

Part 2
of 3

MINERAL RESOURCES BRANCH ASSESSMENT REPORT 6697 NO. _____
--

GEOCHEMICAL SURVEY

SIMILKAMEEN M.D., B.C.

92H-10E 78: #1125-#

ACE CLAIM #49 - 20 UNITS

49°-39' : 120°-36' 16-6-77:27-8-77

Alfred R. Allen, P.Eng.

For:

CARDERO RESOURCES LTD.

1620 - 701 West Georgia
Vancouver, B.C. V7Y 1G2

By:

ALLEN GEOLOGICAL ENGINEERING LIMITED

202 - 2025 Bellevue
West Vancouver, B.C. V7V 1B9

November 28, 1977.

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4. Composite Plan, in pocket

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GEOCHEMICAL SURVEY

ACE CLAIM #49

16-6-77 : 27-8-77

INTRODUCTION

The Ace claim is 22 metres north of Princeton, B.C., at the south end of Dry Lake on the west side of Highway #5. A secondary road extends from the motel on Dry Lake 1.25 kilometres to the mineral showings.

The legal corner post of the Ace claim is on the east side of Highway #5 about 200 metres north of the Ministry of Highways gravel storage area.

The claim was recorded as #49 on June 4, 1976.

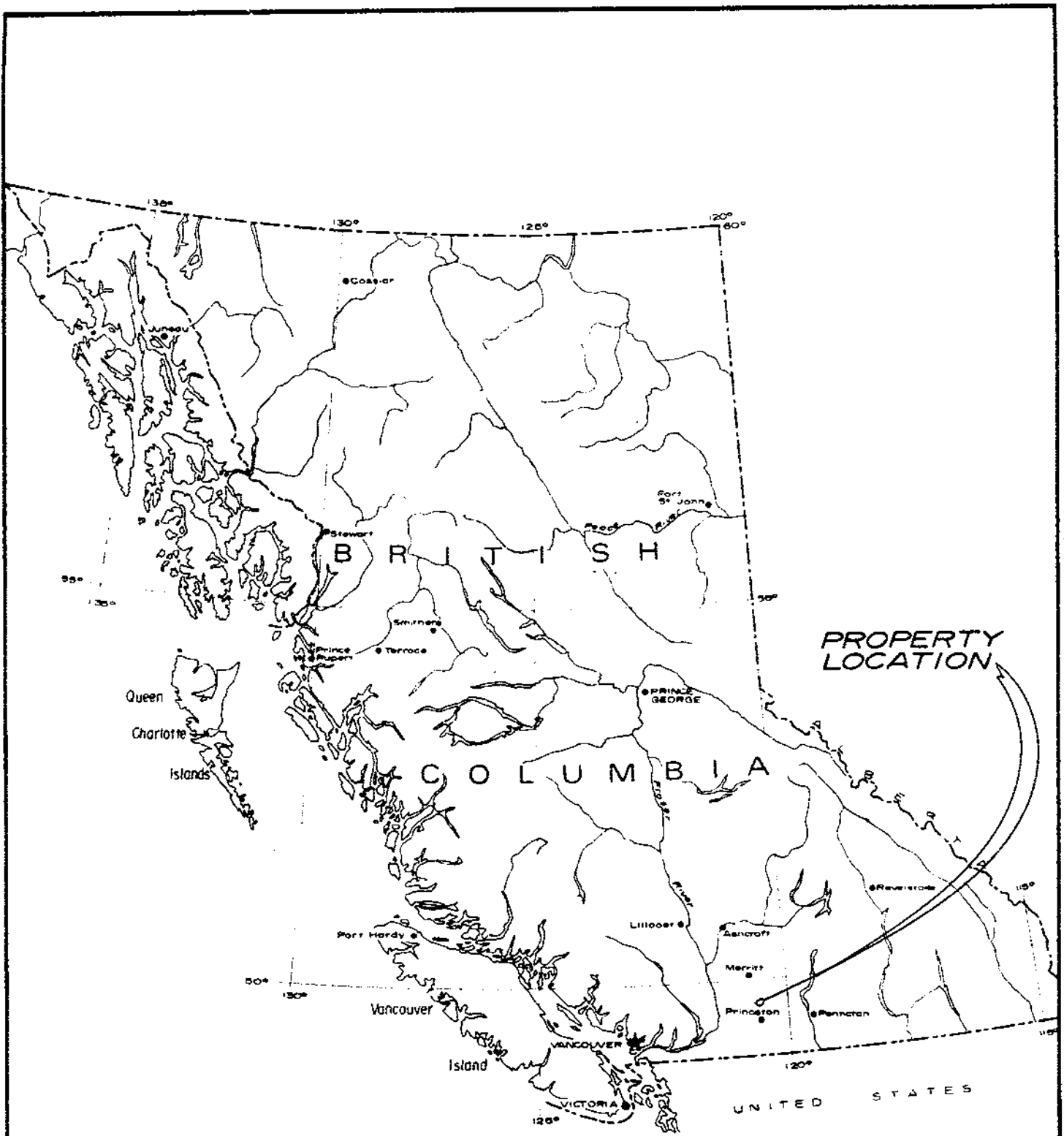
Mineral showings had been discovered in the 1960's and in 1972 geochemical and geophysical investigations had been conducted over part of the claim area by D. Cochrane, P.Eng.

On the west side of a faulted contact between Nicola andesite and Coast Range granodiorite; pyrite, chalcopyrite, sphalerite, galena, malachite and azurite has been partially exposed by trenches.

Over a surveyed grid on 500 hectares, a geochemical survey was conducted from June 16 to August 27, 1977.

Three hundred soil samples were taken and assayed for copper.

Additional field investigations, including soil sampling on a 50 by 50 metre grid are herewith recommended on the northeast quadrant of the Ace claim, at an estimated cost of \$15,000.00.



CARDERO RESOURCES LTD.		
LOCATION MAP		
SCALE: 1" = 136 Mls.		
Drawn by	Date	ALLEN GEOLOGICAL ENGINEERING LTD.
Checked by	26/11/77	
	Org no. 1	

PROPERTY

The location post of the Ace claim is a few feet east of Highway 5, 22 kilometres north of Princeton, and between the road into the motel on the south side of Dry Lake and the Department of Highways gravel storage area.

The metal tag, number 11382, is firmly affixed to the post.

From the post the claim extends 4 units south and 5 units west, an area of 500 hectares.

The claim was staked by J.C. Turner, agent for George O'Brian, on May 5, and 6, 1976, and recorded June 4, 1976.

The record number is 49.

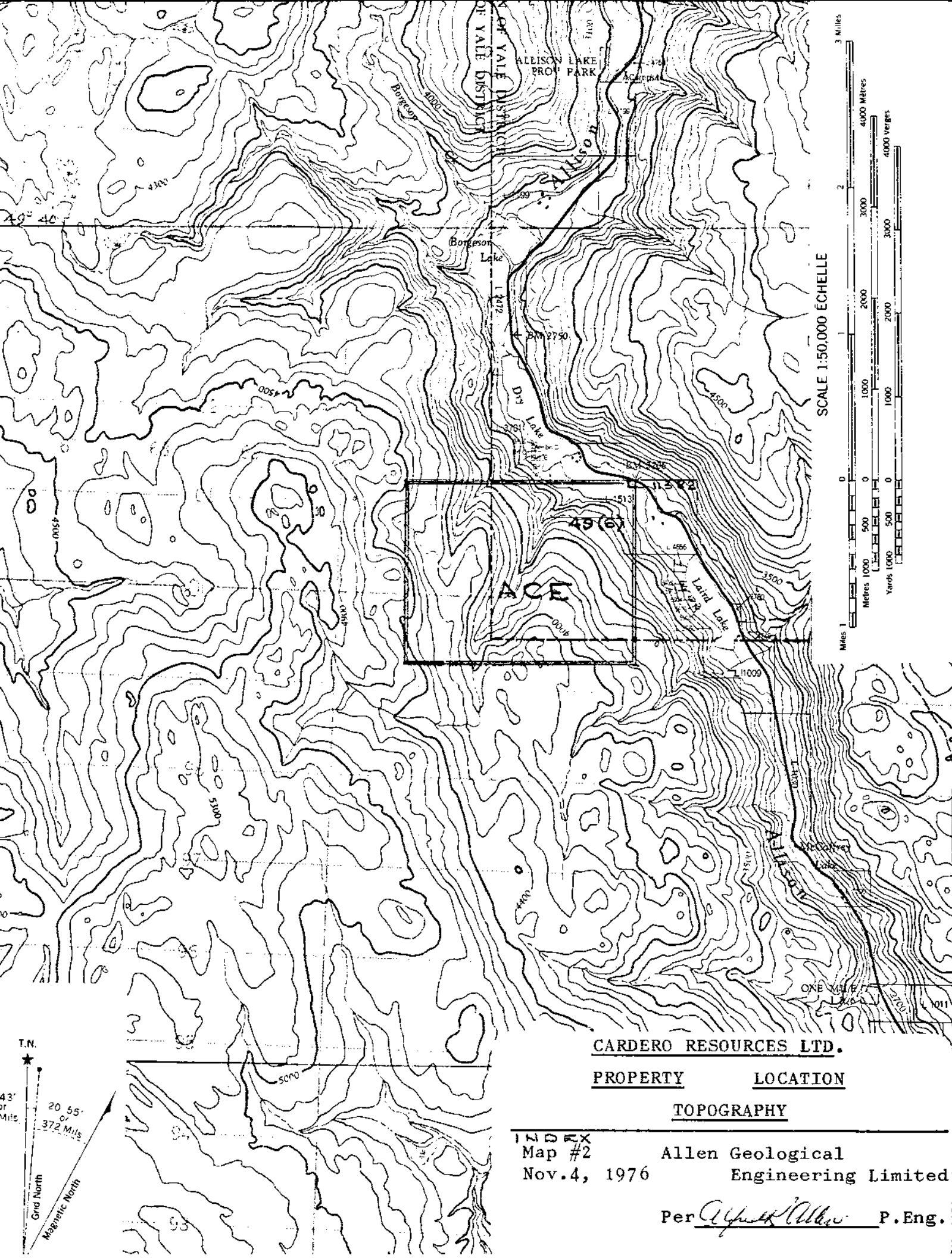
It is shown on the Ministry of Mines and Petroleum Resources Claims Map 92-H-10E and accompanying Index Map #2.

HISTORY

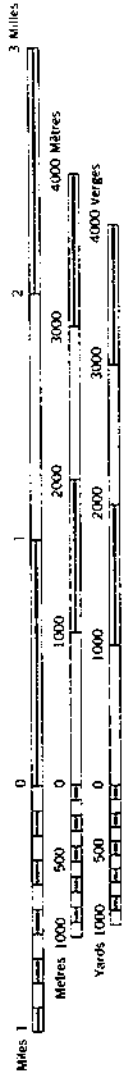
Chalcopyrite, malachite, azurite, sphalerite and pyrite mineralization was discovered on the claim prior to 1970. Reference is made to the area in the 1971-72 report Geology, Exploration and Mining by the Ministry of Mines and Petroleum Resources of B.C.

During the summer of 1972, D. Cochrane, P.Eng., conducted geochemical and magnetometer investigations over about one quarter of the claim area.

The property was acquired by Cardero Resources Ltd., in 1977.



SCALE 1:50,000 ÉCHELLE



CARDERO RESOURCES LTD.

PROPERTY LOCATION

TOPOGRAPHY

INDEX
 Map #2 Allen Geological
 Nov. 4, 1976 Engineering Limited

Per *Alfred Allen* P. Eng.

T.N.
 43' or more
 20 55'
 372 Miles
 Grid North
 Magnetic North

TOPOGRAPHY

The Ace claim is located in the Allison Creek Valley about one kilometre south of Dry Lake and west of Liard Lake.

There is a steep rise from the valley at 823 metres above sea level to the west boundary of the claim at 1,370 metres elevation.

Two creeks flow through narrow V-shaped valleys northeasterly across the property into Dry Lake.

The mineral showings are located near the central part of the property on the west flank of the largest creek at 1060m above sea level.

GRID CONTROL

Using chain and Brunton compass a base line was surveyed from the Legal Post west, and close to the location line, to the northwest corner of the claim.

Stations were established every 150 metres by stakes and the line was well flagged and blazed.

From each base line station lines were surveyed by chain and Brunton compass south to the south boundary of the claim. Stations were established at 100 metre intervals by stakes and flagging on all lines.

All stations were marked with the appropriate grid location.

The grid is shown on the accompanying maps #3 and #4.

GEOLOGY

Upper Triassic andesitic rocks of the Nicola Group underlie most of the Ace claim, except for the southeast corner where they are overlain by Cretaceous volcanic rocks of the Kingsvale Group.

The northeast area of the property is underlain by granodiorite and quartz diorite of the Coast Range intrusives.

The contact extends from the central east border to the central north border of the claim.

On the southwest side of the fault altered zones contain silicified andesite, quartz and calcite with pyrite, pyrrhotite, chalcopyrite, sphalerite and galena.

GEOCHEMICAL SURVEY

A geochemical survey was conducted over the 20 units of the Ace claim to ascertain the quantity and distribution of the copper content of the overburden.

A grid, tied to a north boundary base line, was blazed and flagged. It was surveyed by chain and Brunton Compass. North-south lines were spaced at 150 metre intervals and stations located every 100 metres along the lines. Each station was marked with the grid location.

A sample of soil was removed from the B horizon, about 30 centimetres below the surface. The samples were placed in a bag and marked with the date, grid station location, sampler's name, and element to be determined, in this instance, copper.

SURVEY RESULTS

The assay values of the soil samples are classified as follows:

<u>Assay</u>	<u>Description</u>	<u>Number of</u>	<u>Percent of</u>
<u>Cu in p.p.m.</u>		<u>Samples</u>	<u>Total</u>
0 - 29	Not anomalous	244	81.33
30 - 59	Weakly anomalous	49	16.33
60 - 89	Moderately "	5	1.68
90 - 119	Strongly "	1	0.33
120 +	Very strongly anomalous	1	0.33

Areas #1 and #2, on Map #3 are "spot" samples.

Areas #3 to #6 comprise a sizeable weakly anomalous area with scattered moderately anomalous "spot" samples.

Areas #7 to #11 are "isolated" and "spot" anomalous areas.

The largest anomalous area, #3 to #6, extends from the trenched mineralized zone down the northeast slopes to the north boundary of the property.

The fault-contact zone crosses the anomaly 200 metres to the south-east, and approximately parallel to the westerly extremity of the anomaly. The deeply incised creek valley crosses the anomaly approximately at right angles to the fault-contact zone.

Down-slope seepage is in general northeasterly.

Since the anomalous zone extends from the Nicola rocks, across the faulted contact with Coast intrusives, considerable distances from the creek, and well onto the flat valley floor, it is concluded that additional detailed investigations will be required to assess the potential of this northeasterly 1,400 by 600 metre portion of the property.

SUMMARY AND CONCLUSIONS

The Ace claim is located in south central British Columbia, 22 kilometres north of Princeton, west of Highway #5 and near the south end of Dry Lake.

A geochemical survey was conducted on a 100 by 150 metre grid over the 20 unit claim.

Strong and very strong assays were acquired at A-16 and N-7. Five small areas of weak copper content were outlined on the south-eastern half of the property.

One moderately strong sample was located at N-2.

Samples from an area 1,400 metres by 600 metres on the northeast portion of the property assayed weak to moderate copper content. On the western boundary of this anomaly copper, silver and zinc mineralization has been partially exposed by trenches.

The faulted contact between Nicola andesite and Coast Range intrusives lies about 200 metres northeast of the exposed mineral zones.

The anomaly overlaps the Nicola and the Coast Range intrusive rocks.

It is concluded that the area between A to L and 0 to 7 warrants detailed geochemical investigation, on a 50 by 50 metre grid, and this is recommended.

Respectfully submitted,
ALLEN GEOLOGICAL ENGINEERING LIMITED
Per Alfred R. Allen P.Eng.
Alfred R. Allen

West Vancouver, B.C.
November 28, 1977.

REFERENCES

- Rice, H.M.A., Geological Survey of Canada Memoir 243 1947.
- Cochrane, D.R., Geophysical and Geochemical
Surveys on AT Group Assessment Report
#4349, 1972.
- Skerl, A.C., Geochemical Survey, Allison
Lake Claims, near Princeton, B.C. Assessment Report
#1857, 1969.
- Geology, Exploration and Mining,
B.C. Department of Mines and
Petroleum Resources 1971-72

* * * * *

Allen Geological Engineering Limited

2025 BELLEVUE AVENUE
WEST VANCOUVER, B.C., V7V 1B9

Telephone
604-926-4785

CERTIFICATE

November 28, 1977.

I, Alfred R. Allen, certify that:

I am a graduate of the University of British Columbia and hold the following degrees therefrom:

BASc Geological Engineering 1939

MASc Geological Engineering 1941

I am a member of the Association of Professional Engineers of the Province of British Columbia.

I have practised my profession for the past thirty years.

I hold no interest in the properties or securities of Cardero Resources Ltd., or affiliates thereof, nor do I expect to receive any, directly or indirectly.

The accompanying report on the Ace property is based on field work done by the writer June 6, 1977 to August 28, 1977.

I consent to this report being filed with the British Columbia Securities Commission.

Alfred R. Allen P. Eng.
Alfred R. Allen

Allen Geological Engineering Limited

2025 BELLEVUE AVENUE
WEST VANCOUVER, B.C., V7V 1B9

Telephone
604-926-4785

November 28, 1977.

British Columbia Securities Commission
756 Fort Street
Victoria, B.C.

Dear Sirs:

Re: Cardero Resources Ltd.

I hereby consent to the use of my report Dated November 28, 1977, on the Ace claim, Similkameen M.D., B.C., in any prospectus or Statement of Material facts or other material to be filed with the British Columbia Securities Commission or the Vancouver Stock Exchange by Cardero Resources Ltd.

Yours very truly,


Alfred R. Allen P. Eng.
Alfred R. Allen

For:

ALLEN GEOLOGICAL ENGINEERING LTD.

A.

THE ACE CLAIM #49, Map 92H-10E

SIMILKAMEEN M.D., B.C.

FOR: CARDERO RESOURCES LTD.

PERSONNEL AND TIME

GRID
GEOLOGICAL SURVEY
GEOCHEMICAL SURVEY
MAGNETOMETER SURVEY

FIELD TIME

<u>Name</u>	<u>Month</u>	<u>Grid</u>	<u>Dates Geology</u>	<u>Geochem. & Mag.</u>	<u>Man Days</u>
A.R. Allen,	June:	16-18, 22, 23	15, 24-28		11
	July:	7, 21-23	13-15, 24	3, 16-20	14
	Aug.:		1, 14, 24-27, 30	2, 4-6, 8-10, 19	15
T. Thomas,	Aug.:	24-26		27	4
S. Money,	June:	16-17, 20-30			13
	July:	1, 4-10			8
R. Barnatson,	July:	16, 17, 21-24			6
M. Racher,	June:	26-30			5
	July:	1, 4, 5, 7-10, 13-15 17, 21-23			14
	Aug:			4, 5	2
K. Parks,	June:	16, 17, 21-24			6

MOBILIZATION, MAPPING, REPORTS

A.R. Allen,	June:	6, 13, 14, 22			4
	July:	6, 12, 13-15			2
	Aug.:	3, 24, 29			3
	Sept:	5-10, 13-15			9
	Oct.:	4-9, 14			7
	Nov.:	13, 14, 28			3

TOTAL

126

B.

GEOCHEMICAL SURVEYACE CLAIM - #49, Map 92H - 10ESIMILKAMEEN M.D., B.C.FOR: CARDERO RESOURCES LTD.Personnel, Time and Costs

OPERATOR: Alfred R. Allen, Geological Engineer @ \$185.00/day
 202 - 2025 Bellevue, West Vancouver, B.C.
 June 6 - November 28, 1977.

CREW: T. Thomas, Experienced field man
 R.R. 4, Mission, B.C. @\$ 75.00/day
 S. Money, Axemen, Princeton, B.C. @ 7.00/day
 M. Racher, " " " " " "
 K. Parkes " " " " " "
 R. Barnatson, " " " " " "

<u>SURVEY:</u>	<u>ManDays</u>	<u>Costs</u>
T. Thomas	$\frac{1}{2}$	\$ 37.50
M. Racher	1	56.00
A. R. Allen	7	1,295.00
GRID	25	1,634.00
ASSAYING, 300 soil samples @ \$2.00		600.00
TRANSPORTATION, 2 ars @ 20¢/mile		240.00
ACCOMMODATION, Motel @ \$20.00/day		345.00
SUPPLIES		25.00
FOOD,		388.00
MAPS, AIR PHOTOS,		17.00
VEHICLE RENTALS, JEEP, DUNE BUGGY @\$20.00/day		54.00
MOBILIZATION, MAPPING, REPORTS,		
A.R. Allen	11	2,035.00
TOTAL	$44\frac{1}{2}$	\$6,726.00



GENERAL TESTING LABORATORIES

DIVISION SUPERINTENDENCE COMPANY (CANADA) LTD.

1001 EAST PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
 PHONE (604) 254-1647 TELEX 04-507514 CABLE SUPERVISE

TO: **ALLEN GEOLOGICAL ENGINEERING LTD.**
 203 - 2025 Bellevue Avenue
 West Vancouver, B.C.
 V7V 1B9

CERTIFICATE OF ASSAY

No.: **7707-2257** DATE: **July 28/77**

We hereby certify that the following are the results of assays on: **Soil samples**

MARKED	OZ / ST		Copper Cu (ppm)	XXX	XXX	XXX	XXX	XXX
	GR / MT	GR / MT						
<u>B-0711.51</u>								
A - 3			25					
4			43					
5			27					
7			12					
8			16					
9			25					
10			25					
11			16					
14			16					
15			40					
16			106					
17			12					
18			29					
19			14					
A - 20			18					
B - 2			55					
3			10					
7			10					
8			25					
9			5					
11			13					
12			7					
13 *			12					
13 *			21					
14			12					
15			25					
16			40					
17			15					
18			10					
19			10					
B - 20			35					

* NOTE: 2 B-13 samples

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NOTE: REJECTS RETAINED ONE MONTH, PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

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 V7V 1G9
 (Continued on ... page 2)

CERTIFICATE OF ASSAY

No.: 7707-2257

DATE: July 28/77

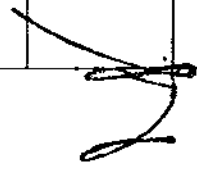
We hereby certify that the following are the results of assays on: **Soil samples**

MARKED	XXXXXXXXXXXX		Copper	XXX	XXX	XXX	XXX	XXX
	OZ/ST. GR/MT	OZ/ST. GR/MT	Cu (ppm)					
C - 0			62					
C - 1			46					
C - 2			38					
C - 4			7					
C - 6			7					
C - 7			5					
C - 8			8					
C - 9 *			7					
C - 9 *			13					
C - 11			14					
C - 12			6					
C - 13			10					

* NOTE: 2 C-9 samples

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TO:
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203 - 2025 Bellevue Avenue
West Vancouver, B.C.
V7V 1B9

CERTIFICATE OF ASSAY

No.: **7707-2651** DATE: **August 3/77**


We hereby certify that the following are the results of assays on: **Soils**

MARKED	GENERAL INFORMATION		Copper	ZINC	ZINC	ZINC	ZINC	ZINC
	OZ / ST GR / MT	OZ / ST GR / MT	Cu (ppm)					
<u>R-071453</u>								
D - 0			45					
1			64					
2			28					
4			26					
5			18					
6			27					
8			14					
9			18					
10			16					
11			16					
12			30					
D - 13			18					
E - 0			43					
E - 1			39					
2			49					
3			43					
4			41					
5			18					
6			26					
7			27					
8			19					
9			12					
10			12					
11			16					
12			18					
13			18					
14			20					
15			14					
16			18					
17			13					
18			27					
19			16					
R - 20			22					

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 L. W. W. W.
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ALLEN GEOLOGICAL ENGINEERING LTD.

(Continued) ... page 2

CERTIFICATE OF ASSAY

No.: **7707-2651** DATE: **August 2/77**

We hereby certify that the following are the results of assays on: **Soils**

MARKED	REJECTS REJECTS		Copper	XXX	XXX	XXX	XXX	XXX
	OZ / ST GR / MT	OZ / ST GR / MT	Cu (ppm)					
F - 2			55					
4			63					
5			14					
6			28					
7			13					
8			24					
9			13					
10			16					
11			13					
12			16					
13			16					
14			14					
15			16					
16			24					
17			14					
18			22					
19			18					
F - 20			22					

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TO:
ALLEN GEOLOGICAL ENGINEERING LTD.
 203 - 2025 Bellevue Avenue
 West Vancouver, B.C.
 V7V 1B9

CERTIFICATE OF ASSAY

No.: 7708-1050

DATE: August 17/77

We hereby certify that the following are the results of assays on: **Soils**

MARKED	XXXXXXXXXXXX		Copper	XXX	XXX	XXX	XXX	XXX
	OZ/ST GR/MT	OZ/ST GR/MT	Cu (ppm)					
G - 0			72					
3			28					
4			30					
5			41					
6			54					
7			50					
8			43					
9			20					
10			28					
12			28					
13			37					
14			51					
15			28					
16			30					
17			30					
18			20					
19			23					
G - 20			28					
H - 0			29					
1			25					
2			78					
3			45					
4			27					
6			45					
7			30					
8			25					
9			21					
10			25					
11			29					
12			31					
13			31					
14			29					
15			21					
16			23					
17			29					
18			23					
H - 19			23					

/ Continued on page 2 ...

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TO: **ALLEN GEOLOGICAL ENGINEERING LTD.**
 (Continued) .. page 2 ...

CERTIFICATE OF ASSAY

No.: **7708-1050** DATE: **August 17/77**

We hereby certify that the following are the results of assays on: **Soils**

MARKED	XXXXXXXXXXXXXXXXXX		Copper	XXX	XXX	XXX	XXX	XXX
	OZ/ST GR/MT	OZ/ST GR/MT	Cu (ppm)					
H - 20			25					
K - 0			21					
1			21					
2			30					
3			23					
4			17					
5			23					
6			17					
7			21					
8			23					
9			25					
10			19					
11			27					
12			30					
13			22					
14			21					
15			21					
16			19					
17			25					
18			21					
19			39					
K - 20			19					
L - 0			27					
1			28					
2			55					
3			30					
4			24					
5			28					
6			20					
7			22					
8			16					
9			14					
10			24					
11			18					
12			22					
13			18					
L - 14			24					

/ Continued on page 3 ...

NOTE. REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

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 PHONE (604) 254-1847 TELEX 04-507514 CABLE SUPERVISE

TO:
ALLEN GEOLOGICAL ENGINEERING LTD.

(Continued) ... page 3

CERTIFICATE OF ASSAY

No.: **7708-1050** DATE: **August 17/77**

We hereby certify that the following are the results of assays on: **Soils**

MARKED	XXXXXXXXXXXX		Copper	XXX	XXX	XXX	XXX	XXX
	OZ / ST GR / MT	OZ / ST GR / MT	Cu (ppm)					
L - 15			55					
16			26					
17			22					
18			16					
19			14					
20			14					
M - 0			17					
1			25					
2			13					
3			21					
4			17					
5			11					
M - 6			21					
N - 0			19					
1			29					
2			80					
3			45					
4			19					
5			18					
N - 6			21					

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TO:
ALLEN GEOLOGICAL ENGINEERING LTD.
 202 - 2025 Bellvue Avenue
 West Vancouver, B.C.

CERTIFICATE OF ASSAY

No.: **7708-1258** DATE: **August 19/77**

We hereby certify that the following are the results of assays on: **Soils**

MARKED	XXXXXXXXXXXX		Copper	XXX	XXX	XXX	XXX	XXX
	OZ/ST GR/MT	OZ/ST GR/MT	Cu (ppm)					
<u>E-071137</u>								
M - 7			15					
8			22					
9			19					
10			9					
11			20					
12			13					
13			15					
14			17					
15			6					
16			28					
17			24					
18			19					
19			26					
M - 20			20					
N - 8			214					
8			28					
9			13					
10			26					
12			22					
13			20					
14			20					
16			18					
17			18					
18			29					
19			21					
N - 20			18					
P - 0			18					
1			27					
2			23					
3			23					
4			27					
5			29					
7			20					
P - 8			20					

Remark: Two samples identified as N-8.

/ Continued on page 2

NOTE: REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

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TO: **ALLAN GEOLOGICAL ENGINEERING LTD.**
 (Continued) .. page 2

CERTIFICATE OF ASSAY

No.: **7708-1258** DATE: **August 19/77**

We hereby certify that the following are the results of assays on: **Soils**

MARKED	XXXXXXXXXXXX		Copper	XXX	XXX	XXX	XXX	XXX
	OZ/ST GR/MT	OZ/ST GR/MT	Cu (ppm)					
P - 9			20					
10			21					
11			18					
12			29					
13			25					
14			27					
15			16					
17			20					
18			20					
P - 19			24					
Q - 0			11					
1			24					
2			11					
3			14					
4			9					
5			7					
6			20					
7			30					
8			26					
9			26					
10			22					
11			24					
12			28					
13			20					
14			18					
15			20					
17			20					
18			20					
19			33					
Q - 20			18					
R - 0			26					
1			20					
2			16					
3			20					
4			18					
R - 5			20					

/ Continued on page 3 ...

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[Signature]
 Y. L. [unclear]
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TO: **ALLEN GEOLOGICAL ENGINEERING LTD.**

(Continued) ... pg. 3 ...

CERTIFICATE OF ASSAY

No.: **7708-1258** DATE: **August 19/77**

We hereby certify that the following are the results of assays on: **Seils**

MARKED	OZ / ST		Copper	XXX	X XX	XXX	XXX	XXX
	GR / MT	GR / MT	Cu (ppm)					
R - 7			14					
8			18					
9			13					
10			16					
11			21					
12			16					
13			23					
14			24					
15			18					
16			18					
17			18					
18			18					
19			16					
R - 20			29					
B - 4			16					
5			33					
6			13					
7			53					
8			39					
9			14					
11			13					
12			17					
13			22					
14			12					
16			33					
17			13					
17 1/2			16					
B - 19			12					

NOTE: REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

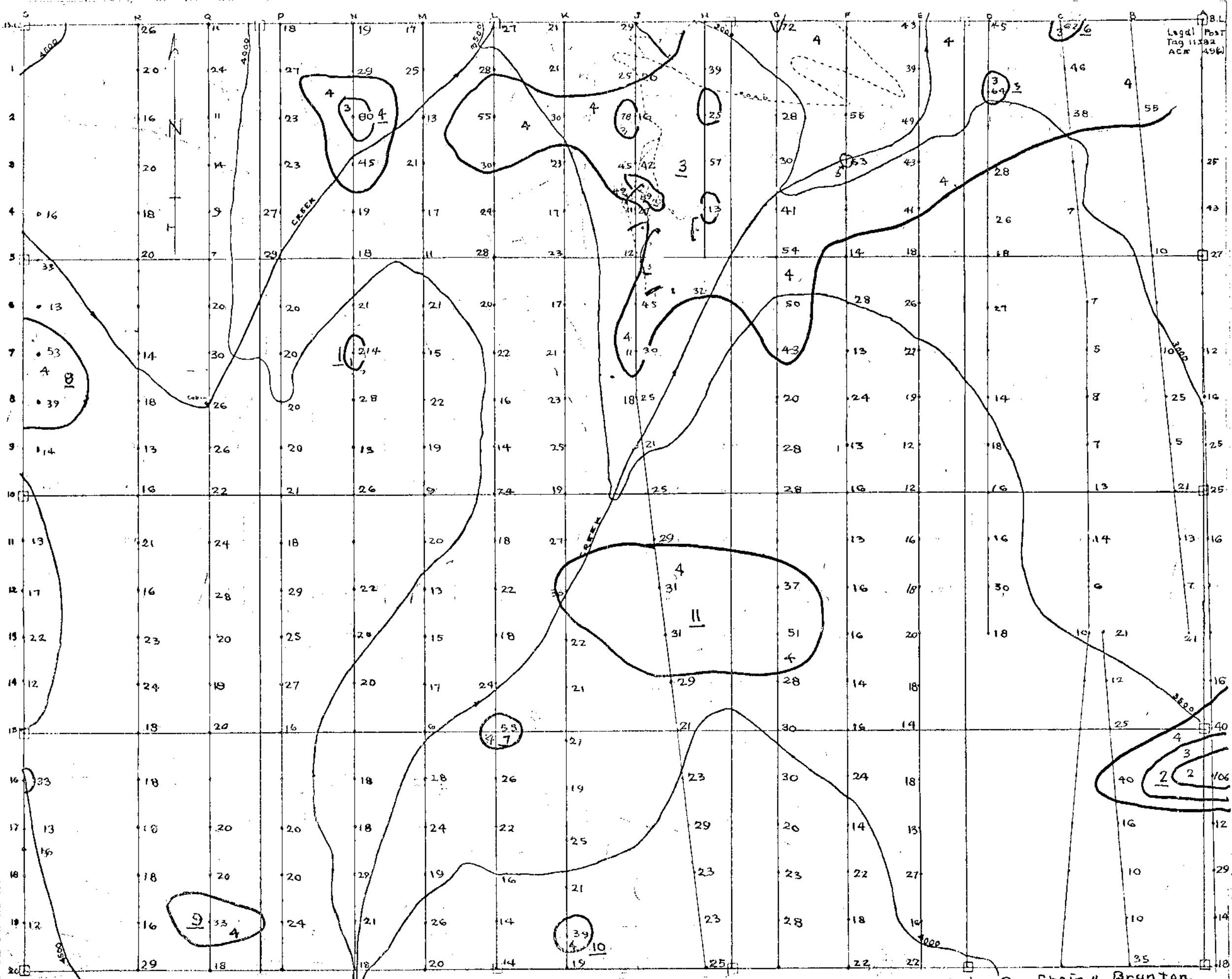
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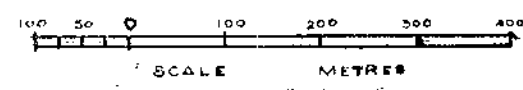
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LEGEND

GEOCHEMICAL	COPPER	p.p.m.
0 - 29	(1)	
30 - 59	(4)	
60 - 89	(3)	
90 - 119	(2)	
120 - +	(1)	

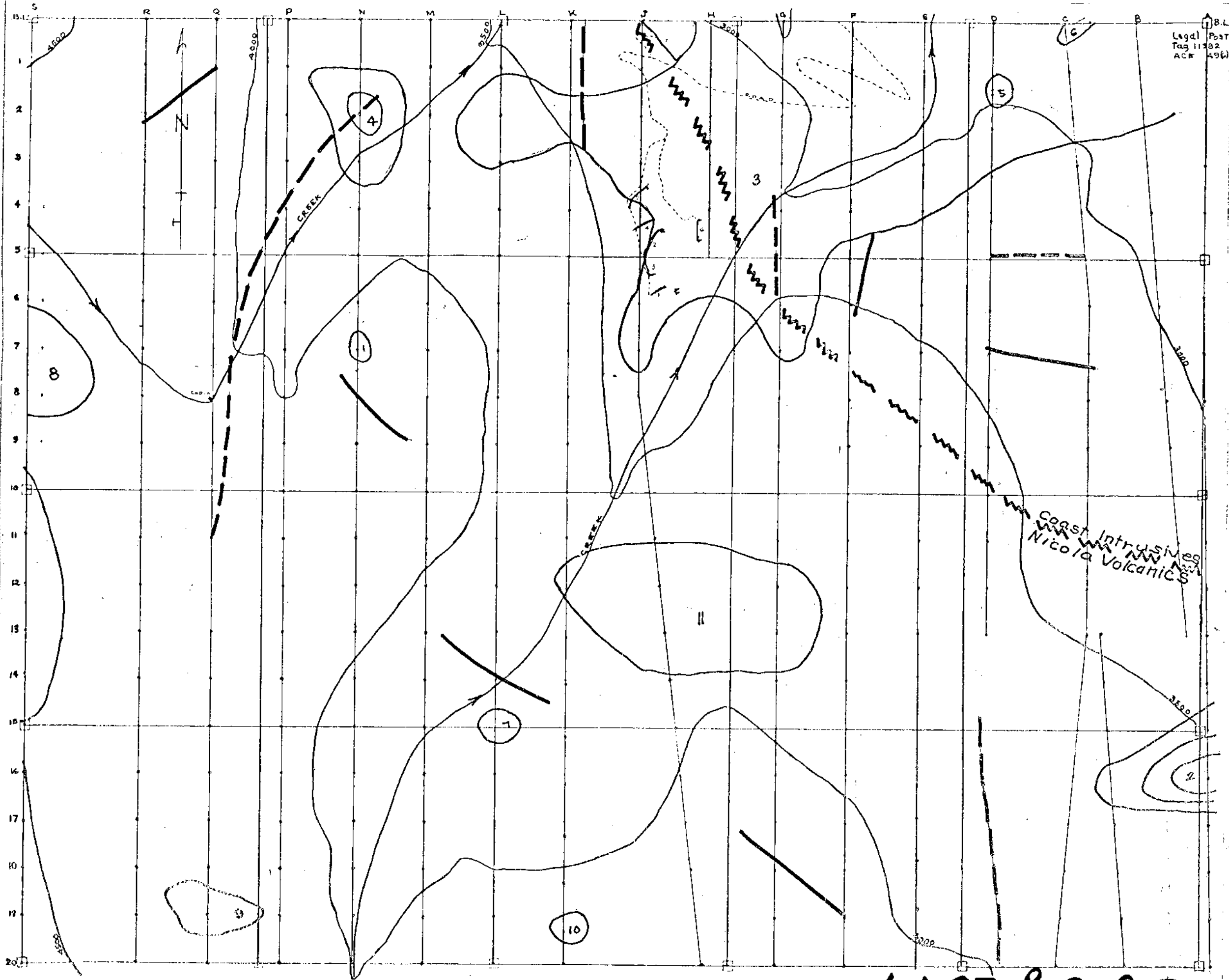
Grid By Chain & Brunton
6697 - Part 2 of 3

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GEOCHEMICAL
Scale 1"=200m


No. 3
Date: 26/11/77
Allen Geological Engineering Ltd.
Per Alfred R. Allen P.Eng.





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
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COAST RANGE INTRUSIVES 


NICOLA VOLCANICS 


APPROXIMATE LOCATION FAULT CONTACT 

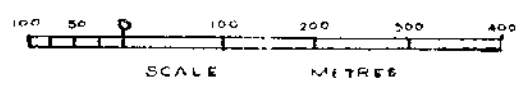
GEOCHEMICAL ANOMALIES - COPPER 

RELATIVE MAGNETIC HIGH 

RELATIVE MAGNETIC LOW 

TRENCHES EXPOSING COPPER MINERALIZATION 

MINE ROAD 



COMPOSITE PLAN

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