

Assessment Report
on
Mordenite Property

Geology, Prospecting, Grid Establishment
and Analytical Report.

Mordenite 1 and 2	Mordenite 4 - 7
Prop 1 - 4	Soda 4 - 5
(12 Units)	

NTS. 82L 12E - 82 L 5E

Lat.: 50.30° N.
Long.: 119.39° W.

Owner and Author: L.C. Marlow
Date: July 2, 1997

25,071

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1. Summary:

The mordenite property covers an extensive area of what is believed to be Eocene, (and Miocene?), sediments and tuffs covered by Miocene lahars. (unconformity.)

These units have undergone regional zeolite facies metamorphism, and probably ground water zeolite formation. The main zeolite mineral species is mordenite with some clinoptolite.

Mordenite is one of two zeolites classified as the super zeolites. Ferrierite is the other. Clinoptolite is a high end zeolite also.

The sediment-tuff beds have commercial grade zeolite from top to bottom. These are high potassium-calcium zeolites. The lahars are higher in C.E.C. but have less potassium as the exchangeable cation.

The recent work has identified a resource of at least 3 million tons of various grade zeolites. This is the first mordenite occurrence in B.C. of any size and offers several environmental friendly applications. Location, Access, Proximity to highways, flat lying bedding and large tonnage make this an exiting deposit.

2. Introduction:

This report summarizes geological mapping, prospecting, sampling and grid establishment on the mordenite property.

3. Location, Access and Physiography:

The property is located approximately 9 km. west of Falkland on a good secondary road that is accessed from the

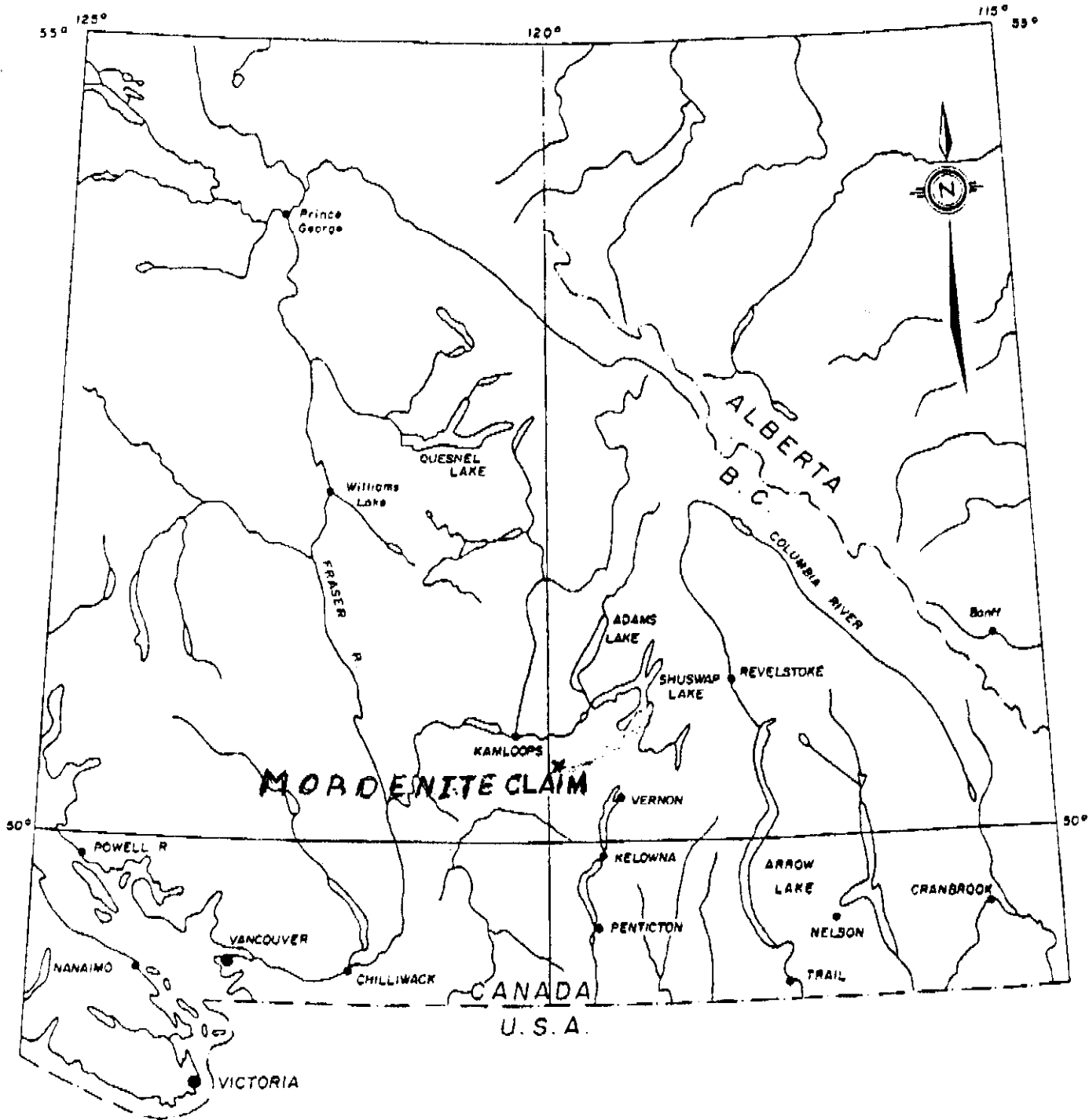
Falkland garbage dump. The property is centered at 1280 meters elevation. This is the main area of interest, on a bench. The area is clear-cut or large fir trees with some pine. The road is usually accessible from April to October.

4. Property and Ownership

The Mordenite group consists of 12 contiguous units comprised of 12 2-post claims. This covers an area of approximately 30 hectares. These claims are owned by L.C. Marlow and details are as follows.

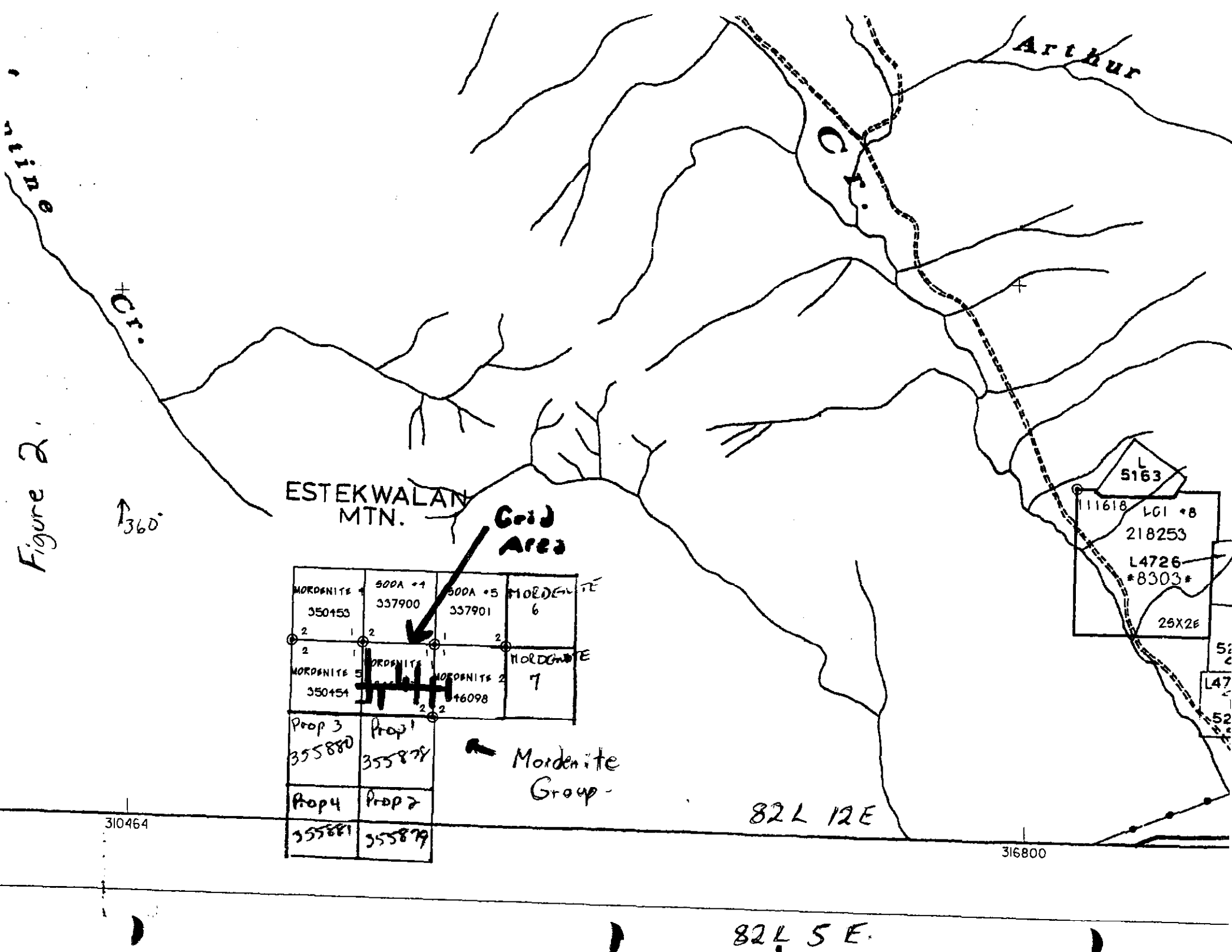
Claim Name	Units	Tenure	Expiry Date
Mordenite 1	1	346097	May 23,1999*
Mordenite 2	1	346098	May 23,1999*
Mordenite 4	1	350453	Sep. 2, 1998*
Mordenite 5	1	350454	Sep. 2, 1998*
Mordenite 6	1	355882	Apr. 30,1999*
Mordenite 7	1	355883	Apr. 30,1999*
Soda 4	1	337900	Jul. 20,1999*
Soda 5	1	337901	Jul. 20,1999*
Prop 1	1	355878	May 3, 1999*
Prop 2	1	355 79	May 3, 1999*
Prop 3	1	355 80	May 3, 1999*
Prop 4	1	355 81	May 3, 1999*

* Expiry date contingent on acceptance of this report.



LOCATION MAP
MORDENITE CLAIM
 KAMLOOPS MINING DIVISION, B. C.
FIGURE 1.

Figure 2.



ESTEKWALAN MTN.

Grid Area

MORDENITE 350453	SODA #4 337900	SODA #5 337901	MORDENITE 6
2	1	2	2
2	1	1	2
MORDENITE 5 350454	MORDENITE 46098	MORDENITE 2	MORDENITE 7
2	2	2	
Prop 3 355880	Prop 1 355878		
Prop 4 355881	Prop 2 355879		

Mordenite Group

5163
111618 L01 #8
218253
L4726
8303
29X26

310464

316800

82L 12E

82L 5E

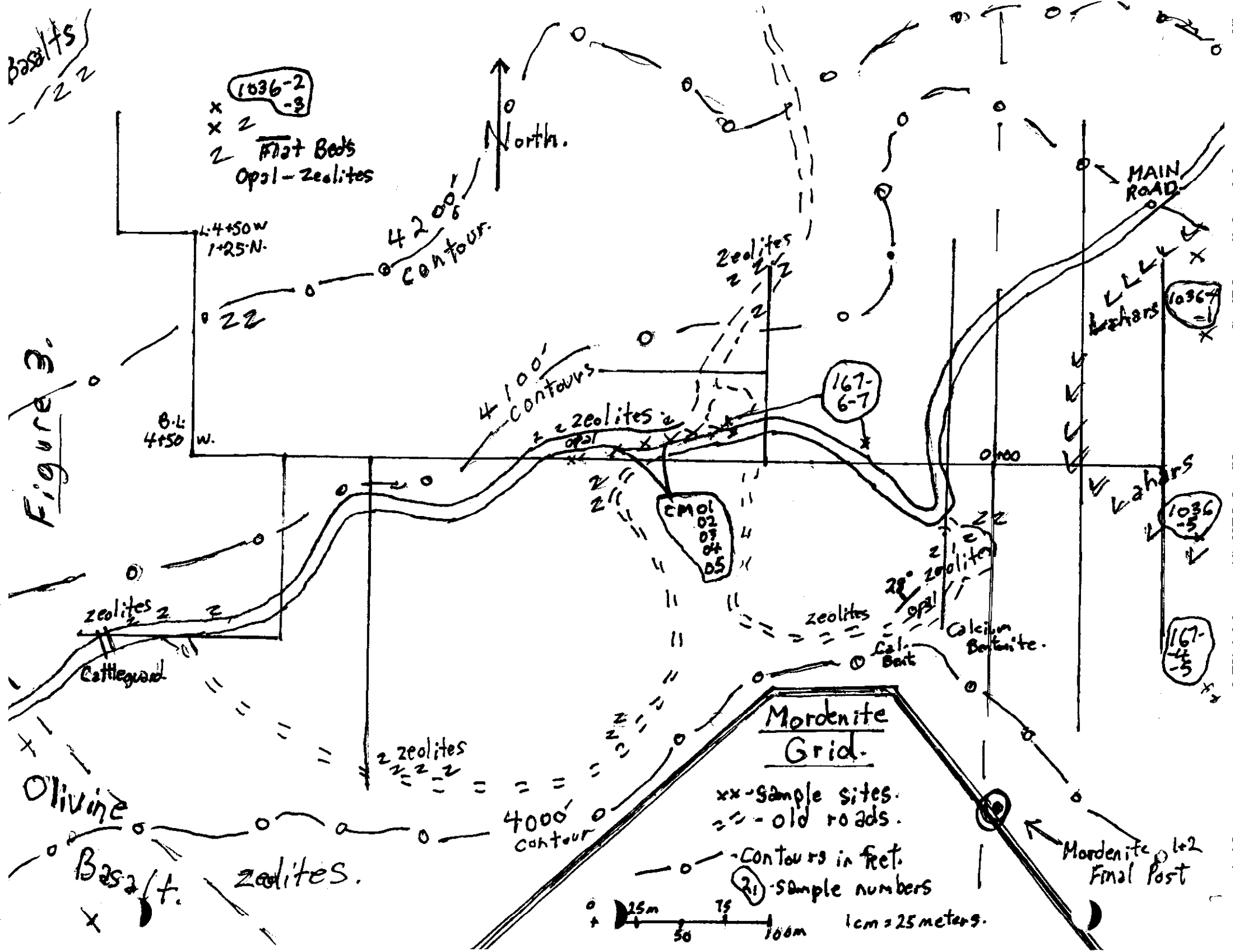


Figure 3.

5. History:

The main work in the area was the gypsum mine of La Farge's at Falkland. My interest in trying to find sediments in volcanic sequences for zeolite and bentonite potential led me to stake the mordenite group.

6. Regional Geology:

On the east, the area is bordered by sediments and volcanics of Triassic age, (Nicola.) To the west and lower down in the sequence, Nicola sediments appear in outcrop. To the north is Eocene volcanics and sediments. Large faults are common in the area.

7. Property Geology and Prospecting:

The property itself is centered on a lake sediment-tuff sequence, covered by what looks like a volcanic glass or perlite breccia. The matrix is yellow and glassy, and in fact, is mordenite.

The lahars of interest are up to 50 meters thick. the sediments are largely mordenite with some clinoptolite. This was part of a large lake as the sequence is at least 35 meters thick, 600 meters long, as narrow as 75 meters and as wide as 400 meters.

The zeolites are interbedded with opal which may have commercial applications. All the zeolites are commercial, there will be at least 5 different grades for different uses.

Underlying the zeolites is a calcium bentonite of good grade but of unknown width and size. Drilling will have to define this resource.

I don't know, but it seems the mordenite rich lahars and maybe some of the sediments could be Miocene. This could explain why mordenite is the dominant species, as less pressure and heat is needed than for heulandite-clinoptolite to form. (Ref.2)

the sedimentary deposit is thought to be a process of diagenesis while the lahar deposit is possibly due to ground water alteration of the glassy matrix and some of the fragments.

8. Analytical Work

A variety of analysis and tests are needed to understand these deposits. First, Dan Hora of the Industrial Division was kind enough to put me on the right track by identifying the dominant mineral as mordenite. (Ref.1)

This was back in 1995. Since then, a lot of work has been done but this report only covers the most recent work.

C.E.C.'s were used to delineate the deposit. I thought they were a bit low but there are a lot of variables besides C.E.C.

(40-80 average.) First potassium and calcium are the dominant exchangeable ions which gives the zeolite a much quicker reaction time than heulandite-clinoptolite.

Secondly, the siliceous structure and a void volume of 28% gives less C.E.C For some applications, this is more important than C.E.C. As seen in Appendix 1, a sample grading 50 C.E.C. was loaded up to 24% by weight nitrogen

and still had some C.E.C left. This actually revealed the crystal structure of needles and rods by changing the physical properties and appearance of the mineral.

Highlights not included in this report are a pH of 12.77, spec. grav. of 2.15 and a high acid resistance.

9. Grid Establishment:

Approximately 2 km. of grid was established to tie in the showings so they could be mapped. The baseline and lines were chopped out, flagging hung and 2' pickets erected. Paint was used on sample sites and where lines crossed roads.

10. Conclusions and Recommendations:

The mordenite property contains a large tonnage of good grade zeolites, and possible resources of common opal and calcium bentonite.

More testing will be done on the zeolites and opal, to try and find market opportunities. Possible bulk samples will be taken and a pit will be designed. Eventually, drilling will be done to try to define if there is a large enough resource of calcium bentonite.

11. References:

1. Dan Hora - 1995 visit and personal communications.
2. Read P. - 1995 Geological Field work, B.C.G.S. report, Tertiary Geology and Industrial Minerals, South Central B.C.

Figure 4

Sample Descriptions

167.4- Grey Lapilli Tuff - Approx. 1+50 E 1+00 S.

167.5- Black Fragment from Breccia.

167.6 & 167.7-Same sample loaded with nitrogen,
(part load-full load) Composite sample along
road for approx. 50 meters.

1036-1- Mordenite Lahar- breccia, yellow glassy
matrix.

1036-2- Black Opal bed.

1036-3- Same as 1036-2 but wet separated.

1036-4- Same as 1036-1 but wet upgraded.

CM01- Black Opal.

CM02- White Tuff- red stain.

CM03- Brown Tuff- blue oxides.

CM04- Light Grey-Yellow fragment Breccia.

CM05- Brown Opal Tuff.

Appendix 1
Analytical Sheets



Eco-Tech
LABORATORIES LTD.

**ASSAYING
GEOCHEMISTRY
ANALYTICAL CHEMISTRY
ENVIRONMENTAL TESTING**

10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 6T4 Phone (250) 573-5700
Fax (250) 573-4557

WHOLE ROCK CERTIFICATE OF ANALYSIS AK97-306

KAMLOOPS INDUSTRIAL MINERALS
PO BOX 1472
KAMLOOPS, BC
V2C 6L8

14-May-97

ATTENTION: CHUCK MARLOW

No. of samples received: 5

Sample type: ROCK

PROJECT #: NONE GIVEN

SHIPMENT #: NONE GIVEN

Samples submitted by: CHUCK

Post-It® Fax Note	7671E	Date	May 15	# of pages	1
To	Chuck	From			
Co./Dept.		Co.			
Phone #		Phone #			
Fax #		Fax #			

Values expressed in percent

ET #.	Tag #	BaO	P2O5	SiO2	MnO	Fe2O3	MgO	Al2O3	CaO	TiO2	Na2O	K2O	L.O.I.
1	CM 01	0.02	0.04	87.49	0.01	1.25	0.14	1.58	0.35	0.06	0.04	0.15	8.97

QC/DATA:Repeat #:

1	CM 01	0.01	<0.01	87.44	0.01	1.27	0.24	1.59	0.36	0.07	0.04	0.13	8.84
---	-------	------	-------	-------	------	------	------	------	------	------	------	------	------

Resplit #:

1	CM 01	0.01	<0.01	87.88	0.01	1.16	<0.01	1.42	0.29	0.06	<0.01	0.19	8.99
---	-------	------	-------	-------	------	------	-------	------	------	------	-------	------	------

Standard:

SY2	0.06	0.42	60.03	0.32	6.08	2.61	12.09	7.77	0.13	4.32	4.35	1.84
MRG1	0.01	0.05	39.27	0.17	17.57	13.10	9.58	14.63	3.55	0.71	0.16	2.22



ECO-TECH LABORATORIES LTD.

Frank J. Pezzotti, A.Sc.T.
B.C. Certified Assayer

S/97
df/wr306
fax. 851-0629

**ASSAYING
GEOCHEMISTRY
ANALYTICAL CHEMISTRY
ENVIRONMENTAL TESTING**



Eco-Tech
LABORATORIES LTD.

10041 E. Trans Canada Hwy., R.F. #2, Kamloops, B.C. V2C 6T4 Phone (250) 573-5700
Fax (250) 573-4557

CERTIFICATE OF ANALYSIS AK 97-306

5-May-97

KAMLOOPS INDUSTRIAL MINERALS
PO BOX 1472
KAMLOOPS, BC
V2C 6L8

ATTENTION: CHUCK MARLOW

No. of samples received: 5
Sample type: ROCK
PROJECT #: NONE GIVEN
SHIPMENT #: NONE GIVEN
Samples submitted by: CHUCK

Post-it™ Fax Note	7671E	Date	May 6	# of Pages	2
To	Chuck	From			
Co./Dept.		Co.			
Phone #		Phone #			
Fax #		Fax #			

ET #.	Tag #	Au (ppb)	Hg (ppm)
1	CM 01	5	
2	CM 02	5	<1
3	CM 03	5	
4	CM 04	5	
5	CM 05	5	

QC DATA:

Resplit:

R/S 1 CM 01

5

Repeat:

1 CM 01

5

<1

Standard:

GEO'97

145

MIN

104

ECO-TECH LABORATORIES LTD.

Frank J. Pezzotti, A.Sc.T.

B.C. Certified Assayer

6-May-97

ECO-TECH LABORATORIES LTD.
10041 East Trans Canada Highway
KAMLOOPS, B.C.
V2C 6T4

ICP CERTIFICATE OF ANALYSIS AK 97-305

KAMLOOPS INDUSTRIAL MINERALS
PO BOX 1472
KAMLOOPS, BC
V2C 6L8

ATTENTION: CHUCK MARLOW

Phone: 604-573-5700
Fax : 604-573-4557

No. of samples received: 5
Sample type: ROCK
PROJECT #: NONE GIVEN
SHIPMENT #: NONE GIVEN
Samples submitted by: CHUCK

Values in ppm unless otherwise reported

Et #	Tag #	Au(ppb)	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
1	CM 01	5	<0.2	0.15	10	65	<5	0.08	<1	5	28	14	0.97	<10	0.06	27	15	0.01	17	90	<2	<5	<20	25	0.03	<10	30	<10	7	17
2	CM 02	5	<0.2	0.93	20	680	<5	0.50	<1	<1	23	23	1.41	<10	0.17	42	11	0.03	3	200	10	<5	<20	254	0.04	<10	45	<10	4	4
3	CM 03	5	6.4	0.25	<5	900	45	6.38	3	12	32	10	>10	<10	1.15	>10000	20	0.08	26	>10000	<2	<5	<20	491	0.11	<10	107	<10	<1	21
4	CM 04	5	<0.2	4.03	<5	235	<5	0.77	<1	11	30	29	2.89	20	0.46	276	<1	0.04	13	500	44	<5	<20	162	0.20	<10	63	<10	25	33
5	CM 05	5	<0.2	2.59	<5	450	15	2.26	1	35	52	25	5.51	30	3.81	914	<1	0.26	87	1720	14	35	<20	299	0.43	<10	96	<10	26	67

QC DATA:

Resplit:		5	<0.2	0.15	10	70	<5	0.08	<1	5	24	13	0.93	<10	0.05	26	14	0.01	17	90	<2	<5	<20	28	0.03	<10	29	<10	6	20
Repeat:		5	<0.2	0.17	5	75	<5	0.10	<1	6	27	14	1.00	<10	0.08	32	14	0.01	17	90	<2	<5	<20	26	0.03	<10	30	<10	6	20
Standard:		145	1.6	1.86	70	175	<5	1.81	<1	21	63	85	4.13	<10	1.13	708	<1	0.02	22	690	20	10	<20	70	0.13	<10	82	<10	7	72

ECO-TECH LABORATORIES LTD.
Frank J. Pezzotti, A.Sc.T.
B.C. Certified Assayer

PACIFIC SOIL ANALYSIS INC.

SOIL AND PLANT ANALYSES

Oct 9/96

*Hamleys Industrial Mineral
C. Marlow*

SAMPLE	C.E.C.	EXCHANGEABLE				POTASSIUM
		CALCIUM	MAGNESIUM	SODIUM	(me / 100 gms)	
<i>1036 - 1</i>	<i>60.7</i>	<i>26.3</i>	<i>13.5</i>	<i>1.10</i>	<i>7.75</i>	
<i>2</i>	<i>14.2</i>	<i>5.75</i>	<i>2.50</i>	<i>0.88</i>	<i>1.68</i>	
<i>3</i>	<i>21.7</i>	<i>7.75</i>	<i>2.75</i>	<i>0.40</i>	<i>3.25</i>	
<i>4</i>	<i>79.9</i>	<i>31.3</i>	<i>17.8</i>	<i>1.70</i>	<i>9.00</i>	
<i>5</i>	<i>25.2</i>	<i>11.0</i>	<i>4.50</i>	<i>0.50</i>	<i>4.00</i>	

*• Thank you for
Advance payment.
J.J.*

PSAI

PACIFIC SOIL ANALYSIS INC.

May 1/97

SOIL AND PLANT ANALYSES

L. Marlow

Minerals

Kameops Industrial Metals

SAMPLE	TOTAL	EXCHANGEABLE				
	N (%)	C.E.C.	CALCIUM	MAGNESIUM	SODIUM	POTASSIUM
		(me / 100 gms)				
<i>167-4</i>	<i>-</i>	<i>32.1</i>	<i>12.3</i>	<i>2.25</i>	<i>2.75</i>	<i>4.00</i>
<i>-5</i>	<i>-</i>	<i>11.6</i>	<i>6.5</i>	<i>1.10</i>	<i>0.25</i>	<i>2.25</i>
<i>-6</i>	<i>8.70</i>	<i>39.7</i>	<i>14.8</i>	<i>6.50</i>	<i>0.33</i>	<i>2.25</i>
<i>-7</i>	<i>24.3</i>	<i>21.2</i>	<i>18.1</i>	<i>5.00</i>	<i>2.31</i>	<i>1.56</i>



Appendix 2
Statement of Costs

Statement Of Costs

1. L.C. Marlow- Property prospecting, grid. -
5 Days @ \$165- Oct,6/1996 - Apr,26/1997, May 3, 17 and 18/1997
= \$825.00
 2. Truck- All inclusive. (Fuel, etc.)
5 Days @ \$50 = \$250.00
 3. Analysis- 9 C.E.C @ \$25/sample = \$225.00
- 2 Total Nitrogen @ \$10/sample = \$20.00
- 5 I.C.P., Au, - 1 whole rock-(mercury)=\$134.18
- 9 sample preps for C.E.C = \$52.00
 4. Misc., materials, pickets, etc. = \$75.00
 5. Report- 1 day L.C. Marlow @ \$165=\$165.00
- Total = \$1746.18-----

Appendix 3
Statement of Qualifications

STATEMENT OF QUALIFICATIONS

I, L.C. Marlow, do certify that:

- 1) I am a prospector and have practiced my profession for the last 25 years.
- 2) I graduated from the BCDM prospecting school provided at Measachie Lake in 1986.
- 3) I graduated from the Advanced prospecting course sponsored by the BCDM in Kamloops in 1992.
- 4) I was actively involved and supervised the Mordenite program and authored the report herein.
- 5) All data contained in this report and conclusions drawn from it are true and accurate to the best of my knowledge.
- 6) I own the Mordenite property which is the subject of this report.

L.C. Marlow

L.C. Marlow
Prospector
July , 1997