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EXPLORATION

WESTERN DISTRICT

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OSPREY PROPERTY  
ASSESSMENT REPORT  
1991 FIELD WORK

OMINECA MINING DIVISION  
NTS 94C/2

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**21,914**

OCTOBER, 1991

S.B. NOAKES

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## INTRODUCTION

The 1991 field work on the Osprey claims involved 16 man days of soil sampling, rock and rock chip sampling and prospecting. The program was largely guided by previous work in 1980 by Placer Development and documented in Assessment Report #8324 by D.M. Jenkins on what was then the Alfie claims. The geological interpretations and conclusions found in that report were examined in the light of discoveries in the area since 1980 and with the improved economics brought by the building of logging roads to and on the property. Lead/zinc showings and strong soil geochem sites mentioned in the report were visited. Another lead/zinc showing mentioned in a report by W. Halleran 1990 on the Wasi Lake road was also examined. The results of the 1991 field work is presented on 1:10,000 scale topographic base maps.

## LOCATION AND ACCESS

The Osprey claims are at 56° 09' north, 124° 55' west on the south side of the Osilinka River (NTS mapsheet 94C/2) in the Omineca Mining Division. The property is 150 kilometres at 305° from Mackenzie and 45 kilometres at 340° from Germansen Landing. The claim group consists of 6 claims, Osprey 1, 2 (20 units each), 3 and 4 (15 units each), 6 and 7 (1 unit each).

The topography of the claims ranges from alluvial plains of the Osilinka River to a steep hillside, talus and cliffs on the south side of the river to milder rolling landscape at the upper elevations. Elevations range from 825 metres at the river to a maximum of 1500 metres. Vegetation cover is mostly spruce and pine trees with little or no underbrush. The central portion of the property has been clearcut.

Access to the property is by logging road from Windy Point, north of McLeod Lake on Highway 97. This logging road is a main haulage road from the Williston/Mesilinka/Osilinka logging areas for the mills at Mackenzie. The Wasi Road exits the main haul road at kilometre 20.5 beyond the Osilinka bridge and runs east-west through the north central portion of the claims. A branch road from there has been built into the central area of the claims that has been clearcut. A second road access is by way of Germansen Landing via the Uslika Lake road.

A 75 man Finlay Forest Industries logging camp is located on the north side of the Osilinka River from the claims with accommodations for 75. An airstrip is located 1 kilometre north of the camp. A helicopter was based at the camp in 1991.

## OWNERSHIP

The claims are owned by W. Halleran of Fort St. James. They were optioned to Cominco Exploration Ltd. in September 1991 with Cominco responsible for the field work. The prospecting was initially examined and acquired by consulting geologist Dunham Craig while hired by Cominco Ltd. to carry out regional exploration in the Omineca area.

## EXPLORATION HISTORY

The following is transcribed from the 1980 report by D. M. Jenkins of Placer Development, describing the Exploration history.

The property was originally located by Ernest and Gordon Davies and was optioned to Northwestern Explorations Limited in 1951. Evaluation of data obtained by trenching indicated the existence of a lead and zinc deposit with a low tenor (<0.5% Pb, <5% Zn; approximately 0.1 to 0.2 oz/t., Ag).

Placer Development Limited initiated geochemical and geophysical work on the property during 1966 and continued working there intermittently through 1968. Approximately 2500 feet of trenching was carried out. It failed to prove continuity between the small pods of breccia hosted mineralization previously found. Ainsworth's (1968) evaluation was that the property had a very limited tonnage potential and was characterized by low grade mineralization. He did not recommend additional work.

Borovgic (1976) returned to the area for Placer in 1976. On the basis of his mapping he recommended an expanded soil geochemical survey of the claims. This was carried out in 1977. A total of 77.5 km of lines were surveyed and flagged with compass and hipchain. Lines were spaced at 100 metre intervals and samples were taken at 25 m intervals along the lines. This work extended the geochemical anomalies identified earlier and located previously unknown anomalies farther east.

The work carried out during 1980 consisted of extending the 1977 soil grid to the northwest of the grid origin and filling in gaps in the coverage east of the grid origin. A total of 1020 soil samples were taken. A trial of a deep soil sampling system was carried out in an effort to extend certain anomalies into areas of deep overburden.

An examination of soil geochemical anomalies identified by earlier workers was carried out. This entailed very detailed prospecting of anomalous areas, geological mapping and rock sampling.

Work done in 1990 by W. Halleran included prospecting and limited rock sampling after the area was restaked as the Osprey claims.

Cominco obtained the claims in an option agreement in September 1991 and has conducted a base of slope soil geochemical program along the Osilinka valley below the Placer soil grid. Re-examination of the known mineralized sites as well as general geological orientation and prospecting was carried out. This work has confirmed the accuracy of the work done by Jenkins in 1980. Work done by Halleran in 1990 was re-examined as it covered other ground not included in the Placer era.

## GEOLOGY

The following description of the property geology is taken from the report by Jenkins. This description has been verified in the field by Cominco staff in our preliminary mapping and outcrop visits as located in Jenkins report.

Monger and Paterson (1974) have studied regionally the carbonate sequence exposed on the Osprey claim group. They believe the sedimentary rocks regionally correlated with the rocks exposed on the (Osprey) claims range from Ordovician to Middle Devonian in age. The much deformed sedimentary rock sequence is thought to exceed 3,000 feet in thickness. The lowest 1,000 feet consist of crystalline limestones with interbedded argillaceous rocks. The upper 2,000+ feet is composed of algalaminated dolomite and dolomitic limestone with round quartz grains.

The oldest rock seen on the (Osprey) claims are the crystalline limestone exposed on (Osprey) claims. This age relationship is based solely on their similarity to the crystalline rocks described by Monger and Paterson. They were examined during the course of evaluating geochemical anomalies. They were not seen in direct contact with lithotypes.

These rocks are in general buff to white in colour and fine to medium crystalline in texture. Compositionally they range from dolomite limestone to dolomite. Bedding was apparently obliterated by the metamorphic event which recrystallized these carbonates. Float of silty carbonates occur. These silty units could be useful as marker horizons during geological mapping.

Late deformation produced a ubiquitous crackle brecciation. The brecciation varies from weak to intense. The stronger the brecciation generally the more dolomitic the rock due in part to healing of the fractures by white to grey dolomite. Locally the breccia has a cement of quartz. Silica flooding of breccia also takes place, but is even more restricted in distribution than is the quartz veining. The boundaries of intense brecciation are gradational.

Therefore the attitude of the brecciation is not defined by work done to present. While it can not be conclusively proven it is believed that the trend of the brecciation is 300 to 320°.

Overlying this Unit is a shale unit. It was seen only at two locations and a contact with other lithotypes was not seen. Its stratigraphic position is interpreted from its topographic location above the limestone outcrops.

These argillaceous rocks are black in colour on fresh surfaces and grey on weathered surfaces. Silt sized clastic material is locally present as thin beds. Other beds contain variable quantities of carbonate and are best classified as argillaceous limestones.

Minor pyrite was observed as disseminated 1 mm cubes. Character samples of the shale did not contain anomalous contents of base metals.

The next overlying unit corresponds to the upper carbonate unit described by Monger. It is predominately a blue grey thick bedded limestone. Internally it is massive and shows few indications of bedding. Texturally it is predominately a micritic mudstone although locally it consists of microspar. Compositionally it is slightly dolomitic.

The micritic mudstone is interbedded with a medium to coarse grained quartz sandstone. The clastic grains are well rounded, well sorted and monomineralic. The sandstone is texturally and compositionally mature and except for the sparry calcite cement would be classified as an orthoquartzite. In some locations the quartz grains were severely etched prior to or at the time the carbonate cement was introduced. The sandstone occurs in cross bedded beds ranging up to 2 metres in thickness. Some of the beds may be considerably thicker as either the upper or lower contact was not observed.

An area of dolomite which is interpreted as being a pervasive alteration of the above limestone. It is a buff coloured rock consisting of very fine grained dolomite spar.

In fault contact with limestone is a thin bedded grey weathering black limestone. It is thought to overlie the blue grey bedded limestone but all contacts seen were fault contacts. The structural positions, of isolated outcrops of this Unit's seen in topographic juxtaposition to the limestone, were always suspect.

This overlying unit is a dark grey weathering limestone which is black to dark grey on fresh surfaces. It is typically a micritic mudstone, but contain micro-crystalline in texture.

A recessive weathering shale bed is seen only as float and rubbly outcrops. The rock seen ranges from light to dark grey in colour is very fissile, and siliceous. Borovic states that chert is common in this unit.

A small area of andesite is known to occur. It is poorly exposed, and its limits are by no means defined. The rock is medium grey in colour and microcrystalline in texture.

#### SOIL GEOCHEMISTRY

131 soil samples were collected along the base of slope above the Wasi logging road. The main focus was around the Wasi Road showing and the gossan 1.7 kms south along the road. Steep slopes prevented previous samplers from sampling these hillsides with grid coverage. The intent of this sampling was to detect mineralization in the areas not covered by the Placer soil grid above. Specifically, the area covered is between the recent Osilinka River gravels and the dolomite cliffs to the northeast edge of the Placer grid.

The material collected was the mineral content material below the organic layer. Downslope soil creep resulting in inverted soil profiles and horizon mixing, talus material and occasional deep organics sitting on rock made routine "B" horizon sampling impossible. Regosols are typical on the slopes and brunisols are found in areas where soil development has occurred on more level ground, although the latter case is rare. Sample depths ranged from 10 to 60 cm with a mode depth of 40 cm. Sample intervals along the lines are 50 metres with 25 metre stations used above the road gossan.

The samples were collected in kraft paper envelopes, air dried as far possible in the field and sent to the Cominco Exploration

Research Laboratory, 1486 East Pender, Vancouver. The samples were hot air dried and submitted for sequential ICP analysis for copper, lead, zinc, silver, arsenic, cobalt, nickel, iron and manganese. Digestion was by 20% nitric acid of a 0.5 gram aliquot of minus 80 mesh material. Barium was done by loose powder XRF.

#### ROCK GEOCHEMISTRY

A total of 28 rock samples were taken from the claims. These samples were selected in the course of prospecting the various soil anomalies and showings cited in previous literature. They represent, in the case of the showings, the general grade found in each exposure. Rock chip samples over measured intervals were taken at the Wasi Road showing. The samples were submitted for the same elemental analysis after crushing and milling as the soil samples.

#### RESULTS

##### SOIL GEOCHEMISTRY

The results are plotted at 1:10,000 on Maps 3, 4 and 5 showing Cu Pb Zn, Ag As Co and Ni Fe Ma Cd respectively. They are discussed below by line number.

##### OS1, OS2

These lines were run above the road gossan in order to test the possible upslope extent of lead and zinc above the gossan. As can be noted on Map 4 and in the results listing (Appendix 1) lead and zinc values show strikingly anomalous levels. A strong correlation can be seen between the two metals and are highest from the 200 to the 400 meter stations on OSI with lead values ranging from 86 to 938 ppm. Similarly, zinc values from a single low of 286 ppm to a high of 8490 ppm are detected. OS2, a shorter line above that joins OS1 at 600 meters reflects a similar pattern as seen in the lower line. The levels encountered here in lead at 250 to 525 metres range from below 100 to 1389 ppm. Zinc values range from background at a number of stations to 12800 ppm. This high zinc value has a corresponding high silver and iron and anomalous arsenic and cadmium. Silver, arsenic and cobalt are plotted on Map 5. Silver anomalies exist coincident with the lead and zinc indications. A maximum of 7.3 ppm is found on OS2 in the area of highest lead/zinc. Arsenic and cobalt do not show any definitive pattern.

Nickel, iron, manganese and cadmium are shown on Map 6. Nickel and manganese show no definitive pattern. Iron values are sporadically elevated in OS2 to 4.3% at one site. OS1, although closer the gossan at the road, does not contain anomalous iron values. Cadmium values are anomalous only on OS1 above the road gossan.

Lead and zinc values of this magnitude in soil samples has successfully indicated significant mineralization beneath in other Cominco region geochemical experience. Their existence at the gossan at the Wasi road as well as the known base metal mineralization at the Gordon showing 500 meters to the south of the anomalous soil samples infers a possible connection of the two mineralized areas. Vegetation cover limits outcrop occurrences in

the area.

N5

N5 was run southwest of the area of OS1,2 in order to test the inferred location of the Devonian Road River shale unit. This unit has hosted significant base metal mineralization elsewhere in the area. The trend of this rock unit leaves the claims at the east border of Osprey 1 and crosses near the topographic knob 600 metres north of the southeast claimpost. The exact location is suspect but it is believed to underly the road gossan and traverse southeast in the creek at the southeast corner of the claims. This line was to determine if additional claims should be added to the Osprey group in the case that this shale unit proved to be mineralized

Copper lead and zinc values shown on Map 3 are consistent with those found on Lines OS1, 2. Copper shows no pattern or anomalies. Significant lead values are found at the 850 to 950 meter stations. This site is above the Rosella limestone unit that is visible from the road and under the soil line. The recessive weathering nature of the Road River shale unit may be responsible for the topographic notch in the ridge at the site of these anomalous samples. Both lead and zinc show anomalous values at this point although zinc is more subdued is somewhat more subdued. Lead continues to be elevated beyond the notch with spot values greater than 200 ppm.

Silver, arsenic and cobalt do shown on map 4 do not show any anomalous patter.

Nickel and manganese shown on map 5 also do not show anomalous levels. Iron however is elevated at the sites of the lead/zinc anomalies.

OS4/OS5

These lines were established at the base of slope below the northeast extent of the 1980 Placer grid. They were intended to detect mineralization in the bluffs above the valley floor. Further, significant zinc/lead mineralization observed in the Wasi Road showing indicated potential for carbonate hosted mineralization in stratigraphy lower than what was targeted by the earlier work.

As can be seen on Map 4, the best lead/zinc values are found at the Wasi road showing (574 Pb, 6258 Zn). No other significant values were detected on OS4 southeast from the showing. Northwest from the showing zinc values are sporadically elevated for 350 metres. Lead shows this pattern also but to a lesser extent. The 1980 soil grid shows an extensive lead/zinc anomaly above this line and downslope dispersion may account for this anomaly. However, the strike of the mineralization at the Wasi Road showing does trend eastward up the hillside into overburden and vegetation and is a more likely source of the zinc anomaly on OS5.

Silver values are elevated at the Wasi Road showing (4.2 ppm) but does not show any anomalous groupings. Arsenic and cobalt similarly do not show any distinct patterns. Nickel and iron are



not anomalous at the showing and show no definitive patterns elsewhere along the lines. Manganese is highly anomalous 50 meters north of the showing (4547 ppm) but is not significant elsewhere along the lines. Cadmium is highly anomalous (75 ppm) at the showing but is anomalous at only one site OS5 (29 ppm) 400 meters northwest of the showing.

#### Soil Geochemistry Summary

-lines OS1 and OS2 show significant anomalies in lead zinc silver and cadmium indicating probable mineralization at or immediately upslope of the lines.

-OS4 shows no significant anomalies

-OS5 has a zinc enrichment northwest of the Wasi Road zinc/lead showing, indicating possible extension of the showing mineralization.

-Copper and manganese are of no significance. Iron and cadmium are of limited interest.

#### ROCK GEOCHEMISTRY

The main focus of the rock sampling was at the Wasi Road showing. This dolomite exposure was found upon initial inspection to host significant zinc/lead mineralization that was not elaborated on in previous literature. The surface plan shown on Map 2 contains chip and grab sample locations sites and zinc/lead values obtained in those samples. One grab sample of talus material returned 35.1% zinc. Blocks of this material in the 10-20 cm diameter range are common in the talus far below the showing. Two metric chip samples, as shown on the plan, run from 1 to 15% zinc with minor lead. The mineralization is replacement of porous dolomite and dolomite breccia with zinc rich dolospar and calcite. The chaotic collapse breccia has pervasive sphalerite throughout with higher grade sections found in apparent shear zones or areas of greater original porosity. Geochemical values in excess of a calculated 4% Pb/Zn have been submitted for assay but are not available at this time.

11 rock samples were taken in the course of prospecting the property and confirming previous work. The results are posted on Maps 4, 5 and 6 and reported in Appendix 2.

The best results confirm those cited in previous literature at the Garden and Davis showing. OSR 8 is taken from the Gordon showing and is of the limonite that makes the gossan. All visible sulphide has been weathered out having the orange iron rich (47%) cap. OSR 9 is a select sampling of hydrozincite rubble at the Davies north showing hand trenches. These values are considered representative of the metal values over the general area. Mineralization is pink to red sphalerite hosted in a crackle breccia dolomite, the same as that found at the Davies showing to the south. This style of mineralization was found to be the source of the widespread soil anomalies detected in the 1980 program. OSR 10 is a selected grab sampling of visible mineralization and reflects higher lead values due to the more visible galena mineralization taken in the sampling. Silver values are anomalously high and iron is anomalously low.

The other samples taken in the course of routine prospecting did not return encouraging results as can be seen on the plots and Appendix 2.


#### CONCLUSIONS AND RECOMMENDATIONS

The work done by Placer Development in 1979 was a competent and complete geochemical and followup geological effort. The interest in the property has however, shifted stratigraphically and topographically to the area on the lower hillside on the south side of the Osilinka River. Other Cominco geochemistry in the region has proven soil geochem as a very reliable prospecting tool even in areas of suspected deep overburden or colluvium.

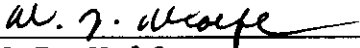
More extensive mapping and prospecting is required in the bluffy areas not covered by the Placer grid. More extensive soil sampling is required in order to test the lateral extent of the geochemical signature found above the road gossan and line N5. Further sampling is required above the Wasi road showing and below the Davies north.

Pending the results of this work, backhoe trenching should be initiated, guided by the soil anomalies. The oxidized cap on the Gordon showing may be too deep to trench to bedrock and may need to be drilled to test the underlying fresh rock. The Wasi Road showing requires a road to be built above to act as both a trench to expose bedrock and as a drill access road. A DDH hole/holes should also be drilled off the lower edge of the showing on the alluvium in order to test the down dip extension to the mineralization.

Report by:

  
\_\_\_\_\_  
S.B. Noakes  
Senior Geologist

Approved for  
Release by:

  
\_\_\_\_\_  
W.J. Wolfe  
Manager, Exploration  
Western District

STATEMENT OF EXPENSES

Staff costs:

Cominco Geologists:

S.B. Noakes 11 days @ \$275 (Sept.16-23, Nov.5-7)	3,025
A.B. Mawer 4 days @ \$500 (Sept.18-20, Oct. 25)	2,000

Consulting Geologist:

Dunham Craig 3 days @ \$300 (June 3, July 15-16)	900
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Domicile: 18 man days @ \$60/day	1,080
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Truck rental plus mileage charges:	1,950
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Sampling equipment and shipping charges:	150
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Geochem analysis:

28 rock samples @ \$12/ea	336
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8 Pb/Zn assays @ \$21/ea	168
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141 soil samples @ \$ 9/ea	1,269
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Communications: telephone, radio rentals etc.	100
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Drafting:	<u>600</u>
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<b>TOTAL:</b>	<b>\$11,578</b>
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STATEMENT OF QUALIFICATIONS

I, S.B. Noakes, with business address at 700-409 Granville Street, Vancouver, B.C. V6C 1T2, do hereby certify that I have conducted and supervised the field work during the 1991 field season and have assessed and interpreted the data resulting from this work on the Osprey 1-4 claims.

I also certify that:

1. I am a graduate of Simon Fraser University (B.A. Physical Geography 1982)
2. I have and am continuing to audit selected geology courses at the University of British Columbia.
3. I have been employed by Cominco Ltd. in a full time position since August 1981, first as a geochemical technician and subsequently (1989) as a geologist.
4. I am a member of the Association of Exploration Geochemists.



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S.B. Noakes  
Geologist,  
Project Development

**APPENDIX 1**

**LISTING OF SOIL SAMPLE RESULTS**

OSPREY CLAIMS. SOIL CONTOUR RESULTS

Report date 21 OCT 1991  
ANALYTICAL METHODS

Ba X-Ray fluorescence / loose powder  
Cu 20% HNO3 decomposition / I.C.F. analysis  
Pb 20% HNO3 decomposition / I.C.F. analysis  
Zn 20% HNO3 decomposition / I.C.F. analysis  
Ag 20% HNO3 decomposition / I.C.F. analysis  
As 20% HNO3 decomposition / I.C.F. analysis  
Co 20% HNO3 decomposition / I.C.F. analysis  
Ni 20% HNO3 decomposition / I.C.F. analysis  
Fe 20% HNO3 decomposition / I.C.F. analysis  
Mn 20% HNO3 decomposition / I.C.F. analysis  
Cd 20% HNO3 decomposition / I.C.F. analysis

108 prefix has been eliminated from the field number.  
STATION values are in metres.  
All results are in PPM except Fe which is in PERCENT.

LAB #	FIELD#	LINE	STATION	CU	PB	ZN	AG	AS	CO	NI	FE	MN	CD
4446	501	OS1	0	8	85	216	0.5	6	5	15	3.76	429	1
4447	502	OS1	25	10	39	133	0.7	13	1	16	1.68	236	1
4448	503	OS1	50	12	55	180	1.1	8	3	21	1.58	322	1
4449	504	OS1	75	9	60	103	0.8	2	1	16	2.51	245	1
4450	505	OS1	100	30	45	135	0.8	8	8	26	2.82	547	1
4451	506	OS1	125	1	30	68	2.3	7	1	7	1.47	358	1
4452	507	OS1	150	2	215	1421	1.2	8	1	28	2.7	458	18
4453	508	OS1	175	3	85	225	1.2	2	1	12	2.49	445	5
4454	509	OS1	200	1	124	1743	1.2	5	1	24	1.58	335	22
4455	510	OS1	225	1	86	1383	0.4	3	1	29	1.33	299	14
4456	511	OS1	250	1	174	1553	0.4	2	1	36	1.64	468	23
4457	512	OS1	275	1	98	1248	0.8	5	1	27	1.5	340	17
4458	513	OS1	300	12	938	8490	4.3	8	1	13	3.49	758	18
4459	514	OS1	325	1	196	1276	0.5	7	1	14	1.57	256	2
4460	515	OS1	350	12	365	2129	0.7	5	2	27	2.44	244	3
4461	516	OS1	375	17	87	286	0.4	9	9	20	3.07	508	1
4462	517	OS1	400	3	686	1281	2.2	6	1	13	1.84	508	5
4463	518	OS1	425	11	232	511	0.7	10	6	18	1.88	504	4
4464	519	OS1	450	7	141	257	1.4	6	1	15	1.39	288	2
4465	520	OS1	475	19	219	479	0.7	10	4	22	1.71	380	4
4466	521	OS1	500	10	278	509	0.4	9	9	29	3.19	511	5
4467	522	OS1	525	13	261	585	1	7	3	15	1.76	725	5
4468	523	OS1	550	3	215	292	0.4	3	9	13	3.16	527	2
4469	524	OS1	575	9	541	344	0.5	3	7	28	2.02	572	3
4470	525	OS1	600	1	515	542	0.4	5	7	15	2.81	643	5
4471	526	OS1	625	3	176	256	0.4	3	7	14	2.84	129	1
4472	527	OS1	650	1	97	69	1	2	1	12	1.38	412	1
4473	528	OS1	675	7	41	55	1	11	3	19	2.31	262	1
4474	529	OS1	700	15	86	141	0.8	13	7	24	2.28	588	1
4475	530	OS1	725	10	116	131	0.4	5	4	18	1.92	347	1
4476	531	OS1	750	15	179	115	0.4	5	5	15	2.61	491	1
4477	532	OS1	775	7	217	99	0.4	5	5	15	2.22	579	1
4478	533	OS1	800	1	150	52	0.4	5	1	8	0.85	333	1
4479	534	OS1	825	7	88	37	0.4	2	6	15	2.7	322	1
4480	535	OS1	850	14	28	31	0.4	5	7	18	2.18	218	1
4481	536	OS1	875	1	304	56	0.4	6	1	9	1.78	825	1
4482	537	OS1	900	1	34	37	0.4	6	1	3	0.53	337	1
4483	538	OS2	0	3	58	186	0.4	11	4	16	2.08	411	1
4484	539	OS2	25	4	35	201	0.4	14	4	17	1.93	148	1
4485	540	OS2	50	6	10	37	0.4	4	1	10	0.47	163	1
4486	541	OS2	75	6	41	142	0.9	13	2	16	1.61	369	1
4487	542	OS2	100	7	40	365	0.4	17	5	17	1.8	776	4
4488	543	OS2	125	6	14	92	0.4	3	1	6	0.41	14	1
4489	544	OS2	150	1	44	123	0.4	3	1	10	1.99	781	1
4490	545	OS2	175	6	44	73	0.4	5	1	15	2.3	274	1
4491	546	OS2	200	1	53	150	0.5	6	1	6	3.88	1133	5
4492	547	OS2	225	3	58	62	1	8	1	10	3.24	222	1
4493	548	OS2	250	9	393	3473	0.4	7	7	66	4.21	369	25
4494	549	OS2	275	1	65	152	0.6	3	1	13	1.03	279	3
4495	550	OS2	300	1	91	727	0.4	4	1	18	1.97	352	4
4496	551	OS2	325	1	69	269	1.2	8	1	12	1.65	345	2
4497	552	OS2	350	3	112	202	0.7	5	4	22	3.2	384	1
4498	553	OS2	375	7	255	2631	0.9	2	4	22	3.75	720	4
4499	554	OS2	400	6	879	316	1.1	6	1	13	2.16	692	2
4500	555	OS2	425	11	302	992	0.4	7	15	17	3.41	1361	5
4501	556	OS2	450	11	1389	12800	7.3	19	1	8	4	921.45	20
4502	557	OS2	475	3	234	1351	0.4	10	7	13	4.3	426	6
4503	558	OS2	500	1	195	185	0.4	6	1	12	1.28	396	1
4504	559	OS2	525	4	671	607	0.4	7	9	16	4.52	1355	5
4505	560	OS2	550	1	96	83	0.9	2	1	9	1.52	331	1

LAB #	FIELD#	LINE	STATION	CU	PB	ZN	AG	AS	CO	NI	FE	MN	CD
4506	561	0S2	575	7	39	83	0.4	14	1	17	1.59	225	1
4507	562	0S2	600	14	289	531	0.7	9	11	25	3.74	1294	10
4511	566	0S3	200	69	32	156	0.4	13	14	37	2.76	613	1
4512	567	0S4	0	23	574	6258	4.2	16	4	10	2.53	687	72
4513	568	0S4	50	31	29	345	0.5	2	11	16	2.34	358	1
4514	569	0S4	100	21	4	133	0.4	7	7	21	1.48	353	1
4515	570	0S4	150	4	76	342	0.4	3	1	9	1.22	1801	5
4516	571	0S4	200	52	29	404	0.6	16	6	53	1.65	204	4
4517	572	0S4	250	24	36	295	2.7	9	5	35	2.03	195	2
4518	573	0S4	300	1	11	45	0.5	11	1	8	1.09	368	1
4519	574	0S4	350	1	27	129	0.4	12	1	13	1.04	1235	4
4520	575	0S4	400	2	222	57	0.4	12	1	8	1.92	1567	1
4521	576	0S4	450	2	44	47	0.4	11	1	16	1.14	1618	1
4522	577	0S4	500	5	10	170	0.7	4	1	7	0.76	2546	5
4523	578	0S4	550	15	44	452	0.4	7	5	13	1.48	2566	12
4524	579	0S4	600	31	24	176	0.4	4	9	33	2.27	553	1
4525	580	0S4	650	14	23	343	0.4	11	9	30	2.54	286	1
4526	581	0S4	700	29	74	85	0.4	8	1	25	1.33	1599	2
4527	582	0S4	750	12	15	60	0.4	9	6	17	1.84	414	1
4528	583	0S4	800	1	4	48	0.6	2	1	3	0.52	387	1
4529	584	0S4	850	4	49	103	0.4	2	1	13	1.54	429	1
4530	585	0S4	900	8	29	140	0.4	6	7	22	2.09	255	1
4531	586	0S4	950	1	18	95	0.4	7	1	4	1.09	1920	2
4532	587	0S4	1000	8	25	149	0.5	9	5	20	2.78	776	1
4533	588	0S4	1050	33	9	62	0.4	7	10	41	2.31	343	1
4534	589	0S4	1100	1	10	133	0.4	3	1	5	0.8	1348	3
4535	590	0S4	1150	17	59	267	0.9	10	3	22	1.47	515	4
4536	591	0S5	50	6	48	637	0.4	6	3	12	1.12	4547	11
4537	592	0S5	100	4	49	768	0.4	5	1	6	1.08	1159	8
4538	593	0S5	150	19	36	927	0.4	15	9	58	2.83	235	5
4539	594	0S5	200	50	21	618	1.4	11	7	56	1.52	256	12
4540	595	0S5	250	34	66	572	0.6	17	9	58	2.49	812	14
4541	596	0S5	300	10	90	399	0.4	14	5	25	1.94	842	11
4542	597	0S5	350	4	143	853	0.4	27	8	33	3.03	703	7
4543	598	0S5	400	5	47	330	0.4	14	5	16	1.68	177	2
4544	599	0S5	450	29	24	535	1	4	3	20	1.25	589	29
4545	600	0S5	500	25	11	166	0.5	7	3	15	0.54	467	10
4546	601	0S5	550	2	64	354	0.4	7	1	19	1.25	574	3
4547	602	0S5	600	6	44	447	0.4	9	1	21	0.92	778	9
4548	603	0S5	650	5	48	180	0.4	5	8	6	1.37	389	3
4549	604	0S5	700	4	33	144	0.7	13	2	15	1.09	284	2
4550	605	0S5	750	8	53	155	0.4	8	4	14	1.51	712	5
4551	606	0S5	800	11	31	144	0.4	7	11	21	2.16	333	2
4552	607	0S5	850	23	23	169	0.9	5	19	24	3.46	316	4
4553	608	0S5	900	5	24	124	0.5	4	3	9	1.63	1411	3
4554	609	0S5	950	9	11	221	0.8	4	4	22	0.82	3262	23
4555	610	0S5	1000	52	24	710	1.2	18	6	70	1.82	269	7
4556	611			1	126	13	0.6	4	1	5	7.71	563	1
4557	612			1	116	41	0.8	8	1	6	7.27	559	1
4558	614			2	2936	11400	0.4	2	1	85	7.74	510	59



LAB #	FIELD#	LINE#	CU	PB	ZN	AG	AS	CO	NI	FE	MN
S9133142	145382	N5	26	11	163	0.4	4	9	16	2.81	651
S9133143	145383	N5	19	5	83	0.4	7	7	16	2.15	202
S9133144	145384	N5	64	57	129	0.4	14	15	52	3.2	374
S9133145	145385	N5	15	46	110	0.4	3	7	22	2.42	343
S9133146	145386	N5	18	43	66	0.6	4	7	19	2.64	313
S9133147	145387	N5	25	66	72	0.4	2	10	27	2.45	204
S9133148	145388	N5	8	174	78	0.4	10	4	14	6.19	428
S9133149	145389	N5	8	190	141	0.4	10	10	19	3.01	409
S9133150	145390	N5	12	77	91	0.5	5	11	25	3.49	349
S9133151	145391	N5	19	115	183	0.4	4	9	25	2.64	588
S9133152	145392	N5	9	109	126	0.4	10	7	17	3.08	695
S9133153	145393	N5	2	71	58	0.4	5	1	9	1.33	534
S9133154	145394	N5	7	69	66	0.7	2	1	10	1.65	205
S9133155	145395	N5	7	110	112	0.4	4	5	14	2.13	589
S9133156	145396	N5	6	129	164	0.4	5	5	12	2.84	468
S9133157	145397	N5	6	70	93	0.4	3	1	11	1.58	289
S9133158	145398	N5	6	73	73	0.4	2	1	11	1.52	317
S9133159	145399	N5	11	923	332	0.4	8	9	25	3.32	840
S9133160	145400	N5	4	490	450	0.4	4	4	14	3.13	1227
S9133161	145401	N5	5	509	195	0.4	4	6	13	2.64	657
S9133162	145402	N5	8	500	368	0.4	7	7	18	3.37	1108
S9133163	145403	N5	46	112	68	1.7	2	8	27	1.86	471
S9133164	145404	N5	18	209	83	0.4	6	7	23	2.44	572
S9133165	145405	N5	17	141	98	0.4	6	8	21	2.12	458
S9133166	145406	N5	13	214	168	0.4	10	8	21	2.68	629
S9133167	145407	N5	9	67	58	0.4	9	1	13	0.84	321
S9133168	145408	N5	9	34	47	0.4	2	1	11	0.61	259
S9133169	145409	N5	13	166	191	0.4	8	5	18	1.7	685
S9133170	145410	N5	43	170	248	0.7	8	10	48	2.1	515
S9133171	145411	N5	32	284	395	0.4	5	14	41	2.84	1044
S9133172	145412	N5	26	43	148	0.6	6	7	40	1.41	883
S9133173	145413	N5	36	24	192	0.4	4	8	55	1.59	866

**APPENDIX 2**

**ROCK SAMPLING RESULTS**

OSPREY PROPERTY: PROSPECTING RECCE ROCK GEOCHEMISTRY

LAB NO	FIELD#	DESCRIPTION	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Co ppm	Ni ppm	Fe %	Mn ppm	Cd ppm
R9112720	OSR1	DOL. PY. BRECCIA	26	49	568	1.3	8	30	55	6.37	<5	2
R9112721	OSR2	2 M. CHIP PY DOL.	<1	4	92	<.4	<2	<1	6	3.91	384	<1
R9112722	OSR3	ROAD O/C PY SHALE	18	7	169	.5	6	9	30	2.19	252	2
R9112723	OSR4	SANDY DOL. FERROCRETE	<1	46	22	<.4	2	<1	1	5.08	122	<1
R9112724	OSR5	BLACK ARG. MDSTONE	4	9	33	<.4	3	<1	3	.35	10	<1
R9112725	OSR6	PY. DOL. BRECCIA	<1	163	26	1.9	9	<1	<1	E20.87	124	<1
R9112726	OSR7	PY. DOL. BRECCIA	<1	118	10	1.1	32	<1	1	E16.41	237	<1
R9112727	OSR8	LIMONITE FROM GORDON	10	4257	E13000	<.4	324	3	62	E47.01	259	55
R9112728	OSR8.5	DOL. HOST/GORDON	<1	32	107	<.4	8	<1	1	.20	166	3
R9112729	OSR9	CRACKLE BRECCIA.DAVIES N.	11	5422	E12800	14.7	7	<1	<1	.10	98	106
R9112730	OSR10	" " .DAVIES N.	3	E10922	9060	14.6	6	<1	2	.25	260	92

ANALYTICAL METHODS

- Ba(4) X-Ray fluorescence / pressed pellet
- Cu Aqua Regia decomposition / I.C.P. analysis
- Pb Aqua Regia decomposition / I.C.P. analysis
- Zn Aqua Regia decomposition / I.C.P. analysis
- Ag Aqua Regia decomposition / I.C.P. analysis
- As Aqua Regia decomposition / I.C.P. analysis
- Co Aqua Regia decomposition / I.C.P. analysis
- Ni Aqua Regia decomposition / I.C.P. analysis
- Fe Aqua Regia decomposition / I.C.P. analysis
- Mn Aqua Regia decomposition / I.C.P. analysis
- Cd Aqua Regia decomposition / I.C.P. analysis

FAR-ND

OSPREY

WASI ROAD SHOWING  
ROCK SAMPLE RESULTS.

JOB V 91-0628R  
REPORT DATE 21 OCT 1991

LAB NO	FIELD NUMBER	Pb PPM	Zn PPM	Ag PPM	AU PPB	WT AU GRAM	BA(4) PPM
R9112731	M91R254	976	E13600	1.8	<10	5	
R9112732	M91R255	107	E40600	36.5	<10	5	
R9112733	M91R256	26	E19100	15.1	<10	5	
R9112734	M91R257	37	E11180	6.6	<10	5	
R9112735	M91R258	29	E25100	13	<10	5	
R9112736	M91R259	1590	E17200	7.4	<10	5	
R9112737	M91R260	3440	E16300	4.5	<10	5	
R9112738	M91R261	930	E19800	9	<10	5	
R9112739	M91R262	2130	E66200	17.9	<10	5	
R9112740	M91R263	753	E15100	5.1	<10	5	
R9112741	M91R264	277	E53600	36.2	<10	5	
R9112742	M91R265	2340	E13400	4	<10	5	
R9112743	M91R266	861	E16800	4.9	<10	5	
R9112744	M91R267	2040	E24600	8.1	<10	5	
R9112745	M91R268	214	E16000	7	<10	5	
R9112746	M91R269	3290	E102700	30.5	<10	5	
R9112747	M91R270	3220	E158000	34.1	<10	5	
R9112748	M91R271	673	E66800	18.8	<10	5	
R9112749	M91R272	313	E67700	46.9	<10	5	

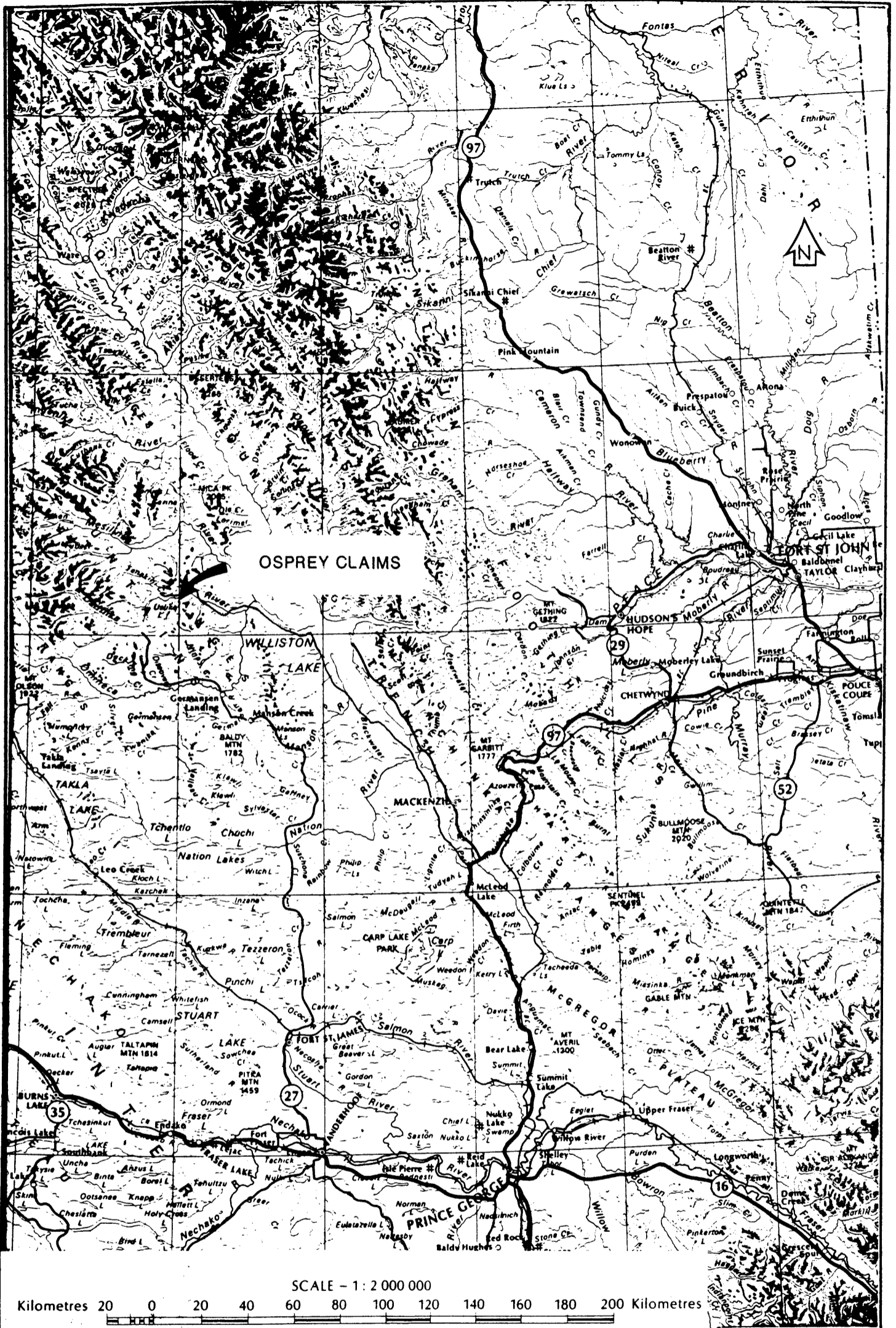
I=INSUFFICIENT SAMPLE X=SMALL SAMPLE E=EXCEEDS CALIBRATION C=BEING CHECKED R=REVISED  
IF REQUESTED ANALYSES ARE NOT SHOWN, RESULTS ARE TO FOLLOW

ANALYTICAL METHODS

- Pb AQUA REGIA DECOMPOSITION / AAS
- Zn AQUA REGIA DECOMPOSITION / AAS
- Ag AQUA REGIA DECOMPOSITION / AAS
- AU AQUA REGIA DECOMPOSITION / SOLVENT EXTRACTION / AAS
- WT AU THE WEIGHT OF SAMPLE TAKEN TO ANALYSE FOR GOLD (GEOCHEM)
- BA(4) X-RAY FLUORESCENCE / PRESSED PELLET

## REFERENCES

- Monger, J.W.H. and Paterson, I.A.  
1974: Upper Paleozoic and Lower Mesozoic Rocks of the Omineca Mountains: in Report of Activities, April to October 1973, Geological Survey of Canada, Paper 74-1A.
- Jenkins, D.M.  
1980: A report on the Geochemical Survey and Geological Mapping of Portions of the Alfie 1 to 4 Claims. Placer Development Limited, Mineral Resources Branch Assessment Report No. 8324
- Halleran, W.  
1988. Property Submission of the Osprey Claims, Report to Cominco Ltd. Received May 31, 1988.



OSPREY CLAIMS

SCALE - 1:2 000 000

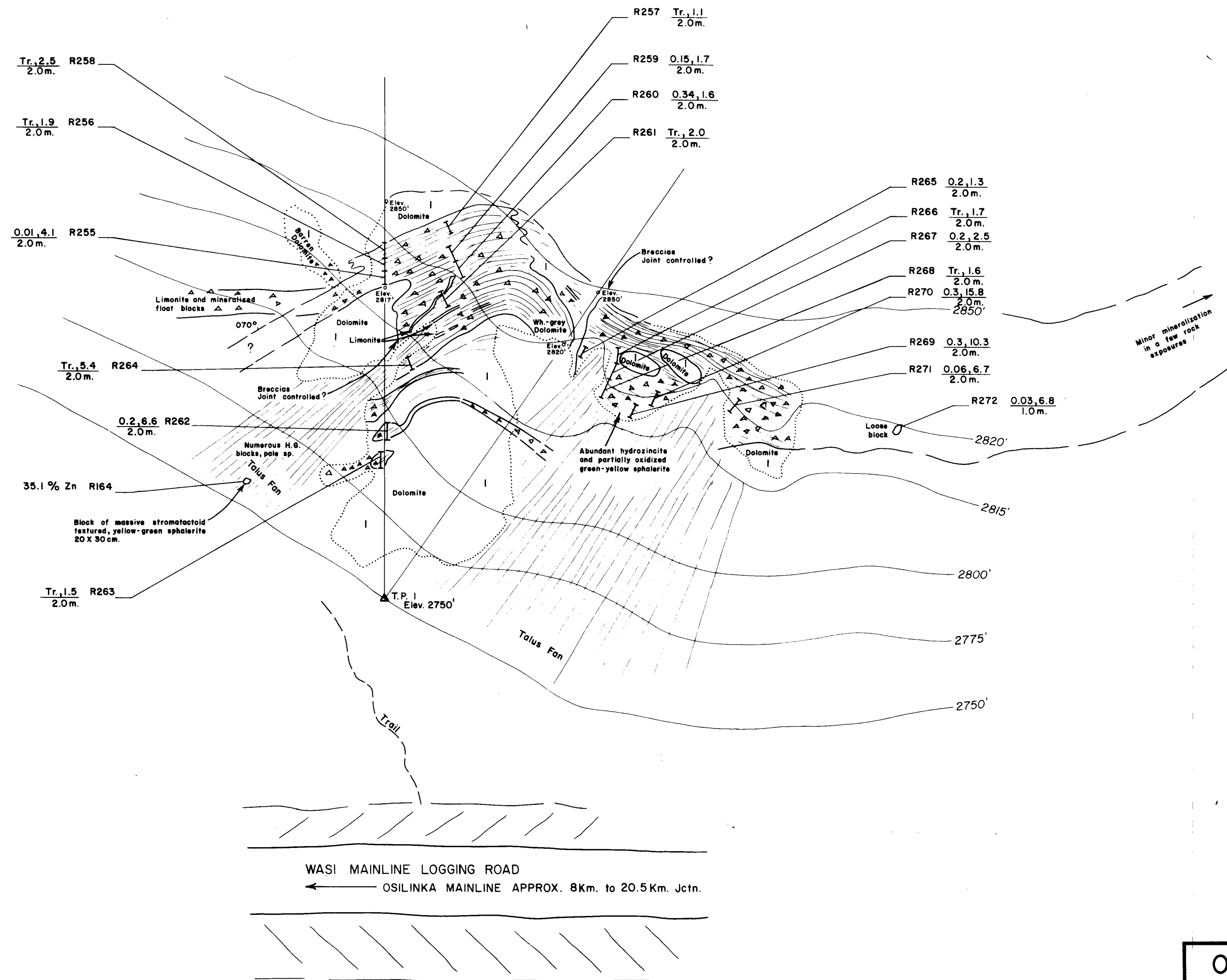
Kilometres 20 0 20 40 60 80 100 120 140 160 180 200 Kilometres

ELEVATION IN METRES ABOVE SEA LEVEL

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

OSPREY CLAIMS LOCATION

Scale: 1:2,000,000 Date: Nov 22 1991 Plate: 1



Mineralization : Pale colored sphalerite, yellow - green to lt. grey, tr. py - gl

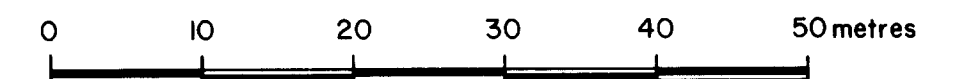


Chaotic collapse breccia with mineralization, dolspar, calcite, stromatoloid to zebra textured



Dolomite : Blue - grey, med. xline, massive bedded, has poker chip to random silic. lams

Sample =  $\frac{\text{No. } \% \text{ Pb, } \% \text{ Zn}}{\text{width in metres}}$



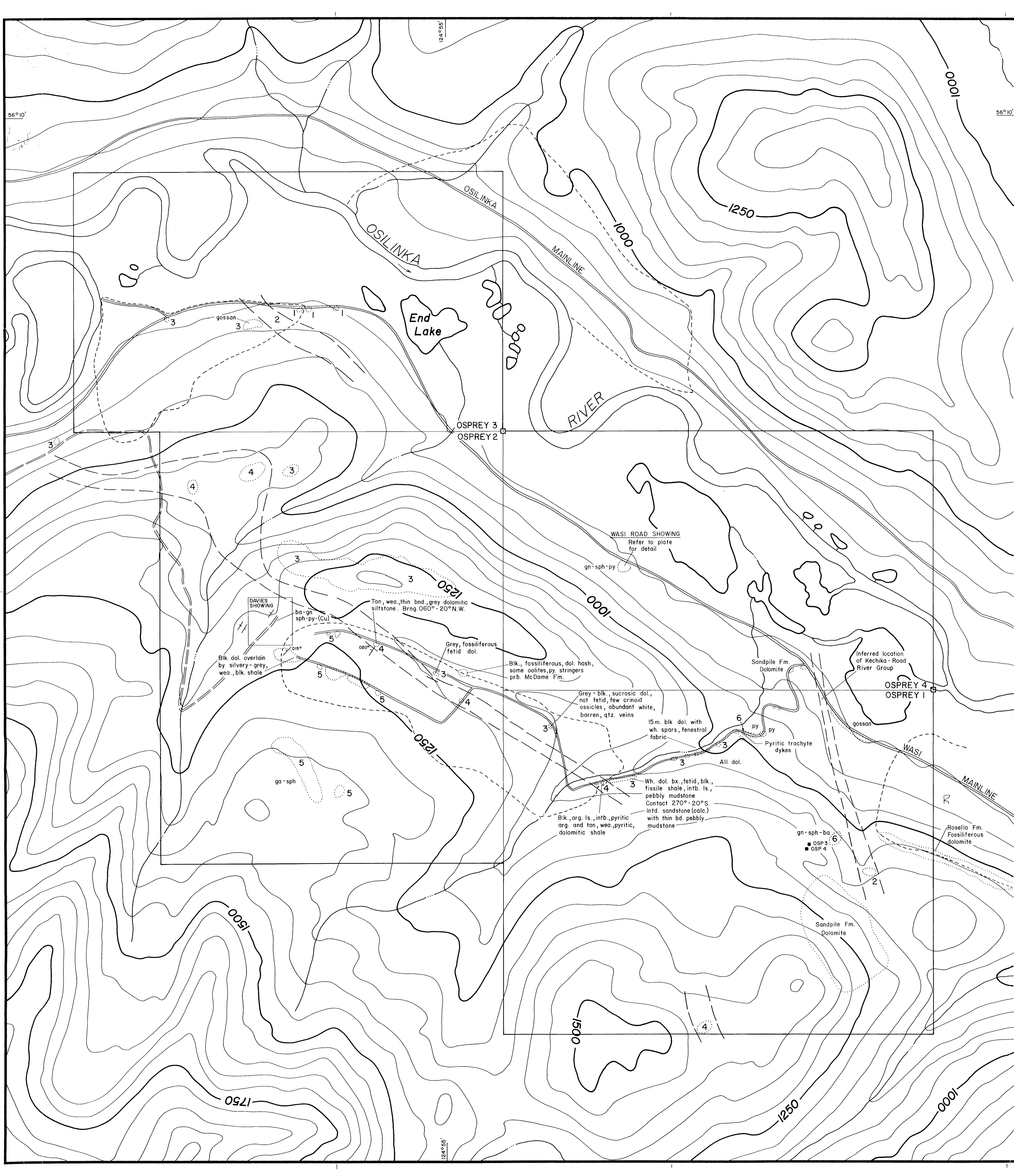
Chain and compass - A. B. Mawer 20-9-91

OSPREY PROPERTY



Drawn by: A.B.M.	Traced by: a.m.a.
Revised by: _____	Revised by: _____
Date: _____	Date: _____

WASI ROAD SHOWING  
SURFACE PLAN  
GEOLOGY and SAMPLE LOCATIONS  
OMINECA M.D., B.C.  
Scale: 1 : 500 Date: Oct. 25, 1991 Plate: 2

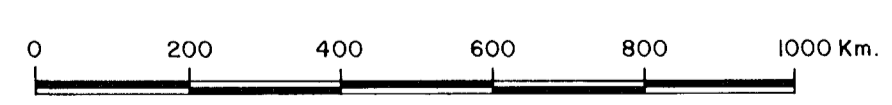


**LEGEND**

- Mineralization (py) pyrite, (gl) galena, (sp) sphalerite, (ba) barite
- 6 Trachyte Intrusive
  - 1 Earn Group - Black argillite, siltstone, mudstone
  - 5 McDame Group - Grey to black, fetid, fossiliferous limestone and dolomite
  - 1,3,4 Sandpile Group - Mainly wh. to grey dolomite, upper part is arenaceous, interbedded shale, pebbly mudstone
  - 2 Road River Group - Black, graptolitic argillite, siltstone, mudstone
  - Kechika Group - Black carbonaceous dolomite
  - R/B Atan Group -
    - Rosella Fm. - Thick bedded, platy limestone - dolomite, fossiliferous
    - Boya Fm. - Orthoquartzite, green siltstone, shales, minor sandstone
- Note: Legend numbers refer to original mapping by W. Halleran

**SYMBOLS**

- Road
- Clearing boundary
- Claim boundary with L.C.P.
- Creek
- Sample location
- Geological contact

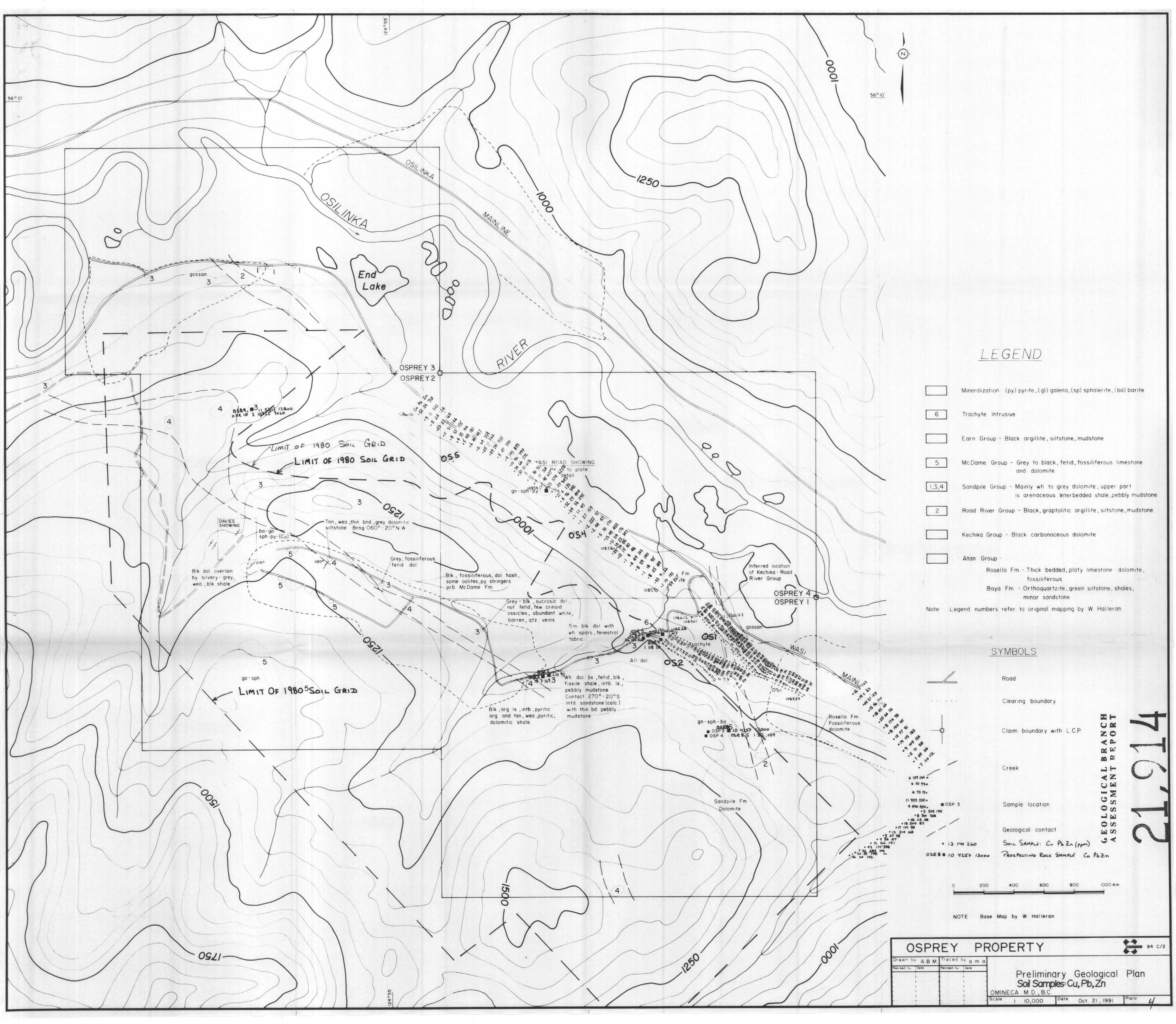


NOTE: Base Map by W. Halleran

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**  
 21,914

<b>OSPREY PROPERTY</b>		94 C/2
Drawn by: A.B.M.	Traced by: a.m.a.	<b>Preliminary Geological Plan</b> OMINECA M.D., B.C. Scale: 1 : 10,000 Date: Oct. 21, 1991 Plate: 3
Revised by: _____	Revised by: _____	





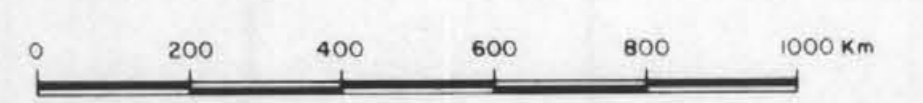
**LEGEND**

- Mineralization (py) pyrite, (gl) galena, (sp) sphalerite, (ba) barite
- 6 Trachyte Intrusive
- Earn Group - Black argillite, siltstone, mudstone
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- 1,3,4 Sandpile Group - Mainly wh to grey dolomite, upper part is arenaceous interbedded shale, pebbly mudstone
- 2 Road River Group - Black, graptolitic argillite, siltstone, mudstone
- Kechika Group - Black carbonaceous dolomite
- Atan Group -
  - Rosella Fm - Thick bedded, platy limestone dolomite, fossiliferous
  - Boya Fm - Orthoquartzite, green siltstone, shales, minor sandstone

Note Legend numbers refer to original mapping by W Halleran

**SYMBOLS**

- Road
- Clearing boundary
- Claim boundary with LCP
- Creek
- Sample location
- Geological contact
- SOIL SAMPLE: Cu Pb Zn (ppm)
- PROSPECTING ROCK SAMPLE Cu Pb Zn



NOTE Base Map by W Halleran

**OSPREY PROPERTY** 94 C/2

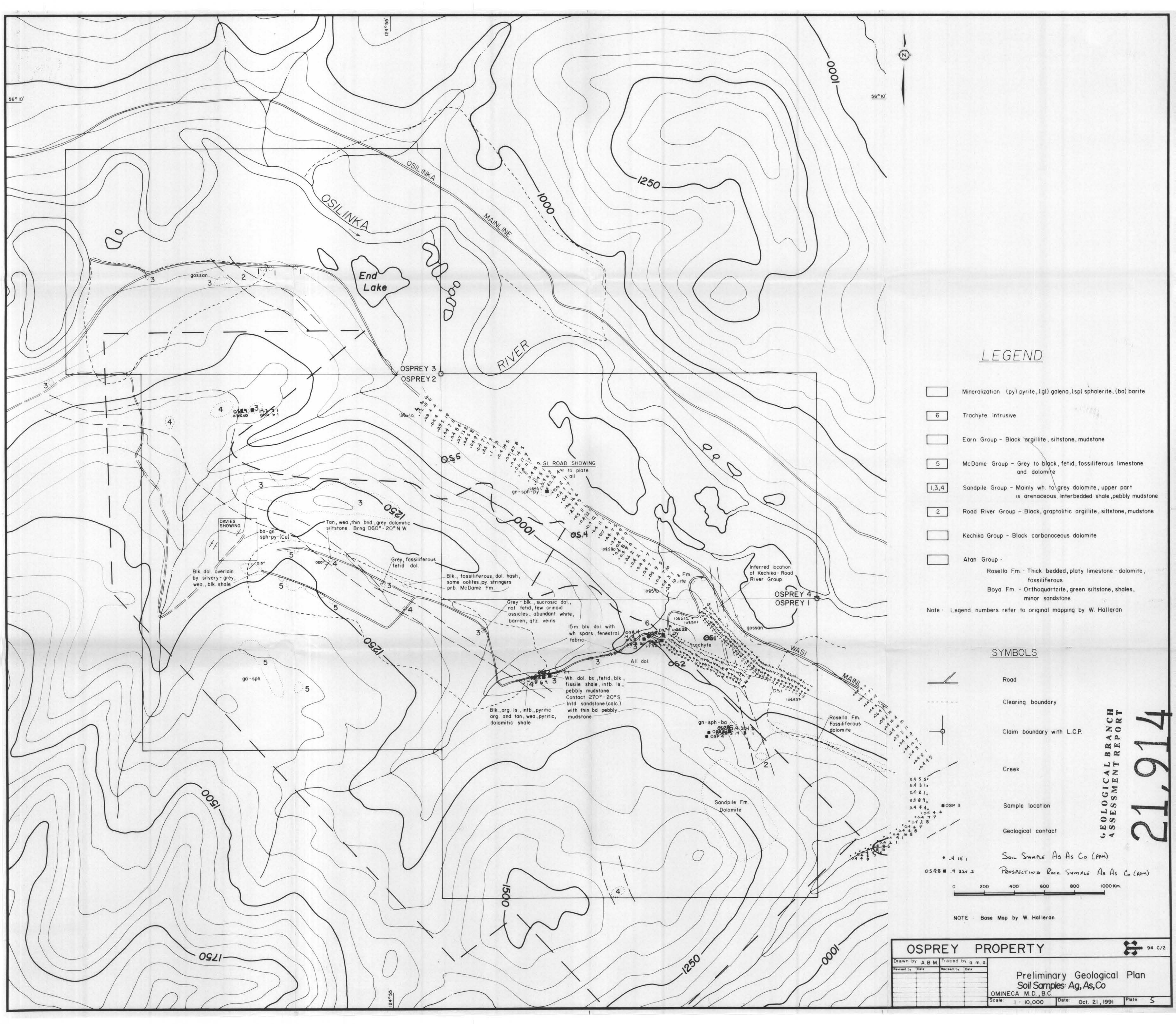
Drawn by ABM Traced by a m a	
Revised by	Date

Preliminary Geological Plan  
Soil Samples: Cu, Pb, Zn

OMINECA M.D., B.C.

Scale 1:10,000 Date Oct. 21, 1991 Plate 4

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**  
21,914



**LEGEND**

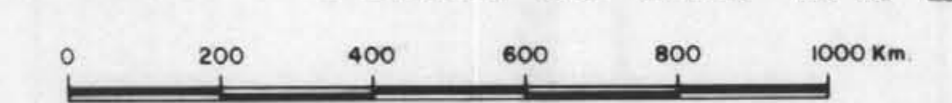
- Mineralization (py) pyrite, (gl) galena, (sp) sphalerite, (ba) barite
- 6 Trachyte Intrusive
- Earn Group - Black argillite, siltstone, mudstone
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- Atan Group -  
 Rosella Fm - Thick bedded, platy limestone - dolomite, fossiliferous  
 Boya Fm - Orthoquartzite, green siltstone, shales, minor sandstone

Note: Legend numbers refer to original mapping by W. Halleran

**SYMBOLS**

- Road
- Clearing boundary
- Claim boundary with L.C.P.
- Creek
- Sample location
- Geological contact

• 4 15 1 Soil Sample As As Co (ppm)  
 OSR8 • 4 224 2 PROSPECTING & ROCK SAMPLE As As Co (ppm)



NOTE: Base Map by W. Halleran

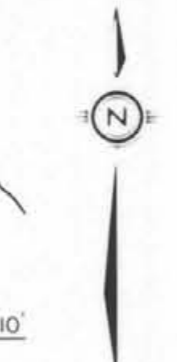
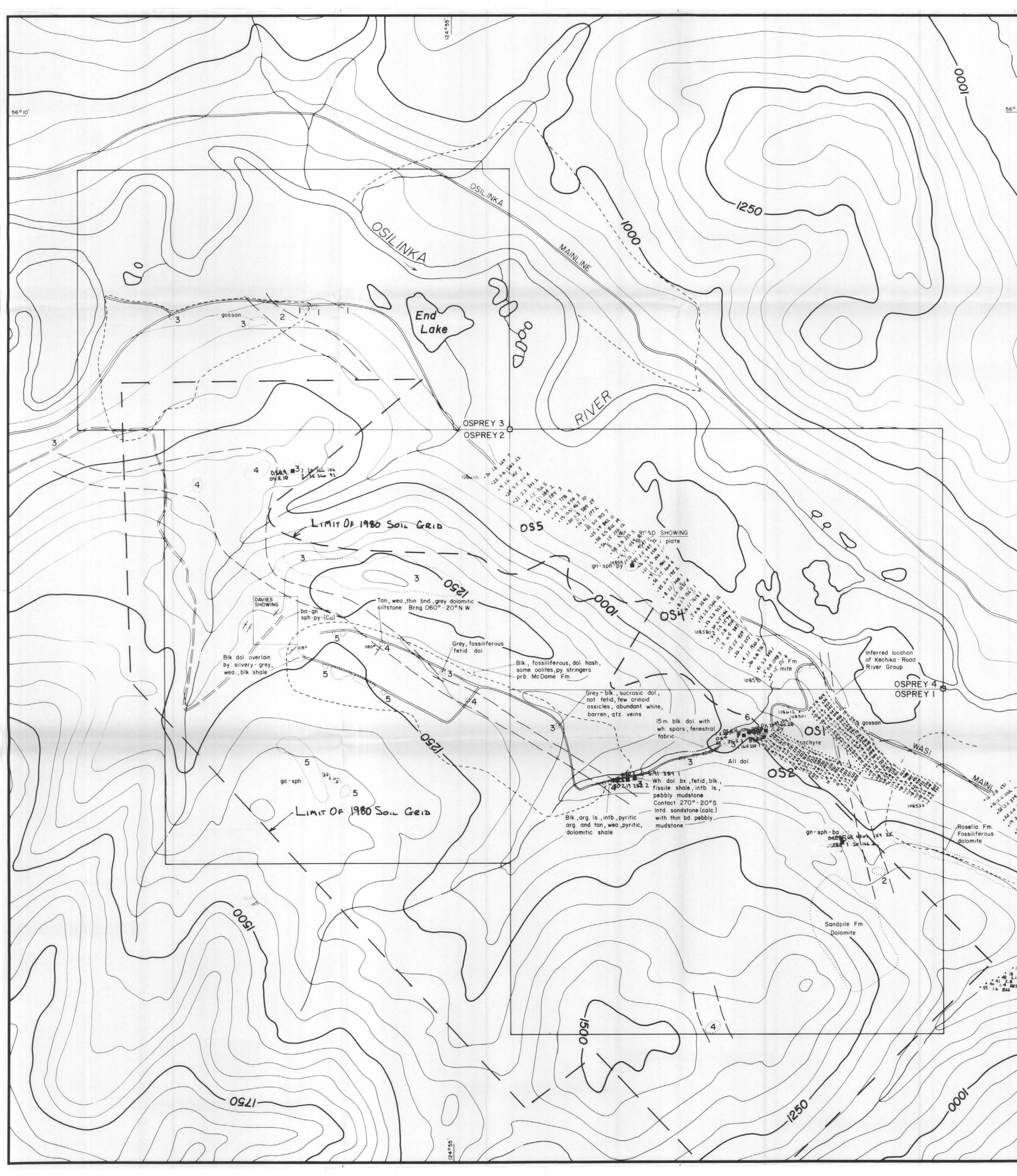
**OSPREY PROPERTY** 94 C/2

Drawn by ABM		Traced by am a	
Revised by	Date	Revised by	Date

Preliminary Geological Plan  
 Soil Samples Ag, As, Co  
 OMINECA M.D., B.C.  
 Scale: 1 : 10,000 Date: Oct. 21, 1991 Plate: 5

**GEOLOGICAL BRANCH ASSESSMENT REPORT**

**21,914**



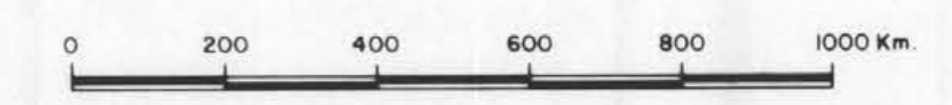
**LEGEND**

- Mineralization (py) pyrite, (gl) galena, (sp) sphalerite, (ba) barite
- 6 Trachyte Intrusive
- Earn Group - Black argillite, siltstone, mudstone
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- Atan Group -
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  - Boya Fm - Orthoquartzite, green siltstone, shales, minor sandstone

Note: Legend numbers refer to original mapping by W. Halleran

**SYMBOLS**

- Road
- Clearing boundary
- Claim boundary with L.C.P.
- Creek
- Sample location
- Geological contact
- SOIL SAMPLE Ni, Fe(%) Mn Cd (ppm)
- PROSPECTING ROCK SAMPLE Ni, Fe(%) Mn Cd (ppm)



NOTE: Base Map by W. Halleran

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT  
21,914**

<b>OSPREY PROPERTY</b>		94 C/2
Drawn by A.B.M.	Traced by a.m.d.	
Revised by	Date	Revised by
Preliminary Geological Plan		
Soil Samples: Ni, Fe, Mn, Cd		
OMINECA M.D., B.C.		
Scale 1:10,000	Date Oct. 21, 1991	Plate 6