DIAMOND DRILLING AND GEOCHEMICAL REPORT ON THE PACIFIC EASTERN PROPERTY

LILLOOET MINING DIVISION
N.T.S.: 92J/10, 15
LATITUDE 50° 45'N, LONGITUDE 122° 45'N

FOR

NORMINE RESOURCES LTD.
900 - 609 WEST HASTINGS STREET
VANCOUVER, B.C. V6B 4W4

OWNERS

URBANWEST DEVELOPMENT CORP.
VANCOUVER, B.C.

BY

G. NORMAN, B.Sc., F.G.A.C.
NORMAN GEOLOGICAL
FOR
BEMA INDUSTRIES LTD.
900 - 609 WEST HASTINGS STREET
VANCOUVER, B.C. V6B 4W4

DECEMBER, 1986

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1.0 SUMMARY

The Pacific Eastern claim group consists of 59 crown granted mineral claims and 27 crown granted fractional mineral claims under option to Normine Resources Ltd. from Urbanwest Development Corp. of Vancouver, B.C.

The Pacific Eastern property is located 160 kilometres north of Vancouver approximately 5.45 kilometres southeast of the townsite of Bralorne. Access is by pavement and good gravel roads 112 kilometres northwest from Lillooet and 5.45 kilometers of rough gravel road to the west end of the claims. The claims extend southwesterly up Cadwallader Creek and cover the south slope of the creek for 8 kilometres from Extension to Chism Creek. The claims are located in the Lillooet Mining Divison at Latitude 50° 45' North and Longitude 122° 45' West. (See Figure 1 and 2.)

The elevation of the claim group is from 1,200 to 1,500 metres and topographically is an area of steep relief with tree covered slopes with various creeks draining south into Cadwallader Creek. The main area of interest on the Pioneer Extension showing lies along the valley bottom and is covered with up to 75 metres of glacial till which has made surface exploration difficult.

The Pacific Eastern property adjoins the Pioneer Mine immediately to the east. The main workings are located on the Pioneer Extension No. 1-2 mineral claims approximately 1,000 metres east of the Pioneer No. 1 and No. 2 shafts.

The Bralorne-Pioneer Mines vein system was the largest gold producer in British Columbia and ranks 9th in Canadian gold production. Production from the Bralorne-Pioneer Mines in the period 1900-1971 was 4.15 million ounces gold and .95 million ounces silver from 7.9 million tons of ore averaging .53 oz/ton gold recovered (after dilution and milling). The Bralorne mine closed in 1971 due to declining reserves, escalating costs and a pegged price of gold at $35/ounce. E and B Exploration (now Mascot Gold) optioned the property in 1979 and have delineated 930,000 tons of 0.25 oz/ton gold in all tonnage categories. Their reserves are primarly in old working areas and a new 150,000 ton body of .45 oz/ton gold in the upper levels of the 51 B Footwall vein. In addition Levon-Veronex Resources on the Congress and BRX properties (on the north end of the Bralorne structure) has announced indicated reserves of 670,000 tons of .25 oz/ton gold (160,000 ounces gold.)

Mineralization consists of free gold and 1-3% pyrite-arseno-pyrite in sheared quartz veins 3-20 feet wide averaging 4-6 feet. Principal production came from four large veins, the 77, 51, 27 and Main Vein from ore shoots with strike lengths of 1,000-1,500 metres and dip lengths of 1,500-2,000 metres. The great persistance of these veins to depth is due to the close association with the Cadwallader fault a deep seated crustal structure. The veins strike tangentically to the Cadwallader fault within a lens shaped body of

greenstone, diorite, soda granite, and greenstone which sustain brittle fractures. Extensive quartz-carbonate-biotite alteration envelopes surround the veins indicating a large hydrothermal system which has further enhanced the brittle nature of the host rocks. The ribbon texture of the veins indicates many periods of open space filling which took place over an extended time period accompanied by recurrent small movements along the vein shears.

During 1935-1937 (Pacific Eastern Gold Mines Ltd.) and 1944-1947 (Quebec Cartier Mining Company) completed underground mining work and explored the Pioneer greenstone anticline from the 520 cross cut outward along the 1959 drift for approximately 800 metres. The most significant vein discovered was located near the 520 crosscut. It was explored on via the 690 west drift, the west drift and a connecting winze, See Figure A. Significant assays of greater than .2 oz/ton were realized over extended sections and a grade of greater than .5 oz/ton was taken on the 690 west drift. Diamond drilling in 1985 (P85-02) to test the vein at depth interested two veins. One 1.0 to 1.5 metres wide with a wide carbonate altered envelope. The veins contained disseminated pyrite-pyrrhotite, and rare arsenopyrite and trace to 0.08 oz/ton gold. P85-03 drilled 250 metres to the east of P85-02, intersected 2 quartz stringer zones containing disseminated sphalerite, chalcopyrite, pyrite and galena with trace gold.

The revised (1986) geology of the Pacific Eastern property is shown in plan maps Figures 5 and 8 and in cross sections Figures 9 and 10. Two deep diamond drill holes P86-04 and P86-05 were drilled by Normine Resources Ltd during 1986. DDH P86-04 was targeted to test the favourable geological environment of the North Pioneer Greenstone anticline adjacent to Bralorne Intrusives and the Cadwallader fault below the western end of the 1595 drift and DDH 1945 No. 13. Two significant auriferous veins were intersected in DDH No. 13; one vein 1.0 metres wide with 0.1 oz/ton and a second one 1.5 metres wide with "free gold" - no assays. DDH P86-05 was targeted to test the Pioneer greenstone formation 550 metres east of the end of the 1595 drift. With this significant step out, a "new mineralized regime" was sought eastward along the favourable greenstone/diorite host rocks.

No significant quartz veining was interested in P86-04. The geological section was down dropped significantly with the Pioneer greenstone being intersected 150 metres deeper than expected. An "Empire type" fault was postulated to account for the downward displacement and an apparent 70 metre right lateral strike slip movement.

P86-05 intersected "significant looking" ribbon banded quartz veins within a large mass of diorite/quartz diorite as well as zones of strong ankerite-calcite alteration with smeared sulphides on fracture plans; all of which contained only background to weakly anomalous arsenic and very weak anomalous to background gold values.

1.1 CONCLUSIONS

1. The following criteria appear to be significant factors in the formation of Bralorne/Pioneer type Gold Quartz Vein Deposits:

   a) Close proximity to the Cadwallader fault. The presence of ultramafic rocks suggest a deep plumbing system capable of taping gold sources related to upper mantle degassing or lower crustal granulitization (Colvine et al, 1984).

   b) Host Rocks. Bralorne Intrusives, diorite, quartz diorite, soda granite and Pioneer greenstone. These rocks are competent enough to sustain brittle fracture therefore condusive to vein development.

   c) Presence of Albite Dyking. Albite dykes appear to be precussor to gold quartz veins striking and dipping similar to Au-veins at Bralorne and Pioneer. Although the Au mineralization could be of upper mantle or lower crustal in origin a geothermal heat pump is necessary to distribute the Au bearing hydrothermal solution. A deep seated intrusive related to the albite dykes is envisaged as that heat pump. The diorite/soda granite appears to be "old" geologically (245 my, K-AY) to have been possible mineralizers. (C. Leitch personnel communication).

   d) Hydrothermal alteration in particular carbonization of wall rock appears to be closely associated with productive veins at Bralorne and Pioneer mines.

2. The 1986 diamond drill program (DDH P86-04 and DDH 86-05) confirmed that the favourable geological environment of Bralorne Intrusives and Pioneer greenstones with banded quartz veins enveloped by carbonate alteration extends eastward from known underground workings, however, only trace amounts of gold were encountered in the veins.

   DDH 86-04 failed to intersect significant quartz veining, although it intersected two zones of strong carbonate alteration within fault/shear zones. A "Empire type" fault was postulated to account for the down drop in the section by 150 metres and approximately 70 metres of right lateral strike slip movement.

   DDH 86-05 intersected a thick section (218 metres) of diorite/quartz diorite similar to the Bralorne mine area which has intruded the Pioneer greenstone anticline and is cut by several encouraging Bralorne type ribbon banded quartz veins; the veins, however, contained only weak arsenic and gold geochemical values.

3. Two target areas have been defined by the 1985-1986 diamond drill programs.

Target 1

Hole P86-05 intersected an unexpected thick section (218 metres) of diorite/quartz diorite which has intruded the Pioneer greenstone anticline. The diorite from 384 - 602 metres is extensively veined with many quartz veins with carbonate halos and disseminated pyrite. Although only weak gold is present, the intensity of alteration and similarity of the banded veins to the Bralorne veins indicate that this area may be on the fringe of another gold mineralizing structure with a possible gold source to the east.

The results of a limited soil geochemical survey located east of P86-05 show a weak arsenic-antimony anomaly located at L115+ 00E; 97+00E (90 ppm As and 1.6 ppm Sb). This weak anomaly lies above the point recently drilled by P86-05, but because the sampled media was glacial till, anomalous values are related to transported material, which is possibly further to the east.

Target 2

As drilling has progressed eastward from the Pioneer Mine and the 520 crosscut the late hydrothermal "gold mineralizing" event that produced the high grade Main and 27 veins appears to weaken eastward with 86-04 failing intersect significant alteration or veining.

The western portion of the Pacific Eastern property appears to be still within the Pioneer gold mineralized regime as significant gold values are contained within a vein located just east of the 520 cross cut. The vein was explored via underground work on the 690 west drift, west drift and connecting winze with some significant results of greater than .2 oz/ton over 15 metres on the west drift and a grade of greater than 5.0 oz/ton on the 690 west drift, see Figure A.

P-85-02 was drilled underneath the above auriferous vein and intersected, at depth, two quartz veins 1.0-1.5 metres thick with an 80 metre wide carbonate alteration envelope. The veins are mainly massive quartz with quartz stringers and contain minor disseminated pyrite-pyrrhotite, trace arsenopyrite and assayed trace to 0.08 oz/ton gold. It is possible that P85-02 pierced a "mineralized low" with more highly mineralized surrounding material. To appreciate the fact that mineralized lows do exist within a productive vein and that more than one drill hole is required to evaluate an area of suspected potential, refer to Figure B Longitudinal Section of Main Vein showing stoped areas.

The target would seem to be within the area of P85-02. Further drilling is needed to test this zone.

1.2 RECOMMENDATIONS

1. Diamond drilling is recommended to the east of DDH 85-05 which intersected a thick section of favourable diorite/ quartz diorite host rock with banded quartz veins. Before drilling, the grid should be established over the area and geological, soil geochemical and VLF and magnetometer surveys should be conducted to better target the holes.

2. Further diamond drilling in the area between the Pioneer claim boundary and the 520 crosscut and below the 690 west drift (where assays of greater than 0.2 oz/ton are noted and also a grab of greater than 5 oz/ton) is justified in light of a perusal of Figure B, where many mineralized lows are found within a productive vein.) More specifically two holes are recommended 100-150 metres on each side of P85-02. See Figure 8 for hole locations.

2.0 INTRODUCTION

The Pacific Eastern claim group consists of 59 crown granted mineral claims and 27 crown granted fractional mineral claims under option to Normine Resources Ltd. from Urbanwest Development Corp. of Vancouver, B.C.

Exploration work during 1986 covered the Gold Fields Deep No. 2A.M.C. (L5663) Mix Fr.M.C. (L5663), Justrite M.C. (L5565 C.G.), Undershot No. 3 M.C. (L5578) and Docrite M.C. (L5566 C.G.) claims. The work was done during the period July to October and included 1445.7 metres of diamond drilling in two deep holes and minor soil geochemical sampling.

The purpose of the exploration drilling program was to test for gold fissure veins similar to those mined at Bralorne and Pioneer Mines within the geologically favourable Pioneer greenstone and Bralorne intrusives near the Cadwallader fault system.

This report describes the results of this season's program and makes recommendations for further exploration work.

2.1 LOCATION AND ACCESS

The Pacific Eastern property is located 160 kilometres north of Vancouver approximately 5.45 kilometres southeast of the townsite of Bralorne. Access is by pavement and good gravel roads 112 kilometres northwest from Lillooet and 5.45 kilometres of rough gravel road to the west end of the claims. The claims extend southwesterly up Cadwallader Creek and cover the south slope of the creek for 8 kilometres from Extension to Chism Creek. The claims are located in the Lillooet Mining Division at Latitude 50° 45' North and Longitude 122° 45' West. (See Figure 1 and 2).

2.2 PHYSIOGRAPHY

The elevation of the claim group is from 1,200 to 1,500 metres and topographically is an area of steep relief with tree covered slopes with various creeks draining south into Callwallader Creek. The main area of interest on the Pioneer Extension showing lies along the valley bottom and is covered with up to 75 metres of glacial till which has made surface exploration difficult.

2.3 CLAIMS

The Pacific Eastern property consists of 59 Crown Granted mineral claims and 27 fractions covering 2,958 acres. The mineral land taxes amount to $747.50 per year and are to this date in good standing.

The following list gives the legal description of each claim and its folio number, Figure 3 outlines the claim group and its relationship to the adjoining Bralorne-Pioneer ground.

0 100 200 300 400 500 600
Km

0 100 200 300 400
SCALE Miles

FROM : B. C. GOVERNMENT ROAD MAP

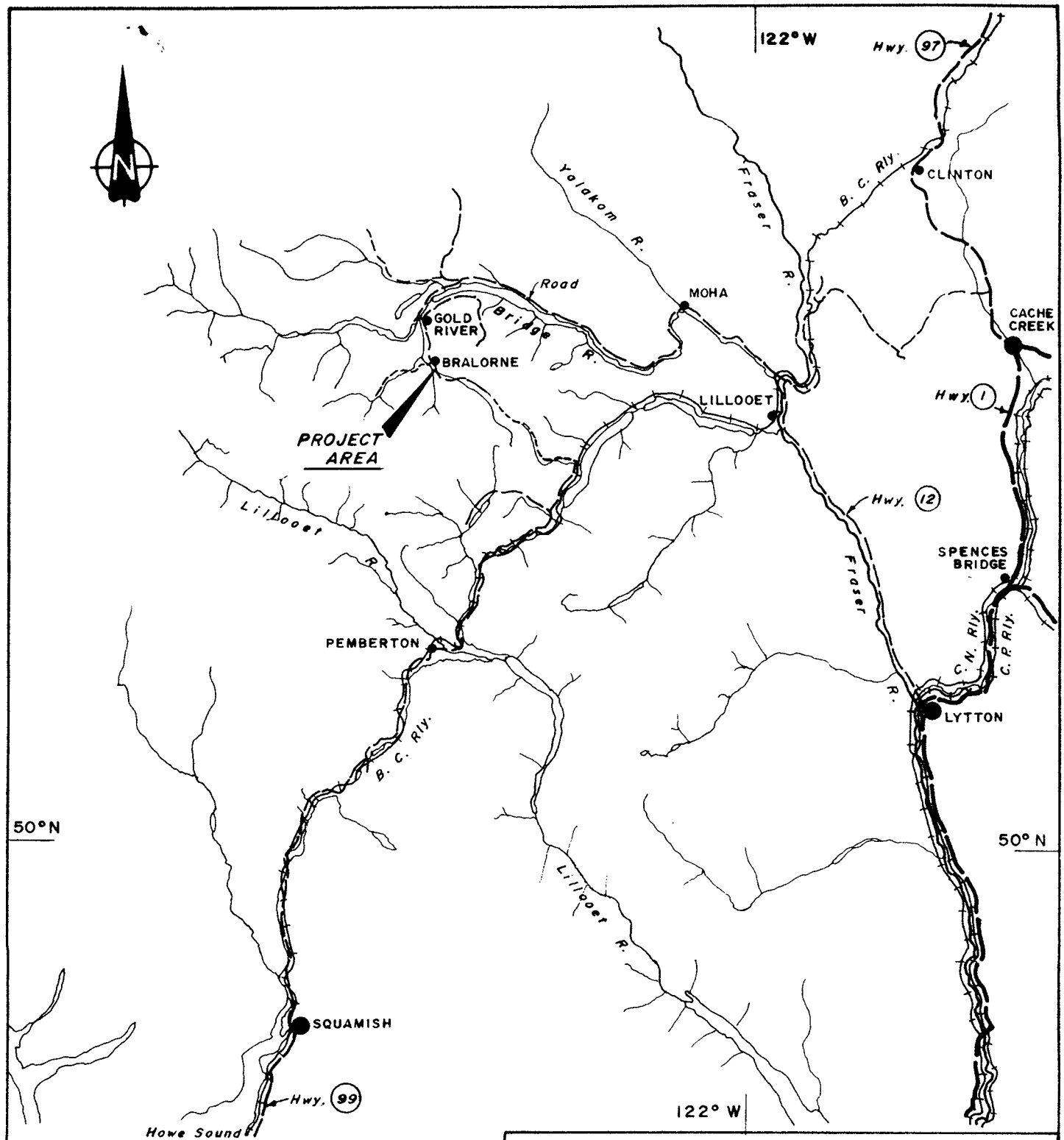
NORMINE RESOURCES LTD.

PACIFIC EASTERN PROJECT

PACIFIC EASTERN LOCATION MAP

DATE:	83 · 06 · 02	JOB NO.:	83 – 16
APPROVED BY:		FIG. NO.:	1

BEMA INDUSTRIES LTD.



NORMINE RESOURCES LTD.

BRALORNE, B. C.

PACIFIC EASTERN ACCESS MAP

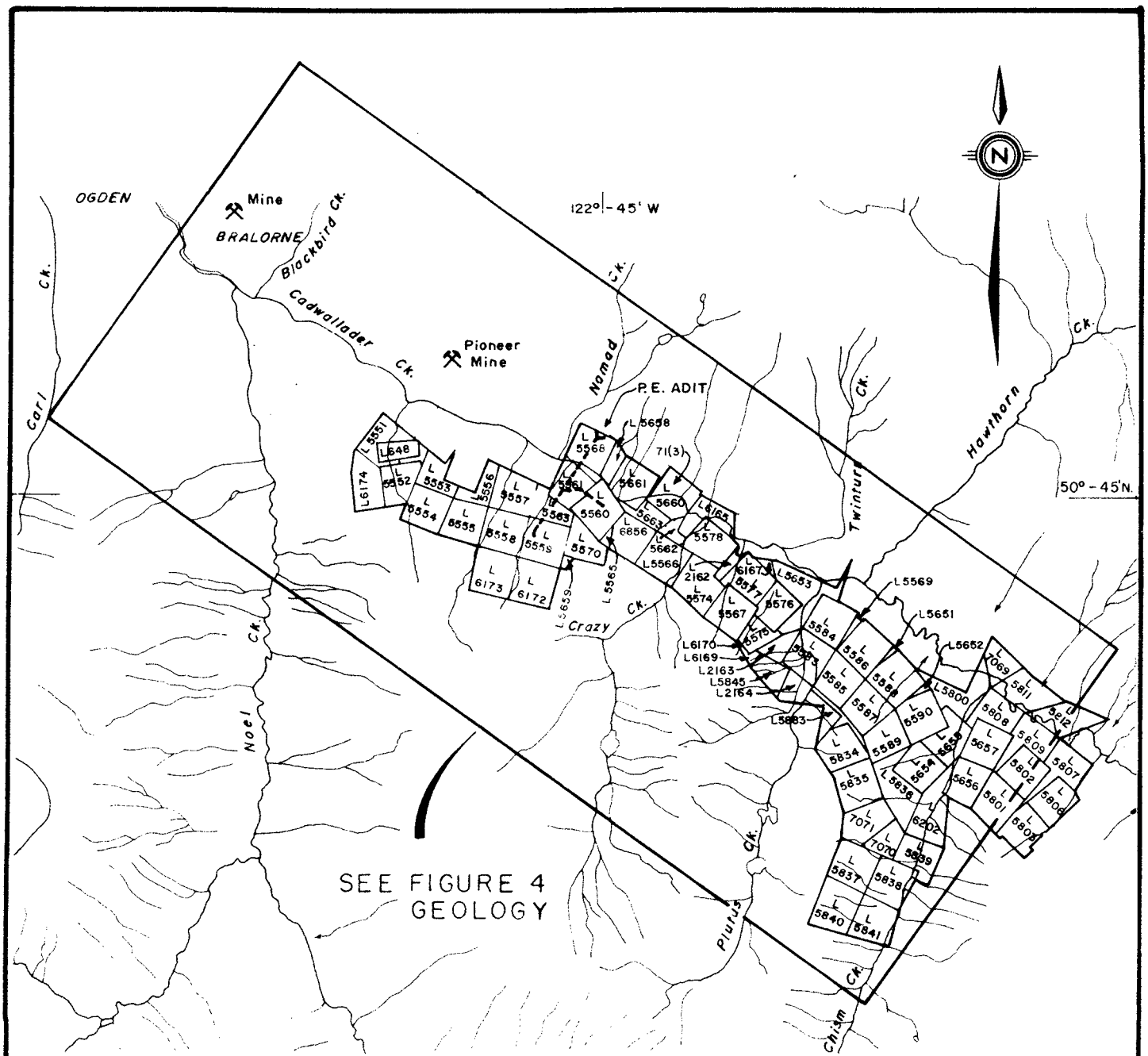
DATE:	83 · 06 · 01	JOB NO.:	83 – 16
APPROVED BY:		FIG. NO.:	2

BEMA INDUSTRIES LTD.

0 10 20 30

SCALE Miles

FROM: B. C. GOVERNMENT ROAD MAP



0 1000 2000 3000
SCALE METRES

0 1 2
SCALE MILES

SOURCE : NTS: 1:250,000
92 / J / 10
92 / J / 15

NORMINE RESOURCES LTD.

PACIFIC EASTERN PROJECT

PACIFIC EASTERN CROWN GRANTS

DATE	83·05·25	JOB NO	83 – 16
APPROVED BY		FIG NO	3

BEMA INDUSTRIES LTD.

TABLE I

LIST OF CLAIMS

Mining Division and Land District	Folio	Lot No.	Claim Description	Kamloops L.R.O. C. of T.
Lillooet	32395	5659	Besance	68605F
Lillooet	32395	5658	Mac Fraction	68606F
Lillooet	32328	6169	Diorite	68619F
Lillooet	32328	6174	Jackson Fraction	68593F
Lillooet	32328	6170	Augite	68596F
Lillooet	32328	6167	Last Fraction	68597F
Lillooet	32328	5652	Six Eight Fraction	68391F
Lillooet	32328	5651	Foursix Fraction	68855F
Lillooet	32131	5569	Twofour Fraction	68856F
Lillooet	32131	5565	Justrite	66354F
Lillooet	32131	5566	Docrite	66355F
Lillooet	32131	5567	Jackrite	66356F
Lillooet	32131	5663	Pioneer Extension No. 2	68615F
Lillooet	32131	5551	Hoover Fraction	67671F
Lillooet	32131	5590	Plutus No. 8	68390F
Lillooet	32069	5589	Plutus No. 7	68843F
Lillooet	32069	5584	Plutus No. 2	68839F
Lillooet	32069	5586	Plutus No. 4	68841F
Lillooet	32069	5587	Plutus No. 5	68607F
Lillooet	32069	5585	Plutus No. 3	68608F
Lillooet	32069	5583	Plutus No. 1	68609F
Lillooet	31992	5578	Undershot No. 3	68610F
Lillooet	31992	5577	Undershot No. 2	68611F
Lillooet	31992	5576	Undershot No. 1	68612F
Lillooet	31992	5575	Full Measure Fraction	68613F
Lillooet	31909	5554	Jefferson	67669F
Lillooet	31992	5572	Adams Fraction	67666F
Lillooet	31992	5574	Overdraft Fraction	
Lillooet	31992	5552	Roosevelt	67672F
Lillooet	31950	5568	Pioneer Extension No. 1	68614F
Lillooet	31909	5560	Pioneer Extension	66353F
Lillooet	31909	5559	Bess	61693F
Lillooet	32131	5570	Pioneer Extension No. 3	61693F
Lillooet	31909	5557	Lincoln	68618F
Lillooet	31909	5558	Bryan	68617F
Lillooet	31909	5556	Cleveland	67667F
Lillooet	31909	5553	Garfield	67670F
Lillooet	31909	5555	Washington	67668F

Lillooet	31909	5561	Pioneer Extension Fraction	68616F
Lillooet	32328	6165	Mix No. 1	70946F
Lillooet	32069	5588	Plutus No. 4	68842F
Lillooet	32700	5807	Dan Tucker No. 7	68398F
Lillooet	32735	5845	East	68598F
Lillooet	33359	6172	Alta	68595F
Lillooet	33359	6173	Zenith	68594F
Lillooet	33359	6202	Chism A Fraction	68850F
Lillooet	33359	2162	Al Fraction	68857F
Lillooet	32735	5837	EPU No. 4	68849F
Lillooet	32700	5836	EPU No. 3 Fraction	68848F
Lillooet	32603	5801	Dan Tucker No. 3	68847F
Lillooet	33359	2164	Don Fraction	68840F
Lillooet	33359	2163	Hyatt Fraction	68838F
Lillooet	31909	5559	Bess	61693F
Lillooet	31909	5570	Pioneer Extension No. 3	61693F
Lillooet	33359	648	McKinley	60587F
Lillooet	32735	5835	EPU No. 2	68403F
Lillooet	32735	5838	EPU No. 5	68404F
Lillooet	32735	5840	Rex	68405F
Lillooet	32735	5839	EPU No. 6	68406F
Lillooet	32735	5841	EPU No. 7	68407F
Lillooet	32700	5662	Undershot Fraction	68603F
Lillooet	32700	5663	Mix Fraction	68602F
Lillooet	32700	5664	Odd Fraction	68601F
Lillooet	32700	5833	EPU	68600F
Lillooet	32700	5834	EPU No. 1	68599F
Lillooet	32638	5806	Dan Tucker No. 6	68397F
Lillooet	32638	5808	Dan Tucker No. 8	68399F
Lillooet	32638	5809	Dan Tucker Fraction	68400F
Lillooet	32638	5811	Close Fraction	68401F
Lillooet	32638	5812	Close A Fraction	68402F
Lillooet	32638	5802	Dan Tucker No. 4	68395F
Lillooet	32638	5803	Dan Tucker No. 5	68396F
Lillooet	32603	5800	Chism Fraction	68846F
Lillooet	32603	7069	Extra Fraction	68851F
Lillooet	32603	7070	PEG No. 1 Fraction	68852F
Lillooet	32603	7071	PEG Fraction	68853F
Lillooet	32603	5661	Gold Field Deep No. 2A	68854F
Lillooet	32395	5654	Skull	68392F
Lillooet	32395	5655	Cross Bones	68393F
Lillooet	32395	5657	Dan Tucker No. 2	68394F
Lillooet	32395	5653	Plutus Fraction	68844F
Lillooet	32395	5656	Dan Tucker No. 1	68845F

2.4 HISTORY

In 1863 placer gold was discovered on the Bridge River. Lode gold showings were discovered in 1897 and the Cadwallader Creek showings were staked but until 1928 very little development was done. In spite of favourable reports by Alan M. Batemau and other engineers, it wasn't until Mr. David Sloan instigated production of the Pioneer Mine that the potential of the mineralized zones was realized.

Production from the Bralorne-Pioneer Mines from 1900 to 1971 was 4,154,119 ounces gold and 950,510 ounces silver from 7,950,931 tonnes, averaging 0.530 oz/ton gold recovered gold. Reserves in 1973 were reported at over 600,000 tons averaging 0.25 to 0.30 ounces gold per ton. Recent reserves announced by E & B Exploration Inc. are 930,000 tons of 0.26 oz/ton gold above the 26 foot level.

On the Pacific Eastern property, the Pacific Eastern Gold Mines Ltd. was incorporated in 1929 to acquire and develop the Pioneer Extension group of claims adjoining Pioneer Gold Mines to the southeast. Subsequently this company and its successors, the Pioneer Extension Gold Mines Ltd. and the Pacific Eastern Gold Ltd., acquired the President, Plutus and Dan Tucker groups of claims which lie between the Extension Creek and Chism Creek along the south side of Cadwallader Creek.

Surface work and diamond drilling was done at widely scattered locations on the claims during the 1930's, but the underground work has been concentrated on the Pioneer Extension group. Most of that work done at two periods in the history of the property. The first period was between 1935 and 1937, when the present shaft was sunk and much of the crosscutting and drifting was done. An indication of the amount of work done during that period is given by the British Columbia Minister of Mines Report for 1936 which states that the main crosscut was 945 meters from the shaft, 775 meters of exploratory drifting had been done, a winze had been sunk 70 meters to the 210 metre level and drifting done on this level.

A company plan dated December 3, 1937 indicates that by the end of 1937 the 520 crosscut had been driven to its present face and the short drifts near the face had been driven. Also by that time, the 1595 East drift had been extended to the South Crosscut and from this crosscut, the East and West Drifts, No. 2 East and No. 3 East drifts had been driven and from the bottom of the winze, the 690 level had been driven to its present east and west faces. The sample plans referred to above indicate that thirteen short drillholes had been drilled by that time. Drilling and underground drifting failed to locate any economic ore shoots work, although, an interesting mineralized vein was outlined on the 690 west drift and the connecting winze. Assays of greater than .2 oz/ton and up to 1.5 oz/ton were noted on the west drift and a grab of greater than 5 oz/ton was collected on the 690 west drift. Exploration work, however, was suspended in 1937 by Pacific Eastern Gold Mines Ltd.

elliptical in shape and has been mapped over a strike length of 8 kilometers. The stock widens to 1200 metres at the Bralorne mine and narrows at both ends to irregular dyke like bodies. At the eastern portion of the Pioneer mine and western portion of the Pacific Eastern property the intrusives form a narrow dyke like body 10 meters wide at surface gradually widening to 100 to 150 meters wide at a depth of 1500 metres.

Recent mapping by Leitch (1985) indicates a more highly complex relationship of diorite and soda granite with numerous dyke like bodies in the main intrusive at Bralorne.

Two prime fault or shear sets are present:

(1) Cadwallader and Fergusson faults which are major strike slip faults with large vertical horizontal displacements. They strike northwesterly and are roughly conformable to bedding. The faults are serpentinized and contain serpentinized ultrabasic fault slices indicating a deep crusted association.

(2) The second shear set is bounded by the major strike slip shear zones, and appears to be a conjugate set to major movement on the Cadwallader and Fergusson faults. The majority of the vein fissures strike north easterly and dip north, tangential to the Cadwallader fault, with several exceptions (27 vein and 85 vein) which strike north and dip west. Where this set of vein fault fissures passes through more competant brittle quartz diorites, soda granite and massive greenstones, dilatent zones are formed which are the focus for the auriferous quartz veins. Gold bearing veins have been injected along these dilatent fissure zones over an extended period accompanied by repeated minor movement to form characteristic banded vein fissures. The major gold fissure vein deposits in the Bralorne gold camp have been mined over strike lengths of in excess of 1,000 to 1,200 meters and dip lengths of 1,500 to 2,000 meters.

The vein material consists of milky white quartz and calcite with 1 to 3% fine grained sulphides and finely disseminated free gold. The most conspicuous feature of the veins is a ribboning parallel with the vein walls. The quartz ribbons range from 1 to 10 centmeters and are separated by thin septus of sericite schist (altered greenstone). The schist septa consists primarily of sericite with fine disseminations of sheared pyrite, arsenopyrite with lessor amounts of sphalerite, galena and chalcopyrite and fine to coarse disseminated native gold. The ribbon features are indicative of repeated open space filling of the vein.

Vein alteration as noted in the available literature (Stevenson (1953), Joubin (1948), Cairnes (1937)) is described as weak to intensive carbonate - biotite forming envelopes from a few to many feet around the veins. Recent mapping in 1985 by Craig Leitch (Ph.d in process on Bralorne Gold Camp at UBC) and G. Nordin have outlined large hydrothermal alteration zones connected with the quartz gold

In 1944 the Pacific Eastern property was acquired by Quebec Cartier Mines Ltd. (a Noranda subsidiary) the geology was re-evaluated and in 1945 three surface diamond drillholes - S-11, S-12, S-13 tested the eastward extension of favourable geology and gold veins in the 1595 drift along the Pioneer greenstone anticline. Diamond drill hole S-13 cut a section of greenstone and Bralorne diorite 762 metres to the southeast from the Pacific Eastern adit and two gold veins were intersected at 230 meters within a 15 meter wide brecciated, quartz-carbonate altered zone with disseminated sulphides. One of the veins has a core width of 1 meter assaying 0.1 ounces gold per ton and the other 1.5 meters wide contained free gold, no assays are available for this section.

In 1946, the old workings were cleaned out preparatory to extending the 1595 Drift in an easterly direction to explore ground in the vicinity of the intersections in drillhole S-13 of free gold in two quartz veins. About 610 meters of surface and underground diamond drilling were also done during the year.

In 1947 this drifting was continued, several crosscuts were driven from the main drift to prospect short quartz veins outlined; and twenty-two underground diamond-drill holes were drilled. The mine was closed that summer because "On August 18, 1947 an explosion of methane gas on the 520 level resulted in the death of three men. Shortly after this the mine was abandoned, the equipment removed, and the mine allowed to flood." B.C. Minister of Mines Report, 1947, p. 134. No further recorded work has been done on the property until recently.

Noranda Mines Ltd. held the claims during the period 1947 to 1973 through its subsidiary Quebec Cartier Mines Ltd. In 1973 Noranda transferred the property to Mr. Richard J. Barclay for payment to back taxes. Mr. Barclay held the claims during the period 1973 to 1974 at which time he sold them to JTM Enterprises Ltd. and BRH Investments of Vancouver. In May, 1983 Normine Resources Ltd. optioned the claims from J.T.M. Enterprises Ltd. and B.R.H. Investments. JTM Enterprises Ltd. and BRH Investments sold their interests to Urbanwest Development of Vancouver shortly after the option.

Normine Resources Ltd. contracted Bema Industries Ltd. to conduct a preliminary geological survey and data compilation of the Pacific Eastern property in June, 1983. A five day field program was conducted on the Pioneer Extension and Dan Tucker portions of the Pacific Eastern property. A comprehensive data search was made of British Columbia government records and data supplied by Dr. J.S. Stevenson. A report was compiled from this information in August, 1983.

Normine Resources Ltd. negotiated a joint venture agreement to explore the Pacific Eastern Property in June 1985 with Canada Tungsten Mining Corporation Ltd. A diamond drill program on the Pioneer Extension No. 2 Claim was initiated to test favourable geology below underground workings (1595 drift) by a series of deep

holes. Only two holes were completed due to the loss of hole No. P85-01 and the higher than expected cost. P85-02 intersected two quartz veins 1 to 1.5 metres in width within a carbonate-biotite alteration envelope. The veins were mainly massive quartz containing disseminated pyrite-pyrrhotite and trace arsenopyrite and assayed trace to 0.08 oz/ton gold. P85-03 intersected two quartz stringer zones containing disseminated sphalerite, chalcopyrite, pyrite and galena with trace of gold within intensely sheared carbonate altered zones. A series of quartz dacite porphyry dykes containing disseminated pyrite and arsenopyrite were intersected from 500 to 700 metres in P85-02 and P85-03. These dykes are considered to be intramineral intrusives and closely associated with and precussor to mineralization.

2.5 PRESENT WORK

Canada Tungsten Mining Corporation Ltd. did not wish to participate with further exploration of the property and dissolved the joint venture agreement in March 1986.

Normine Resources Ltd. continued exploration work during the 1986 season with the assistance of flow-through funding (First Exploration Fund (1986) Partnership and the B.C. Ministry of Energy, Mines and Petroleum Resources Fame Grant.

The 1986 exploration program consisted predominately of diamond drilling with minor grid establishment and a limited soil geochemical survey.

The work is summarized below.

2.5.1. Diamond Drilling Program (also see Section 5.0)

a)	Diamond drilling (coring) 2 diamond drill holes, HQ and NQ P86-04 and P86-05	1445.7 m
b)	Diamond Drill Hole Survey Sperry Sun Magnetic Single Shot Instrument	86-04; 86-05
c)	Core Logging Detailed logging of P86-04 and P86-05 at a scale of 1:200	1445.7 m
d)	Rock Geochemistry Analyzed for Au, Ag, Sb and As Analyzed for Cu, Ni, Co & Cr Analyzed for Pd and Pt	 130 samples 8 samples 2 samples
e)	Road and Drill Pad Construction Utilizing a D-6 caterpillar	 2 drill pads 1.3 km of drill road

2.5.2. Grid Establishment

a) Set up co-ordinate system with origin, 100+00N, 100+00E, at western boundary of claims at S.P.4

b) Extend baseline 100+00N via cut line and sight picketing from 107+00E to 109+73 (to Cadwallader Creek) — 273 m

c) Tight chained baseline from 100+00E to 109+73 and set co-ordinate tagged pickets — 973 m

d) Set up satellite compass and flagged grid, origin near Crazy Creek, with control being Tie line 96+00N. Lines 115+00E, 117+00E, 119+00E, 121+00 extended from 95+00N to 98+00N — 1.8 km

2.5.3. Soil Geochemistry — 1.2 km
also see Section 6.0 . — 52 samples

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4.0 REGIONAL GEOLOGY

The Bralorne-Pioneer gold camp lies in a fault lens of eugeosynclinal oceanic rocks termed the Bridge River Group by Tipper (1981). It lies on the eastern flank of the coast plutonic belt which is sutured between the Wrangellia terrain on the west and Stikinia on the east.

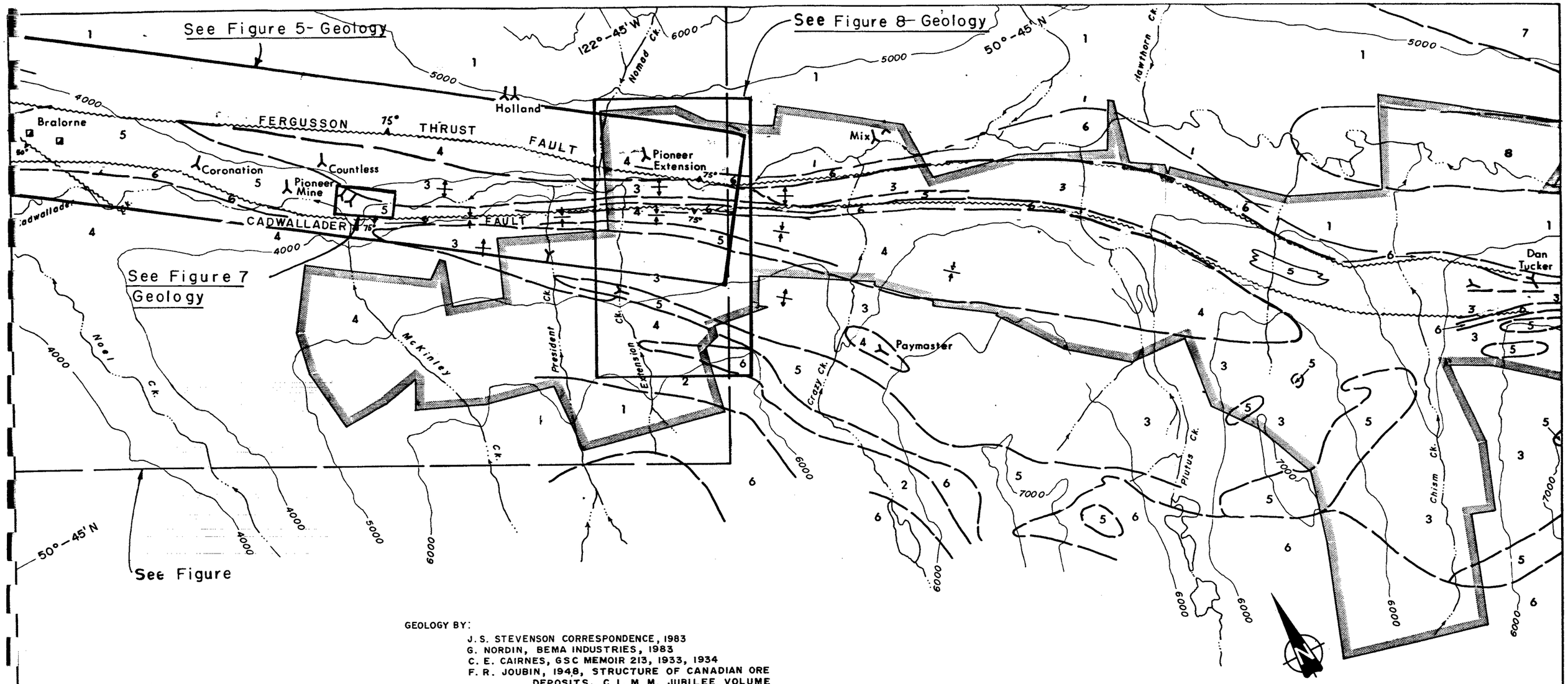
The lithological units within the Bridge River group have been identified as being Permian, Upper Triassic and Jurassic in age. With the oldest rocks being ribbon cherts and argillite of the Permian age Fergusson group, overlain, conformably by argillites of the Noel group, andesitic volcanics of the Pioneer formation and calcareous argillaceous sediments of the Hurley formation all of Upper Traissic age. The rocks are intruded by the Bralorne Intrusives and Coast Range plutonics. The age dates of both intrusives in the area of Jurassic-Cretaceous. The Bralorne Intrusives hybrid contacts with the greenstones are indications by Leitch (1985) that they may be as old as the Triassic Pioneer greenstones. The intrusives mapped in the Bridge River area by Stevenson (1958) and Cairnes (1937) from oldest to youngest are, serpentinized President ultramatic, Bralorne diorite, soda granite and albitite (quartz-plagioclase porphyry dykes.

4.1 DISTRICT GEOLOGY

The geology of the Bralorne-Pioneer-Pacific Eastern properties is shown in Figures 4, 5, 7 and 8 and Vertical cross sections 6, 9 and 10.

Laminated chert-argillites and basalts of Permian age Ferguson group are overlain conformably by argillaceous sediments of the Noel formation, andesitic volcanics of the Pioneer formation and calcareous argillaceous sediments of the Hurley formation all of Upper Traissic age.

These rocks have been tightly folded into two northwest-west trending upright anticlines and synclines which have a shallow plunge to the east between the Pioneer and Pacific Eastern ground. The anticlines are occupied by the Pioneer greenstones and the synclines by Noel and Hurley sediments. The northern anticline is cut along its south boundary by the serpentinized Cadwallader shear zone which is up to 60 meters wide and dips 70-75^{o} to the south west. The Permian age Fergusson group rocks lie on the north boundary of the area and have been thrust over the Upper Triassic assembleage along the serpentinized Fergusson thrust fault which dips 70-75^{o} northeast and defines the northern boundary of gold mineralization in the Bralorne-Pioneer mine area. The Bralorne intrusives, intermediate composition, augite quartz diorite and soda granite have been intruded along the southwest limb of the Northern Greenstone Anticline along the north margin of the Cadwallader fault and serpentine. At the Bralorne mine and western portion of the Pioneer mine they have intruded the core of the anticline and comprise the host rock of gold mineralization. The granitic stock is



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J. S. STEVENSON, 1983

WITH MODIFICATIONS BY W.G. STEVENSON, P. ENG.

LEGEND

- ANTICLINE AXIS
- SYNCLINE AXIS
- ADIT
- GEOLOGICAL CONTACT
- CREEK
- CLAIM BOUNDARY
- CONTOURS (IN FEET)

CENOZOIC

8 — PLEISTOCENE to RECENT

CRETACEOUS

BENDOR INTRUSIVES

7 — Hornblende - biotite quartz diorite

PRESIDENT

6 — Peridotite, dunite, serpentine

JURASSIC

BRALORNE INTRUSIVE

5 — Soda granite, augite diorite, gabbro

JURASSIC - TRIASSIC

4 — HURLEY FORMATION - argillaceous - tuffaceous sediments, minor limestone, conglomerate

3 — PIONEER FORMATION - andesite, greenstone, tuff, breccia

2 — NOEL FORMATION - argillaceous - tuffaceous sediments, conglomerate, tuff breccia

PERMIAN

FERGUSSON SERIES

1 — Basalt, andesite, thin bedded chert, argillite.

0 1000 2000 3000 4000 5000 6000 FEET

0 500 1000 1500 METRES

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DISTRICT GEOLOGY

DATE:	83-11-03	JOB NO.:	83-16
APPROVED BY:		FIG NO.:	4

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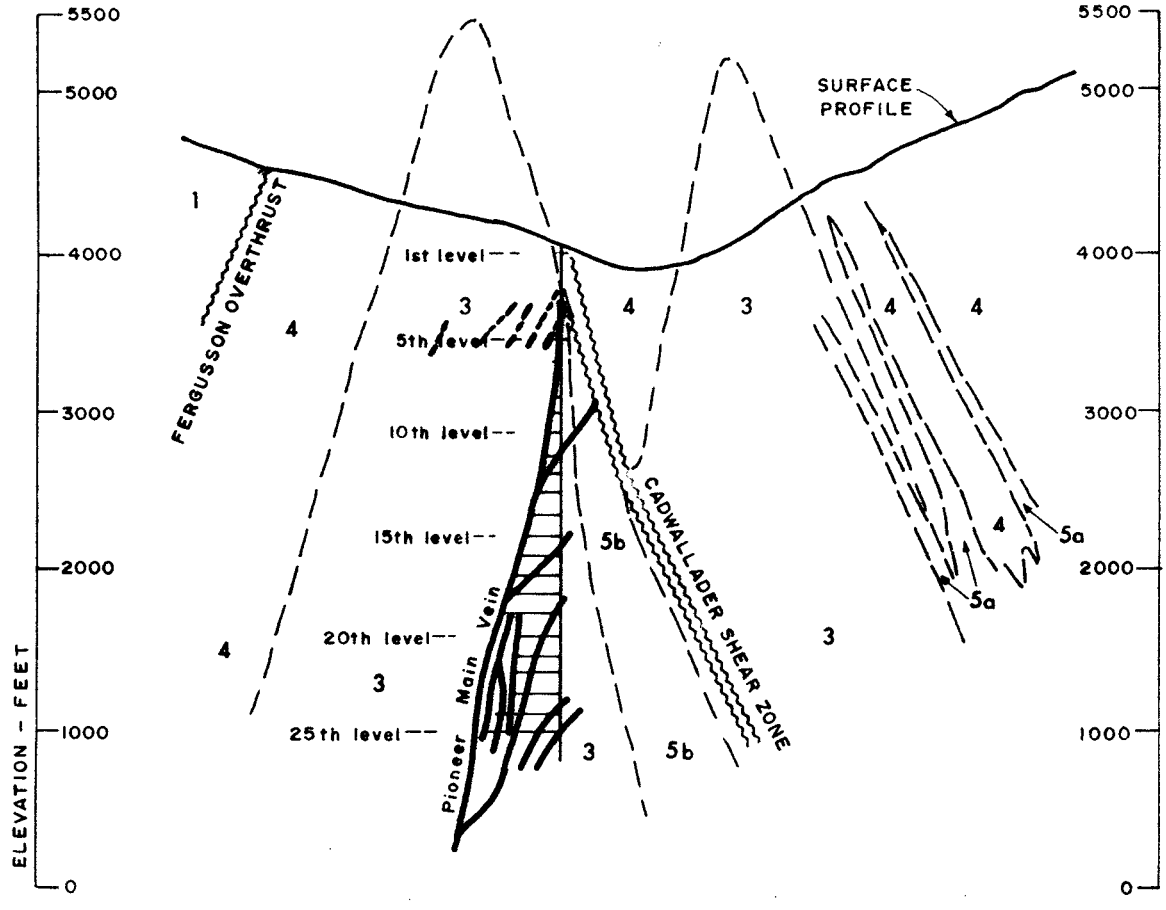
G

LOOKING SOUTHEAST

G'



LEGEND

CRETACEOUS

6 — Serpentine

JURASSIC
BRALORNE INTRUSIVES

5b — Soda granite

5a — Augite diorite

JURASSIC - TRIASSIC

4 — HURLEY FORMATION - sediments

3 — PIONEER FORMATION - greenstone

PERMIAN

1 — FERGUSSON SERIES - greenstone, sediments

GOLD VEINS

0 300 METRES

SCALE

GEOLOGY BY:
G. NORDIN, BEMA INDUSTRIES, 1983
F. R. JOUBIN, 1948
STRUCTURE OF CANADIAN ORE DEPOSITS, C.I.M.M. JUBILEE VOLUME

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SECTION A - B

GEOLOGICAL CROSS - SECTION OF PIONEER MINE

DATE:	83 · 11 · 03	JOB NO.:	83 - 16
APPROVED BY:		FIG. NO.:	6

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vein mineralization. Sheared, brecciated zones 10 to 70 meters wide with intense carbonate-sericite-biotite alteration and 1 to 4% disseminated sulphides (pyrite-pyrrhotite and minor sphalerite arsenopyrite, galena and chalcopyrite) have been developed around the veins. These alteration zones in the mafic volcanic rocks have resulted in increasing the competancy of the greenstones and have promoted brittle failure dilatent zones ideal for the deposition of the gold bearing quartz fissure viens.

Similar large scale alteration zones in mafic rocks are described in Precambrian gold deposits at Timmins, Red Lake and Larder Lake by Colvine et al (1985). The alteration zones are characterized by widespread carbonate alteration with local ore scale alteration characterized by ferroan carbonate with quartz, muscovite, biotite and disseminated sulphides (pyrite-pyrrhotite and arsenopyrite).

4.2 STRATIGRAPHY

A detailed description of the major rock formations in the Bridge River gold camp is given as follows and is taken from a detailed study by J.S. Stevenson (1953) and data from the 1983, 1985 and 1986 Pacific Eastern Exploration programs and thin section studies by A. Littlejohn.

Fergusson Group

The oldest rocks in the area are those of the Fergusson group which are considered to be of Permian age and correlated with the Cache Creek group. They comprise rocks of a deep water eugeosynclinal sequence of rhythmically banded chert, graphitic siliceous argillite and bedded breccias and conglomerate with lessor basic volcanic flows.

These rocks underlie the northern portion of the Pacific Eastern property and are in fault contact along the Fergusson thrust fault, with the younger formations.

The proportion of volcanic rocks increases to the north and west of the claim boundary and these rocks have undergone high grade thermal metamorphism to lower amphibolite facies near the Bendor intrusive. In P86-05 basaltic flows comprise 25% the section intersected compared with only 3% in P86-04.

In the drill holes P85-02 and P85-03 the cherty argillite sequence has been brecciated and altered to biotite adjacent to several fine grained quartz diorite dykes related to the Cretaceous age Bendor intrusive. Brown biotization of volcanics, cherts and siliceous argillites in P86-04 and P86-05 is thought to be the result of contact metamorphism.

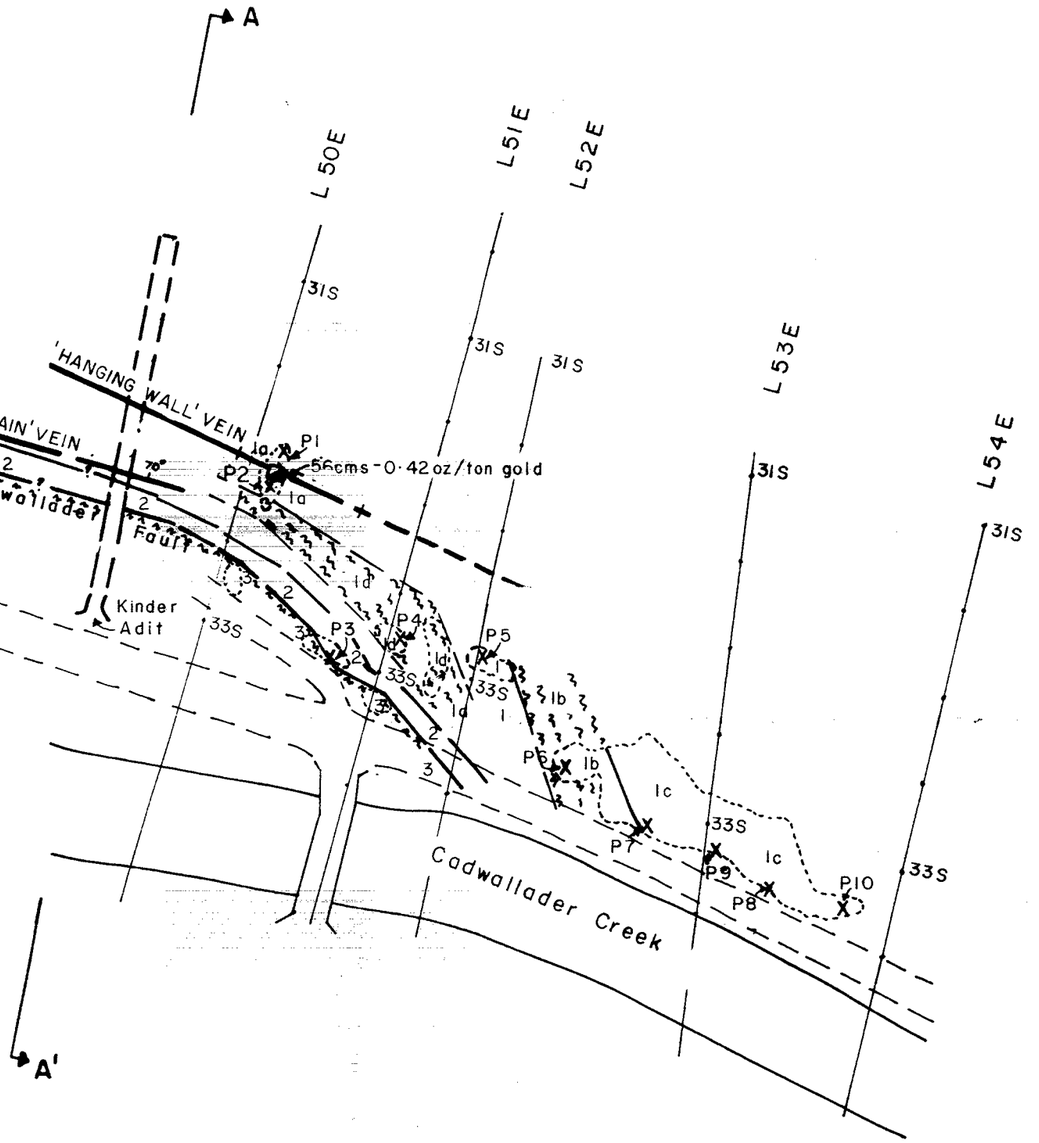
Noel Formation

The Noel formation consists of a sedimentary sequence which overlies the Fergusson group in the lower valley of the Noel Creek to the south west of Bralorne. It has not been seen by the writer and is described by Stevenson (1953) as consisting principally of a black highly fissile argillite with interbedded flaggy sandstone with no limey component. It is conformable with the Fergusson group rocks and with the overlying Pioneer formation volcanic formation.

Pioneer Formation

This is the predominate volcanic sequence in the Bralorne mine map area and is the principle host of auriferous gold shear vein mineralization at the Pioneer mine. The volcanics have been regionally metamorphased to green schist facies consisting of chlorite, epidote and plagioclase and are generally referred to as Pioneer greenstone.

PLAN MAP PIONEER 'DISCOVERY' AREA



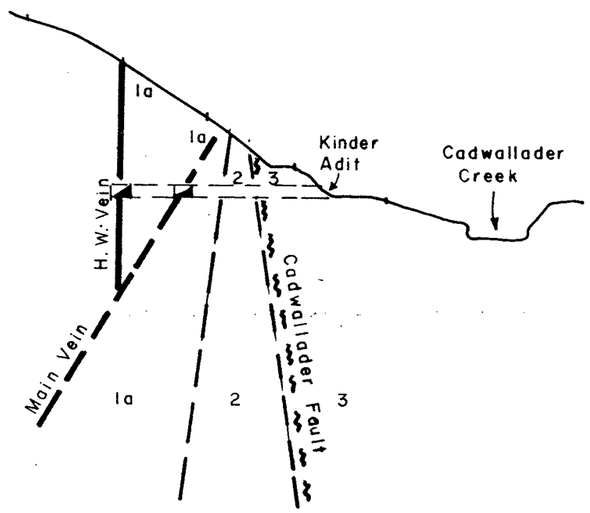
scale 1:100

0 10 20 30 40 50

In metres

VERTICAL CROSSECTION A–A' PIONEER 'DISCOVERY' AREA

LOOKING EAST



scale 1:100

0 10 20 30 40 50

in metres

LEGEND

PIONEER FM (U Triassic)

1 amyg. andesite – dark green, regional greenschist metamorphism, chlorite

Hydrothermal Alteration

- 1a intense prevasive carbonate – sericite, 15% carbonate, 8-10% sericite, disseminated po-py 3%
- 1b sheared intense carbonate – biotite alteration, diss po-py
- 1c moderate prevasive carbonate alteration, 6-15% disseminated
- 1d sheared chlorite sericite alteration, weak silicification and veining, po-py 3-5%

BRALORNE INTRUSIVES (Jur. ?)

2 leucocratic quartz diorite, brecciated, carbonate-sericite, alteration, disseminated pyrrhotite pyrite

3 SERPENTINE

SYMBOLS

- fault
- geological contact
- road
- underground adit
- shaft or tunnel
- 33S grid line

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PACIFIC EASTERN PROPERTY
BRALORNE, B.C.

PIONEER MINE
GEOLOGY AND ALTERATION
'DISCOVERY' OUTCROP AREA

DATE | JOB NO 7

APPROVED | FIG NO

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It occurs as a narrow belt on both sides of the Cadwallader Creek where it is folded into two tight, upright anticlines. These belts extend through the entire Pacific Eastern property in an east-west direction then swing northwesterly and northerly through the Pioneer and Bralorne property where the north anticline has been intruded by the Bralorne intrusives.

The Pioneer greenstone is generally a dark green, fine grained massive amygdaloidal andesite with lessor porphyritic sections. It is a thick monotonous sequence without any distinct mappable units except for occasional brecciated flow units (aquagene-breccia-personnel communication, Neil Church, B.C. Department of Mines.) A sequence of basic sericite-chlorite altered porphyritic andesite dykes were noted in the lower section of hole P85-03 probably feeders to the flow sequence. In both holes P85-02 and P85-03 the lower sections of the greenstones have been more extensively altered to light green actinolite nearer to the Bralorne intrusives probably due to the contact metamorphism. The internal structure of the greenstones is difficult to determine due to the lack of marker units and the regional green schist metamorphism. F. Joubin noted that at the Pioneer Mine a repetitive sequence of 1-2 meter amygdaloidal flows could be mapped and 'way up' determined by the tear drop shape of the amydaloids.

The thickness of the greenstones is estimated to vary from 300 to 1000 meters with folding making an accurate estimation difficult.

Contacts between the Pioneer greenstone and Noel formation in the area are faulted with serpentine present. The Pioneer formation underlies the Hurley formation and the contact is seen to be sharp and conformable in holes P85-02 and P85-03 with strong biotite - alteration. In Hole P86-04 an altered thin rhyolite dyke separates Hurley and Pioneer Formations.

Hydrothermal alteration in the Pioneer greenstones is closely associated with shearing and brecciation and consists of chlorite-carbonate-sericite-biotite. In the highly sheared rocks chlorite replaces much of the plagioclase. The dominate alteration mineral is carbonate which occurs as prevasive disseminations and veins, stringers and cross cutting replacement with biotite patches along weak chloritic shears. Shearing and carbonization occured at the same time with later carbonate alteration after the shearing. Carbonate alteration is associated with quartz veinlets, sericite and 1-3% disseminated sulphides (predominately pyrite and pyrrhotite, with lessor sphalerite, arsenopyrite, chalcopyrite and galena) immediately adjacent to the principal auriferous quartz veins at the Pioneer mine. This particular alteration association is thought to be a very important point in the exploration for other auriferous quartz veins within the large hydrothermal alteration zones.

On the Pacific Eastern property a series of strongly sheared carbonate alteration zones were cut in drill holes P85-02, P85-03 and No. S-13 (1945), extending over an indicated strike length of 800 meters. The alteration zones which are from 5 to 80 meters wide were cut principally between depth of 230 to 550 meters and are interpreted to dip 50-75° to the north.

The alteration zones in holes P86-02 and P85-03 consist of carbonate-biotite surrounding two 1.0-1.5 metre wide weakly auriferous veins in hole P85-02 and several quartz flooded zones with disseminated sphalerite-chalcopyrite and galena in hole P85-03. In hole No. S-13 the alteration consists of carbonate and quartz with disseminated sulphides surrounding two 1.0-1.5 metre wide strongly auriferous quartz veins, markedly similar to the alteration sequence at the Pioneer Mine around the Main and H.W. vein.

In hole P86-04 an ankeritic-carbonate altered shear zone (628.3-629.3m) epidote-biotite-hematite zones (731-734m) and a strongly carbonitized fault zone (763.1-765.3m) all are unmineralized with respect to gold.

Only a short section of andesite was intersected in P86-05 (60 m) where it is strongly faulted carbonitized and intruded by diorite/quartz diorite dyking. All altered zones are unmineralized with respect to gold.

Hurley

The Hurley formation rocks comprise the youngest layered rocks in the area and conformably overlie the Pioneer greenstone and are crosscut by the Bralorne granitic intrusives. The Hurley formation consists primarily of calcareous argillites and grey argillaceous limestones and lessor lenses of conglomerate and sandstones. These rocks as compared to the Noel and Fergusson formations are distinctly limey. The argillite consists of 1-2 meter alternating layers of black calcareous argillite and clastic limestone. The laminated argillites according to Stevenson (1958) consist of alternating layers of angular quartz and plagioclase with microscopic lenticles of calcite between layers. Both argillites and limestones are cut by veinlets of coarse calcite. They are present within two continuous synclines along the north and southern margins of the Pacific Eastern, Pioneer and Bralorne properties and form the northern limit of economic mineralization on all properties. These sediments are fissile and relatively incompetent and do not provide a good host for the auriferous quartz fissure veins which extend north and easterly from the Cadwallader fault. A relatively thick section of Hurley sediments (80m) was intersected in P86-04 where as the 520 level plan geology shows the Hurley pinching out at this point. Either rapid thinning or faulting is the probable cause of this anomaly.

Bralorne Intrusives

Two granitic intrusives have been identified as making up the Bralorne intrusives:

(1) Soda Granite
(2) Diorite, Quartz Diorite, Augite Quartz Diorite

Since the first discoveries of gold vein mineralization in 1895 these intrusives have been closely tied spacially and genetically to gold mineralization by the principle geologists to study the camp. Particular importance has been given to the occurence of soda granite by the later geologists Joubin and Stevenson.

These rocks underlie a narrow mainly continuous belt extending west-north westerly from the Pacific Eastern property 8 kilometers through the Pioneer-Bralorne properties then northerly past the BRX property to the Wayside property. There are two principal areas where the outcrops are continuous (1) a long narrow dykelike body followed underground at the Pacific Eastern property and eastern Pioneer mine property which widens to in excess of 1200 meters on the western Pioneer property and Bralorne property (2) on the BRX property past the Arizona working to the Wayside mine. Outside of these areas the intrusives form small masses and tongues. An unusually large mass of diorite/quartz diorite was intersected in P86-05, approximately 218 metres thick. The augite quartz diorite and soda granite are similar mineralogically, differing in the presence or absence of hornblende and abundance of quartz. Contacts between the two are mainly sharp with a contact between larger intrusive bodies being marked by 10 to 200 meter wide contact zone where an almost gneissic texture is developed due to alternating 1-5 meter layers of leucocratic soda granite and augite diorite. The soda granite would appear to be somewhat later leucocratic differentiate of the quartz diorite and its intrusive to be more forceful with less plastic assimilation of the greenstone and augite diorite.

Diorite, Quartz Diorite, Augite Quartz Diorite

Diorite is the more abundant of the Bralorne intrusives and forms the underlying host rocks at the Bralorne mine. It is generally a greyish green, medium grained, equigranular rock consisting of plagioclase, quartz and hornblende. As described by Stevenson (1958) and seen on outcrop at the Bralorne, the rock is cut by a network of minute 1-5 cm wide vienlets of epidote, clinozoisite and quartz-carbonate. Hornblende is seen to contain residual grains of pyroxene. The plagioclase tend to gather in knots which give the diorite a marked blotchy appearance. Coarse granited hornblendite rich masses with indefinate boundaries occur within the diorite and are probably formed by assimilation of the greenstone which it has intruded. Littlejohn described diorites from P85-02 and P85-03 as augite quartz diorites and from P86-05 as diorites and or quartz diorites. The mafics hornblende or augite was altered to actinolite in P86-05.

Craig Leitch (1985) has described alteration near the auriferous veins at Bralorne as a sequence, inward toward the vein, of (1) chlorite (after hornblende) (2) bleached carbonate (replacing plagioclase, hornblende and chloride) and (3) quartz-mariposite-sericite-sulphides immediately surrounding the veins near the larger veins, Bralorne "51" and "77". The carbonate alteration sequence extends outward from the vein 30 to 100 meters, with the quartz-sericite-sulphide assembleage generally being within 1-3 meters of the auriferous quartz vein.

Soda Granite

Soda Granite is present as small masses within the BRX property and the Western Bralorne property, and as a large lens like mass extending from the easterly portion of the Bralorne mine through the Pioneer property then narrowing to a dykelike mass accompanied by augite diorite on the eastern portion of the Pioneer mine and the Pacific Eastern property.

The rock as described in thin section by Stevenson (1953) and Littlejohn (1985) is a light grey-buff, medium grained granitic rock consisting of an intergrowth of sodic plagioclase (an_3) and quartz with an absence of mafic minerals. The lack of potassic felspar would more properly classify it as a leucocratic sodic quartz diorite.

A 26 m section of soda granite was intersected in P85-02. No typical soda granite intersected in the 1986 drilling. A medium grained coarse grained diorite was cut by a quartz diorite near the bottom of the hole. This quartz diorite was thought to be related to the soda granite but thin section work by Littlejohn indicates an abundance of actinolite and a possibility of the quartz being of a secondary nature.

The soda granite intrudes all phases of the diorite and greenstone and sediments. Its contact with the Pioneer greenstone and Hurley-Noel sediments is sharp. Contacts with the augite diorite are generally sharp with a contact zone of 30-200 metres marked by dykes of soda granite into diorite giving a migamtitic appearance.

It is extensively brecciated and altered to carbonate, quartz, sericite, biotite and epidote with disseminated sulphides adjacent to the auriferous quartz veins.

The emplacemnt of the quartz diorite and soda granite (leucocratic quartz diorite) is structurally controlled by the Cadwallader fault zone which forms it southern contact on the Bralorne, Pioneer and Pacific Eastern Properties.

Albitite (aplite)-Quartz-Feldspar Porphyry Dykes

Light coloured albitite (aplite), quartz-feldsapr porphyry dykes are common in the soda granite, augite quartz diorite and greenstones and they are thought to be late silicious differentiates

of the soda granite and to be intramineral age, closely tied spacially and genetically to the principal gold areas. Mapping by Craig Leitch at Bralorne indicates the frequence and width of these dykes increases near the main productive area, around the Empire fault.

In most cases they have been intensely altered to carbonate-sericite and quartz and contain disseminated pyrite, pyrrhotite and arsenopyrite and contain low gold values up to 0.09 oz/ton gold. Albitite (aplite) dykes are seen paralleling the major 51 and 77 veins at Bralorne and the 27 vein at Pioneer.

The dykes are thought to have been emplaced along the vein fissure zones as late differentiates of the soda granite and have acted as favourable competent brittle hosts in some cases for the gold veins.

On the Pacific Eastern property a large aplite dyke is present along the north margin of the south greenstone anticline. It is 15-50 meters wide and has been highly altered to carbonate- sericite and contains minor disseminated pyrite-pyrrhotite. An andesite breccia unit adjacent to the dyke has been similarly altered for 50 meters along the dyke selvage. The aplite dyke dips steeply northerly and is projected to merge with the Bralorne Intrusives at an elevation of 600 metres.

Another albite dyke was mapped on surface, at the Pacific Eastern property, along the south contact of the south greenstone anticline over a strike length of 800 meters. It is carbonate altered and contains sparse, fine grained disseminated sulphides with gold values of trace to 0.09 oz/ton gold. This same dyke was noted in Hole 1948 No. 5 drilled from the south end of the 520 crosscut adit. A representative sample of this dyke by F. Joubin (personnel communication) assayed 0.09 oz/ton gold.

The presence of albitite dykes on the north and south contacts of the South Greenstone Anticline indicate a favourable geological environment for gold vein mineralization with or adjacent to these dykes below the Pacific Eastern 520 crosscut level. These targets should only be tested from underground should shallower mineralization in the North Greenstone Anticline be outlined.

A series of quartz-feldspar dacite porphyry dykes were intersected within the lower section of holes P85-02 and P85-03 near the Bralorne Intrusives. Similar dykes are seen in the Bralorne and Pioneer mines and on the BRX property to the north of Bralorne and are considered a siliceous phase of the albitite dykes. They are light green to grey with conspicuous quartz eyes and feldspar crystals in a siliceous microscopic groundmass and contain disseminated pyrite and minor arsenopyrite. They are relatively unaltered and from core axes contacts appear to be nearly vertical subparallel to the Bralorne Intrusives.

Hornblende Porphyry Dykes

Late stage hornblende porphyry dykes are noted in P85-02, P85-03, P86-04 and P86-05. These dykes are grey brown in colour and contain 20% lath like black-brown hornblende phenocrysts (1 mmx5 mm) that display a weak trachytic texture and are set in a moderately hard greyish groundmass. Hornblende Porphyry dykes are thought to be post 86 my in age (personnel communication with C. Leitch) and are thought to be post Au mineralizaton being rarely cut by veining.

Serpentinite

Serpentinite and partially serpentinized ultrabasic rocks in the map area are located along major fault zones specifically the Fergusson fault and Cadwallader fault. Large masses are also present on the south margin of the map area along the south margin of the southern greenstone anticline and are also probably structurally controlled.

The ultrabasics have been extensively serpentinized and altered in the Bralorne-Pioneer-Pacific Eastern map areas but to the south and northwest of the area they have been mapped as varying from dunite to pyroxenite. They are considered to be alpine ultramafics and to have been emplaced along major subcrustal faults with repeated movements. The principal area of study on the map area are serpentinite emplacements along the Cadwallader fault where the serpentinite forms the southern boundary of gold fissure veins at Bralorne and Pioneer mines.

On the Pacific Eastern property serpentinite is well exposed in underground workings and on surface along the Fergusson and Cadwallader faults. It consists of dark to light green sheared antigorite to more massive bastite to lattice like structure. Talc forms irregular blotches throughout and is the principal mineral with kaolinite-montmorillonite within the Fergusson fault zone. At the base of Plutus creek the serpentinite along the Fergusson fault has been altered to a silica-carbonate-mariposite rock due to extensive hydrothermal alteration. This alteration has been noted over extensive areas on the lower valley of the Hurley River and to the north of the map area and does not appear to be related to gold mineralization. At the Bralorne and Pioneer mine the serpentinite is altered to talc with mariposite at the contact with the principal gold veins with no extensive quartz-carbonate development.

5.0 DIAMOND DRILLING

Introduction

The diamond drilling was done by Tonto Drilling B.C. Ltd. of Burnaby, B.C. During the period July 19 to September 23, 1986 two HQ-NQ diamond drill holes, P86-04(823m) and P86-05(623m) were drilled for a total of 1446 metres.

A longyear "44" drill was utilized for the targeted deep holes. Problems encountered during P86-04 were mainly mechanical with the breakdown of four transmissions and two longyear gears. These breakdowns appear to be attributed to the fact that a John Deere motor (150 h.p.) instead of the usual Jimmy Diesel (90 h.p.) was being used. Because of the extreme power of the John Deere motor and the very hard nature of Fergusson cherts and siliceous argillites, continual jarring of the transmission appears to have broken gear teeth.

No problems were encountered with drilling the overburden in sharp contrast to what was expected due to the difficulties encountered during the 1985 drilling. P86-04 and P86-05 encountered mostly sand and gravel and few boulders. Tungsten carbide button bits were used with a precautionary note, not to drill more than 100' per bit.

As per the 1985 drilling, the HQ rod was targeted to be set just below the squeezing faulted serpentinite. Because the section was faulted down approximately 150 metres in P86-04, drilling below the serpentinite was almost unatainable with HQ.. The HQ was finally set at 514.5m after stopping at 435.9m, then proceeding with NQ until having difficulty with the extreme squeezing nature of the faulted serpentinite at 502 to 508m. P86-04 was finally abandoned at 823m because of a large squeezing fault within Pioneer andesite.

No drilling difficulties were encountered with P86-05. Anticipating the offset in the section from P86-04, the location of P86-05 was moved to the south to compensate, thus diminishing the section of Fergusson cherts to be drilled.

In accordance with environmental guidelines, a large mud catchment sump was excavated at each drill site to prevent the mud-rock cutting slurry from flowing into Cadwallader Creek. These sumps were pumped out approximately every two to three days (or as needed) and dumped well away from Cadwallader Creek. A 3" diaphram pump and two 750 gallon tanks mounted on a five ton flat-bed truck were utilized for this purpose.

All diamond drill core was systematically logged and measured for percent recovery. All core boxes were labelled with box number and metrages on dynatape. All veins or altered rock was split and geochemically analyzed/assayed. In the sampling of a typical vein, the vein material was split out from the altered wall rock. Usually a one meter sample of wall rock was sampled outward from the vein. When serpentinite was sampled a 1.5 sample was procurred.

The split core was placed in plastic bags and shipped to Chemex Labs, Vancouver for either Au-Ag-As-Sb (vein or altered rock) or Cu-Ni-Co-Cr (PtPd) for analyses. The samples were crushed and pulverized to -100 mesh. The precious metals included Au, Ag, Pt, Pd were analyzed utilizing fire assay of preconcentrate followed by AA. The remaining elements were analyzed via standard AA. techniques.

All core (1985 and 1986) is stored at the Bralorne (Mascot) millsite where it is stacked and covered with tarps.

Logging all drill core was done by the author. The descriptive geologic logs and assay data are given in Appendix II.

DIAMOND DRILL HOLE P86-04

SPECIFICATIONS

DATE STARTED:	July 19, 1986
DATE FINISHED:	August 26, 1986
TOTAL DEPTH:	823.0 m
AVERAGE DRILLING RATE (INCLUDES BREAKDOWNS):	21.1 m/day, 69 ft./day
BEARING/DIP (COLLAR):	207° Azimuth, -60°
CORE SIZE:	Reduce HQ to NQ at 435.9m
COORDINATES:	approx. 100+38N, 109+74E
COLLAR ELEVATION:	approx. 1233m

SPERRY SUN TESTS:

Meterage	Dip	Azimuth
110	-59.5°	209°
241.1	-57.5°	209.8°
363.0	-55.75°	213.3°
539.8	-55.75°	213.3°
685.2	-53.5°	214.3°

Purpose

P86-04 was designed to test geologically favourable Pioneer greenstone below the 1595 drift underground workings and below 1948 DDH-13 where two significant quartz veins were intersected, one reporting free gold and the other 0.1 oz/ton Au over 1.0 meters.

Geology

The drilling results from P86-04 were dissappointingly negative with rock units being intersected significantly deeper than anticipated and intersected little or no significant veining and moderate carbonate alteration. The section of Fergusson cherts, chert breccia

and siliceous argillite was thicker than expected and the Serpentinite was not intersected until 442.6m, 150 metres deeper than anticipated, which made progression with the HQ extremely difficult at that depth. Because the units appear to be significantly displaced on section (See section 109+70E, Fig. 9 and Geology of 520 level Fig. 8) an "Empire type" fault was introduced to explain this offset. As portrayed on section and plan, the fault shows approximately 80 metres of right lateral strike slip movement and approximately 150 metres of downward movement.

A system of rhyolite porphyry, feldspar porphyry and hornblende porphyry dykes were intersected above the serpentinite and have intruded a large zone of weakness associated with the Fergusson thrust.

An unexpectedly thick section of limey argillite with thin limestone interbeds was intersected below the serpentinite. These Hurley Fm sediments do not appear on the geology of the 1595 drift and might or might not have been (Stevenson's log very hard to interpret) intersected in DDH 1945-13. A very thick section of Pioneer greenstone (234m) was intersected indicating that the center of the anticline was penetrated. Drilling was continuing on the southern limb of the anticline when the hole was terminated. A moderately thick diorite dyke or dioritized andesite section from 805 to 819m indicates that the diorite intrusive was relatively near.

A summary of pertinent geological data is given below in Table II and also see geologic logs in Appendix II.

DDH P86-04
GEOCHEMISTRY, ALTERATION & MINERALIZATION

A total of 34 split core samples from DDH P86-04 were geochemically analyzed for Au Ag As and Sb and six samples of the serpentinite were analyzed for Cu, Ni, Co and Cr. Three of the serpentinite samples were resubmitted for Pt Pd analyses.

The geochemical results for all samples submitted from P86-04 returned background values for all elements analyzed. A discussion of results is given below. This data is also compiled in Table III.

a) A few 1.5 metre samples were selected within the Fergusson cherts, chert breccias and siliceous argillites (134.6m - 172.6m) to check anamalously high percentages of disseminated po (to 5%) for gold. All results show background values for Au, Ag As and Sb.

b) Two carbonate veined pyrrhotite rich (3 to 15%) basaltic flows or dykes (211.6 to 222.5m) were analyzed, again only background values for Au, Ag, As, Sb are noted.

c) A quartz sericite vein and associated quartz-anhydrite stockwork zone was analyzed (312.6 to 314.4) returning very geochemically low values for Au, Ag, As and Sb.

d) Small quartz-carbonate veins with minor amounts of pyrrhotite-chalcopyrite cut rhyolite porphyry and feldspar hornblende porphyry dykes at 405.7 to 419.6 metres. Analysis of the veins and altered sections of the dykes contained only background values for Au, Ag, As and Sb.

e) An altered rhyolite dyke which appears to mark the Hurley-Pioneer contact at 586.8 to 588.6 m is geochemically low in Au, Ag As and Sb.

f) An interesting pervasively altered (ankerite-carbonate) shear zone (628.3 to 629.3m) with an underlying weak carbonate-quartz-cpy+/- stockwork zone cuts the Pioneer andesite flow breccias. Analysis of these zones gave negative results.

g) Analyses of zones of epidote-biotite and epidote-biotite-hematite alteration (731.2 to 734.4m) and a strong carbonate altered fault zone (763.1 to 765.3m) contain only background values for the elements (Au, Ag, Sb and Ag).

h) A rhyolite dyke located near the bottom of hole showed a slight increase in arsenic and antimony values (10 ppm and 1 ppm respectively, but only background values for Au and Ag.

i) A total of six 1.5 metre samples of serpentinite were analyzed for Cu, Ni, Co and Cu. Value ranges for the elements are Cr 1300-1200 ppm; Ni 685-1350 ppm, Co 46-62 ppm and Cu 6-81 ppm which are background values for a typical ultramafic (Hawkes-Webb 1962 - Cr 2000 ppm, Cu 80 ppm, Co 200 ppm and Ni 1200 ppm). Three of the above samples were resubmitted for Pt and Pd analysis and returned below detection limit values; less than 50 ppb and less than 10 ppb respectively.

TABLE II

DDH 86-04 GEOLOGIC SUMMARY

(metres)

0 - 82.3	Overburden sand and gravel.
82.3 - 404.2	Intermixed - ribbon chert, chert, siliceous argillite and chert breccia. Argillite - graphic slips and moderate to strongly faulted in sections with ubiquitous po throughout average 1% but up to 3.4%.
82 - 215.8	Andesitic dykes with up to 14% dissem and frac. coating po.
220.5 - 222.3	Andesitic dykes moderate to strong carb. veins.
312.6 - 314.4	Quartz-ser vein (2cm) with silicification and with anhydrite stockwork throughout zone. Some slips with smeared pyrite-trace cpy.
404.8 - 432.1	Dykes - Rhyolite porphyry, feldspar hornblende Porphyry (vein at 1331.8'). Upper fault zone 441.1-442.9; Lower fault 501.0 - 521.1.
432.1 - 441.3	Hornblende porphyry dyke.
441.3 - 442.6	Calcareous graphitic argillite (Hurely Fm)
442.6 - 508.1	Serpentinite
508.1 - 587.2	Hurley Fm-limey argillite and grey argillaceous limestone
587.2 - 588.6	Rhyolite-dyke
588.6 - 823.0	Pioneer Greenstone - andesite flow, flow breccia
628.3 - 630.0	Altered shear zone with ankerite and carbonate alteration
632.5 - 637.3	Moderate carbonate stockwork

TABLE III
PACIFIC EASTERN GEOCHEMISTRY RESULTS P86-04

SAMPLE NO.	HOLE NO.	METERAGE	PPM As	Sb	Ag oz/ton	Au	GEOLOGY
30501	86-04	134.6 - 136.0	1	0.2	0.03	*L.002	mod. compentent silic arg. str. carb stkwk w/ 1-2% dissem Po
30502	"	168.1 - 169.6	2	0.8	0.02	"	silic arg. w/ 1st frag
30503	"	169.6 - 171.1	4	0.6	0.03	"	po 2-3%
30504	"	171.1 - 172.6	2	0.6	0.01	"	Basaltic flow or dyke 1-
30505	"	211.6 - 213.7	1	0.2	0.03	"	3% dissem po, tr cpy.
30506	"	213.7 - 214.7	1	0.1	0.03	"	wk brn bio alter'n
30507	"	214.7 - 216.7	3	0.1	0.04	"	(metamorphic)
30508	"	220.5 - 222.5	1	0.2	0.06	"	Basalt flow or dyke as per above w/ 15% po
30509	"	312.6 - 312.62	1	0.1	L.01	"	2 cm qtz-ser-carb vn w/
30510	"	312.62 - 313.4	1	0.1	0.01	"	alter'n zone of qtz-
30511	"	313.4 - 313.8	2	0.2	0.01	"	anhyd stkwk to 313.4
30512	"	313.8 - 314.4	1	0.1	L.01	"	minor carb, spotty ser w/ some py smears. Po to ⅛% w/ graphite.
30513	"	405.7 - 405.92	2	0.1	L.01	"	Carb-ser vn w/ traces Mo
					PPM	PPB	
30520	"	405.92 - 406.8	1	0.3	0.1	L5	Rhyolite porphyry dyke
30521	"	406.8 - 407.95	1	0.1	0.1	L5	below above vn w/ mod-str carb+/-ser vning +/- po vning, traces Mo
30522	"	417.3 - 418.4	6	0.1	0.1	L5	Altered Feldsp Hornblende Porphy (F.H.P.)
30523	"	418.4 - 418.5	1	0.1	0.1	L5	10 cm qtz-carb vn within (F.H.P.)
30524	"	418.5 - 419.6	1	0.2	0.1	L5	Vned & altered F.H.P.
30525	"	419.6 - 419.64	1	0.1	0.1	L5	Qtz-carb vn w/ po-cpy-ser
30526	"	587.4 - 588.6	1	0.2	0.1	L5	Altered
30527	"	586.8 - 587.4	1	0.1	0.1	L5	Rhyolite dyke at Hurley-Pioneer contact, carb (ankerite)
30528	"	628.3 - 628.6	3	0.1	0.1	L5	Altered shear zone-gougey
30529	"	628.6 - 628.64	1	0.1	0.1	L5	w/ clay-carbonate altered w/ ankerite-calcite
30530	"	628.64 - 629.3	1	0.1	0.1	L5	

TABLE III, CONTINUED
PACIFIC EASTERN GEOCHEMISTRY RESULTS P86-04

SAMPLE No.	HOLE NO.	METERAGE	As (PPM)	Sb (PPM)	Ag (oz/ton)	Au (oz/ton)	GEOLOGY
30531	"	629.3 - 631.0	3	0.1	0.1	*L5	Carb-qtz stkwk minor cpy
30532	"	636.3 - 636.5	1	0.1	0.1	L5	20 cm qtz vn (bull qtz)
30533	"	731.2 - 732.2	1	0.2	0.1	L5	Ep-bio altered, str fr
30534	"	732.2 - 733.2	1	0.2	0.1	L5	andesite flow bx
30535	"	733.2 - 733.23	1	0.4	0.1	L5	Carb-lt grn ser vn
30536	"	733.23 - 734.3	1	0.3	0.1	L5	Ep-bio-hem. altered zone
30537	"	763.1 - 764.1	1	0.1	0.1	L5	Str carb altered andesite flow bx
30538	"	764.1 - 764.3	1	0.1	0.1	L5	Str carb altered fault zone
30539	"	764.3 - 765.3	1	0.1	0.1	L5	Str carb altered zone below fault zone
30540	"	788.2 - 788.6	10	1.0	0.1	L5	Rhyolite dyke - carb altered

			Cu (PPM)	Ni (PPM)	Co (PPM)	Cr (PPM)	P+ (PPB)	Pd (PPB)	
30514	86-04	450 - 451.5	18	1180	55	1700	L50	L10	Serpentinite
30515	"	460 - 461.5	6	800	48	1500			
30516	"	470 - 471.5	6	920	52	1600	L50	L10	
30517	"	480 - 481.5	11	1350	62	1300	L50	L10	
30518	"	490 - 491.5	8	1250	60	1700			
30519	"	499 - 500.5	81	685	46	1600			

* Note: L(less than)

DIAMOND DRILL HOLE 86-05

SPECIFICATIONS:

DATE STARTED:	September 6, 1986
DATE FINISHED:	September 23, 1986
AVERAGE DRILLING RATE:	34.6m/day or 113 ft/day
TOTAL DEPTH:	622.7 m
BEARING/DIP (COLLAR)	204^{o} Azimuth, -60.5^{0}
CORE SIZE	Reduce HQ to NQ at 378.9 m
CO-ORDINATES:	Approx. 98+68N, 115+21E
COLLAR ELEVATION	approx. 1262.5 m

SPERRY SUN TESTS

Meterage	Dip	Azimuth
110	-61^{o}	205.5^{o}
208	-60.25^{o}	206.5^{o}
389.5	-56^{o}	210^{o}
510.5	-54^{o}	214.8^{o}
617	-52^{o}	275.5^{o}

PURPOSE

Because of the disappointing results of P86-04, it was thought that a relatively large step out to the east (550m) might put us in new "Au-mineralized regime". The hole was targeted to intersect the favourable greenstone unit at between 200 and 300 metres depth.

GEOLOGY P86-05

A geologic summary of P86-05 is given in Table IV. The various formations were intersected as per expected down the hole taking into account the southerly offset attributed to a northwest trending "Empire type" fault located between P86-04 and DDH 1945 No. 13 (surface trace).

The Fergusson Formation in this area contains a dramatic increase in percentage of basaltic volcanics, 25% by volume versus 3% further to the west). The basalts are generally dark grey green massive units with minor pillow like structures, porphyritic sections and amygdaloidal units. A conspicuous medium green coloured chloritized conglomerate underlies a substantial thickness of basalt from 130.4 to 155.4 m. The conglomerate is composed mainly of rounded to subrounded fine grained volcanic fragments up to 5 cm in diameter with the odd limestone clast to 10 cm in diameter. Conglomerates within the Fergusson Fm have not been noted previously

to the west of this drill hole. Cherts, chert breccias and siliceous argillites intersected are similar to units intersected in P86-04 and the 1985 drilling. Brown biotization of the Fergusson unit, as a whole, appears to be the result of contact metamorphism (Bendor Intrusives) rather than hydrothermal alteration. Percentages of disseminated pyrrhotite through the section was much less than was observed in P86-04, usually trace to 1%.

Serpentinite/serpentinite breccia was intersected from 232.8 to 363.9 m showing typical strongly faulted talcose contacts. A late stage Hornblende Porphyry dyke (post 86 my - personal communication with C. Leitch) intrudes the upper sheared and brecciated serpentinite contact. These hornblende porphyry dykes typically contain 20% black-brown hornblende phenocrysts displaying a weak trachytic texture and are generally unmineralized.

A much thinner than expected section of Pioneer greenstone was intersected from 300.9 to 363.9 m. The unit is strongly faulted, carbonitized and intruded by silicified-epoditized diorite-quartz diorite dykes/rhyolite dykes. Silicification of the dykes appears to be related to epidotization, quartz occuring as shapeless subrounded aggregates intergrown with the plagioclase (A.L. Littlejohn, M.Sc.) Also see thin section Report 1986, A.L. Littlejohn, M.Sc., Appendix I for thin sections descriptions of 16 samples from 85-05.

The above dyking is probably related to a large mass of diorite and lesser quartz diorite which was intersected from 384.2 - 602.6m. The diorite and quartz diorite are extensively veined with many quartz veins displaying pervasive carbonate halos with disseminated pyrite. Mineralization alteration and geochemistry of these veins will be discussed in the following section. Serpentinite was intersected at 602.7m and the hole terminated at 622.7m.

TABLE IV
DDH 86-05 GEOLOGIC SUMMARY

(meters)	
0-29.6	Overburden
29.6-225.2	Fergusson Fm
29.6-130.5	Interbedded basalt and chert, chert breccia argillaceous breccia and siliceous argillite.
78.2-80.5	Quartz vein, minor siliceous argillite
130.4-155.4	Conglomerate
155.4-225.2	Chert, bedded breccia, black siliceous argillite, minor basalt
225.1-227.0	Serpentinite
227.0-232.8	Hornblende Porphyry Dyke
232.8-300.9	Serpentinite
300.9-363.9	Andesite-basalt volcanics cut by rhyolite and quartz porphyry dykes. Zone is altered and faulted from 321.0-363.9. Strong alteration of ankerite from 358.2-363.9 of a quartz porphyry dyke w/ smeared sulphide on fractures.
363.9-364.5	Faulted black graphitic and calcareous argillite (Hurley Fm)?
364.5-384.2	Quartz diorite and quartz porphyry dykes and dioritized andesite.
384.2-557.8	Diorite-cut by numerous quartz-carbonate veins and veinlets. Some of the veins intersected are given below:
386.4-387.1	Quartz-minor carb with chl-ser py. sepia
391.2-391.35	Qtz-carb-sheared, py on upper contact
418.7-418.8	Carb vein at 30^{o} with bands of pyrite approximately 5%
423.0-423.5	Brecciated quartz vein with carb. cement, traces pyrite on fr and lt green ser.
436.9-437.15	Calcite vein with minor quartz and blotches of lt green ser.

TABLE IV, Continued
DDH 86-05 GEOLOGIC SUMMARY

458.7-458.9	9cm of sheared quartz frag and 9 cm of quartz with light green stringers of ankerite and dolomite.
462.0-462.4	Quartz vein, upper contact ribboned (6 cm) with no pyrite on ribbon sepia. Py is very weak dissem throughout rest.
465.5-465.6	Banded carb-quartz .25% pyrite vein banded lower carb upper section quartz rich.
467.6-470.8	Ankerite-dol-carb veining with brecciation.
495.8-496.1	Sheared carb quartz veins wk banding w/ chl sepia.
515.2-515.4	Sheared quartz vein with traces pyrite.
518.92-519.0	8 cm white carb vn (calcite) with dissem po ½%.
557.8-561.4	Quartz diorite
561.4-563.4	Diorite
563.4-566.8	Quartz diorite
566.8-571.5	Diorite
571.5-579.4	Quartz diorite
579.4-592.2	Dyke (Relative to above quartz diorite?) qtz & actinolite.
582.9-584.9	Bleached altered zone
584.9-585.35	Strong ankerite altered rock with 5 mm qtz-py smears
592.2-593.1	Rhyolite Dyke. Mod altered becoming vein breccia.
592.15-592.2	Upper contact, clay altered w/ fine tourmaline needles.
592.2-592.55	Altered rhyolite mod ankerite, carb vns.
592.55-592.8	Vn breccia with black siliceous frags & w/fine sulphides and strong ankerite alteration.
592.8-593.1	Altered Rock, weaker ankerite alteration.

TABLE IV, Continued
DDH 86-05 GEOLOGIC SUMMARY

593.1-593.1	Quartz Diorite. Weak granitic texture.
593.1-602.6	F-g qtz-actinolite-rock sheared?
602.6-622.7	Serpentinite

GEOCHEMISTRY, MINERALIZATION AND ALTERATION - P86-05

A total of 96 core samples from P86-05 were geochemically analyzed for Au, Ag, As and Sb. Two samples from the lower serpentinite were analyzed for Cu, Ni, Co and Cr. All these results are tabulated in Table V. A discussion of the more important veins and alteration zones are given below:

(a) A large 2.3 thick massive bull quartz vein was intersected between 78.2-80.5 m within Fergusson chert and siliceous argillite. Geochemical results showed background values for Au and Ag with slightly above background values for As and Sb (Ag less than 0.1 to 0.06 oz/ton, Au less than .002 oz/ton, As 5-10 ppm and Sb 0.6-2.8ppm).

(b) A zone of strongly faulted and carbonitized andesite has been intruded by silicified and epidotized quartz porphyry dykes; quartz diorite/diorite dykes. The section as a whole is low in elements analyzed (Au, Ag, Sb and As). The quartz porphyry intersected from 329.8 - 334.2 is weakly anomalous in antimony with values from 0.8 to 6.6 ppm Sb. The remainder of the section has the following response As (1-2ppm), Sb (.1-1.9 ppm), Ag (.1-.6 ppm and Au less than.5 ppb).

(c) A strongly altered dyke of probable diorite composite (originally) has been strongly sheared and altered by carbonate (ankerite-calcite) to the extent that the textures are obscurred. Fine pyrite occurs with carbonate veinlets and as "smears" on fractures. The altered dyke is weakly anomalous in arsenic (4-36 ppm Ag) and gold (to 25 ppm Au) and with only background values in Sb (.5-1.0 ppm) and Ag (.1 ppm).

(d) A very interesting quartz vein (with minor carbonate) was intersected from 386.4-387.1m. This vein looks similar to some of the vein material that has been observed at Bralorne and Pioneer Mines. The vein is weakly banded with chlorite-sericite on sepia and contains pyrite grains. The upper contact exhibits a definite .2 m zone of ankerite-sericite alteration with granitic textures in the diorite obscurred to 1 meter outward and pervasive carbonate alteration to 384.2 m as well as disseminated pyrite to 0.5%. The lower contact exhibits strongly pervasive carbonate with sericite to 388.7 m and weakly pervasive carbonate and .5% pyrite to 391.2 m. The geochemical response from this vein was disappointingly low yielding the following results (9-32 ppm As - weakly anomalous), Sb (.4-1.2 ppm), Ag (.1 ppm) and Au (less than 5-25 ppb) - 1 sample, the ankerite halo was very weakly anomalous in Au.

(e) A 15 cm quartz-carbonate vein intersected from 391.2 - 391.35 m is sheared and contains minor pyrite crystals on the upper contact. This vein exhibits strong pervasive carbonate alteration to 391.7 m and contains moderately anomalous geochemical values

in gold (225 ppb), although only background values for Ag (.1 ppm), As (2 ppm) and Sb (.1 ppm). Of all rock geochemistry done in 1986 drilling this small vein yields the highest Au content.

(f) A small 5 cm carbonate vein with bands of pyrite (5%) at 418.7 m was moderately anomalous in As (260 ppm) and slightly anomalous in Sb (2.6 ppm), Ag (.3 ppm) and Au (45 ppm).

(g) The remainder of the diorite from 420-515 meters is well veined with small quartz-carbonate veins typical of diorite at Bralorne mine, some containing disseminated pyrite to 0.3% but all containing geochemical background values for Au, Ag, As & Sb.

(h) Two small veins, 15 cm and 18 cm located lower in the hole at 515.25 and 518.92 metres are geochemically weakly anomalous in arsenic with values of 90 and 200 ppm respectively. The lower vein contains a slightly above background value in Au (20 ppm) but Sb and Ag are only background values.

(i) Two very interesting ankeritically altered zones exhibiting brecciation with fragments of silica and dark fine sulphides located at 582-586 meters and 491-594 meters exhibited only background values for Au, Ag As and Sb.

(j) Two samples of serpentinite procurred from the bottom of the hole were analyzed for Cu, Ni, Co and Cr. They contained only background values indicative of an ultramafic rock.

TABLE V
PACIFIC EASTERN GEOCHEMISTRY RESULTS P86-05

SAMPLE NO.	HOLE NO.	METERAGE	PPM As	Sb	Ag oz/ton	Au	GEOLOGY
30541	86-05	78.2 - 78.8	10	0.6	0.01	*L.002	Large bull qtz vn
30542	"	78.8 - 79.4	15	2.8	0.07	L..002	within gry cht &
30543	"	79.4 - 80.5	5	0.8	L.01	L.002	arg.
					PPM	PPB	
30681	"	329.2 - 329.5	2	0.2	0.1	L5	Str silicfd zone/rhyolite
30682	"	329.8 - 331.3	2	1.0	0.2	L5	Qtz porphyry w/ str ep-
30683	"	331.3 - 332.8	2	6.6	0.2	L5	chl alter'n possibly
30684	"	332.8 - 334.2	1	0.8	0.2	L5	silicified dio str faulted
30685	"	334.2 - 335.8	2	0.2	0.2	L5	Alter'd andesite-faulted
30686	"	335.8 - 336.5	2	0.2	0.2	L5	Qtz porphyry-ep altered
30687	"	336.5 - 337.2	2	0.2	0.2	L5	Altered andesite-carb-ep
30688	"	337.2 - 339.0	1	0.3	0.2	L5	Rhyolite/silic'fd dio (TS)
30689	"	340.4 - 341.9	1	0.2	0.1	L5	Rhyolite/silic'fd dio (TS)
30690	"	341.9 - 343.4	1	0.2	0.2	L5	Alterd andesite-perv carb
30691	"	343.4 - 345.4	1	0.2	0.3	L5	" " "
30692	"	345.4 - 346.4	1	0.2	0.2	L5	Rhyolite/silic'fd dio, py ¼%
30693	"	346.4 - 347.9	2	0.6	0.3	L5	Alter'd andesite, str
30694	"	347.9 - 349.4	1	0.1	0.4	L5	faulted w/ perv carb
30695	"	349.4 - 351.1	1	0.2	0.4	L5	" " "
30696	"	351.1 - 352.6	1	0.2	0.4	L5	Andesite more competent
30697	"	352.6 - 354.1	1	0.2	0.3	L5	wker carb alter'n
30698	"	354.1 - 355.6	1	1.9	0.2	L5	
30699	"	355.6 - 357.1	1	0.3	0.6	L5	
30700	"	357.1 - 358.2	1	0.2	0.3	L5	
30651	"	358.2 - 360.3	6	0.7	0.1	25	Alter'd dyke dio or qtz
30652	"	360.3 - 361.8	10	0.5	0.1	L5	porphyry w/ v str ank-
30653	"	361.8 - 363.2	4	0.8	0.1	L5	calc alter'n, py smears
30654	"	363.2 - 363.6	15	1.0	0.1	15	becoming vein like at
30655	"	363.6 - 363.9	36	0.9	0.1	10	approx. 362-363.9
30656	"	385.2 - 385.5	17	0.5	0.1	L5	Alter'd dyke (albite?) ep-carb
30657	"	385.2 - 386.2	32	1.1	0.1	25	Ank-ser halo
30658	"	386.2 - 386.4	23	1.2	0.1	10	Vein-qtz-carb, banded w/
30659	"	386.4 - 387.1	10	0.4	0.1	L5	chl-ser sepia wk py carb
30660	"	387.1 - 388.1	9	0.4	0.1	L5	alter'd dio w/dissem py 25%

TABLE V CONTINUED
PACIFIC EASTERN GEOCHEMISTRY RESULTS P86-05

SAMPLE NO.	HOLE NO.	METERAGE	PPM As	Sb	Ag	Au	GEOLOGY
					oz/ton		
03743		494.45 - 495.45	1	0.2	0.1	*L5	Dio w/ carb stkwk
03744		495.45 - 495.8	1	0.2	0.1	L5	
03745		495.8 - 496.1	2	0.2	0.1	L5	Vein sheared carb-qtz vn wkly banded w/ chlo sepia
03746		496.1 - 497.1	1	0.4	0.1	L5	Dio
03706	"	514.18 - 515.18	3	0.4	0.2	L5	Dio w/ textures obscurred perv carb
03738	"	515.18 - 515.25	9	0.2	0.2	L5	
03707	"	515.25 - 515.4	90	0.4	0.6	L5	Vein-qtz unsheared, tr py
03708	"	515.4 - 515.6	2	0.1	0.5	L5	Dio w/ text obscurred f-g perv carb
03739		515.6 - 516.6	60	0.1	0.1	L5	Dio str chl text starting to come back
03709	"	517.3 - 518.3	3	4.2	0.3	L5	Dio c-g wk chl
03710	"	518.3 - 518.5	1	0.5	0.4	L5	veins-series of 2, 3 & 5 cm calc vns some bio alteration
03711	"	518.5 - 518.92	2	1.0	0.2	L5	Dio
03712	"	518.92 - 519.0	200	0.3	0.3	20	Vein 8 cm wht carb, dissem po ⅛%
03713	"	519.0 - 520.0	3	0.4	0.3	L5	Dio-dk f-g chl altered
03740		540.55 - 541.55	1	0.1	0.1	L5	Dio w/ carb qtz ep vns
03741		541.55 - 541.8	2	0.2	0.1	L5	Vein-Ep w/wk carb
03742		541.8 - 542.8	2	0.1	0.1	L5	Dio c-g w/calc/dol vns
03717	"	556.3 - 557.3	1	0.2	0.2	L5	dio
03718	"	557.3 - 557.5	2	0.2	0.2	L5	Veins-bands of 2cm qtz calc vns
03719	"	557.5 - 558.1	3	0.4	0.1	L5	Dio
03714	"	565.2 - 566.2	2	0.3	0.2	L5	Quartz dio
03715	"	566.2 - 566.4	3	0.8	0.1	L5	Veins 2 carb vns
03716	"	566.4 - 567.4	2	0.4	0.2	L5	Dio cut by anhydrite vns, pervasive ep alter'n
03720	"	580.8 - 581.78	2	0.2	0.1	L5	Quartz diorite w/ f-g mottled qtz and actinolite
03721	"	581.78 - 582.0	3	0.3	0.2	L5	Veins-carb vning-3cm vns
03722	"	582.0 - 582.9	2	0.2	0.1	L5	Dio c-g
03723	"	582.9 - 583.9	2	0.2	0.1	L5	Bleached altered zone w/ qtz-fsp - clay ser
03724	"	583.9 - 584.85	9	0.2	0.1	L5	fr's w ankerite
03725	"	584.85 - 585.35	14	0.2	0.1	L5	Str ankerite approaching vein material w/ qtz-py smears
03726	"	585.35 - 586.4	2	0.1	0.1	L5	Fine grn's rock-mottled text qtz w/ actinolite

TABLE V CONTINUED
PACIFIC EASTERN GEOCHEMISTRY RESULTS P86-05

SAMPLE NO.	HOLE NO.	METERAGE	PPM As	Sb	Ag	Au	GEOLOGY
					oz/ton		
30665	"	390.2 - 391.2	3	0.3	0.1	*L5	Carb alter'd halo in dio
30666	"	391.2 - 391.35	2	0.1	0.1	225	Vein-qtz-carb shr'd w/
30667	"	391.35 - 392.4	2	0.8	0.1	L5	minor py Wk perv carb alter'd dio
30661	"	417.7 - 418.7	5	0.2	0.1	10	Carb vned dio w/ 25% dissem py
30662	"	418.7 - 418.75	260	2.6	0.3	45	Vein-carb w/ bands of py 5%
30663	"	418.75 - 419.0	48	1.4	0.1	L5	Ankerite altered dio, minor py
30664	"	419.0 - 420.0	6	0.4	0.1	30	Dio w/ 5% dissem py wk carb
30668	"	422.0 - 423.0	3	0.4	0.1	L5	Dio-wk-str perv carb
30669	"	423.0 - 423.45	2	0.1	0.1	5	Qtz-vn bx w/ carb cement tr py & lt grn ser
30670	"	423.5 - 424.5	2	0.9	0.1	L5	Dio str perv carb - fault
30671	"	435.9 - 436.9	4	0.1	0.1	L5	Dio wk perv carb anhydrite
30672	"	436.9 - 437.15	4	0.3	0.1	L5	Vein-calc minor qtz, ser
30673	"	437.15 - 438.2	6	0.2	0.1	20	Dio wk carb alter'n .3% py
30674	"	457.7 - 458.7	6	0.4	0.3	L5	Dio shr'd .3% dissem py perv carb.
30675	"	458.7 - 458.9	6	0.6	0.1	L5	Sheared vein w/ qtz frag py blebs, lt grn stringers ep?
30676	86-05	458.9 - 459.9	3	0.4	0.1	L5	Dio, shr'd dissem py .3%
30677	"	461.0 - 462.0	1	0.3	0.1	L5	Dio, perv carb alter'n
30678	"	462.0 - 462.42	11	0.2	0.1	L5	Vein-qtz upper contact ribboned py weakly dissem
30679	"	462.42 - 463.42	3	0.3	0.1	L5	Siliceous rock-silicified dio?
30680	"	459.9 - 461.0	3	0.2	0.1	L5	Dio f-g w/ wk perv carb
03701	"	464.5 - 465.5	2	4.0	1.1	L5	Dio M-C-grn
03702	"	465.5 - 465.6	3	1.6	0.3	L5	Vein-bnded qtz-carb, shr'd contact, lower carb section, upper qtz, .25% dissem py
03703	"	465.6 - 465.7	4	1.5	0.4	L5	Dio-f-g dk altered zone below vn
03737	86-05	465.7 - 466.7	2	0.2	0.1	L5	Dio wkly altered
03704	"	467.6 - 469.1	1	0.8	0.4	L5	Vein Bx-ank-dol-carb
03705	"	469.1 - 470.8	1	0.5	0.3	L5	vning & brecciation w/ dissem py

TABLE V CONTINUED
PACIFIC EASTERN GEOCHEMISTRY RESULTS P86-05

SAMPLE	HOLE	METERAGE	PPM As	PPM Sb	PPB Ag	PPB Au	GEOLOGY
03727	"	591.1 - 592.15	2	0.1	0.1	*L5	Specks of cpy
03728	"	592.15 - 592.2	6	0.4	0.1	20	Clay altered contact zone w/ tourmalive needles?
03729	"	592.2 - 592.55	4	0.1	0.1	L5	Rhyolite-altered zone w/ carb/ankerite
03730	"	592.55 - 592.8	3	0.2	0.3	L5	Vein Bx-str ankerite alter'n w/ frag of silica and black sulphide
03731	"	592.8 - 593.8	1	0.1	0.1	L5	Altered rx weak ankerite
03732	"	593.8 - 594.8	2	0.1	0.1	L5	Spotty wk perv ankerite alteration of qtz-actinolite
03733	"	594.8 - 595.8	2	0.1	0.1	L5	Rock
03734	"	602.4 - 603.4	3	0.2	0.1	15	Faulted sheared rock Serpentinite

SAMPLE	HOLE	METERAGE	PPB Au	Cu	Ni	Co	PPM Cr	Sb	As	Ag	GEOLOGY
03735	86-05	612.0 - 613.5	L5	39	286	51	1500	.2	5	0.1	Serpentinite
03736	"	621.2 - 622.7	L5	22	287	43	1200	.1	3	0.1	Serpentinite

* Note L(less than)

6.0 SOIL GEOCHEMISTRY

Introduction

A limited soil geochemical survey was conducted over an area to the south east of DDH P86-05 after the completion of the coring part of the diamond drill program. A total of 2.5 man days were spent September 30-October 1 completing a small grid and procurring soil samples. The survey was designed to cover the projected subcropping of the favourable Pioneer greenstone/diorite units for approximately 600 metres east of the DDH P86-05 surface trace.

Tie line 96+00N (bearing 114.5° Azimuth) was used as control for the survey. The tie line was located on the topographic map by surveying it to a fork in Crazy Creek. Lines 115+00E, 117+00E, 119+00E and 121+00E were compassed (24.5° Azimuth) chained and flagged from 95+00N to 98+00N. Stations were placed at 25 metre intervals along the crosslines and 50 metre intervals along tie line 96+00N. Stations were marked using small aluminum tags and blue and red flagging.

A total of 52 samples were collected from glacial till material located just below a conspicuous white ash horizon. Samples were placed in Kraft paper bags and sent to Chemex Labs for analyses. Samples were dried, sieved through a -35 mesh screen, crushed to -80 mesh and analyzed for gold, silver, arsenic and antimony.

Atomic Absorption (AA) techniques were employed in the final analysis of the above elements, but each element was subjected to different preparatory work. Gold is firstly extracted via fire assay then measured using AA where as silver is extracted via a combination of perchloric and nitric acids then the pregnate solution is diluted with distilled water and finally analyzed via AA. Arsenic is extracted from the sample by hydration and antimony is organically extracted before the solutions are subjected to AA.

Results

No formal threshold/background/anomalous populations were calculated as so few samples (52) precludes a meaningful statistical analysis.

The results for gold, silver, arsenic and antimony are plotted on Soil Geochemistry Map Figure 11.

Samples analyzed for gold contained less than detection limit (less than 5 ppb) and up to 10 ppb Au. Analyses of 5-10 ppb Au are not considered to be geochemically significant.

Values for silver range from 0.1 to 0.5 ppm Ag. A value of 0.5 ppm is possibly slightly above background. Two samples contain 0.5 ppm Ag and are located at 115+00E, 96+75N and L117+00E 95+75N. Arsenic values range from 1 ppm to 90 ppm. A weak arsenic anomaly is

located on L115+00E from 96+75 to 97+25 where 3 values (90, 53 and 51 ppm Ag) appear to be well above a rough background value of up to approx. 25 ppm As.

Antimony values range from 0.1-1.6 ppm Sb. A similar weak antimony anomaly is located concident with the above arsenic anomaly. Values range from 1.0-1.6 ppm with a rough background of 0.4 ppm Sb.

APPENDIX I

THIN SECTION REPORT P86-05
BY A.L. LITTLEJOHN, M.Sc.

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Report for: G. Norman,
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October 28, 1986

Samples: 86-05/305.3m, 333.4m, 349.9m, 362.3m, 370.5m, 337.7m, 375m, 385.4m, 386.3m, 410.3m, 494.1m, 459.3m, 584.8m, 587.0m, 599.5m

Summary:

A) ALTERED VOLCANIC ROCKS: 305.3m and 349.9m.

These are thoroughly altered volcanic rocks of andesitic composition originally. In both rocks the texture and mineralogy has been almost completely obscured by the pervasive alteration. 305.3 was porphyritic. The alteratioon is almost complete replacement of plagioclase by an intimate intergrowth of calcite and biotite with some chlorite. There may have been silicification prior to this (??). 349.9 has been altered with an intimate mixture of calcite and chlorite.

B) DEFORMED, ALTERED DIORITES: 333.4m, 337.7m, 362.3m, 370.5m, 375m, 410.3m, 459.3m, 584.84m, 587.0m, 599.5m.

These samples are all diorites/quartz-diorites ("soda granite") which have been deformed and altered in various ways. The typical (unaltered) diorite consists of a medium grained, more or less equigranular intergrowth of plagioclase laths and aggregates of quartz; the amount of quartz is highly variable. Mafic minerals such as hornblende may have been present (now actinolite). However, there is strong evidence in thin section that much of the quartz has been added; this is particularly evident in the samples from lower down the drill hole. The quartz occurs in patches within the plagioclase grains, forming clusters of very fine grains, with a sub-graphic texture and grading into the quartz aggregates; in highly siliceous samples there is a patchwork of quartz amongst the plagioclase suggesting quartz "flooding". The silicification may have been a late magmatic effect, resulting in gradational changes from diorite to quartz diorite. Associated dykes or dyke-like bodies may have formed at this time (eg. 584.84m, which is a leucocratic quartz-diorite in which the quartz may have been primary; it is much finer grained than the typical diorite).

(continued)

Summary (cont.)

Actinolite is the dominant mafic mineral and occurs in variable amounts in most of the samples. It forms acicular grains occuring in splays within the plagioclase and some of the quartz in those samples with a relatively small amount. As the amount increases the fine grains coalesce into broad ragged bladed grains which replace much of the plagioclase. Actinolite development appears to be a regional metamorphic/alteration effect and it is not clear if it is derived from hornblende or the components have been added.

Epidote (and clinozoisite) is the main alteration, apart from the quartz and actinolite. It occurs in veins and vein-like patches and is usually intergrown with a small amount of quartz. It pervasively replaces plagioclase in many samples and has been added to some actinolite aggregates. Sulphide mineralization may be associated with this, although some is associated with carbonate.

After the addition of epidote there was an episode of strong deformation by crushing and shearing. Epidote aggregates are often fractured and tremolite grains may be bent. Quartz is highly strained and in part recrystallised. Plagioclase develops patches in which small domains of fine granulated and recrystallised feldspar have formed; in some samples (eg. 599.5m) the plagioclase is thoroughly recrystallised and only "ghosts" of the original laths remain. A network of fine fractures has developed and these have been filled with calcite (and some dolomite, ankerite). This is associated with chlorite which pervasively replaces plagioclase and the amphibole. Sericite is associated with the carbonate in less mafic rocks. A few samples contain fine veinlets with zeolites and prehnite. Carbonate alteration (and associated minerals) is variable in intensity and may be dominant in highly sheared rocks (eg. 362.3, a leucocratic diorite with no quartz; perhaps a dyke). Those samples relatively rich in actinolite tend not to have much carbonate.

C) STRONGLY ALTERED DIORITES: 385.4m, 386.3m, 377m, 494.1m.

These samples are diorites which have been so strongly deformed and altered that the original texture and mineralogy has been totally obscured. 385.5 and 377 are essentially epidote-quartz rocks, formed by pervasive replacement without strong deformation. 385.4 is fractured with development of calcite in the fracture system.

386.3 probably formed in a shear and consists mainly of sericite with thin elongated vein-like or layer-like aggregates of carbonate (dolomite ?) and some chlorite.

494.1 is also a sheared rock in which all the plagioclase has been pervasively replaced by epidote/clinozoisite and actinolite has been smeared into streaks within the epidote. Vein-like patches of epidote-quartz occur. These have been cut by calcite-prehnite veinlets.

A. L. Littlejohn

A. L. Littlejohn, M.Sc.

86-05/305.3m: ALTERED ANDESITE.

This sample was a fine grained volcanic rock of andesitic composition and containing a few phenocrysts of unknown mineral(s). It has been intensely and pervasively altered so that only vague outlines of the original groundmass plagioclase laths remain. The bulk of the rock consists of an intimate intergrowth of calcite, biotite and chlorite. There was apparently some silicification prior to the carbonate alteration. All of the phenocrysts are partly or completely replaced by carbonate; those that are partly replaced contain quartz, which itself appears to be a replacement. Vague patches and vein-like concentrations of fine quartz are present amonst the altered plagioclase and have also been altered themselves with chlorite. Minerals are:

calcite	57%
biotite	26
chlorite	14
quartz	2
plagioclase	1
Fe-Ti oxides	minor
K-spar	trace

The original rock apparently consisted of a mass of fine plagioclase laths up to 0.2mm in length. Phenocrysts are tabular to ovoid in shape and vary in size from 0.5 to 2.0mm and made up about 10% of the rock. Pervasive silicification has apparently occured and the quartz forms rounded grains about 0.05mm in size. The phenocrysts consist of an aggregate of subrounded grains 0.05 to 0.2mmin size. Intense carbonate-biotite alteration has resulted in replacement of the plagioclase (and quartz) by an intimate intergrowth of very fine calcite and biotite. Relict plagioclase and quartz has been incipiently chloritised so that only vague outlines of the original laths remain in indistinct patches along with fine grains and clusters of partly chloritised quartz. Most of the the phenocrysts consist of an aggregate of subrounded calcite grains about 0.2mm in size; some have a network of fine chlorite betwen the calcite grains. Small patches of calcite and chlorite also occur within the groundmass and these are often surrounded by a diffuse zone of biotite. Small patches of a chlorite-biotite mixture also occur. Calcite also occurs in a fine, indistinct network of thin veinlets, associated with incipinet K-spar in the adjacent rock. Extremely fine Fe-Ti oxides are disseminated throughout, sometimes being concentrated in thin streaks and whisps.

86-05/333.4m: DEFORMED, ALTERED DIORITE.

This sample was a medium grained dioritic intrusive which may have been silicified in association with a patchy network of epidote development. Subsequent to this there has been deformation associated with the development of a closely spaced network of chlorite and calcite. Minerals are:

plagioclase	60%
quartz	16
epidote	14
chlorite	5
calcite	4
opaque	1

Plagioclase formed broad subhedral to euhedral grains 1 to 3mm in size. These are intergrown with shapeless to subrounded quartz aggregates of about the same size. Epidote forms rounded grains 0.05 to 0.1mm in size occuring in small aggregates and clusters within the plagioclase and a widely spaced, discontinuous network of thin veinlets with indistinct margins. Clusters of subcubic opaque grains (mostly pyrite) 0.2 to 1.0mm in size occur within the plagioclase close to the epidote aggregates and veinlets.

Deformation has produced a closely spaced, fine network of interconnected fractures whcih have been filled with calcite, associated with chlorite development. The quartz has been strongly deformed with the production of strong undulose extinction and development of patches of fine recrystallised quartz. Twinning in the plagioclae is often bent and there are also thin zones of fine granulation and recrystallisation. The fracture system has been filled with fine calcite, along with very fine chlorite in places. Much of the chlorite is incipiently altering the plagioclase, particularly where fine granulation has occured. Thin streaks occur within plagioclase or adjacent to the calcite fracture fillings. The aggregates of epidote appear crushed and a fine intergranular network of extremely fine chlorite has formed within them. There are also small radiating acicular splays of very fine chlorite around the epidote and within the plagioclase and quartz. These are probabaly replacements of actinolite. Some of the opaque grains have been fractured and these have also been filled with calcite and/or chlorite.

86-05/337.7m: DEFORMED, ALTERED DIORITE.

This sample is a medium grained dioritic rock which has apparently been silicified and rhen defromed so that a fine, closely spaced network of fractures has developed, associated with calcite veinlets and with pervasive sericite-chlorite alteration in the plagioclase. Minerals are:

plagioclase	57%
quartz	20
calcite	8
sericite	8
chlorite	4
opaque	3

Plagioclase formed broad euhedral to subhedral grains 1 to 4mm in size. Quartz occurs in patches two or three millimeters in size, forming subrounded grains of variable size up to 2mm. In places fine shapeless patches of quartz occur within the plagioclase, indicating silicification. Both the plagioclase and quartz have been quite strongly deformed so that there is a closely spaced fracture network through the rock. The quartz has become highly strained and some aggregates have recrystallised to fine grains with interlocking, sutured contacts. Close to the fractures, the plagioclase has been granulated and partly recrystallised to very fine grains.

Fine calcite has developed in the fracture system throughout the rock and small patches have formed at fracture intersections, within both plagioclase and quartz. Fracture fillings very in width from 0.05 to 0.5mm; most are about 0.2mm. This is associated with the development of incipient and pervasive replacement of the plagioclase with very fine sericite mixed with chlorite in places. The chlorite tends to occur close to the fracture fillings or may occur as a fine fracture filling itself. Some plagioclase grains are highly altered with sericite, others are only speckled.

Opaques are mostly pyrite and may fill parts of the fractures with a thin zone of calcite between the pyrite and the adjacent plagioclase or quartz. Cubic grains 0.05 to 0.5mm in size occur in aggregates and clusters throughout the rock partly within the fracture sytem but growing into the plagioclase; these are often surrounded by a thin zone of calcite. Very fine ragged opaques occur scattered amongst the calcite and chlorite in the vein/fracture system and in streaks in the plagioclase.

86-05/349.9m: ALTERED ANDESITE.

This sample was a fine grained volcanic rock of andesitic composition originally consisting of an intimate intergrowth of plagioclase and actinolite. There is a fine, fairly closely spaced network of calcite veinelts cutting through the rock. The actinolite (and plagioclase) has altered to chlorite. Minerals are:

chlorite	70%
calcite	15
plagioclase	15
Fe-Ti oxides	minor
quartz	trace

The original rock consisted of an aggregate of squat subhedral to shapeless plagioclase grains 0.1 to 0.3mm in size. Crowded within this and intimately intergrown with it there were small splays of very fine acicular actinolite/tremolite grains which formed during the regional greenschist metamorphism (or alteration). The fine splays have been replaced by chlorite and the relict plagioclase grains are also incipinetly chloritic. The chloritisation is related to the development of a closely spaced, partly interconnected network of calcite veinlets. These vary in width from 0.05 to 0.5mm. Some of the wider ones have been offset by thiner ones. Extremely fine calcite is disseminated throughtout the fine chlorite/plagioclase intergrowth. Extremely fine Fe-Ti oxides are also disseminated throughout, often coalescing into ragged aggregates and clusters up to 0.1mm in size.

86-05/362.3m: SHEARED, ALTERED (CARBONATE) DIORITE.

This sample was a medium grained dioritic intrusive consisting mainly of an aggregate of plagioiclase laths. It has been strongly sheared so that the plagioclase has been granulated and recrystallised and there is a very closely spced network of veins and stringers though the rock and around the fine granulated grains. There appears to be two carbonates. Calcite forms clear grains with moderate to high relief; ankerite forms finer dark brown grains with very high relief. The occur together with the ankerite tending to be at the edges of the larger veins and forming most of the veinlets and stringers. Minerals are:

plagioclase	52%
carbonate	28
chlorite	10
opaque	trace

Plagioclase formed subhedral grains 1 to 3mm in size. Only a few relicts of these occur and much of the rock consists of an intergrowth of deformed, granulated and recrystallised, shapeless interlocking plagioclase of very variable grain size from 0.05 to 0.5mm. Indistinct, streaky patches of more or less equal grain size occur in places. The relict laths have domains of finely recrystallised material within them. Extremely fine chlorite is intimately intergrown with the fine recrystallised plagioclase and occurs incipiently in the less granulated grains.

The network of carbonate forms veins amd stringers 0.05 to 2.0mm in width. The widest (dominantly calcite) tend to occur in a system subparallel to the shearing and may have more or less sharp margins. The fine stringers (dominantly ankerite) have developed in a very closely spaced network around the fine granulated plagioclase and tnrough the deformed larger grains and have rather diffuse margins. Extremely fine opaques occur within some of the carbonate veinlets. Clusters of cubic opaques (probabaly pyrite) about 0.1mm in size occur in the plagioclase close to veinlets.

66-05/370.5m: ALTERED PORITE.

This is a medium grained intrusive which has been strongly silicified so that large aggregates of quartz occur intergrown with medium grained plagioclase laths. Some quartz may have been original ?? The silicification is associated with epidote in broad vein-like patches with indistinct margins. It has been deformed subsequent to this and a system of very fine calcite veinlets has developed. Minerals are:

quartz	40%
epidote	25
plagioclase	20
chlorite	14
calcite	1
opaque	minor

Plagioclase formed and aggregate of euhedral to subhedral grains 1 to 4mm in size. Some quartz may have been intergrown with it but most appears to have been added. The quartz forms subrounded to shapeless interlocking grains occuring in subrounded aggregates 2 to 6mm in size amongst the plagioclase. Some aggregates consist of a mass fo subrounded grains 0.1 to 0.5mmin size; othere consist of shapeless interlocking grains 1 to 3mm in size which are highly strained as seen in the intense undulose extinction. Quartz is also intimately intergrown with the plagioclase and clearly replacing it. Almost all the plagioclase grains contain small or large patches where there is a very fine graphic-like or spotted intergrowth of quartz within the plagioclase.

The quartz is associated with epidote development. Much of this occurs in a vein-like patch several millimeters in width but with irregular, rather indistinct contacts and with veinlets passing out of it into the rest of the rock. The epidote in this patch forms rounded to prismatic grains 0.1 to 0.4mm in size, aggregates of which are intergrown with fine quartz. As well as veinlets passing out of the patch, epidote has developed in aggregates and clusters within the relict plagioclase throughout the rock. Some aggregates consist of the well formed grains, others form a cloudy mass of very fine grains.

Chlorite has also developed within the plagioclase and forms very fine flakes occuring in shapeless patches around and partly intergrown with the aggregates of epidote. Some chlorite may be an alteration of actinolite. Clusters of fine flakes are scattered within the plagioclase. The chlorite is associated with calcite development occuring in a system of veinlets which are sometimes discontinuous and are spaced one or two millimeters apart. The chlorite sometimes forms a thin zone around the veinlets. The veinlets cut through the epidote, aggregates of which show evidence of deformation (fracturing, bent grains). Opaque grains (mainly pyrite) are associated with epoidote development and also show evidence of deformation by the development of a network of chlorite through them. The grains themselves are cubic and range in size from 0.2 to 1.0mm, occuring in the plagioclase close to epidote patches. Fine ragged opaque grains (Fe-Ti oxides) occur in some of the chlorite.

86-05/375m: ALTERED DIORITE.

This sample is a medium grained dioritic intrusive which has been altered with broad vein-like patches of epidote, associated with quartz which is pervasively altering the plagioclase and also occurs in small aggregates between the laths. Actinolite has formed within the plagioclase. Minerals are:

plagioclase	44%
actinolite	18
epidote	18
quartz	10
chlorite	8
opaque	2
calcite	trace

Plagioclase forms euhedral to subhedral laths 1 to 4mm in size. Many of them contain large or small patches consisting clusters of very fine quartz grains, sometimes in a fine sub-graphic intergrowth and these are clearly evidence of pervasive silicification. Much of the quartz, though, occurs in shapeless to subangular aggregates up to 1mm in size and consisting of a few shapeless interlocking grains.

Some quartz is intergrown with epidote, forming rounded to prismatic grains 0.05 to 0.4mm in size which occur in a vein-like patch several millimeters wide and with rather indistict ragged margins with veinlets passing out from it into the rock and clusters and aggregates developing in the plagioclase. Actinolite has also formed within the plagioclase. It forms ragged bladed grains up to 1mm in length which have formed by the aggregation of fine acicular or idiomorphic grains scattered in the plagioclase. Rounded to cubic opaque grains (probabaly Fe-sulphide) 0.05 to 0.3mmin size occur in small aggregates and clusters within the larger actinolites or scattered in the plagioclase close to epidote.

Chlorite (and calcite) appear to have formed after the epidote and actinolite. The chlorite forms very fine flakes occuring in small clusters and highly irregularly shaped patches up to 0.5mm in size within the plagioclase, and sometimes quartz. Some of these are intergrown with and replacing the actinolite. There is an indistinct, fine partial network of chlorite veinlets and elongated patches throughout and very thin discontinuous calcite veinlets occur within this or simply cut across the epidote.

86-05/385.4m: EPIDOTE-(QUARTZ) ROCK WITH CALCITE.

This is a fine grained massive, greenish-grey coloured rock consisting largely of an aggregate of fine epidote grains, intergrown with some quartz. It has been strongly fractured with the development of a fine, closely spaced fracture system filled with calcite, associated with chlorite. Minerals are:

epidote	76%
calcite	18
chlorite	4
quartz	2
opaque	trace

Epidote forms a massive aggregates prismatic grains up to 1mm in size and smaller rounded grains which have all been strongly fractured with the development of a very fine closely spaced fracture network. Shapeless quartz grains and aggregates up to 0.5mm in size occur between the epidote grains which have grown within the quartz; thin vein-like concentration of quartz also occur.

The fracture system has been partly filled with calcite and this is associated with chlorite. Very fine calcite has developed along fractures up to 0.2mm wide and has diffused into the adjoining rock along the very fine fracture network. At intersections there are sometimes shapeless aggregates up to 1mm in size, consisting of subrounded grains about 0.2mm in size. The quartz grains and aggregates between the epidote grains have been largely replaced by calcite, associated with chlorite. The larger quartz grains and aggregates are often crowded with incipient chlorite flakes, grading into small patches, with or without calcite. Most of the quartz grains and aggregates were less than 0.2mm in size and these have been all been completely replaced by calcite or chlorite. Fine ragged opaque grains occur along the edges of the calcite fracture fillings and in small elongated clusters in the chloritic patches. Fine Fe-Ti oxides are probabaly dominant but Fe-sulphides may also be present.

86-05/377m: EPIDOTE-QUARTZ ROCK.

This is a fine to medium grained, olive-green coloured massive rock consisting largely of an aggregate of epidote grains with small grains and agrgegates of quartz between the epidote. It has been quite strongly fractured with the developement of a fine network through the epidote. A small amount of calcite, associated with chlorite, has formed within the fracture network and replaces some of the quartz. Minerals are:

epidote	93%
quartz	5
calcite	1
chlorite	1
sphene	minor
opaque	trace

Epidote forms prismatic grains 1 to 2mm in length occuring in aggregates which grade into aggregates consisting of subrounded grains 0.2mm in size. Subangular quartz grains mostly less than 0.2mm in size are scattered between the epidote grains throughout and sometimes occur in small aggregates of rounded grains about 0.5mm in size within which small epidotes are present. Indistinct vein-like concentration of quartz also occur.

Much of the fracturing appears to have simply granulated some of the epidote but there is a widely spaced network of discontinuous fracture fillings with calcite. Extremely fine calcite and chlorite form an intergranular film around some of the granulated epidotes. Parts of the quartz grains and aggregates are replaced with calcite, sometimes with incipient chlorite. Shapeless to idiomorphic sphene grains up to 0.1mm in size have formed along the intergranular/fracture network with calcite, sometimes in small clusters of fine grains.

Subcubic to anhedral opaque grains about 0.2mm in size are intergrown with the epidote grains, sometimes in small aggregates containing fine epidote inclusions. They could be pyrite or pyrrhotite.

86-05/386.3m: SERICITE-CALCITE (DOLOMITE ?)- CHLORITE ROCK.

This is a thoroughly altered rock with a moderately developed foliation which is due to the concentration of elongated, diffuse zones of carbonate and chlorite within a mass of coarse sericite. It is probabaly a highly sheared diorite in which the plagioclase has altered to sericite and been replaced by carbonate and quartz. The carbonate has quite high relief and a a lignt brownish colour suggesting that it is dolomitic, but reacts vigourously and quickly to dilute HCl, suggesting calcite. Minerals are:

sericite	58%
carbonate	36
chlorite	3
opaque	trace

Sericite forms a compact mass well formed flakes 0.1 to 0.3mm in size. There is a weak tendency to be aligned along the foliation but this is not very well developed. Carbonate forms shapeless grains 0.05 to 0.1mm in size occuring in ragged, elongated aggregates up to 1mm in size which are partly connected to one another and concentrated in a closely spaced, subparallel system of diffuse zones which have been superimposed upon the sericite. In several of these the carbonate is mixed with fine chlorite, being concentrated in thin, sinuous, elongated patches serveral millimeters in length along the foliation. It is colourless, suggesting a high Mg content (associated with dolomitic calcite ?). A few cubic opaque grains (probabaly pyrite) are scattered throughout the rock. These are 0.1 to 0.3mm in size. Finer ragged opaques occur in small clusters within the carbonate aggregates.

86-05/410.3m: ALTERED DIORITE.

This sample was a medium grained, more or less equigranular intrusive consisting originally of an aggregate of plagioclase and hornblende(??). Alteration/metamorphism has produced actinolite which has grown within the plagioclase. Veining and pervasive alteration by epidote and quartz, associated with chlorite has occured after the development of actinolite. There are also thin veinlets containing prehnite and calcite, or a zeolite. Minerals are:

actinolite	55%
plagioclase	25
epidote	8
chlorite	8
quartz	3
opaque	1
zeolite (stilbite ?)	trace
calcite	trace
prehnite	trace

Plagioclase forms an aggregate of subhedral grains 1 to 3mm in size. Hornblende may have been intergrown with it but has all been altered and redistributed as actinolite. This forms small acicular to bladed grains which have grown within and between the plagioclase grains and have coalesced to broad, ragged bladed grains 0.5 to 2.0mm in size which have grown within the plagioclase and across grain boundaries so that only small relicts occur "underneath" the mass of amphiboles, along with small aggregates which are full of the smaller amphiboles. Rounded to anhedral opaque grains 0.05 to 0.2mm in size occur in small aggregates and clusyers within the large actinolites or intergrown with the smaller ones. Most are probabaly Fe-Ti oxides but some Fe-sulphide is probably present also.

Epidote forms rounded to bladed grains less than 0.2mm in size which occur in veins one or two millimeters in width, intergrown with a small amount of fine quartz. Small grains are scattered about the rock within the plagioclase but epidote away from the veinlets mostly forms extremely fine, almost cryptocrystalline grains which have pervasively developed in diffuse patches within the aggregates of plagioclase and also around and partly within the large tremolite grains. Very fine chlorite is intergrown with this epidote, forming highly irregularly shaped patches up to 0.5mmin size. As well as associated with epidote, quartz occurs in very thin veinlets without it. Small grains occur in vein-like patches intergrown with the plagioclase.

Discontinuous veinlets less than 0.2mm in width which consist of very fine calcite, sometimes with quartz or with tabular prehnite grains about 0.2mm in size, tend to cut across the epidote-quartz veinlet system. There is also a sinuous veinlet of a zeolite, forming platey grains about 0.2mm in size which also cuts across the epidote-quartz system. Small aggregates of calcite have developed within some of the vein-like aggregates of quartz.

86-05/459.3m: DEFORMED, ALTERED DIORITE.

This sample was a medium to coarse grained, more or less equigranular dioritic rock consisting mainly of an intergrowth of plagioclase and some quartz. It has been moderately deformed so that the plagioclase (and quartz) is strained and is recrystallising to aggregates of very fine grains. The quartz occurs in a partly interconnected patchwork amongst the plagioclase and is also present within the deformed laths, suggesting that much of it has formed by pervasive silicification prior to the deformmation. Clusters of fine actinolite are growing in the plagioclase. There is widely spaced, suparallel system of vein-like patches of clinozoisite, associated with fine chlorite and a zeolite in fractures. Wider veins of clinozoisite cut across this. Minerals are:

quartz	42%
plagioclase	33
actinolite	18
clinozoisite	6
opaque	1
apatite	minor
chlorite	minor
zeolite (stilbite ?)	trace

Plagioclase forms broad euhedral to subhedral laths mostly 2 to 4mm in size which occur in a patchy intergrowth with subrounded quartz grains 0.5 to 2.5mm in size, tending to occur in aggregates, teo or three millimeters in size, which may be partly interconnected so that there is a patchwork. Deformation has resulted in the development of strong undulose extinction in the quartz and recrystallisation to fine grains in small domains so that they have interlocking sutured margins and the aggregates may be very variable in grain size. The plagioclase is also recrystallising in small or large domains to aggregates of rounded to shapeless interlocking grains less than 0.05mm in size, sometimes closely intergrown with fine quartz. Patches of undulose extinction also occur. Rounded to tabular apatite grains up to 0.2mm in size occur in clusters within the plagioclase or between plagioclase and quartz.

Actinolite forms idiomorphic grains about 0.1mm in size, acicular grain about 0.2mm in length and ragged bladed grains up to 0.5mm in length which have grown within the plagioclase, sometimes coalescing into ragged grains 1.5mm in size. The acicular grains often occur in radiating splays. These sometimes occur in the quartz agrgegates, between the grains and growing into them. Cluster of the more bladed grains "spill" across plagioclase-quartz contacts into the quartz. Small, ragged, subcubic opaque grains (probabaly iron sulphides) occur in shapeless clusters and aggregates up to 1mm in size amongst the clusters and aggregates of actinolite. They have been introduced during the addition of clinozoisite.

(continued)

86-05/459.3m (cont.)

The clinozoisite forms rounded to prismatic grains 0.1 to 0.3mm in size occuring in a widely spaced, subparallel system of vein-like patches less than 1mm wide and a few millimeters in length which have grown within the plagioclase and quartz without sharp contacts and with small relict patches of the plagioclase and quartz within them. There is also a wider, stronger vein of this material which cuts across the subparallel system but seems to grade into this where it intersects the finer vein-like patches. The edges of some of the actinolite aggregates are being incipiently replaced by the clinozoisite. There are fine fractures associated with the subparallel system and these are filled with a zeolite, forming squat tabular grains about 0.05mm in size. Very fine chlorite also occurs but has mostly been deposited in a fine network around and within some of the quartz aggregates.

86-05/494.1m: EPIDOTE-QUARTZ-(ACTINOLITE) ROCK WITH CALCITE-PREHNITE VEINS.

This sample is a thoroughly altered rock (diorite) which has been sheared so that there is a vague foliation. It consists largely of fine epidote (clinozoisite ?) which has pervasively replaced plagioclase and actinolite, streaky remnants of which remain in the mass of fine epidote. The mass of epidote grades into vein-like patches where it is intergrown with quartz. A subparallel system of calcite-prehnite veins and patches has developed after the pervasive epidote alteration. The pervasive epidote alteration is very "dirty" and fine grained, almost cryptocrystalline, but those grains intergrown with quartz are colourless and have strong anomalous birefringence colours and are probabaly clinozoisite. Minerals are:

epidote	60%
quartz	15
actinolite	15
prehnite	7
calcite	3

The bulk of the rock consists of a mass of almost cryptocrystalline epidote. Scattered within this are ragged, subidiomorphic grains of actinolite which are less than 0.3mm in size. In places there are streaky patches two or three millimeters in size consisting of ragged bladed grains up to 1.5mm in size. Margins are indistinct. The mass of fine epidote grades into vein-like patches, which may be a few millmeters wide, consisting of rounded to prismatic clinozoisite grains 0.1 to 0.4mm in size which are intergrown with subrounded quartz grains 0.1 to 0.3mm in size. Shapeless aggregates of coarser grains sometimes occur within the mass of fine epidote.

Subsequent to the epidote formation there has been fracturing and veining with prehnite and calcite. These are mostly 0.2 to 0.5mm wide and sinuous. They cut across the main foliation and are subparallel to one another, although there has been some offsetting of the main veinlets by a system of finer ones. In places streaky patches of tremolite and minor calcite have developed, grading into the adjacent epidote and actinolite. The prehnite forms tabular grains 0.1 to 0.3mm in length. The finer veinlets are filled completely with prehnite or calcite. The wider ones contain a core of calcite with prehnite at the contact.

86-05/494.1m: EPIDOTE-QUARTZ-(ACTINOLITE) ROCK WITH CALCITE-PREHNITE VEINS.

This sample is a thoroughly altered rock (diorite) which has been sheared so that there is a vague foliation. It consists largely of fine epidote (clinozoisite ?) which has pervasively replaced plagioclase and actinolite, streaky remnants of which remain in the mass of fine epidote. The mass of epidote grades into vein-like patches where it is intergrown with quartz. A subparallel system of calcite-prehnite veins and patches has developed after the pervasive epidote alteration. The pervasive epidote alteration is very "dirty" and fine grained, almost cryptocrystalline, but those grains intergrown with quartz are colourless and have strong anomalous birefringence colours and are probabaly clinozoisite. Minerals are:

epidote	60%
quartz	15
actinolite	15
prehnite	7
calcite	3

The bulk of the rock consists of a mass of almost cryptocrystalline epidote. Scattered within this are ragged, subidiomorphic grains of actinolite which are less than 0.3mm in size. In places there are streaky patches two or three millimeters in size consisting of ragged bladed grains up to 1.5mm in size. Margins are indistinct. The mass of fine epidote grades into vein-like patches, which may be a few millmeters wide, consisting of rounded to prismatic clinozoisite grains 0.1 to 0.4mm in size which are intergrown with subrounded quartz grains 0.1 to 0.3mm in size. Shapeless aggregates of coarser grains sometimes occur within the mass of fine epidote.

Subsequent to the epidote formation there has been fracturing and veining with prehnite and calcite. These are mostly 0.2 to 0.5mm wide and sinuous. They cut across the main foliation and are subparallel to one another, although there has been some offsetting of the main veinlets by a system of finer ones. In places streaky patches of tremolite and minor calcite have developed, grading into the adjacent epidote and actinolite. The prehnite forms tabular grains 0.1 to 0.3mm in length. The finer veinlets are filled completely with prehnite or calcite. The wider ones contain a core of calcite with prehnite at the contact.

86-05/584.84m: LEUCOCRATIC QUARTZ-DIORITE WITH ANKERITE VEINLETS.

This is a medium to fine grained, more or less equigranular, leucocratic intrusive consisting of an intergrowth of plagioclase and quartz. A closely spaced network of fine ankerite veinlets cuts through the rock. It has been weakly deformed. Minerals are:

plagioclase	75%
quartz	17
ankerite	8 (minor calcite ?)
chlorite	minor
opaque	trace
sericite	trace

Plagioclase forms euhedral to subhedral laths mostly 0.5 to 1.0mm in size with a few up to 2mm. Quartz forms rounded to anhedral interlocking grains 0.1 to 0.5mmin size occuring in subrounded aggregates about 1mm in size, intergrown with the plagioclase laths throughout.

Weak deformation has resulted in the development of a few thin zones of granulation and recrystallisation in the plagioclase and quartz; plagioclase twinning is sometimes bent. Carbonate veinlets mostly less than 0.2mm in width have exploited these and have also formed a fine criss-crossing network through the less deformed parts. The ankerite forms very fine grains in the veinlets and also clusters of ragged grains around the veinlets within the adjacent plagioclase; extremely fine grains are disseminated throughout the plagioclase. Small patches have developed at veinlet intersections. A few veinlets contain a clear carbonate with moderatley high relief which may be an earlier calcite; the brown cloudy ankerite (much higher relief) has replaced this. Specks of sericite are sometimes associated with the very thin veinlets. Around the patches of carbonate, and partly intergrown with it, and in some of the plagioclase which has been granulated, adjacent to a veinlet, there is sometimes very fine chlorite. It is colourless, indicating high Mg content, which follows from the association with ankerite. Clusters of very fine opaque (Fe-sulphides ?) grains less than 0.1mm in size occur in some of the plagioclase grains, near carbonate.

86-05/587.0m: DEFORMED, ALTERED DIORITE.

This sample was a medium grained, more or less equigranular diorite originally consisting mainly of an intergrowth of subhedral plagioclase laths and hornblende (??). It has been moderately sheared so that there is an indistinct foliation due, in part, to development of thin shear zones where the plagioclase is very fine grained and partly replaced by cryptocrystalline epidote. The hornblende (?) has altered to actinolite and tends to be crudely aligned along the foliation. Minor calcite veining cuts across the foliation. Minerals are:

plagioclase	57%
actinolite	36
quartz	3
epidote	3
calcite	1
opaque	minor
chlorite	trace

Plagioclase originally formed broad euhedral to subhedral laths 1 to 3mm in size. Remnants of these grains occur in places but most have been at least partly recrystallised in small or large domains to aggregates of rounded to shapeless interlocking grains about 0.05mm which grade into areas where the original plagioclase laths have been obscured. Quartz forms subrounded grains 0.1 to 0.3mm in size occuring in small aggregates, intimately intergrown with the recrystallised plagioclase or as very fine discontinous veinlets. It has apparently all been introduced.

Diffuse shears one or two millimeters in width consist of a streaky mass of extremely fine grained plagioclase which is moderately or strongly replaced by cryptocrystalline epidote. Relict laths are sometimes cloudy with incipient epidote and clusters of a few rounded grains less than 0.01mm in size occur in places. These are sometimes associated with fine specks and diffuse patches of chlorite. The epidote and chlorite development are probabaly associated with calcite veining which appears to be later than the main deformation, occuring in veinlets up to 1mm wide cutting across the main foliation. Cryptocrystalline epidote occurs where the veinlets pinch out into fine plagioclase.

Actinolite forms very thin acicular grains up to 0.3mm in length which are disseminated throughout within the deformed and less deformed plagioclase. These coalesce into aggregates of ragged bladed grains one or two millimeters in size, intergrown with patches of fine recrystallised plagioclase or remnants of the original laths. They are partly interconnected with one another through clusters of the finer acicular grains and tend to be vaguely aligned subaparallel to the shears, sometimes showing slight deformation themselves. Ragged opaque grains (mainly Fe-Ti oxides) occur in clusters within the actinolite aggregates.

86-05/399.5m: DEFORMED, ALTERED QUARTZ-DIORITE.

This sample was a medium grained, more or less equigranular diorite which has been strongly deformed so that the plagioclase has been recrystallised and now consists of aggregates of very fine grains forming "ghosts" of the outlines of the original laths. Clusters and aggregates of thin acicular actinolite grains have developed within the recrystallised plagioclase and partly in the quartz. There are a few thin, subparallel shear zones where the plagioclase is extremely fine grained. Some quartz was probabaly originally present but most has probably been added prior to the deformation. It tends to occur in small aggregates between amongst the plagioclase grains but is also intimately intergrown with it in places. Minerals are:

plagioclase	55%
quartz	27
actinolite	13
chlorite	minor
opaque	trace
calcite	trace
epidote	trace

Plagioclase originally formed laths 1 to 2mm in size with grains and small aggregates of subrounded quartz between and partly within them, with the quartz forming grains 0.1 to 0.3mm in size. Deformation has resulted in the development of small to large domains of finely recrystallised plagioclase occuring within the laths and these grade into large patches where the plagioclase forms an aggregate of shapless interlocking grains about 0.05mm in size. Some finer quartz is closely intergrown within the laths of plagioclase (as a result of silicification) and has been recrystallised along with it.

Several shear zones about 2mm wide are subparallel and consist of a compact, somewhat streaky mass of extremely fine plagioclase, intergrown with a moderate amount of very fine actinolite grains. Most of the actinolite has grown within the finely recrystallised quartz and forms thin acicular grains up to 0.3mm in length which occur in radiating splays. Fine idiomorphic actinolites occur scattered in the remnants of the large laths of plagioclase. Clusters of very fine, ragged opaques (Fe-Ti oxides) occur in the core of the splays.

Traces of calcite occur in very thin, discontinuous veinlets across the indistinct foliation. Sometimes there is a diffuse zone of fine chlorite around the veinlet. Small flakes of chlorite may occur intergrown with the fine plagioclase throughout and in small patches in the larger plagioclase grains. Clusters of very fine epidote occur in the larger plagioclase remnants.

APPENDIX II

DIAMOND DRILL GEOLOGIC LOGS
P86-04
P86-05

HOLE NO.: 86-04
COLLAR ELEV.: ~1233m
COORDINATES: ~100+38 N. ~109+74 E.
INCLINATION: -60° BEARING: 207° Azimuth

PROJECT: PACIFIC EASTERN
DATE STARTED: July 19, 1986
DATE FINISHED: August 26, 1986
TOTAL DEPTH: 823m.

PAGE NO.: 1 OF 28
CLAIM:
SCALE: 1:200 (in metres)
LOGGED BY: George Norman

BEMA INDUSTRIES LTD.

COMMENTS SPERRY SUN TESTS: 110m -59.5° 209°Az; 539.8m -55.75 212.3; 241.1m -57.5 209.8Az; 685.2m -53.5 214.3; 363.0m -55.75 212.3Az
Reduce to NQ from HQ at 435.9

DESCRIPTIVE GEOLOGY

AVE. CORE REC'Y/HOLE

SECTION	ALTERAT'N	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED

0 - 82.3 OVERBURDEN

Sand and gravel minor boulders.
Good penetration rate

10

20

30

HOLE NO.: 86-04 | PROJECT: PACIFIC EASTERN | PAGE NO.: 2 OF 28

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: | N. | E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. Norman

BEMA INDUSTRIES LTD.

SECTION	ALTERAT'N	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	AVE. CORE REC'Y/HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
30					OVERBURDEN CONT'D								
40													
50													
60													

HOLE NO.: 86-04 | PROJECT: PACIFIC EASTERN | PAGE NO.: 3 OF 28
COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:
COORDINATES: | N. | E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS | AVE. CORE REC'Y/HOLE

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: quartz	carbonate	biotite	chl	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
60														
							OVERBURDEN CONT'D							
70														
80														
	NNWi					Po	82.3 – GRAPHITIC CHERTY ARGILLITE / GREY CHERT 82.3 – 88.4 TRICONED TO SEAT CASING. 88.4 – Black cherty (siliceous) argillite w/ numerous lt gry chert beds ~ 1cm thick numerous graphitic slips/fractures at 40-50° to core axis. Bedding at 30° to C.A. 88.4 – 89.1 mod-strong irreg wormy qtz vning w/ up to 3% Po.		88.4 84.9	80'	Tricored HQ			
90														

HOLE NO.: 86-04 | PROJECT: PACIFIC EASTERN | PAGE NO.: 4 OF 28
COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:
COORDINATES: | N. | E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. Norman

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: quartz	carbonate	biotite	chl	FRACTURING	MINERAL	GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
100							bding at 45° to C.A.		90.5	100	HQ			
									91.1	100				
						po	bedding at 40° to C.A.		92.1	96				
							graphitic fractures.		93.0	93				
							Grey chert bd.		94.5	95				
						po 1-2%	bding 30° to C.A.		95.4	100				
									96.1	85				
									97.2	83				
									98.1	88				
							½ cm qtz vn w/ minor carb.		99.1	78				
									100.9	100				
							wk carb. on fr. & graphite.		102.1	94				
					M	po ½-1%			104.9	98				
							thin films carb/gyp		106.2	96				
110				W		po			108.2	100				
									109.6	100				
									111.3	99				
									113.1	94				
									114.3	95				
					M	po 1-2%	bding at 30° to C.A.		115.8	93				
							graphitic slip.		117.3	87				
120						Alt.			119.5	82				

GRAPHITIC CHERTY (SILICEOUS) ARGILLITE/CHERT CONT'D

90.5 - 91.0 Strong graphitic slip at 30° to C.A.

91.8 - bedding (transposed bding at 40° to C.A.

91.8 - 93. dk brn second. biot-fract fills, patches po ± ilc

92.9 - 94.15 Grey chert bd w/ graphitic slips at 50° to C.A.

94.15 - 94.4 Strong graphitic slip .25cm gouge sub // to core axis

94.15 - 98.0 Laminated black siliceous argillite w/ 1cm grey chert bds, w/ 1% dissem Po. and numerous graphitic fractures at 20 - 55° to C.A.

98.0 - 101.6 Somewhat grainy silic argillite gradual contact to 101.6

101.6 - 104.8 ARILLACEOUS GREYWACHE - LITHIC GREYWACHE

med grey fine grained grainy rock mod siliceous. Short sections with lithic argillite fragments to 1.5cm moderately fract. w/ wk graphite and wk carbonate films

104.8 - 115.2 SILICEOUS (CHERTY) ARGILLITE

104.8 - 112.2 Massive grey black siliceous arg. mod. fract. w/ ½ % dissem. po. wk carb vning @ 106.2 - 106.6 & mod carb vning 109.7 - 110.5, thin films of carb/gypsum on fr throughout. mod. fr. @ 45° to C.A.

111.7 - 115.2 Laminated black grey siliceous argillite w/ bonding at 30° to C.A.

115.2 - 117.2 GREYWACHE/CONGLOMERATE

Grey black greywacke grades down to conglomerate at 116.7 - 117.2 Some arg frag. to 2cm, po 1-2%.

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N quartz	ALTERAT'N carb	ALTERAT'N biot	ALTERAT'N chl	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	CORE RECOVERED %	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag oz/ton	Au oz/ton
120							graphitic frs.	117.2 - 119.0 GREY CHERT w/ irreg fract w/ graph. ∠ ½ po mod carb vning at 117.7 Lower contact at 30° to C.A. graphitic wk. bio alter. - patchy.	1% - 2% po	122.2	94	HQ					
							graphitic slips.	119.0 - 125.0 Black SILICEOUS ARGILLITE / CHERT Mixed black sil arg and grey chert. somewhat crackled & brecciated strong graphitic slips at 123.8 (50° to C.A), 124.7 (30° to C.A.)		122.5	100					
										123.8	100					
										124.7	67					
										126.5	60					
										127.4	100					
										128.9	55					
130								125 - 125.9 CHERT BRECCIA. brecciated chert frag - subrounded to 2cm w/ strong bio alteration. - 125. - 125.4 mod carb altr.		130.5	55					
							Fault Zone ~ 20° to C.A.			131.4	69					
										132.6	40					
								125.9 - 139.6 FAULT ZONE ARGILLITE - SIL. ARG Black gouge & sheared argillite / sil. arg and chert. Strong gouge at 126.2 - 126.5, 127.2 - 127.4, 128.9 - 130.3, 131.2 - 131.4, 130.5 - 130.7 wk f - stockwork carb. spotty throughout. Graphitic slips 20 - 40° to C.A. ↑ % of 20°. ∠ ½ po minor spotty bio alter. Mod. compet. siliceous arg. 134.6 - 136. w/ mod - strong qtz - carb - stockwork 1-2% dissem po.. Gouge 136.7 - 137.2.	1-2% ∠ ½% po	133.5	72					
							2cm gouge.			134.3	80		134.6				
							.5m gouge.			135.6	100						
										136.2	71		136.0	1	.02	0.03	∠.002
										136.6	100						
140										138.5	79						
										139.6	80						
										140.8	82						
										141.4	100						
								Chert breccia. 136.7 - 139.9 Sheared Chert breccia, frag to 3-4cm mod bio altr'n.								
							bding at 45° to C.A.	139.9 - 141.7 SILICEOUS ARGILLITE black siliceous argillite w/ 1-2% fine dissem po. - strongly broken 140.4 - 140.8.	∠ ½% to 1-2% po.	143.6	92						
										144.5	72						
							Silic. Arg bd.			146.3	97						
								141.7 - 147.2 CHERT / MINOR ARGILLITE Lamin. Grey chert w/ siliceous argillite beds (atn 45° to C.A. Thicker silic. arg bed. 146.0 - 146.8. ∠ ½ v fine dissem po?		147.7	100						
							graphitic slip			148.9	80						
150										149.7	100						

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

ALTERAT'N: quartz | carb | bio | chl

FRACTURING | MINERAL | GEOLOGY

SECTION: 150 | 160 | 170 | 180

Fault 150.4-150.5. 1mm carbon.

graphitic Slip @ 20° to C.A.

graphitic fault @ 20° to C.A.

fault 20cm graphitic gouge graphitic slips.

graphitic fault zone at 10° to C.A.

irreg Carb vning.

10cm graph gouge at 25° to C.A.

qtz carb vnlts w/po.

upper cont at ~10°.

lower cont at 25° to C.A.

po dissem/fr filk

contact at 70° to C.A.

C-frag Lst. w/ 2-3% dissem Po mod.carb.vns Lower cont. at 35° to C.A.

gouge at 25° to C.A. pervu brn carb.

Fault zone brecciated-broken rock.

gouge at 55° to C.A.

Chert w/ graphitic arg bnds at 40° to C.A.

147.2 - 148.2 SILICEOUS ARGILLITE

Black siliceous arg w/ fine dissem po < ½%. Weak qtz-carb vn at 147.7

148.2 - 151.5 CHERT BRECCIA.

Grey angular chert fragments and silic arg fragments < ½ cm to 10cm. Broken rock/gouge 148.8 - 148.9 strongly graphitic. weak fine biot at 148.2. 1-2% dissem. po 150.7 - 151.5

151.5 - 156.4 SILICEOUS ARGILLITE

Black mod siliceous argillite w/ up to 3% dissem/seams of po. Irreg qtz w/ minor carb 152.8 - 154.5 Fault zone 155.3 - 156.1 - strongly graphitic - gouge 155.8 - 156.1

156.4 - 157.4 BRECCIATED CHERT

Grey brecciated chert w/ irreg graphitic frag bound. .1% po dissem. wk. carb vns. - hairline

157.4 - 159.2 ARGILLITE

Black graphitic mod. Siliceous argillite. Fault 157.4 - 157.2 w/ ½ - 1% dissem. blebs po. f- irreg qtz. seams.

159.2 - 164.0 CHERT \ BRECCIATED CHERT Minor Arg.

Grey chert interlam. w/ irreg wispy graphitic partings many at 60° to C.A. Po ½ - 1% w/ trace cpy at 159.3.

graphitic Fault Zone - 161.2 - 163.7 - graphitic siliceous arg. - brecciated chert, graphitic gouge at 163.3 - 163.7 at 25° to C.A. Quartz stockwk minor carb at 163. Strong Carb 163 - 164.5

164.0 - 167.2 Greywacke / ARGILLEOUS GREYWACKE

Med gry f-g w/ 3-5% dissem po, traces cpy mod stkw qtz carb.

167.2 - 168.1 SILICEOUS ARGILLITE / CHERT BRECCIA.

Frag of chert, Argillite to 1½ cm., some frag have bio alteration

168.1 - 172.6 SILICEOUS ARGILLITE / LST.

Black sil. arg w/ c-g fragmental lst bd - 170.2 - 171.0 po 1 - 5%, qtz stock work 171 - 172.6

SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag oz/ton | Au g/ton

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
150.1	67	HQ
151.9	100	
152.9	89	
153.9	100	
155.3	70	
156.1	87	
157.6	65	
158.2	100	
158.0	98	
160.0	100	
161.9	100	
162.8	86	
164.0	100	
164.9	100	
166.3	73	
167.3	100	
168.3	88	
168.9	85	
171.9	91	
173.1	100	
174.3	71	
175.4	93	
176.5	77	
177.4	83	
178.2	87	
179.6	73	

SAMPLE INTERVAL	As ppm	Sb ppm	Ag oz/ton	Au g/ton
168.1				
169.6	2	.8	.102	<.002
171.1	4	.6	.03	"
172.6	2	.6	.01	"

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BEMA INDUSTRIES LTD.

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N quartz	ALTERAT'N carb	ALTERAT'N bio	ALTERAT'N chl	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
180					M			AVE. CORE REC'Y/HOLE		180.4	100	HQ			
					M	Po		172.6-177.7 BRECCIATED ; FAULTED CHERT BRECCIA/SIL ARG Fault zone 173.0 - 177.7. Gouge at 173 @ 25° to C.A., Gouge also at 174.3. Pervasive brn carb, from 173 to 177.7 wk to mod. Slips are graphitic w/ upto 1% po also white carb w/ qtz.	½ % Po	182.0	73				
	M	W			M		graphitic arg bnds at 55° to C.A			183.5	93				
					Mts					185.6	100				
					M	Po	bding at 40° to C.A	177.7 - 188.1 RIBBON BANDED CHERT Light whitish grey banded chert, 2-4cm bands of chert w/ bands of black siliceous argillite usually < 1cm ; graphitic Banding at 40° to C.A. w/ ½ % dissem Po. bnds	< ½ % Po	186.8	81				
										188.5	100				
190			M							189.0	87				
			M		Mts		patches of perv. brn. biot. alterth	188.1 - 190.2 LAMINATED ARGILLITE Mod. siliceous laminated argillite w/ 1-2cm chert beds and 6 cm micro breccia bed at 189.6 at 40° to C.A., minor .5cm carb vns // to bding. < ½ % dissem. fr po.		190.5	97				
			M		M		frag str bio alterd. 4-5cm greywacke bds at 40° to C.A.			192.0	98				
			M		M					193.6	98				
			M		M		well lamin chert arg w/ wispy brn bio.	190.2 - 205.7 CHERT / SILICEOUS ARGILLITE BRECCIA. Fine grained breccia (1mm - ½cm frag size) becoming coarse at 191.0 w/ frag size to 1cm ave. 1-2cm. Patches of strong brn biot. altern, also wispy bands are Mod wk po dissem. blebs < ¼% well bedded bnds of thin greywacke at 194 ; 194.8 at 40° to C.A. Short bd of Lamin chert ; arg at 195.3 - 196. bnding at 30° to C.A ; b wispy bio // to bnding. Breccia is bded and not fault bx. Small fault - broken rock 202.7 - 203.1 Very wk. bio ; < 1% po. 200 - 205.7	< ¼% Po < ½% Po < ¼% Po < 1% Po < ¼% Po	195.1	98				
			W		Po					196.6	97				
			M		M		graphitic Slip at 10°.			198.1	100				
200			W							199.6	100				
			W		V W		wk-mod graph fr.			201.2	100				
			W		S		Broken rock			202.7	93				
			V W							203.4	88				
					M		Lower cont. at 30° to C.A.			205.7	100				
	MS	W						205.7 - 207.4 CHERT Light grey-black chert, crackled ; somewhat brecciated w/ wk hairline carb units ; qtz vns. Po ½ - 1%		208.0	92				
						po		207.4 - 211.6 CHERT \ SILICEOUS ARGILLITE BRECCIA. Brecciated ; contorted bds of chert ; arg. Po 1-2% Mod - Str qtz - carb 209.6 - 210.2	1-2 %						
210	MS	MS	W												

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

Columns: SECTION | ALTERAT'N (quartz, carb, bio, chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | ppm | Ag oz/ton | Au oz/ton

210

Comments: graphitic slip; Shear @ 30° to C.A.

CHERT/SILICEOUS ARGILLITE BRECCIA CONT'D

Comments: contact @ 55°; carbon. dissem po tracecpy; irreg patches brn bio.; lower cont at 10° to C.A.

Alteration: carb M to S, M; bio W, W; chl W, W. Fracturing: S, M to W. Mineral: Po, cpy, carb.

211.6 - 216.6 MAFIC DYKE / MAFIC VOLCANIC
Grey brn f-g mafic rich dyke w/ 10% black mafic blotches ~1mm. w/ wk chloritic coloration, with 1-3% dissem. Po., tracecpy. & Mod-str. carb. vning & patches of wk. brn bio altern, some small amyg.

Comments: graph fr. @ 70° to C.A.

216.6 - 218.0 CHERT/SIL ARGILLITE BRECCIA

Comments: wisp brn bio // lamin.

Alteration: carb W; bio W, W; chl W. Fracturing: M to S.

218.0 - 220.5 LAMINATED CHERT / GRAPHITIC ARGILLITE
w/ brn wispy bio // laminations, banding at 35° to C.A.

220

Comments: str carb stwk to 15% Po

Alteration: carb S. Fracturing: W. Mineral: Po+.

220.5 - 222.2 MAFIC DYKE / MAFIC VOLCANIC
Similar to above dyke mafic blotches not noticeable. w/ strong carb stockwork & to 15% po dissem & vns

Comments: contact at 25°.

Alteration: carb W. Fracturing: W, M.

222.2 - 250.4 CHERT & SILICEOUS ARGILLITE BRECCIA
222.2 - 227.2 Brecciated and contorted chert & sil argillite brn bio altern & wk carb 226 - 227.2

Comments: brn bio & carb altern

Alteration: carb W; bio W; chl W. Fracturing: S. Mineral: Po+.

227.2 - 227.6 MAFIC DYKE / MAFIC VOLCANIC
Similar to above dyke w/ 15% dissem po. w/ weak carb vning

Comments: 10cm gouge.

227.6 - Brecciated grey - grey black banded chert & black sil. argillite. weak brn bio - patchy & ~<¼% po - ½%
232 - 232 Carb altern patches & vns & fr selvages
235 - 236 Dk brn bio - hornfelsic altern ?
236 - 240 Spotty wk Carb vns.

230

Comments: wk carb py selvage; some graph; 2cm x 3cm patch brn bio altern; dk brn bio.

Alteration: quartz W; carb M, W, W; bio W; chl W. Fracturing: W, M, W, W. Mineral: po-, po-.

239.5 - 239.6 Gouge & broken rock graphitic slickensides at 15° to C.A.

Comments: gouge & broken rock.

Alteration: carb S.

240

% Sulphides: <¼% po (210-211.6); 1-5% po (211.6-216.6); <¼% po (218.0-220.5); 1-5% / 15% po (220.5-222.2); Traces po (222.2-227.2); 15% po (227.2-227.6); ½ - ¼% po (227.6-); ~¼ or less po.

Drilling interval	% Core recovered	Core size
211.1	98	HQ
213.7	94	
214.9	100	
217.3	88	
219.9	99	
221.3	86	
224.0	97	
227.0	95	
228.8	81	
231.8	93	
233.8	100	
236.2	92	
238.0	88	
239.6	100	

Sample interval	As ppm	ppm	Ag oz/ton	Au oz/ton
211.6				<.002
213.7	1	.2	.03	"
214.7	1	.1	.03	"
216.7	3	.1	.04	"
220.5				<.002
222.5	1	.2		

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N quartz	ALTERAT'N carb	ALTERAT'N bio	ALTERAT'N chl	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
240		S	W		M	Po	chert frag on bd cont @ 35° to C.A.		241.1	71	HQ			
		W					Str carb lower cont.							
							bding ll to core axis.			100				
			W		M		bding 35° to C.A.		244.1					
									245.4	86				
		W			M	Po	bding at 45° to C.A.			89				
							bding contorted ave ~40° to C.A.		248.3					
			W							79				
250					M		bding ~ 65° to C.A.		250.2					
							graphitic slip at 10° to C.A.							
		W			M		broken core.		252	97				
							fr at 3° to core.							
	W					Po	fr @ 35° to C.A.		253.6	85				
		S					bding at 45° to C.A.							
	W	W			S	Po	10cm lithic greywacke at 25° to C.A.		256.2	100				
							1cm chert bd @ 45° to C.A.							
		M			W	Po	carb vning		257.4	89%				
260									260.5					
		M			W	Pot	10cm cherty tuff. faint banding at 50° to C.A. po - hairline			98				
							2cm chert bd.		263.5					
		M			M	Pot				100				
	H	M			M	Po	hairline qtz carb stkw		266.4					
	S	S			S	Pc	graphitic slip ll bding			90				
					S				267.6					
		W			S		Slip @ 30° to C.A.			83				
						Po	Fault Zone 267.0 - 271.3. Strong graphitic throughout 25° to C.A.		269.1	80				
270		W			S				272.1	67				

241.1 - 241.5 Grey white chert bd on large frag.

242 - 247.0 Well stratified breccia section with bding from ll to core axis at 242 to 35° to C.A. 245 and 45° to C.A at 247° Fragments are flatten 'stretched ll to bding or fol.? planes. bm bio ll to bding or fol. planes - weak

247.0 - 250 Contorted ? brecciated bedding

CHERT ? SILICEOUS (CHERTY) ARGILLITE BRECCIA CONT'D

250.0 - 251.5 CHERT

Light grey chert w/ minor banding at 65° to C.A. Moderately fract w/ graph. contr. Weak hairline carbonate. Hairline qtz vns (remobilized qtz)

251.5 - 253.6 SILICEOUS - CHERTY ARGILLITE

Grey black siliceous - cherty argillite w/ minor chert frag. & wispy irreg bnds. Up to 1% dissem po & hairline seams. Weak to mod carb at 252.2.

253.6 - 256.1 CHERT BRECCIA / CHERT

Light grey chert frags & dk hornfels arg. matrix becoming laminated at 255.4 @ 45° to C.A. Strong carb stkw 255.4 - 255.7 WK qtz vning throughout.

256.1 - 258.1 SILICEOUS ARGILLITE

Black siliceous arg - massive - faintly laminated Lithic greywacke bed 256.7 - 256.8 (at 25° to C.A) and minor 1cm chert bds (257.4 @ 45°). Spotty carb vning Very fine dissem po < 1%.

258.1 - 259.5 LAMINATED CHERT - TUFFACEOUS

Light grey chert w/ minor patches of bnds o/ Silic arg. Bding at 40° to C.A. Mod carb vning at 2588 - 2595

259.5 - 262.7 SILICEOUS ARGILLITE

Black siliceous argillite w/ 10 - 20cm. ltgry chert - chrdy tuff bds. at 50° to C.A. w/ dissem. fine seams po (2621 - 2636) 1%

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: quartz	ALTERAT'N: carb	ALTERAT'N: bio	ALTERAT'N: chl	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
270		W			S		ser-brn				HQ			
	S	W	M to S		W	Po	2cm qtz carb vn cont 11° to C.A. perv. brn bio, wk fr 35° to C.A.		271.3	88				
					W		lower cont. at 40° to C.A.		273.1	100				
280	W	W	W M to S		W	Po	laminations at 15° 5mm qtz carb-po at 35° cont at 20°		276.2	78				
			W M to S		W		alignment of frag @ 25° to C.A.		277.7	98				
			W M to S		W		perv. brn bio		280.7	43				
					S		Fault ~ 50° to C.A. str graph		282.9	70				
			W		M		graphitic slip @ 35° to C.A.		284.1	83				
		W			W		5mm qtz-carb-po vn at 60° black graph. arg beds 1-3cm. at 50° to C.A.		286.2	98				
					W	Po			289.0	89				
290					W	Po			291.1	94				
					W				294.1	98				
					S				295.4	98				
					S		breccia graph slips @ 45° to C.A.		296.0	81				
									296.7	65				
									297.2	89				
									299.5	75				
	W	M			S		Sheared (40° to C.A.) bx. str graph slips		29					
300		W					4mm qtz-carb at 60° brn carb-ser.							

263.7 - 267.0 Interbed CHERT / SILICEOUS ARGILLITE.
Interbed Chert / Siliceous argillite to 265.9 - somewhat brecciated / contorted bds w/ mod-strong stockwork of qtz carb vnlts / many graphite slip lit to binding (45° to C.A.
265.9 - 267. Ribbon chert w/ thin graph brg. bnds.

267.0 - 271.5. CHERT / SILICEOUS ARGILLITE BRECCIA
Faulted / brecciated zone of chert / siliceous argillite
Fault 267 - 270.3 - Strongly graphitic slip plane Some at 30° to C.A. 2cm qtz carb vn at 271.5 at 60° to C.A.

271.5 - 272.5 SILICEOUS - CHERTY ARGILLITE
Black mod-siliceous - chert argillite w/ ½% finely dissem po - ½% wk carb vning, strong qtz vning at 272

272.5 - 274.5 CHERT / SILICEOUS - CHERTY ARGILLITE BRECCIA
Medium grain breccia with angular flatten align frag of chert / black cherty - silic. arg to 2cm ave. 5
Pervasive brn bio throughout / minor po dissem
Alignment 0 - 15° to C.A. odd 3mm carb vn.

274.5 - 276.5 LAMINATED SILICEOUS ARGILLITE
Black finely laminated (binding 20° C.A.) siliceous argillite w/ 10cm chert bd at 275.4, wk qtz-carb po vns, ½% finely dissem / stringer po.

276.5 - 284.1 CHERT / SILICEOUS - CHERTY ARGILLITE BRECCIA
Medium grained breccia to 280.7 w/ chert / silic arg frag ave ¼cm - frag aligned at 25° to C.A. becoming coarsely fragmental at 280.7 - 284.1 w/ chert frag to 6cm - f. brn bio throughout. Fo. Hzone - 282.2 - 283.0 w/ gouge at 50° to C.A. Str. Graph. No po - trace amounts

284.1 - 297.5 RIBBON BANDED CHERT
Light grey chert bds 1 - 4cm thick w/ ¼cm to 3cm blk mod hard argillite - some graphitic bands.
Bnd ~ 50° to C.A. po to ½% more conspicuous on arg. boundaries. also wk dissem / irreg vnlts or blebs. Brecciated section 294 - 294.5 ; 295.4 - 296.7

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION | ALTERAT'N: quartz, carb, bio, anhydrite | FRACTURING | MINERAL | GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag oz/ton | Au oz/ton

297.5 - 306.3 BRECCIATED CHERT / RIBBON CHERT

Brecciated grey chert w/ graphitic slips and short sections of remenant ribbon chert eg. 300.1-300.2, 300.8-301.0, 301.8-302.4, 305-305.8.

301.1-301.5 - Fault - graphitic gouge at 20° to c.A

1cm qtz-carb-po vn at 30° to c.A. - 302.3

302.4-302.5 brecciated graphitic shear at 40° to c.A.

302.9-303.2 Brecciated - prob related to tectonic sheared at 55° to c.A

304-304.5 Breccia - chert frag to 1.5cm in graphitic sheared arg.

306.3 - 312.6 INTERLAMINATED CHERT & SILICEOUS ARGILLITE

Moderately to finely interlaminated chert (lt grey), black siliceous arg. Laminae from 2mm - 15cm. Beds somewhat contorted. Bed of fine - med grn breccia - well indurated 307.5-308. frag to 1cm. dissem. bio wk dissem po ¼ - ½ %.

309.3 - 311.4 SHEARED, BRECCIATED. - strong graphitic slips. - broken core. slips at 10-35°.

312.6 - 322.6 RIBBON CHERT

ALTER'D ZONE & VEIN

312.6 - 314.4 2cm qtz-ser-carb vn. w/ alter zone to 314.4 of qtz stringer and strong anhydrite stockwork. minor carb. & spotty ser.

313.4-313.8 py-smears at 10° to c.A. po to ¼ %

314.4-318.5 w/ graphite.

Well ribboned chert w/ 2-3 cm lt grey chert beds & 1-5mm argillite beds.

318.5-319.7 Broken core strong graphon slips. Some breccia. 1cm graphitic gouge 319.6-319.7 at 45° to c.A

319.7-321.2 Mod Competent. ribbon chert, beds contorted

321.2-322.6 Broken core - graphitic slips at 20° to c.A.

322.6 - 323.1 SILICEOUS ARGILLITE

SECTION	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag oz/ton	Au oz/ton
300	300.6	85	HQ					
	302.4	87						
	304.3	82						
	305.7	100						
	307.8	88						
	309.4	100						
310	310.0	100						
	310.4	100						
	311.7	39						
	312.6	54		312.6				
				312.62	1	.1	2.01	2.002
				313.4	1	.1	.01	"
				313.8	2	.2	.01	"
	314.4	81		314.4	1	.1	.01	"
	315.2	47						
	315.9	50						
	317.0	83						
	318.2	81						
	319.1	100						
	3	88						
	321.0	100						
	321.6	56						
	322	100						
	322.6	54						
	323.5	83						
320	324.4	70						
	326.6	81						
	327.8	90						
	329.2	45						
330								

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (quartz, carb, bio, ser) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL

330

COMMENTS:
- graphitic fractures at 60° 40° to C.A.
- irreg wisp brn bio-ser altern.
- Shear @ 40° to C.A.
- 3mm qtz-carb-ser at 60° to C.A.
- bding at 40° to C.A.
- FAULT ZONE: Str graphitic shears at 10° to C.A.
- competent ribbon chert lam. at 55° to C.A.
- graphitic shears 40° to C.A. 60cm of gouge 20° to C.A. strong graph. (FAULT ZONE)
- Mafic volcanics brecciated w/ 5% po
- 35° to C.A.
- pathy wispy brn bio alte
- graphitic shears. 30° to C.A.
- bx bd w/ bio altern wk
- arg bd w/ 1% po.
- graphitic band at 60° to C.A.
- graph. fr at 20° C.A.

340

350

360

DESCRIPTIVE GEOLOGY

323.1 – 333.1 CHERT BRECCIA.
Grey brecciated chert w/ blk graphitic argillaceous matrix.
StrnBrn wispy altern of bio-ser 324.8 – 326.6 weak from 326.6 – 332.
Breccia is probably tectonic – fault or slumpage! weak carb selvage on graphitic fract.' slips.

333.1 – 333.5. ALTERED VOLCANIC ?.
Strongly bio-ser alter'd brecciated rock – mod. hard not as silic. as cherts – possibly alter vok. w/ ½ – 1% po. blebs,' dissem.

333.5 – 337.6 CHERT & BRECCIATED CHERT.
Lt grey crackled' fractured chert; brecciated chert. Shear @ 336.3 at 40° to C.A.

337.6 – 339.9 LAMINATED CHERT / ARGILLITE
Finely-medium thick chert' argillite laminations w/ hornfelsic bio. with argillite bnds. Small section of wellindurated bded breccia 339.1 – 339.2 also 3mm qtz-carb-ser vn at 60° to C.A weak carb on graph fract.

339.9 – 341.1 RIBBON CHERT
Medium grey chert bds 1-3cm w/ 1-<1mm black graphitic argillite laminae. Bding at 40° to C.A 1% po dissem.' bds Hairline qtz stringers.

341.1 – 354.8 CHERT BRECCIA.
Lt grey chert frag within black graphitic (frags 5 to 3cm) argillaceous matrix. Appears to be tectonic in origin. Short section undisturbed ribbon chert 345-346. w/ laminae at 55° to C.A.
strong broken zones – gouge zones are 343.0 – 344.5 (10° to C.A. Strongly graphitic); 347-351 – with gouge 348.2-348.8. Many graphitic planes w/ w/carb
strong bio altern 351.2 – 351.4 wk from 347.0 – 348.2.
Short section Mafic breccia volc. 349.8-349.9, 350.0-350.2. Hairline qtz appears to remobilized from chert.

% SULPHIDES: ½ – 1% po. 1% blebs po; ½-1% po; 1-1% po; 1% dissem.; 1% po; 1% po. 1-3% ; 1% po. 1%; 1% po.

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
331.9	100	HQ
333.8	100	
334.7	100	
335.3	100	
335.6	71	
336.8	94	
338.0	78	
339.2		
340.0	100	
341.1	100	
342.6	60	
344.1	53	
345.0	100	
346.6	96	
347.8	59	
349.0	88	
350.2	100	
351.7	100	
353.3	49	
354.8	94	
356.3	93	
357.8	98	
359.1	100	

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

Columns: SECTION | ALTERAT'N (quartz, carb, bio) | FRACTURING | MINERAL | GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y SAMP. INT. | ESTIMATED

Section: 360 – 370 – 380 – 390

Alteration / fracturing / mineral notes (by depth): M (quartz), M (bio), W (bio), M (fracturing), po; S (quartz), W (carb); S (fracturing); S (quartz), W (carb); po; S (quartz), S (carb), S (fracturing); S (fracturing), po; M (bio), W (fracturing), po; W (carb); W (carb), WEMMSS (fracturing); po; S (fracturing); po, S (fracturing)

Geology column annotations:
- graphitic fr a) 20° to C.A.
- bio ∥ to bnding.
- graph. cont. of arg band ; chert
- bnding at 50° to C.A.
- Po seams.
- graphitic slips a) 45° to C.A.
- strong qtz-stockwk w/wk carb
- graphitic slips
- compent. chert
- 2cm qtz-carb vn 55°
- sheared at 35° to C.A
- str graphite
- contact a) 50°
- dissem po.
- contact a) 45 sharp, but jagged.
- graphitic slips.
- graphitic slip a) 15° to C.A
- rebrecciated along slips.
- graphitic shear at 20°
- at 15° to C.A.

354.8 - 365.8 RIBBON CHERT / SILICEOUS ARGILLITE

Lt Grey ribbon chert w/ 10-20cm bands of black siliceous argillite. Thin argillaceous bands within ribbon chert are strongly graphitic. Banding planes - varies from 60-20° to C.A. Short section of bx from 355.0 - 355.25 Sections of intense qtz - minor carb stockworks ie. 357.5 - 358.1, 359.6 - 361.9; 365.5 - 365.8

365.8 - 36 . SILICEOUS ARGILLITE

Black siliceous massive argillite. w/ wk carb on graphitic fr. Intense qtz - carb stockwork 366.7 - 367.3 weak dissem po.

367.3 - 375.4. CHERT BRECCIA / CHERT

Brecciated chert w/ short sections somewhat more compentent chert. Section to 372 w/ strong qtz-stockwork ; wk carb weak po. Strong graphitic infilling between breccia frag ; on slips. Compentent chert section 371.9 - 374.5 strongly fr ; str qtz stkw. Sheared section 374.2 - 37 .8. a) 35° to C.A.

375.4 - 378.0 VOLCANIC or DYKE

Fine grained gray - brn rock. somewhat siliceous w/some brecciated texture. Brown coloration appears to be biotite altern. Under microscope contains f-g qtz ; fsp. and. Contains 2-3 % po.

378.0 - 404.8 CHERT BRECCIA

Irreg angular - subround chert fragments in a graphitic sheared argillaceous matrix. Breccia appears to tectonic in origin. wk bio to 379.3 very weak po weak carb selvage on graphitic fractures. - slips.

% Sulphides: .1% po. (360–365.8); <1% po (365.8–367.3); <1% po (367.3–375.4); 2-3% po (375.4–378.0); <1% po

Drilling Interval	% Core Recovered	Core Size
360.6	100	HQ
361.6	85	
361.8	100	
362.4	92	
363.9	94	
365.0	83	
365.8	100	
366.7	86	
367.9	90	
368.4	89	
369.1	100	
369.4	100	
370.9	100	
371.9	70	
373.4	100	
374.6	96	
376.1	100	
377.8	95	
379.3	98	
381.0	81	
382.5	93	
384.1	100	
385.6	97	
386.2	100	
[illegible]	90	
387.1	63	
388.2	98	
389.1	95	

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

Columns: SECTION | ALTERAT'N (quartz, carb, bio, chl/ser) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | AS ppm | SB ppm | Ag oz/ton ppm | Au oz/ton ppb

Section: 390 – 400 – 410 – 420

Alteration: W, W (carb); S M S (quartz, carb, bio) W to M (chl/ser); M (bio) M. (chl/ser); S, M, S, M, W, S (carb); W W; S W; M W

Fracturing: S, S M S S, M, S, S, M, M, M, M, M

Mineral: Po, Po, Po, MoS2, Po, Po, Py, Po Py, Po cpy

Comments

- 10 cm gouge
- graphitic slip @ 10° to C.A.
- fr @ at 35°
- sheared @ 30°
- graphitic shear @ 30° to C.A. rebrecciated
- 2cm qtz-carb @ 20°
- sheared - graphitic @ 15° to C.A. 10cm of gouge.
- graphitic slips! shearing at 15°
- Shear cont. @ 50° to C.A.
- Carbonate - ser vn 20cm @ 70° to C.A.
- 1mm carb. vns w/po w/ altn holos
- irreg ragged 3mm carb ± po vn 30%. bleached holo.
- contact @ 10°
- Carb vn w/ ser-kaol bleaching holos.
- irreg at 20° to C.A.
- frag. of rhy. porph.
- fr @ 70°.
- 1.5cm qtz-carb at 40° to C.A.
- mod alter'd - rock bleached
- 10cm qtz-carb py-po ser vn at 80° to C.A.
- 4cm qtz-carb po cpy
- 2m qtz-w/ser vn at 60°

Descriptive Geology

CHERT BRECCIA CONT'D

Sheared! broken rock 386.7 - 391.7. Shears @ - 386.7 @ 20° to C.A., @ 387.8 @ 15° to C.A. @ 389.9 @ 30° to C.A. @ 390 - 10cm. of gouge. Sheared 397.7 - 398.1 @ 35° to C.A. Strong graphite on most shears! fractures.

395 - 396 - weak carb on fr and pervasive patches.

399.5 - 400.2. Fault - Shear - 10cm of gouge - shearing @ 25°.

401.3 - 401.7 Strong biotite alteration - becoming weaker 401.7 - 403. Stronger 404 - 40

403.1 - 404.8 mod-chl alteration around chert bx frag.

404.8 - 407.8 RHYOLITE PORPHYRY

Fresh. Medium grey w/ tinge of brn colored rock w/ 15-20% 1mm or less whitish fsp phenocrysts set in a siliceous grnd mass. Carbonate - ser (greenish grey) w/ traces of Molybdenum. Cut by mod to str carb ± ser po± vning. Cut by 20cm carbonate - ser vein @ 70° to C.A.; w/ ~.05% of MoS_2. Stronger vning w/ alteration haloes obliterates textures; bleaches rock to whitish coloration.

407.8 - 410.0 FELDSPAR HORNBLENDE PORPHYRY

Fresh - Brown grey colored rock porphyritic in whitish anhedral fsp phenos to 3mm (15%) up to 20% black 1x4mm hb laths. The dyke is alter'd by 1-2mm carbonate - po vns w/ 7cm bleached haloes that contain clay - ser. Upper contact f-grned

410.0 - 410.7 RHYOLITE PORPHYRY

as prev. 407.8 - 410. Carb vns at lower contact w/ minor py. + 1mm mafic blotches → ser + ru/kaol ! ser.

Sulphides

- < .1% po (390 – 395)
- < .1% po (396 – 401)
- < .05% (414 – 418)

Core Record

Drilling Interval	% Core Recovered	Core Size
390.2	85	AQ
391.7	100	
393.0	93	
394.3	98	
395.6	87	
396.9	100	
398.1	94	
399.3	90	
400.2	69	
401.3	100	
402.6	96	
404.2	84	
405.1	95	
407.2	83	
408.1	98	
409.4	81	
410.6	95	
411.5	100	
413.0	100	
414.2	87	
415.8	92	
417.3	98	
418.8	93	
419.7	79	

Samples

Sample Interval	As ppm	Sb ppm	Ag oz/ton ppm	Au oz/ton ppb
405.7				
405.9	2	.1	<.01	<.002
406.8	1	.3	.1	<5
407.95	1	.1	.1	<5
417.3				
418.4	6	.1	.1	<5
418.5	1	.1	.1	<5
419.6	1	.2	.1	<5
419.69	1	.1	.1	<5

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BEMA INDUSTRIES LTD.

COMMENTS reduce to NQ at 435.9m.

AVE. CORE REC'Y/HOLE

DESCRIPTIVE GEOLOGY

410.7 – 412.8 FELDSPAR HORNBLENDE PORPHYRY

as per 407.8 – 410.0. w/ weak alignment of hb at 30% to C.A. Many carb vns ~1mm w/ ser-kaol altern halos to 1-2cm. at 80° to C.A.

412.8 – 413.5 FELDSPAR PORPHYRY

whitish – brn mod hard rock w/ 40% whitish anhedral feldspar phenos ; 5% specked fine biotite w/in a siliceous matrix. – Possible related closely w/ Rhyolite porphyry – maybe not as altered – bottom contact in broken rock.

413.5 – 422.4 FELDSPAR HORNBLENDE PORPHYRY

as per 407.8 – 410.0. Fragments of Healed rhyolite porphyry at 415.8 – 416.1 Many carb vns w/ larger ones at : 417.3 – 1.5cm qtz-carb at 40° to CA lower contact broken. 418.4 – 418.5 – 10cm qtz carb po, py-ser. at 80° to C.A., 419.6 4cm qtz-carb-po-cpy-ser at 80° to C.A. 420.0 2cm qtz-carb-ser at 60° to C.A. Rock broken 420 – 422.4. 417.6 – 418.6 mod bleached vein

422.4 – 423.6 RHYOLITE PORPHYRY

Brownish colored rock w/ white speckles. 40% anhedral fsp phenos <1mm – 2mm set in brnish siliceous grndmass. Lower contact in brocken core.

423.6 – 427.4 FELDSPAR HORNBLENDE PORPHYRY

as before w/ carb-vnlts w/ alteration haloes to 3cm. some ch – py on fr.

427.4 – 429.0 RHYOLITE PORPHYRY

Similar to above – gry grn – gry brn siliceous grndmass w/ 20% 1-2mm blocky fsp. phenos. Minor qtz – po vns

429.0 – 431.2 FELDSPAR HORNBLENDE PORPHYRY

as above. fine grn lower cont. sheared.

431.2 – 432.1 RHYOLITE PORPHYRY

Geology column notes (420 – 450 m)

- F.H.P. – qtz carb vn – rock str. broken – some grinding – bit gone
- R.P. – qtz-carb-po vnlts
- F.H.P. – qtz-chl – chl-py – chl-carb – ser-qtz w/ 2cm halo – str carb per vnlts
- RHYOLITE PORPH – sharp @ 45 to C.A. – 4mm qtz – po – w/ bleaching
- 4cm carb-chl vn at cont. – FELDS HORNB PORPH. – siliceous frag
- sheared @ 45° to C.A. str chl bio – RHYOLITE PORPH.
- sheared – fine grain – chl – HORNBLENDE PORPHYRY
- carb – chl on fr. at 55-70° to C.A.
- qtz-chl cut by 30° – slip @ 30°. shear – gouge, altered rock. Kaol altered.
- black graphitic gouges argillite
- white talcose gouge 35cm.
- 17cm gouge.
- Fault – 421.0 – ZONE 443.6
- SERPENTINE mottled text – lt grn – dk green patches ; dk gry matrix. 1' dk grn (talc-antigorite) conc. along fr. also in vns

Section depths: 420, 430, 440, 450. Alteration: carb S (~426), bio M (~428), bio W / chl S (~431), carb W / chl S (~433–434), carb W / chl W (~436), carb W (~440). Fracturing: M, M, M, S, S, S, S, M, M, M. Mineral: py (~424).

Drilling interval	% Core recovered	Core size
420.6	50	HQ
420.9	79	
421.5	38	
422.2	29	
422.6	100	
423.1	89	
424.4	83	
425.8	98	
427.3	93	
428.1	76	
430.1	95	
	93	
432.7		
433.1	74	
435.3	100	
435.9	29	435.9
437.4	72	NQ
	90	
440.4		
442.4	79	
444.3	100	
	98	
446.5		
	90	
449.6		

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COMMENTS | AVE. CORE REC'Y/HOLE

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	Carb	B.V.	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	SULPHIDES	DRILLING INTERVAL	CORE RECOVERED %	CORE SIZE	SAMPLE INTERVAL	Cu ppm	Ni "	Co "	Cr "	Pt ppb	Pd ppb
450				M	S	irreg dk grn-ltgrn patches talc-antigorite 30% - 70% grey matrix. fr-mod 55° to c.A.	432.1 - 441.3 HORNBLENDE PORPHYRY Grey brn colored rock w/ 40% <1mm - 5mm hb phenocryst laths w/ weak align ~ 50-60° to c.A. For most part unaltered ! mod. fr. w/ carb on fr. ! some bleaching haloes. Mod-siliceous matrix. Upper contact f-g chl to 434.2 ! str chl. 441.0		452.6	97	NQ	450.0					
						7cm whitish green dolomite @ 42° to c.A. 2cm wht dol.	-441.3 - Faulted - gouge.		455.4	95		451.5	18	1180	53	1700	<50	<10
				M		10cm talcose gouge at 70° to c.A. fr w/ wht talc	441.3 - 442.6 CALCAREOUS GRAPHITIC ARGILLITE BLACK graphitic gougey wk calcareous argillite		458.4	100								
						2-5mm wht dol. vns at 35 & 70° c.A.	442.6 - 508.1 SERPENTINE Grey black rock w/ light green to dk bright green mottled texture. Sections that are sheared become light green ! strongly talcose. The dk grn to lt green whitish material is probably talc ! antigorite and is more prominent along shear bands. A short section is porphyritite w/ 1cm phenocrysts of bastite. The serpentine is cut by minor wht dol. veins up to 2cm. Both the upper and lower contacts are faulted. Talc is ubiquitous on fr planes.		461.5	96		460.0						
460						irreg. dol vning.												
				M		mottled lt gry ! dk gry minor ltgrn.						461.5	6	800	40	1500		
						talcose frs at 70 & 45° to c.A.			464.5	100								
				W		mottled gry w/ 15% dk grn antigorite												
						4cm. wht dol @ 45°			467.6	98								
				W		talcose frs. 40-50° to c.A.												
470				W					470.6	93		470.0						
				M		2cm dol. vns @ 65° to vns.						471.5	6	920	52	1600	<50	<10
						talcose fr. ! str bright grn antigorite.			473.4	90								
				M					474.9	100								
									475.5	92								
						talc ! antigorite fr - 30-60° to c.A			477.0	95								
				H					480.1	94								
480																		

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COMMENTS

DESCRIPTIVE GEOLOGY

AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (Quartz, Carb.) | FRACTURING | MINERAL | GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | Cu ppm | Ni " | Co " | Cr " | Pt ppb | Pd ppb

480 | 490 | 500 | 510

SERPENTINE CONT'D

480 - 488 - DK grey w/ Str fr of Ltgrn - dkgrn. talc - antigorite.

483.1 - 484.6 - Porphyritic Section. Moderately hard less serpentized section w/ 20% blotchy enstatite pheno. up to 1cm. mod. veining of talc/antigorite..

488.2 - 492. Ltgreen pervasive serpentization very compact. v-weak fr., odd wht dol vn

492 - Lt whitish grey green coloration appears to have a higher % of talc.

497.2 - 498.0 TALC SHEAR ZONE @ 30°.
498 - 501. Talc rich w/ dol. xlts.; .1% dissem Po
501.0 - 521.1 FAULT ZONE

501.0 - 505.0 BRECCIA ZONE - Ltgry green talcose breccia zone - somewhat sheared trend 30-50° to C.A.

505 - 506.2 Talcose Gouge.

508.1 - 586.8 BLACK CALCAREOUS ARGILLITE / GREY ARG. LIMESTONE
HURLEY FORMATION

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	Cu ppm	Ni "	Co "	Cr "	Pt ppb	Pd ppb
480.1		NQ	480.5	11	1350	62	1320	150	410
483.1	99								
486.2	97								
489.2	100		490.0						
492.3	100		490.5	8	1250	60	1700		
495.3									
498.4	94		499						
499.4	92		500.5	81	685	46	1600		
502.6	94								
505.4	79								
507.5	71								
510.2	91								

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INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS | AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (Quartz, Carb) | FRACTURING | MINERAL | GEOLOGY | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y SAMP. INT. | ESTIMATED

Section depths: 510, 520, 530, 540

Alteration (Carb): M, M, M, M

Fracturing: S, S, S, M, M, M, S, S, M, M, M, S, S, W, W, S

Geology column notes:
- 1cm calc. w lst bnds @ 40°
- gouge. 511.8 – 512.2
- fr. @ 50° to C.A.
- gouge 517.8 – 518.0
- graphitic slip @ 40°. also cont.
- graphitic slip @ 15° to C.A.
- bding at 25° to C.A.
- bding at 15° to C.A.
- graphitic frac @ 25° to C.A.
- irreg carb. units
- frag of grey lst in arg.
- Carb units irreg
- Arg bed
- Grey lst lamin. at 35° to C.A
- 10cm gouge. str graphite on fr. planes @ 25° to C.A.

BLACK CALCAREOUS ARGILLITE / GREY ARG. LIMESTONE

Black massive mod. – wkly calcareous argillite interbeded w/ grey v.f-g. massive to wkly laminated limestone. Short section of argillite w/ lst fragments. Section is strongly broken to 521.1. The rock is crackled w/ carbonate infilling. This carbonate is believed to be remobilized & not hydrothermal. The lst bds vary from <10cm to 1.5m.

Upper contact vague with serpentine strongly sheared and brecciated frag. of serp <1cm in sheared zone.

511.4 calc. w lst bnd at 40° to C.A.

511.5 – 521.1 Rock strong broken – Continuation of FAULT ZONE

510.2 – 511.0 F-g grey limestone bd.

511 – 516.9 Black wk calc. arg. strongly broken rock w gouge at 511.8 – 512.2. Grey sandy units at 513. – 513.2 and 514.4 – 515.5

516.9 – 517.3 F-g grey lst upper contact at 40° to C.A. Mod. compentent fr @ 50° to C.A.

517.3 – 517.5 Black arg.

517.5 – 517.6 Grey lst.

517.6 – 519.1 Black arg.

519.1 – 520.0 Grey lst.

520.0 – 520.5 Black calc. arg.

520.5 – 520.7 Grey lst w/ frag of arg near upper contact.

520.7 – 521.7 Black wk. calc. arg. strongly broken

521.7 – 522.0 F-g. laminated lst. – lamin. @ 25° to C.A.

522.0 – 523.0 Interlaminated lst and arg. bding @ 15° to C.A. Irreg. calc. units & stringers – remob.

523.0 – 523.7 Grey f-g lst graphitic fr. at 25° to C.A.

523.7 – 530.1 Black arg w/ fragments & bnds of grey lst frag & bnds to 10cm. Slumping?

530.1 – 535.0 Grey massive (f-g) and laminated lst., lamin. 1mm – 2cm. .5m arg bd 531.5 – 532.0.

Drilling Interval	% Core Recovered	Core Size
510.2	58	NQ
510.5 – 512.4	100	
513.7	33	
514.2	50	
514.4	75	
515.4	61	
516.0	42	
516.3	100	
517.6	75	
518.8	73	
520.0	90	
521.1	88	
523.7	91	
525.8	98	
526.7	100	
528.5	100	
529.6	65	
530.5	85	
531.9	100	
533.3	76	
534.5	90	
535.2	100	
536.5	69	
538.9	96	
540.1	83	

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BEMA INDUSTRIES LTD.

SECTION	ALTERAT'N: Quartz	ALTERAT'N: Carb	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
540			S			bding 30° to C.A.	BLACK CALCAREOUS ARGILLITE/GREY ARG. LIMESTONE 530.1 - 535.0 CONT'D - bding at 35° to C.A. - weak carb vning 530.5 - 531.2, 532.0 - 535.0		539.7	83	NQ			
									541.3	54				
			W						542.2	67				
			M to S						542.7	67				
			M				535.0 - 538.3 Black argillite - str graphitic on fr. planes. Gouge 536.6 - 536.7 Shearing @ 25° to C.A.		544.7	71				
			M				538.3 - 539.9 Grey black lst.		546.1	66				
			M				539.9 - 543.8 Black arg minor bnding - 542.7 @ 30° to C.A.		547.4	81				
			M to S				543.8 - 544.7 Limestone breccia - lst frag in limestone matrix frag to 1cm.		548.6	68				
			S						549.3	58				
550			M			calc. on fr.	544.7 - 546.2 Black arg w/ lt grey silty laminae. - bds broken up.		550.2	61				
			M						550.7	100				
			S			gouge 552.0 - 552.3	546.2 - 547.0 Grey lst (grey black) w/ lt grey more pure lst 546.9 - 547.0.		551.7	72				
	M		S			crackled w/ carb infilling.			552.3	56				
	M		M				547.0 - 549.1 Black wk calc arg w/ 8cm. grey lst bd at 549.4.		554.1	100				
							549.1 - 551.2 Med. grey lst mod fr. calc. on fr at 45° to C.A.		555.0	61				
			S			Laminated @ 40° to C.A.			556.3	68				
			M			Strongly broken rock	551.2 - 556.6 Black str calc graphitic arg - arg lst Strongly crackled w/ wht calc infilling' rnlts (552.7 - 554) Minor grey lst bds Fault 552.0 - 552.3 - gouge, broken rock.		557.2	94				
	M					calc. infilling.			558.7	96				
560							556.6 - 560.5 Laminated massive grey lst. Laminated at 556.6 - 556.8 @ 40° to C.A. Fault - 556.8 - 557.6 Short section of calc arg. 557.8 - 558.3 w/ crackled calc. infilling.		561.8	98				
	M		M to S			calc. infilling								
	M						560.5 - 564.4 Black lst w/ str crackled & calc. infilling. Shear @ 20° to C.A. at 564.4.		564.5	95				
									565.7	92				
	M		M to S			Crackle infillings of calcite.	564.4 - 569.0 Black arg similar to above not as calcar. between calc. fr. infilling.		567.2	92				
	M								568.8	89				
570	M					bding fr @ 35° to C.A.	569.0 - 571.0 Laminated grey black lst, laminae 3mm to 3cm @ 35° to C.A fr also // to bdin		570.4	86				

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION | ALTERAT'N (quartz, carb, chl) | FRACTURING | MINERAL | GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppb

570

BLACK CALCAREOUS ARGILLITE/GREY ARG. LIMESTONE CONT'D

571.0-577.4 Grey f-g lst w/wk to mod. carb. bding ~85 to 90° to C.A from 574.4-577.4.

bding 85 to 90° to C.A.

10° to C.A. - bding 5°

571.4-581.3 Light grey silty argillite wkly calc. laminated at 10° - 5° to C.A.

580

581.3 - 586.8 Black argillite w/ thin bds of grey lst. Fault Zone 582.3 - 583.1 Banding at 15° to C.A. fr. 11 to bding at 583.9. Becomes strongly calc w/ fr. filling at 585.2 - 586.8.

Fault

bding / fr at 15° to C.A.

str calc. infilling.

sharp contact @ 35° to C.A.

v.str. carb.

HURLEY - PIONEER CONTACT

587.4 - 588.6 RHYOLITE

Grey - grey brownish green siliceous rock. Aphanitic, somewhat brecciated, some wispy brownish banding at ~30° to C.A. Intense carbonate alter'n (pervasive & fr. filling - 587.4 - 587.9) Ltgrn coloration is due to chl altern Trace po. Lower contact Sheared at 30° to C.A.

sheared @ 30° to C.A.

590

fr @ 50° to C.A.

588.6 - 593.0 ANDESITE (PIONEER FORMATION)

Dark grn str. chl f-g massive volcanic rock. Rock is breccia 588.6 - 589.8

fr @ 40 - 50° C.A. w/ chl.

irreg cont. @ 50°.

593.0 - 596.3 AMYGDALOIDAL ANDESITE

Light grn f-g amyg. andesite Amyg. 1mm - 2mm are filled w/ calc. Mod. fr at 40 - 50° Lower contact irreg ~ 50° to C.A.

flow banding at 45° to C.A.

596.3 - 602.3. ANDESITE FLOW BRECCIA.

600

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppb
570.4		NQ					
572.4	92						
574.4	97						
576.7	91						
578.1	100						
579.7	95						
581.7	85						
583.1	91						
583.7	92						
585.2	87						
585.8	100						
			586.8				
	100		587.4	1	.2	.1	<5
588.1			588.6	1	.1	.1	<5
589.8	82						
590.4	90						
591.0	96						
592.2	100						
593.5	100						
594.4	56						
594.7	63						
595.9	85						
596.0	83						
597.7	97						
	86						
600.0							

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION | ALTERAT'N: qtz, carb, bio, chl | FRACTURING | MINERAL | GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppb

Shearing at 30° to C.A. 5cm gouge

Str amyg frag to 9cm. 3mm carb fr. filling. fr @ 30-40° to C.A.

3.5cm carbon at 50° to C.A.

chl fr @ 50° to C.A.

1.5 qtz vn at 55°. fr @ 40° to C.A. w/ chl.

Fault - 613.3-613.8

fr @ 15° to C.A. w/ chl

1-2m carb fr. filling

fr @ 50° to C.A. w/ chl

1cm qtz vn.

carb unlts

brecciated w/ carb filling matrix

gouge & broken rock. Shearing at 20° to C.A.

alignment of frag at 40° to C.A. & 30° to C.A. qtz-carb-chl 2.5cm @ 60° to C.A.

Altered Shear Zone sheared 40° to C.A. clay altered & carb filling. Indefinite

ANDESITE FLOW BRECCIA CONT'D

Grey green weakly brecciated andesite - vague fragmental textures, some flow banding at 45° to C.A. Fragments w/ chl & bio filled vesicules. Shear zone 600.7-601.3 at 30° minor gouge. broken core for 60cm. Amyg (1cmm - 2mm) frags at 602.00 Fragments from 1cm to 9cm. Strongly pervasive chl alter'n.

602.3-606.0 **ANDESITE FLOW**

Dark green chloritic v-f-g massive andesite w/ vesicules filled w/ matics - bio & chl. v-finely amyg at 605.7 Str-Moderately fr. 30-40° to C.A.

606-621.0 **ANDESITE FLOW BRECCIA.**

Dark grn chloritized rock w/ andesite fragments up to 6cm, many w/ ghost fragmental outlines. All fragments are of similar composition most w/ f-g chl matrix and w/ 15-20% chl-bio clots. (replacement of vesicules) to 3 m. Fr is moderate to strong at 40-50° to C.A. Fault zone 613.3-613.8 w/ chl gouge and broken rock at ~15° to C.A. Mod-str. carb unlts at 620.8 although minor throughout.

621.0-622.9 **AMYGDALOIDAL ANDESITE FLOW**

Medium green colored (lter than flow bx) very finely amyg. (<1mm - 1mm) - 15%, in f-g chl matrix. w/ 5% chl-bio matic clots to 3mm. Rock is bxd & infilled w/ carb. & matrix & frags. Fault 622.6-622.9 gouge & broken rock.

622.9-632.6 **ANDESITE FLOW BRECCIA.**

Brecciated andesite flow w/ chl frag. of same composition w/ alignment of frag at 40° to C.A. & 30°

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppb
602.9	85	NQ					
603.4	100						
609.9	92						
606.3	78						
607.6	83						
608.7	100						
610.8	85						
612.0	100						
613.0	88						
613.9	67						
614.9	76						
616.3	89						
618.4	96						
620.6	94						
621.6	100						
622.9	89						
624.8	87						
626.1	80						
628.2	96		628.3				
			628.6	3	.1	.1	25
			628.9	1	.1	.1	11
			629.3	1	.1	.1	11
				3	.1	.1	11

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

Columns: SECTION | ALTERAT'N (qtz, carb, bio/ep, ch) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb " | Ag " | Au ppb

Section: 630 – 640 – 650 – 660

Alteration / fracturing / mineral notes (630–660): carb M-S, bio/ep W, ch S; fracturing M; mineral py, Ank cpy, cpy, po py, cpy, hem cpy; bio/ep W ep, ep wk; qtz W; fracturing M-S.

COMMENTS

- .5cm carb vnlts & fr fill @ 20-35°.
- .5cm qtz-py vn @ 45° to C.A.
- hairline carb fr filling stockwork.
- 2cm carb-qtz vn at 5° to C.A w/ minor cpy
- bio-amygs. perv. brn carb (ank.)
- 18cm white quartz lower contact wkly sheared upper sharp.
- 3mm carb-chl @ 30°
- 1cm qtz-carb vn @ 15°
- frs at 40 w/chl & carb
- fr @ 35°-40 w/chl and selvages carb.
- 6mm carb cpy-po at 60°.
- chl & carb on fr
- ep-carb vn
- ep flooding outward. 4cm.
- chl-carb fr.
- traces dissem cpy.
- mod fr'd at 40° to C.A.
- chl-calc ± wk @ 40°
- wk ep w/ blackish bio in matrix.
- chl
- vuggy calc fr filling at 5° to C.A.
- chl ± hem
- trace po, cpy
- 1cm qtz vn at 20° to C.A.
- chl, wk chl fr @ 40°.
- blk bio. & ep. in matrix

DESCRIPTIVE GEOLOGY

ANDESITE FLOW BRECCIA CONT'D

628.3-629.3 **Altered Shear Zone** *

Bleached yellowy green colored soft somewhat gougey - clay altered shear zone. Shearing @ 40% infilled w/ carb (Ankerite) - qtz vnlts. Carb-qtz vns above & below shear.

632.6-634.0 **ANDESITE FLOW**

Fine grained med-dk grn massive andesite w/ thin carb-qtz fr fills at 35° - Moderately fr. and approaching a stockwork of vnlts. from 632.5-634.0. 633.4-633.7 brn perv. carb (Ank.) altern. wk blk bio altn.

634.0-641.9 **ANDESITE FLOW BRECCIA.**

Breccia similar to above breccias. mod fr. Mod. Stockwork of fr. fills of carb-qtz. 634.0-637.5. 636.3-636.5 18 cm whit qtz @ 70° to C.A.

641.9-643.5 **DACITE FLOW**

Moderately siliceous f-g gry grn f-g volc.

643.5-646.0 **FLOW BRECCIA DACITE**

Andesitic flow breccia w/ short sections of f-g moderately siliceous f-g flows or dykes.

646.0-646.4 **BLACK RHYOLITE FLOW/DYKE?**

Black aphanic siliceous rx w/ wkly chl & w/ fine <1mm amygdales. w/ <.5% po, gradation contacts.

646.4- **ANDESITE FLOW BRECCIA.**

Similar to previous flow breccias w/ fragments. Frag from <1cm - 6cm up to 60% of rock. w/ chl alter matrix. Fragments usually a little lighter colour. Matrix w/ ep - bio. Frag. w/ 15-20% bio clots (amygd.).

648-658 Strong chl alter with wk perv. ep altn & (blackish bio w/ ep). Light grn chl alter perv. - black specks in amg & w/ ep is bio.

% SULPHIDES: po <.5% (643.5-646.4)

Drilling interval	% Core recovered	Core size
631.2	100	NQ
634.3	98	
637.3	93	
639.2	95	
639.8	73	
640.1	28	
640.7	92	
642.2	100	
644.1	100	
645.3	84	
645.7	100	
646.0	17	
646.3	83	
647.6	86	
649.8	97	
650.5	92	
651.4	92	
652.9	100	
654.4	87	
655.3	100	
656.2	100	
657.3	86	
658.1	100	
658.7	54	
659.3	24	

Sample interval	As ppm	Sb "	Ag "	Au ppb
631.0	3	.1	.1	<5
636.3-636.5	1	0.1	.1	<5

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BEMA INDUSTRIES LTD.

COMMENTS | AVE. CORE REC'Y/HOLE

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: quartz	carb	bio/ep	chl	FRACTURING	MINERAL	GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
660				S	M		chl fr ↑carb↑hem.		661.1	90	NQ			
			M as S	M		ep grn	matrix w/ep-chl. hem. m-wk; mod-str ep-hem ↑black bio		662.3	97				
							4mm ep-garnet bnd at 55° t c.A		663.7	93				
				S	M		qtz-ep-carb(1cm) minor py @ 25°		664.5	58				
			W bio W ep				chl fr. ↑wk hem. chl/minor bio in amyg. 1.5cm qtz-carb-ep vn @ 25° t c.A.		665.4	100				
									666.6	85				
					S				668.6	88				
670		M as S	W bio V W ep		S		Shear Zone w/ carb perv. ↑vns at 35-45° t c.A. blk bio in amyg.		671.8	100				
			W bio V W ep		S		Shear w/ carb-ltgrn ser. some bx		674.5	88				
					M		shear @ 30 w/str chl. qtz-chl vn at 25° some bx to 3cm. fr @ 40° w/ chl calc hem		676.1	93				
			W bio W ep				shear w/ bio carb. wk ep @ 25°. qtz-chl .5cm at 20° sheared carb 1cm.		678.0	94				
680					M		7mm carb w/hem. salvages at 40°. 1cm carb/chl, irreg black patches of bio also in amyg. carb/chl at 60° & 30°		680.9	100				
		W	M as S bio						682.0	91				
			S bio		S	kpf	3cm qtz-ep minor carb 1cm qtz-phrenite at 70° qtz-carb minor cpy. Fault - 10cm gouge at 35°		684.6	89				
690							carb vn at 35° t c.A. .5cm		687.3	100				
									688.2	99				
									689.9	100				

ANDESITE FLOW BRECCIA

658 - 662.3 increase in ep altern in matrix to. Moderate - weak. also increase in black ↑sh colored blk in matrix w/ ep. Many frac. w/ wk carb. and ubiquit. chl + calc one w/ hem ~ 30° t c.A.

662.3 - 663 Moderate to strong pervasive ep w/ wk hem. also hem. on fr., odd fr w/ calc. fr @ 50°.

663.0 - 689 weak to very weak ep altern - Mod fr.

664 4mm ep-(garnet)? bnd @ 55° t c.A.

664.9 qtz-ep-carb (1cm) vn at 25° t c.A. minor py.

666 irreg qtz-ep-carb vn. to 1.5cm.

669.8 - 670.6 Shear Zone at 35-45° t c.A. w/ mod-strong carb (perv. ↑irreg vns ↑patches Some gouge zones.

672.0 - 672.4 Shear - at 50° w/ 1cm carb - ltgrn ser. w/ 4cm of breccia.

674.4 qtz-chl vn - 3cm at 25° poss some blk bio.

675.9 - 676.4 fr @ 40° w/ chl-calc/hem w/ wk ep specks ~ 2mm throughout

677.7 shear w/ carb. & black bio @ 50° t c.A.

678. 1cm carb - sheard.

676.4 qtz-chl ½cm at 20° c.A. minor ep in matrix.

681.2 7mm carb at 40° t c.A., hem. salvages.

682.3 1cm carb-chl vn at 15° t c.A., also blk. bio. in patch in matrix, in amyg.

683 - 684 Mod-Str. blk. bio - perv. altern in irreg patches around frag. giving blk. mottled texture.

686.0 qtz-ep-minor carb at 70° t c.A - 3cm.

687.8 - 688 Fault - 10cm gouge chl. shear ~ 35° w/ 1cm qtz-carb cpy at 70° - Str. bio. neos.

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COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:
COORDINATES: | N. | E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: quartz	carb	bio-ep	chl	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
690			W	S	M		2cm mottled bnd mod silic ! carb rich. at 30°				NQ			
				S			calc vn. 1.5cm@ 30°.		693.0	95				
			W		M				693.6	100				
		W		S			mod fr @ 30° w/ chl-calc-hem		694.9	92				
	W			S	S	hem	Shear - chl - carb some hem.		697.8	97				
					M		fr at 30° w/ Calc. some w/hem.		699.8	88				
700				S			Chl Shear @ 50° 10 cm.		701.6	96				
					H				702.9	83				
	W			S			calc w/hem on fr @ 45° qtz-prehnite? (2mm).		705.3	94				
		W	W		M		1.5cm wavy band Precipatate? at 20°		706.8	96				
			S	S			2.5cm banded ep-hem wk calc at 30°.		709.6	100				
							str pew ep, hem, bio. chl. calc, hem on fr @ 30°.		711.3	79				
710		W		S	S		(hematitic) 3cm gouge @ 35°		712.3	76				
							2cm bnd jaspercid.		714.6	87				
					S		4cm hem qtz @ 30°							
							1.5cm gouge @ 35°							
							shear @ 20°							
					H		Chl, hem-calc fr.							
							chl, calc salvage							
							fine ep in matrix							
	W			S			chl, hem, fr @ 20°.		717.8	100				
720							fr @ 25° w/ hem, chl		720.9	90				

ANDESITE FLOW BRECCIA CONT'D

687.8 – bio-ep altern in matrix to f-g - mod. ! anamyg. - bio.

689.9 .5cm carb vn at 35° C.A.

692 2cm mottled bnd - somewhat siliceous ! mod calc. possible Chemical Precipatate.

694.9 Calc. vn 1.5cm@ 30° to C.A.

693 – Mod - wk. ep blebs ! pew. bio only in blebs or as matic clots (replace amyg) but not pew. w/ ep in matrix mod fr w/ chl/calc-hem

698.1 – 698.4 Shear at 40° w/ Chl ! wk carb. Some hem

698.7 – 699. calc-filled fr at 30°

701.9 – 704.5 **DARK GREEN F.GR DYKE**

Dark green chloritic fine grained dyke upper contact at 85°, lower contact at 35° Mod fr. wk-mod carb ! qtz-prehnite vns.

704.5 – **ANDESITE FLOW BRECCIA**

as before.

704.5 – 709 mod fr. volcanic breccia w/ wk epto (707.3) altern, fr w/ hem ! thin calc filling

707.3 – 709.6 Strong pervasive f-g ep altern of matrix – 20% ep. starting at band section at 707.3. also wk hem dissem. throughout and speckled w/ black bio.

710.6 – 713.7 **Fault Zone** – broken rock w/ 3cm gouge at 711.6 at 35° ! 1.5cm gouge at 713.2 at 35° 2cm hem. jaspecic bnd at 710.8. 4cm qtz-hem. at 712. Rock is altn by ep/bio – fr w/ calc/hem

HOLE NO.: 86-04 | PROJECT: PACIFIC EASTERN | PAGE NO.: 25 OF 28

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

SECTION 720 – 750 | ALTERAT'N (quartz, Carb, ep/bio, Chl.) | FRACTURING | MINERAL | GEOLOGY

COMMENTS

fr w/ hem, calc.

blebcpy

chl±carb± hem±-

altern of ep; black*

altern - bio - ser - clay matrix

2cm vn qtz - cpy 1%

calc*/hem minor gin ser 10cm @ 30°

hem chl

Irreg zone of carb at 50° ; rock shear'd

Str altern ep - black* bio - ser - clay

1.5cm qtz vn w/cpy 1/2%

hem on fract 20°

Shear Zone at 20°

Carb vn w/ lt grn ser. 3cm. upper cont. Shear'd.

3mm carb vn at 50°

ep - 20% w/ black altern of clay - ser hem.

Chemical Sed bnd w/ hem - wk jasper; silica 4cm. @ 50°

ep/hem altern perv. some bd

LAMPROPHYRE DYKES

2cm qtz chl vn.

1cm qtz - ep - DYKE or VOLC?

grey black fine grn. massive w/ some vesicle w f - black bio.

chl, clay±-carb± & chl-carb

perv. clay - ep alter'd matrix w/ ser - bio in amyg.

2.5cm qtz - cpy at 60°

1cm qtz chl @ 20°

Shear 6cm gougey brkn rock

Chl, hem fr. carb

Shear at 35° w/ carb vns.

DESCRIPTIVE GEOLOGY

ANDESITE FLOW BRECCIA CONT'D

714 - 720.5 mod - str. fr'd w/ mod ep; fine black bio alter'd matrix fr w/ calc selvages.

720.6 - 720.9 Fault - shear @ 30° 5cm gouge

720.5 - 722.5 **ANDESITE FLOW**

Dark green chl massive unbrecciated to wkly brecciated flow. No ep altern 721.0 fr w/ hem.; calc. w/ 2-5mm mafic phenos or porphyblasts?

722.5 - **ANDESITE FLOW BRECCIA**

Fragmental andesite as before

* 724 - 727 Moderate - weak alteration of ep; blackish alteration - black altern could be combination of ser - clay - bio± chl± (Thin Section Required*)

* 727 - 734 Strong altern ep - black altern (bio - clay ser - chl)

* 733.2 Lt grn carb - ser vn - sheared upper contact w/ halo of hem/chl Strong perv. zone of carb to 733.7 fr w/ carb. - 3cm.

733.7 Mottled green; black altern rock of up to 20% f-g ep; black altern (clay - ser - hem) and 3mm carb vn at 50° to C.A. some fr w/ hem.

731 - 731.4 Shear - Fault str broken sheared ~ 20-30

734.4 Laminated Chemical Sediment - silica - jasperoid hematitic - silica. 4cm @ 50° to C.A.

734.95 - 735.2 **LAMPROPHYRE DYKES**
& 735.9 Fine gr black dyke, felted bio grnmass w/ ep specks; 1-3mm mafic plag phenos.

735.5 Align of black mafics at 40° - due to metamorp.

736 - 739.7 Mod - str ep; hem. irreg bnds; perv. alt.

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
	720.4	90	NQ
	722.5	100	
	724.4	91	
	726.8	100	
		82	
	729.7		
		100	
	731.4		
	734.0	87	
		100	
	736.1		
		93	
	739.1		
		98	
	740.8		
	742.5	77	
	744.3	81	
	745.5	95	
	747.1	82	
	748.6	88	
	751.3	99	

SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppb
731.2				
732.2	1	.2	.1	<5
733.2	1	.2	.1	<5
734.3	1	.4	.1	<5

HOLE NO.: 86-04 | PROJECT: PACIFIC EASTERN | PAGE NO.: 26 OF 28

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. Norman

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (quartz, carb, bio ep, chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppm

750

760

770

780

COMMENTS

- 8mm qtz vn @ 30° - wk carb selvage
- fr @ 15° w/wk carb. traces wk. py ¿ cpy w/qtz.
- wk carb. on fr @ 50°.
- str chl alt'n wk ep. ¿ bio
- 1cm gouge - small shear
- 1cm carb - qtz vn at 20°
- fr w/carb selvages at 60°
- Shear/Fault cm gouge ¿ broken at ~20°; some lamin gouge calc selvages. wk ep irreg strings
- vuggy calc. infilling
- fr w/carb selvages.
- ¿ chl gouges 1-2mm. chl fr.
- 2mm qtz - cpy =
- * Fault @ 40° 20cm str carb altert. crackled carb filling soft ¿ broken.
- 3mm carb vns
- chl shear
- 1cm ¿ 4cm qtz-carb vns at 70° str ep alt'n perv. w/wk hem
- 1.5cm qtz-carb-chl
- 1cm calc vn.
- ep alter'd bnding at 25°
- chl-carb = fr at 30°
- 3cm carb/qtz = at 15° to C.A.
- wavy ep bnding.
- Shear at 30° w/carb-qtz infilling

Alteration / fracturing / mineral column entries: W, S, M, S, W W, M to S, S, M, S, W, S, W, S, C, M to S, S, S, S, S, S, W, S, M to S, S, S, S, W, S ep, S, S ep, S, W, S, S, W, S ep S; mineral: M, cpy py, hem, cpy, hem.

DESCRIPTIVE GEOLOGY

739.7 - 740.8 DYKE OR VOLCANIC?

Fine grned greyblack massive rock, some 1mm vesicules, ¿ w/fine black bio. Mod fr w/wk ep. in matrix.

740.8 - ANDESITE FLOW BRECCIA.

740.8 - 749.5 Greyblack alter'd section Matrix alter'd to clay-bio ± ep ¿ ser-bio. of amyg. Mod-str fr. @ 30-60° to C.A.

749.5 - 754
Rock becomes lter green colozation at this point (749.5) Chl alt'n matrix w/ bio alt'n amyg.
749.5 - 750. Sheared at 40° to C.A w/carb perv. ¿ in vns.

* 754 - 779 Strong chloriticitized matrix w/ med-str fr. w/carb fr fillings. (vuggy infilling at 761.
759.3 - 759.4 Shear/Fault 10cm gouge ¿ brken rock.

* 764.1 - 764.3 Fault - 20cm gouge lt grn gouge carb alter'd.
764.8 - 765 Rock is crackled/brecciated w/carb (calc.) infilling
771.1 - 773.5. Mod-Str. carb fr filling ¿ vns.
771.5 - 772.1 w/ med-str ep alt'n perv. in matrix cut by carb. stringers

779.1 Shear w/ Carb - qtz infilling minor hem. at 30° to C.A.

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
751.3	99	NQ
753.2	86	
754.7	93	
756.5	100	
758.0	96	
759.4	100	
760.6	100	
762.9	98	
765.4	93	
768.4	98	
770.8	98	
773.4	93	
775.7	100	
776.9	72	
777.4	96	
779.1	94.	

SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppm
763.1 - 764.1	1	.1	.1	<5
764.1 - 764.3	1	.1	.1	<5
764.3 - 765.3	1	.1	.1	<5

HOLE NO.: 86-04
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: PACIFIC EASTERN
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

CLAIM:
SCALE:
LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS | AVE. CORE REC'Y/HOLE

Columns: SECTION | ALTERAT'N (quartz, carb, bio/ep, chl) | FRACTURING | MINERAL | GEOLOGY | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As | Sb | Ag | Au

Section 780 – 810

Comments:
- 1cm qtz vn at 25°
- 5mm qtz vn w/cpy at 20°
- fr @ 55° to C.A. Au/Chl
- fr @ 40° to C.A.
- Fault 2cm gouge.
- shearing carb gash fillings
- str carb Stkwk.
- massive str chl friable section w/ carb gash fillings
- more competent section w/ spotty gash carb filling fr @ 40° to C.A.
- Fault - gouge @ 30°
- str bx rock.
- str brken fr rx.

DESCRIPTIVE GEOLOGY

ANDESITE FLOW BRECCIA CONT'D

782.6 - 785.5 Lt grn chloritic altered rock w/ mod - wk ep in matrix between frag

785.8 - 788.2 ANDESITE FLOW
785.8 Fault - 2cm gouge.
785.8 - 788.2 Sheared Breccia Zone.
Rock becomes very strongly dk chloritic, somewhat soft and friable. No textures left. Infilling carb in gash features. Probably massive and flow.

788.2 - 788.6 GREY RHYOLITE DYKE
Grey siliceous aphanitic rock w/ strong carb stockwork. upper contact at 50° sharp. lower at 70° to C.A.

788.6 - 806.2 ANDESITE FLOW
Very similar section to 785.8 - 788.2 strongly chloritic and friable to 796.1 w/ calc. gash filling. short section which is more competent (792.5 - 793.1) which is amyg. and not as chl.
796.1 - 800.1 Section not as chloritic, competent, but more str fr at 40° to C.A. spotty wk. calc gash fillings.
800.1 - 806.2 Chl and mod - str fr. w/ some 1-2cm qtz vns

806.2 - 819.0 FINE GRAINED DIORITE DYKE
Dark green f-g diorite, fine granitic texture
803 - 823 FAULT ZONE
str fr. rock becoming more str faulted @ 823.

Alteration / fracturing columns (top to bottom): chl: S, V S, V, S, V, S, V, S, M, S, V, S; carb: M (near 787); fracturing: S, M, S, S, S, S, S; mineral: cpy (near 782)

Drilling interval	% Core recovered	Core size
780.4	82	NQ
782.4	93	
785.5	95	
788.5	100	
791.0	100	
793.1	97	
796.1	100	
799.2	97	
801.3	76	
803.7	94	
805.3	85	
806.6	73	
808.6	72	
810.5	93	

Sample interval	As	Sb	Ag	Au
788.2 - 788.6	10	1	.1	<5

HOLE NO.: 86-04 | PROJECT: PACIFIC EASTERN | PAGE NO.: 28 OF 28

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

SECTION	ALTERAT'N: quartz	ALTERAT'N: carb	ALTERAT'N: ep	ALTERAT'N: chl	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
810				S	S				FINE GRAINED DIORITE CONT Strongly fr. fine grained dyke.		810.5		NQ			
				S	S			Shearing at 10° to CA			813.4	85				
				S							815	74				
					S			slip at 20-30°			817	86				
				S												
820				S	S			.6 m gouge at 20°	819-823 ANDESITE FLOW BRECCIA. Strongly faulted chloritized andesite flow breccia. Odd frag recognizable.		820.5	76				
									END of HOLE		821.4	100				
823									Hole terminated because of squeezing fault zone.		823	83				

HOLE NO.: 86-05
COLLAR ELEV.: ~ 1262.5 m
COORDINATES: ~ 98+68 N. ~115+21 E.
INCLINATION: -60.5 BEARING: 205° Azimuth

GROUND ELEV. ~ 1262.5 m
PROJECT: PACIFIC EASTERN
DATE STARTED: SEPT. 6, 1986
DATE FINISHED: SEPT. 23, 1986
TOTAL DEPTH: 622.7 m.

PAGE NO.: 1 OF 21
CLAIM:
SCALE: 1cm : 2 metres
LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS SPERRY SUN TESTS - 110 m -61° 205.5° Azim.
510.5 m -54° 214.8° Az. 208 m -60.25° 206.5° "
617 m -52° 275.5° 389.5 m -56° 210° "
reduce to NQ at 378.9

AVE. CORE REC'Y/HOLE

SECTION	ALTERAT'N	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
0					0 - 29.6 OVERBURDEN							
					0 - 12.2 Gravel w/ minor boulders.							
10					12.2 - 29.6 Clay; sandy clay minor fine pebble gravel							
20												
30					29.6 - 59.7 BASALT 29.6 - 32.6 Trimmed to set casing.				HQ			

HOLE NO.: 86-05 | PROJECT: PACIFIC EASTERN | PAGE NO.: 2 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. Norman

BEMA INDUSTRIES LTD.

COMMENTS | AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (quartz, carb, bio, chl) | FRACTURING | MINERAL | GEOLOGY | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y SAMP. INT. | ESTIMATED

Section: 33 – 40 – 50 – 60

Alteration (carb / bio / chl), top to bottom: S W M S; S W M; M S; S; S S; S S M; S S; W S; S; W; S S M S; S; M S; S; S; S

Fracturing: M, M, M, M, M, M

Mineral: cpy, cpy, po cpy, cpy, cpy po, po cpy, cpy, po

Geology notes:
- brn bio
- cpy
- crackled w/ grey carb.
- late fr @ 65° to C.A
- breccia traces cpy w/carb
- fr @ 60° to C.A.
- 2cm grey marble at 60°
- po, cpy
- 1cm carb vn w/cpy
- str brn bio.
- gash filling w/carb.
- traces cpy w/carb.
- str bnd bio alter'n
- fr @ 40°
- 1cm bnd of marble at 60° to C.A.
- str remob marble w/ many traces po, cpy
- fr at 30°
- crackled; infilled w/ grey carb
- 4cm bnd plag bas at 40°
- irreg bnds; stringer zones of dk brn bio.
- blebs po, cpy w/carb
- 3cm del vn or bnd @ 50°.
- wk chl fr
- irreg crackle carb gash filling w/ specks cpy
- wk irreg brn bio. stringers.
- fr @ 35°
- irreg carb gash fillings
- fr @ 40° along thin marble bnd fr w/chl.
- possible pillow reaction rim
- graphitic frs at 40°
- 20 bnd marble at 35
- porphyritic basalt
- po bnds ~5%.

BASALT CONT'D

Dark grey green massive aphanitic volcanic probably of basaltic composition. Massive to weakly brecciated possible w/ odd pillow like structure. Moderately fractured w/ many irreg recrystalled carbonate (grey) infilling. Possibly remobilized from thin irreg. marble bands or frags. Many traces of cpy, po w/ the carbonate gash fillings. Rock is very compentent. Beds marble at 40-60° to C.A. Irreg patches, bands of brown bio. (secondary metamorphic effect) Bendor intrusives?

59.7 - 87.1 ARGILLACEOUS BRECCIA / CHERT / BLACK SILICEOUS ARGILLITE / BASALT

see next page for description.

% Sulphides: 5% po

Core size: HQ

Drilling interval	% Core recovered
32.6	
33.5	75
35.1	98
36.0	72
37.3	93
38.9	87
40.2	100
42.1	76
43.6	88
44.8	85
46.3	82
47.2	72
48.8	100
50.3	83
51.7	69
52.1	61
52.4	[illegible]
53.6	17
54.9	75
56.4	90
57.3	81
58.5	83
60.0	80

HOLE NO.: 86-05 | PROJECT: PACIFIC EASTERN | PAGE NO.: 3 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS | AVE. CORE REC'Y/HOLE

SECTION (60–90) | ALTERAT'N: quartz, carb, bio, chl | FRACTURING | MINERAL | GEOLOGY | DESCRIPTIVE GEOLOGY | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag oz/ton | Au oz/ton

Alteration (bio) / fracturing / mineral annotations down the log: S, S; S; M, S; S; Po; S; W, S; M, S; S, S; po, cpy; S; W; S; py; M, M, py; S, S, po, cpy; S

Geology log annotations:

- Ribbon Chert. bding @ 45° to C.A.
- Basalt w/ bio along fr. sheared @ 35°. 10 cm gouge.
- Breccia
- Sil arg. brn bio altern. 40 cm argill gouge.
- ARgillic. Breccia
- Fault. @ 40° t C.A.
- Black Serpentine. talc rich w/ dissem po
- ARGILLeous Breccia. gougey arg 10 cm at 40°. wk brn bio
- 10 cm Chert frag.
- Shearing @ 50°
- 7 cm Chert frag. brn bio altern. fol. / shear @ 40°.
- Mod-Str bio altern
- Fragmental volc Section, minor 1st frag.
- upper contact not sharp. white qtz vn
- Sil po rich Arg. trace py.
- gougey black sil Arg. some gouge at 70°. 20 cm serpentine
- black gougy arg.
- chert breccia.
- wk bio altern.
- Shearing // cont @ 40°
- Argillaceous Bx 1st frag at 84.6.
- Crackled grey chert
- str bio alter'd rock
- py seams
- sil blk arg w/ py
- fragmental vol. w/ arg. material
- pervasive bio alterd

DESCRIPTIVE GEOLOGY

ARGILLACEOUS BRECCIA / CHERT / BLACK SILICEOUS ARGILLITE / BASALT CONT'D

Black moderately graphitic sheared argillaceous breccia. Fragments are mainly chert but also fragments of silic. arg., 1st and volcanics. Frag. are up to cm and are flattened / streteled o + // to shearing at 40-45° to C.A. Within this unit there are short sections of ribbon chert, black siliceous argillite (cherty argillite), biotite alter'd basalt, and talc alter'd rock which is possibly a sliver of serpentine. There is a quartz veined section from 78.2 - 80.5

Interval	Description
59.7 - 60.7	Ribbon banded chert - grey chert w/ 4 mm argillite bds @ 45° w/ po.
60.7 - 61.5	Basalt - mod-str. fr w/ brn biot. infilling
61.5 - 62.8	Argillaceous Breccia
62.8 - 63.3	Black siliceous competent argillite
63.3 - 68.4	Argillaceous Breccia
64.2 - 64.6	Fault - 30 cm gouge
65.5 - 66.5	Fault - numerous gouge sections @ 40-45°
68.4 - 70.0	Serpentine? - black talcose section w/ dissem. po < ½%
70.0 - 77.7	Argillaceous Breccia. chert frags to 10 cm. 76.2 - 77.0 Volc frags
77.7 - 78.2	Grey Chert
78.2 - 80.5	QUARTZ VEINED SECTION w/ black silic Po rich argillite 78.8 - 79.5. contacts of qtz is ~ 45-50°
80.5 - 82.4	FAULTED BLACK GRAPHITIC ARGILLITE
82.4 - 82.4	SERPENTINE
82.4 - 82.9	Black faulted sil arg.
82.9 - 83.8	Chert Breccia
83.8 - 84.6	ARGILLACEOUS BRECCIA

% Sulphides: tr-½% po (61–63); nil (65–68); tr-½% Po (69–71); 78.2; tr-½% po (89)

Drilling Interval	% Core Recovered	Core Size
61.0	100	HQ
61.9	100	
62.2	38	
62.9	100	
64.0	62	
64.6	75	
65.8	75	
66.4	67	
68.0	92	
69.5	77	
70.1	83	
71.3	92	
72.8	93	
74.4	100	
75.3	92	
76.8	100	
78.0	100	
78.5	100	
79.9	100	
80.2	100	
81.5	91	
82.1	63	
83.7	97	
85.3	76	
86.9	100	
88.1	79	
89.3	100	↓

Sample Interval	As ppm	Sb ppm	Ag oz/ton	Au oz/ton
78.2 - 78.6	10	.6	0.01	< 0.02
78.6 - 79.4	15	28	0.07	"
79.4 - 80.5	5	.08	< .01	"

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N quartz	ALTERAT'N carb	ALTERAT'N bio	ALTERAT'N chl	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
90			S			po cpy	fra @ 60° pervasive brn bio altern w/ crackled graphitic filling		91.0	88	HQ			
			S											
		W					carb infilling.		92.7	85				
			S				str bio altern							
							fra @ 50° to C.A str brn bio perv altered		94.2	93				
							Ribbon chert bnd'ng at 50° to C.A		95.6	93				
						po	Laminated sil/prg at 30° to C.A w/ po blebs. str bio alt'n bx		97.1	100				
			S	S					98.3	90				
							ribbon chert/sil prg bnds set 30° to C.A		98.8	73				
100					S		some bx. str amyg basalt		100.9	71				
					S		17cm. bx chert.		101.2	75				
						po	pero. brn bio.		102	86				
			W		S		disem po ∠ ½ o/o		103.3	100				
			W		S		crackled bas. w/ wl graph on fr		104.9	82				
					S		shear @ 50° to C.A.		105.5	58				
							faulted gouge graph. argillite. shearing @ 40° to C.A		106.7	73				
					S	Po	chert breccia & arg. bx. shearing @ 30° to C.		108.2	92				
					S		massive silic. arg.		109.7	100				
110					S	Po	Chert Breccia w/ frag to 12cm to ½% disem seams of po		111.3	95				
					S				112.8	83				
					S	po			114.3	27				
							Fault gouge : broken rock @ 25°-30°		115.7	50				
					S		Sheared arg bx.		117.0	80				
									118.0	78				
			W		M		sharp cont @ 40°		119.5	97				
120						Po	brn bio patches seams po.							

ARGILLACEOUS BRECCIA / CHERT / BLACK SILICEOUS ARGILLITE / BASALT CONT'D

84.6 - 85.2 Grey chert - crackled / brecciated

85.2 - 87.1 Argillaceous Breccia - fragments of grey chert to 5cm and Black graph sil-cherty argillite.

87.1 - 92.7 **BASALT**

Lt green to grey grn volcanic somewhat porphyritic w/ chl. matic blotches to 2.5cm, becoming brown colored at 89.5 - 92.7 w/ strong bio altern. Short section of black silic arg 87.9 - 88.5 w/ py seams. Volcanic w/ upto 5% po w/ trace xpy

92.7 - 93.9 **CHERT**

Grey to brn crackled chert. Brn coloration due to bio altern. and med-wk carb infilling.

93.9 - 94.9 **BASALT**

Brn biotite altern volc.

94.9 - 98.3 **RIBBON CHERT / SILICEOUS ARGILLITE**

94.9 - 95.6 Black graphitic shear siliceous argillite w/ 10cm volc.

95.6 - 97.1 Ribbon banded chert w/ 4mm irreg org bnds at 50° cut by odd 2mm qtz vns.

97.1 - 98.3 Laminated silic arg (lamin. at 30°; discont. blebs and bnd of py ~ ½%

98.3 - 98.8 **AMYGDALOIDAL BASALT BRECCIA**

Fragmented chloritic amyd. basalt, frag ~ 5cm w/ bio altered amyg.

98.8 - 99.8 **RIBBON CHERT**

Grey chert w/ 1-3mm argillite bnds at 30° to C.A.

99.8 - 104.4 **AMGY. BASALT**

Lt green (chloritized) - brn coloration (biot) amyg. basalt w/ Crackled text. upper cont. strong amyg.

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SCALE:
LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

Section: 120 – 150

Depth	quartz	carb	bio	chl	Fracturing	Mineral
120			W	M	M	po py
~124			W		M	
~125				M		
~127			W		M E S	py po
~129				M	M	py
130		W				
~131					W E M	
~134			M	M		
~136					W E M	
~138				M		
~140			W			
~141					W E M	
~144			W	M		
~148		M	M	M		
150						

COMMENTS

- 50° 3cm qtz-carb chl po at 60°
- black bio specks < 1mm. minor fr w/ py
- finely dissem po
- fr. irreg pattern bio. & wk carb
- Possible pillow react rim (bio.
- frs @ 60° - mod
- fr @ 50°
- fr fill brn bio. & wk carb
- fr @ 75°
- black bio specks
- odd fin po. py
- frs @ 60° mod
- odd fr w/ py
- .5cm carb vn at 70°
- brn bio in matrix around frag
- vol frag w/ bio amyg.
- brn bio dissem in matrix
- graphitic shear
- dissem brn bio in matrix
- lst frag fine grned sed clasts < 1cm
- 1.5cm carb vn
- fine grn sed w/ fine clasts
- 10cm lst clast
- Chl Dyke.
- 2-3mm calc vnlts.
- fine grn sect. dyke or sed.
- fr at 60°
- brn bio. patches.
- irreg carb crackle infilling.
- lst clast
- fr @ 40°
- brn bio alter. roundish frag.
- hairline crackle filling w/ carb
- 2cm qtz-carb chl at 60°

DESCRIPTIVE GEOLOGY

AMYGDALOIDAL BASALT CONT'D

with up to ½% dissem po.

104.4 – 116.7 BRECCIA / SILICEOUS BLACK ARGILLITE

Faulted, brecciated breccia (chert) and argillaceous units. Short section siliceous argillite not breccia. It appears that origin breccia units are rebrecciated, faulted.

104.4 – 105.7 Strongly faulted gougey section soft argillaceous graphitic rock.
105.7 – 108.8 Chert breccia & argillaceous breccia.
108.8 – 109.5 Siliceous - cherty black argillite competent
109.5 – 112.1 Chert breccia w/ fragments up to 12cm. w/ argillaceous matrix some frag rounded.
112.1 – 116.7 Argillaceous Breccia - sheared & faulted strongly graphitic. Shearing @ 25-30° Gouge Section 112.8 – 115.9 - Fault

116.7 – 130.4 PORPH. BASALT

Dark black massive competent moderately fractured basalt, porphyritic w/ hornblende crystals up to 15% in volume, up to 0.5cm in size, many sub hexagonal x-sections are evident. odd section w/ brn coloration due to bio alt'n. Lower contact @ 45°, upper contact at 40, both sharp. Also 5-10° black < 1mm biotite specks throughout. (brown when scratched). Hornblend x/ts are lt grey in color. Brn bio is conspicuous in patch & fr filling. 3cm qtz carb - chl - po vein at 121.6m at 60°. Minor dissem po & fr w/ py

130.4 – 155.4 CONGLOMERATE

Medium green colored chloritized conglomerate, Rounded & subround lt grn volcanic fragments & odd limestone clast. Volc. fragments are sometimes amygdaloidal but usually not. and up to 5cm. Limestone clasts are up to 10cm

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
121.0	93	HQ
122.5	97	
124.1	98.3	
125.6	97	
126.5	81	
128.0	83	
129.2	94	
130.8	88	
132.3	95	
133.8	92	
135.3	100	
137.0	100	
138.7	100	
140.2	95	
141.7	100	
143.3	93	
144.8	100	
146.3	100	
147.9	97	
149.4	95	

% SULPHIDES | SAMPLE INTERVAL | As ppm | Sb ppm | Ag oz/ton | Au oz/ton

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

SECTION	ALTERAT'N quartz	carb	bio	chl	FRACTURING	MINERAL	COMMENTS
150			W	M to S	W to M		1st frag; fr wk-mod @ 60°; fr at 50°; mod bio altern of matrix; Fine clast ~ 1cm
			M		S		faulted contact
			W		M	Py	Grey chert crackled w/ hairline graph. bding @ 40° to C.A. fr w/ py
			W		M		Fine grained bded bx., frag ≤ 1mm (Graded bding rwup.) trace py on fr.
160			W		M		Med-coarse grn bx. bding at 40° to C.A. bding @ 30° " " " " 40° " " Fine grained br, fr ll to bd direc.
			W		M		Coarse grained bx b rwup (Graded) bding at 30° to C.A. Fine grined bx.
					S		
					S		Fault 20cm graphitic gouge
170					S		Fault 10cm graph. gouge.
					S		shear w/ 10cm gouge at 30° chert.
					M	Po	chert bd 3cm.
						Po	≤1mm po laminae. bding at 30° chert bnd @ 40°
							Diabase dyke. wk carb vns, fr @ 75°
180					M		Basalt fr ll to C.A.

DESCRIPTIVE GEOLOGY

CONGLOMERATE CONTINUED

The unit is very compentent & moderately fractured. Brn biot altern is generally weak throught within matrix although some frag are competely biotitized espec section 147.8 - 149.4. There is also wk infilling of grey carb. which is prob. remobilized from 1st frag.

Section is cut by a med-grained chloritized dyke from 138.7 - 140.8. The lower contact is vague as dyke appears to become fine gr. This fined grn section could also be a fine grn chl. sediment w/in the long as per 138 - 138.7 where it is fine grn w/ minor frag. Dyke is cut by white carb vns.

155.4 - 166.7 ARGILLACEOUS BRECCIA / CHERT

Fine grained (≤1mm clasts - grey chert - silic argillite) and coarse grained (ave. 1cm odd one to 6cm of similiar composition w/ odd 1st clast). The clasts are supported by a black argillaceous matrix. The unit is bedded with clasts aligned at 30 - 40° to C.A. Graded bding inidicates that beds are r.w. up. The unit is speckled w/ brn biot throughout. Short section of grey - grey black chert - finely crackled w/ hairline graphite 155.4 - 156.4.

166.7 - 173.1 BLACK SILICEOUS ARGILLITE / MINOR BRECCIA / CHERT

Black siliceous graphitic argillite strongly faulted w/ graphitic gouge up to 20cm. Minor sections of c-g breccia & fract'd grey chert. Fault sections are 166.7 - 167.5 (10cm graph. gouge) - shearing at 25° to C.A., 168.7 - 168.9 (10cm graph. gouge at 25°), 170.5 - 170.6 shear at 30°, 10cm gouge, 171.4 shear at 25°. 172.2 - 173.1 Chert - grey black fr'd.

173.1 - 174.3 BASALT

Black w/ brn tinge f-g - aphan. basalt mod. fr. at 25° w/ wk. graph. - brn tinge - bio, fine dissem po < ½%.

174.3 - 175.8 BLACK SILICEOUS ARGILLITE

Black siliceous argillite w/ some cherty laminae and po ≤1mm, and some frag. Bding at 30° fr ll to bd.

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
150.9	100	HQ
152.4	100	
153.9	92	
155.4	67	
156.4	92	
157.6	73	
158.0	72	
158.7	71	
160.0	67	
161.4	80	
162.5	100	
164.0	88	
164.7	87	
166.3	97	
167.5	83	
168.9	70	
170.1	75	
171.6	82	
172.8	81	
174.3	97	
175.6	85	
176.2	100	
176.8	100	
178.3	100	
179.8	82	

% SULPHIDES | SAMPLE INTERVAL | As ppm | Sb ppm | Ag oz/ton | Au oz/ton

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	Calcite	Clay	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
180							fr @ 30° carb infilling m-str		181.4	98	HQ			
				M					182.0	83				
							py blebs on fr @ 45°		182.6	83				
				S			½ % dissem po. bridging @ 50° ½ cm qtz-py @ 45°		184.1	97				
				S			broken rx 185.4-185.7 and 186.5 to 187.4		184.6	71				
				S			fr @ 45° wk lam f-g dyke or Chert Breccia.		185.9	94				
190							graph gouge 190.2 - 190.7		187.1	83				
				S			dissem po ≤ ½ %		188.4	69				
							gouge (grey) 192.6 - 192.8		189.0	88				
				S			broken qtz vn.		190.2	63				
							graphitic fr @ 30°		190.8	63				
				S			gouge 196.8 - 196.9		192.0	85				
									192.8	93				
				S			fr @ 40°		194.0	17				
									194.5	89				
200				M			dissem po ≤ 1%. carbon. @ 50° 2-5 cm		195.1	71				
				S					196.6	36				
							Shearing at 15° Strong gouge zones. basalt w/ 2-5 % dissem po		197.7	65				
				S					198.3	100				
									199.6	67				
				S					200.1	89				
									200.6	100				
									201.8	100				
									203.0	66				
									203.6	83				
									204.8	48				
									205.3	89				
									205.9	67				
									206.7	100				
				M			hairline qtz veins .1% dissem po.		208.0	92				
210				H			med fr @ 40° & CN. brecciated chert		209.7	89				
									210.3	100				

175.8-176.6 **CHERT**
Grey chert weakly ribboned at 2-4mm bnds @ 40°

176-178.0 **DIABASE DYKE**
Grey black f-g mafic rich rock. w/ blotches of grey carbonate, minor cross cutting carb veins mod. fr. @ 75°

178.0-182.5 **BASALT**
Black massive, competent aphanitic basalt. Moderately fr. Section 182-182.5 w/ dissem. po to 1%. Carb filling moderate -S 180.5-181.4.

182.5-184.7 **CHERT BRECCIA**
Grey black chert w/ angular chert frag 1-4cm. w/ graph. on fr (mod. 184.4-184.7 w/ py blebs on fr. @ 45.

184.7-186.5 **BASALT**
Black aphanitic massive volcanic w/ ½ % dissem po at 184.7-185.1 Str fr. although competent hard rock. -185.9-186.5. Some bndng at 184.9 @ 50°

186.5-200.1 **BLACK CHERTY ARGILLITE/CHERT/BRECCIA**
Black cherty graphitic massive to finely lam. w/ po lam/dissem. at 50°, @ 1%, wk lam. at 45° at 188 Strongly broken 186.5-187.9 fr 187.9-189.4 at 45°, 194.3 fr @ 40°, 195.8 @ 30°; fault throughout. Shear unit is strongly broken, faulted throughout. Short 5cm section of dyke material? some granitic frs. f-g chl eg 188.4, 188.9., Chert breccia - 189-190.

Fault Zone 186.5 - 200.1 Gouge zones. 190.2 - 190.7, 192.6-192.8, 196.8-196.9 Broken qtz vn 195.5-195.6)

200.1-201.8 **BASALT**
Grey black aphanitic volcanic somewhat cracked. - massive, dissem po ≤ 1% 200.5-201.8 odd carb vn throughout 200.4 @ 50°

1% po

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	Carb	bio	FRACTURING	MINERAL	GEOLOGY	SULPHIDES %	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag oz/ton	Au oz/ton
210			W			brn bio altern				HQ					
						argillaceous bx		211.8	93						
			M			frag aligned @ 35-45° bio altern mod.		213.4	97						
								214.9	82						
			S		Pot	10% dissem po str bio altern/ev.		216.0	100						
					Po	banding/po lamin. @ 50° 20cm gouge.		217.0	100						
								217.5	100						
220								216.2	40						
						str broken rock fr med-str @ 40°		219.2	72						
								220.1	83						
								220.8	67						
			M		Po	brn bio .25% dissem po. graph fr @ 25°		222.2	89						
						grey sequence, sheared w/ frag of chert?		223.7	100						
								224.6	78						
								225.2	100						
				M		cont @ ~70° 5cm qtz-carb @ 40°		226.8	100						
						wk alignment of hb laths @ 20° 3.5cm qtz @ 40°		228.3	92						
230				M				229.8	90						
						med fr @ 40-50°		231.3	100						
						serp. bx. cont @ 40° sharp. sheared @ 45.		232.9	100						
				S				234.5	87						
				S		Fault - muddy gouge 10cm contact ~45°		236.1	100						
				S		sheared/soft. at 45°.		237.7	100						
				S		strong porphyritic w/		238.4	92						
								239.3	100						
240								239.9	100						

201.8-207.1 BLACK SILICEOUS ARGILLITE / MINOR BASALT

Strongly fault black gouge section of siliceous argillite with a short section of basalt (205.1-206.4 w/ .25% dissem po. The basalt is somewhat more competent. Fault Zone - 201.8-206.7 Gouge zones 202.4-202.8, sheared @ 15° at 203.3-204.9, 206.4-206.7

207.1 - 211.4 GREY CHERT

Grey black chert, graphite on fr.s, <1% dissem po throughout. Some breccia 209.6-210.3 Short section of argillaceous bx 210.3-210.6. Brn bio altern 210.6-210.8 Section of hairline qtz veining 207.2-207.9

211.4 - 215.0 ARGILLACEOUS BRECCIA / CHERTY ARG / CHERT

Breccia with black argillaceous matrix w/ chert frag. ~ 1-2cm. odd clast to 5cm. Clasts are aligned and stretched at 35-45° C.A. The rock is str. fr. // to bedding planes mod-str. brn bio altern 212.3-212.7 Short section of lam. chert arg-chert w/ banding @ 25°

215.0 - 216.5 VOLCANIC ?

Grey brn str bio. altered f-g aphan rock. w/ 10% dissem py. Frags or carb altern weakly fr @ 30°.

216.5 - 222.2 BLACK CHERTY ARGILLITE

Black massive wkly lamin. cherty argillite w/ <1 mm po bands // to lamin. fr also // lam. Po doesn't appear to be syngenetic - lam at 50° at 219.5 Fault zone 219-222.2, 219.0-219.2 gouge, 220.0-220.8, mod-str fr 220.8-222.8 at 40° mod-str graph.

222.2 - 225.1 GREY BLACK CHERT

Massive grey black chert w/ .25% dissem po. Stringer bio altern 223.3-223.7 Fault - 224.2-224.6 @ 20°

225.1 - 227.0 SERPENTINE BRECCIA

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AVE. CORE REC'Y/HOLE

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DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N quartz	ALTERAT'N carb	ALTERAT'N bio	FRACTURING	MINERAL	GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
240						strongly porphyritic bastite porphyblasts		241.4	95	HQ			
								242.9	100				
								244.5	93				
								246.0	100				
						Shearing @ 30°		247.5	97				
					S	strong talc alteration		247.8	75				
								249.3	97				
250					S	Shearing dominant		250.9	100				
						Shearing @ 40°		252.4	100				
								253.9	68				
						finer porphyritic section w/ 3-5mm bastite porphbl. component.		255.6	80				
								257.1	92				
								258.8	92				
260								260.3	100				
						Fault							
				S		40cm gouge at 55°		262.0	92				
						lt talcose							
						Sheared talcose rx @ 40°.		263.5	100				
						dk grn serp.		265.0	88				
						Shear 15cm gouge rx.		266.6	98				
						coarser bast. porphybl. to 1cm.		268.1	98				
						interlacing tr of antig-talc many at 50°.		269.6	97				
270													

SERPENTINE BRECCIA CONT'D.

Grey breccia; sheared serpentine, fragments appear to chert - Sheared @ 40° Stronger cont w/ dyke.

227.0 - 232.7 HORNBLENDE PORPHYRY

Grey brn colored intrusive dyke w/ 20% black-brn hornblende phenocryst, lath like <1mm x 5mm. w/ wk alignment @ 20° to C.A. Mod hard greyish groundmass Mod fr. cut by 2 qtz vns.

232.7 - 300.9 SERPENTINE.

Grey green, mottled white - grey green; lt buff colored serpentine, strong porphyritic sections w/ lt grey bastite cystals, 5 - 1cm. Upper & lower contacts are strongly faulted w/ "squeezing type" gouge. Numerous strongly sheared & faulted sections are altered to white -grey -buff talc. Irregular criss-crossing system of fractures are filled w/ lt green antigorite and whitish talc throughout.

232.7 - 233.6 Sheared serpentine breccia, frags < 1cm & 3cm. sheared at 45° to C.A.

233.6 - 235.3 Muddy gouge - lt grey green, lower contact @ 45° - Strong Fault

235.3 - 238.8 Strong sheared at 45° - soft.

238.8 - 241.4 Strongly porphyritic with 1/2 cm bastite porphyblasts in dark green serpentinized (antigorite) groundmass.

241.4 - 252.4 Strongly sheared gougey - lt grn. porphyritic becoming strongly talcose

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BEMA INDUSTRIES LTD.

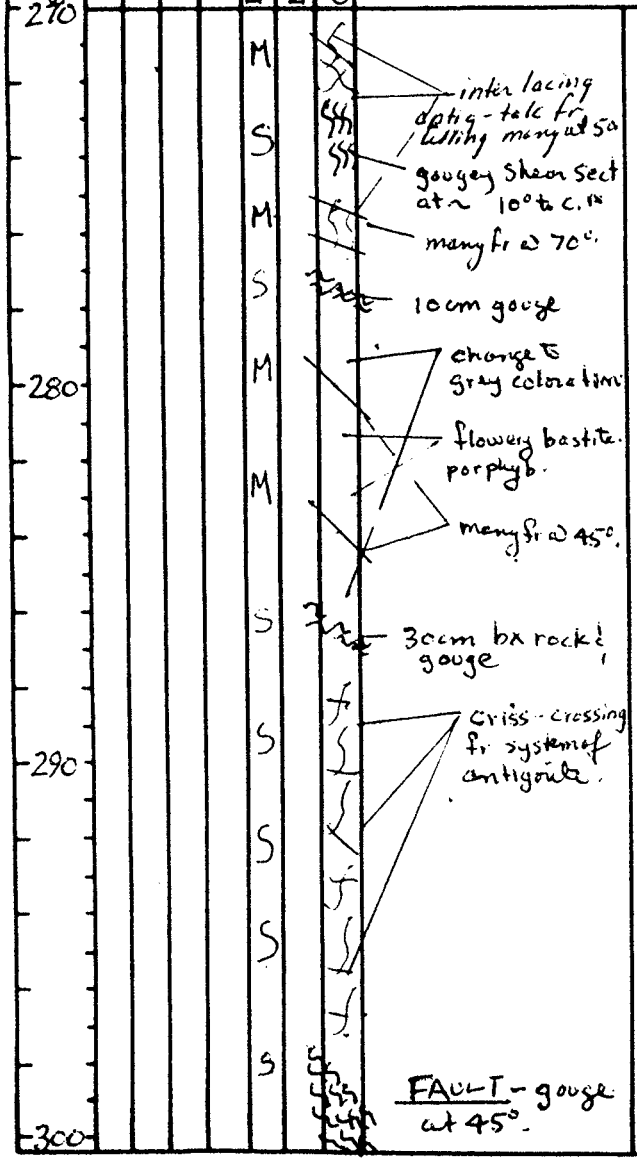
COMMENTS

DESCRIPTIVE GEOLOGY

AVE. CORE REC'Y/HOLE

ALTERAT'N: quartz | carb | bio

FRACTURING | MINERAL | GEOLOGY | SECTION



SERPENTINE CONT'D

Section 247.8 – 249.0

252.4 – 261.2 Finer porphyritic serpentine w/ 20% 3-5mm whitish bastite porphyblasts set in dark green serpentinized matrix.

261.2 – 263.9 Sheared & gougey - soft talcose altered serp. Upper contact of gouge at 55° (261.2 – 261.6) Sheared talcose rock w/ shearing at 40° – 261.6 – 263. Fault Zone 261.2 – 263.9

263.9 – 266.6 Coarser section of bastite porphbl to 1cm in grey grn soft aphanitic grdm.

266.6 – 273 Grey grn mod. fract. wkly porphyritic section, mod. fr. w/ ltgrn to white - antigonite - talc - interlacing system of fr @ ~ 55° to C.A.

273 – 274 Gougey Section - Fault ~ 10° to C.A.

274 – 277.7 as per 266.6 – 273 fr @ ~ 70°

277.7 – 286.7 Distinct change to ltgrey colorat. from dark grn color - possibly more talc rich w/ flowery blotches of bastite. Many fr at 45°.

286.4 – 286.7 30cm bx rock & gouge.

286.7 – 297.2 More massive rock w/ criss-crossing antigonite fr. filling.

297.2 – 298.5 Strong shearing at.

298.5 – 300.9 FAULT. - Soft gougey rock. w/ strong talc - mud gouge 299 – 299.5, upper contact at 45°

SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
	271.0	87	HQ			
	272.6	95				
	274.3	91				
	275.8	100				
	277.4	52				
	278.9	92				
	280.4	87				
	281.9	93				
	283.5	100				
	285.0	95				
	286.5	88				
	288.0	100				
	289.6	85				
	291.1	100				
	292.6	97				
	294.1	100				
	295.1	85				
	297.2	100				
	298.7	92				
	300.2	100				

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	Carb	Bio/ep	Chl	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag	Au
300					S			Power cut @ 45°	SERPENTINE CONT'D				HQ					
					M			interlacing of hairline white carb, many at 10-20°	300.9 - 314.9 VOLCANIC (BASALT - DIABASIC) Grey brn (w/ reddish tinge) to dk grey grn aphanic volcanic w/ v fine amygdules ≤1mm in size. The rock is strongly fr'd. w/ hair line fr. fills of white carbonate, but still fairly competent & hard. A 4cm marble bd is conspicuous at 308.6. which would indicate Fergusson volc.		301.8	80						
					S			Shear @ 40°			303.3	95						
								Shear @ 20°			304.8	100						
					S			white carb @ 20-25°			306.3	93						
								Fault Zone.			307.9	95						
					S			Shearing @ 55°										
								4cm marble bnd			309.4	100						
310								gouge - 40cm.	306 - 309.6 Fault Zone - 308 - 308.4 Strong gouge & broken rock strongly chloritic Shearing @ 55°		310.9	77						
					M			hair white carb. fr fillings			312.4	90						
					S			more chloritic section.	313.9 - 314.9 Somewhat gradational change to dark green chloritic volc.		313.9	92						
					M				314.9 - 329.8 ANDESITE		315.5	100						
					S			fr str. @ 65°	Dark grn chloritized aphanitic volcanic rock weakly and finely amygdaloidal w/ ≤1mm to 2mm quartz & epidote filled vesicles. Epidote altern begins ~ 319m & progressively increases downhole as well as fring. Some minor frag to 4½ cm ~ 322.4		317.0	77						
					S			Shear @ 60° 3½ cm gouge.			318.5	80						
					S			fr @ 50°			320.0	80						
320					S			≤1mm amyg. fr @ 65°.			321.6	85						
					S			Shear @ 25°.			323.1	80						
					S			4½ cm epid frag.			324.6	93						
					S			30cm gouge. Shearing at 50°	Faultz - 321 - 329.8. This zone continues throughout to		326.1	85						
					S			5cm vning qtz-ep @ 20° ep. amyg. spn. py po	325.2 - 325.3 Zone of vning - 5cm @ 20° of qtz-ep spn, py & po. sheared @ 50° to C.A.		327.7	92						
			ep		S			dissem py ½% perv. ep. altern	329.2 - 329.5 Strongly silicified zone on Rhyolite Dyke?		329.2	73		329.2				
	S							contact @ 45° sharp						329.5	2	.02	.1	<5
330					S			Rhy. Dike or Silic Zone						329.8				

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BEMA INDUSTRIES LTD.

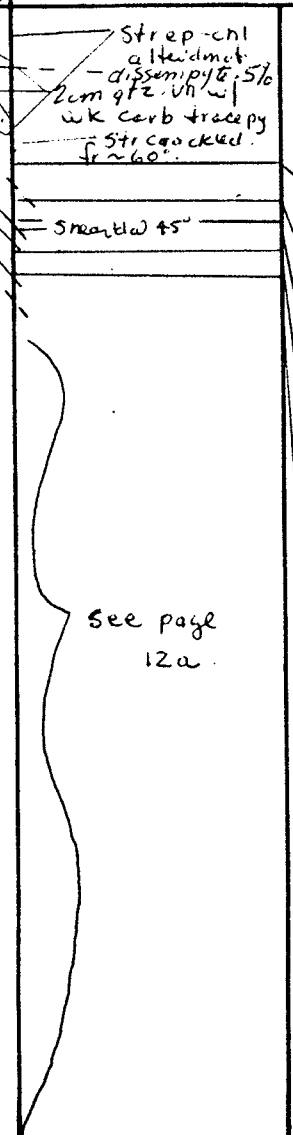
AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

ALTERAT'N: Quartz | Carb | ep | chl | FRACTURING | MINERAL | GEOLOGY

SECTION: 330 | 340 | 350 | 360



3298 - 3342 QUARTZ PORPHYRY

Lt yellowy grn colored rock w/ 60% by vol. of .5cm crackle-crushed qtz phenos in a ep-chl altered matrix. Rock is crackled; str'ly fr., some fr @ ~60°. The unit also contains upto 0.5% dissem. py. 2cm qtz-carb vn w/ minor py at 35° to C.A. at 332.5m. Lower cont. not clear. Fault zone cont'd - 329.6 - 334.2.

3342 - 335.2 VOLCANIC? / DYKE?

Volcanic or chilled margin of above dyke? Very str broken rx f-g chl altered w/ upto 30% qtz grains & fs. in ep chl altered matrix.

3352 - 335.8 ALTERED ROCK - VOLCANIC?

Fine grn'd rock str broken; sheared; gougey at 45° Lt grey grn coloration w/ carb fr fills and blebbes of ep altern. Fault Zone cont'd.

3358 - 336.5 QUARTZ PORPHYRY?

Upper contact sheared at 45° w/ 5cm bnd of siliceous rock w/ qtz phenos aligned at 35°. Also somewhat wormy qtz texture at 335.9 w/ ep altern in matrix. Rock is quite silic. w/ a matrix of chl-ep w/ hair line fr fills of carb. & minor py. Fault Zone Continued Rx str fr.

336.5 - 337.2 VOLCANIC?

Strongly fr. v-f-g chl. rock. w/ 5% f-g qtz in matrix in str chl. f-g matrix. Poss. bx. Rare 1mm ep. filled amyd.

337.2 - 339.0 RHYOLITE

Lt grey siliceous aphanitic rock w/ dissem. py & ½% some po. Str. fr. crackled w/ mod ep altern. Some py smeared on fr, hairline frs w/ carb.

SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
py ~ 1%	330.1	90	HQ
	332.1	93	
	333.6	82	
	335.0	78	
	336.5	90	
	337.1	100	
	339.2	88	
	340.8	100	
	342.3	85	
	343.8	100	
	345.3	98	
	346.9	100	
	347.2	75	
	348.1	92	
	350.2	90	
	351.1	83	
	352.7	87	
	354.2	85	
	355.9	83	
	357.9	100	
	359.1	100	

SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppb
327.6				
331.3	2	10	.2	<5
332.8	2	4.6	.2	<5
334.2	1	.8	.2	<5
335.8	2	.2	.2	<5
336.5	2	.2	.2	<5
337.2	2	.2	.2	<5
339.0	1	.3	.2	<5

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (quartz, carb, ep, chl.) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppb

Section: 330 – 360

Alteration / fracturing notes (approx. 339–341): ep W, chl S, fracturing S; ep W, chl S, fracturing S; carb S (several intervals to 360); ep W, chl W, fracturing S, mineral py; carb M, M, S, S.

Comments

See page 12
Chl matrix ½ cm ep amyg.
Very soft brken rock. Sheen || to C.A.
fine speckled ep.
perv carb & hair-line fr. fills
py - .25%
sheared 10° w/ 2cm Carb
1cm qtz-chl vn @ 70°
Shear @ 20° w/ carb-py.
Sheared 60°
10cm Siliceous Rock - Rhyolite
Shear contact @ 50°.
Shear - w/ intense carb infill
1.5cm qtz vn @ 40°
3cm gauge at 60°.
very soft. approaching gauge w/ carb infilling str
remenant .5cm qtz

Descriptive Geology

339. - 340.4 ANDESITE
Fine grnd chl rock w/ ep filled amyg. to ½ cm

340.4 - 345.1 ALTERED ROCK VOLCANIC? / DYKE?
Fine grained strgly fractured rock. soft - gougey in places. w/ intense pervasive carb. altern & fr fills. Possible some remenant f-g granitic textures. Finely speckled w/ ep altern.

345.1 - 346.4 RHYOLITE
Lt whitish strongly siliceous rock w/ vague qtz phenos. The unit is strongly crackled w/ py (.25%) smears & dissem. Carb infilling is mod - str on hairline fr. Chl is weak along fr's. & ep wk. near lower contact. Lower contact sharp @ 45°.

346.4 - 351.1 ALTERED VOLCANIC?
346.4 - 349.1 Altered volcanic or f-g dyke - str chl - ep altern str sheared. w/ carb & qtz vns Rock is f-g and more likely a volcanic
349.1 - 350.0 RHYOLITE DYKE -
350.0 - 351.1 Intense carbonate altn f-g rock - perva. & w/ intense hairline fr. fills & vnlts. Sheared at ~30°. Fault gouge 350.2 - 351.0

351.1 - 358.2 ANDESITE
351.1 - 353 Strongly broken f-g str chl 1x dark green in coloration w/ odd qtz vn.
353 - 354.4 Somewhat more compentent than above. str fr - Shearing at 60 w/ 3cm gauge. minor carb. infilling.
354.4 - 358.2 Very soft - lter grn than above approaching gouge. Str. Carb fr fill. Fault zone 357.1 - 358.2 Contd.

358.2 - 363.9 ALTERED DYKE *
358.2 - 360.3 Weak textures, perserved - remenant fr quart xtls ~½ cm. Str carbonitized

Sulphides: .25% py (345–347); .5% (359)

Core size: HQ

Drilling Interval	% Core Recovered
330.7	90
332.1	93
333.6	82
335.0	78
336.5	90
337.7	100
339.2	88
340.8	100
342.3	85
343.8	100
345.3	98
346.9	100
347.2	75
348.7	92
350.2	90
351.1	83
352.7	87
354.2	85
355.9	83
357.4	100
359.1	100

Sample Interval	As ppm	Sb ppm	Ag ppm	Au ppb
331.3	2	1	.2	<5
332.6	2	.6	.2	<5
334.2	1	.8	.2	<5
335.6	2	.2	.2	<5
336.5	2	.2	.2	<5
337.2	2	.2	.2	<5
339.0	1	.3	.2	<5
340.9				
341.9	1	.2	.1	<5
343.4	1	.2	.2	<5
345.4	1	.2	.3	<5
346.4	1	.2	.2	<5
347.9	2	.6	.3	<5
349.4	1	.1	.4	<5
351.1	1	.2	.4	<5
352.6	1	.2	.4	<5
354.1	1	.2	.3	<5
355.6	1	1.9	.2	<5
357.1	1	.3	.6	<5
358.2	1	.2	.3	<5
	6	0.7	.1	25

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

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DESCRIPTIVE GEOLOGY

Columns: SECTION | ALTERAT'N (quartz, carb, ep, chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppm

Section: 360 – 390

Comments:
- fr w/ smeared py; ankeritic bnd @ 70°
- Shear @ 30°
- dark grey section w/ grph.
- Sheared at 40°
- 4mm calc vnlts. .25% dissem py.
- limonite - chl frw 40°
- str lim. frw 25°
- shear at 35° - 3cm lim. gouge
- 60° contact
- .25% py ep-chl matrix
- Fault 370.8 - 371.5
- 10° cont. sheared-faulted 10cm gouge - chl.
- perv str ep.
- mod - str fr w/ lim.
- str perv ep.
- 5cm gouge
- f-g grey black volc.
- see page 13a

Alteration/fracturing/mineral notes: S, S, S, M, S, M, S, S, M, S, M, M, S, S; fracturing S, S, M to S, S M, M to S; mineral Py, Py.

ALTERED DYKE* CONT'D

w/ calcite & ankerite, patches & seams of py some smeared on fr planes eg 359.4 @ 70° alteration appears to increase to 360.3

360.3 - 363.9 lt buff - yellow ankeritically alter'd rock containing crackled & sheared quartz & fsp grains surrounded by ankerite. Fractures w/ smeared sulphide (py) some fr at 70°. Rock is banded (ank.) at 70°. 363.0 - 363.6 Dark grey section - sheared at 30° w/ graph. 363.6 - 363.9 Lt buff grey section appears to be clay alt'rd.

3639 - 3645 BLACK GRAPHITIC LIMEY ARGILLITE

Black gougey strongly graphitic & calcareous arg. faulted - sheared at 40°. HURLEY FM.?

364.5 - 370.2 QUARTZ DIORITE

Textures for most part are obscured by str. chloritization (& epidotization). Short sections of weak alteration show - 15% quartz xtls to .5cm, 35% plag & 50% mafics → chl. - med-grained rock, str fr w/ limonite, dissem py ~.25%, med - str 4mm calc vnlts.

370.2 - 370.8. QUARTZ PORPHYRY

Medium grained dyke with ~40° anhedral qtz. pheno ~.5mm within a matrix of ep-chl alter'd fsp, w/ .25% dissem. py. Upper cont at 60°, lower at 10° (sheared).

370.8 - 376.4 QUARTZ DIORITE

Medium grained intrusive rock w/ 10 - 15% qtz, 50° plag (→ wk clay - ep alter'n) interlocking relationship, and 40% wk chl. mafics (hb). Sections of very strong ep 371.8 - 372.2; 373.4 - 373.7.

376.4 - 379.8 ANDESITE (XENOLITH?)

Grey black f-g volc., str perv ep 376.4 - 378.9

Sulphides: .5% ; .25% py .25% PY ; .25% py

Drilling Interval	% Core Recovered	Core Size
360.7	100	HQ
362.4	100	
363.9	100	
365.6	90	
367.0	100	
368.8	79	
370.3	100	
371.9	100	
373.4	87	
374.9	87	
376.4	85	
378.0	97	
379.2	63	
381.3	87	
382.2	86	
383.7	82	
385.6	82	
387.7	100	
388.3	100	
391.4	100	

Sample Interval	As ppm	Sb ppm	Ag ppm	Au ppm
360.3 - 361.8	10	.5	.5	<5
361.8 - 363.2	4	.8	.1	<5
363.2 - 363.6	15	1.0	.1	15
363.6 - 363.9	36	.9	.1	10

See page 13a.

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AVE. CORE REC'Y/HOLE

SECTION | ALTERAT'N (qtz, carb, ep, chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppm

Section: 360 – 390

Comments (360–380): See page 13.

DESCRIPTIVE GEOLOGY

379.8 - 380.6 **QUARTZ DIORITE**
as before.

380.6 - 384.2 **DIORITIZED ANDESITE (XENOLITH?)**
Fine grain. grey black volcanic w/ vague diorite textures, with patches of perv. ep. eg at 382.2; dissem py to .5% eg 383.8 - 384. Small quartz Diorite dyke 383.8 - 384

384.2 - 385.2 **DIORITE**
Medium grained intrusive rock speckled black to grey. w/ 50% mafics, 45% plag; < 5% qtz interstitial. Plag is greyish in color mafics black to wkly chl. wk clay altern of plag. Start of carb vns at 384.2; wk perv. carb. altern.

385.2 - 385.5 **ALBITE DYKE**
Lt buff-green v-f-g chloritized/perv. carbonitized dyke. Strong hairline fr. w/ white calc. infilling. Upper contact sheared at 50° Lower cont. at 65°; w/ 1.5cm carb vn. Unit contains .1-.2% dissem py.

385.5 - 390.8 **DIORITE**
Overall description as before.
385.5 - 386.2 Texture of dior. becomes obscured Strong perv. carb altern starts.
*386.2 - 386.4 Definite altern zone of mod. ankerite altern - buff brown color. - Sheared ll to vn contact at 50°. w/ dissem.
*386.4 - 387.1 VEIN - Quartz - minor carb, upper contact @50° lower ct 50°. wk banded w/ chl-ser sepia I py - not crushed or smeared.
387.1 - 388.7 Lt grn ser alter'd dio w/ perv carb to 387.7 str perv. carb to 388.3.
388.7 - 390.8 wk. perv. carb altern w/ to .5% dissem py mod fr at 70° mod carb. vning at 30°

Alteration / Mineral / Geology annotations (380–390)

Alteration: M, S, W, S, ANK, H; S; W; A
Mineral: PY, PY, ANK, PY, SER, PY

- perv ep.
- dissem py to .5%
- Quartz Diorite.
- 2cm qtz vn w/ py
- Sheared ... gouge
- 50°
- ank. altern 2cm.
- 2½ cm. carb vn w/ 1%
- * py on upper cont.
- Quartz-Carb VN
- ser wk chl-ser sepia py.
- py to .5%. str perv carb

Sulphides: .5% py

Drilling Interval	% Core Recovered	Core Size
360.7	100	HQ
362.4	100	
363.9	100	
365.6	90	
367.0	100	
368.8	79	
370.3	100	
371.9	100	
373.4	87	
374.9	87	
376.4	85	
378.0	97	NQ
379.2	63	
381.3	87	
382.2	86	
383.7	82	
385.6	82	
387.1	100	
388.3	100	
391.4	100	

Sample Interval	As ppm	Sb ppm	Ag ppm	Au ppm
385.2 – 385.5	17	.5	.1	<5
386.2	32	1.1	.1	25
386.4	23	1.2	.1	<5
387.1	110	[illegible]	.1	25
388.1	9	.4	.1	<5

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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	Carb	Bio	Chl	FRACTURING	MINERAL	GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppm
390	S	S			M	py	Vein, qtz-carb minor py Str perv carb below shearing @ 40°.		391.4	100	NQ	390.2				
		S			S		Fault w/ carb vnlts some lim. mod fr at 50°		393.8	100		391.2	3	3	.1	<5
					M		Shear @ 20°, limonitic		396.9	100		391.35	2	.1	.1	225
					M		hairline carb fr. fill ! vnlts.		397.8	78		392.4	2	.8	.1	<5
400							Felsic dyke		398.6	97						
							mod carb vns at 30°.		400.8	85						
							Str fr at 10°		402.3	87						
		M					Felsic dyke cont. at 40°.		403.9	82						
							And xenoliths		405.7	75						
							qtz-carb vns at 70° 4/30cm.		407.2	100						
							SODA GRANITE DYKE?		409.1	85						
410									411.8	96						
							See page 14a		414.8	97						
									417.0	90						
									418.5	100						
420									420.0	100						

390.8 - 393.2 **QUARTZ DIORITE**

Medium grain intrusive w/ 15-20% quartz xlts. blotches to 3mm. in chl matrix.

390.8 - 391.2 wk perv. altered w/ up to .5 dissem. Py, med fr at 70°, mod vnlets w/ 1-3m carb vnlts at ~ 30°. eg 390.3

391.2 - 391.35. **VEIN** - 15cm. qtz-carb vn - the vn is sheared at 40°. Minor. py xlts on upper cont at 75° lower cont. 50. vn not bnded.

391.35 - 392.4 Str perv carb altern ! wk chl mafics altern to 391.7 391.9 - 392.4 Sheared ! broken shearing at 40° at 392 ; mod - str chl

393.2 - **DIORITE**

393.2 - 393.8 Faulted zone, gouge ! broken w/ str carb stockwork.

393.8 - 396.0 medium grained intrusive w/ 60% whitish wkly clay altered - ep - fsp. w/ somewhat of agglomeroporphyritic text. Mod fr at 50° fsp stand out because of altern wk perv. carb altern ! hairline fr carb.

396. Shear at 20° 1cm gouge, limonitic Diorite becomes darker, plag. grey color not altered. mafics black.

400.15 - 401.3 **FELSIC DYKE** whitish felsic dyke w/ 55 fsp ~ 40 qtz - graphic texture, ! 5% speckled chl mafics, contacts @ ~20°

401.3 - 404.5 med. grn diorite w/ mod. carb vnlts. ~3mm at 30°, hb → mod wkly chl, some Str fr at 100.

404.5 - 404.6 **FELSIC DYKE** whitish colored rock. w/ graphic fsp, qtz. 55% - 40% respect ! <5% chl mafics.

404.6 - 406.5 Diorite w/ and xenoliths - 404.6 - 405.1 ! 406.0 - 406.5.

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GROUND ELEV.:
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BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

Columns: SECTION | ALTERAT'N (quartz, carb (calc), ank, chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppm

Section: 390 – 420

COMMENTS: See page 14

Geology column notes: SODA GRANITE? — And. xenolith — SODA GRANITE?

Alteration (carb): M; Mineral: py

Comment (near 418–420): white carb vnlts. mod -wk. .25% dissem py. 30° 9cm carb vn. py 5%

DESCRIPTIVE GEOLOGY

406.5 – 406.7 SODA GRANITE?
Medium grained intrusive w/ 60% plag 40% qtz ! ~10% chl bio upper cont. @45° lower sheared at 30°

406.7 – 407.25 ANDESITE XENOL/ DIORITE

407.25 – 407.9 SODA GRANITE DYKE?
Similar to above dyke but unalter brn bio near upper contact. Lower contact ?? w/dio. upper contact ~60°.

407.9 –
407.9 – 417.0 DIORITE
Medium grained blackish intrusive w/ patches of speckled white (plag → wk clay altern) Veined by 1) early dol-ankerite (yellowy green)
2) carb – qtz vns (white)
3) late anhydrite vns (grey-white).

417.0 – 418.7 Mod – wk white carb vnlts ; w/ .25% dissem' fr py.

418.7 – 418.79 VEIN carb vein at 30° w/ bands of py ~5%

418.79 – 419.5 Bleached ankeritic altered section w/ minor py.

419.5 – 420.0 Darker f-g dio w/ .5% dissem py no perv. carb altern.

420 – 422.0 Diorite veined w/ dol-ankerite yellowy green vns ~4mm ; 50° cut by qtz carb vns at ~40°

422 – 423.0 Very weak perv. carb (422 – 422.5) Str perv. carb 422.5 – 423 w/ str carb vnlts. ! ser-chl. str fr at 70°.

423 – 423.45 VEIN 45 cm brecciated qtz vn w/ carb cement. Traces py, fr ... / ... ser

Drilling interval	% Core recovered	Core size
391.4	100	NQ
393.8	100	
396.9	100	
397.8	78	
398.6	97	
400.8	85	
402.3	87	
403.9	82	
405.7	75	
407.2	100	
409.7	85	
411.8	96	
414.8	97	
417.0	90	
418.5	100	
420.0	100	

Sample interval	As ppm	Sb ppm	Ag ppm	Au ppm
417.7 – 418.7	5	.2	.1	10
418.7 – 418.79	260	26	.3	45
419.0 – 420.0	48	14	.1	45
	6	.4	.1	30

HOLE NO.: 86-05 | PROJECT: | PAGE NO.: 15 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:

COORDINATES: | N. | E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	ALTERAT'N: carb	ALTERAT'N: bio	ALTERAT'N: chl	FRACTURING	MINERAL	GEOLOGY
420					M		wht qtz carb vns cut early ank-dol yellow green. contact at 60°
	S					py	VEIN - bx - qtz - carb carb cement qtz traces py. fr w/ ser. contact @ 50°
					S		Fault zone
						py	And xenolitho. Str fr @ 50°, py .25% dissem.
		M			S		
		S			M		perv. yell grn dol-ank. altern of fsp by ank.
430							qtz-carb-ank-dol 7mm at 40°
		M			M		ankydrite stock cut dol-ank (yell gre) white carb (calc.) w/ dol-ank rims @ 40°
		M			M		
						py	calc. vns at 50° dissem py 2-3%
							VEIN - calc - minor qtz ank-dol
					M	py	ankydrite vns
440		M			M		25cm grey carb(calc) w/ ank-dol, frm at 10°
							2mm ankyd @ 50°
						py	py on fr wk. hairline ankyd @ 80°
							5mm calc vn cuts dol-ank
				S			Shear @ 25°. Str clh. altern
							6cm qtz-ank-dol. at 50°.
						py	AND. xenolith w/ dissem py 2%
450							5mm calc at 40°

423.45-424.5 ~~Strong perv. carb 423.45-423.65~~ DIORITE CONT'D (ankerite) Fault zone 423.65-427.25; Shearing @ ~10° gouge at 425.4

424.5-429.5 Diorite w/ andesite xenolitho at 424.6, 425.3-425.5, 425.7-425.8, 425.9-426.5 (f-g chl w/ .25 dissem py cut by dol-ank-vnlts), 426.8-427.4 (str fr @ 50°, fr w/ chl-carb w/ .25 dissem py), 426.25-426.85 str yellow grn dol-ank 427.4-430.8 qtz-ank-dol w/ some bx and some perv. dol-ank (yell-grn) at 428.7-429.2

429.5-435.9 Black & grey matic dio w/ ~55% hb, 45% grey plag, sections with whitish plag due to wk clay altern, 431-431.5 and xenolith, unit cut by numerous 1-4 yell-grn dol.-ank.-calc. vns and late stage ankyd. vns. Some sections show perv. altern of ank-dol of fsp ~430-430.9

435.9-436.9 Relative unaltered f-g dio. mod. fr at 65° w/ wk hairline carbonate & ankydrite patches of py to .3%

436.9-437.15 VEIN Calcite vn w/ minor qtz, blotches of lt grn ser & yellow-grn dol-ank. upper cont. @ 30°, sheared in centre at 35°, lower contact brkn

437.15-438.2 Relatively unaltered mod fr at 50° w/ .3% dissem py.

438.2-447.6 Dark matic rich dio cut by nume lt yellow-dol-ank. vns many show calc. cores & dol ank. rims. These vns are cut by white calc. vns eg 443.3. Mod fr to 444.5 at 60° Sheared 444.6-445.1 at 25°. AND xenolith 447.2-447.6

SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
	422.2	82	NQ
	424.3	100	
	425.5	100	
	426.7	100	
	429.5	89	
	430.4	56	
	433.3	100	
	436.5	100	
	434.7	100	
	441.1	100	
	442.4	83	
	444.9	88	
	447.0	93	
	449.6	83	

SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppm
422.0				
423.0	3	.4	.1	<5
423.45	2	.1	.1	5
424.5	2	.1	.1	<5
435.9				
436.9	4	1	.1	<5
	4	3	.1	<5
431.5	6	.2	.1	20
436.2				

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COORDINATES: | N. | E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION	ALTERAT'N: Quartz	Carb	Bio	Chl	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	SULPHIDES	DRILLING INTERVAL	CORE RECOVERED %	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppm
450		W		W	M			somewhat vuggy qtz 3mm @ 30°				NQ					
								15cm calc. vn @ 25°									
		M			M												
				W		py		calc vns w/ ank-dol rims @ 20° some disseminated py									
		M															
					S	py		fsp altered to ank-dol 3% py - perv. carb. sheared at 70°									
460		W			S	py		VEIN - sheared chl dio w/ 3 disseminated py									
					M			wk carb fr stills; wk perv. carb sheared dio & perv carb.									
					S			VEIN Quartz w/ wk disseminated py.									
					M			7cm Soda Granite lt grn yell ank-dol vn.									
					S			VEIN - Quart-Carb sheared w/ py. 25% bnded 75° for 8cm at 75°.									
					S			pink dol vn 5mm at 20-30° cut by anky.									
470						py		VEIN BRECCIA dol-ank-cal vnlts & breccia w/ 2-3 disseminated py.									
						py		perv ank-dol. cut by wht carb vns.									
								pink dol. @ 30									
								3-5mm dol-ank yell-grn.									
								2mm anhydrite.									
								5mm ank-dol at 60°									
480						py		perv. dol-ank yell grn w/ wk disseminated py									

DIORITE CONT'D

447.6 - 454.4 - Relatively unaltered dio - wk chl altern w/ wk carb & qtz (vuggy) vns at 40 & 30° to CA

454.4 - 457.7 Dio. vned mod w/ cal w/ dol-ank. rims some dissem py.

457.7 - 458.71 Dio. f-g chl intrusive, sheared at 70° 458.4 - 458.71, perv. carb altern 457.7 - 458.71 w/ dissem. py to 3%

458.71 - 458.9 VEIN Upper contact zone 9cm of sheared rock of qtz frag. & py blebs at 70°. & 9cm 458.81 - 458.9 of qtz w/ lt grn stringers of ankerite-dol.

458.9 - 459.9 Sheared f-g dio at 70° dissem py to 3%, mod str chl. altern

459.9 - 461.0 Fine grn dio w/ v wk perv. carb. mod - wk carb fr stills, w/ dissem & fr py to 3%

461.0 - 462.0 Strong perv. carb altered dio str sheared 461.55 - 462. at 85° & 3mm carb vnlts 11° to sheering & mod-str chl.

462.0 - 462.42 VEIN Quartz vein upper contact for 6cm ribboned w/ no visible py. Py is v wk & dissem. throughout. Upper contact @ 80°

462.42 - 463.45 7cm siliceous rock SODA GRANITE? w/ 30% qtz some xlts. - Rest of rock is mod fr, chl. w/ v weak carb altern. (Approx 10cm of 1x missing from lower cont. of vn.

463.45 - 465.5 Dio med-coarse grained blk hb to 1/2 cm, 50:50 plag: mafics w/ 2cm lt grn yell vn at 10°. VEIN Bnded Carb - quartz w/ cont. sheared at 75° py. 25° py. Vein bonded lower carb upper qtz rich. Sheared for 8cm, lower cont.

466.2 - 467.6 Dio as before w/ wk 1/2 cm pinkish dol vns at 20-30° cut by anhyd. vns (2-3mm ±)

SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppm
457.7				
458.1	6	.4	.3	<5
458.9	6	.6	.1	<5
459.9	3	.4	.1	
461.0	3	.2	.1	<5
462.0	1	.3	.1	<5
462.42	11	.2	.1	<5
463.9	3	.3	.1	<5
464.5				
465.5	2	.4	.1	<5
465.6	3	.6	.3	<5
465.7	4	.5	.4	<5
466.1	2	.2	.1	<5
467.6				
469.1	1	.8	.4	<5
470.8	1	.5	.3	<5

DRILLING INTERVAL	CORE RECOVERED %
452.6	100
455.1	100
458.1	100
460.6	100
462.4	100
467.6	100
467.9	100
470.8	96
473.4	85
475.2	100
478.2	95
478.5	75

HOLE NO.: 86-05
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: PACIFIC EASTERN
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH: 622.7m

CLAIM:
SCALE:
LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

Columns: SECTION | ALTERAT'N (Quartz, Carb, Chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | SULPHIDES % | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppm

Section: 480 – 490 – 500 – 510

Alteration: Quartz W; Carb M, W to W; M; Quartz W; Carb M to S; M; Quartz W; Carb M to S; Quartz W; Carb W to M; Quartz W; Carb W; Chl M to S; Carb W; W
Fracturing: M, M, M, M, M, M, M, M
Mineral: py, py, py

COMMENTS

- 4mm wht calc vn.
- dio becoming c-g w/ hb - 5-7mm
- ½cm grey carb @ 40°
- wht calc vn 3mm @ 25°
- shear @ 5°
- calc vn w/ ank-dol rim (yellow grn), cuts tan-pink qtz-prehnite, anhydrite cuts qtz-prehnite.
- bnded carb vn 4cm @ 60 wk py on upper cont.
- str anhy. flooding
- tan-pinkish qtz-prehn
- 3mm qtz-carb vn w/ yell-grn ank. rim. 2mm
- 1cm carb vn at 70°
- qtz-prehn cut by anh 5°
- anhy. stockw. cuts qtz-prehn (displaced)
- gry carb, cut by gouge at 40°, 10cm f-g chl.
- qtz-prehn (tan-pink) cut by yellow grn ank. cut by qtz-carb (wht) ★picture.
- VEIN - carb-qtz
- 2cm carb vn sheared cont at 30, lower speckled lt gr ank altern.
- Med-coarse gr dio w/ wht plag. hb > 1cm
- qtz-prehn cut by qtz vnlts.
- perv tan-green preh
- mod-str chl altern
- poss. ep?, shear ll to CA
- minor dissem py
- Med fr dio w/ patches of tan alter'd fsp (prehn) dissem py to 15% at 504.8
- -fr
- qtz-prehn ½cm at 20
- 3mm qtz vn at 40°
- minor dissem py

DESCRIPTIVE GEOLOGY

DIORITE CONT'D

467.6 - 470.8 VEIN - VEIN BRECCIA Ank-Dol-Carb veining w/ brecciation, dissem py throughout. 1st stage dol-ank is cut by white carb.

470.8 - 471.5 dio w/ dissem py .18.

471.5 - 472.0 yellow-grn ank-dol. perv. - Sheared at 30° cut by wht bnded carb vnlts.

472.0 - 479.6 Med-Coarse dio, mod vned w/ pink dol vn at 30°, odd yellow-grn ank-dol vn eg 478.0 5mm at 60°, and minor anhydrite vns 2mm at 40-30° at 476.3.

479.6 - 480.1 perv. yellow grn ank-dol w/ dissem wk. py.

480.1 - 484.0 Mod fr. w/ wk to mod wht calc. vns. eg 482.1 at 35° - 4mm thick, odd lt yell-grn ank-dol. vn at 40° eg 482.9. Dio becomes quite coarse grned at 483 w/ hb to 5-7mm

484-457.75 Variable textured & colored dio. varying from f-g grey black to salt & pepper black & wht w/ whitish alter plag. standing out (clay or prehnite altern. The intrusive is mod-strongly veined by a variety of veins 1. early qtz-prehnite (tan-buff pinkish) 2. yellow-green ank-dol. 4. white carb or qtz carb 5. grey carbonate 6. late stage anhydrite. Intrusive is f-g & c-g.

495.8 - 496.1 VEIN Sheared carb qtz vn. Sheared & bx upper contact at 40°. Somewhat bnded w/ chl or sepia. Sheared upper zone 495.45 - 495.8 w/ str carb stockw. Shearing at 70° - f-g textureless dio.

497.2 - 501.4 Med-coarse grn section w/ wht-pink plag. give coarse salt & pepper texture. unit cut by pinkish qtz-prehn. vns (6/m) at 40-70°, which are cut by 3mm qtz vns at 499.4. The hb xtls are coarse, up to 1cm at 497.5

501.4 - 502.1 Dark f-g mafic dio. cut by qtz-prehn vns.

Drilling Interval	% Core Recovered	Core Size
481.6	100	NQ
484.5	100	
487.1	94	
490.1	98	
493.2	100	
496.2	100	
499.3	100	
501.4	100	
504.5	93	
507.2	100	
510.2	100	

Sample Interval	As ppm	Sb ppm	Ag ppm	Au ppm
494.95				
495.45	1	.2	.1	<5
495.8	1	.2	.1	<5
496.1	2	.2	.1	<5
497.1	1	.4	.1	<5

HOLE NO.: 86-05
COLLAR ELEV.:
COORDINATES:
INCLINATION:

GROUND ELEV.:
N. E.
BEARING:

PROJECT: PACIFIC EASTERN
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH: 622.7

CLAIM:
SCALE:
LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

SECTION 510–540 | ALTERAT'N (quartz, carb, bio, chl) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | SULPHIDES % | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppb

Alteration / fracturing / mineral (approx. depth): 511: quartz M, chl W, fracturing M; 513: quartz M, fracturing M; 517: quartz M, carb H, bio W, chl S; 522: quartz W, fracturing M, mineral b W; 529: carb M; 534: quartz W; 536: quartz W; 538: fracturing M, mineral t S.

COMMENTS

- tan-pale grn tinge
- prehn - 2½cm at 60°
- odd anhyd. vn @ 40°
- 1.5-2cm qtz vn @ 40°
- qtz-prehn vns 5mm at 60°, 55°
- Shear at 45° - 6cm gouge.
- ~~txt~~ obscur, wk perv carb, chl
- VEIN - qtz - Sheared
- Sheared at 60° w/ traces py. qtz-preh.
- 2cm qtz vn at 60°
- 2cm quartz vn at 35° str chl
- Series 3 carb vns at 60° VEINS
- 8cm wht carb dissem. po
- 1cm cal vn at 60°.
- weak to mod qtz-prehnite vns @ 15 to 40°, 1-2mm.
- anhydrite -3mm. at 55°.
- 2cm ankerite (lt brn grey) - Com of qtz carb / carb-ank. vns (30°).
- 3cm buff-lt grey ank. at 60°
- 2-5mm qtz-± preh vns at 20-70°
- qtz-preh 5mm @ 70°.
- dk f-g assimolated and. xenol.
- prehn. 2-3mm at 50°.
- perv. ank. vning.
- Carb stockwk.
- qtz prehn. 2cm
- qtz rich dyke at 30°
- 5cm qtz-preh. - ank.

DESCRIPTIVE GEOLOGY

DIORITE CONT'D

· Dio cut by tan-palegreenish tinge - hard - no (ep) fiss w/ acid - prehnite vns & cut by odd anhydrite fr fill eg 510.8 ~ 40°.

511.2, 511.4 Qtz prehn vns at 60°, 55° ~5mm.

512.3 Qtz vn - 1.5-2m at 40°.

512.3 - 512.8 Sheared dio at 45° - 6cm gouge

515.1 - 515.25 Dio w/ text abscurred w/ wk perv. carb, chl.

515.25 - 515.4 VEIN - quartz vein. - sheared lower contact at 60° w/ wk traces py. 15cm wk carb 7cm perv bleached zone

515.4 - 515.6 Dio - text. obsc. black f-g perv carb.

515.6 - 515.8 Strong chl text starting to come.

515.8 - 518.5 Dio coarse grained w/ wht plag. wk chl.

518.3 - 518.5 VEINS - series of 2, 3, 5cm calc. vns, 3cm vn at 60° lower contact w/ str bio altern for 5cm Med biot-ser-chl to 518.7.

518.92 - 519.0 VEIN 8cm wht carb. vn (calcite) w/ dissem. po ½ %

519.0 - 519.5 Dk f-g chl dio - alter'd out from vn.

519.0 - 530. Dark medium grnd dio hb - 2-3mm; fsp grey to wht (wht plag gives salt & pepper text. cut by wk to mod 1-2mm qtz-prehnite vns at 15 to 40°. Odd anhydrite vn at 55° eg 527.5, 2cm lt brn grey ankerite vn at 80 at 528.8.

530 - 534.0 Salt & pepper c-grnd section w/ wht alt'd fsp ~50% : 50% fsp : hb. Cut by wht qtz-prehn ± eg. 2 - 5mm at 70°.

534.0 - 535.5 Blackish dio med grn w/ qtz-prehn eg. 534.4 5mm at 70°.

535.5 - 536.4 Dk f-g and. - assimul. xenol.

536.4 - 536.8 Med. grn dark dio. w/ prehn vns.

Drilling interval	% Core recovered	Core size
	98	NQ
512.8	94	
516.0	98	
519.1	100	
522.1	100	
525.2	100	
528.2	92	
531.4	100	
534.6	98	
537.5		

Sample interval	As ppm	Sb ppm	Ag ppm	Au ppb
514.18				
515.18	3	.4	.2	<5
515.26	9	.2	.2	<5
515.4	90	.4	.6	<5
515.6	[illegible]	.1	.5	<5
516.6	60	.1	.1	<5
517.3				
518.3	3	4.2	.3	<5
518.5	1	.5	.4	<5
518.9	[illegible]	1.0	.3	<5
519	[illegible]	.3	.3	10
520.0	3	.4	.3	<5

200

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COORDINATES: N. E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: 622.7 | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

ALTERAT'N: quartz | carb | bio | chl. | FRACTURING | MINERAL | GEOLOGY | SECTION | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppb

DIORITE CONT'D

536.8 - 537.5 Ankeritically alter'd f-g dark dio. Lt yellow grn ankerite of vn & pervasive altern. Rock is mod-str fr.

537.5 - 541.5 Dark dio w/ ank-qtz-vns, carb vns
538 - 539.3 Carb stockwork, some qtz-prehn vns, 539.5 - ½ cm qtz rich dykelet at 30°.

541.5 - Fault - 5cm gouge @ 45°

541.55 - 541.8 Buff-greenish mod-hard Ankerite Ep. alt wk fisz w/ acid at 45°.

541.8 - 546.0 Coarse grained dio w/wht fsp. standing out. cut by wht calc & dol. vns at ~40° 2-3 mm. A 8cm dyke? of fluidy text. qtz grns in prehnite? matrix at 40°

546.0 - 557.75 Block med grn dio w/ greyish fsp, blk hb w/minor section of whtish alter'd plag cut by qtz-prehn vns which are in turn cut by anhydrite vns, eg. 1cm qtz-prehn at 20° (549.3) cut by 2mm anhydr. at 30° yellowly grn ank. at 549.9.
550.6 - 551.0 Str hairline stock work - interlacing of anhydr, 552. grn yellow. ank. 1.5cm at 65°
555.4 - 555.2 hairline anhyd. vn's
555.3 - 551.5 bnds of 2cm qtz, calc. vns at 70° to C.A

"QUARTZ DIORITE

557.75 - 561.4 Lt grey colored med. grained granitic rock w/ 60-40% blotchy 2-4mm. qtz grains up to 1cm in size & ~ 20% - 30% whtish plag and ~ 15% chl. matic. (very fine). Upper contact Sheared at 60° Cut by numerous qtz-prehn. vns 2-7mm at ~40° & odd calc. vn's. Lower cont sharp at 35°. 558.7-559. tan-pink qtz-prehn. Stock.

DIORITE

561.4 - 563.4 Med grn dio rock w/ 50% mafics (hb) & ~ 45% plag (lt gray grn) < 5% qtz, mod-str fr'd. Shear at 50° - 3cm chl gouge at 562.0 & 562.35 qtz-rich (quartz dio dykelet at 20° - 3cm. 2mm anhyd. vn at 562.1 at 35°

QUARTZ DIORITE

563.4 - 566.8

SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppb
540.6				
541.6	1	.1	.1	<5
541.8	2	.2	.1	<5
542.8	2	.1	.1	<5
556.3				
557.3	1	.2	.2	<5
557.5	3	.2	.2	<5
558.1	3	.4	.1	<5
565.2				
566.2	2	.3	.2	<5
566.4	3	.8	.1	<5
567.4	2	.4	.2	<5

HOLE NO.: 86-05 | PROJECT: PACIFIC EASTERN | PAGE NO.: 20 OF 21
COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:
COORDINATES: | N. | E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

AVE. CORE REC'Y/HOLE

COMMENTS

DESCRIPTIVE GEOLOGY

SECTION | ALTERAT'N: Quartz, bio, bio, chl. | FRACTURING | MINERAL | GEOLOGY | SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | As ppm | Sb ppm | Ag ppm | Au ppb

570

2½cm buff ank at 55° w/chl halo.

ankyd. 11 to C.A. qtz prehn. .5-1cm. at 40-60°. carb vn at 60°. ank-carb unset 50°

2mm qtz-ten ank. at 20°

Lt grn breccia - soda grnte frag in clay-ser matrix.

580

Finer grn qtz ~2mm ! chl matrix

VEINS - wht carb vns 3cm at 60°.

coarser grn similar to above

Bleached altered zone fsp > clay-ser ank on fr.

VEIN MATERIAL. Very str ank w/ qtz-py smears on fr. @ 35°.

Fine grained chl rock w/ mottled f-qtz 30% w/ chl on Sv

590

3cm w/ arseno. py needl

altered Rhyolite

VEIN BRECCIA - Silica, ank-black frag w/ fine sulph.

Bleached altered zone w/ ank.

600

QUARTZ DIORITE CONT'D.

similar to prev. description. upper contact faulted 40cm of gouge. 564.5 - prehn-qtz at 75° w/ stringers of yellow ankerite cut by qtz vn at 50° (2mm). 564.8 5cm lt tan ank. w/ wk fizz, some qtz grains.

564.8 - 565.3 Fresh intrusive.

565.3 - 566.0 Text. of intrus becoming obscured w/ introduction of str chl alteration. Mod-str fr at 40°. w/ disseminated py 1% from 565.4 - 565.9; hairline fr fills of carb 565.4 - 566.8.

566 - 566.8 Ank f-g intrusive text obscured. w f-chl and wk perv carb

566.2 - 566.4 2 1.5cm carb VEINS at 40°

566.8 - 571.5 DIORITE

Med grn'd grey black intrus w/ 60% blk hb (2-3mm) grains w/ interlocking grey grn plag — 40%. Cut by wk. ankydr vning 11 to C.A. at 40°. Mod fr at ~35°. Perv as a green yellow ankerite 568.5 - 568.9, 571.3 - 2cm buff colored ank vn at 55° w/ 1cm chl halo; ankydritic 11 to C.A. 570.8 - 571.0.

571.5 - 579.4 QUARTZ DIORITE

Strongly fractured chloritized intrusive, lt grey green in color (not as dk as dior.). w/ 65% ~2mm qtz grains, 20% whitish plag, 5% chl mafics. Strong Chl on fr., cut by qtz-prehn, qtz-ank ! carb vns. w/ lt grn breccia frag of soda granite in lt grn ser-clay matrix.

579.4 - 595.8 QUARTZ DIORITE

579.4 - 580.0 finer grained than above soda granite w/ 30% mottled qtz ! matrix of intense chl.

580 - 582.9 coarser grained more typical of above intrusive. 581.78 - 582. VEINS wht carb vns - 3cm at 60°

582.9 - 584.85. Bleached/Altered zone w/ qtz ! fsp → clay-ser frw/ ankerite.

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	As ppm	Sb ppm	Ag ppm	Au ppb
512.4	100	NQ	580.8				
512.4	100		581.8	2	.2	.1	<5
			582.0	3	.3	.2	<5
574.1	85		582.9	2	.2	.1	<5
574.9	100		583.7	2	.2	.1	<5
	69		584.9	9		.1	<5
576.7			585.7	14		.1	<5
577.6	100		586.4	2		.1	<5
	92						
579.4							
580.1	100						
	91						
583.1							
	87						
586.7							
588.9	100						
	100+						
590.7			591.1				
	100+		592.15	2	.1	.1	<5
592.8			592.2	60	.4	.1	20
			592.6	4	.1	.1	<5
			593.8	3	.2	.1	<5
			593.8	1	.1	.1	<5
594.7	74		594.8	2	.1	.1	<5
	100		595.8	2	.1	.1	<5
597.1							
	77						
597.9							

HOLE NO.: 86-05 | PROJECT: PACIFIC EASTERN | PAGE NO.: 20a OF 21
COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | CLAIM:
COORDINATES: | N. | E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS

DESCRIPTIVE GEOLOGY

AVE. CORE REC'Y/HOLE

SECTION	ALTERAT'N: Quartz	Carb	Bio.	Chl	FRACTURING	MINERAL	GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
570											NQ			
580														
590														
600		M		S					594.1	100				
				S	S				597.1					
		S		S					599.9	77	✓			

see page 20

QUARTZ DIORITE CONT'D

584.85 - 585.35 Becoming very str altered w/ ankerite approaching vein material for this section, w/ 5mm qtz - py smears at 35°

585.35 - 592.15 Fine grained chloritic rock w/ mottled quartz qtz - 30% chl - 70% Specks of cpy? at 586 - 587.

★ 592.15 - 592.2 Altered soft cont. zone w/ clay ! v-f. arsenopyrite needles? or tourmaline needles?

592.2 - 592.55 RHYOLITE? altered zone w/ carb ! ankerite vns.

592.55 - 592.8 VEIN BRECCIA. strongly ankeritic w/ frags of silic. w/ black coloration, f sulph.

592.8 - 593.05 Altered rock. - w/ weaker ankerite alteration

593.05 - 595.8. Some granitic textures visible w/ qtz grains & 40% of rock.
593.05 - 593.8 - wker ank. pew. alter'n.
593.8 - 595.2 spotty wk. pew. ank. alter'n

595.8 - 602.6 VOLCANIC - DYKE?
Fine grained greenish rock strongly altered by chloritization, w/ str calc. stockwork. A rock containing 10 - 30% f - matted qtz w/ a str chlorite matrix. Rock has sheared appearance w/ some banding at 599.3 alignment of qtz, chl.

600.8 - 601.35. Felsic dyke - w/ 95% fsp 5% chl. mafics. upper cont. at 35°, lower contact at 30.

Calc. Stockwork

3.5 cm gouge

2 cm carbon.

HOLE NO.: 86-05		PROJECT:	PAGE NO.: 21 OF 21
COLLAR ELEV.:	GROUND ELEV.:	DATE STARTED:	CLAIM:
COORDINATES:	N. E.	DATE FINISHED:	SCALE:
INCLINATION:	BEARING:	TOTAL DEPTH:	LOGGED BY: G.E. NORMAN

BEMA INDUSTRIES LTD.

COMMENTS — AVE. CORE REC'Y/HOLE

DESCRIPTIVE GEOLOGY

Column headings: SECTION; ALTERAT'N (quartz, carb, bio, cnl); FRACTURING; MINERAL; GEOLOGY; SULPHIDES %; DRILLING INTERVAL; % CORE RECOVERED; CORE SIZE; SAMPLE INTERVAL; As; Sb; Ag; Au ppb.

Section: 600 – 610 – 620

Alteration (cnl): S

Fracturing: S, S, M, M, S, M

VOLCANIC? DYKE? CONT'D.

601.4 - 602.3 Fault Zone - gouge 601.6 - 601.8.

Comments: Fault Zone 1.2 m gouge.

602.6 - 627.7 SERPENTINITE

Mottled grey grn medium grained serpentinized ultramafic w/ 65° grey enstatite - clinopyroxene → bastite contained in a matrix of dark green antigorite, short sections of glossy black ultramafic w/ white specks. Some dissem/fr. po. For most part rock is compentent. mod fr at 60-50° odd fr at 10°.

605. - 605.6 Fault Zone. - broken rock; gouge (605.4 - 605.8). w/ antigorite on fr. Most fr w/ wk-mtalc.

615.5 - 616.9 Fault - gouge; broken rock.

617.3 - 621 Lighter grey in colour - more talc alter'd. str Talc on fr at. 40-50°.

621 - 622.7 Darker in color similar to previous section mod fr. w/ talc infilling.

Comments: Fault Zone. some dissem po ; fr. po. mod fr w/ talc ; antigorite. wht specks. Fault Zone. talc on fr.

end of hole 622.7.

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE
601.8	82	NQ
602.3	72	
603.5	100	
605.6	85	
607.8	100	
610.2	81	
612.0	65	
613.0	100	
614.2	63	
616.0	88	
616.9	89	
619.1	100	
619.7	100	
622.7	90	

SAMPLE INTERVAL	As	Sb	Ag	Au ppb
602.4 - 603.4	3	.2	1	<5

SAMPLE INTERVAL	Cr	Cu, Cu*	Ni	Sb, As*	Ag ppm	Au ppb
612 - 613.5	1500	51, 37*	286	.2, 5*	.1	<5
621.2 - 622.7	1200	43, 22*	287	.1, 3*	.1	<5

APPENDIX III

STATEMENT OF COSTS

STATEMENT OF COSTS

DRILLING

Tonto Drilling B.C. Ltd. 1446 m @ $105.51/m $152,271.27

LABOUR - FIELD

NAME	POSITION	RATE (per day)	NO. OF DAYS	TOTAL
G. Nordin	Senior Geologist	$300.00	5	$ 1,500.00
R. Barclay	Project Consultant	250.00	5	1,250.00
N. Carter	Engineer	400.00	4.28	1,711.44
G. Norman	Project Geologist	225.00	83.69	18,830.25
F. Bethune	Truck Driver/Field Assistant	19.00/hr	344.5 hr	6,545.50
B. Bridgen	Field Assistant	125.00	3.38	422.50
P. Spenser	Faller	200.00	4.32	864.00
	Chokerman	175.00	7.94	1,389.50
J. Norman	Geological Assistant	15.00/hr	12.50 hr	187.50
R. Huss	Tree Pusher	100.00	3	300.00
R. Malone	Faller	150.00	2	300.00
TOTAL				$ 33,300.69

LABOUR - REPORT

G. Norman	Project Geologist	$225.00	22.6	$ 5,085.00
L. Wilson	Secretary	15.00/hr	10 hr	150.00
G. Nordin	Senior Geologist	300.00	.5	150.00
R. Barclay	Project Consultant	250.00	.5	125.00
TOTAL				$ 5,510.00

TRUCK RENTAL

a)	Norman Geological 4x4, 3.0 mo @ 900/mo	$ 2,700.00
b)	Cana Truck Rental 4x4, 2 days @ 124.14	248.28
c)	Red Hawk Rentals 4x4, 2 days @ 118.03	236.05
d)	Tilden Rent-a-Car 2x4, 2 days @ 102.92	205.83
e)	Tartan Construction Water Truck and Access, 2.5 mo @ 765.14	1,912.84
TOTAL		5,303.00

EQUIPMENT RENTAL

a) Sperry Sun Survey Instrument-Sperry Sun of Canada		
2.5 mo @ 1741.51/mo		$ 4,353.77
b) Mud Pumps - Warner Rentals		
2.5 mo @ 817.00/mo		2,042.49
c) Chain Saws - P. Spenser		
10 days @ $20.00 & $15.00/day		192.50
TOTAL		$ 6,588.76

CATERPILLAR WORK

Echo Logging Co.	182.23 hrs @ 87.75 hr	$ 15,990.76

SKIDDER WORK

Mighton Contracting	12.00 hrs @ 52.00 hr	$ 624.00

GEOCHEMICAL ANALYSIS AND ASSAY

CORE ANALYSIS

4	Au	Assay	@	6.50	per sample	$ 26.00
16	Au, Ag	Assay	@	14.50	per sample	232.00
115	Au, Ag	Geochem	@	8.60	per sample	997.60
128	As, Sb	Geochem	@	10.30	per sample	1,328.70
8	Co, Ni, Co, Cr	Geochem	@	10.90	per sample	87.20
2	P+ Pd	Geochem	@	8.50	per sample	17.00
Rush charges on 30 samples extra				11.78	per sample	353.25
3	whole rock analysis		@	15.00	per sample	45.00
						$ 3,086.75

SOIL/SILT

53	Au, Ag, As Sb	Geochem	@	17.00	per sample	901.00
(Note only 1 silt sample)						
TOTAL						$ 3,987.75

EQUIPMENT & SUPPLIES

Deakin Equipment	$465.64	
Williams & Mackie	77.02	
Grand & Toy	24.92	
Neville Crosby	568.70	
Sears	277.13	
Lillooet Feed Ltd.	261.42	
Ancient Mariner	359.52	
Longyear Canada Inc.	44.30	
Chemex	211.86	
		$ 2,320.51

HOUSE RENTAL	4 mo @ 250/mo		1,000.00
TELEPHONE	B.C. Tel		1,636.65
B.C. HYDRO			1,284.70
GASOLINE AND HOUSE FUEL			1,350.97
GROCERIES	G. Norman 84 man days @ 16.16/day		1,358.00
HOTEL AND MEALS			
Expense Accounts:	G. Nordin	$166.37	
	R. Barclay	74.25	
	I. Johnson	409.70	
			$ 650.32
REPRODUCTIONS			
Western Reproducers	- to date	$762.30	
	- estimated, report	250.00	
Zippy Print		15.88	
			$ 1,028.18
TRANSPORTATION/COURIER			
Loomis		$341.52	
Nickoli Cartage		101.74	
Gelco Express		5.10	
			$ 448.26
PETROGRAPHIC WORK			
Vancouver Petrographics			$ 881.00
REPORT REPRODUCTION			
Drafting - Geodrafting Services Ltd.			
43 hours @ 25.00/hour		$1,075.00	
Drafting Supplies		130.00	
			$ 1,205.00
NORMINE RESOURCES LTD. MANAGEMENT FEES			$ 2,710.82
GRAND TOTAL			$238,594.41

APPENDIX IV

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATION

I, GEORGE E. NORMAN, the author of the foregoing report hereby certify:

1. that I am a self employed Consulting Geologist, operating under the name of Norman Geological since 1985, resident at 28 West 43rd Avenue, Vancouver, B.C.;

2. that I have been registered with the Association of Professional Engineers Geologist and Geophysicts of Alberta since 1975 and am a graduate of the University of Alberta with B.Sc. (Honours Geology 1973);

3. that I am a registered Fellow with the Geological Association of Canada;

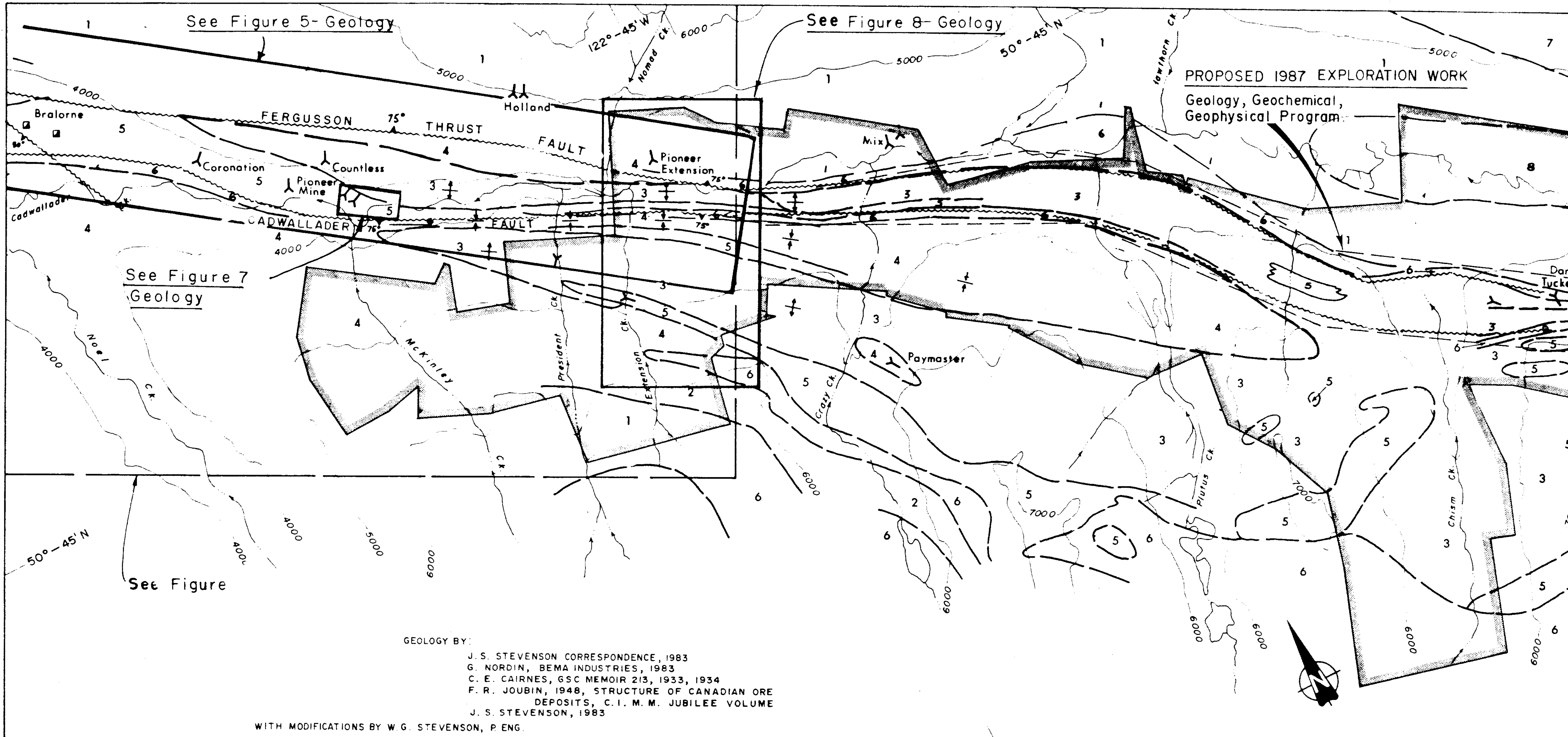
4. that I have worked for a number of major mining firms as exploration geologist, consultant geologist and mine geologist in B.C., Yukon and N.W.T. during my fourteen years of practical exploration experience. I have been previously been employed by the following exploration/consulting firms: Terra Mines Ltd. (1984); Fox Geological Consultants Ltd. (1983-1984); Bema Industries Ltd. (1980-1983); Utah Mines Ltd. (1976-1980); and Kaiser Exploration and Mining Company (1973-1974);

5. that the foregoing report is based on the 1986 field exploration program, July 18 to October 2, 1986 and a review of previous reports.

DATED the 30th day of December, 1986.

G. Norman

GEORGE E. NORMAN, B.Sc.



LEGEND

Symbol	
	ANTICLINE AXIS
	SYNCLINE AXIS
	ADIT
	GEOLOGICAL CONTACT
	CREEK
	CLAIM BOUNDARY
	CONTOURS (IN FEET)

CENOZOIC

8 — PLEISTOCENE to RECENT

CRETACEOUS

BENDOR INTRUSIVES

7 — Hornblende - biotite quartz diorite

PRESIDENT

6 — Peridotite, dunite, serpentine

JURASSIC

BRALORNE INTRUSIVE

5 — Soda granite, augite diorite, gabbro

JURASSIC - TRIASSIC

4 — HURLEY FORMATION - argillaceous - tuffaceous sediments, minor limestone, conglomerate

3 — PIONEER FORMATION - andesite, greenstone, tuff, breccia

2 — NOEL FORMATION - argillaceous - tuffaceous sediments, conglomerate, tuff breccia

PERMIAN

FERGUSSON SERIES

1 — Basalt, andesite, thin bedded chert, argillite.

Scale: 0 1000 2000 3000 4000 5000 6000 FEET; 0 500 1000 1500 METRES

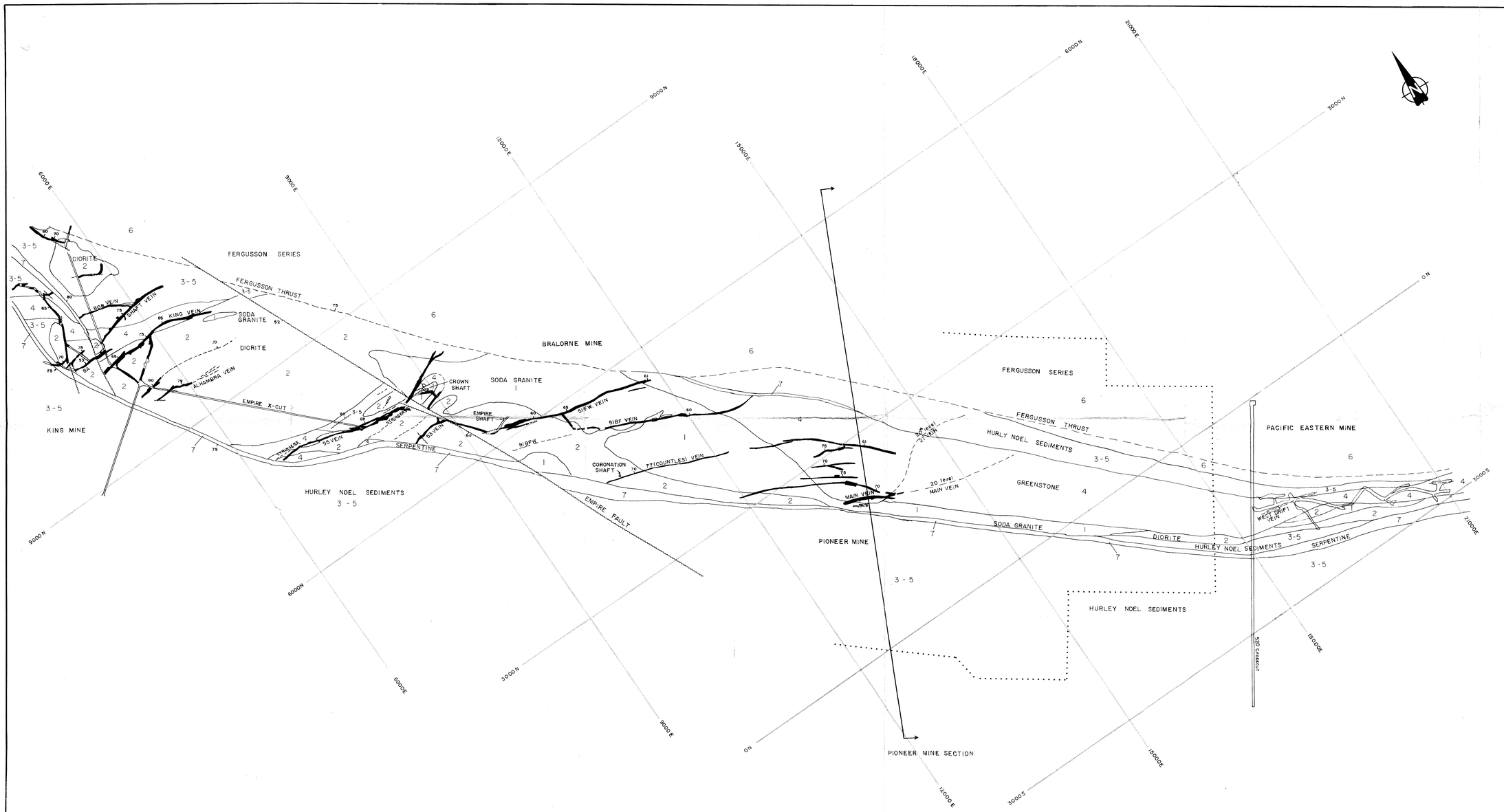
NORMINE RESOURCES LTD.

PACIFIC EASTERN PROJECT

PROPOSED 1987 EXPLORATION WORK

DATE	83 · 11 · 03	JOB NO.	83 - 16
APPROVED BY		FIG NO.	C

BEMA INDUSTRIES LTD.



LEGEND

- ADIT
- CONTACT
- FAULT
- GOLD-QUARTZ VEIN ORE
- QUARTZ VEIN
- GRID LINE
- PIONEER MINE CLAIM BOUNDARY

1	SODA GRANITE
2	DIORITE
3	HURLEY SEDIMENTS
4	PIONEER GREENSTONE
5	NOEL SEDIMENTS
6	FERGUSSON SERIES
7	SERPENTINITE

GEOLOGICAL BRANCH
ASSESSMENT REPORT

15,730

SCALE:

200 100 0 200 400 600 800
meters

NORMINE RESOURCES

BRALORNE, BRITISH COLUMBIA

PLAN VIEW OF 500' LEVEL THROUGH KING/BRALORNE/PIONEER/PACIFIC EASTERN MINES

DATE: Feb. 4, 1985	JOB NO.	FIG. NO. 5
DRAWN BY: WILF		
REVISED BY: 1986	SCALE:	

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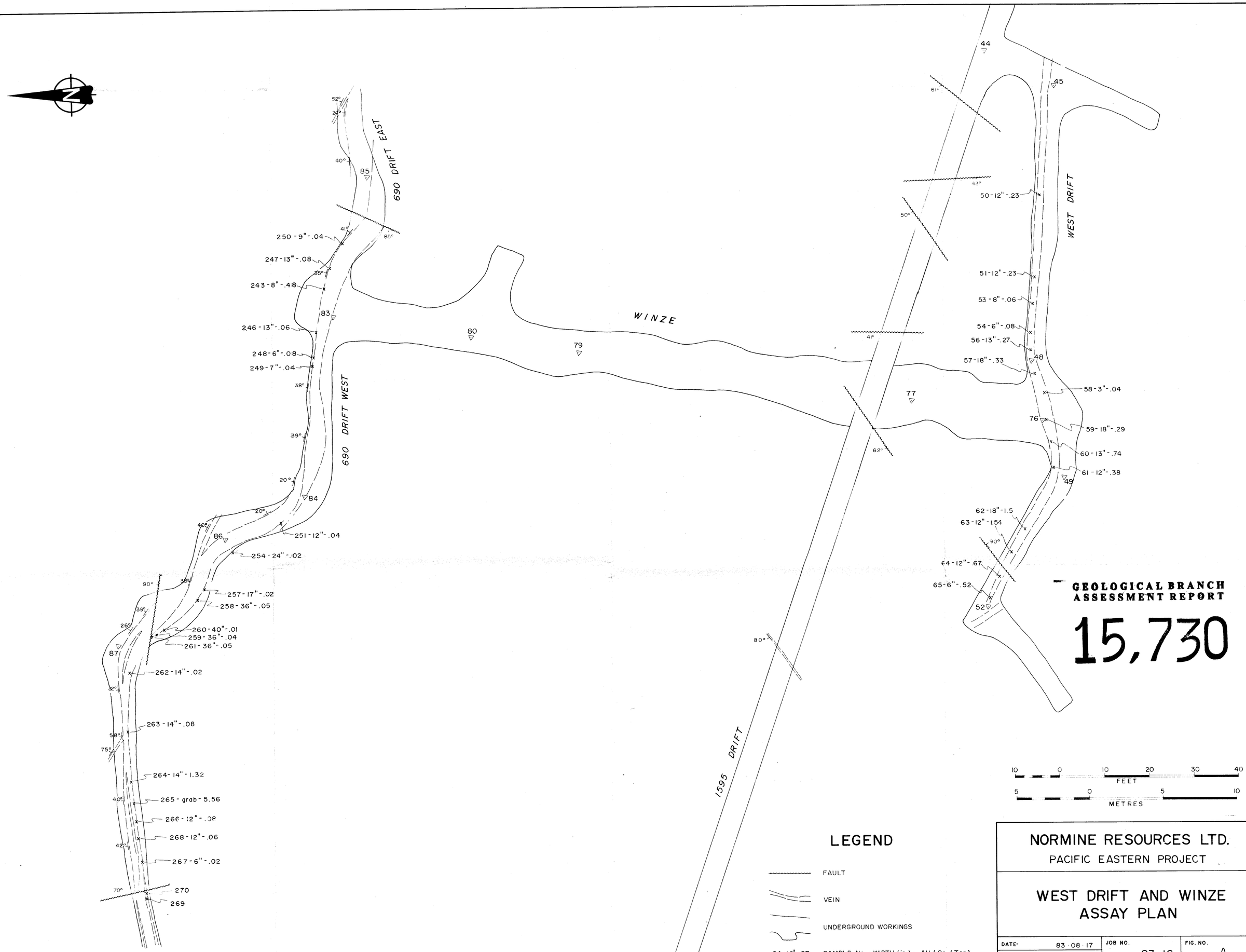


SOURCE: PACIFIC EASTERN MAPS, 1937, FROM:
BRITISH COLUMBIA MINISTRY OF MINES AND PETROLEUM RESOURCES
FILES 92J-10 & -15

LEGEND

- FAULT
- VEIN
- UNDERGROUND WORKINGS
- 64-12"-.67 — SAMPLE No. - WIDTH (in.) - AU (Oz./Ton)

10 0 10 20 30 40 FEET
5 0 5 10 METRES

GEOLOGICAL BRANCH ASSESSMENT REPORT

15,730

NORMINE RESOURCES LTD.

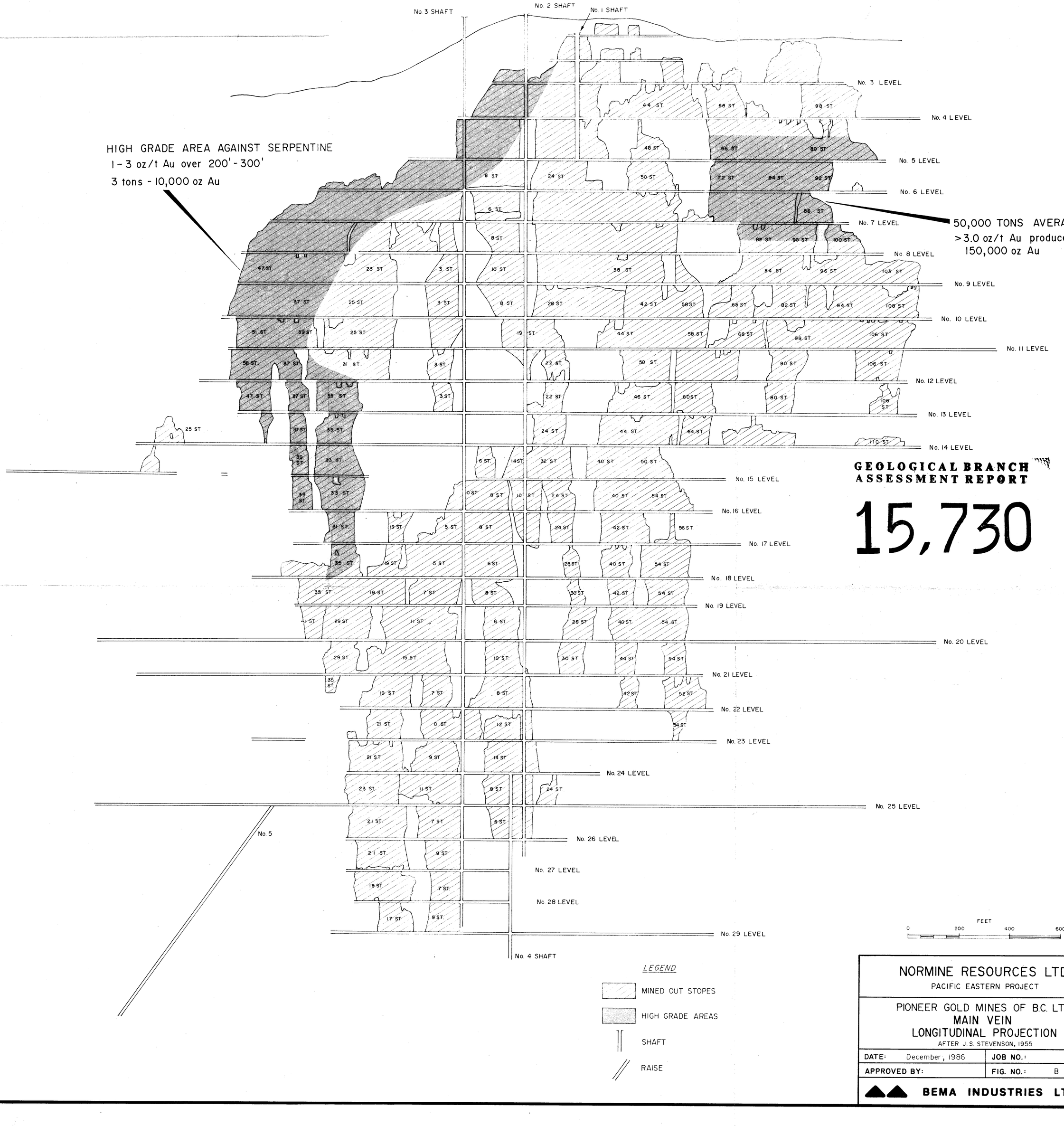
PACIFIC EASTERN PROJECT

WEST DRIFT AND WINZE ASSAY PLAN

DATE: 83·08·17		JOB NO. 83-16	FIG. NO. A
DRAWN BY: JBT			
		SCALE:	

BEMA INDUSTRIES LTD.

BEMA DRAFTING



GEOLOGICAL BRANCH
ASSESSMENT REPORT

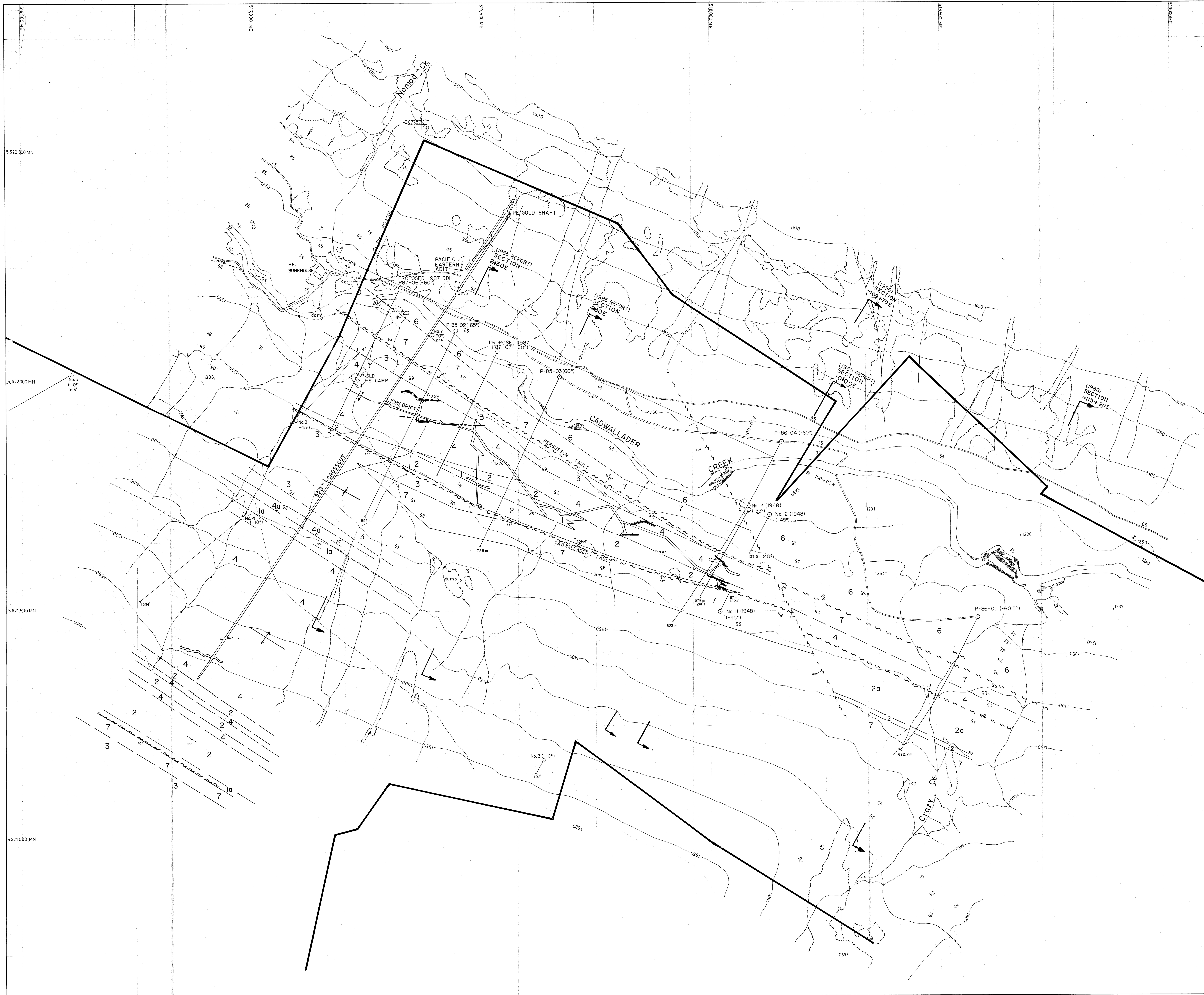
15,730

NORMINE RESOURCES LTD.
PACIFIC EASTERN PROJECT

PIONEER GOLD MINES OF B.C. LTD.
MAIN VEIN
LONGITUDINAL PROJECTION
AFTER J.S. STEVENSON, 1955

DATE: December, 1986	JOB NO.:
APPROVED BY:	FIG. NO.: B

BEMA INDUSTRIES LTD.



LEGEND

A	hornblende porphyry dykes

BRALORNE INTRUSIVES (Jur)

1	leucocratic quartz diorite (soda granite)
1a	quartz porphyry, albitite dyke, hornblende feldspar-porphyry.
2	augite quartz diorite, diorite 2a

HURLEY FORMATION (Jur-Tri)

3	calcareous argillite, grey limestone

PIONEER FORMATION (Jur-Tri)

4	amygdaloidal-massive andesite
4a	andesite breccia

FERGUSSON SERIES (Perm)

6	argillaceous chert, chert breccia, basalt, conglomerate
7	serpentinite

ALTERATION ZONES

Bio	biotite
Car	carbonate
EP-ACT	bleached, epidote-actinolite

Claim boundary
Fault
Vein
Surface Diamond Drill Hole

ABBREVIATIONS

py	pyrite	bio	biotite
arsp	arsenopyrite	carb	carbonate
cpy	chalcopyrite	bleach	bleached
sph	sphalerite		

GEOLOGICAL BRANCH ASSESSMENT REPORT

15,730

METRES
0 50 100 150 200 250

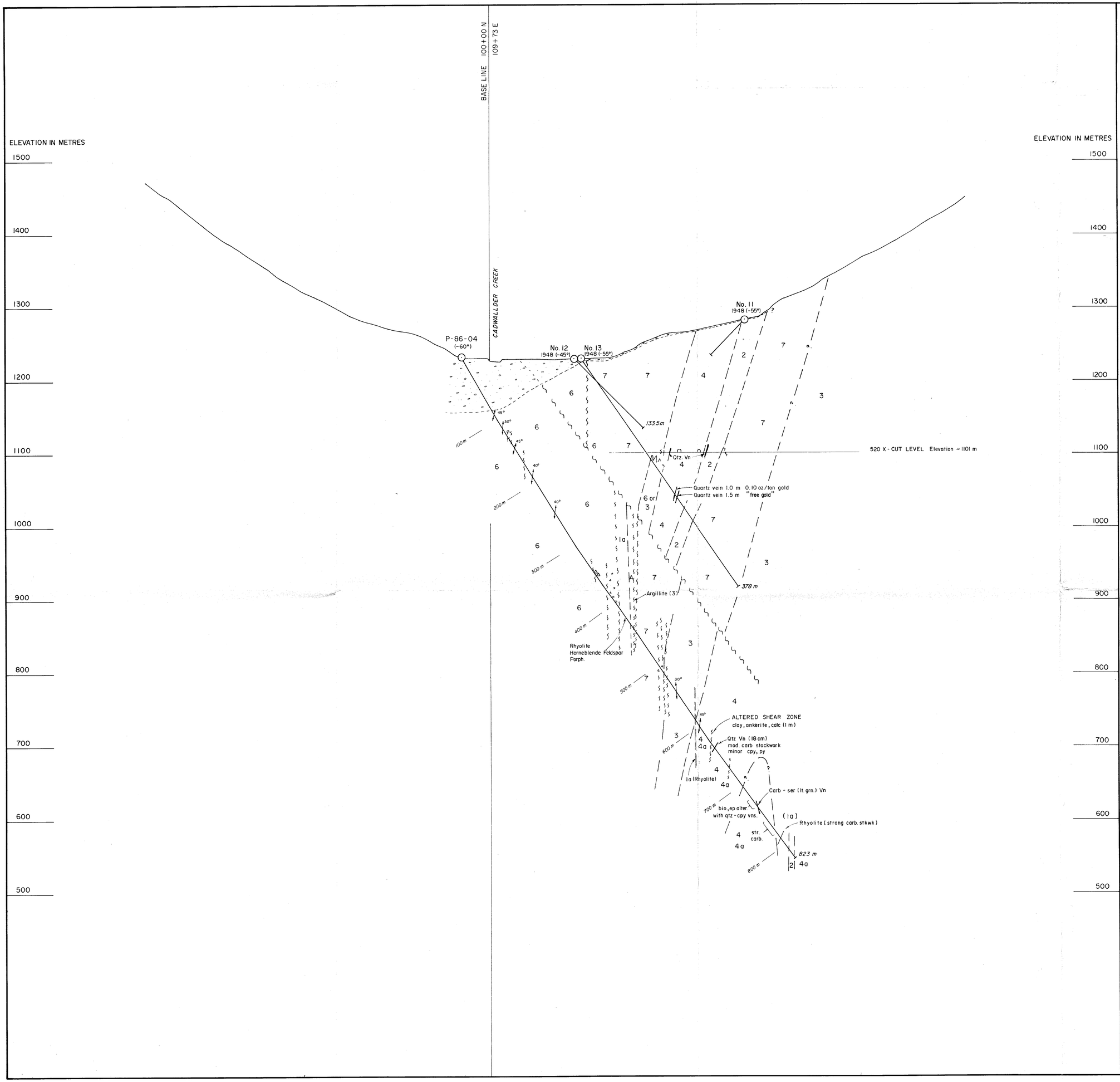
NORMINE RESOURCES LTD.

PACIFIC EASTERN PROJECT

GEOLOGY 520 CROSSCUT LEVEL AND SURFACE DRILL HOLE LOCATIONS

DATE: DECEMBER, 1986	JOB NO. 85-13	FIG. NO. 8
DRAWN BY: G. NORDINE		
REVISED BY: G. NORMAN	SCALE: 1:2500	

BEMA INDUSTRIES LTD.



LEGEND

- OVERBURDEN
- A — HORNBLENDE PORPHYRY DYKES (POST 86 MY.)

BRALORNE INTRUSIVES (Jur.)

- 1 — LEUCOCRATIC QUARTZ DIORITE (SODA GRANITE)
- 1a — QUARTZ PORPHYRY, ALBITITE DYKE, HORNBLENDE FELDSPAR PORPHYRY DYKE, RHYOLITE.
- 2 — AUGITE QUARTZ DIORITE, DIORITE 2a

HURLEY FORMATION (Jur-Tri)

- 3 — CALCAREOUS ARGILLITE, GREY LIMESTONE

PIONEER FORMATION (Jur-Tri)

- 4 — AMYGDALOIDAL - MASSIVE ANDESITE
- 4a — ANDESITE BRECCIA

FERGUSSON SERIES (Perm)

- 6 — ARGILLACEOUS CHERT, CHERT BRECCIA, BASALT, CONGLOMERATE
- 7 — SERPENTINITE

ALTERATION ZONES

- Bio — BIOTITE
- Car — CARBONATE
- EP-ACT — BLEACHED, EPIDOTE-ACTINOLITE
- EP-BIO — EPIDOTE - BIOTITE

SYMBOLS

- FAULT
- VEIN
- SURFACE DIAMOND DRILL HOLE
- ANGLE OF BEDDING TO DRILL CORE AXIS

GEOLOGICAL BRANCH ASSESSMENT REPORT

15,730

ABBREVIATION

py	PYRITE	bio	BIOTITE
arsp	ARSENOPYRITE	carb	CARBONATE
cpy	CHALCOPYRITE	graph	GRAPHITIC
sph	SPHALERITE	ser	SERICITE
ank	ANKERITE	bx	BRECCIA
Qtz.	QUARTZ	ep	EPIDOTE
vn	VEIN	stwk	STOCKWORK

METRES 0 50 100 150 200

NORMINE RESOURCES LTD.
PACIFIC EASTERN PROPERTY

GEOLOGY
VERTICAL CROSS SECTION
THROUGH DDH P-86-04 (~109+70E)

DATE DECEMBER, 1986	JOB NO 86-08	FIG NO 9
DRAWN BY G. NORMAN	SCALE 1 : 2500	
REVISED BY		

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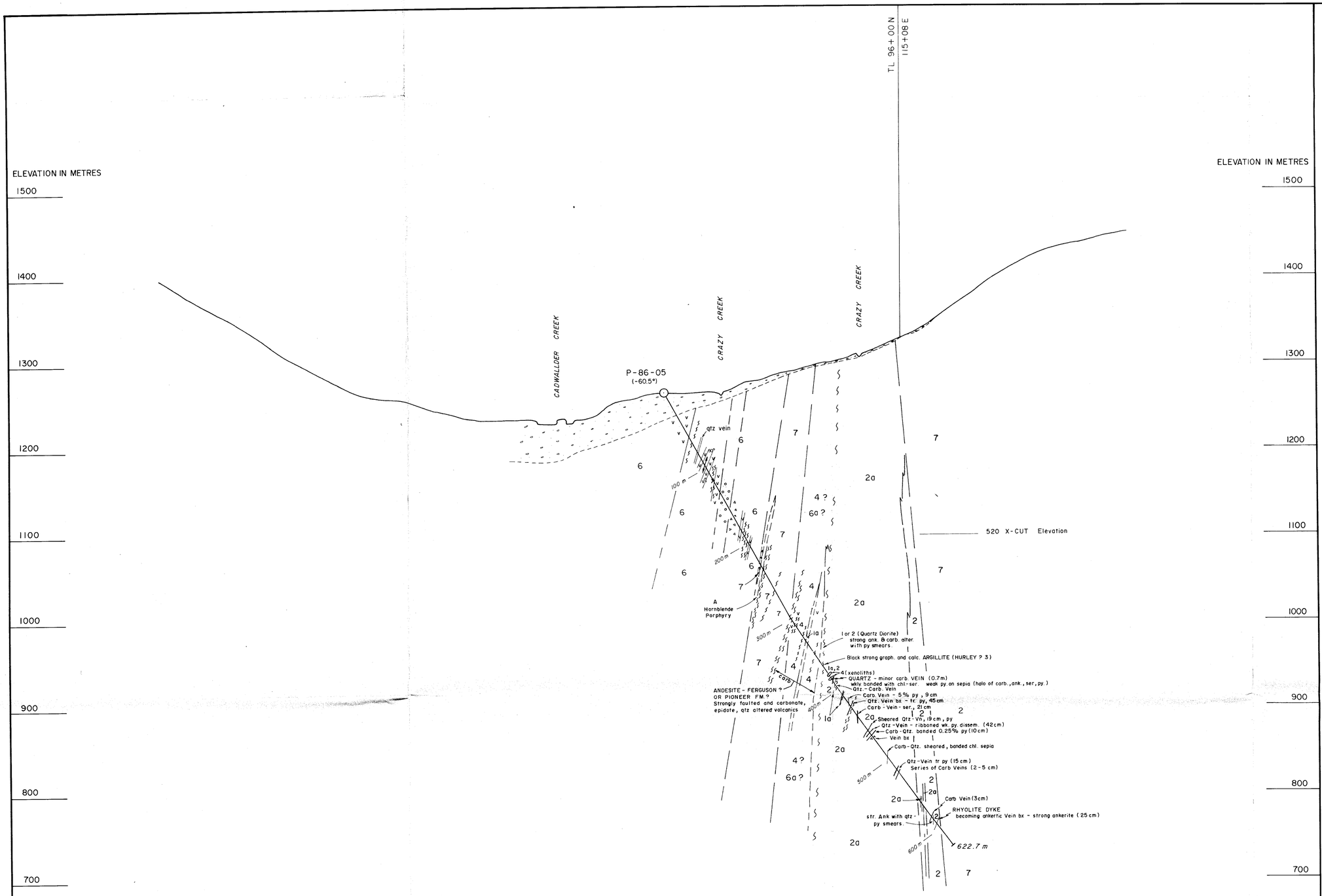


LEGEND

- OVERBURDEN
- A — HORNBLENDE PORPHYRY DYKES (POST 86 MY)

BRALORNE INTRUSIVES (Jur.)

- 1 — LEUCOCRATIC QUARTZ DIORITE (SODA GRANITE)
- 1a — QUARTZ PORPHYRY, ALBITITE DYKE, HORNBLENDE FELDSPAR PORPHYRY DYKE, RHYOLITE.
- 2 — AUGITE QUARTZ DIORITE, DIORITE 2a

HURLEY FORMATION (Jur-Tri)

- 3 — CALCARECUS ARGILLITE, GREY LIMESTONE

PIONEER FORMATION (Jur-Tri)

- 4 — AMYGDALOIDAL - MASSIVE ANDESITE
- 4a — ANDESITE BRECCIA

FERGUSSON SERIES (Perm)

- 6 — ARGILLACEOUS CHERT, CHERT BRECCIA, BASALT, CONGLOMERATE
- 7 — SERPENTINITE

ALTERATION ZONES

- Bio — BIOTITE
- Car — CARBONATE
- EP-ACT — BLEACHED, EPIDOTE-ACTINOLITE
- EP-BIO — EPIDOTE - BIOTITE

SYMBOLS

- FAULT
- VEIN
- SURFACE DIAMOND DRILL HOLE
- 50° — ANGLE OF BEDDING TO DRILL CORE AXIS

GEOLOGICAL BRANCH ASSESSMENT REPORT

15,730

ABBREVIATION

py	PYRITE	bio	BIOTITE
arsp	ARSENOPYRITE	carb	CARBONATE
cpy	CHALCOPYRITE	graph	GRAPHITIC
sph	SPHALERITE	ser	SERICITE
ank	ANKERITE	bx	BRECCIA
Qtz.	QUARTZ	ep	EPIDOTE
vn	VEIN	stwk	STOCKWORK

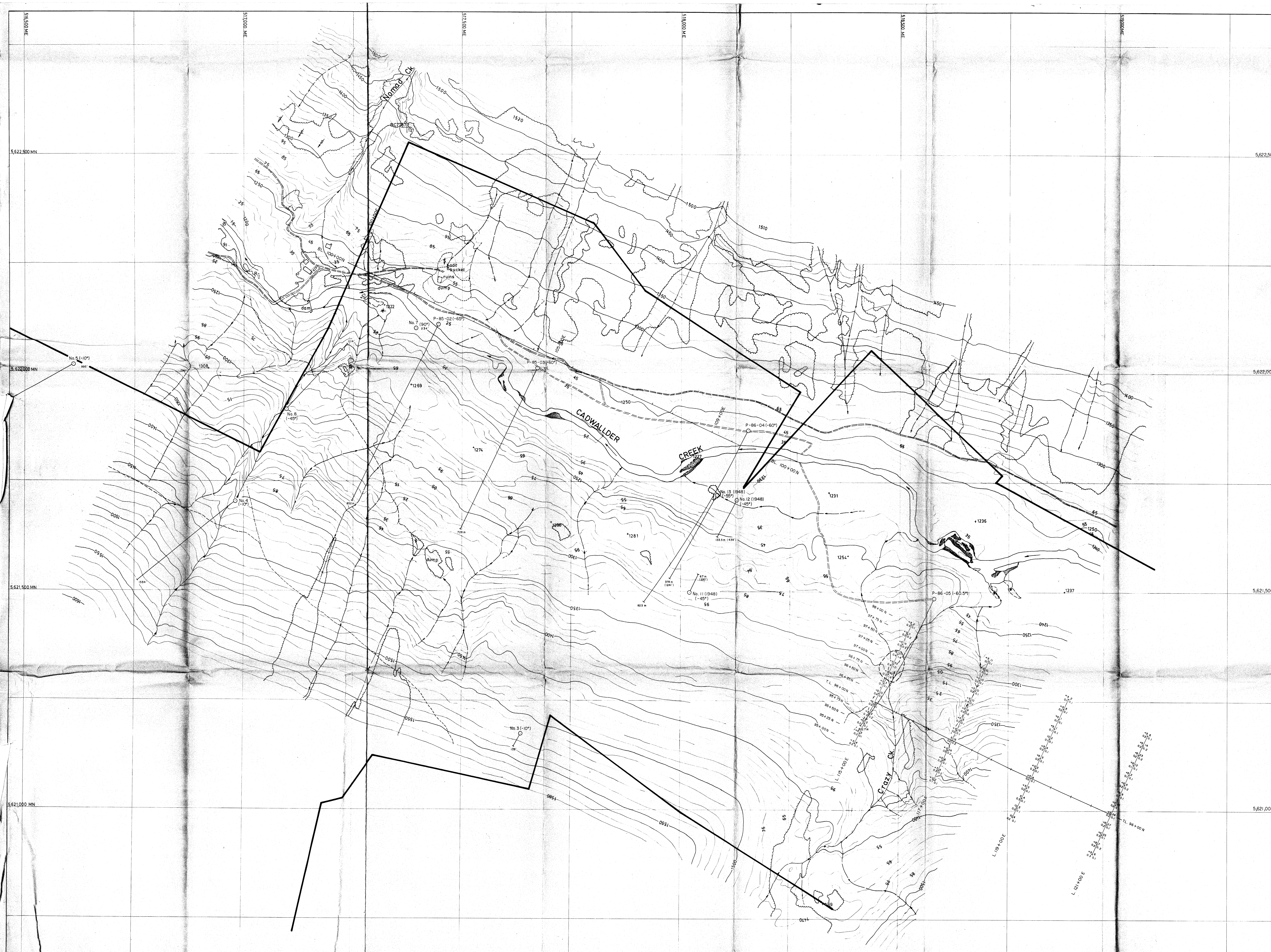
METRES
0 50 100 150 200

NORMINE RESOURCES LTD.
PACIFIC EASTERN PROPERTY

GEOLOGY
VERTICAL CROSS SECTION
THROUGH DDH P-86-05 (~115+20E)

DATE DECEMBER, 1986	JOB NO 86-08	FIG NO 10
DRAWN BY G. NORMAN		
REVISED BY	SCALE 1 : 2500	

BEMA INDUSTRIES LTD.



LEGEND

Au (ppb) | As (ppm)
Ag (ppm) | Sb (ppm)

Above background values.

GEOLOGICAL BRANCH ASSESSMENT REPORT

15,730

METRES 0 50 100 150 200

NORMINE RESOURCES LTD.
PACIFIC EASTERN PROPERTY

SOIL GEOCHEMISTRY

GOLD, SILVER, ARSENIC AND ANTIMONY

DATE: DECEMBER, 1986	JOB NO. 86 - 08	FIG. NO. 11
DRAWN BY:		
REVISED BY:	SCALE: 1 : 2500	

BEMA INDUSTRIES LTD.

REFERENCES CITED

McMechan, M.E; Price, R.A; (1982) Superimposed low-grade metamorphism in the Mount Fisher area, south-eastern British Columbia - implications for the East Kootenay orogeny. Can.S. Garth Sci., 19, 476-489.

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