

017001

Davis-Keays Mining Co.Ltd.(NPL)  
 Summary Report  
*94K-* DAVIS-KEAYS PROPERTY *SAK/1111*  
*121017* Toad River, B. C.  
 December 1, 1967  
 Robert S. Adamson, P.Eng.

PROPERTY FILE  
*94K012-017-07*

**DOLMAGE, CAMPBELL & ASSOCIATES**  
CONSULTING GEOLOGISTS  
808 BANK OF CANADA BUILDING  
VANCOUVER 1, B.C.

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- 1 -

INTRODUCTION

On October 24 and 25, 1967 the writer examined the property of Davis-Keays Mining Co. Ltd. (N.P.L.) as requested by the officers of the company. Weather permitted direct on-foot examination of the Harris, Ridge and View zones, while the remainder, the Keays, William, Don, Pink, Eagle, Creek, Sheep, Bob and Oscar zones were viewed from a helicopter. All data pertaining to a program of trenching, mapping, sampling and limited diamond drilling that was undertaken by Davis-Keays Mining Co. Ltd. in 1967 were made available to and appraised by the writer. In addition the writer was able to examine a similar chalcopyrite-bearing quartz-carbonate vein currently being developed and explored underground by Churchill Copper Corp. Ltd. on the Magnum property, three miles east of the Davis-Keays claim group.

No underground workings exist on the Davis-Keays property.

Surface chip sampling of the mineralized veins and geological mapping were undertaken by Mr. L. Sookochoff, a geologist employed by Davis-Keays Mining Co. Ltd. Mr. Sookochoff's sampling and mapping procedures were checked by the writer and found to have been carried out in satisfactory manner.

DESCRIPTION OF PROPERTY: The property consists of 95 contiguous claims that form a block trending essentially north-south and encompassing an area approximately three miles by four miles. Valleys on the property lie above timberline at 4500 feet while peaks extend to 7500 feet. All claims were acquired by location. The claim block consists of the following recorded mineral claims and tag numbers; all claims are in good standing.

<u>Claim No.</u>	<u>Record No.</u>	<u>Claim No.</u>	<u>Record No.</u>
Eagle No. 1	G 26994	Eagle No. 21	G 27014
2	G 26995	22	G 27015
3	G 26996	23	G 27016
4	G 26997	24	G 27017
5	G 26998	25	G 27018
6	G 26999	26	G 27019
7	G 27000	27	G 27020
8	G 27001	28	G 27021
9	G 27002	29	G 27022
10	G 27003	30	G 27023
11	G 27004	31	G 27024
12	G 27005	32	G 27025
13	G 27006	33	G 27026
14	G 27007	34	G 27027
15	G 27008	35	G 27028
16	G 27009	36	G 27029
17	G 27010	37	G 27030
18	G 27011	38	G 27031
19	G 27012	39	G 27032
20	G 27013	40	G 27033
41	G 27034	Bonanza No. 10A	K 24600
42	G 27035	11A	K 24611
43	G 27036	12A	K 24298
44	G 27037	13A	R 25918
45	G 27038	14A	K 24601
46	G 27039	15A	K 24612
47	G 27040	16A	K 24299
48	G 27041	17A	R 25917
49	G 27042	18A	K 24602
50	G 27043	19A	K 24607
51	G 27044	1 B	K 24300
52	G 27045	2 B	R 25912
53	G 27046	3 B	K 24603
54	G 27047	4 B	K 24595
55	G 27048	5 B	K 24301
56	G 27049	6 B	R 25913
57	G 27050	7 B	K 24604
58	G 27051	8 B	K 24596
59	G 27052	9 B	K 24302



<u>Claim No.</u>	<u>Record No.</u>	<u>Claim No.</u>	<u>Record No.</u>
Bonanza No. 1A	K24608	10B	R 25914
2A	K 24598	11B	K 24605
3A	K 24296	12B	K 24597
4A	R 25920	13B	K 24303
5A	K 24599	14B	R 25915
6A	K 24609	15B	K 24606
7A	R 25919	16B	R 25916
8A	K 24297	17B	K 24304
9A	K 24610		

The property is located in northeastern British Columbia, 20 miles south southeast of Mile 442 on the Alaska Highway, 3 miles due west of the Magnum property of Churchill Copper Corp. Ltd., and 130 miles due west of Fort Nelson, B.C. Current access to the property can be undertaken either by helicopter or pack train from Mile 442 on the highway or by vehicle along the tote road from Mile 420 on the highway to the Magnum property, then three miles west by helicopter. Should the property develop to the point where better access may be acquired, then an all weather road can readily be built along the south bank of the Toad River and up Yedhe Creek from Mile 442 on the Alaska Highway. Access by this route will approximate 420 miles to railhead at Fort St. John in British Columbia or 500 miles to railhead at Whitehorse in the Yukon.

**HISTORY:** Copper deposits have been known in the area since the building of the Alaska Highway in the early 1940's. At least 15 deposits, all of the same vein character, have been discovered since then. Only three of the deposits, other than that of Davis-Kecays Mining Co., have been subject to limited exploration programs.

The Fort Reliance property, ten miles due west, was discovered in 1956 and trenched and diamond drilled in 1958. The Magnum deposit was discovered in 1943, staked in 1950 and drilled by Magnum Consolidated Mining Co. Ltd. in 1958. In 1965 Churchill Copper Corp. Ltd. built a tote road to its property 16 miles southeast and to the Magnum property, which they subsequently acquired. In 1966 Churchill drilled 5 diamond drill holes on the Churchill showings. In 1967 Churchill Corp. have begun an underground program of crosscutting, drifting and diamond drilling of the Magnum vein.

The Davis-Keays Mining Co. property was discovered through conventional prospecting by prospectors Harris Davis and Robert Keays of Fort Nelson, B.C. in August of 1967. Old claim-posts in the area indicate that at least some of the vein showings on the property were discovered by earlier prospectors. However, no work was done on the mineralized veins prior to 1967.

### SUMMARY & RECOMMENDATIONS

Several chalcopyrite bearing quartz-carbonate veins occur on the Davis-Keays Mining Co. property; three of which, the Harris, View and Keays veins, returned assays in excess of 3.5% copper over minable widths from surface chip sampling undertaken in 1967. On the basis of copper at 35¢ per pound and anticipating the possibility of a 1000 ton per day mill, then 3.5% copper can reasonably be considered economic in this area.

In view of the indicated continuity of structure along the Harris-Ridge-Eagle and the Creek-View vein fault systems, the probability of discovering adequate tonnages to support a mill of this capacity is good. Additional tonnage may ultimately be developed from other copper veins on the property; notably the Keays, William and Don veins.

Therefore, with the above objectives in mind, the following program of exploration on the Davis-Keays property is recommended to be undertaken in 1968:

#### RECOMMENDATIONS:

1. Complete the road that was initiated in late 1967 from the end of the Magnum tote road to the Davis-Keays property.
2. Extend the exposures of the Harris-Ridge-Eagle vein fault system along strike by bulldozer trenching from the Harris vein up to the Ridge showing and beyond as far as possible.
3. Sample and map these trenches as well as the Eagle vein.
4. Expose the Creek-View vein fault system by bulldozer trenching between the two zones and as far along strike as possible.
5. Sample and map the Creek-View trenches.
6. Test the down dip continuity of the Harris and View zones of mineralization by diamond drilling. Drilling should be done by using BQ wireline to ensure optimum core recoveries. Total drill footage required at this stage is 5,000 feet.



7. Extend exposures of the Keays vein beneath the talus by bulldozer trenching as far as possible to the northeast. Sample and map any mineralization uncovered.
8. Sample and map the William and Don veins.

COST OF PROGRAM:

A. BULLDOZING, includes road building and trenching	\$ 25,000.
B. DIAMOND DRILLING 5,000 feet at \$15. per foot	\$ 75,000.
C. ENGINEERING AND ADMINISTRATION includes sampling, assaying, mapping, etc.	\$ <u>10,000.</u>
	<u>\$110,000.</u>

Respectfully submitted,



*R. S. Adamson*

R.S. Adamson, P.Eng., for  
Dolmage-Campbell & Associates Ltd.  
Vancouver, Canada.

## GEOLOGICAL SETTING

The Davis-Keays Mining Co. Ltd. deposits occur just inside the eastern edge of the Rocky Mountains in northeastern British Columbia, with the foothills lying 35 miles to the northeast and the plains 30 miles beyond that. The topography of the region typifies the Canadian Rocky Mountains, consisting of north-west trending broad U-shaped glaciated valleys flanked by rugged peaks. The peaks range up to 9000 feet while the valley floors lie between 3,000 and timberline, which is at 4500 feet.

**GENERAL GEOLOGY:** The width of the Rocky Mountains south of the Peace River averages about 25 miles while north of the Peace River the range widens to 60 miles. As the range widens the structural geology changes from one of very tightly folded and steeply faulted formations to one of more open folds and flatter dipping thrust faults. The faults and folds generally trend northwesterly. The entire range dies out at the Liard River near the Yukon border. In the region of the Davis-Keays Mining Co. property, 50 miles south of the Liard river, the Rockies are wide, with extensive intervals of relatively undeformed rock formations within them. Very good exposures above timberline reveal gently dipping to locally contorted argillaceous and arenaceous rocks dislocated by extensive nearly-flat regional thrust faults as well as by steeply dipping normal and reverse faults. Characteristically, outcrop exposures of major intrusive bodies are absent in the Canadian Rockies. In the Davis-Keays area and in much of the surrounding country numerous, steeply dipping, north trending, gabbroic dykes are widely distributed, which because of their relative resistance to erosion stand as dark walls across the mountainous landscape.

Although the Canadian Geological Survey has not mapped the district, a broad belt along the Toad River southeastward from Mile 440 on the Alaska Highway has been mapped and determined to be of Precambrian Age. Apparently Precambrian argillaceous formations underlie most if not all of the known copper deposits in the district.

**ORE STRUCTURES:** Occurrences of copper mineralization on the Davis-Keays property are typical of numerous others described in the district; that is, they consist of nests, blebs, and disseminations of chalcopyrite with very minor bornite and pyrite in quartz-calcite veins. The veins usually occupy and are controlled by strong, continuous, northerly trending faults. These structures may also but not necessarily be occupied by many of the northerly striking premineral gabbroic dykes so widely distributed in the district.

PROPERTY GEOLOGY

Argillaceous sedimentary rocks, generally thin bedded, underlie the entire Davis-Keays Property and form a broadly folded northwest trending anticline whose axis strikes across the claims from the southeast to the northwest corner of the claim block. Steeply dipping, north to northeast striking faults cut across the property. Prominent, dark coloured, bold, erosion resistant, gabbroic dykes follow some of the fault zones. Quartz-carbonate veins containing nests, lenses and stringers of chalcopyrite usually, but not always, occur adjacent to the gabbroic dykes.

## ORE OCCURRENCES

HARRIS VEIN: The Harris vein, which crops out on the western canyon wall of a small southwesterly flowing creek for 300 feet, has been extended by hand trenching for an additional 200 feet. Chip sampling across the vein at irregular intervals along its length of 500 feet assayed 3.77% copper across an average width of 7.0 feet (Fig. 3). The best section of the vein, which has been sampled at more regular intervals, assayed 4.45% copper across a width of 8.1 feet over a length of 200 feet. The vein apparently lenses out on the south but disappears beneath scree material to the north.

Four diamond drill holes were drilled with a light machine at three intervals along the vein; only one of which, DDH-HV1 intersected the vein. This intersection assayed 0.4% copper over 2.5 feet, which corresponded well with the average values in a nearby overlying trench. Drill holes HV 2 and 3 encountered difficulty after 24 feet in both cases, while DDH-HV4 was terminated at 101.8 feet when bad drilling conditions prevented continuation of the hole at a point just prior to the projected intersection of the vein from the surface.

RIDGE SHOWING: A hand trench dug through scree material high on the mountainside above the Harris vein has exposed chalcopyrite mineralization in a quartz-carbonate gangue, that assays 1.35% copper over a width of 4 feet. The Ridge zone lies at an elevation approximately 1900 feet above the lowermost exposure of the Harris vein. Conceivably, the Ridge mineralization lies within the same structure controlling the Harris vein which is 3000 feet southwest of the Ridge showing. However, this possibility will have to be substantiated by bulldozer trenching at regular intervals between the two zones.

CREEK VEIN: A narrow quartz-carbonate vein, generally less than a foot in width and carrying erratic and low copper values, crops out in the same creek canyon as the Harris vein outcrop and has been designated the Creek vein. Although of no direct economic significance at this time the creek vein structure could prove important if exposed by more exploration along it.

VIEW SHOWINGS: Two hand trenches spaced 300 feet apart penetrated a thin scree overburden to reveal massive chalcopyrite, quartz and calcite mineralization. The lower and southernmost trench lies 1000 feet horizontally and approximately 800 feet vertically from the northern exposure of the Creek

vein. The mineralization in the lower trench assayed 5.75% copper over a width of 5 feet. The other trench, approximately 100 feet above the lower trench assayed 3.90% copper across a four foot width. Copper-bearing float strongly indicates that both trenches exposed the same vein structure.

Possibly, the View mineralization, which is essentially on the strike extension of the Creek vein, may be controlled by the same structure as the Creek vein. However, this premise will have to be determined by a series of trenches cut at regular intervals between the two mineralized zones.

EAGLE VEIN: Cropping out on a steep bluff, the Eagle vein was not examined directly by the writer in view of the hazard created by snow and ice at the time of the examination. Helicopter reconnaissance of the bluff at varying elevations revealed a vein, as indicated by rusty outcrop and erratic splashes of malachite stain, that extends for approximately 1500 feet vertically up the bluff. Grade, width, and continuity of mineralization have not yet been established by mapping and sampling.

Preliminary reconnaissance mapping suggests the Harris, Ridge and Eagle zones may be mineralized sections of the same structure. Bulldozer trenching between the three zones and detailed mapping will be necessary to establish the validity of this possibility.

KEAYS VEIN: The Keays vein also crops out on a steep bluff, located approximately a mile west of the Harris vein. Although the writer was not able to examine this vein directly, it was mapped and sampled by personnel of Davis-Keays Mining Co. Ltd. (Fig. 5). The vein, which averages 8.4 feet wide, was sampled for 200 feet of length before it became inaccessible up the cliff to the southwest. To the north the vein apparently disappears beneath talus overburden. Five samples taken across the vein had an average assay of 3.6% copper.

OTHER VEINS: Several other veins have been discovered on the property, only one of which, the Pink vein, had received any direct attention during the 1967 program. The Bob, Oscar, and Sheep zones contain massive galena mineralization but with no significant silver values.

The Don and William veins are reported to be copper-quartz-carbonate vein zones similar in character to others on the property.

Excepting the Pink vein, none of these aforementioned vein zones have



been mapped or sampled in systematic fashion. The Pink vein on the other hand, which has been sampled and mapped, assayed 0.47% copper and 0.26% cobalt over a width of 3.2 feet and a length of 100 feet.

The writer did not examine any of these veins but was able to view them at some distance, from the helicopter.

### CONCLUSIONS

Predicated upon copper prices of 35¢ per pound and daily production of 1000 tons per day it is the writer's opinion that in the Davis-Keays area copper ore grading 3.5% over four foot widths can be mined at a profit.

1. Firm transportation costs from this area have been established at \$60. per ton of concentrate.
2. The chalcopyrite-quartz-carbonate veins exhibit the simplest of mineralization so that, as well as obtaining optimum mill recoveries, an 8:1 concentration ratio can reasonably be expected.
3. In spite of relatively narrow widths for postulated stopes, 4 to 12 feet wide, it should be possible to maintain a mill feed rate of 1000 tons per day because the relatively steep terrain lends itself to development and mining from a series of adits rather than from a shaft.

Therefore, sufficient tonnages of 3.5% copper will have to be discovered on the Davis-Keays property to justify construction of a 1000 ton per day mill. As a result of the work done on the property to date by Davis-Keays Mining Co. Ltd., the probability of finding the necessary tonnages of ore is considered by the writer to be good.

Further exploration should initially be designed to establish the indicated continuity of mineralization and structure of both the Harris-Ridge-Eagle and the Creek-View vein fault systems; in each case along strike by bulldozer trenching and mapping and down dip by some preliminary diamond drilling. The object of this program would be to locate a series of potential ore shoots grading 3.5% copper along the indicated structures. Two such potential ore shoots are already indicated by surface sampling, for a 500 foot length on the Harris vein and for 300 feet on the View zone.

Respectfully submitted,



*R. S. Adamson*

R.S. Adamson, P.Eng. for  
Dolmage-Campbell & Associates Ltd.  
Vancouver, Canada.

DOLMAGE, CAMPBELL & ASSOCIATES  
CONSULTING GEOLOGISTS  
808 BANK OF CANADA BUILDING  
VANCOUVER 1, B.C.

CERTIFICATE

I, Robert S. Adamson, with business and residential addresses in Vancouver, British Columbia, do hereby certify that:

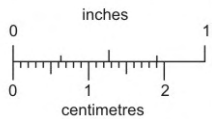
1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia, (B.A. Sc. in Geological Engineering, 1957).
3. I am a registered Professional Engineer of the Province of British Columbia.
4. From 1957 to 1967 I was engaged in mineral exploration in Canada as a geologist for a number of companies. I was Chief of Exploration for Arvil Mining Corporation Ltd. when I retired in 1967 to join the firm of Dolmage-Campbell and Associates Ltd. as a consulting geologist.
5. I personally visited the Davis-Keays Mines Ltd. property for two days in October, 1967 and reviewed all available data concerning the property.
6. I have not received, nor do I expect to receive, any interest, directly or indirectly in the properties or securities of Davis-Keays Mines Ltd.

Respectfully submitted,

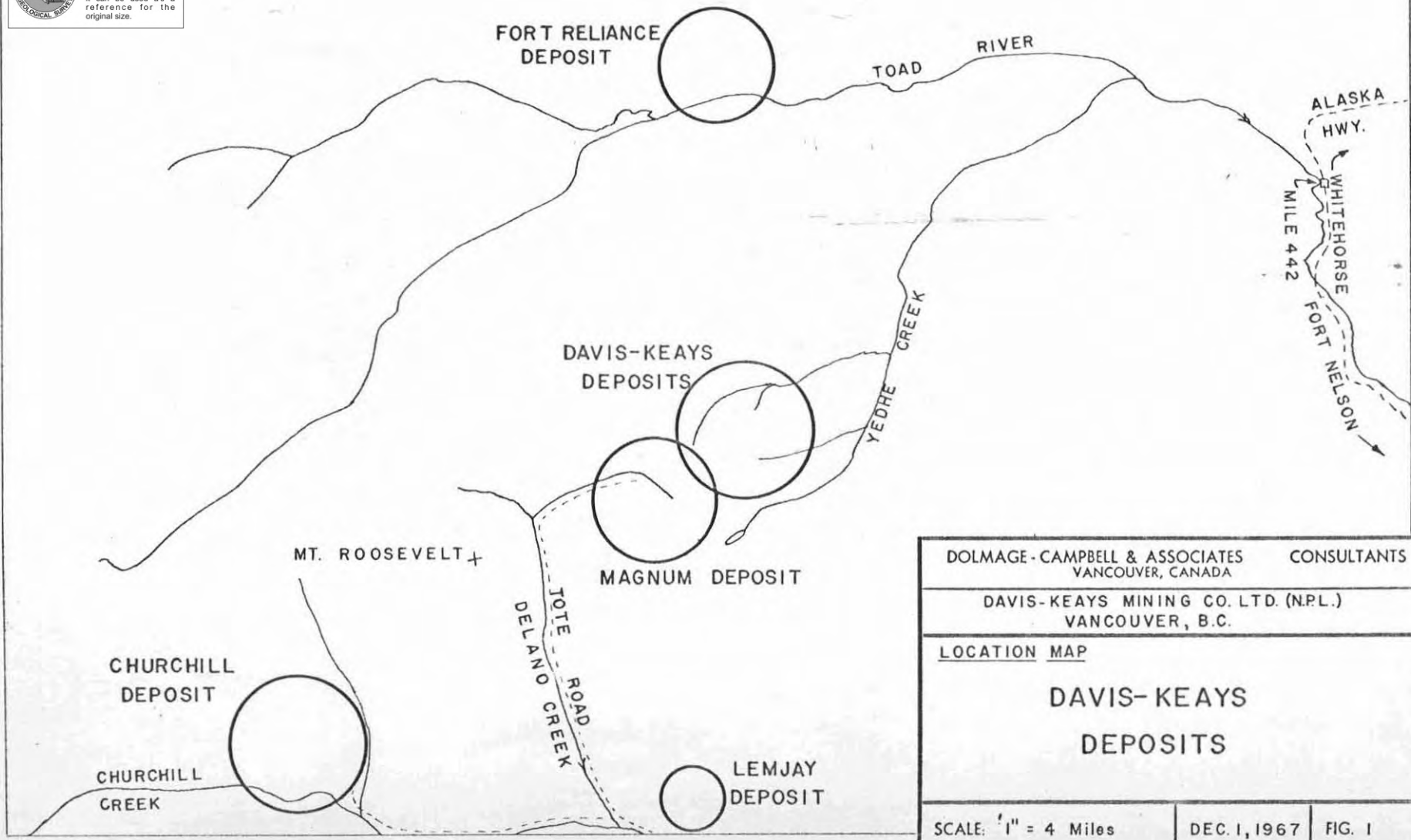


*R. S. Adamson*

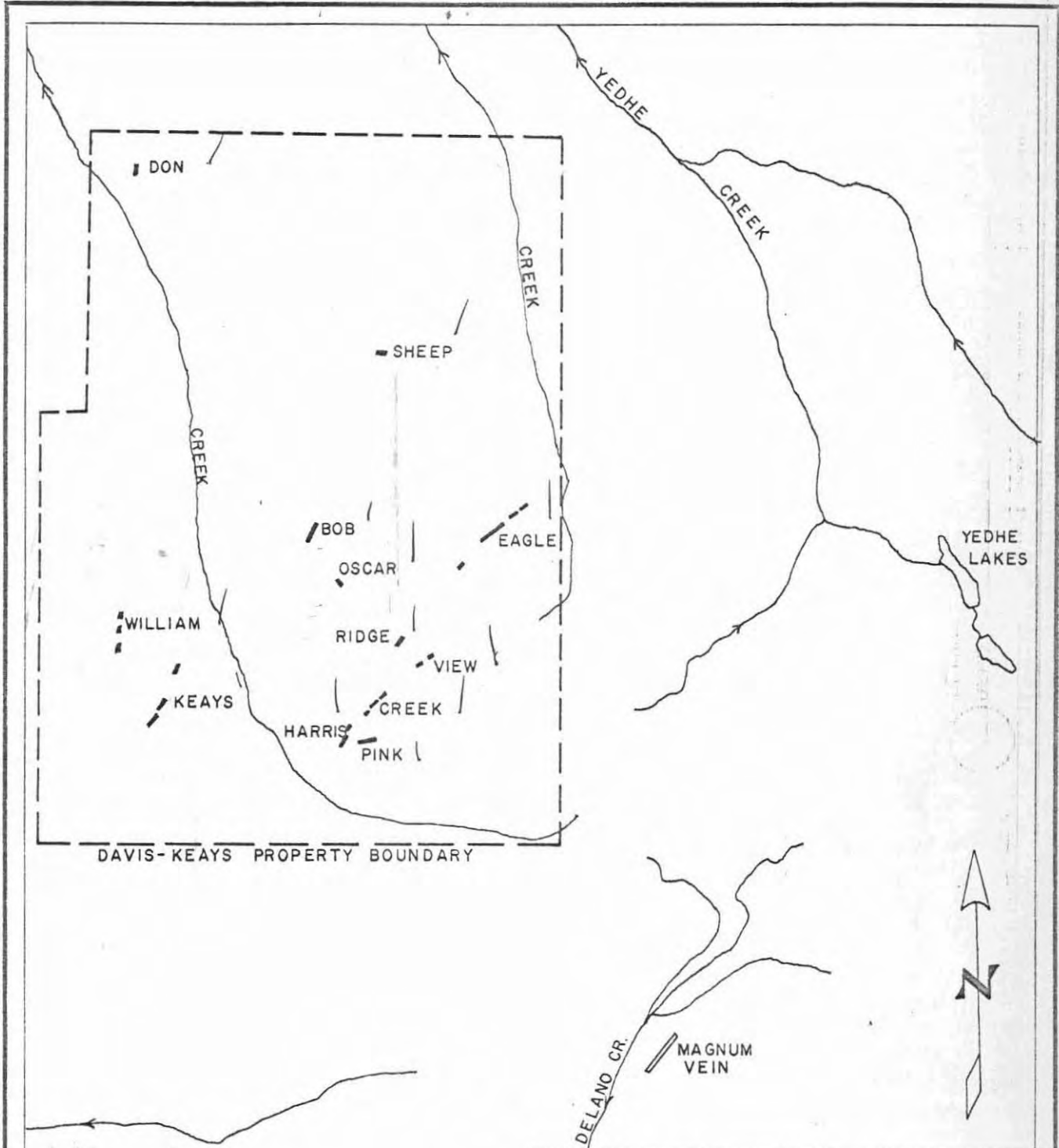
R.S. Adamson, P.Eng., B.A.Sc.



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DAVIS-KEAYS MINING CO. LTD. (N.P.L.) VANCOUVER, B.C.		
LOCATION MAP		
DAVIS-KEAYS DEPOSITS		
SCALE: 1" = 4 Miles	DEC. 1, 1967	FIG. 1

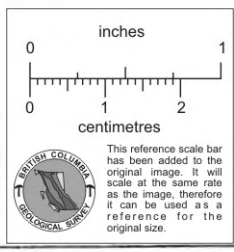


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VANCOUVER, CANADA

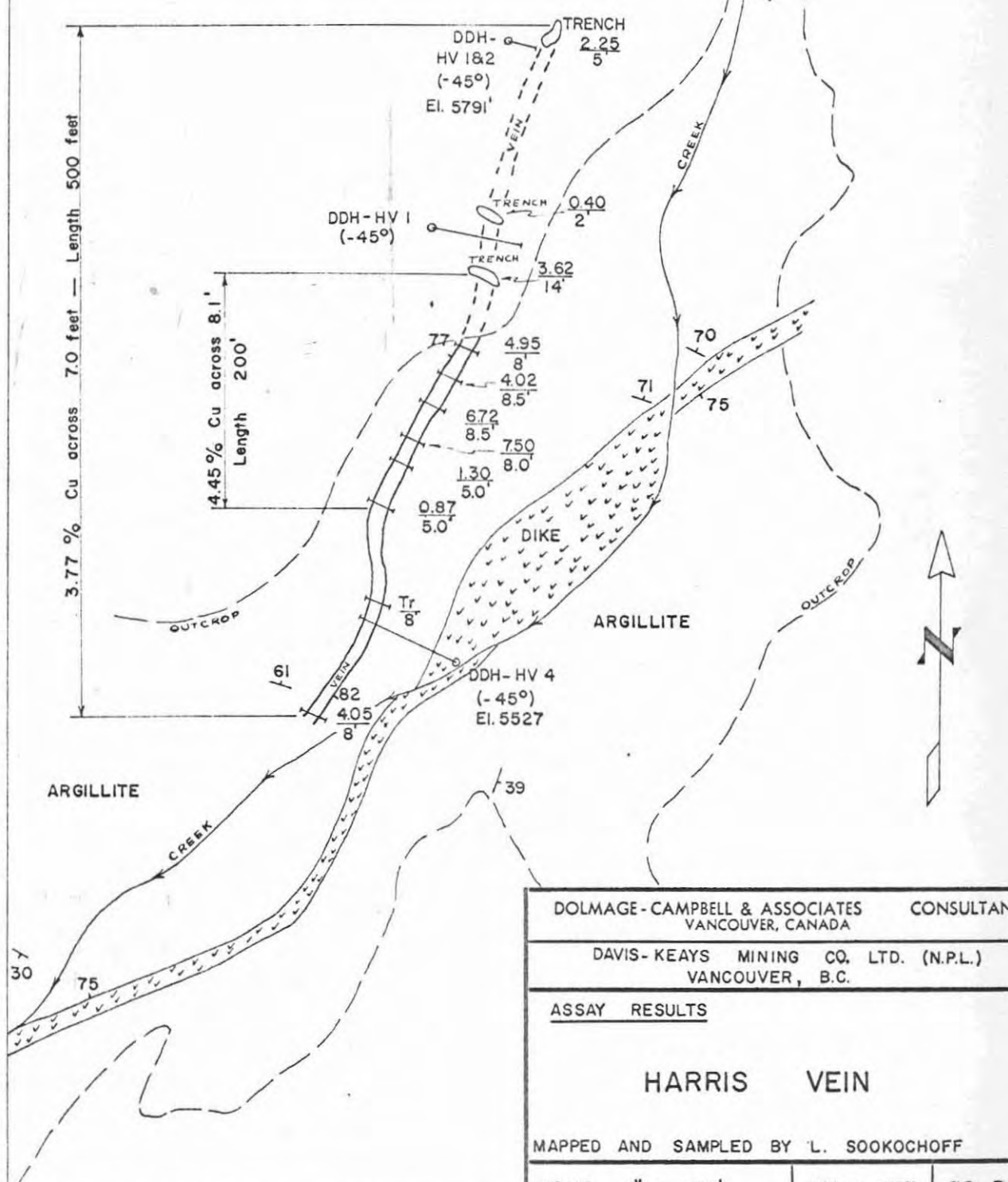
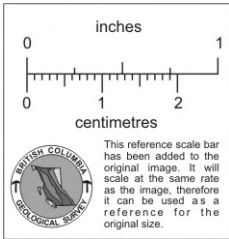
DAVIS - KEAYS MINING CO. LTD. (N.P.L.)  
VANCOUVER, B.C.

PROPERTY PLAN  
**DAVIS - KEAYS**  
**VEINS & SHOWINGS**

SCALE: 1" = approx 4260' | DEC. 1, 1967 | FIG. 2







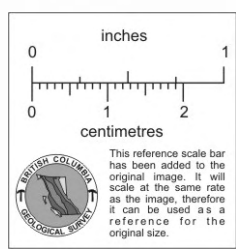
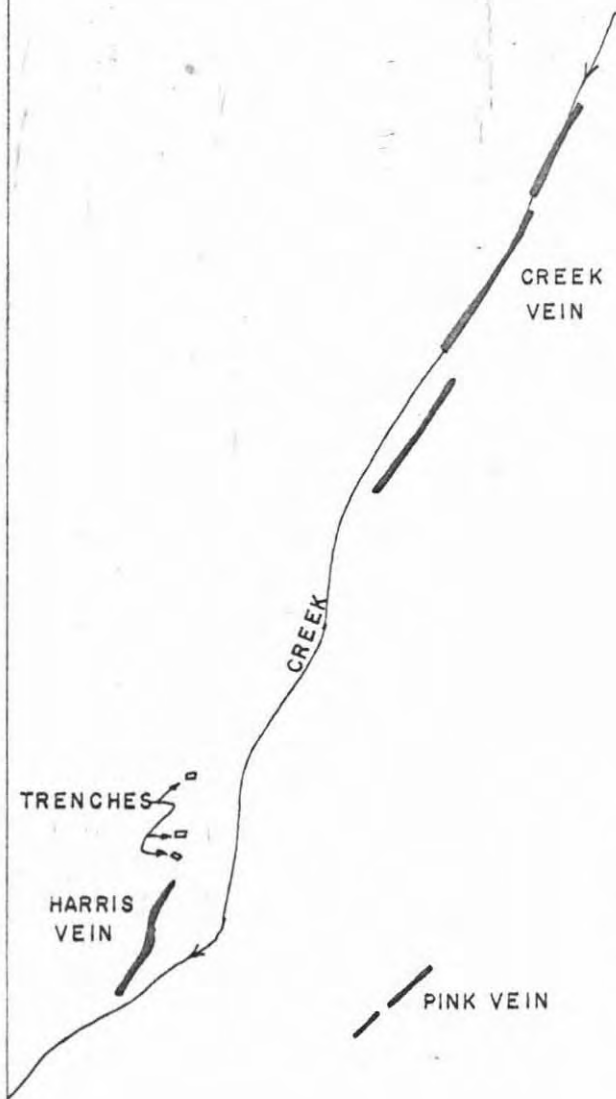
DOLMAGE-CAMPBELL & ASSOCIATES VANCOUVER, CANADA		CONSULTANTS
DAVIS-KEYS MINING CO. LTD. (N.P.L.) VANCOUVER, B.C.		
<u>ASSAY RESULTS</u>		
<b>HARRIS VEIN</b>		
MAPPED AND SAMPLED BY 'L. SOOKOCHOFF		
SCALE: 1" = 100'	DEC. 1, 1967	FIG. 3

RIDGE SHOWING  
TRENCH 1 1.35% Cu  
4'

TRENCH 2 3.90% Cu  
5'

VIEW SHOWINGS

TRENCH 3 5.75% Cu  
5'



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VANCOUVER, B.C.		
PLAN		
HARRIS-RIDGE, CREEK-VIEW		
VEIN SYSTEMS		
MAPPED AND SAMPLED BY L. SOOKOCHOFF		
SCALE: 1" = 400 feet	DEC. 1, 1967	FIG. 4

TALUS

Elev. 5756'

1.20% Cu

12'

5.9% Cu

12'

4.15% Cu

8'

ARGILLITE

5.0% Cu

5'

1.37% Cu

5'

ARGILLITE

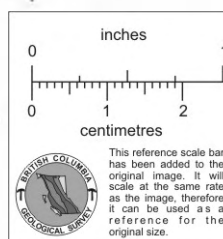
CREEK

VEIN 70

VEIN 60

80

85



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VANCOUVER, CANADA

DAVIS-KEYS MINING CO. LTD. (N.P.L.)  
VANCOUVER, B.C.

ASSAY RESULTS

KEYS VEIN

MAPPED AND SAMPLED BY L. SOOKOCHOFF

SCALE: 1" = 100 feet

DEC. 1, 1967

FIG. 5