

MRD 8/1/19.

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CONTINENTAL ORE COMPANY LIMITED

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MEMBERS OF THE LONDON METAL EXCHANGE

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TELEX: 25326

SMMc/BJC

6th December, 1971.

The Department of Trade and Industry (MME 1),  
Thames House South,  
Millbank,  
London, S. W. 1.

*Mr Thompson*

For the attention of Mr. H. Lees

Dear Sirs,

Re: F. P. A. Continental

Further to our application of the 8th November I have pleasure in enclosing three copies of the ordnance survey map SK25NE.

On this map we have marked the quarry site and approximate boundary of the property owned by F. P. A. Pitchmastic.

The more detailed map which we enclosed with our application shows more clearly the actual property line and therefore we felt it unnecessary to be too precise on the ordnance map as we feel that you are mainly interested in the precise location of the area to be worked.

Perhaps you will be kind enough to let us know if there is any further information which we can supply in order to expedite the granting of financial assistance.

Yours faithfully,  
for and on behalf of  
CONTINENTAL ORE CO. LTD.

*S. M. McConnell*

S. M. McCONNELL

## Summary

A sample of Pitchmastic ore was received at Bartow on February 1, 1972. This sample of approximately five tons weight was contained in fifteen sealed steel drums.

Four drums were selected at random. The fluorspar ore from these drums was mixed together and reduced to -8 mesh size. Flotation bench tests and head analyses were conducted on this crushed ore.

Sixteen batch flotation tests have been completed on this ore. A study of these results is encouraging in that it tends to indicate that the lack of success is due to failure to arrive at the best metallurgical procedure for handling the ore. There was a constant vigilance during these tests to predict a method for flotation which would be amiable to this fluorspar ore.

A proper balance of the conditions such as grind, reagents, and temperature must be made by trial. It is revealed in the study of the processing of this ore that it does not respond readily to the practiced methods of flotation. While we have gained some strong impressions, we have not been favored with a high degree of success in determining the underlying causes.

The experience gained to date working with this ore is considered of great value. Additional exploratory tests and confirmation tests at the bench level will be required prior to the pilot plant runs

The five-ton sample of the ore is considered adequate for continued evaluation. However, tests on the ore developed at the lower levels would be advisable.

## Bench Flotation Testing

The conditions employed in each test are included with this report. An analysis of the products on some tests was not performed if the observed details indicated that these analyses would be meaningless.

A characteristic unique to this ore was observed during each test. The rougher froth was voluminous and appeared to be non-selective.

This condition would persist through the cleaner stages. In several instances measures to improve the selectivity in the cleaners resulted in a complete collapse of the froth. The ground flotation feed is not readily dispersed with the usual dispersing reagents added in quantities considered reasonable and in keeping with flotation practice. Rapid settling of the tailing products was noted. Clear water could be decanted from these products after a few minutes of time.

Test No. 16 is considered a breakthrough to the above mentioned ills. While acid grade was not produced in this test, it is believed that the conditions observed during the test will lend favorably to the production of acid grade with a reasonable extraction of the  $\text{CaF}_2$  values.

Prior to this test it had been established that the soluble salts liberated during the grinding were not being satisfactorily precipitated or complexed by the reagents soda ash or sodium silicate. Soluble sulphates and chloride salts had been detected.

The grinding of the charge for the Test No. 16 was performed without any reagent addition. The resulting pulp was filtered the filter cake washed several times with fresh water, then re-pulped for flotation. Three-stage conditioning of the initial reagent charge was employed and the pulp subjected to flotation. The characteristics of the froth produced were much improved, good texture, heavy mineralized, and was consistent throughout the cleaning steps. A proper balance of the reagents to effectively retard the gangue and enable rapid and complete flotation of the fluorspar with moderate quantities of fatty acid collector will need to be determined by trial. Time prior to this report has not permitted this investigation.

Several methods of fluorspar flotation as practiced in the industry on a variety of ores were used during the testing to date. This was prompted to find a method which would possibly produce satisfactory results. These methods of flotation are generally known as the Quebracho method at low and high temperature, the sodium fluoride-lignin sulphonate method, and the sodium fluoride-boiled starch method. An acid grade-concentrate was produced using the sodium fluoride-lignin sulphonate method. However, the extraction of the  $\text{CaF}_2$  values was so low it was not considered significant.

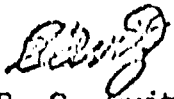
At this time the soluble salts or combination of soluble salts associated with the ore is not known. Removal of these soluble salts in a manipulation as described in Test No. 16 or the discovery of a reagent which will satisfactorily complex the soluble salts so that the flotation can be performed may permit the use of one of these methods.

Analysis of Products

	<u>CaCO<sub>3</sub></u>	<u>MgCO<sub>3</sub></u>	<u>CaF<sub>2</sub></u>	<u>SiO<sub>2</sub></u>	<u>Al<sub>2</sub>O<sub>3</sub></u>	<u>Fe<sub>2</sub>O<sub>3</sub></u>	
Head Feed	24.95		34.46	4.24	0.82	0.70	Noralyn
Head Feed	20.13	12.44	37.44	4.26	0.84	0.69	Pan Am
No. 9 Concentrate	0.96		97.50	0.12	1.00	0.05	

	<u>Ca</u>	<u>Al</u>	<u>Fe</u>	<u>Na</u>	<u>K</u>	<u>Mg</u>	<u>SO<sub>3</sub></u>	<u>CL</u>
Grinding Water, PPM	. 31.4	0.15	0.05	28.2	5.6	28.0	16.12	87.0

Included in this report is a letter of March 31, 1972, Mr. R. E. Whippo to Mr. W. O. McClintock reporting the finding of mineralogical examination and semi-quantitative spectrographic analysis of the head feed.



E. G. Ovitz  
April 10, 1972/jc



TO Mr. W. O. McClintock  
FROM W. H. Whealton  
DATE February 8, 1972  
SUBJECT PITCHBLASTIC FLUORSPAR - BULK SAMPLE

Four drums were picked at random from the samples received. This represents approximately one and one-half tons. The following procedure was used to prepare the ore for flotation feed.

Each drum was emptied onto the floor and fed over a 3/8" mesh screen. The oversize went to the jaw crusher.

The undersize was then mixed with the jaw crusher product and fed over an 8 mesh screen. The oversize went to the roll crusher and the undersize to the storage drum as final product. The roll crusher product was continuously fed back to the screen until the sample was 100% -8 mesh.

A grab sample was taken of the final product at random intervals during crushing. This will be used for head analysis and bench scale work.

Another grab sample was taken of the ore as received for future heavy liquids work.

The ore was very wet with water standing in the bottom of drums. More than 50% of the material was -3/8" with an excessive amount of clays. Together, this made crushing very difficult.

  
W. H. Whealton

WHW/jc



TO W. O. McClintock  
FROM R. E. Whippo  
DATE March 31, 1972  
SUBJECT Fluorspar, Pitchmas  
roj: 3966 (Bartow)

We have completed our examination of your sample of fluorspar, Pitchmastic submitted 2-14-72.

Pitchmastic, England, MJ-26

The as received gray-brown minus 8 mesh ore contains major dolomite, moderate fluorite, minor calcite, and very minor quartz.

Dolomite, the major diluent phase, is very soft and fine grained. Our tests indicate that fluorite is probably liberated in the 28 or 35 mesh size range. Certainly in a process using minus 200 mesh feed liberation of fluorite values should be no problem. The ultimate particle size of dolomite may be somewhat finer than 200 mesh and could interfere in flotation in much the same manner as a clay due to high surface area.

A semi-quantitative spectrographic analysis is attached.

*REW*

REW:kf

Attachment - 1

SEMIGUANTITATIVE SPECTROGRAPHIC ANALYSIS

<u>Oxide</u>	<u>Wt. %</u>
Si	5. %
Mg	12.
Al	0.6
Fe	.4
Mn	.12
Pb	.008
Ti	.06
Cu	.005
Cd	.015
Na	.1 (?.
Zn	.25
Ni	.004
Co	<.001
Sr	.04
K	<.75
Cr	.002
V	<.005
Ba	1.25
Ca + non-detectables:	Balance

CONTINENTAL ORE CORPORATION  
245 PARK AVENUE  
NEW YORK, N. Y. 10017

AE 66  
FPA Continent

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P. O. Box 867  
Bartow, Florida 33830  
December 21, 1972

Mr. Morton McConnell  
Continental Ore Company Ltd.  
19 Grafton Street  
London, England W1X 4HL

Subj: Project 130 F.P.A. Pitchmastic

Dear Mr. McConnell:

This letter will constitute the final report on testing of Pitchmastic Fluorspar ore.

Reference is made to the preliminary report of April 10, 1972. The ore is extremely complex. The ore did not satisfactorily respond to flotation treatment. Since there is so little assurance that acceptable acid grade concentrate can be produced with a reasonable recovery of the  $\text{CaF}_2$  values Continental Ore Corporation chooses to abandon the test program.

With kind regards.

Sincerely  
CONTINENTAL ORE CORPORATION

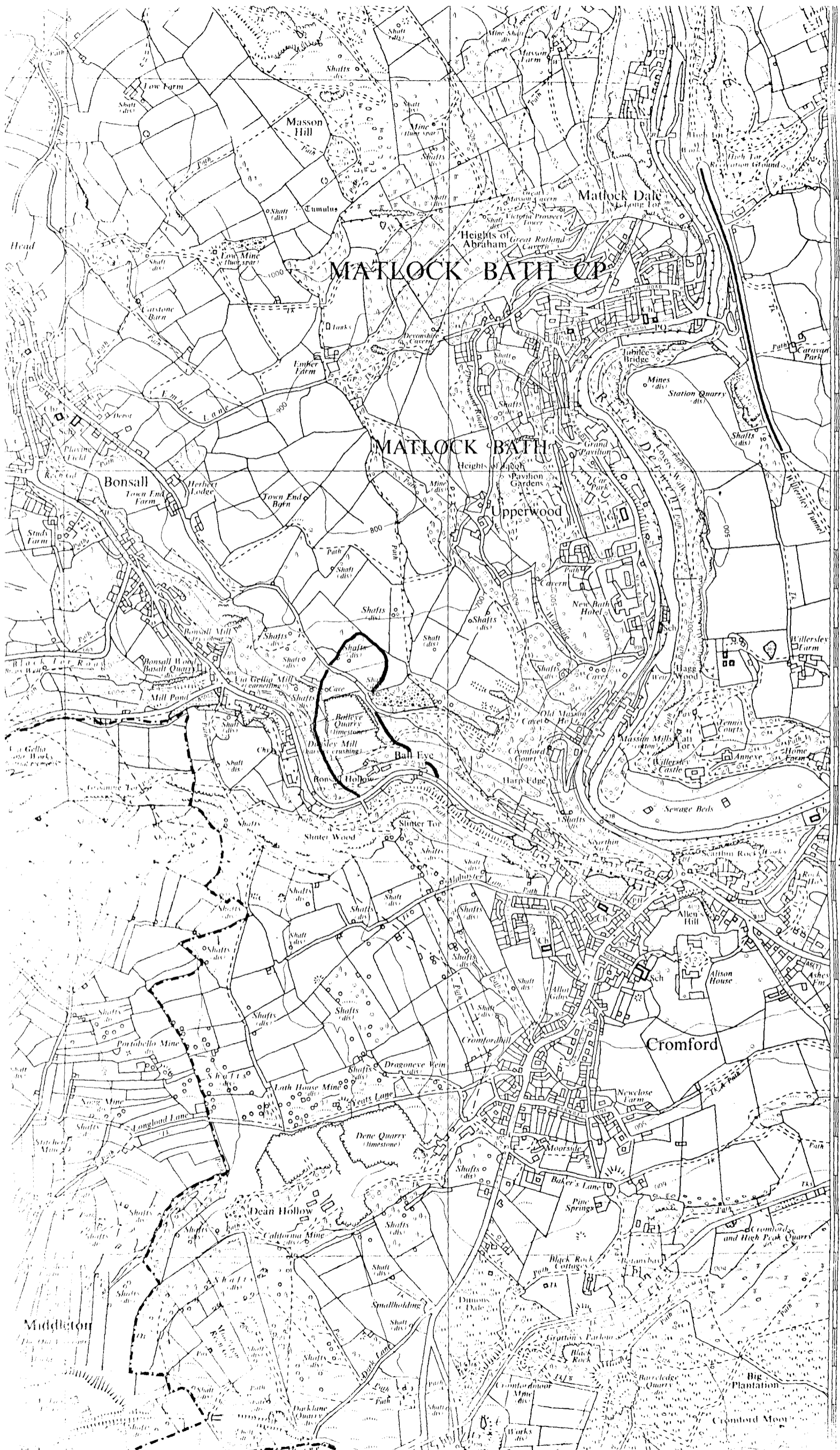


E. G. Ovitz  
Manager - Mineral Processing

EGO/vho

cc: Mr. Antonio L. Botello - MC, Mex.  
Mr. L. J. Lipton - COC, NY  
Mr. A. Sevilla - MC, Mex.  
Mr. H. Siegmann - MC, Mex.





59

MATLOCK CP

MATLOCK BATH CP

58

MATLOCK BATH

07

Upperwood

57

Cromford

Ambergate 5 Miles.

56

CROMFORD CP

1:50,000  
1887

0 1 2 3 4 5

Middletown

Big Plantation

Cromford Moor

Submitted 10-11-71

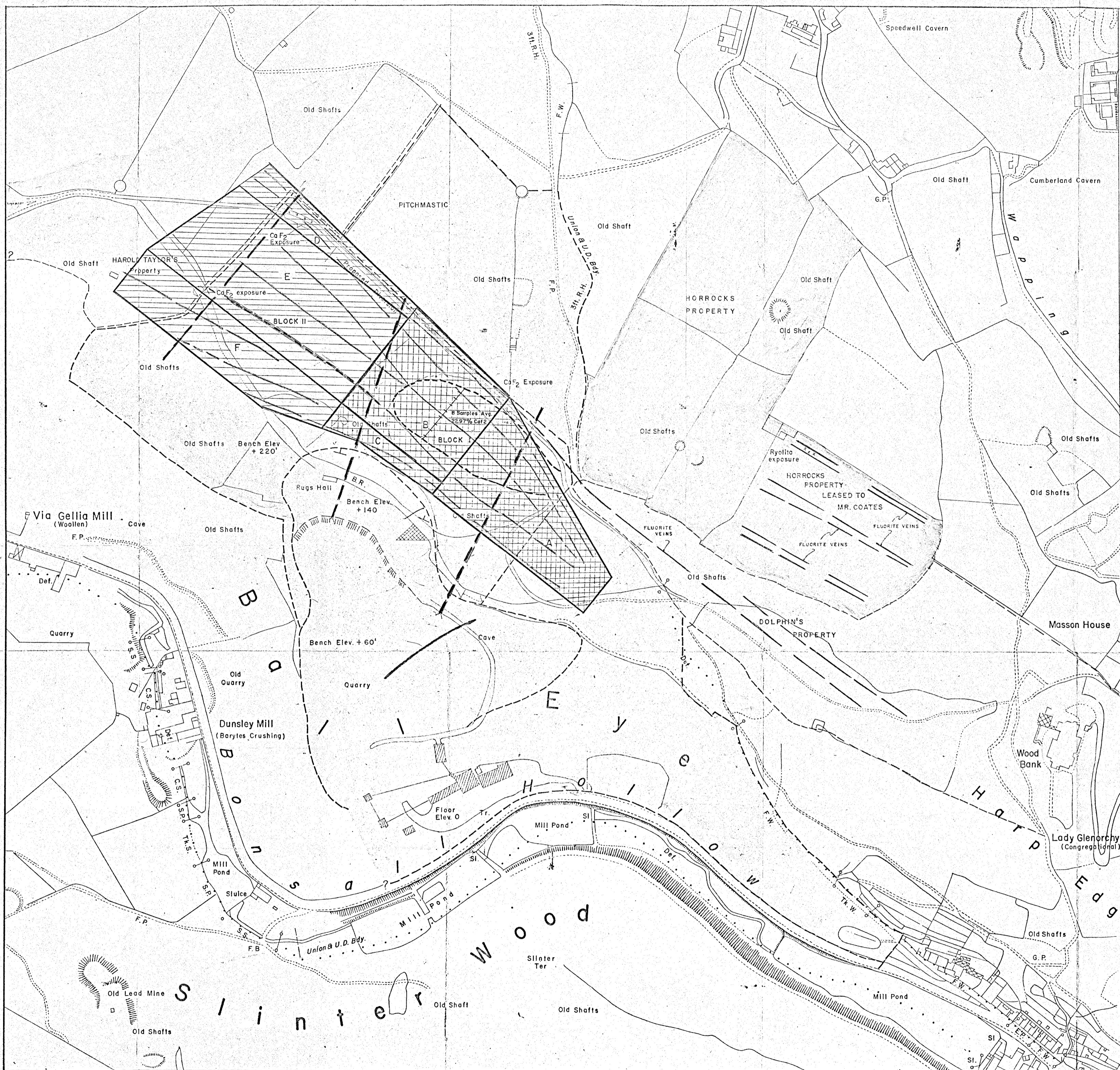
SECTION 4(d)  
APPENDIX (d)

Geology of Area

- 1) The quarry has been worked for limestone for many years.
- 2) No detailed geological study has been made because of the above.

The site is basically dolomitic limestone with disseminated fluorspar occurring along the North Eastern side of the property. It is thought that some fluorite veins also occur in this area.

- 3) On the attached map we have delineated the area to be explored by tunnelling. The fluorite veins shown are projections only and not based on strong evidence.
- 4) The area marked B has already been worked for fluorspar by open-pit methods and approx. 70,000 tons of material has been shipped analysing 25/30%  $\text{CaF}_2$ .



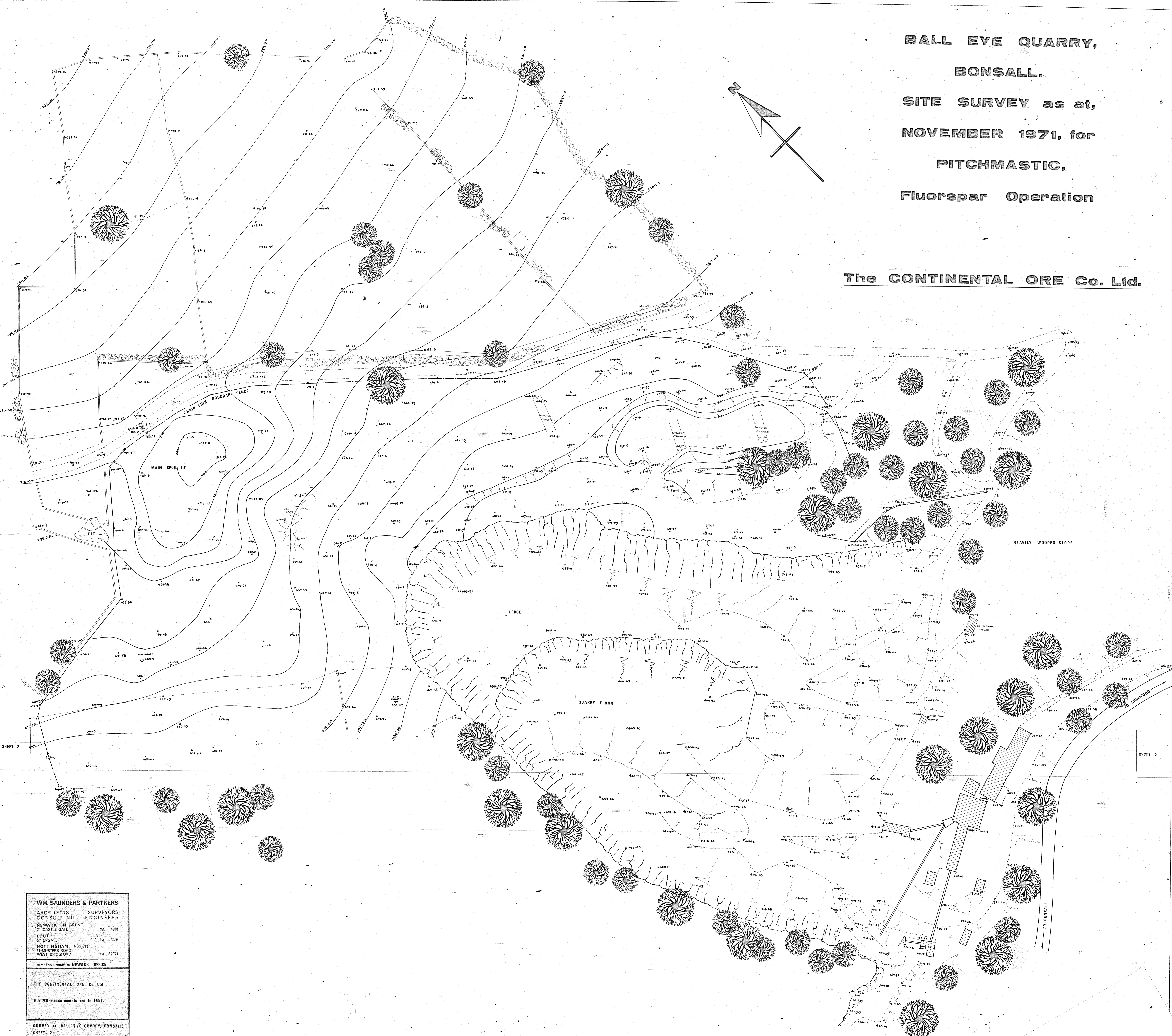
- Harold Taylor's Property
- Horrocks Property
- Dolphin's Property
- Pitchmastic Property
- Fluorite veins
- Limits of Limestone Quarry operation
- Road & limits of property
- Additional property in that direction but unexplored
- Direction of present Limestone Quarry operation
- Location of present Fluorspar stripping-ripping operation
- Proposed drifting & crosscutting

Escala 1:1250

CONTINENTAL ORE COMPANY LIMITED  
**BONSALL SITE**  
**PITCHMASTIC FLUORSPAR OPERATION**  
 To accompany report by  
 AGUSTIN SEVILLA-SEGURA

**BALL EYE QUARRY,  
BONSALL.  
SITE SURVEY as at,  
NOVEMBER 1971, for  
PITCHMASTIC,  
Fluorspar Operation**

**The CONTINENTAL ORE Co. Ltd.**



**WM. SAUNDERS & PARTNERS**  
 ARCHITECTS SURVEYORS  
 CONSULTING ENGINEERS  
 NEWARK ON TRENT Tel. 4381  
 24 CASTLE GATE  
 LOUTH Tel. 3391  
 57 UPGATE  
 NOTTINGHAM NG2 7PP  
 15 MUSTERS ROAD  
 WEST BRIDGFORD Tel. 82074

Refer this Contract to NEWARK OFFICE

**THE CONTINENTAL ORE Co. Ltd.**  
 N.B. All measurements are in FEET.

**SURVEY at BALL EYE QUARRY, BONSALL.**  
**SHEET 2.**

Date: NOV. 71 Drawn: P.J.M. Drawing Number:  
 Scale: 1:500 Checked: 1278/1

ALL LEVELS ARE RELATED TO T.B.M. (365.5') ON CORNER OF WEIGHBRIDGE.