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**JAN 28 1998**

**Gold Commissioner's Office  
VANCOUVER, B.C.**

**Report  
On  
Testing & Analysis Investigation of Red Rock  
For  
Pacific Bentonite  
Claims Ben 1 & Ben 2, Record No. 8939 & 8940**

**In The  
Kamloops Mining Division  
Latitude 50 45N Longitude 121 35W**

**By  
N. Skermer, P. Eng.  
Consulting Geotechnical Engineer**

**25,404**

**GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT**

**December 1997**

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## INTRODUCTION

The Ben 1 and Ben 2 claims of the Pacific Bentonite Limited (PBL) are located on the west side of Upper Hat Creek Valley. Hat Creek is 240 kilometres northeast of Vancouver, B.C. The claims are reached by 25 kilometres of paved highway from Pavilion and 2 kilometres of active logging road. The paved highway is the Cache Creek/Lillooet Highway 12. The location is shown on Figure 1.

The land slopes gently to the northeast. It is semi-arid land and mainly for cattle range. The vegetation is a mixture of open spaced pine and spruce with some meadows.

The property includes 2 four post claims BEN 1 and BEN 2 with a total of 35 units, record numbers 8939 and 8940.

The NTS location is 92/1/13E; latitude 50 45N; longitude 121 35W.

The bentonite is a stratigraphic unit that underlies the Hat Creek coal basin, but is upslope above the coal in its surface exposure. It has been extensively core drilled by BC Hydro during the exploration for Hat Creek Thermal Project. The findings of this work indicated that the bentonite was to be removed as the open pit coal mine was being expanded. There are no current plans to proceed with the coal mine.

The bentonite is potentially a valuable commodity with uses in the drilling, civil engineering and in a variety of absorbent applications.

Previous work on the property has always been directed towards evaluation of the bentonite, however, recently it has been recognized that burnt clay (red rock) that exists on the claims has economic significance.

*This material outcrops in Trench A excavated by BC Hydro in 1978. Work this past year has concentrated on evaluating the extent and quality of this material for potential markets. Investigations consisted of physical work such as trenching, and the testing and analysis reported below.*

## **INVESTIGATION, TESTING, AND ANALYSIS**

The author visited the site on two occasions in July 1997. The outcrops of red rock in Trench A were examined and samples taken.

The material was assessed with respect to colour, moisture content, durability, and fracture size of the material as it currently exists in the exposures. In order to meet the requirements of potential clients, PBL informed the author that compaction characteristics of the material were also important.

a) Colour

The colour of the material over the entire length of Trench A varies from a light pink to yellow and bright red-orange. However the pink material is too soft for the uses PBL currently has in mind. Work therefore focused on the red material. The pink material is absorbent, however, and may have other uses. This may be investigated by PBL at a future date.

It was determined that by appropriate mixing it will be relatively easy to produce a consistent uniform terracota colour.

**b) Moisture Content**

In its natural state the red rock has estimated moisture content less than 5 percent at the face. Trenching revealed that this condition persists beyond the exposed face, and therefore the material will not be unduly wet either for screening or for use as future product.

More importantly the material does not absorb excess moisture. This was determined by repeated wetting tests on jar samples on material sizes varying from No. 4 sieve to 30 mm.

With respect to moisture content, the material will be quite suitable for the uses PBL has in mind. Also provided it is screened in dry weather conditions, the moisture content of the material should not lead to difficulties in processing. This was substantiated by PBL by subsequent on-site screening in the fall of 1997.

c) **Durability**

The red rock is a well-indurated material. It does not break down significantly under normal traffic loading i.e. rubber-tired vehicles. It also appears not to be significantly subject to frost breakdown. This is judged from the appearance of the material that had been utilized as road base on a number of the roads on the property, where it has been in place for 20 years.

**d) Sizing**

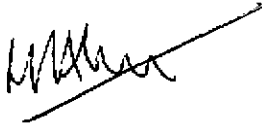
In-situ the red rock varies from silt to cobble sizes. The cobble sizes, however, tend to be partly fractured and break down into gravel sizes. Further breakdown, however, does not occur without mechanical effort, i.e. crushing. Sizes referred to herein are those recognized in geotechnical practice in Canada (Canadian Foundation Engineering Manual, 2nd Edition 1985, published by CGS-NRC).

Without crushing, therefore, the material as excavated yields a product classified as a silty, sandy gravel, see Figure 2. No residual clay is present. The size range is from less than 10 percent silt (No. 200 sieve) upto gravel (50 mm) with occasional cobbles upto 200 mm, see Photo 1.

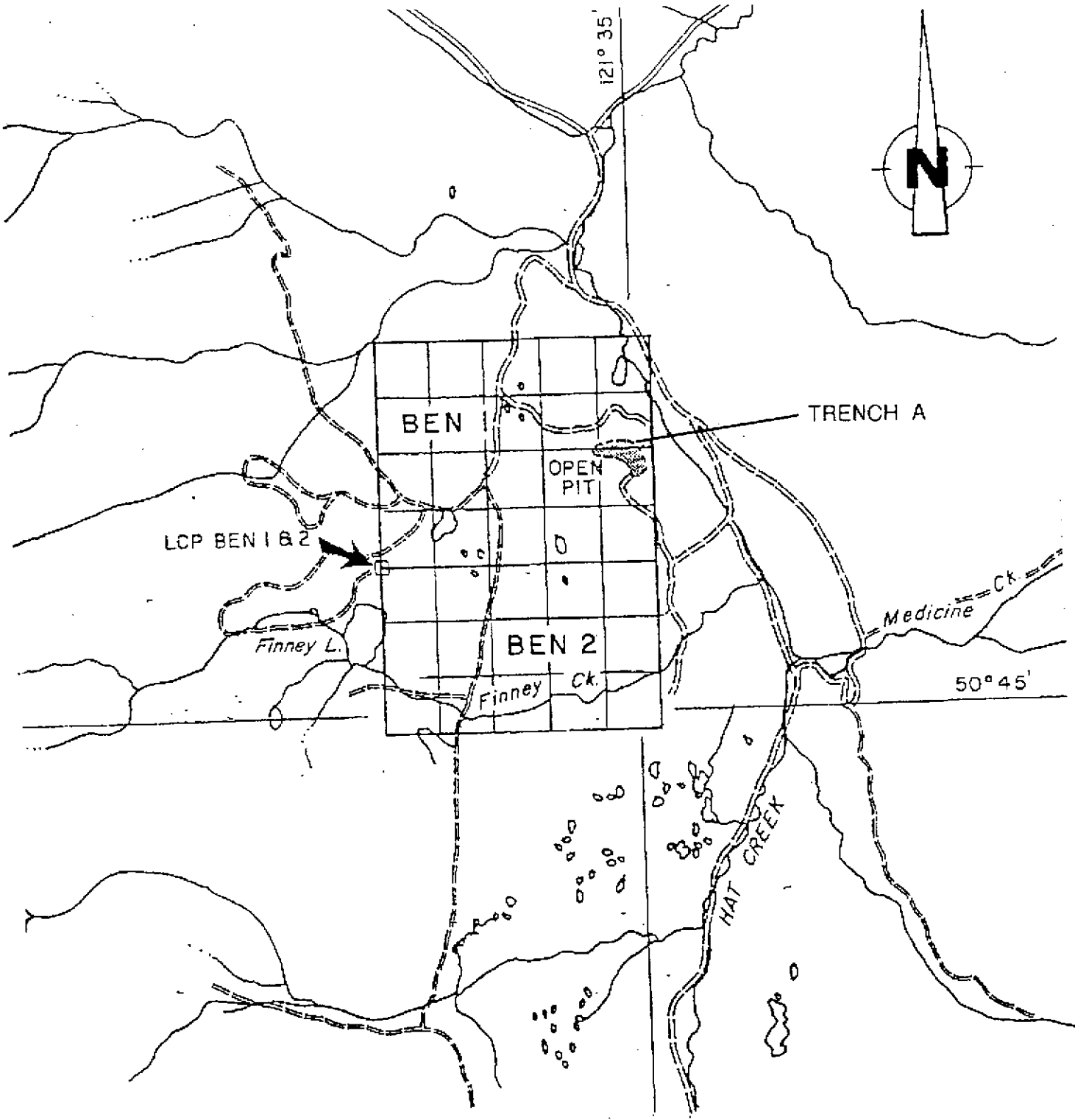
Of particular importance the particle shape is angular to subangular, and equi-dimensional, see Photo 1. No platy or flake-shaped particles could be detected. Despite the angularity of the particles, the material does not possess sharp edges.



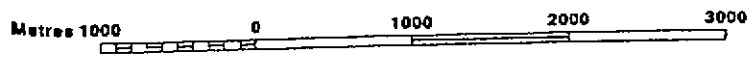
Respectfully submitted,



N. Skermer, P.Eng.  
Consulting Geotechnical Engineer

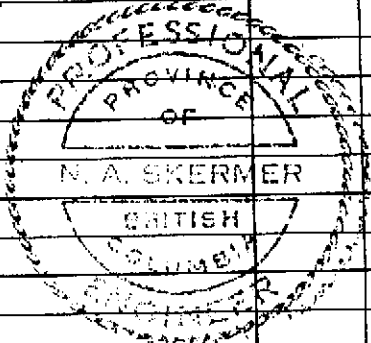
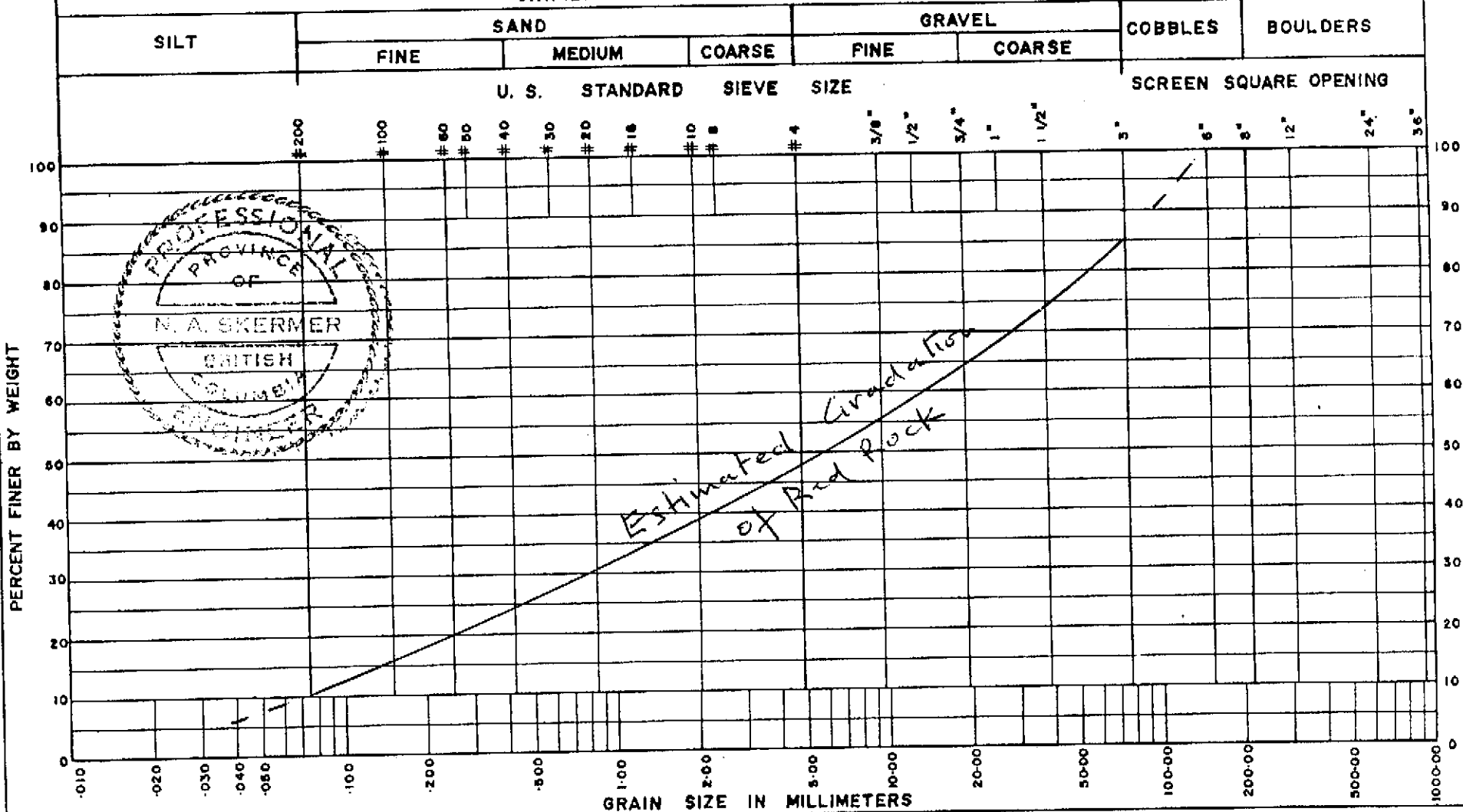


Scale 1:50 000



PACIFIC BENTONITE LTD. HAT CREEK		
CLAIMS AND TRENCH A		
SITE PLAN		
RED ROCK INVESTIGATION		
July 1997	NA:Skinner	FIG. 1

UNIFIED SOIL CLASSIFICATION SYSTEM



*Estimated Gradation  
of Red Rock*

% SILT	% SAND	% GRAVEL
% COBBLES	% BOULDERS	
REMARKS		

Figure 2  
GRAIN SIZE DISTRIBUTION

PROJECT Pacific Bentonite  
 SITE Hat Creek Claims  
 LOCATION Trench A  
 HOLE NO. \_\_\_\_\_ DEPTH \_\_\_\_\_  
 MATERIAL Red Rock  
 SAMPLE NO. \_\_\_\_\_ TEST NO. \_\_\_\_\_  
 TESTED BY N.A. Skermer / DATE July 1997



Photo 1

Hat Creek Red Rock



Room #: 252 Arrive: 970710  
Folio #: 81161 Depart: 970711  
G.S.T.# R125017426

SKERMER M & HAWSON H  
6260 NELSON AVE.  
WEST VANCOUVER, BRITISH COLUMB  
V7W 2A5  
EBA ENGINEERING

DATE	CLERK	DEPARTMENT	DESCRIPTION	AMOUNT
970710	BH	Rm Charge	Room Charge 252	55.00
970710	BH	Room Tax	Room Tax 252	4.75
970711	KK	Masterchar		-63.25
			G.S.T. On Rm Charge	3.85

ROOM NO. 101 ARRIVAL NAME N. SKERMER. RATE 45.00 DEPARTURE 47389

ADDRESS/CITY West VAN.  
CLERK COMPANY/GROUP  
FROM 7/13 TO 7/14 1 NIGHT

BALANCE FORWARD

1	
2	45.00
3	PST 3.60
4	95T 3.15
5	
6	<u>51.75</u>
7	5.68
8	
9	<u>57.43</u>
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	

1 H/C  
2  
3  
4 phone  
5 10:04 PM 4 MIN. 1-250-374-7600  
6  
7 5.31  
8 GST 37  
9 5.68

2.00  
agree to  
person,  
the full

*Paid for  
Jim*

ASHCROFT RIVER INN LTD  
BOX 1359  
ASHCROFT B.C. V0K 1A0  
PHONE 453-2565 FAX 453-2565  
TELEFAX 122999079

COMPANY  
ADDRESS  
CITY  
ATTENTION

ACCOUNT PAID BY  CASH  CHEQUE  AMEX

Regardless of charge instruct one the undersigned guest acknowledges the above as a personal indebtedness.

CHARGE TO \_\_\_\_\_

Credit Authorization \_\_\_\_\_  
Telephone Reconfirm \_\_\_\_\_



HEAD OFFICE:  
1303 MCGILL ROAD  
KAMLOOPS, B.C. V2C 6K7  
PHONE: (604) 374-6606  
1-800-661-2025  
FAX: (604) 374-6878  
MECHANICAL SHOP:  
PHONE: (604) 374-9835

INVOICE

PACIFIC BENTONITE  
2235 VALLEYVIEW DRIVE  
KAMLOOPS, B.C.  
V2C 4C8

2 July 97

Loader and lowbed to mine site  
4 hours at \$90.00 per hour \$360.00

980 loader and operator  
excavating and trenching  
6 hours at \$125.00 per hour \$750.00

3 July 97

Loader and lowbed  
4 hours at \$90.00 per hour \$360.00

GST \$102.90

Total \$1572.90

N. A. SKERMER MSc MICE PEng  
consulting engineer  
geotechnics

6280 Nelson Avenue  
West Vancouver, British Columbia  
Canada V7W 2A5  
Bus: (604) 681-4196 • Res: (604) 921-6969  
Fax: (604) 687-5532

October 18, 1997

To: Pacific Benthite Limited

Hat Creek Claims

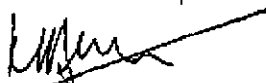
To consulting services rendered during 1997:

- a) Site visits (2) to map excavations and exposures of red shale in Trench A.
- b) Testing of red shale for durability, soundness of particles and particle fragmentation.  
Density testing of adjacent light weight gravel (also absorbency)
- c) Analysis and report preparation.

Fee including expenses

\$ 4500.00

Submitted by:

  
N.A. SKERMER P.Eng



H.E. MINING & EXCAVATING  
 Box 1364, Ashcroft, B.C.  
 VOK 1A0 453-9361

INVOICE

OUR NUMBER 388289

DATE Aug 18/97

CUSTOMER'S ORDER

John P. Dorman

SOLD TO 2235 Valleyview Drive  
 ADDRESS Kamloops B.C.  
 V2C 4C8

SHIP TO \_\_\_\_\_  
 ADDRESS \_\_\_\_\_

TAX REG. NO. SALESMAN F.O.B. TERMS VIA

QUANTITY	DESCRIPTION	PRICE	AMOUNT
5 hr.	Loader work Testing & Excavating at \$100.00 per hr.	\$100.	\$500.00
	1641 Volvo Loader / G.S.T. 5 yards.	\$35.00	\$35.00
	Total		\$535.00

JIM ROSE & SONS  
 980 Holt Street  
 Kamloops, B.C. V2B 5G9

GST# 139719215

TAX REG. NO:

ORDER NO.

DATE

Sept 30 1997

SOLD TO

John Dorrner

ADDRESS

SHIP TO

ADDRESS

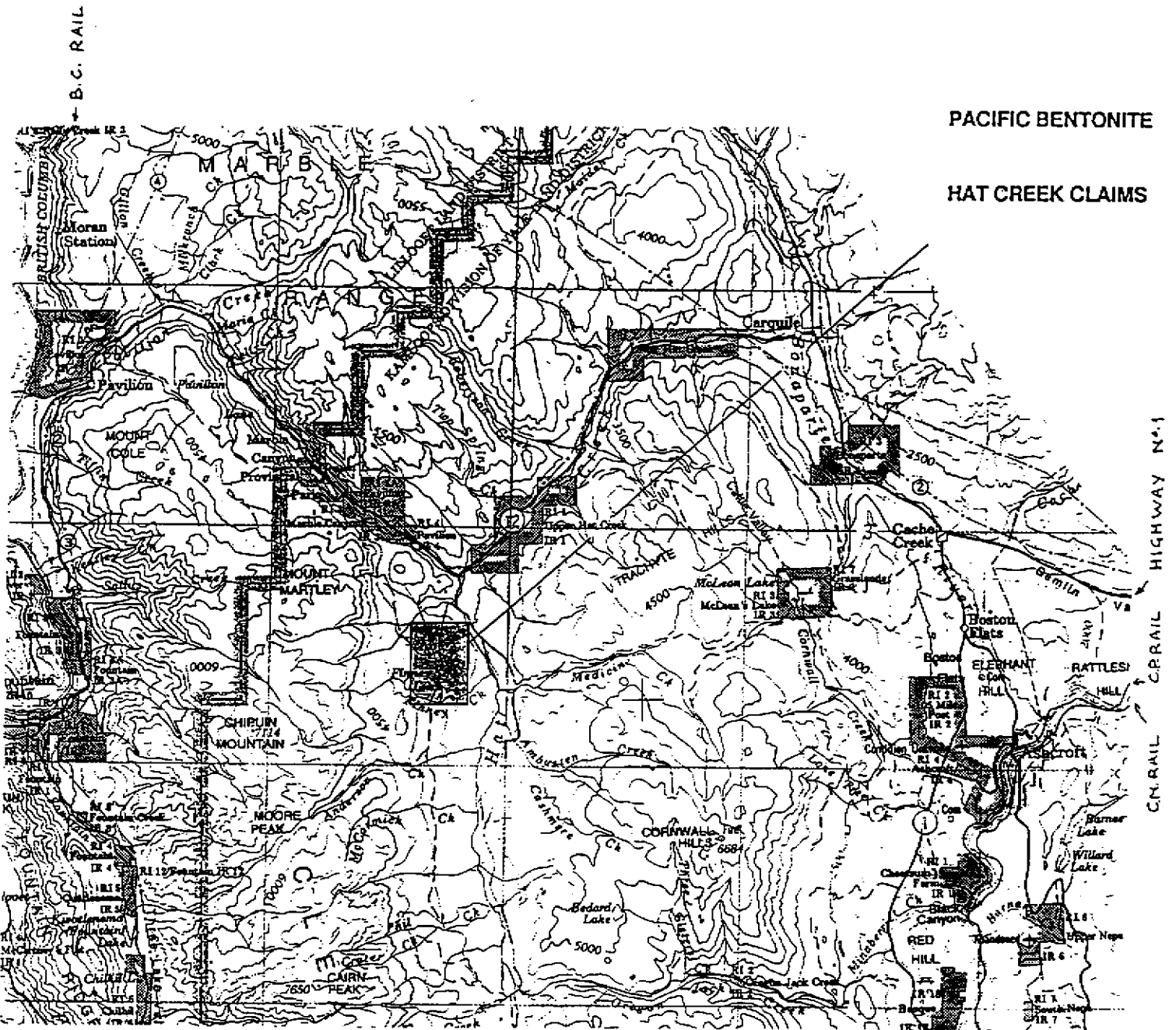
16 mile (Shale site)

SHIPPING DATE	VIA	TERMS	BUYER	SALES REP.
Aug 13/97		more 950 to site		
		5 hrs @ 70.00		350.00
14/97		to K + pup - Rose		
		12 hrs @ 78.80		945.60
		" Gray		
		12 hrs @ 78.80		945.60
15/97		to K + pup - Rose		
		3 hrs @ 78.80		236.40
		950 Loader rental all round		
		22 hrs @ 75.00 hr		1300.00
				3777.60
		GST		216.09
		Total due ->		3993.69

036401

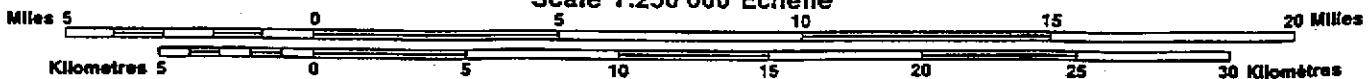
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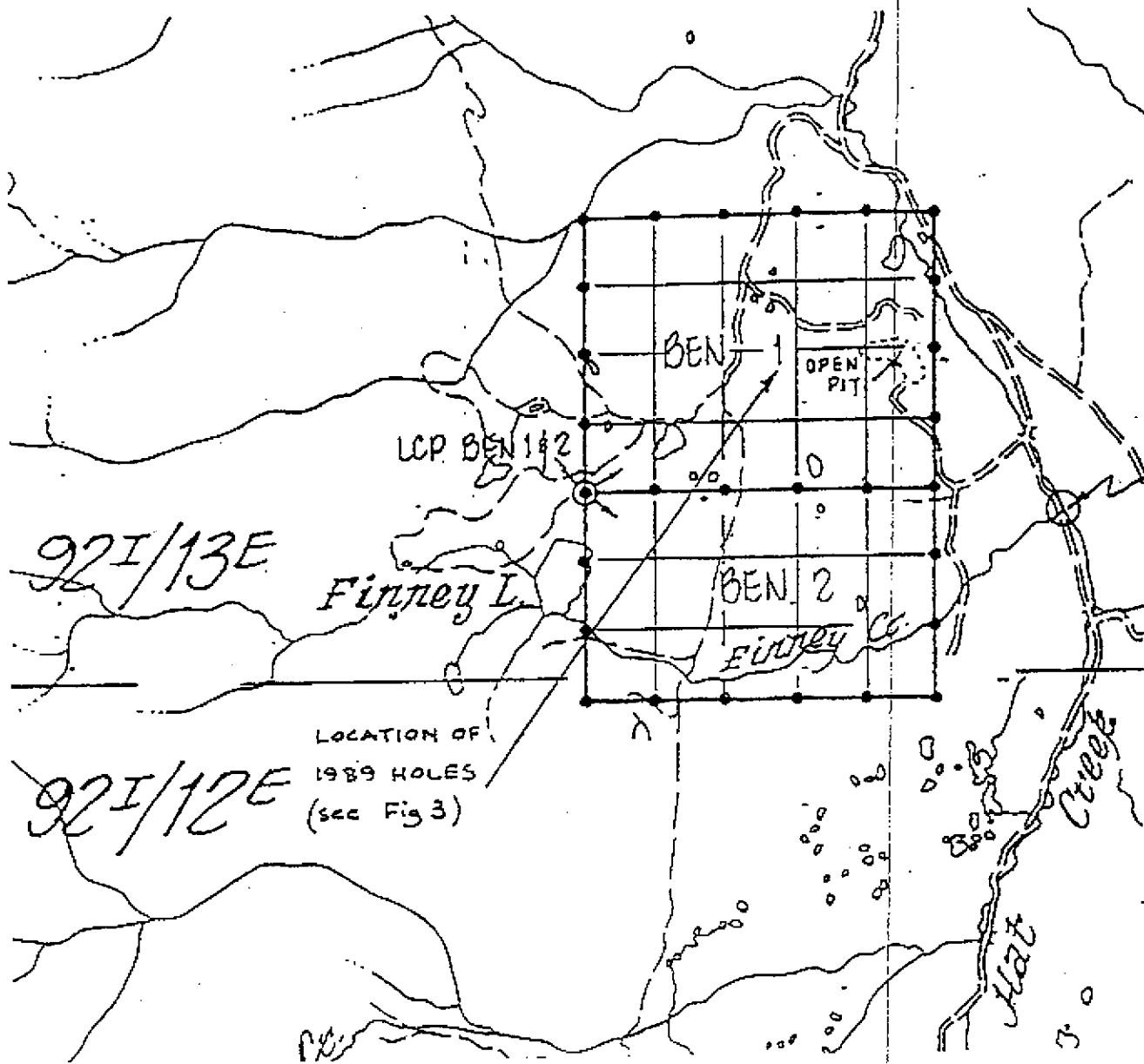
# LOCATION OF PROPERTY



Roads:	Routes:		
hard surface .....	revêtement dur .....	dual highway	more than 2 lanes
		double chaussée	plus de 2 voies
hard surface .....	revêtement dur .....	2 voies	less than 2 lanes
loose or stabilized surface, all weather .....	gravier, aggloméré, toute saison .....	2 lanes or more	moins de 2 voies
loose surface, dry weather .....	de gravier, temps sec .....	2 voies ou plus	less than 2 lanes
cart track .....	de terre .....		moins de 2 voies

Scale 1:250 000 Échelle





Pacific Bentonite Ltd. "Ben 1 and Ben 2" mineral claims (35 units, 875 ha)

Scale 1: 50,000

LOCATION OF CLAIMS

*Neil Skermer, P. Eng.  
Sept 1995*

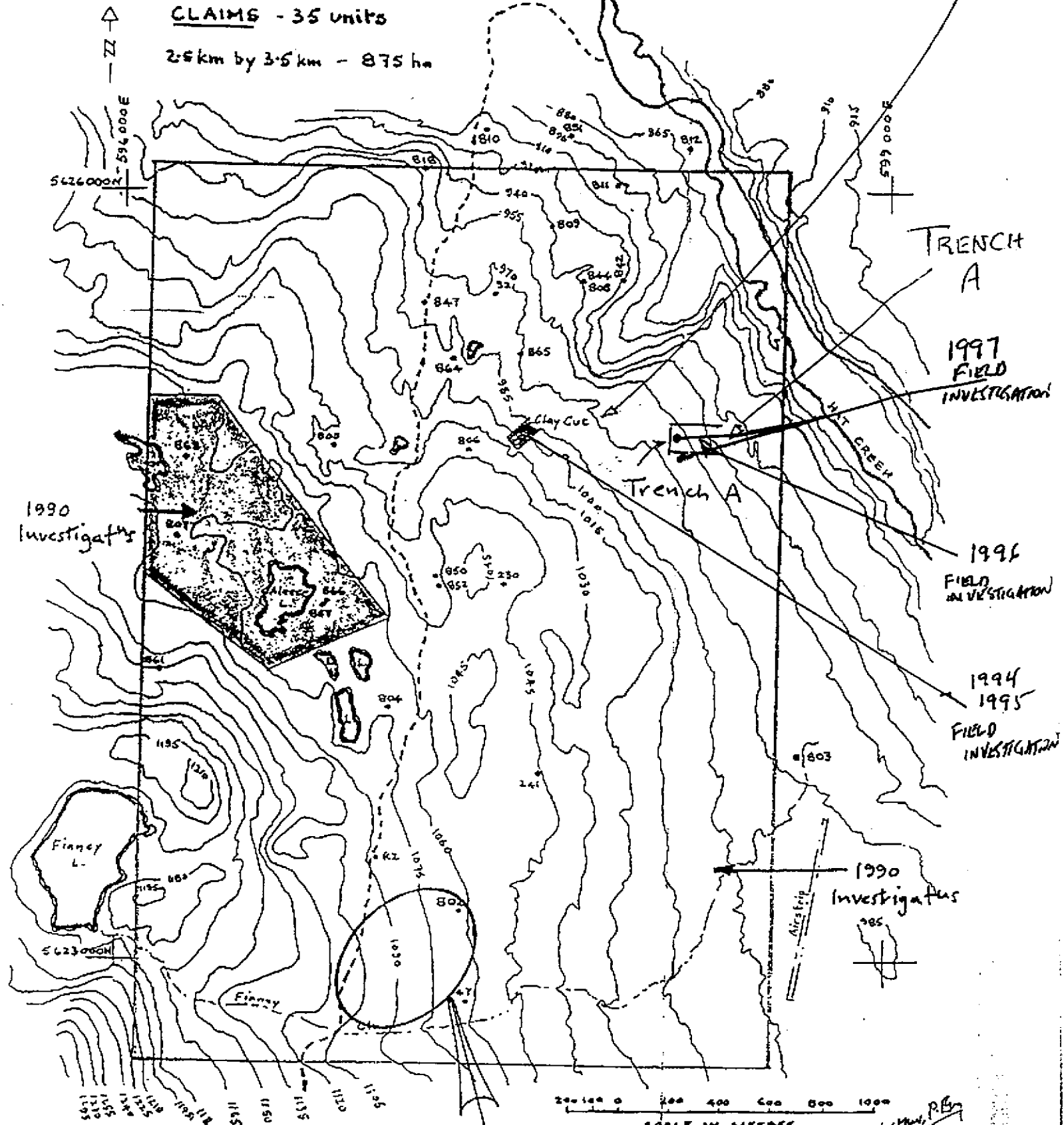
PACIFIC BENTONITE

Fig. 1

Location of Clay Cut  
(Trench C)

CLAIMS - 35 units

2.5 km by 3.6 km - 875 ha



1990  
Investigations

TRENCH  
A

1997  
FIELD  
INVESTIGATION

1996  
FIELD  
INVESTIGATION

1994  
1995  
FIELD  
INVESTIGATION

1990  
Investigations

1992 Field Investigations

200 400 600 800 1000  
SCALE IN METRES

1:20,000

MA Skelton, P.B.  
October 1999

PACIFIC BENTONITE LTD

Fig 2