

PENRESH EXPLORATIONS LTD.

HUNT SILICA DEPOSIT

	<u>Page</u>
Introduction	1
Location	2
Access	2
Property	2
Geology of Deposit	3
Silica Rock Reserves	5
Proposed Production 1979	6
Sample Record	7
Appendix	
a. Letters re Sampling	
b. Claim maps & property maps	

A. R. Bullis, P.Eng,
Director, Penresh Explorations Ltd.

10th April 1979

HUNT SILICA DEPOSIT

INTRODUCTION

Penresh Explorations Ltd. have obtained a lease on a large high-purity silica deposit near Golden, B.C. High-purity silica rock suitable for the production of silicon metal and ferro-silica alloys is rare; most of the high quality rock is obtained from pegmatites or pure quartz veins which usually are small and provide an uncertain supply. Only one other property in B.C. is supplying high-purity silica rock; the production there amounts to a few hundred tons per year and the rock is not used in the silicon metal trade.

Penresh Explorations has a contract to supply The Hanna Mining Company with 26,000 net short tons in 1979 to their smelter at Rock Island, near Wenatchee, Washington, and a further 40,000 short tons in each succeeding year. Production will begin in June and shipments to the smelter are scheduled to commence in July.

In addition to the sales to The Hanna Co., a by-product of undersize rock will be sold to metal smelters for flux, to cement producers, to abrasive manufacturers and to others who require a high-purity silica rock.

LOCATION: Lat. $51^{\circ} 12.6'$ Long. $116^{\circ} 51.8'$ 82N/2W

Between 3,100 and 4,100 feet elevation, at the mutual junction of Section 9, 10, 15, and 16 of Township 26, Range 21, west of the 5th meridian, one-quarter to 1 mile south of Horse Creek, and 1 mile east of Highway N. 95.

ACCESS

The property, which is located about ten kilometres south of Golden, is readily accessible from B.C. Highway 95 at the turn-off at Horse Creek, that lies two kilometres south of Nicholson and, thence, by private road which crosses the Milum property and Crown land (mineral claims) to the quarry at a distance of four kilometres from the Highway. The private road rises from 900 metres (above sea level) at the highway to 1,220 metres at the quarry and will have an average gradient of approximately six percent. (A short portion of the road will be rebuilt in 1979 to reduce the grade there from 12% to the road average of 6%).

PROPERTY

The property consists of nine unpatented mineral claims, named the Hunt 1A to Hunt 9A, that are held under assignment by the Coastal Mining Co. of Canada Ltd. Penresh Explorations Ltd. in turn, have leased the nine mineral claims from Coastal Mining.

In addition, A. R. Bullis, a principal of Penresh Explorations Ltd., has staked the Hunt 10 Mineral Claim, which is situated between the block of nine original claims and R. Milum's property. Milum owns that portion of the S.W. $\frac{1}{4}$ of Sect. 16, T 26, R 21, W5, which lies south of Horse Creek.

GEOLOGY

after J.W. McCammon 1970

"The claims cover an area underlain by pure quartzite of the Ordovician Mount Wilson (formerly Wonah) Formation associated with dolomite of the Beaverfoot Formation.

On the property the ground rises from a flat area in the southwest to an irregular knob and gully region on the east. The knobs tend to be bare with bedrock well exposed while the remainder of the area is covered with trees and brush and reveals little outcrop. The south faces of the knobs form steep cliffs.

The three claims are in tandem astride the east boundary lines of Section 9 and 16 with No. 4A at the south and No. 6A at the north. Quartzite is well exposed in patches that cover about 10 per cent of No. 4A claim near its centre, about 20 per cent of No. 5A claim in the north central part, and about 25 per cent of No. 6A claim in the east half. Undoubtedly it also underlies considerably more ground now covered, particularly on claims 5A and 6A. Dolomite outcrops over about 7 per cent of claim 4A, chiefly in the central part of the east side and towards the northwest corner, and 20 per cent of claim 5A in the southeast corner.

The quartzite is hard, firmly cemented, pale grey to white or light buff coloured rock. It weathers dull white. In three thin-sections examined it was seen to consist essentially of quartz grains in a silica cement with very few scattered grains of magnetite, mica and other minerals. The diameters of the quartz grains range from 0.12 to 0.85 millimetre with most being about 0.25 or 0.50 millimetre. The original grains were subrounded to well rounded but during lithification the silica cement formed irregular growths on the grains so they now have angular shapes.

The dolomite is fine-grained, grey, thin-bedded rock with inclusions and layers of grey chert and many fossils, particularly cup corals. It forms one hump on No. 5A claim separated by sharp gullies from quartzite on the north and more dolomite on the south. The beds strike north 40 degrees east and dip 32 degrees northwest. The second dolomite hump, on No 4A Claim, overlies quartzite to the south, the beds striking north 80 degrees west and dipping 35 degrees northwest.

The rocks have obviously been disturbed by faulting with the quartzite on claims 5A and 6A being in a block up-faulted relative to other areas, and the dolomite on claim 5A in a block down-tilted to the northwest".

SILICA ROCK RESERVES

The author has examined an area of quartzite outcrop underlying parts of Hunt 2A and Hunt 6A claims, that measures 400 feet (120 metres) by 1,200 feet (365 metres) which he and C. Warren Hunt, P. Geol. consider to be "High Quality Quartzite". The knob of rock, at the 4,200 foot level, from which the surface samples were obtained (See Sample Record) is part of this large outcrop and the 213 ton "bulk" sample was taken from the same outcrop.

The rock reserves underlying the large quartzite outcrop are therefore, 40,000 tons per vertical foot. (Given that 12 cu. ft. in place equals one short ton and the area is 400' by 1,200' then $1' \times 400' \times 1,200' / 12 \text{ cu. ft.} = 40,000 \text{ tons}$). The vertical extent of the quartzite rock is unknown but can be traced stratigraphically from the 3,900 foot elevation to the top of the knob at an elevation of 4,200 feet and, therefore, the author has assumed the quartzite is at least 100 feet thick. Therefore, the potential reserves are:

40,000 tons per foot x 100 feet or 40,000,000 tons.

C. Warren Hunt has produced detailed geological maps of part of the property and, using these data, has calculated the reserves in the same area at 232,000,000 tons. In addition, Hunt has calculated reserves in two other area at 12,996,000 tons and 13,116,000 tons respectively. Hunt's total reserve is 258,000,000 tons

The magnitude of these potential reserves illustrates that the property will have a long life at the proposed rate of extraction, i.e. between 50 and 250 years.

PROPOSED MINING, PROCESSING AND SHIPPING, 1979

Penresh Explorations Ltd. will supply 26,000 short tons (net) to the Hanna Mining Co. silicon smelter in 1979. In order to net 26,000 short tons, a total of 35,000 tons (10,000 cu. metres) will be mined and processed on the property.

The drilling and blasting is scheduled for early in May and will be done under contract. That section of the haul road to be rebuilt will be reconstructed in May and the processing of the pit-run rock will begin in June.

A portable crushing and screening plant will be set up on the Hunt 10 mineral claim where 35,000 tons will be crushed, screened and washed to produce 26,000 tons of (plus 1 inch and minus 6 inch) material for the Hanna Mining Co. The undersize (minus one inch) material will be stock-piled for use as road ballast or for future sales.

The product for the Hanna Smelter will go into temporary storage at the plant site from where it will be drawn, in the latter half of the year, for loading on flat-bottomed gondola cars at the Nicholson siding. Arrangements have been made with the C.P. Railway to ship 1,000 to 1,200 tons (12 to 14 cars) per week from August through December.

Plans are underway to transfer the whole operation to a new site on the railway near Horse Creek, which will include a siding as well as the crushing-screening plant. Storage space for stock-piled silica rock will be incorporated in order that continuous loading on a year-round basis will be achieved.

The production in 1980 will rise to 40,000 net tons to Hanna Mining and a market for the fine material (minus one inch) will be developed.

SAMPLE RECORD

The Penresh (Hunt) Silica property has been surface-sampled by several persons and a bulk furnace sample was shipped to Hanna in 1978. The continuity and grade of the rock at depth has not been tested.

Large outcrops on the property expose the quartzite layers over several hundred stratigraphic feet and visual examination of these outcrops reveal very little change in the type and composition of the quartzite.

Dr. A. G. Jones, of Coastal Mining of Canada Ltd. obtained five "chip samples" in 1975 from the knob of rock on Hunt 6A M.C. at the 1,280 metre (4,200 feet) level that averaged 99.5% Silica, 0.07% Fe₂O₃, 0.14% Al₂O₃, 0.003% CaO and 0.12% loss on ignition. These analyses are excellent and represent "silicon-grade" rock.

The author repeated Dr. Jones sampling in July 1977 from the same area, with the following results:

99.25% Silica, 0.05% Fe₂O₃, 0.25% Al₂O₃, 0.005% CaO and 0.10% L.O.I.

min required 99.5%
A bulk sample was obtained from the property in 1978 in order to test the rock in the arc-furnaces at the Hanna smelter near Wenatchee, Washington. Two hundred thirteen tons delivered to the Wenatchee plant permitted a limited test and additional chemical analyses of the rock. No adverse rock qualities were noted during the furnace tests. The entire sample assayed, on average and for impurities only, as follows:

0.06% Fe₂O₃, 0.01% CaO, and 0.15% Al₂O₃.

All the above analyses indicate the deposit is a high-purity silica rock, suitable to the Silicon metal and Ferro-silicon metal markets.

18 December, 1975

Mr. C. Warren Hunt
Inqua Resources Ltd.
1119 Sydenham Road
Calgary 3, Alberta.

Dear Warren:

This is to confirm our telephone conversation of today in regard to your silica property south of Golden, B.C. Your letter of October 20, on the same subject, arrived this week.

The samples which I took from your claims last summer were analysed by our Wenatchee plant as follows:

	p e r c e n t				
	<u>SiO₂</u>	<u>Fe₂O₃</u>	<u>Al₂O₃</u>	<u>CaO</u>	<u>L.O.I.</u>
No. 1:	99.58	0.07	0.12	0.003	0.05
2:	99.33	0.08	0.13	0.004	0.09
3:	99.51	0.07	0.15	0.003	0.15
4:	99.48	0.06	0.14	0.003	0.15
5:	<u>99.53</u>	<u>0.07</u>	<u>0.15</u>	<u>0.004</u>	<u>0.15</u>
Average:	99.49	0.07	0.14	0.003	0.12

As you can see, the quartzite appears to be suitable, chemically, as source-material for silicon production.

We are potentially interested in your silica claims but cannot foresee any early action to make further field investigations owing to the general gloomy economic outlook. We have looked into the power

.../2

availability for that area as well as other factors essential to the feasibility of establishing a metal plant, and have not been really encouraged by these results, either.

Maybe spring will bring a more favourable outlook but, in any case, we will keep you informed.

Wishing you all the best for the festive season, and best personal regards.

Yours very truly,

COASTAL MINING COMPANY

Alex. G. Jones

C. Warren Hunt,
1119 Sydenham Road S.W.,
Calgary, Alberta, T2T 0T5

9th August, 1977

Dear Warren:

re Golden Silica

I now have the result of the sample I took on your quartzite property near Golden and it compares well with those taken by Alex Jones. My right arm was very sore the day I took my sample and consequently my sample was not as clean as Jones. I consider it to be a good check because of possible contamination. The staff at the lab did wash the material before analysing the rock.

The results are:

SiO ₂	Fe ₂ O ₃	CaO	Al ₂ O ₃	L.O.I.
99.25	.05	.005	.25	.10

Again, thank you for guiding me on the property; I shall be back in Calgary in two to three weeks and will contact you then.

Yours very truly,



A. R. Bullis, P.Eng.

Material SILICA ROCK

From GOLDEN GOOD ROCK FROM FIRST 3 CARS IN PIT (WHITE)

Si	Fe ₂ O ₃	CaO	Al ₂ O ₃	---	
	.05	.006	.10	WASHED	

Analysis Report

Sample No. 7605

Date 1-2-79

Material SILICA ROCK GOLDEN B.C.

From RESCREENED 5X1 PIT

Si	Fe ₂ O ₃	CaO	Al ₂ O ₃		
	.06	.010	.18		

Analysis Report

Sample No. 7584

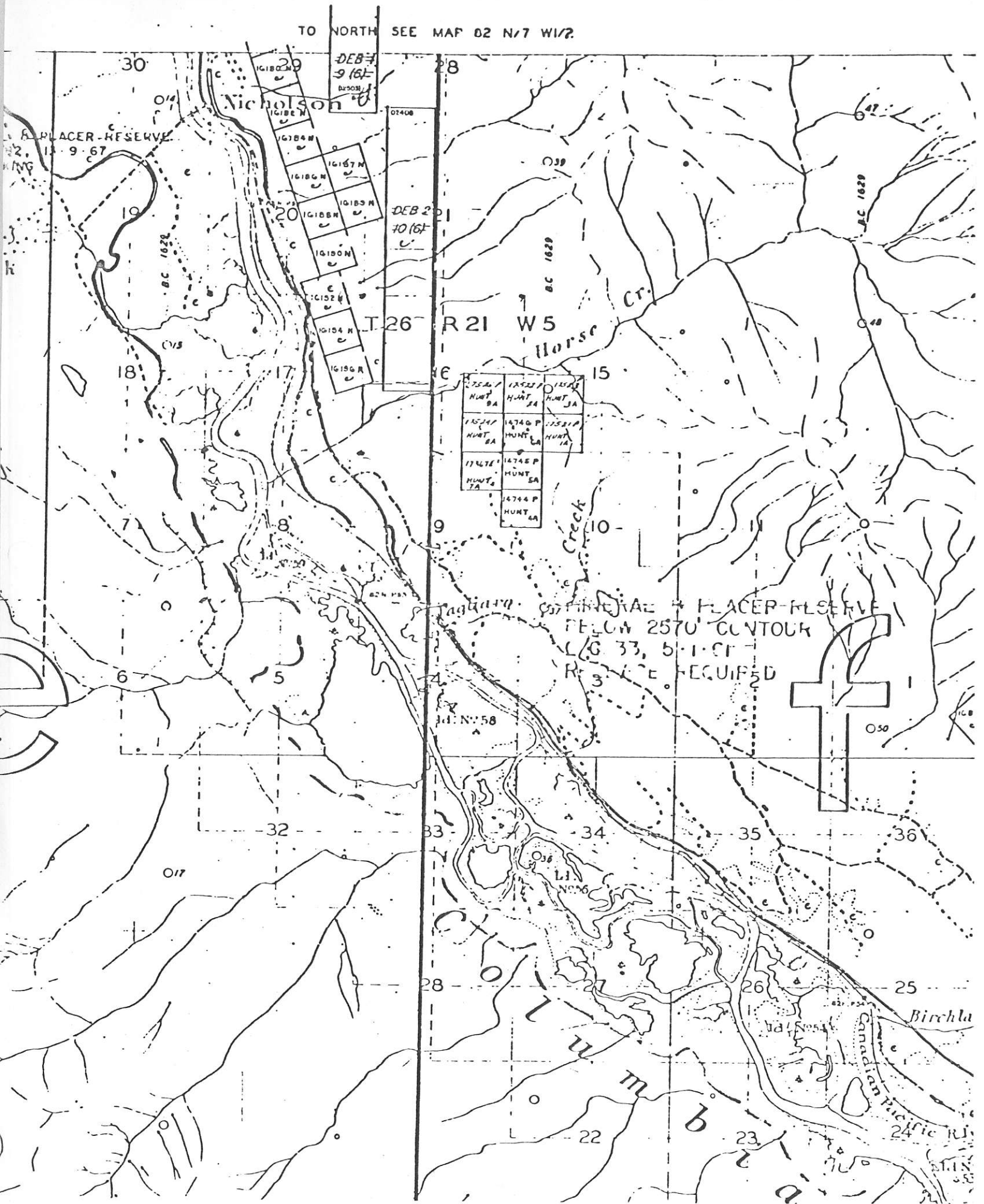
Date 12-22-78

Material SILICA ROCK

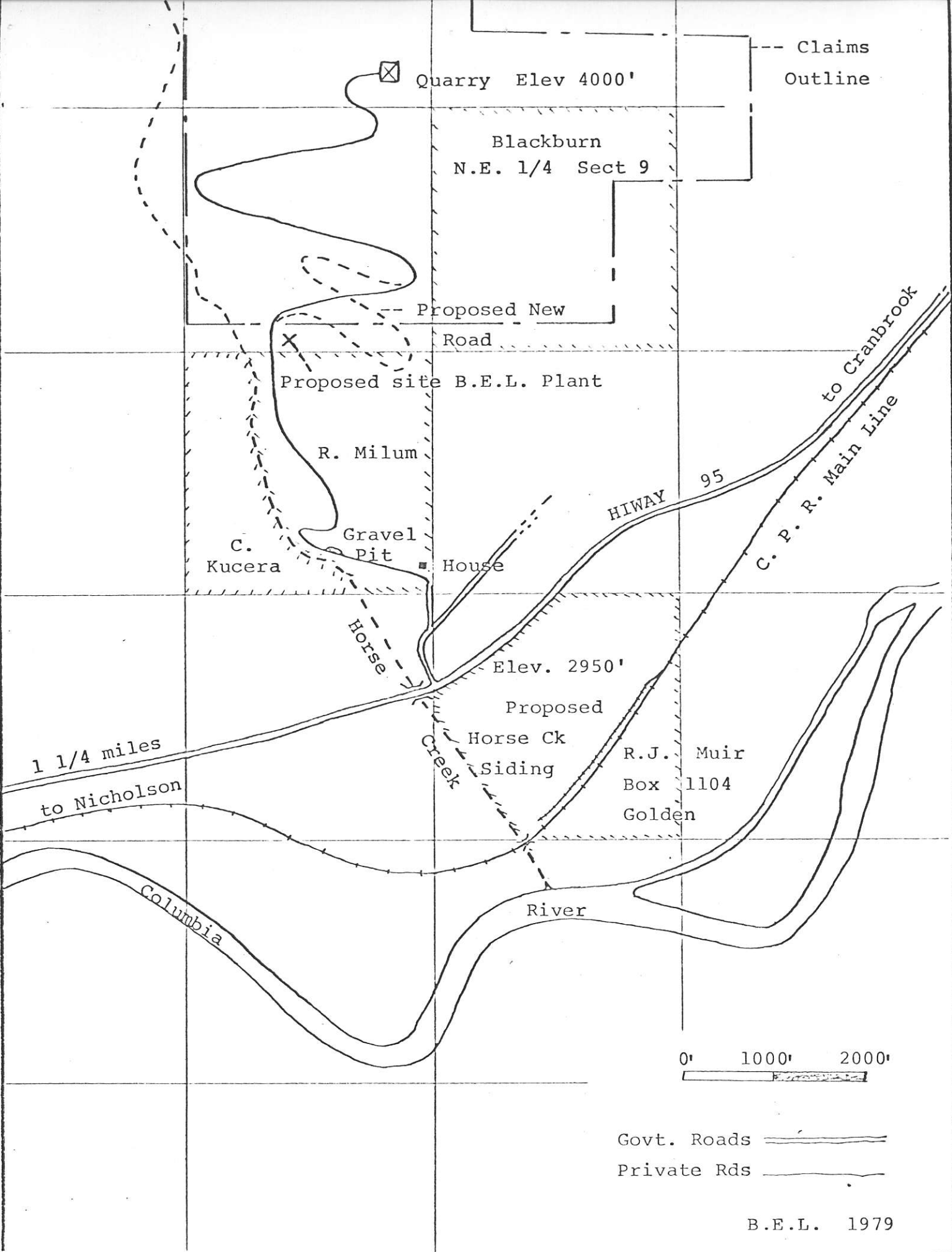
From GOLDEN 5X1 CRUSHED OVERSIZE

Si	Fe ₂ O ₃	CaO	Al ₂ O ₃		
	.06	.015	.19		

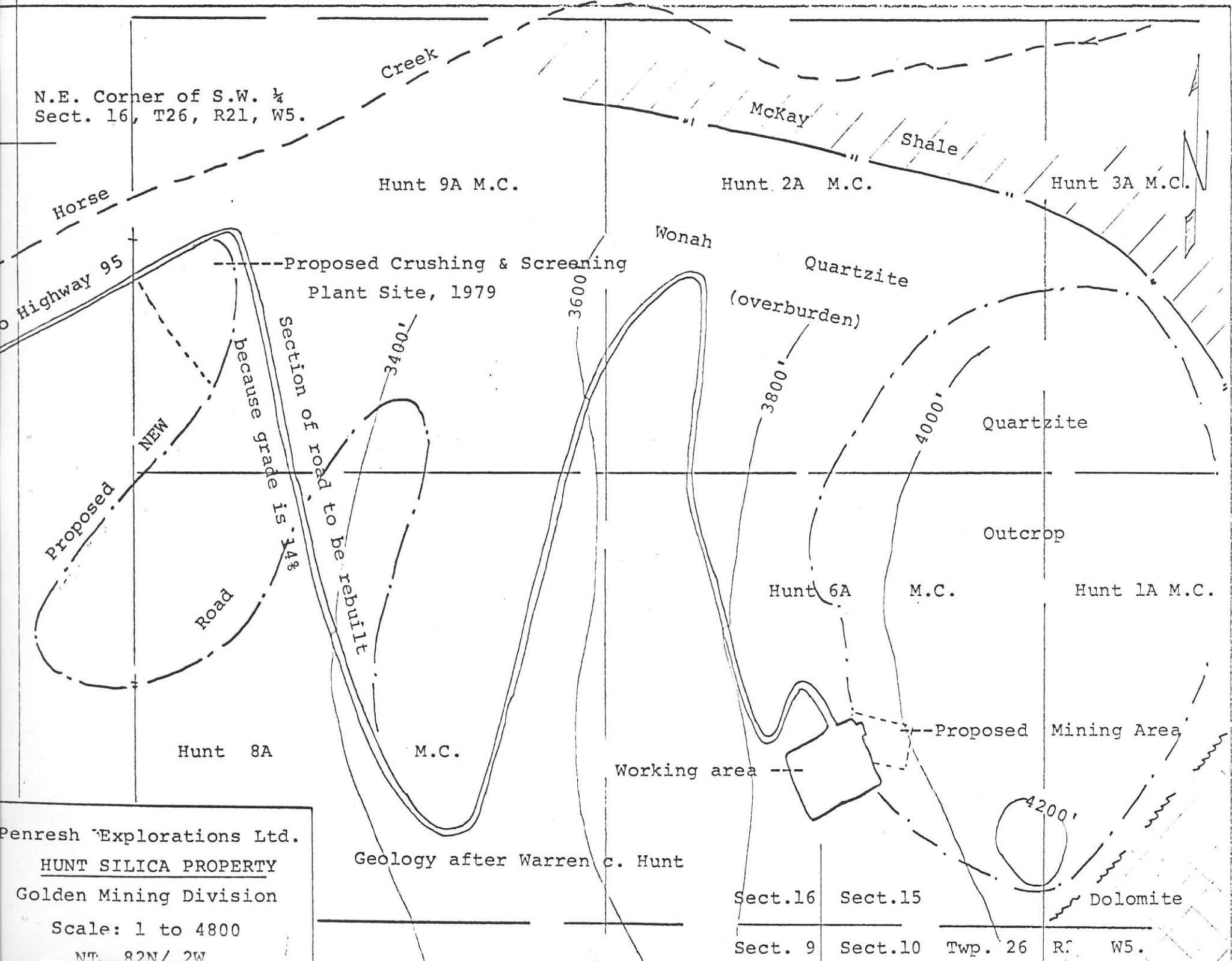
TO NORTH SEE MAP 02 N/7 W1/2



17541 HUNT BA	17521 HUNT 2A	17501 HUNT 3A
17511 HUNT BA	17491 HUNT LA	17511 HUNT 1A
17471 HUNT 2A	17451 HUNT BA	17431 HUNT GA



N.E. Corner of S.W. ¼
Sect. 16, T26, R21, W5.



Penresh Explorations Ltd.
HUNT SILICA PROPERTY
 Golden Mining Division
 Scale: 1 to 4800
 NTL 82N/ 2W

Geology after Warren c. Hunt

Sect. 16 Sect. 15
 Sect. 9 Sect. 10 Twp. 26 R. W5.

PROPOSED MINING AREA 1979

46X46X6 Metres

12,700 m³

Scale: 1 to 1200



Quartzite

Contact

Access Road

4000'

PROPOSED MINING AREA 1979

Hunt Silica Deposit

Cleared Area
Mine working area.

4200'

Sect. 16

Sect. 15

Sect. 9

Sect. 10

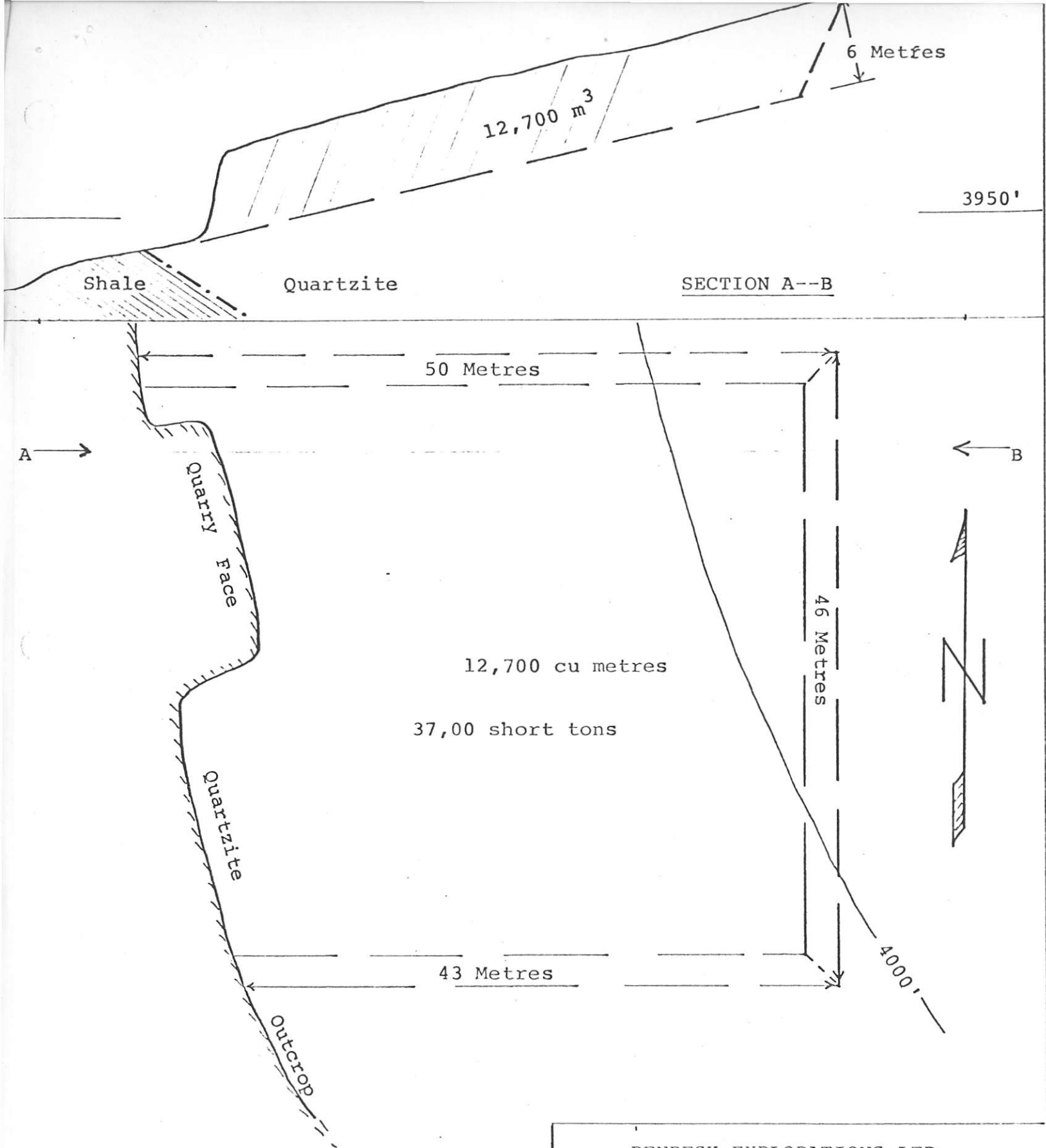
Twp. 26 R 21 R 21 W 5

NTS 82N / 2W

Penresh Explorations Ltd.

DETAIL IN PIT AREA

Scale: 1 to 2400



PENRESH EXPLORATIONS LTD.

Hunt Silica Quarry

Proposed Quarry Outline 1979