property is situated at the boundary between the Omineca and Intermontane tectonostratigraphic belts. Rocks from four terranes including, from east to west, Cassiar, Slide Mountain, Harper Ranch and Quesnel outcrop in the area. Cassiar Terrane represents a displaced segment of North American miogeoclinal strata of Upper Proterozoic and Paleozoic age. Slide Mountain Terrane represents an Upper Paleozoic sedimentary and volcanic oceanic assemblage and occurs structurally above Cassiar Terrane. Further west, Quesnel Terrane,

4.

which can be subdivided to include the Harper Ranch Terrane, is composed of two volcanic and sedimentary assemblages, the Upper Triassic to Lower Jurassic Takla Group and the Upper Paleozoic Lay Range assemblage. The western margin of Quesnel Terrane is intruded by Triassic to Cretaceous monzonitic and syenitic rocks of the Hogem Intrusive Complex.

#### Local

Rocks underlying the Par Property include Lower Cambrian to Mississippian carbonates and clastics. Stratigraphy was previously classified using nomenclature applied to miogeoclinal strata of the Cassiar Platform, however, recent 1:50,000 scale mapping by BCDM has resulted in new stratigraphic nomenclature, summarized as follows (After F. Ferri, et al. 1992, Open File 1992-11).

#### **Upper Devonian to Lower Mississippian**

Big Creek Group: (Earn Gp. equivalent)	Shale, argillite and siltstone, dark grey, blue-grey and black, thin to very thinly-bedded and platy to wavy bedded.
---	--

#### **Middle Devonian**

Otter Lakes Group: (McDame Gp. equivalent)	Dolomite and limestone, dark to light grey, fetid, poorly bedded, locally fossiliferous, grey, massive.
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#### **Middle Ordovician to Lower Devonian**

Echo Lake Group: (Sandpile Gp. equivalent)	<u>Upper</u> -Dolomite and limestone, pale to medium grey, thin to massively bedded, medium crystalline and sugary, may be bioclastic, oolitic and contain carbonate breccia horizons, locally silicified and may exhibit algal structures.
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Lower-Argillite, dark grey and graptolitic. Argillaceous, planar bedded, medium to dark grey limestone.

#### **Cambrian and Ordovician**

Razor Back Group: (In part Road River equivalent)	<u>Upper</u> - Calcareous argillite, argillaceous and dolomitic limestone, dark grey, thinly bedded.
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Lower- Argillite, shale, dark grey to grey or silvery, thinly bedded, may contain sections of sericitic phyllite or schist, white to greenish.



5.

### Lower Cambrian

#### Atan Group

Mount Kison Fm.: Limestone, grey to white and mottled, recrystallized, thin,  
(Rosella Fm. equivalent) wavy indistinct and discontinuous bedding, slightly argillaceous and may be dolomitized.

Mount Brown Fm.: Sandstone, impure quartzite, grey-brown to maroon,  
(Boya Fm. equivalent) moderately to thickly bedded, interlayered with siltstone and phyllite, dark grey to grey-green, thin to thickly bedded, minor limestone nodules.

Above mentioned stratigraphy forms a broad, northwest trending syncline, truncated to the north by an east-west fault contact with Proterozoic rocks. The Par 7 claim covers a portion of the syncline's western limb.

### DIAMOND DRILLING

During July 9-12, a single (205 m) diamond drill hole was drilled on the Par 7 claim. Falcon Drilling Ltd. of Prince George, B.C. was the drill contractor. A skid-mounted Falcon F1000 drill was used to drill BTW size core. The hole (DDH93-21) was drilled at an azimuth of 075° and dip of -45° , to a depth of 205 m.

The objective of the drill hole was to test stratigraphy beneath a surface showing consisting of pyrite, sphalerite, galena and barite in Rosella Fm. limestones.

Drill core was logged and select intervals were sampled for geochemical analyses (Pb, Zn, Ag, Ba). Core is stored in racks at the 1993 camp (see Plate 2).

### GEOCHEMICAL ANALYSES

All drill core samples were analyzed at Cominco Exploration Research Laboratory, 1486 East Pender Street, Vancouver, B.C.. Analytical results are included on Plate 1. Samples were analyzed for lead, zinc, silver and barium using the following geochemical methods.

lead - Aqua Regia decomposition with AAS determination  
Zinc - Aqua Regia decomposition with AAS determination  
Silver - Aqua Regia decomposition with AAS determination  
Barium - Pressed Pellet X-Ray fluorescence

Lead and zinc values exceeding 10,000 ppm were assayed.

6.

## RESULTS

Diamond drill hole DDH93-21 cored five distinct lithologic intervals:

- 4.9 - 151.0 m- Rosella Fm. limestones.
- 151.0 - 173.2 - Fault Zone, consisting of fault gouge and crushed, partially silicified dolomite and limestone.
- 173.2 - 193.1 - Diamictite. Argillaceous, matrix supported debris flow breccia.
- 193.1 - 202.1 Shaly limestone/limy shale.
- 202.1 - 205.1 Interbedded siltstone and nodular limestone.

Two significant mineralized intervals were intersected.

1. Massive, subtly banded, very fine grained barite, pyrite, sphalerite, and galena was intersected between 131.6 and 135.0 m. Approximately 10% of this interval is comprised of limestone fragments. From 135.0 to 147.0, lesser amounts of this same type of mineralization is interbedded with limestone. Assays from the most intensely mineralized interval returned values in the following ranges: Pb 1.2 - 2.1%, Zn 3.8 - 7.9%, Ag 11.0 - 28.3 g/t, Ba 10.4 - 20.7%.
2. Semi-massive patches, bands and disseminations of pyrite, sphalerite and galena, occur within diamictite between 187.0 and 193.1 m. The interval 191.5 to 193.1 m returned the following assay results: Pb 5.1%, Zn 3.1%, Ag 44.3 g/t and Ba 70 ppm. Other sampled intervals within this mineralized zone returned considerably lower Pb, Zn, Ag values.

Geochemical results from all sampled intervals are included on Plate 1.


## CONCLUSIONS


Diamond drill hole DDH93-21 tested stratigraphy below a surface mineral showing, where Rosella Fm. limestone is host to pyrite, sphalerite, galena and barite mineralization. Drilling intersected massive to subtly banded, fine grained pyrite, barite, sphalerite and galena in Rosella Fm. limestone between 131.6 and 135.0 m. From 135.0 to 147.0 m fine to medium grained pyrite, sphalerite, galena ± barite is interfoliated with limestone.

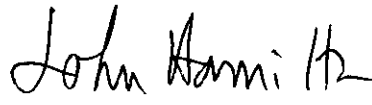
A diamictite unit was intersected between 173.2 and 193.1 m. The bottom 1.6 m of this interval (191.5-193.1 m) hosts pyrite, sphalerite and galena mineralization.

7.

A major fault zone (151.0 to 173.2 m) separates the two types of mineralization. It is unclear what, if any, relationship exists between the two styles of mineralization and the fault zone.

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M.G. Westcott  
Geologist

Endorsed by:   
D. Rhodes  
Senior Geologist

Approved for  
Release by:   
J.M. Hamilton  
Manager, Exploration  
Western Canada

MGW/pm  
Distribution:

Mining Recorder  
Western Canada Files

## APPENDIX I

### REFERENCES

- CRAIG, D.L.(1990): Par Property Year End Report, Cominco Ltd Files.
- FERRI, F. and MELVILLE, M. (1990): Geology between Nina Lake and Osilinka River, North Central British Columbia (93N/15, North Half and 94C/2, South Half); B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork 1989, Paper 1990-1, pages 101-114.
- FERRI, F. DUDKA, S., and REES, C.: (1992a): Geology of the Uslika Lake Area, Northern Quesnel Trough, B.C. (94C/3,4,6); B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork 1991, paper 1992-1.
- (1992b): Geology of the Uslika Lake Area, Northern Quesnel Trough, B.C. (94C/3,4,6); B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1992-11.
- PAUWELS, A.M. and WESTCOTT, M.G. (1992): Par Property Year End Report, Cominco Ltd Files.
- WESTCOTT, M.G. (1992): Assessment Report, Diamond Drilling on PAR 1 Mineral Claim, Omineca Mining Division, British Columbia.

## APPENDIX II

### STATEMENT OF EXPENDITURES

#### PAR 7 MINERAL CLAIM (Work Performed July 9-12, 1993)

Salaries:

M.G. Westcott- 5 days @ \$300/d

A.P. Roberts - 2 days @ \$300/d

\$2,100

Domicile: 25 man days @ \$118/man-day

2,950

Geochemical Analyses:

39 samples (Pb,Zn,Ag,Ba,Fe,Sb,Hg,Cd,As) @ \$21.25/sample

Assays - 16 samples (Pb,Zn,Ba,Ag) @ \$35.5/sample

Pb-isotopes - 3 x \$250

2,146

Diamond Drilling - 205 m @ \$103/m

21,115

Drilling expenses include mob/demob, supplies  
and metreage costs.

Geology equipment

1,000

Truck rental & gas - 6 days

400

Report preparation - 2 days @ \$300/day

600

Drafting - 3 days @ \$250/day

750

\$31,061

APPENDIX III

DRILL LOGS

Property: PAR	District: Omineca	Hole No.: 93-21
Commenced: July 9-93	Location: Main Grid	Tests at: 0 56.7 163.4 205.1
Completed: July 12-93	Core size: BTW	Cor. dip: -45; -50; -51; -52
Coordinates: 19630N 9918E		True Brg.: 075
Objective:		% Recov.: See Table
Date: July 12-93		Horiz. Comp.: 131.8 m
Logged by: MGW		Vert. Comp.: 157.1 m
		Length: 205.1 m

## METRES

FROM	TO	DESCRIPTION
0	4.9	Overburden
0	9.1	Casing
4.9	11.8	LIGHT TO MEDIUM GREY MOTTLED, VARIABLY DOLOMITIZED AND PSEUDO BRECCIATED ROSELLA LIMESTONE. Interval is 90% pebbly rubble. Dolomite occurs as white, medium grained flooding and discontinuous veins with washed out edges. Dark grey, 1-3 mm, round ooids are locally plentiful. Locally vuggy between 10.0 - 11.0.
11.8	16.5	POORLY SORTED, HETEROLITHIC DEBRIS FLOW BRECCIA DOMINATED BY LIGHT GREEN-GREY, SLIGHTLY CALCAREOUS MUDSTONE FRAGMENTS, COMPRISING 50-60% OF INTERVAL. Matrix consists of light to medium grey, limy grit with abundant sand to pebble sized, sub rounded limestone clasts and round white 1-3 mm ooids with concentric growth rings. Possible crinoids in matrix as inferred by rectangular, round and ovoid, 1-3 mm forms (not definite crinoids could be ooids). Matrix reacts strongly to acid. Light green-med grey, angular limestone frags.  Minor (0.5%) fine disseminated pyrite in matrix and within light green mudstone  A few irregular shaped patches (2-8 cm) of white coarse calcspar occur locally.
16.5	16.6	FAULT GOUGE. 5 cm of dark green-grey muddy gouge oriented 60° to core axis.
16.6	20.1	MEDIUM-DARK GREY HETEROLITHIC DEBRIS FLOW BRECCIA. Contrasts with above debris flow breccia in that fragments are smaller (1-3 cm) and consist primarily of light to dark grey "clean" and argillaceous limestone. A few small fragments of light green-grey mudstone are present in upper 1.0 m of interval. The matrix is medium-dark grey, variably argillaceous limestone to limy argillite. Minor (<<0.5%) pyrite disseminated in matrix. Argillaceous seams (<1 cm) within matrix conducts well (30,000 - 40,000 ohms) but overall the breccia is a poor conductor. The breccia appears to grade downward into a less pronounced breccia, where fragments comprise <10% and are not very distinct from mottled (bioturbated) light to medium grey, slightly argillaceous limestone. Variably oriented stylolites are present locally, particularly in lower 1 metre of interval. Slightly more

METRES FROM	TO	DESCRIPTION
20.1	24.3	<p>argillaceous seams define crude bedding at 60-70° to core axis.</p> <p>MEDIUM GREY, EVENLY TEXTURED OOLITIC LIMESTONE. Dark grey, limy, 1-2 mm ooids comprise 60-70 of rock. The remaining 30-40% of the rock is a light-medium grey, fine grained limestone, occurring as a matrix to the ooids. Minor argillaceous wispy laminae in the upper half of the interval suggest bedding at 60-70° to core axis. At 20.8 m, two probable archeocyathids are present, though their identity is not certain. Thin (2-5 cm) calcite and ferroan calcite veins present locally.</p> <p>Contact with overlying debris flow breccia is quite sharp and appears conformable.</p>
24.3	25.3	<p>MOTTLED, LIGHT GREY, PARTIALLY DOLOMITIZED OOLITIC ROSELLA LIMESTONE. A dolomite flooded and bleached interval of the above oolitic limestone. Dolomite is light grey, medium grained and has replaced ooids and limy matrix. Irregular thin (1-3 mm) dark grey seams and lenses of organic residuum are common where dolomitization is most pervasive. Overall interval is 50% dolomite and 50% limestone.</p>
25.3	25.5	<p>MINOR FAULT. Interval is broken and crushed dolomite and limestone.</p>
25.5	30.6	<p>LIGHT TO MEDIUM GREY, MEDIUM GRAINED, MASSIVE ROSELLA LIMESTONE. Limestone has a very even finely speckled texture. Approximately 50% of interval has been calcspar vein breccia producing a mosaic breccia with 30% white calcspar matrix. A few stylolites and vuggy patches are present.</p>
30.6	72.7	<p>MEDIUM TO DARK GREY, MEDIUM GRAINED, VARIABLY ARGILLACEOUS, WISPY LAMINATED BIOTURBATED ROSELLA LIMESTONE. Wispy argillaceous laminae are wavy anastomosing and often discontinuous giving a somewhat nodular appearance. Irregular lobate patterns of slight colour and/or texture changes define the bioturbated nature of the rock. Areas of bioturbation are generally lighter coloured and often have slightly more granular texture. Ooids are common locally. Argillaceous laminae are not very abundant (5-10%) and are narrow (1-5 mm).</p> <p>This rock type is generally a poor conductor (500,000 ohms), though locally argillaceous seams conduct fairly well (40,000 ohms). Minor calcite veining (up to 1 cm wide) is present throughout interval (2-3% of rock) and from 30.6-37.6 m more intensive calcite vein brecciation occurs locally.</p> <p>Minor (&lt;0.5%) fine disseminated or fracture fill pyrite present locally.</p> <p>Core axis/bedding angles are quite consistent over interval at 45°-65° and changes are gradual.</p> <p>Rock cores very well.</p>



METRES  
 FROM TO DESCRIPTION

At 59.7 - 59.9 a seam of brown mud and sand that looks as if it originated from surface marks what appears to be an open fracture. Not necessarily a fault.

72.7 84.1 LIGHT GREY, WHITE MOTTLED, PARTIALLY DOLOMITIZED, MEDIUM TO COARSE GRAINED, MASSIVE CLEAN ROSELLA LIMESTONE. Contact with overlying laminated argillaceous limestone is quite sharp and conformable. Semi-round and lobate mottled texture is suggestive of some bioturbation. The interval is approximately 50% limestone and 50% coarse white dolomite. Dolomite appears to be secondary. Fine pyrite (1-5 mm wide veinlets) occurs locally along fractures and stylolite edges (eg. 76.3 and 80.5 m). Dark blue-green specs, blebs (1-3 mm) and fracture linings occur locally (<0.5%). There is some very fine pyrite associated with these patches which are thought to be organic residuum and/or fine galena. The more intensely dolomitized interval 77.5-83.5 is quite broken up (2-10 cm chips).

AT 73.3-73.5 the rock is crushed into <1-2 cm pieces.

Minor (2%) orange-brown ferroan calcite occurs sporadically on fracture surfaces and as small disseminated patches, particularly within interval 77.5-81.6 m.

No good bedding distinguishable.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
78	81	<4	132	0.5	<20

84.1 98.3 LIGHT GREY TO WHITE, FINE, MEDIUM GRAINED, CLEAN, MASSIVE ROSELLA LIMESTONE. Rock is predominantly light grey but irregular patches and bands of bleached white limestone comprise approximately 20% of interval. White bands are commonly found flanking microfractures, many of which have a common attitude with respect to the core axis and are suspected to represent bedding. A few stylolites (1-3/m core), lined with dark grey residuum, are oriented at 70-80° to the core axis. Very massive nature of rock makes it difficult to measure core/bedding angles; where indication of bedding are recognized angles are 55 to 80° to core axis. Rock is non conductive (>1,000,000 ohms).

98.3 112.6 MEDIUM + MINOR LIGHT GREY, FINE TO MEDIUM GRAINED, 'CLEAN', STYLOLITIC ROSELLA LIMESTONE WITH FAINT CARBONACEOUS LAMINATIONS. This interval is very similar to above interval but is slightly darker colour, has faint carbonaceous lamellae and a much higher abundance of stylolites and microfractures. Fine (<1 - 2 mm), dark grey carbonaceous laminae and parallel carbonaceous microfractures define bedding which is consistent over interval at 55-65° to the core axis. Stylolites are most often oriented parallel to bedding. Rock cores very well. Non-conductive (1,000,000 ohms).

METRES

FROM TO DESCRIPTION

Very minor (<0.5%) pyrite occurs as dissemination along stylolites locally (e.g. 109.6 m).

112.6 119.1 MEDIUM AND DARK GREY BANDED, SLIGHTLY ARGILLACEOUS, BIOTURBATED, STYLOLITIC ROSELLA LIMESTONE WITH INTERVALS OF LIGHTER GREY CALCITE VEINED, FLOODED AND BLEACHED BRECCIATED LIMESTONE. Light grey brecciated intervals located at 112.6-113.8, 115.1-116.0, 117.0-118.1, 118.4-119.1, are bound by stylolites which cut across bedding. Fragments within the breccia are likely bleached equivalents of the surrounding rock. Some and possibly all, of the breccia is due to networks of calcite veining. Dark grey carbonaceous specs and crackle networks present locally in breccia. Medium and dark grey banding is wavy, discontinuous and has a lensoidal fabric. Irregular, dark speckled grey, lobate patches caused by bioturbation are quite common. Thin black lined stylolites are abundant (5-10's/10 cm). Towards the bottom of this interval the rock is starting to become sheared, as indicated by stretching out of stylolites. Core axis to bedding 50-70°.

119.1 128.0 MEDIUM TO LIGHT GREY, SLIGHTLY CARBONACEOUS, DISTINCTLY STYLOLITIC AND SHEARED ROSELLA LIMESTONE. Limestone is evenly textured, has vague slightly more carbonaceous laminae and very local dark grey lobate bioturbated patches. Black hairline stylolites are very abundant (10-20/10 cm core) and are increasingly sheared towards the bottom of the interval. The angle of shear with respect to core axis is 50-65°. Rock is very poor conductor.

128.0 128.3 MEDIUM TO DARK GREY, FINELY WAVY LAMINATED, MODERATELY CARBONACEOUS, BIOTURBATED ROSELLA LIMESTONE WITH FINE, INTERFOLIATED PYRITE (± minor sphal. gal?) LAMINATED PATCHES. Pyrite (± sphal ± gal?) comprises 15-20% of interval. Dark grey, very fine grained, unidentified mineral occurs in association with pyrite; it may be sphalerite ± galena or just carbon. Thin, black graphitic coating on foliation parallel parting. Shear foliation to core axis angle is 40-45°.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Aq(ppm)</u>	<u>Ba(ppm)</u>
128	128.30	3640	E18800	8.8	690

128.3 128.5 FAULT. Light grey and black muddy fault gouge (30%) and fine fault crush (70%). Upper contact oriented 55° to core axis.

128.5 129.0 MEDIUM GREY, BRECCIA COMPOSED PREDOMINANTLY OF FINELY LAMINATED ROSELLA LIMESTONE FRAGMENTS AND SOME MASSIVE, BLEACHED LIMESTONE FRAGMENTS. The breccia is clast supported. The matrix is made up of <1-10 mm, angular to sub-rounded limestone frags and 2-3% pyrite.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Aq(ppm)</u>	<u>Ba(ppm)</u>
128.50	129.00	1570	3580	2.0	7566

129.0 131.5 MEDIUM GREY, SLIGHTLY ARGILLACEOUS + CARBONACEOUS, BIOTURBATED, LAMINATED ROSELLA LIMESTONE. Laminations of slightly darker, more carbonaceous limestone have been partially sheared into the plane of shear.

METRES  
FROM

TO

DESCRIPTION

Laminations are swirled/curved around ovoid bioturbated patches (burrows) and appear to represent a primary laminated fabric that has been modified by some shearing.

Stylolites are fairly common (1-3/10 cm core length), are oriented obliquely to laminations, and most often maintain their "saw tooth" form. This contrasts with the limestone interval above 127.0-128.0 m, where intense shear has completely transposed stylolites into sharp, planar wisps parallel to the plane of shear. This, along with the fact that laminations are wavy and bend around more resilient patches suggests this interval of rock is not nearly as sheared as the above interval.

Laminations have been drawn out in direction of shear plane but likely still represent primary banding. Core axis to lamination angle varies over this interval, from 30-50°; most commonly in 45° range.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
130	131.50	9	64	<.4	375

131.5 131.6 FAULT. Dark grey, muddy fault gouge (6 cm) and crushed argillaceous limestone. Gouge zone contact is oriented 80° to core axis.

131.6 135.0 MASSIVE TO SUBTLY BANDED, FINE GRAINED, LIGHT YELLOWY-GREY BARITIC SULPHIDE ROCK WITH 10% NON TO VERY WEAKLY MINERALIZED LIMESTONE. The 10% limestone occur as (a) one 30 cm interval 133.3 m to 133.6 comprising 60% dark grey, laminated Rosella limestone (as above 129.0 - 131.5 interval) fragments and 40% coarse white calcite vein, and (b) 0.5 - 2.0 cm, ovoid to lensoidal granular limestone "patches" in the sulphide + barite rock. These limestone patches are similar in size, shape and general appearance to what has been noted in above intervals (129.0 - 131.5) as bioturbation (burrow) features. Also, as in above limestone intervals, wavy laminations within the sulphide + barite rock are bent around these "burrow features". While some of these "clasts" are almost certainly burrow features that were not replaced by sulphide, others, particularly some of the smaller ones, may be tectonic fragments.

The sulphide + barite rock is very fine grained and comprises pyrite, barite, sphalerite minor galena ± carbonate.

The conductivity of the mineralization is quite poor. With an electrode separation of 4 cm resistivity readings were in the 200,000 - 500,000 ohm range.

<u>From</u>	<u>To</u>	<u>(Pb ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
131.60	133.10	E18100	E79100	28.4	E207167
133.10	134.60	E11200	E53400	14.9	E160039
134.60	136.10	E13500	E72300	11.6	E168572

135.0 142.7 INTERMIXED AND INTERLAMINATED, FINE TO MEDIUM GRAINED PYRITE, SPHALERITE, GALENA ± BARITE (AS ABOVE) AND FINE GRAINED WHITE TO MEDIUM GREY LIMESTONE. Sulphides occur as swirly to wavy laminations, massive bands (up to 5 cm), small (1-2 cm) patches and fine disseminations, and comprise approximately 30% of the interval. The estimated Mode of Sulphides is

METRES  
FROM

TO

DESCRIPTION

pyrite 70%, sphalerite 25%, galena 5%. Sphalerite is a light yellow-tan colour. The sulphides are slightly coarser grained than in the more massive intervals above (131.6 - 131.1); sphalerite and galena are visible without a hand lens. The remaining 70% of the interval is composed of (a) very fine grained, white to medium grey laminated and tectonically swirled and folded limestone; (b) medium to dark grey ovoid and irregular shaped limestone fragments (<1 - 8 cm); (c) light green, slightly calcareous sericitic mudstone (tuffaceous bands?), e.g. 138.4 - 138.6 m and (d) coarse, white dolomite + calcite patches and veinlets. The interval is clearly within a shear zone as indicated by the swirled and folded nature of sulphide and limestone and the abundance of limestone fragments which are thought to be tectonically generated and show evidence of rotation within the zone. Deformation of the sulphides (folding and swirled textured) is the same as that of the fine laminated limestone and therefore the sulphides were likely emplaced prior to some (and possibly all) of the deformation. Alternatively, sulphide replacement may be mimicking previously deformed limestone bedding. No discrete sulphide fragments are observed.

The barite content of this interval is very difficult to estimate; no barite bands are observed but there may be some associated with the fine sulphides.

A number of crush and minor muddy fault gouge zones occur within this interval.

135.6-135.9, 136.1-136.5, 138.4-138.6; all appear to coincide with intervals with light green sericitic mudstone.

Core to lamination angles are variable due to the wavy nature of the laminations but overall they are in the 45-60° range.

<u>From</u>	<u>To</u>	<u>Interval</u>	<u>Pb</u> <u>(ppm)</u>	<u>Zn</u> <u>(ppm)</u>	<u>Ag</u> <u>(ppm)</u>	<u>Ba</u> <u>(ppm)</u>
136.1	137.6	1.5 m	E18100	E40600	8.2	E104707
137.6	139.1	1.5	E10900	E16200	3	9273
139.1	140.6	1.5	E23700	E35500	6.4	E12305
140.6	142.1	1.5	E10650	E36600	6.3	E36781
142.1	143.6	1.5	E10400	E17900	5.7	E18497

142.7 147.0 LIGHT TO MEDIUM GREY, FINE WAVY LAMINATED, SHEARED, SMALL SCALE (1-2 cm) ISOCLINALLY FOLDED AND BRECCIATED LIMESTONE WITH MINOR (4-7%) DISSEMINATIONS AND THIN (<1 cm) BANDS OF SULPHIDE (pyrite 80-90, sphalerite 5-10%, galena 1-5%). Limestone component is very similar to above interval but is more brecciated and appears to have a slightly higher argillaceous component. Brecciated intervals are clast supported and cemented with (5-10%) argillaceous limestone and white calcite. Locally, particularly within brecciated intervals, the rock is vuggy. As in above interval, the laminated limestone is swirled around breccia fragments. The overall sulphide component of this interval is significantly less than the interval above (135.0 - 142.7 m) but short

METRES

FROM TO DESCRIPTION

intervals of (e.g. 144.8 - 145.3 m) comparable sulphide content (20-30%) do occur. Within this 50 cm sulphide rich interval, pyrite is by far the dominant sulphide but a few bands of light grey sphalerite (e.g. 145.2 m) and disseminations of galena are present and an estimate grade for the 50 cm interval would be 4-5% Zn, 1% Pb.

Core to foliation (shear plane) angles are 55-70°.

The rock cores well and recovery is good. Conductivity is overall very low (500,000 ohms) but increases very locally along pyritic bands to 40,000 ohms.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
143.60	145.10	908	3140	4.1	1300
145.10	147.00	849	1840	2.9	1022

START OF MAJOR FAULT ZONE.

147.0 151.0 FAULT GOUGE AND CRUSHED MEDIUM TO DARK GREY, ARGILLACEOUS LIMESTONE. Contact with above interval is a sharp fault contact oriented at 60° to core axis. Few light grey limestone fragments are caught up in the upper 50 cm of this interval. There are two short intervals of medium grey limestone, like above interval, with 3-6% pyrite ± minor sphalerite and galena located at 148.3-148.6 and 149.0-149.3 m. It is possible that the dark grey argillaceous limestone is a facies variation of the lighter coloured limestone above. Fine disseminated and thin (<1 cm) bands of pyrite in the crushed dark grey limestone comprise 2-5% of this interval. This interval of the fault is a fairly good conductor (20,000 ohms) at 20 cm electrode separation.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
147.00	148.50	2360	2570	3.6	408
148.50	150.00	885	1560	3	750
150.00	151.00	428	1330	.8	361

The faulted rock is poorly consolidated but cores fairly well and recovery is quite good.

151.0 173.2 FAULT ZONE, FAULT GOUGE + CRUSHED LIGHT TO MEDIUM GREY, PARTIALLY SILICIFIED DOLOMITE ± LIMESTONE. (PROBABLY SANDPILE). Rock is very crumbly (0.2 - 2.0 cm pieces) and approximately 20% light grey muddy gouge. Within the very broken up zone there are intervals of more cohesive brecciated dolomite + Lst e.g. 152.0 - 154.8 m. The faulted rock type is approximately 70% dolomite as (a) dark grey, medium grained pseudobreccia fragments and (b) coarse light grey dolo, and 30% light to medium grey limestone and calcite (mostly in upper 10 m of interval). From 160.5 m to 173.2 m the rock is mostly (90+%) dolomite. The dolomite is coarse, light grey-white dolospar (80%) and dark grey-medium grained dolomite (20%) and has pseudo breccia and vague zebra textures.

METRES

FROM

TO

DESCRIPTION

From 166.5 to 173.0 m the rock is shattered up but no muddy gouge is present. The shattering of the rock may only reflect its brittle nature and this interval may be on the other side of the main part of the major fault. 173.0 to 173.2 has 50% light grey muddy gouge.

Pyrite (1-2%) occurs as disseminations and small patches throughout the breccia and very locally (e.g. 153.0, 154.0 m) there are thin bands (1-3 cm) of pyrite (20%), yellow-tan sphalerite 10% and galena (10%). Minor (<1%) disseminations and small patches (<0.5 cm) of amber coloured sphalerite occur in association with pyrite within the coarse dolspar interval (160.5 m to 173.2 m). The degree of silicification is not particularly intensive for most the interval though locally small completely silicified patches occur.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
151.00	153.00	1910	3500	3	643
153.00	155.00	E12900	E20400	8.2	659
157.20	159.20	240	2180	.7	42
159.20	161.20	245	685	.6	<20
165.00	167.00	239	920	<.4	1168
167.00	169.00	43	159	<.4	157
169.00	171.00	12	33	<.4	<20

173.2 193.1 MEDIUM-DARK GREY TO BLACK, ARGILLACEOUS DEBRIS FLOW BRECCIA (DIAMICTITE). The upper contact with Sandpile dolomite is very broken up and there is 20 cm of light grey muddy Sandpile gouge (17.30-173.2) and 10 cm of dark grey, diamictite gouge (173.2-173.3). The Debris flow breccia (diamictite) is matrix supported with clasts comprising 10-25% of the rock.

Matrix: the matrix is fine to medium grained (granular) and medium grey to black. There are two main components to the matrix. (1) black, slightly calcareous mudstone; (2) fine-medium grained, medium to dark grey (fine salt & pepper speckle) dolomite + minor limestone. The two main matrix components are generally mixed but very argillaceous (mudstone) seams and non argillaceous intervals are present. From 185.3 to 187.8 the matrix is relatively non-argillaceous, medium grey and is partially replaced (as patches and irregular veinlets) by white medium to coarse dolspar and silica. Locally (e.g. 177.6 m) fine 1-2 mm clastic detritus forms a matrix to larger (1-2 cm clasts). Graphite is often present along slip planes within argillaceous portions of the matrix.

Clasts: Clasts comprise 10-25% of the unit, are generally 0.3-2.0 cm, and are angular to sub-rounded. Clast types include:

1. medium grey, fine grained dolomite.
2. black, lenticular to chip like slightly limy mudstone.
3. white to light grey, fine-medium grained dolomite.
4. fine to medium grained, massive pyrite clasts (<1-4 cm). These are discrete pyrite clasts not pyrite patches as described below.

Clasts are poorly sorted and most often randomly oriented through flat argillaceous clasts tend to be imbricate along the plane of bedding.

METRES

FROM

TO

DESCRIPTION

Mineralization: the debris flow breccia (diamictite) unit has sulphide mineralization in varying quantities throughout; total sulphide content for the unit is estimated to be 10-15%. The sulphide is predominantly (80-90%) pyrite, with lesser sphalerite and galena.

Pyrite occurs as (1) discrete, angular-subrounded clasts as described above. (2) semi-massive, irregular patches 2-40 cm. (3) fine disseminations within the matrix.

Medium grained, red-amber medium grey and tan sphalerite and galena occur in local patches (1-20 cm) in association with semi-massive pyrite patches and as disseminations within pyrite. Sphalerite and galena is intermixed (not banded) and appears to be replacing matrix, as evidenced by the presence of unmineralized carbonate and pyrite clasts within sphalerite + galena patches. Sphalerite appears to be slightly more abundant than galena.

Mineralized Intervals

181.7 181.9 30-40% pyrite as clasts and irregular, semi massive patches.

183.7 184.2 20-25% pyrite as clasts + massive patches and a 0.5 cm vague band of 20% galena 20-30% grey sphalerite. The mineralized band is at 70% to core axis and located at 183.8 m.

184.8 185.2 20% pyrite as discrete clasts and patches of semi massive blebs (2-5 cm). At 184.85 a 2 cm wide patch has disseminated and a stringer like band (1-3 mm) of galena + medium grey sphalerite.

187.8 188.1 45-50% pyrite as a semi massive matrix replacement. At 187.95 - 188.0 galena, 10% and sphalerite 10+% are intermixed with pyrite.

188.6 190.5 40-50% pyrite as semi massive shotly (subrounded blebs) matrix replacement. The matrix is generally quite limy but has a significant silica content.

Sphalerite (reddish-amber ± grey) and galena occur at 190.0 and 190.45-190.50, cruddy interbanded with pyrite and at 190.15-190.20 as an irregular patch. Each of these mineralized patches comprises 15-20% galena, 20-25% sphalerite and 30-50% pyrite. Fine disseminations of sphalerite and galena are observed sporadically throughout this interval (<1%).

190.8 191.5 Irregular patches and "bands" of pyrite 25-35% and grey to tan sphalerite (2-5%) disseminated through medium grey, fairly limy matrix. Minor (<1%) fine galena observed.

191.9 193.1 Pyrite - 15% as clasts, disseminations and semi massive patches. Medium grey to tan sphalerite as wispy lenses and disseminated patches (1-2%) and higher grade red-amber sphalerite 10-20% + galena 10-15% patches at 192.65-192.70 and 192.30-192.40.

Overall the diamictite unit core fairly well and recoveries appear to be quite good.

METRES  
FROM

TO

DESCRIPTION

Where the matrix is fairly argillaceous the breccia (diamictite) conducts fairly well (20,000 - 40,000 ohms). Less argillaceous, intervals have resistivities in the 100,000 - 500,000 ohm range. The sulphide rich patches have resistivities in the 10,000 - 50,000 ohm range.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
175.00	177.00	241	577	3	38
177.00	179.00	164	589	1.7	<20
179.00	181.00	94	217	.8	33
181.00	182.50	383	827	2.9	25
182.50	184.00	2640	1490	5.2	39
184.00	185.50	3490	1300	4.5	711
185.50	187.00	90	183	<.4	601
187.00	188.50	2230	E13300	3.8	31
188.50	190.00	3860	8270	13	91
190.00	191.50	E12700	E31800	17.6	102
191.50	193.10	E42600	E28100	44.8	70

193.1 202.1 DARK GREY TO BLACK, CARBONACEOUS LIMY SHALE. (LOWER ROSELLA). Upper contact with above diamictite unit is marked by a 10 cm black, muddy gouge zone. The rock has a subtle thin banding (2-10 mm) defined by lighter (possibly somewhat silty) and darker bands. 0.5 - 1.0% pyrite occurs as fine disseminations and disseminated patches (0.5 - 1.0 cm). The carbonaceous nature of the rock is evident on shaly partings that are often graphitic. Irregularly oriented, white calcite veinlets are present throughout interval (<1% of rock). Locally there are small scale (2-5 cm) folds (e.g. 194.9 m) but overall the core to bedding angle is in the 50-70° range. There are a few thin (<5 cm), medium grey silty-gritty limestone bands (e.g. 200.0 m).

Approximately 50% of the interval cores well; the other 50% is quite broken up and a few minor (1-2 cm) fault gouges are developed (e.g. 196.2 m, 197.2 m). The 2 cm gouge zone located at 196.2 m is oriented 70° to the core axis.

From 201.0 to 202.1 m the rock is a breccia much like the argillaceous portions of the diamictite interval above. 0.2 - 2.0 cm clasts/fragments are floating and usually imbricated in a medium grey limy ± dolomitic matrix. Clasts are dark grey, argillaceous chips and light-medium grey, fine limy dolomite.

The shaly limestone is a very good conductor (<5,000 to 15,000 ohms) with an electrode separation of 20 cm.

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
195.00	197.10	102	158	<.4	361
198.00	200.00	128	77	<.4	83
200.00	202.10	116	103	<.4	192



METRES

FROM

TO

DESCRIPTION

202.1 205 LIGHT GREEN-GREY SILTSTONE + NODULAR LIMESTONE. The interval comprises approximately 70% light grey limestone and 30% interbedded light yellow-green-grey micaceous mudstone/siltstone. Minor (2-4%) chlorite occurs along bedding parallel parting surfaces and within the green-grey mudstone bands. Minor (<0.5%) disseminated pyrite is present locally. The rock does not appear to be folded or sheared. Core axis to bedding angles are consistent at 60-70°. The rock is a very poor conductor (500,000 to 1,000,000 ohms). The contact with the overlying unit is sharp and appears to be conformable (no fault).

<u>From</u>	<u>To</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Ag(ppm)</u>	<u>Ba(ppm)</u>
203.50	205.00	23	30	<.4	488

END OF HOLE

METRES				DESCRIPTION
FROM	TO			
From	To	Recovered	% Recovery	
0	4.9	0.2	4	
4.9	7.9	1.0	33	
7.9	11.00	2.5	81	
11.0	14.0	2.8	93	
14.0	17.1	3.1	100	
17.1	20.1	3.0	100	
20.1	23.2	3.0	100	
23.2	26.2	3.0	100	
26.2	29.3	3.1	100	
29.3	32.3	3.1	100	
32.3	35.4	3.1	100	
35.4	38.4	3.1	100	
38.4	41.5	3.1	100	
41.5	44.5	3.0	100	
44.5	47.5	3.1	100	
47.5	50.6	3.1	100	
50.6	53.6	3.1	100	
53.6	56.7	3.0	100	
56.7	59.7	3.0	100	
59.7	62.8	2.6	100	
62.8	65.8	3.1	87	
65.8	68.9	3.0	100	
68.9	71.9	1.5	100	
71.9	73.5	1.5	50	
73.5	75.0	1.5	93	
75.0	78.0	3.0	100	
78.0	79.92	0.8	42	
79.2	79.9	0.3	42	
79.9	82.3	2.3	95	
82.3	83.3	1.0	100	
83.3	86.0	2.7	100	
86.0	89.0	3.0	100	
89.0	90.2	1.2	100	
90.2	93.3	3.1	100	
93.3	96.3	3.0	100	
96.3	99.4	3.1	100	
99.4	101.5	2.6	100	
101.5	104.5	3.0	100	
104.5	106.1	1.6	100	
106.1	108.5	2.7	100	
108.5	110.0	1.8	100	
110.0	111.6	1.3	81	
111.6	114.6	3.0	100	
114.6	117.7	3.0	100	
117.7	120.3	3.0	100	
120.3	123.4	3.1	100	
123.4	126.5	3.1	100	
126.5	126.8	0.5	100	
126.8	129.3	2.8	100	
129.3	132.9	3.2	100	
132.9	135.9	3.0	100	
135.9	138.9	2.8	93	
138.9	142.0	3.1	100	

METRES  
FROM

TO

142.0	145.1	3.1	100
145.1	148.1	3.0	100
148.1	150.8	2.5	92
150.8	151.7	0.5	56
151.7	153.3	1.5	93
153.3	154.2	0.8	100
154.2	157.2	3.0	100
157.2	160.3	3.0	100
160.3	163.4	3.0	100
163.4	164.4	1.1	100
166.1	169.2	3.1	100
169.2	172.8	1.0	31
172.8	175.6	1.7	60
175.6	177.7	1.5	71
177.7	178.6	1.0	100
178.6	180.7	2.6	100
180.7	183.2	2.0	100
183.2	184.7	0.9	60
184.7	185.3	0.6	100
187.5	190.8	2.7	90
193.9	196.9	3.0	100
196.9	199.9	3.0	100
199.9	203.0	3.1	100
203.0	205.1	2.1	100


**APPENDIX IV**

**CERTIFICATE**

I, MICHAEL G. WESTCOTT of #104-5500 Arcadia Road, Richmond, British Columbia, Canada, declare:

1. I am a Geologist, residing at the above address.
2. I graduated from the University of British Columbia in 1988 with a Bachelor of Science (Geology) degree and from Queen's University, Kingston, Ontario in 1991 with a Masters of Science degree (Mineral Exploration).
3. I am an associate of the Geological Association of Canada.
4. This report is based on my personal field examination of the property and a review of all pertinent information.

Dated at Vancouver, British Columbia, this 22 day of October, 1993.

  
\_\_\_\_\_  
M.G. Westcott  
Geologist



PAR 1

PAR 2

PAR 3

PAR 12

PAR 7

PAR 4

1993 Campsite  
Landing  
Core storage

Bridge

D.D.H. 93-21

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**23,094**

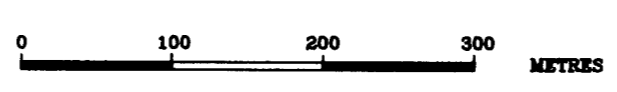
6221000 N

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N.T.S. 94C/3



PAR PROPERTY	
Drawn by: MGW	Traced by: APR
Checked by: [blank]	Scale: 1:5000
LOCATION MAP	
D.D.H. 93-21	
DATE: Oct. 1993	PLATE NO: 2

Age Unknown L. CAMBRIAN-POST MIDDLE DEVONIAN

**HDB HETEROLITHIC DEBRIS FLOW BRECCIA**  
Fragments/clasts include: light green-grey, slightly calcareous mudstone (as is also observed in DDH 92-15 in Rosella stratigraphy); white limestone and medium-dark grey argillaceous limestone. Matrix varies from light medium grey limy grit to dark grey limy argillite. Fragments are subrounded to angular.

**DIA DIAMICTITE**  
Medium-dark grey to black, argillaceous, matrix supported debris flow breccia. Clasts comprise 10-25% of unit and include medium grey, fine grained dolomite; black limy mudstone and fine-medium grained msv pyrite. Matrix is composed of black, slightly calcareous mudstone and medium-dark grey carbonate grit.

EARLY SILURIAN-EARLY DEVONIAN

SANDPILE GROUP

**4a FINE-MEDIUM GRAINED, LIGHT-MEDIUM GREY AND BUFF DOLOMITE ± LIMESTONE.** Rock is variably silicified and dolomitized. Silicified and pervasively dolomitized sections are brittle and commonly broken up.

LOWER CAMBRIAN

ROSELLA FORMATION

**2a MEDIUM-DARK GREY, OOLITIC, ARGILLACEOUS LIMESTONE.** Medium-thick bedded. Variably argillaceous and carbonaceous. Commonly bioturbated.

**2c MEDIUM GREY-WHITE, FINE-MEDIUM CRYSTALLINE LIMESTONE AND/OR DOLOMITE.** Massive, non-descript mottled texture. Oolites and stylolites common.

**2e VARIABLY CALCAREOUS TO NON CALCAREOUS SHALE.** Dark grey to black, carbonaceous. Subtle thin bedding defined by lighter grey silty bands.

LOWER CAMBRIAN

BOYA FORMATION (Transitional Phyllite Unit of 1992)

**1a INTERBEDDED, LIGHT GREEN-GREY MUDSTONE AND NODULAR LIMESTONE.** Minor chlorite and sericite occurs along bedding parallel parting surfaces.

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**23,094**

1200

1150

1100

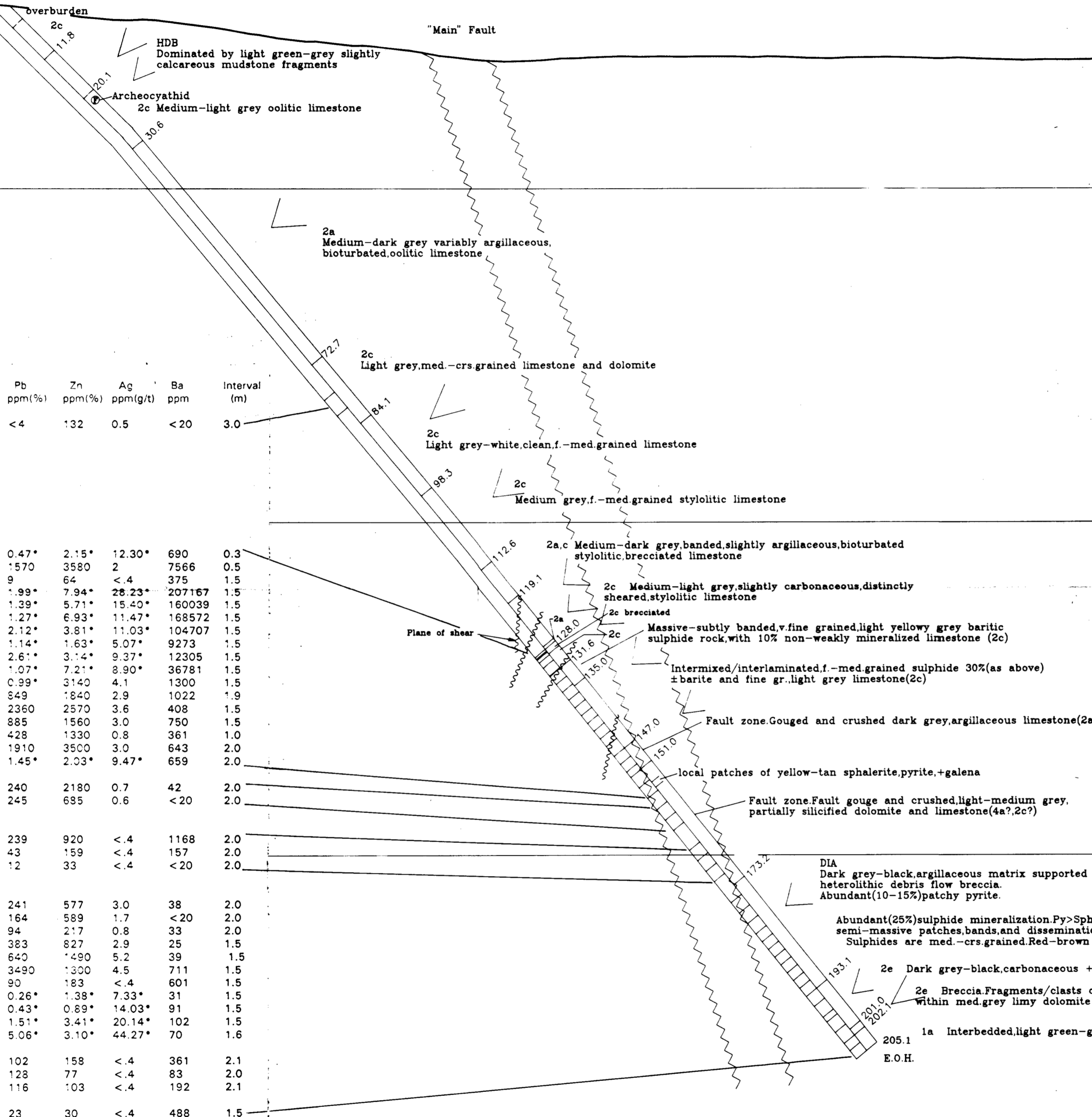
1050

1000

DDH 93-21

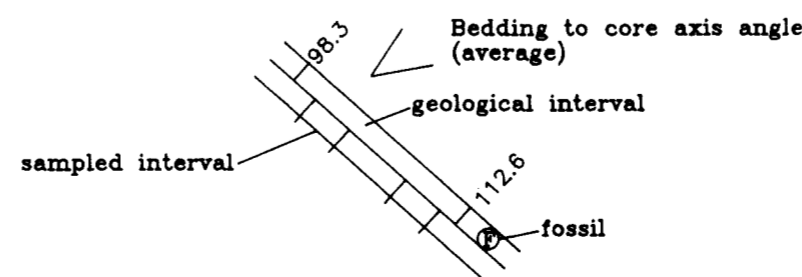
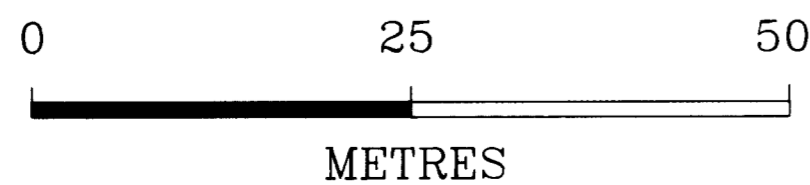
-45° → 75°

L 10,000 E



Pb ppm(%)	Zn ppm(%)	Ag ppm(g/t)	Ba ppm	Interval (m)
<4	132	0.5	<20	3.0
0.47*	2.15*	12.30*	690	0.3
1570	3580	2	7566	0.5
9	64	<.4	375	1.5
1.99*	7.94*	28.23*	207167	1.5
1.39*	5.71*	15.40*	160039	1.5
1.27*	6.93*	11.47*	168572	1.5
2.12*	3.81*	11.03*	104707	1.5
1.14*	1.63*	5.07*	9273	1.5
2.61*	3.14*	9.37*	12305	1.5
1.07*	7.21*	8.90*	36781	1.5
0.99*	3140	4.1	1300	1.5
549	1840	2.9	1022	1.9
2360	2570	3.6	408	1.5
885	1560	3.0	750	1.5
428	1330	0.8	361	1.0
1910	3500	3.0	643	2.0
1.45*	2.03*	9.47*	659	2.0
240	2180	0.7	42	2.0
245	685	0.6	<20	2.0
239	920	<.4	1168	2.0
43	159	<.4	157	2.0
12	33	<.4	<20	2.0
241	577	3.0	38	2.0
164	589	1.7	<20	2.0
94	217	0.8	33	2.0
383	827	2.9	25	1.5
640	1490	5.2	39	1.5
3490	1300	4.5	711	1.5
90	183	<.4	601	1.5
0.26*	1.38*	7.33*	31	1.5
0.43*	0.89*	14.03*	91	1.5
1.51*	3.41*	20.14*	102	1.5
5.06*	3.10*	44.27*	70	1.6
102	158	<.4	361	2.1
128	77	<.4	83	2.0
116	103	<.4	192	2.1
23	30	<.4	488	1.5

Note: \* = % or g/t (assayed)



N.T.S. 94C/3

PAR PROPERTY

Drawn by: MCW	Traced by: APR
Revised by: APR	Date: Oct. '93
Acad file: DDH9321	

DRILL SECTION  
DDH 93-21

SCALE: 1:500 DATE: Aug.1993 PLATE NO: 1