

MAP NO.: ASSESSMENT REPORT X
105 0 1 PROSPECTUS X
CONFIDENTIAL X
OPEN FILE

DOCUMENT NO: 092814
MINING DISTRICT: Mayo
TYPE OF WORK: Diamond Drilling

REPORT FILED UNDER: Cominco Ltd.

DATE PERFORMED: Summer 1989

DATE FILED: February 14, 1990

LOCATION: LAT.: 63° 11'N

AREA: Hess Mountains

LONG.: 130° 21'W

VALUE \$: 151 007.84

CLAIM NAME & NO.: NIDD group of 593 claims (numbers not given)

WORK DONE BY: D. Rhodes

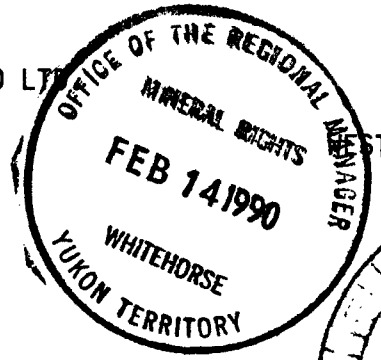
WORK DONE FOR: Cominco Ltd.

DATE TO GOOD STANDING:

REMARKS: # 20 NIDD Two diamond drillholes were drilled (NB89-13 and NB89-14) totalling 479.2 metres. A significant high grade stockwork of sphalerite occurs in basal volcanic rocks overlying the "vent" brecciated Road River Group mudstones in NB89-14. This stockwork assayed 28.3% Zn, 0.4% Pb, and 0.4 oz/ton Ag over 2.5 metres. An intense siderite breccia was encountered in NB89-13.

EXPLORATION
NTS 105-0-1

COMINCO LTD.



WESTERN DISTRICT

092814



1989 ASSESSMENT REPORT - DRILLING

NIDD PROPERTY

MAYO MINING DISTRICT,

YUKON TERRITORY

092814

LATITUDE: 63°11'N

LONGITUDE: 130°21'W

CLAIMS 100% OWNED BY COMINCO LTD.

OPERATOR: COMINCO LTD.

JANUARY, 1990

D. RHODES
SENIOR GEOLOGIST

ASSESSMENT REPORT - 1989
NIDD PROPERTY

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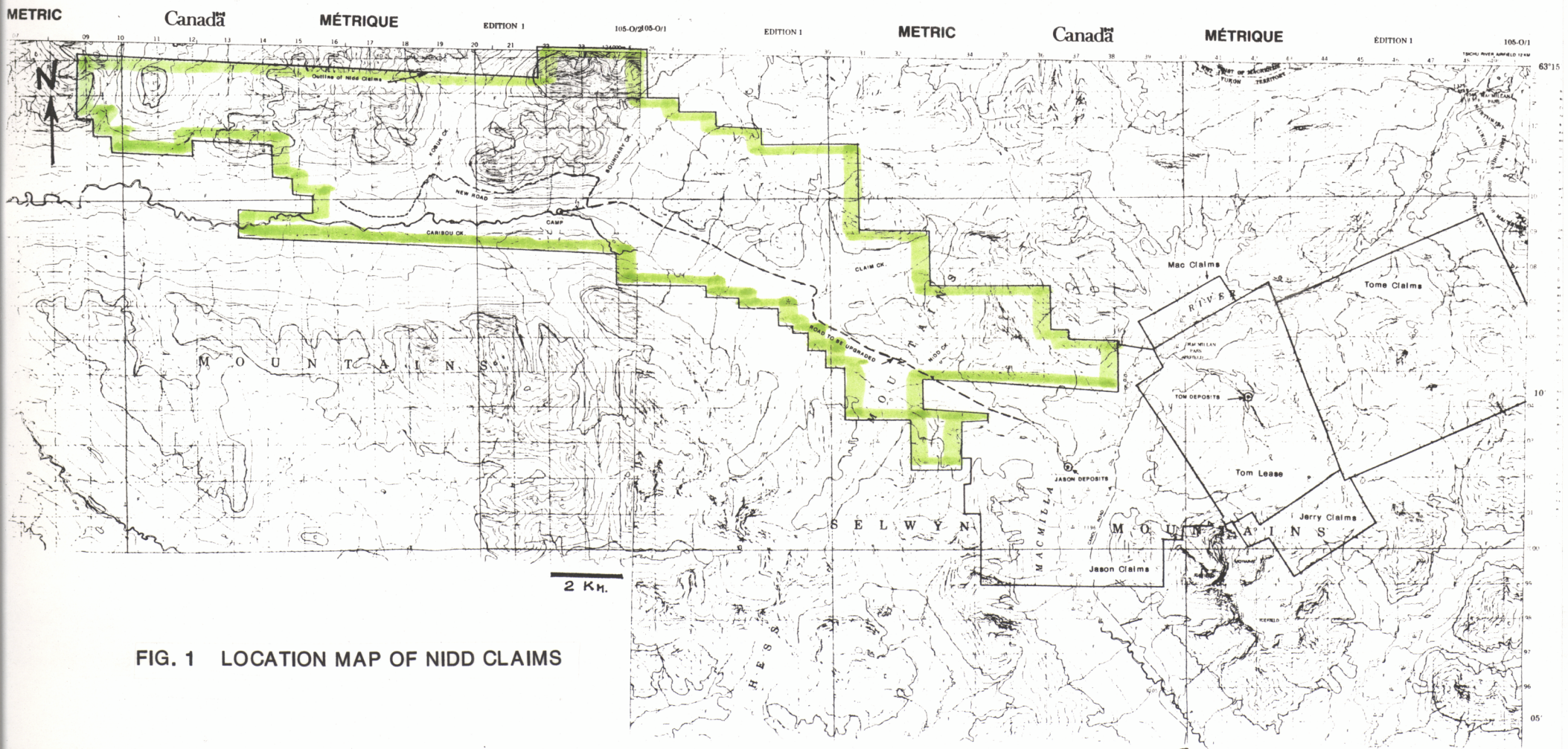
Figure 1 Map of MacMillan Pass Camp Showing Location of Nidd Claims

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ASSESSMENT REPORT - 1989

NIDD PROPERTY

1. SUMMARY

The 1989 program consisted of drilling two holes, NB89-13 (188.4 metres) and NB89-14 (290.8 metres). The holes were drilled to further test the Target 1 area at Boundary Creek.

The drilling demonstrated a mineralized package of Lower Earn group rocks overlying siderite and sulphide veined Road River mudstones similar to that encountered in previous holes NB83-8, NB84-10. The sequence differed from these previous holes, only 140 metres to the west, in the following:

- i) A very intense siderite breccia was encountered by NB89-13. This resembled footwall breccias in previous holes but was much stronger.
- ii) The section was displaced northward in the NB89-13, 14 section.
- iii) The Lower Earn Group rocks in NB89-14 while showing significant mineralization similar in type and zonation to that in NB83-8, NB84-10 were less intensely mineralized.
- iv) A significant high grade sphalerite stockwork occurs in basal volcanic rocks overlying the "vent" brecciated Road River Group mudstones in NB89-14. This stockwork assayed 28.3% Zn, 0.4% Pb and 0.4 oz/T Ag over 2.5 metres.
- v) The Lower Earn package in NB83-8 and NB84-10 hosts more diamictites and reworked volcanics and less sand striped mudstones and bedded volcanics than NB89-14.

It is concluded that a syndepositional growth fault lies between NB83-8 and NB89-14 that has both produced the offset demonstrated in the 1989 drilling and acted as a conduit for hydrothermal fluids that have deposited the mineralization encountered by the drill holes in this area.

It is recommended that:

- i) A hole be drilled midway between the NB84-10 intersection and NB89-14.

- ii) At least one deep hole eventually be drilled to test the #1 target area at a depth of 200 metres below existing mineralized intersections.
- iii) Drill testing resume testing targets in the broader Boundary Creek area.

2. LOCATION AND ACCESS

The Nidd property is located within the Mayo Mining District, Yukon Territory approximately 390 km northeast of Whitehorse. Access to the property is by road via the North Canal Road to MacMillan Pass and then onto a secondary road traversing the Jason property and extended by Cominco to the Boundary Creek camp in the centre of the property. The MacMillan Pass airstrip, 24 km west of the Boundary Creek base camp is the closest fixed wing access.

3. TENURE

The Nidd property comprises 593 contiguous claims 100% owned by Cominco Ltd. The drilling in 1989 allowed the addition of four years' assessment credit to 362 claims. With the exception of 67 units on the western edge of the property requiring work in 1990 all of the claims are in good standing until at least 1996. Most are in good standing until at least the year 2000.

4. HISTORY

The Nidd property was staked between 1976 and 1981 to cover the westerly strike extension of the stratigraphy which hosts the nearby Tom and Jason lead-zinc silver deposits. Since 1976 numerous development programs have been carried out. These programs have included some or all of the following: geology, soil and rock geochemistry, geophysics, diamond drilling, road building and trenching. Since 1982 detailed work has focussed on a mineralized area at about the midpoint of the claim group at Boundary Creek.

5. 1989 WORK

A. Objective

The objective of the 1989 work was to drill test the #1 target area at Boundary Creek. This target area lies 500 metres north of the Boundary Creek camp and between lines 1+00E and 4+00E. This target combined anomalous magnetic, resistivity, I.P. and soil geochemistry responses with a gossanous bog and anomalous geology with abundant volcanics and thick debris flow clastics (diamictites). Adjacent to this drill target very thick intersections of low grade lead-zinc-silver mineralization had been previously drilled.

B. Drilling

Two holes (NB89-13 and NB89-14) were drilled in 1989 to depths of 188.4 and 290.8 metres respectively. The drilling contracted to E. Caron Diamond Drilling Ltd. commenced June 27 and was completed July 20. Both holes were collared at a 210° bearing, -50° dip, and were started with HQ and reduced to NQ (at 100 m depth in NB89-13 and 75.3 m depth in NB89-14). The holes were surveyed with a Sperry Sun single shot. Apart from a slight flattening, the holes stayed very straight. Very hard rock and broken ground at the bedrock surface in NB89-14 and in a very fractured leached zone between 31.1 and 82.5 metres in NB89-13 resulted in slow drilling, however, recoveries were excellent except in the above mentioned areas. Both holes were collared in an area covered by a surface layer of two to four feet of black organic soil hosting ice lenses and cut by numerous springs. Cat access was only made with difficulty and would probably not have been possible except for the exceptionally dry and warm summer.

6. GEOLOGY

A. General

Plate 1 shows the present interpretation of the geology in the drilled area. Thick overburden, paucity of outcrop and relatively broad spaced drill fences leave a substantial amount of conjecture in the present interpretation. The following facts are known:

- i) An extensive mineralizing system occurs at Boundary Creek.
- ii) Mineralization is hosted in a thick complex of Devonian Lower Earn Group clastic sediments including coarse diamictites, clastic striped mudstones and multiple chert pebble conglomerate horizons. Intercalated with these clastic sediments are carbonatized basaltic volcanic flows, pyroclastics and volcanoclastics.
- iii) No syndepositional sulphides have been located to date. All of the mineralization occurs as epigenetic disseminations and/or veins within diamictites, chert pebble conglomerates and volcanics clearly introduced post deposition of these rocks. It is thought that these sulphides were superimposed early in the diagenesis of these rocks by a sub-sea floor hydrothermal system.
- iv) The accumulation of coarse clastics in the Lower Earn Group rocks at Boundary Creek is anomalous and must mark active syndepositional tectonism with a localized basin(s) of deposition. Accompanying this tectonism at Boundary Creek was volcanic activity.

- v) All of the mineralization located to date occurs in an ENE-WSW trending, faulted syncline or synclinorium.
- vi) The southern limb of this syncline is defined in part by geophysical trends, in part by outcrop and to the greatest extent by its drill intersection in DDH's NB83-9, NB83-8, NB84-10, NB83-5, NB83-7, NB82-3 and NB82-4. Top indicators on this southern limb all indicate a continuously north facing steeply north dipping sequence. The base of this section wherever drilled is sulphide/iron carbonate veined and strongly silicified Lower Devonian, Road River Group mudstones. The stockwork of veins and alteration suggests a hydrothermal feeder system. An apparent centre to this mineralization is indicated in the target area.
- vii) The northern limb of the "syncline" is not as well defined but is suggested by some outcrops, and by drill holes NB82-1, NB82-2 and NB83-6 and some broad geochemical and geophysical trends extending to the ESE across the Boundary Creek valley. These trends tie in with the north limb of a syncline that is mappable on the ridge west of Boundary Creek. Stratigraphic tops in this sequence face south. Based on drill and limited outcrop data, the strata are probably slightly overturned and steeply north dipping.
- viii) The apparent mineralized portion of the north limb appears offset eastward from the mineralized portion of the south limb. This may be the result of strike-slip fault offset of the hydrothermal system and localized basin or it may be the result of a east-north-east rake of the system across the fold.
- ix) The exact stratigraphic position of the Boundary Creek mineralization is uncertain due to the several chert pebble conglomerate zones that form part of the local thick clastic succession. Regionally a single chert pebble conglomerate horizon forms the only distinct stratigraphic marker within the Lower Earn Group rocks. It is currently thought that the mineralization encompasses a thick package of coarse clastics from the footwall Road River Group contact up to stratigraphy as high as the top of the regionally extensive chert pebble conglomerate unit.

The Tom and Jason ore zones lie in carbonaceous mudstones of the Upper Lower Earn Group overlying this conglomerate. Similar carbonaceous mudstones are encountered in drill hole NB84-10 but they are in fault contact with the underlying mineralized package. To date therefore no hole has penetrated the precise Tom ore horizon at Boundary Creek. This stratigraphy is not preserved at Boundary Creek anywhere but to the northwest and far to the east. Both areas are removed from the apparent centre of hydrothermal activity.

B. Drill Hole Geology

The 1989 drilling was aimed at further exploring the target 1 area. Results of the 1989 drilling are discussed below:

NB89-13

The first 1989 drill hole was collared on line 3+00E at 0+75N to drill both along strike from the lower, and best grade portion, of the mineralized package encountered by DDH's NB83-8 and NB84-10 and to drill below the broad high chargeability I.P. zone defined in 1988. This hole drilled through 13.7 metres of overburden before collaring in a spectacular mudstone-siderite matrix breccia. This breccia (more fully described in the appended log) consisted of fragments of silicified and sideritized mudstone fragments sitting in a siderite matrix. Finely comminuted and rotated mudstone fragments in a siderite matrix at the top of the breccia gave way to a more crackled breccia at the base with veins of iron carbonate. Three generations of iron carbonate were evident in the breccia. Minor red-brown sphalerite with traces of galena occur throughout the interval with one distinct coarse pyrite-sphalerite vein at 16.7-17.4 metre depth assaying 9.2% Zn. No definite correlation of the host fragments of the mudstone can be made. Local light grey striping and occasional speckling with fine white wispy fragments, that may be skeletal debris, suggests the rock may be silicified calcareous turbidites of the upper Road River Group (Unit R5M).

The siderite breccia terminated at 31.1 metres and was succeeded by a zone of soft black porous carbonaceous mudstone cut by numerous intervals of highly fragmented mudstone with black sand and gravelly pebbles. This interval from 31.1 to 94.0 metres is interpreted to be a highly faulted and fractured mudstone that has been strongly leached by surface waters moving down fault and fracture zones. Material from the bedrock surface appears to have washed into and infiltrated some of these vuggy open zones. The mudstone is believed to be of Road River Group affinity but cannot be clearly identified. Following a brief transition interval the hole drilled a wispy laminated, olive-grey, dolomitic mudstone from 94.0-188.4 metres that is typical of the Silurian Siltstone (Unit R4). This unit with its orange weathering wispy laminated character is a very distinctive unit in the middle of Road River Group at Macmillan Pass and throughout the Selwyn Basin. Very fine (.1-1 mm) pyrite forms 3 to 5% of the Silurian Siltstone Unit as disseminations and occasional larger patches and aggregates. This pyrite would appear to be sufficient to account for the high chargeability zone indicated by the 1988 I.P.

The intersection of the siderite matrix breccia and succeeding Road River Group lithologies in NB89-13 came as a surprise since projections from DDH NB83-8 only 140 metres to the west suggested the top of the hole would encounter mineralized Lower Earn Group rocks. The hole therefore resulted in defining a structural displacement of the Road River contact. This displacement, associated as it is with such a strong siderite breccia and a very restricted locus of mineralization, is thought to probably mark a syndepositional "growth" fault along which hydrothermal fluids circulated.

NB89-13 failed to drill mineralized Lower Earn Group rocks but did encounter sideritic stockworked and replaced Road River rocks much stronger than that encountered in holes NB83-8, NB84-10 or NB83-5. This strong footwall "vent" breccia along with the apparent syndepositional fault structure provided additional encouragement to drill a hole upslope from NB89-13.

NB89-14

NB89-14 was collared at Line 4+00E at station 2+25N, upslope but on approximately the same bearing (030°/210°) as NB89-13. The hole encountered a thick mineralized package of Lower Earn Group sediments with interbedded volcanic rocks from the bedrock surface at 12.9 metres to 252.4 metres down hole. The geology encountered is portrayed on Plate 2. Strongly pyrite replaced diamictites, chert pebble conglomerates, volcanic tuffs and minor thin sand banded mudstones were encountered from 12.9 m to 81.5 m but with negligible sphalerite.

From 81.5 to 163.3 the succession is dominated by an upper and lower chert pebble conglomerate horizon sandwiching a thick sideritic volcanic tuff, lapilli tuff and volcanic diamictite sequence. This interval is mineralized with variable proportions of pyrite, siderite and sphalerite that occurs as interstitial disseminations in conglomerates, clast replacements and veins. The best mineralized rocks are the volcanoclastic diamictites that host disseminations, aggregates, patches and veins of sphalerite. In total 63.7 metres of rock assays 2.0% zinc and 17.3% iron with the volcanic rich section assaying 3.8% zinc, 24.3% iron over 12 metres. From 163.3 to 252.4 m the section is dominated by chert pebble conglomerate and sand striped mudstones in almost equal proportions. Siderite is common in the conglomerate, but pyrite and sphalerite are not very abundant except in occasional strongly veined intervals where the grade is locally enhanced.

At the base of the Earn Group sediments from 252.4 to 261.2 metres sideritic lapilli tuff and volcanic diamictite occur that are strongly veined with sphalerite/siderite veins accompanied by lesser pyrite and minor galena. Some of the sphalerite is spectacular and produces grades between 252.3 and 254.8 m of 28.3% zinc, 0.4% Pb, 0.4 oz/T Ag and 18.2% iron over 2.5 metres. These volcanic rocks are tentatively correlated with the volcanics commonly encountered at the Road River Group/Earn Group contact.

Below this volcanic interval between 261.2 and 269.8 metres strongly fractured mudstones occur that are variably silicified and show abundant veinlets of pyrite and siderite with minor but significant chalcopryrite being evident (the interval from 263.3-264.8 assays 0.4% copper). Within this interval a lapilli ash tuff bed at 267.8-269.0 is veined by siderite, sphalerite, galena veins producing an assay of 2.9% Pb, 6.7% Zn, 27.5 g/T Ag.

R. Turner of the G.S.C. in his study of this core believes he can see "two zones of cataclastic rock (261.5-262.5 m; 265.0-268.0 m) bounding and overlain structurally by veined and altered rock." He believes these intervals to mark the precise trace of the syndepositional fault. The writer is not entirely convinced that these textures mark the paleofaults, however, it is clear that these rocks must lie spatially close to an undeniable growth fault as demonstrated by the Road River contact offset. It is also clear that these stockworked and veined rocks represent some form of hydrothermal footwall or feeder-system similar to that encountered in holes 8, 10 and 5.

From 269.8-290.8 the hole encountered fractured weakly pyrite, siderite veined mudstones that are often banded with silt and sand beds. These rocks resemble Earn Group rocks but it is thought that they are likely silicified formerly calcareous turbidite rocks of the Upper Road River Group (Unit R5M). No sphalerite or galena was detected in this interval and the hole was terminated at 290.8 metres.

The package of Lower Earn Group rocks intersected by hole NB89-14 is broadly similar to that encountered by all of the holes on the south limb of the syncline, consisting of a complex mix of mineralized chert pebble diamictites, chert pebble conglomerates, volcanic tuffs, volcanic diamictites and sand banded mudstones. In detail it is not possible to correlate any stratigraphic units between sections barring a broad zone in which volcanic rocks and rocks containing volcanic clasts are an important component. It is clear that hole NB89-14 involves much less diamictite in its section while preserving more normal Lower Earn Group sand striped mudstones and more distinct well preserved volcanic rocks than NB83-8 and NB84-10. In 8 and 10 the volcanics are more likely to occur as scattered clasts within conglomerate and diamictite. The broad mineralized pattern in NB89-13 mimics that in holes NB83-8 and NB84-10 but with considerably less sphalerite overall and much less galena in the lowermost sections.

It is believed that the difference in character between the NB89-13/14 section and the NB84-10, 83-8 section may be ascribed to the former being on the upside of a syndepositional growth fault lying between the two sections while the latter section lies on the down thrown side showing consequently more reworked clastic rocks.

Both sections encounter a somewhat similar basal section involving volcanic and volcanoclastic rocks that are more intensely mineralized and sit above stockworked, sideritized and silicified mudstones thought to be of Road River Group affinity.

7. CONCLUSIONS

The 1989 drilling focussed entirely on the #1 target area, 500 metres north of the Boundary Creek camp. This work showed that:

- i) There is a structural offset of the Road River/Lower Earn Group contact between drill hole NB89-14 and drill hole NB84-10.
- ii) This offset coincides with very strong footwall siderite breccias encountered by DDH NB89-13. It also coincides with high soil geochemistry, a weak magnetic anomaly and very thick mineralized sequences in holes 8, 10 and 14 and lithologic variations between the holes 8 and 10 section and hole 14 section. All of these features suggest that the offset is probably a syndepositional fault that has controlled a hydrothermal vent introducing mineralization into the nearby rocks. The fault clearly lies between DDH NB89-13 and NB84-10.
- iii) The maximum intensity of mineralization is likely to be in a 25 to 50 metre wide, along strike, zone adjacent to this structure and raking with it to depth.

8. RECOMMENDATIONS

It is recommended that:

- i) A hole be drilled midway between the NB84-10 intersection and NB89-14.
- ii) At least one deep hole eventually be drilled to test the #1 target area at a depth of 200 metres below existing mineralized intersections.
- iii) Drill testing resume testing targets in the broader Boundary Creek area.

Reported by:

Daniel Rhodes
D. Rhodes
Senior Geologist

Endorsed by:

W.J. Wolfe
W.J. Wolfe
Manager, Exploration
- Western Canada

DR/jd

1989 ASSESSMENT REPORT
NIDD PROPERTY

APPENDIX "A"

STATEMENT OF EXPENDITURES

JUNE 24 TO JULY 22, 1989

Staff Costs:		
D. Rhodes (Senior Geologist) 22 days @ \$398.33		\$ 8,763.26
E. Woolven (Field Technician) 10 days @ \$188.88		1,888.88
T. MacRobbie (Junior Geologist) 4 days @ \$188.88		2,644.32
Expense Accounts		\$634.00
Geochemistry (core assays)		\$1,288.75
Diamond Drilling Contract Charges		\$126,449.21
Transportation:		
Helicopter		\$2,884.00
Vehicle		\$1,440.00
Camp Costs		<u>\$5,055.42</u>
TOTAL		\$151,007.84

APPENDIX "B"

AFFIDAVIT

I, Dereck Rhodes, of the District of North Vancouver, in the Province of British Columbia, make oath and say:

1. THAT I am employed as a Senior Geologist by Cominco Ltd., and as such have a personal knowledge of the facts to which I hereinafter depose;
2. THAT annexed hereto and marked as Appendix "A" to this my affidavit is a true copy of expenditures incurred in connection with a drilling program carried out on the Nidd mineral claims;
3. THAT said expenditures were incurred between June 24 and July 22, 1989 for the purpose of mineral exploration on the noted claims.



Dereck Rhodes
Senior Geologist

DR/jd

January, 1990

APPENDIX "C"
STATEMENT OF QUALIFICATIONS

I, Dereck Rhodes, of the District of North Vancouver, in the Province of British Columbia, hereby certify:

1. THAT I am a geologist residing at 2514 Bronte Road, North Vancouver, British Columbia with a business address at 700-409 Granville Street, Vancouver, British Columbia.
2. THAT I graduated with a B.Sc. in geology from McMaster University, Hamilton, Ontario in 1969
3. THAT I have practised geology with Cominco Ltd. from June, 1969 to the present.



Dereck Rhodes
Senior Geologist

DR/jd

January, 1990

APPENDIX "D"
1989 DRILL LOGS

DRILL HOLE RECORD

COMINCO LTD.

Property: NIDD

NB 89-13
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From	To	Recovered	From	To	Recovered	From	To	Recovered	From	To	Recovered			
0	13.7	Casing/OB	49.1	49.7	0.2	77.7	78.3	0.1	107.9	109.6	1.2	136.1	137.2	0.4
13.7	15.2	1.5 m	49.7	51.2	0.4	78.3	78.8	0.2	109.6	109.9	0.3	137.2	137.8	0.5
15.2	15.8	0.6	51.2	52.4	0.5	78.8	78.9	0.1	109.9	110.8	0.9	137.8	138.4	0.4
15.8	16.2	0.3	52.4	55.2	0.4	78.9	80.5	0.3	110.8	112.5	1.1	138.4	139.6	0.2
16.2	17.4	1.2	55.2	56.4	0.8	80.5	82.6	0.6	112.5	112.7	0.2	139.6	140.8	0.6
17.4	18.0	0.6	56.4	58.5	0.8	82.6	84.3	0.6	112.7	114.3	1.4	140.8	141.5	0.5
18.0	18.9	0.9	58.5	59.4	0.8	84.3	85.8	1.4	114.3	114.9	0.3	141.5	142.4	0.6
18.9	19.7	0.8	59.4	60.5	0.7	85.8	86.5	0.5	114.9	115.5	0.6	142.4	143.4	0.9
19.7	21.2	1.5	60.5	61.1	0.6	86.5	87.2	0.5	115.5	116.1	0.6	143.4	144.1	0.5
21.2	22.7	1.5	61.1	61.6	0.5	87.2	88.7	0.8	116.1	117.7	1.6	144.1	144.3	0.2
22.7	23.9	1.2	61.6	62.5	0.4	88.7	90.2	0.4	117.7	118.6	0.6	144.3	144.8	0.3
23.9	25.0	1.1	62.5	63.0	0.4	90.2	92.0	0.3	118.6	118.9	0.3	144.8	145.1	0.2
25.0	26.5	1.4	63.0	64.6	0.3	92.0	93.6	0.8	118.9	119.5	0.4	145.1	145.4	0.1
26.5	28.9	1.4	64.6	64.9	0.2	93.6	94.3	0.6	119.5	120.1	0.3	145.4	146.0	0.2
28.0	29.6	0.5	64.9	65.5	0.5	94.3	95.1	0.5	120.1	120.7	0.5	146.0	146.3	0.2
29.6	30.2	0.2	65.5	67.1	0.5	95.1	96.3	1.8	120.7	121.3	0.6	146.3	147.0	0.6
30.3	30.5	0.1	67.1	67.8	0.5	96.3	97.6	1.1	121.3	122.6	1.3	147.0	147.6	0.6
31.3	34.1	0.3	67.8	68.6	0.8	97.6	98.2	0.6	122.6	124.1	1.0	147.6	148.5	0.9
34.1	36.6	0.6	68.6	69.0	0.4	98.2	99.1	0.9	124.1	125.6	1.4	148.5	149.4	0.9
36.6	37.5	0.6	69.0	69.8	0.6	99.1	100.0	0.8	125.6	126.2	0.5	149.4	150.6	1.2
37.5	38.4	0.6	69.8	70.4	0.4	100.0	101.2	0.3	126.2	127.3	1.1	150.6	152.1	1.5
38.4	39.5	0.6	70.4	71.0	0.2	101.2	103.3	0.2	127.3	127.7	0.4	152.1	153.0	0.9
39.5	40.8	0.6	71.0	71.5	0.4	103.3	104.0	0.6	127.7	129.0	1.3	153.0	154.5	1.5
40.8	43.3	0.0	71.5	72.2	0.3	104.0	104.3	0.3	129.0	130.2	1.2	154.5	155.4	0.9
43.3	44.8	0.2	72.2	73.8	0.2	104.3	105.0	0.6	130.2	131.1	0.5	155.4	157.0	1.6
44.8	46.3	0.5	73.8	74.4	0.3	105.0	105.8	0.8	131.1	132.6	0.6	157.0	158.2	1.2
46.3	47.5	0.6	74.4	74.8	0.3	105.8	106.4	0.6	132.6	134.1	1.3	158.2	159.7	1.5
47.5	49.1	0.4	74.8	77.3	0.5	106.4	107.3	0.9	134.1	135.4	0.6	159.7	161.2	1.5
			77.3	77.7	0.3	107.3	107.9	0.6	135.4	136.1	0.6	161.2	161.5	0.3

DRILL HOLE RECORD

COMINCO LTD.

Property: NIDD

NB89-14
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(in ppm unless % shown)

METERAGE FROM TO	DESCRIPTION
129.4 - 133.0	SILT AND SAND BANDED BLACK MUDSTONE, PYRITIC - EM2 Shallow core axis angles (10°) give good exposures of disturbed sand beds, possibly sideritized, with sedimentary structures such as cross-laminations. Pyrite occurs as nodules (2 cm at 131.4) and as veins and blebs in muds and silts.
133.0 - 147.4	SIDERITIC CHERT PEBBLE CONGLOMERATE WITH OCCASIONAL MUDSTONE INTERVALS AND OCCASIONAL MUD MATRIX - ED SIDERITIC Fine to medium sized chert pebble conglomerate (1 mm - 3 cm) average is 5 mm. Clasts are generally subangular to rounded and the rock is clast supported. Clasts are made up of white to black coloured pebbles, giving the rock light grey colour. Matrix is sideritic (pale yellow) and occasionally pebbles are being replaced by the siderite. Some clasts are pyritized but these are minor. Sphalerite occurs as infilling veinlets, replacing clasts and as blebs in matrix and with pyrite in massive (4 cm) wide veins as at 138.1. Mudstone intervals occur at 136.4 (3 cm) at 136.6-137.2, at 134.4 (3 cm). These intervals are not cherty. They contain minor amounts of clasts making it occasionally "mud matrix". They appear to mostly have uneven contacts with the conglomerate.
147.4 - 163.3	CHERT PEBBLE CONGLOMERATE WITH OCCASIONAL INTERVALS OF MUDSTONE AND OCCASIONAL INTERVALS OF MUD MATRIX - EC Similar to above interval (133.0-147.4) only without the presence of siderite as matrix (although siderite is seen replacing occasional pebbles and infilling veinlets). 147.8-148.0 - massive pyrite + sphalerite (60/40) possible vein material. Minor quartz veinlets. 149.6-150.0 - mudstone interval with some clasts. Contains 2-4 mm thick sand beds. Some distortion visible here. 153.4 - (2 cm) mud/silt bed, also at 153.8 (1 cm). 157.6-158.3 - minor siderite within matrix. 156.8-157.5 - core follows a sphalerite/pyrite vein 3 mm in thickness.
163.3 - 164.0	FINE CHERT PEBBLE CONGLOMERATE - EC Here pebbles are generally grit sized (2-4 mm) with occasional pebble sized clasts. Top

SAMPLE	FROM	TO	ANALYSIS				
			Pb	Zn	Ag	Fe %	Cu
11926	133.1	134.6	35	362	<0.4	13.9	9
11537	134.6	136.1	38	2880	0.8	11.8	29
11538	136.1	137.7	51	2640	0.7	6.8	26
11539	137.7	139.2	164	4.4%	3.7	19.2	69
11540	139.2	140.7	478	7.0%	5.2	21.7	52
11541	140.7	142.2	43	0.7%	<0.4	17.4	16
11526	142.2	143.7	18	410	0.5	18.6	18
11527	143.7	145.0	33	3630	0.4	14.2	14
11528	145.0	146.5	79	1.3%	0.8	6.1	26
11529	146.5	147.8	62	0.9%	0.9	10.2	46
11550	147.8	148.2	1170	19.6%	127	21.8	321
11530	148.2	149.7	212	527	1.4	4.0	72
11531	155.2	156.7	34	276	<0.4	3.3	16
11532	156.7	158.2	152	3.9%	3.0	6.2	64
11533	158.2	159.7	22	347	<0.4	3.5	12

DRILL HOLE RECORD

Property: NIDD

COMINCO LTD.

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From	To	Recovered	From	To	Recovered	From	To	Recovered	From	To	Recovered
0	13.1	O/B	43.3	44.8	1.5	75.3	76.4	0.8	104.2	105.8	1.6
13.1	29.8	*	44.8	46.3	1.2	76.4	76.8	0.4	105.8	107.3	1.5
13.1	13.7	0.2	46.3	46.6	0.3	76.8	78.3	1.5	107.3	108.2	0.4
13.7	14.6	0.2	46.6	46.9	0.3	78.3	78.8	0.5	108.2	109.7	1.5
14.6	14.9	0.2	46.9	47.9	1.0	78.8	80.8	2.0	109.7	110.9	1.2
14.9	15.5	0.2	47.9	49.4	1.5	80.8	81.7	0.9	110.9	112.5	1.6
15.5	16.2	0.5	49.4	49.5	1.0	81.7	82.6	0.9	112.5	113.4	0.9
16.2	16.5	0.1	49.5	51.2	1.7	82.6	83.8	1.2	113.4	114.9	1.5
16.5	16.8	0.2	51.2	52.4	1.2	83.8	85.0	1.2	114.9	116.4	1.5
16.8	17.1	0.2	52.4	53.9	1.5	85.0	85.8	0.8	116.4	118.0	1.6
17.1	17.4	0.2	53.9	55.5	1.6	85.8	86.0	0.1	118.0	119.5	1.5
17.4	18.9	0.2	55.5	56.8	0.7	86.0	86.3	0.3	119.5	120.9	1.4
18.9	19.5	0.1	56.8	57.0	0.1	86.3	86.6	0.2	120.9	122.5	1.6
19.5	20.7	0.1	57.0	58.5	0.2	86.6	87.5	0.0	122.5	124.1	1.6
20.7	23.2	0.1	58.5	59.1	0.3	87.5	88.4	0.9	124.1	125.6	1.5
23.2	26.2	0.2	59.1	60.2	1.1	88.4	89.0	0.6	125.6	127.1	1.5
26.2	27.4	0.1	60.2	61.6	1.4	89.0	89.9	0.3	127.1	128.6	1.5
27.4	28.0	0.2	61.6	63.1	1.5	89.9	90.5	0.3	128.6	130.1	1.5
28.0	29.8	0.2	63.1	64.6	1.4	90.5	91.4	0.9	130.1	131.7	1.6
29.8	30.5	0.2	64.6	66.1	1.0	91.4	92.7	1.0	131.7	133.2	1.5
30.5	32.2	1.6	66.1	67.4	0.6	92.7	93.9	0.7	133.2	134.7	1.5
32.2	33.8	1.5	67.4	67.7	0.2	93.9	95.1	1.2	134.7	135.3	0.6
33.8	35.2	1.4	67.7	68.0	0.4	95.1	97.2	1.0	135.3	135.8	0.2
35.2	36.7	1.5	68.0	68.3	0.3	97.2	97.7	0.3	135.8	137.0	1.2
36.7	38.3	1.5	68.3	69.2	0.6	97.7	98.6	0.9	137.0	137.9	0.9
38.3	39.6	1.3	69.2	70.4	1.2	98.6	100.0	1.4	137.9	139.4	1.5
39.6	41.1	1.5	70.4	71.9	1.5	100.0	101.2	1.2	139.4	140.8	1.4
41.1	42.1	1.0	71.9	73.6	1.6	101.2	102.7	1.5	140.8	142.0	1.2
42.1	43.3	1.2	73.6	75.3	1.6	102.7	104.2	1.5	142.0	143.6	1.6

* very blocky coring, fractured bedrock - leached, poor recoveries

DRILL HOLE RECORD

Property: NIDD

COMINCO LTD.

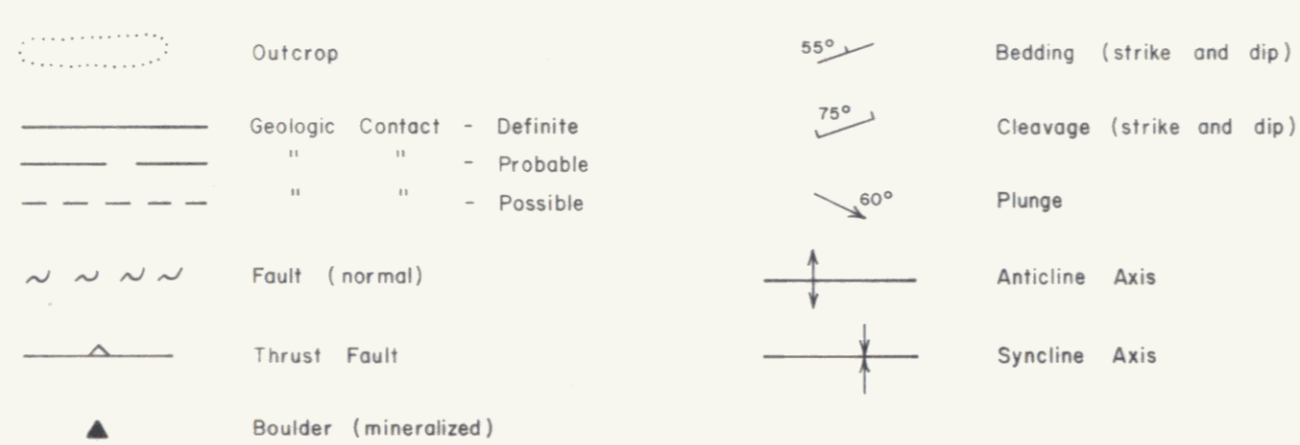
NB89-14
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From	To	Recovered	From	To	Recovered	From	To	Recovered	From	To	Recovered
175.9	177.1	0.9	204.8	206.0	1.2	244.8	246.3	1.6	284.4	284.7	0.3
177.1	177.5	0.3	206.0	207.6	1.6	246.3	247.8	1.5	284.7	285.1	0.4
177.5	178.3	0.6	207.6	209.1	1.5	247.8	249.3	1.5	285.1	285.4	0.3
178.3	179.1	0.7	209.1	210.6	1.5	249.3	251.2	1.5	285.4	285.8	0.2
179.1	179.5	0.4	210.6	212.0	1.0	251.2	252.7	1.5	285.8	286.2	0.4
179.5	180.4	0.9	212.0	213.5	1.5	252.7	254.2	1.5	286.2	286.7	0.3
180.4	181.1	0.5	213.5	214.9	1.4	254.2	255.7	1.5	286.7	287.1	0.3
181.1	181.5	0.4	214.9	216.4	1.4	255.7	257.3	1.6	287.1	287.9	0.8
181.5	182.0	0.3	216.4	217.3	0.9	257.3	258.8	1.5	287.9	288.5	0.4
182.0	182.6	0.6	217.3	218.8	1.5	258.8	260.6	1.6	288.5	289.1	0.6
182.6	183.0	0.4	218.8	220.1	1.3	260.6	261.4	0.8	289.1	289.7	0.6
183.0	183.5	0.5	220.1	221.6	1.5	261.4	261.8	0.4	289.7	290.8	0.7
183.5	185.0	1.5	221.6	223.1	1.5	261.8	262.7	0.9	290.8	END OF HOLE	
185.0	186.5	1.4	223.1	224.6	1.5	262.7	264.3	1.6			
186.5	187.8	1.3	224.6	226.2	1.6	264.3	265.8	1.5			
187.8	188.5	0.7	226.2	227.7	1.5	265.8	267.3	1.5			
188.5	189.6	1.0	227.7	229.2	1.5	267.3	268.8	1.5			
189.6	190.5	0.8	229.2	230.7	1.5	268.8	270.0	1.2			
190.5	191.9	1.4	230.7	232.3	1.6	270.0	271.3	??			
191.9	192.9	0.8	232.3	233.8	1.5	271.3	271.9	0.1			
192.9	194.2	1.3	233.8	235.3	1.5	271.9	272.5	0.6			
194.2	195.1	0.8	235.3	236.4	0.9	272.5	274.0	1.0			
195.1	196.2	0.9	236.4	237.4	1.0	274.0	274.3	0.1			
196.2	197.8	1.6	237.4	238.2	0.8	274.3	274.9	0.1			
197.8	199.3	1.5	238.2	239.9	1.6	274.9	275.5	0.1			
199.3	200.9	1.6	239.9	241.4	1.6	275.5	275.8	0.3			
200.3	201.8	0.5	241.4	242.3	0.5	275.8	277.1	1.0			
201.8	203.0	1.6	242.3	243.5	0.9	277.1	278.0	0.7			
203.0	204.8	1.5	243.5	244.8	1.3	283.9	284.4	0.5			



LEGEND

- LOWER MIDDLE TO UPPER DEVONIAN**
EARN GROUP
- EMI** Dark grey to black mudstone with siltstone laminae, includes lesser **EM2** mudstone with laminated to inter-bedded siltstone, **EM** black carbonaceous mudstone and **EMG** gritty mudstone, locally EM and EMG units belong to the upper Lower Earn Group (formerly unit 3b); **EBA** barite.
 - EC** Fine to coarse chert pebble conglomerate, minor **ESS** chert grain sandstone to grit.
 - EDC/EDP** Undivided dark grey to black diamictites consisting of chert and mudstone clasts within a mudstone matrix.
 - EDV** Iron carbonate rich volcanoclastic diamictite with iron carbonated volcanoclastic clasts within a mudstone matrix.
 - EVF** Sideritic, amygdaloidal, mafic flow with calcite/feldspar? amygdules within a weakly iron carbonated matrix; **EVT** light yellowish-brown to light grey iron carbonated lapilli tuff, related to EVF.
- ORDOVICIAN TO LOWER DEVONIAN**
ROAD RIVER GROUP
- R7VT** Yellowish-brown to grey iron carbonated lapilli tuff; **R7VC** grey to yellowish-brown iron carbonated volcanoclastic conglomerate to diamictite, may be related to R7VT.
 - RRM** Black, non-calcareous, locally siliceous mudstone; **RRML** black, locally siliceous, rarely calcareous mudstone with very faint siltstone laminae; **RRLL** dark grey, locally siliceous, rarely calcareous laminated siltstone; **RRMT** grey, tuffaceous RRM or RRML mudstone.
 - R5M** Black calcareous mudstone to mudshale; also includes **RSMT** black, calcareous, graphitic mudstone with faint siltstone laminae which locally may be strongly colour banded with well developed grey siltstone laminae to thin beds; **RSMT** minor grey to dark grey tuffaceous R5M mudstone; **RSVT** grey to light grey tuff to lapilli tuff, locally weakly iron carbonated.



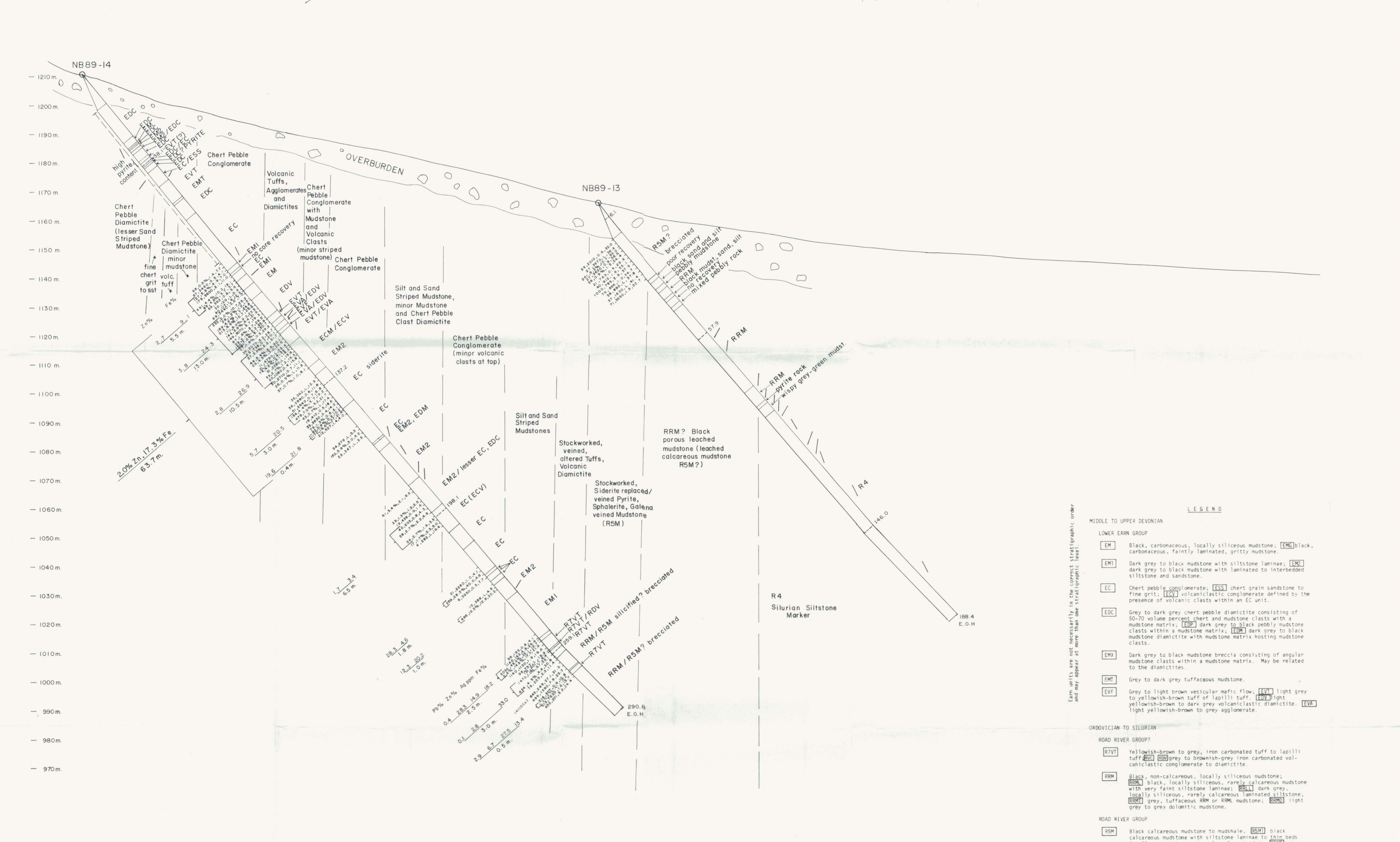
N.T.S. 105 0/2

NIDD PROPERTY

Drawn by: _____		Traced by: a.m.b.	
Revised by: DR	Date: Jan 90	Revised by: Ijm	Date: Jan 90

BOUNDARY CREEK AREA
GEOLOGY 092914

Scale: 1:2500 Date: 16-1-1984 Plate: 1



LEGEND

MIDDLE TO UPPER DEVONIAN

LOWER EARM GROUP

- EM Black, carbonaceous, locally siliceous mudstone; [EM2] black, carbonaceous, faintly laminated, gritty mudstone.
- EM1 Dark grey to black mudstone with siltstone laminae; [EM2] dark grey to black mudstone with laminated to interbedded siltstone and sandstone.
- EC Chert pebble conglomerate; [ESS] chert grain sandstone to fine grit; [ECV] volcaniclastic conglomerate defined by the presence of volcanic clasts within an EC unit.
- EDC Grey to dark grey chert pebble diamictite consisting of 50-70 volume percent chert and mudstone clasts with a mudstone matrix; [ED2] dark grey to black pebbly mudstone clasts within a mudstone matrix; [EDM] dark grey to black mudstone diamictite with mudstone matrix hosting mudstone clasts.
- EMX Dark grey to black mudstone breccia consisting of angular mudstone clasts within a mudstone matrix. May be related to the diamictites.
- EMT Grey to dark grey tuffaceous mudstone.
- EVT Grey to light brown vesicular mafic flow; [EVT] light grey to yellowish-brown tuff or lapilli tuff; [EVA] light yellowish-brown to dark grey volcaniclastic diamictite; [EVA] light yellowish-brown to grey agglomerate.

ORDOVICIAN TO SILURIAN

ROAD RIVER GROUP?

R4VT Yellowish-brown to grey, iron carbonated tuff to lapilli tuff; [R4VT] grey to brownish-grey iron carbonated volcaniclastic conglomerate to diamictite.

R5M Black, non-calcareous, locally siliceous mudstone; [R5M] black, locally siliceous, rarely calcareous mudstone with very faint siltstone laminae; [R5M1] dark grey, locally siliceous, rarely calcareous laminated siltstone; [R5M2] grey, tuffaceous RRM or RSM mudstone; [R5M3] light grey to grey dolomitic mudstone.

ROAD RIVER GROUP

R5M Black calcareous mudstone to mudshale; [R5M1] black calcareous mudstone with siltstone laminae to thin beds, locally graphitic or strongly colour banded; [R5M2] minor grey to dark grey tuffaceous R5M mudstone.

R5VT Grey to light grey tuff to lapilli tuff, locally weakly iron carbonated.

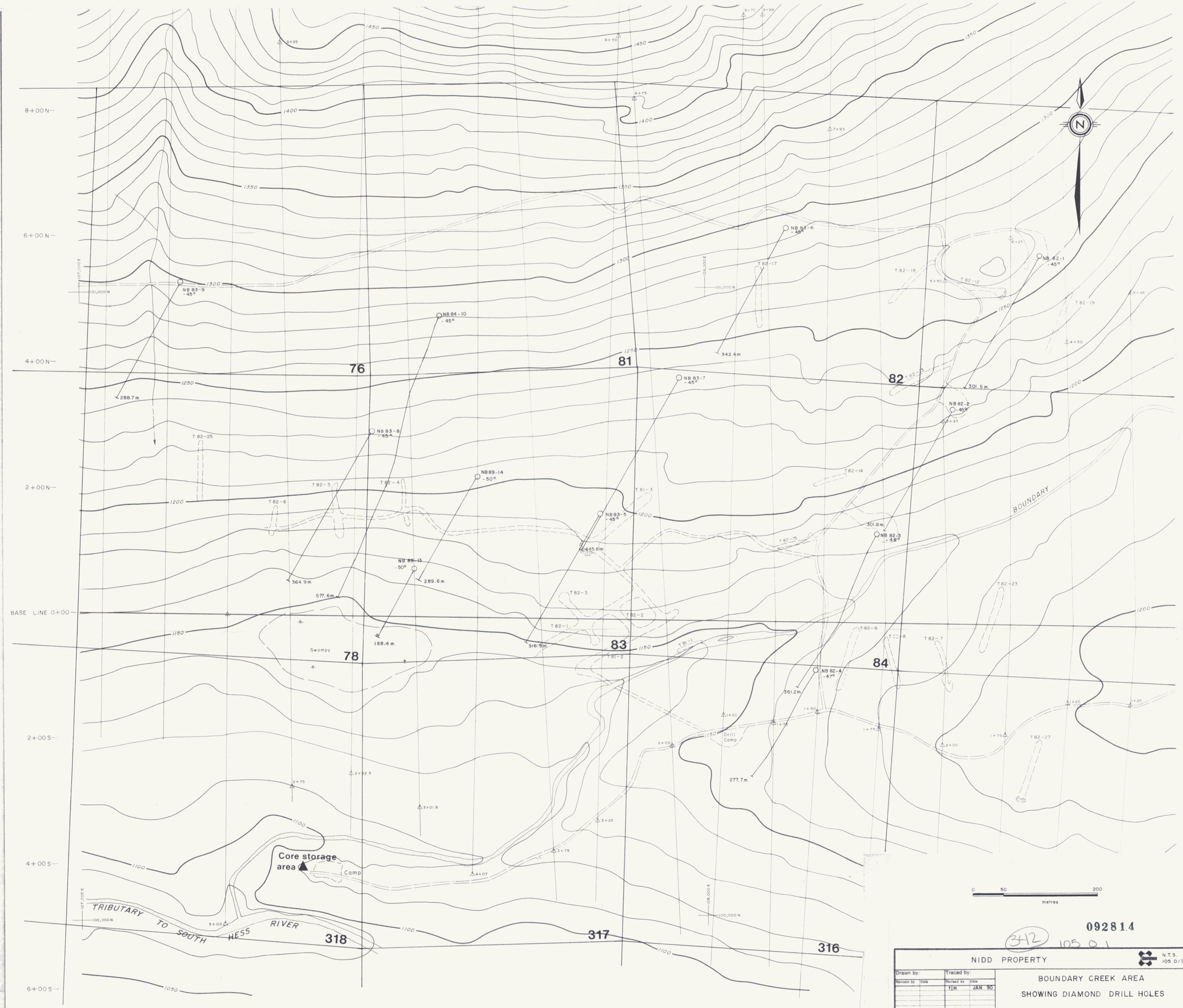
Drill Hole

Lithology

analyses Pb (ppm), Zn (ppm), Ag (ppm), Fe (%)
Values expressed in ppm unless % shown.

Bedding attitude to core axis (one of two possible attitudes; one plotted is thought to be most likely, but is not based on referencing to cleavage)

Zones of faulting evidenced by Fault gouge fracturing



092814

312 105 01

NIDD PROPERTY

Drawn by:	Traced by:
Revised by:	Revised by:
Date:	Date:
	fjm JAN 90

BOUNDARY CREEK AREA
SHOWING DIAMOND DRILL HOLES

Scale: 1:2500 Date: Nov. 21, 1983 Plate: 3