WHITEHORSE MINING DISTRICT 105-E-2
LAURIER CREEK 5-MILE (PLACER) PROSPECTING LEASE #7928

ASSESSMENT REPORT

March 15, 1989

1) I declare that I am a professional geologist, and have no personal interest in Laurier Creek Placer Lease.

2) Assessment work documented within this report is hereby declared as accurate, having been witnessed both in progress during the period June to September, 1988, and at completion. Sedimentological analysis was conducted in July, 1988.

Consulting Geologist _____

John R. Dickie
Department of Geology
Dalhousie University
Halifax, Nova Scotia
B3H 3J5

Date March 17 1989

Indian and Northern Affairs Canada | Affaires indiennes et du Nord Canada

LEASE TO PROSPECT
YUKON PLACER MINING ACT

[X] New	[ ] 1st Renewal	[ ] 2nd Renewal
Mining District		Number
WHITEHORSE		7928

By This Lease to Prospect made under and by virtue of Section 92 of the Yukon Placer Mining Act and in consideration of receipt of the fees as prescribed by subsections (8) and (13) of the said Section, the Commissioner hereby grants to ERWIN KREFT

of R.R. #2, Site 19, Comp 4, Whitehorse, Y.T the right to prospect for one year commencing on the 24th. day of April, 19 88, and ending on the 24th. day of April, 19 89 on the lands described hereunder.

DESCRIPTION WHITEHORSE MINING DISTRICT 105-E-2 LAURIER CREEK
5 MILE CREEK PROSPECTING LEASE

Commencing from Post #1 which is on Laurier Creek approximately 15 miles upstream from its confluence with Lake Labergs thence upstream a maximum distance of Five (5) miles and not to exceed Post #2. (The location extends not more than 1,000 feet on each side of the baseline.)

THIS Lease is issued subject to the following terms and conditions:

1. The term of this lease shall be one year, renewable, subject to subsection 92(11) of the *Act*, for two additional periods of one year each if the lessee satisfies the Commissioner of the lessee's financial ability and intention to thoroughly prospect during such additional period and has otherwise complied with the *Act* and the terms and conditions of this lease.
2. It is a term and condition of this lease that, prior to the termination of the year, the lessee shall furnish evidence, supported by affidavit, to the satisfaction of the Commissioner that he has incurred during the year an expenditure of at least FIVE thousand dollars ($5,000.00) in prospecting operations by recognized methods upon the location itself, in accordance with the proposal submitted in support of the application for the lease, or as amended, and attached hereto as Appendix A, or such reasonable alternative as the Commissioner may consider satisfactory, such evidence to include:
   (a) evidence of physical work on the ground, and
   (b) a statement of expenditures (supported by receipts, where applicable, on request) in sufficient detail to show reasonable costs of labour and direct operating costs of equipment expended on actual prospecting operations by recognized methods on the location itself, exclusive of other costs such as costs of mobilization, transportation of personnel and equipment, travel time, access, camps, food, lodging and capital costs, and
   (c) a report of physical work accomplished (including dimensions and volumes of excavations, etc.), a description of material encountered (overburden, stream-gravel, bedrock, permafrost, etc.) and a description of the sampling method employed or the reason for no sampling having been done, and
   (d) a plan or map showing the locations of the physical work.
3. The lessee shall comply with all applicable legislation, including the *Northern Inland Waters Act*, the *Occupational Health & Safety Act*, and, where applicable, the *Territorial Lands Act*, and any Regulations or Orders made pursuant thereto.
4. This lease conveys no right to mine, other than for purposes of prospecting and small-scale testing.
5. While this lease remains in force the lessee is not eligible to make application for another lease to prospect.
6. The lessee shall not assign, transfer or sublet the rights described in this lease, or any portion thereof, without the consent in writing of the Minister of Indian Affairs and Northern Development being first had and obtained.
7. If the evidence of expenditure referred to in paragraph 2 above is not furnished before the termination of the year, or is not satisfactory, the lessee is not entitled to a renewal of the lease, to grant of any placer mining claim staked within the lease during the year, or to make application for consent to assign, transfer or sublet any rights described in the lease.

gned at Whitehorse Yukon,

This 24th day of April, 19 88.

B.R. Baxter
Regional Manager, Mineral Rights for Commissioner of Yukon Territory

Canada

Contents

Introduction

Laurier Creek 5-mile placer lease (#7928) was staked in 1988 for the purpose of determining the mode of occurrence and economic potential of placer gold within stream sediments of Laurier Creek, Teslin Mountain map-area, Yukon. Assessment work was undertaken by E. Kreft during the months of June through September, 1988, and is summarized in this report.

Location and Access

Laurier Creek is situated in Teslin Mountain map-area (Map sheet 105-E-2), approximately 1.5 miles due northeast of Mount Laurier. The creek, originating at Teslin Mountain, drains northwestward through a steep-walled drainage basin that broadens downslope until it reaches its confluence with Lake Laberge. The average creek gradient across the lease area is 0.029 ft/ ft. Numerous small tributaries drain surrounding hillsides and contribute both water and minor amounts of sediment to the creek. Laurier Creek also cuts thick glacial outwash sands and gravels exposed in cut banks.

Laurier Creek 5-mile placer lease begins at claim post 1 (NTS grid co-ordinates 094715), situated roughly 15 miles upstream from the creek outlet on Lake Laberge. The claim extends for 5 miles upstream to post 2 (NTS grid co-ordinates 167685), and extends laterally for 1000' on either side of the baseline (see Map A).

Access to the placer lease is by helecopter, with alternate transportation by float plane to Thomas Lake (figure 1), thence commencing by foot along the Livingstone and Laurier Trails. Winter access is possible along a route extending across Lake Laberge, joining the Livingstone and Laurier Trails to the east. Two base camps were established along the creek in 1988. The first was established roughly 8000' along the baseline from claim post 1 to facilitate assessment work in the lower two thirds of the claim. The second was established at 26850' from post 1 to service the upper reaches of the claim area.

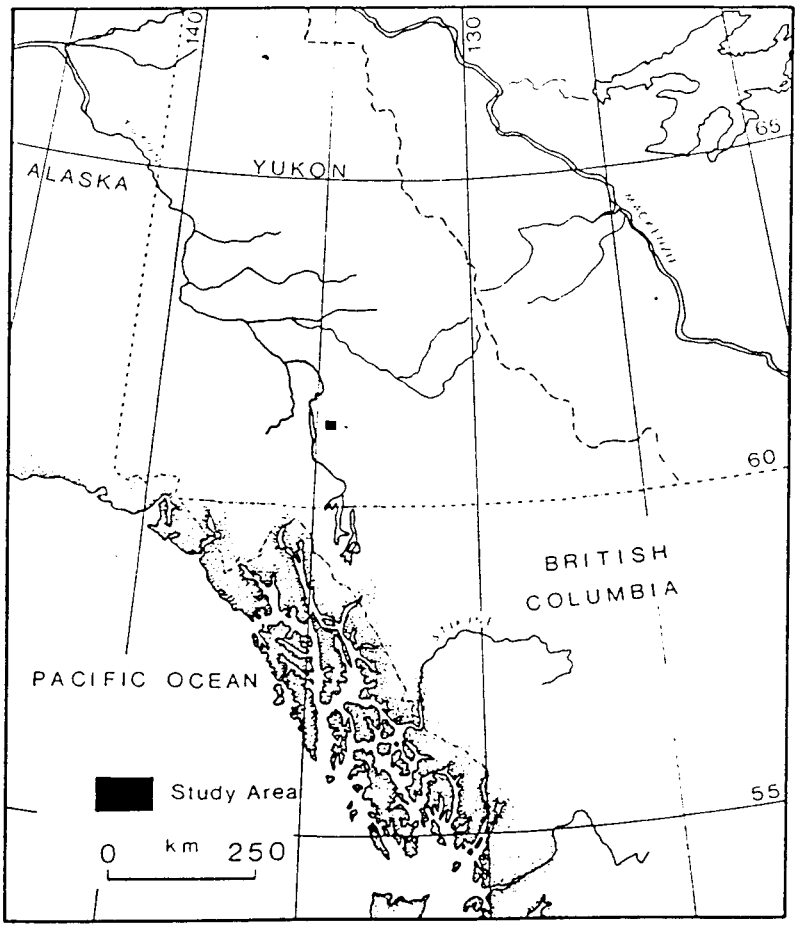
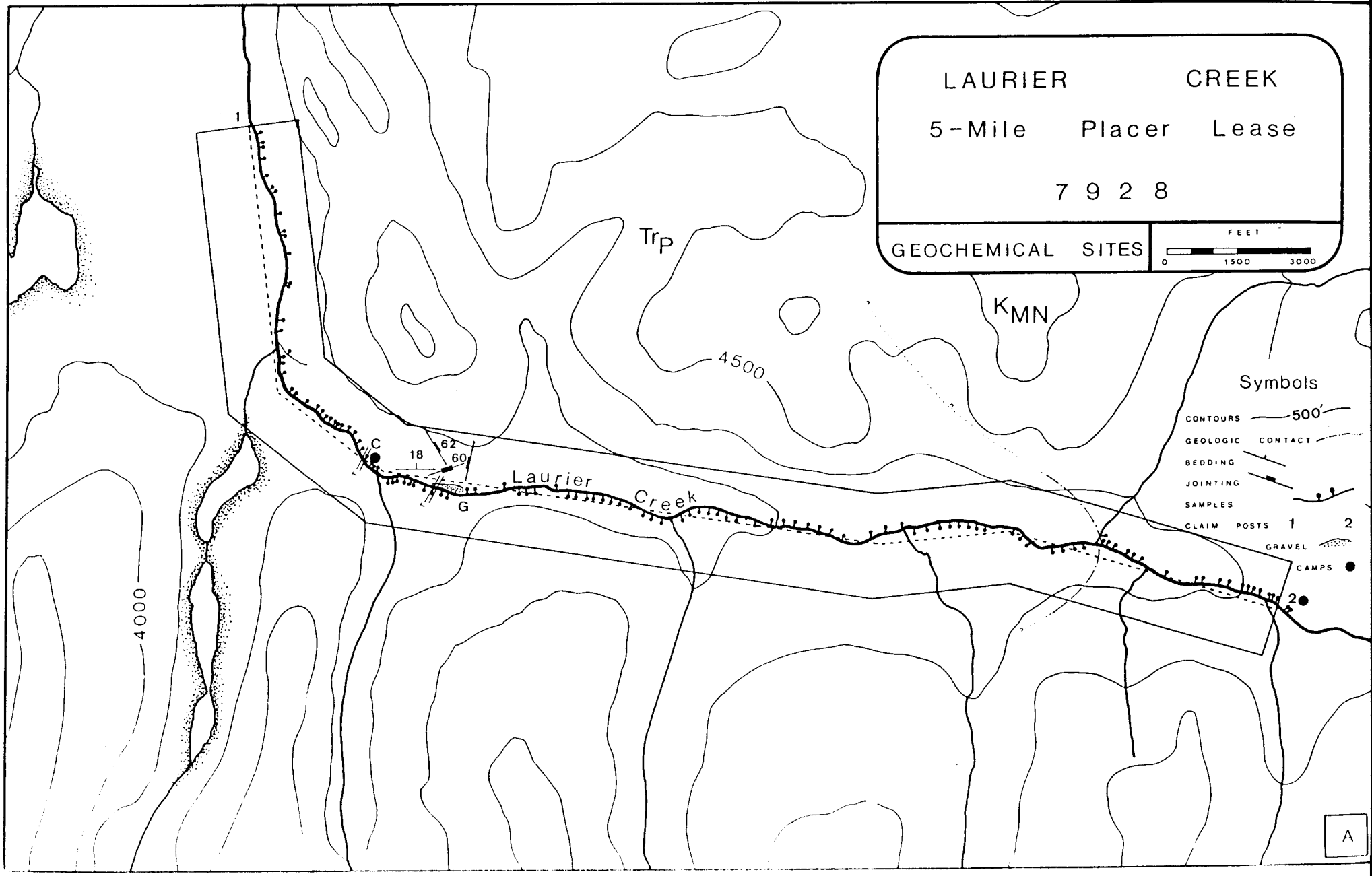


Figure 1. Location Map for Laurier Creek 5-Mile Placer Lease.


LAURIER CREEK
5-Mile Placer Lease
7928
GEOCHEMICAL SITES
FEET
0 1500 3000
Trp
KMN
4500
4000
Laurier Creek
1
2
C
G
18
62
60
Symbols
CONTOURS 500'
GEOLOGIC CONTACT
BEDDING
JOINTING
SAMPLES
CLAIM POSTS 1 2
GRAVEL
CAMPS
A

Bedrock Geology

Bedrock is exposed in steep hillsides bounding the creek, cropping out as extensive ridges and scree slopes on poorly vegetated terrain. Minor outcrops occur along the creek bed, becoming more common beyond 9000' along baseline from post 1. Outcrop is moderately well-exposed and tends to be relatively free of lichen. Moss cover is typical at lower elevations.

Bedrock lithologies encountered up to 2000' baseline from post 1 were invariably moderately to steeply dipping, well-indurated strata of the Late Triassic (Carnian) Povoas Member of the Lewes River Group. These are predominantly non-graded couplets of finely interbedded (1-5 cm), very fine to fine-grained volcanic greywacke and silty, organic-rich mudstone of marine origin. Andesitic to basaltic, non-welded, submarine tuffs and lapilli tuffs occur as rare 1-2 m thick interbeds within sandstone-mudstone sequences. Tuffs and epiclastic equivalents contain euhedral phenocrysts of plagioclase and augite plus rounded, intrabasinal limestone pebbles within a cryptocrystalline groundmass. Well-indurated tuffaceous and interbedded sandstone-mudstone sequences display a prominant and pervasive fracture cleavage expressed in three principal planes of orientation. Microfaults, typically displaying minor offset (mm - scale), are abundant and commonly lined with calcite. Calcite and rare quartz stringers within Triassic bedrock tend to follow zones of minor dilatation along near-vertical fracture planes. Pyrite and rare chalcopyrite occurs as small (0.5 mm)

euhedral crystals within thinly interbedded sandstones and mudstones and may be a product of thermal metamorphism since Triassic bedrock lies within the thermal aureole of a Cretaceous pluton.

Bedrock exposed from baseline 20140' is moderately altered (chlorite), cryptocrystalline, grey-green andesite of the Late Cretaceous Mount Nansen Volcanic suite. Andesite is fractured and cut by quartz veins and stringers up to 1-10 cm thick.

Pleistocene Sedimentology

Thick, massive to moderately well-stratified Pleistocene sand and gravel deposits blanket areas of low topography in the vicinity of the placer claim. These are incised by Laurier Creek, resulting in steeply-dipping cut banks. Bases of cut banks are typically flanked by unstratified benches derived from slumped post-glacial terrace sediments and subsequently reworked by currents during peak flood stage. The lower reaches of the creek display multiple abandoned channel scars, extending up to about 9000' baseline from claim post 1. Multiple superimposed scour-and-fill features suggest material from 0' to 9000' has been substantially reworked. Erosion of new channels and filling of old ones was a continuous process, with at least two synchronously active channels in the recent past evident near base camp 1. Abandoned channel scars surrounding diamond-shaped gravel accumulations differ in character from in situ proglacial deposits. It is interpreted that the former represent the

nucleation of diffuse gravel sheets (bedload gravel) to form diagonal bars, which were eventually stabilized by vegetation. Subsequent flood events were unable to substantially alter vegetated bars. Lateral channel migration was enhanced by bar stabilization, since stream undercutting of sandy banks was easier than erosion of stable bar gravel. Stream winnowing resulted in gravel bar mean clast size and sorting being significantly greater than that of adjacent creek banks.

Pleistocene sand and gravel banks bordering the creek were systematically mapped and sampled for geochemical analysis. Measured section A stratigraphically underlies and is exposed downstream from section B (figure 3). Section A contains a boulder-rich cohesive debris flow base topped by graded-stratified waning-flow sand. Pebble-cobble debris flows cap this bed which, in turn, is capped by thin-bedded hyperconcentrated streamflow gravel. Stratified sand and openwork gravel cap the sequence. This section is interpreted as an ice-proximal proglacial deposit, with fining-up the product of a receding source. Mass-flow deposits are capped by fluvial cross-channel gravel bars and minor transverse bar foreset stratification in pebbly sand.

Section B is located upstream of section A, and records a lateral shift in outwash sediment transport. Low-angle stratification and trough cross-stratification represent lower flow regime streamflow. Debris flow gravel beds overlie sand beds. Section B is capped by cross-stratified sand. This

section indicates distal fluidal flow overlain by mass-flow gravels. Fining to sand shows increasing distality.

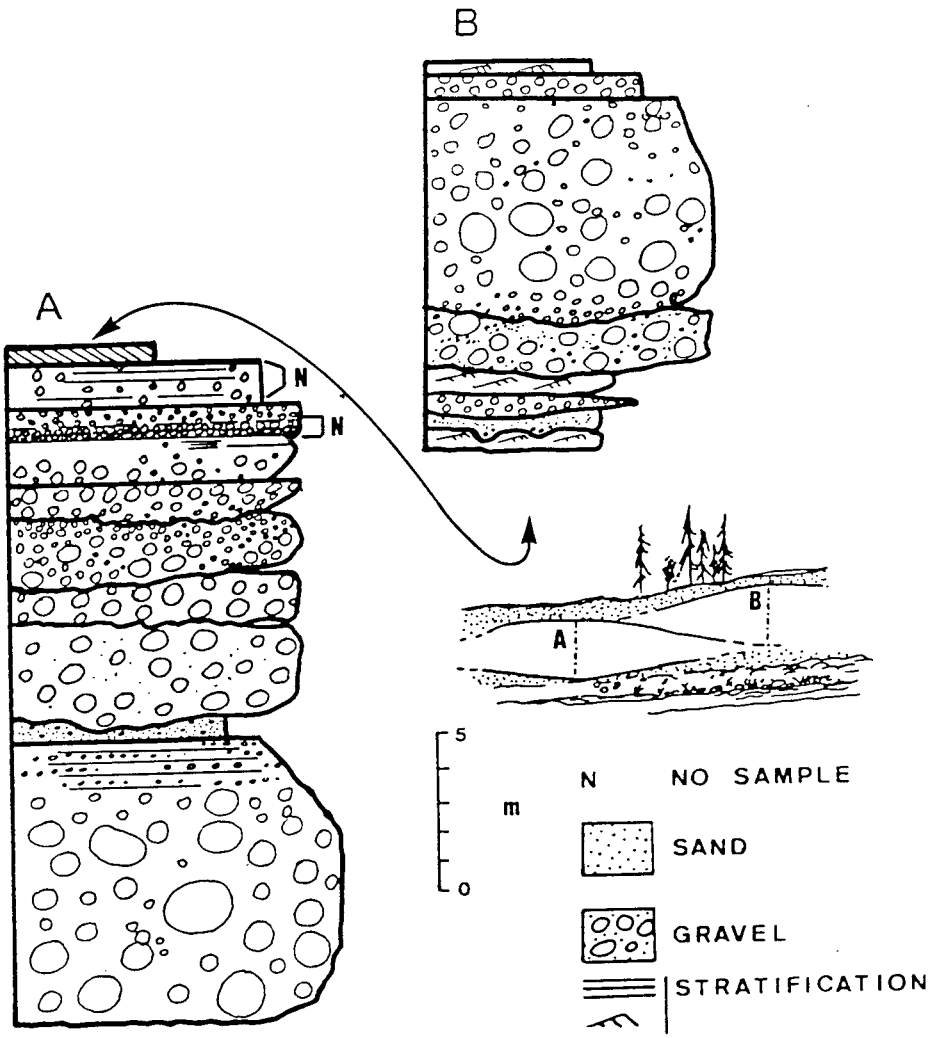


Figure 3 Measured Pleistocene sections (see text for details)

Paleoflow directions determined from channel-base sole marks (grooves) and bedform foresets indicate a flow direction toward 240° (sequence A and B). Paleoflow variance in small-scale bedforms is a product of bar-top and side bar eddies. Paleoflow directions indicate sediment was transported away from the general vicinity of Teslin Mountain and oblique to the general trend of Laurier Creek. Clasts within Pleistocene deposits were identified as follows: (1) granodiorite to biotite granodiorite (60-65%); (2) fine-grained grey-green andesite (13-15%); (3) black argillite (5%); (4) plagioclase to augite-rich porphyry (5%); (5) chert and minor quartz (2%); (6) grey to pale purple arkosic sandstone (5%); chert-grain pebbly arkose (5%). The dominant clast lithology is from Cretaceous to Paleogene granitoids of the Coast Plutonic Complex, while Mount Nansen Group andesites (Cretaceous) and Lewes River Group sedimentary rocks (Triassic) make up the bulk of the remainder. Since these have a local derivation and show a strong similarity to contemporary Laurier Creek gravel, it is interpreted that the bulk of Laurier Creek sediment was originally derived from glacial debris removed from surrounding bedrock. Surrounding hillsides contributed abundant Triassic Hancock Fm. limestone to the creek as well as red-brown jasper.

Geochemical Methods

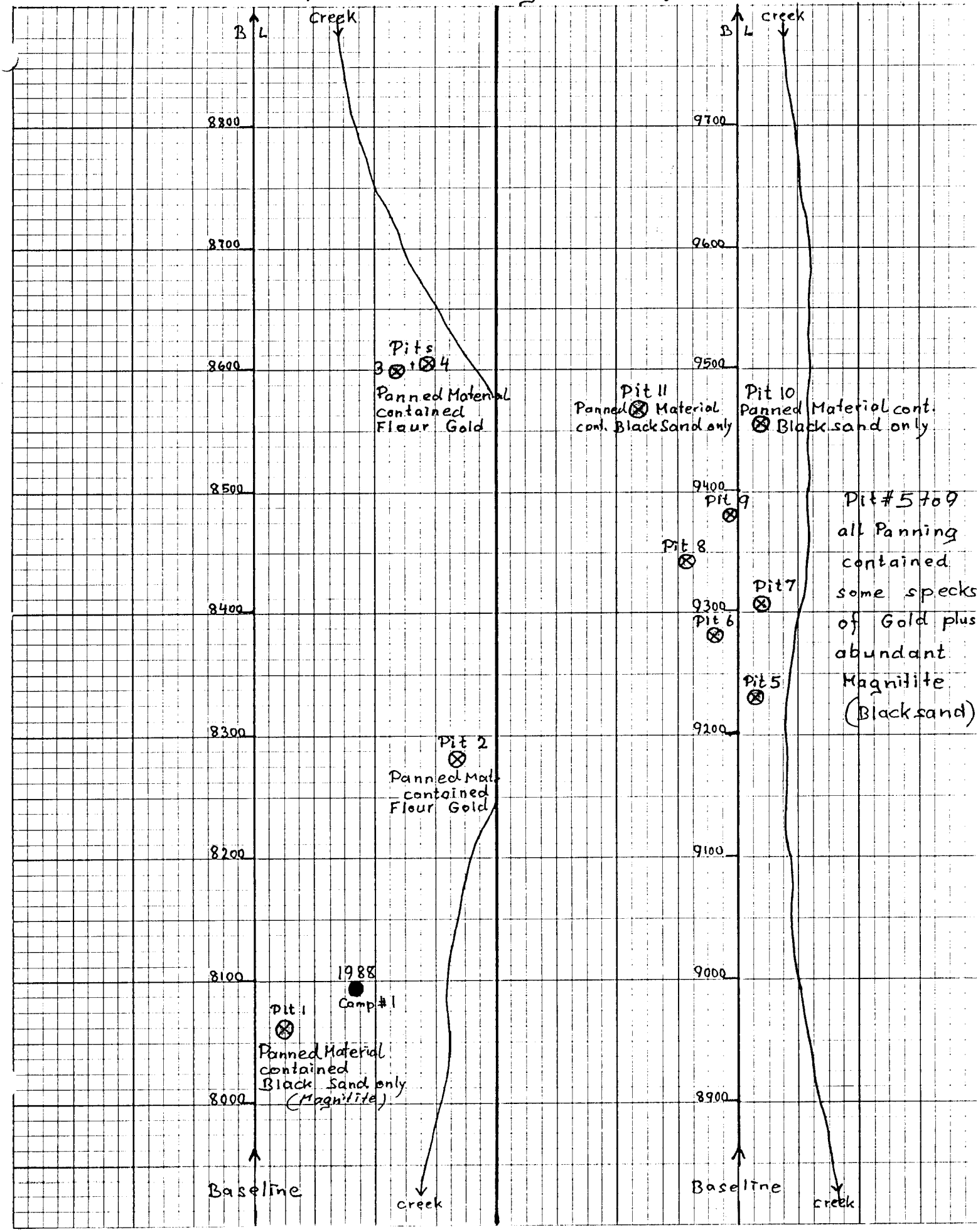
Silt samples were systematically collected from the creek bed at 100' intervals along baseline. Record high rainfall for

the Whitehorse region in 1988 resulted in higher than normal creek levels. An accelerated stream velocity removed much of the fine-grained sediment from Laurier Creek, making collection of a sufficient number of silt samples difficult. A total of 137 silt samples were collected along the 5 mile lease area. These were sieved to -80 mesh and analyzed for trace Au (wet geochemical analysis). A further analysis was done for 12 other elements (Ag; As; Be; Co; Cu; Mo; Ni; Pb; Sb; Sn; W; Cr) by the I.C.P. method. A total of 120 samples were statistically analyzed since several samples were obtained from surrounding glacial deposits and highly anomalous Au values were re-assessed. Pits were dug by hand in abandoned reaches along the creek, but could not be extended beyond about 3' (1 m) depth due to an abundance of large boulders (0.30 - 2.5 m dia.). These could not be removed by hand. Material obtained from pits and from surface samples was panned to assess the relative abundance of heavy minerals (black sand) and placer gold. A magnetometer survey was conducted by E. Kreft across the creek at several localities within lease boundaries, using a "Uni-Mag" portable magnetometer (Model G-836).

Geochemical results were obtained and tabulated by Mineral Environments Laboratories Ltd., Vancouver. The resulting data were statistically assessed to identify along-creek geochemical trends and anomalous values. Elemental relationships were determined through calculation of a Spearman rank sum correlation matrix with along-creek trends determined by plotting distance

Date: July + August 1988
Scale: 1 inch = 100 feet

Location of the most important Hand dug Pits and Panned Material



from claim post 1 against elemental abundance (Au in ppb; all others in ppm).

Results

Stream silt samples displayed no outstanding absolute elemental abundances. Anomalous relative abundances were considered significant at greater than two standard deviations from the mean. Pearson correlation matrix coefficients were (arbitrarily) considered marginally significant at 0.75 and significant between 0.8 and 0.9.

Cr shows a positive correlation with Be (0.733) and with Au (0.815). Co correlates with Cu (0.796) and with Ni (0.810). Cu and Ni correlate at 0.853. Cr, Cu, Ni, Co, and Au occurring together are likely related to Cu-Mo and Ni occurrences in the Teslin Mountain region.

Stream chemical trend-analysis revealed definite patterns. Elemental abundances of Ni, Mo, Cr, Cu and Co showed a pronounced progressive increase to approximately 9500' baseline. Upstream of this point, relative abundances diminish. Less pronounced trends of a similar nature were observed for Pb and Be. As, Au and Ag showed no apparent trend. A maximum abundance is reached at about 9500' where very high (relative) values of Au, Ag, Be, As and Cr were recorded. This geochemical peak coincides with both a narrowing of the creek basin between bedrock walls, followed by an extreme broadening in the downstream direction, and the occurrence of thick glacial outwash deposits. It is

probable that the source of the anomaly is at this locality, perhaps related to runoff into Laurier Creek. A lack of anomalous values in gravel banks suggests that geochemical anomalies did not originate there.

Recommendations

The amount of placer gold obtained through panning methods was small, suggesting accumulations of recoverable size are not likely to be present within surficial or near-surface sediments. Also, gold particle size is very small ("flour" gold). Geochemical results for stream silt samples are only moderately promising, and sampled gravel benches show no evidence of significant gold content or contribution of placer gold to the creek. Significant placer gold accumulations are not present within finer grained surficial sediment. If an economically viable gold accumulation (paystreak) is present within Laurier Creek sediments, then it would most likely occur at depth. Creek sediments (this report) show evidence of substantial reworking. Therefore, placer gold would have been transported to a position near bedrock through hydraulic sorting during multiple sediment transport and reworking events.

Geochemical trends suggest that substantial runoff from banks in the vicinity of sample site BL9500' created the observed geochemical anomaly, especially since these decrease upstream of this location. Abundant black sand (magnetite) and flour gold at this site suggest that gold may have been contributed to creek

sediment at this locality, but additional work is necessary to determine a precise source.

It is recommended that future work involve trenching in two locations. These are at approximately 8200' and 9400' along baseline. The first is situated where the creek valley broadens; flow-expansion results in rapid deposition of creek sediments in such a location and should lead to rapid deposition of heavier particles. There may be a substantial thickness of sediment from 0' to 8200'; therefore, it would be informative to initially trench the region closest to the zone of flow deceleration. Both contain thick, reworked post-glacial sediments (sand and gravel) where gold may have been hydraulically concentrated into economic concentrations. To determine if such payzones exist, trenching is required to where bedrock surface irregularities could act as a natural sluice, combining with a sudden decrease in current strength to create auriferous pockets. In summary, geochemical trends indicate an anomalous geochemical input, possibly from mineral prospects on the flanks of Teslin Mountain. Data are insufficient to propose a possible auriferous source, but the predominance of glacial material as creek bedload indicates that gold within glacial outwash sediment would be hydraulically concentrated following cut bank erosion.

It is recommended that, since preliminary work discovered surficial gold and abundant magnetite, economic concentrations at depth are possible. Since excavation is necessary to determine the presence of a paystreak, it is recommended that future work

of this type is warranted.

References

Bostock, H.S. and Lees, E.J. (1938) Laberge Map-area, Yukon. Geological Survey of Canada Memoir 217.

Tempelman-Kluit, D.J. (in prep.) Geology of Carmacks and Laberge map-areas, Yukon Territory. Geological Survey of Canada Memoir.

Wheeler, J.O. (1961) Whitehorse Map-area, Yukon Territory 105D. Geological Survey of Canada Memoir 312.

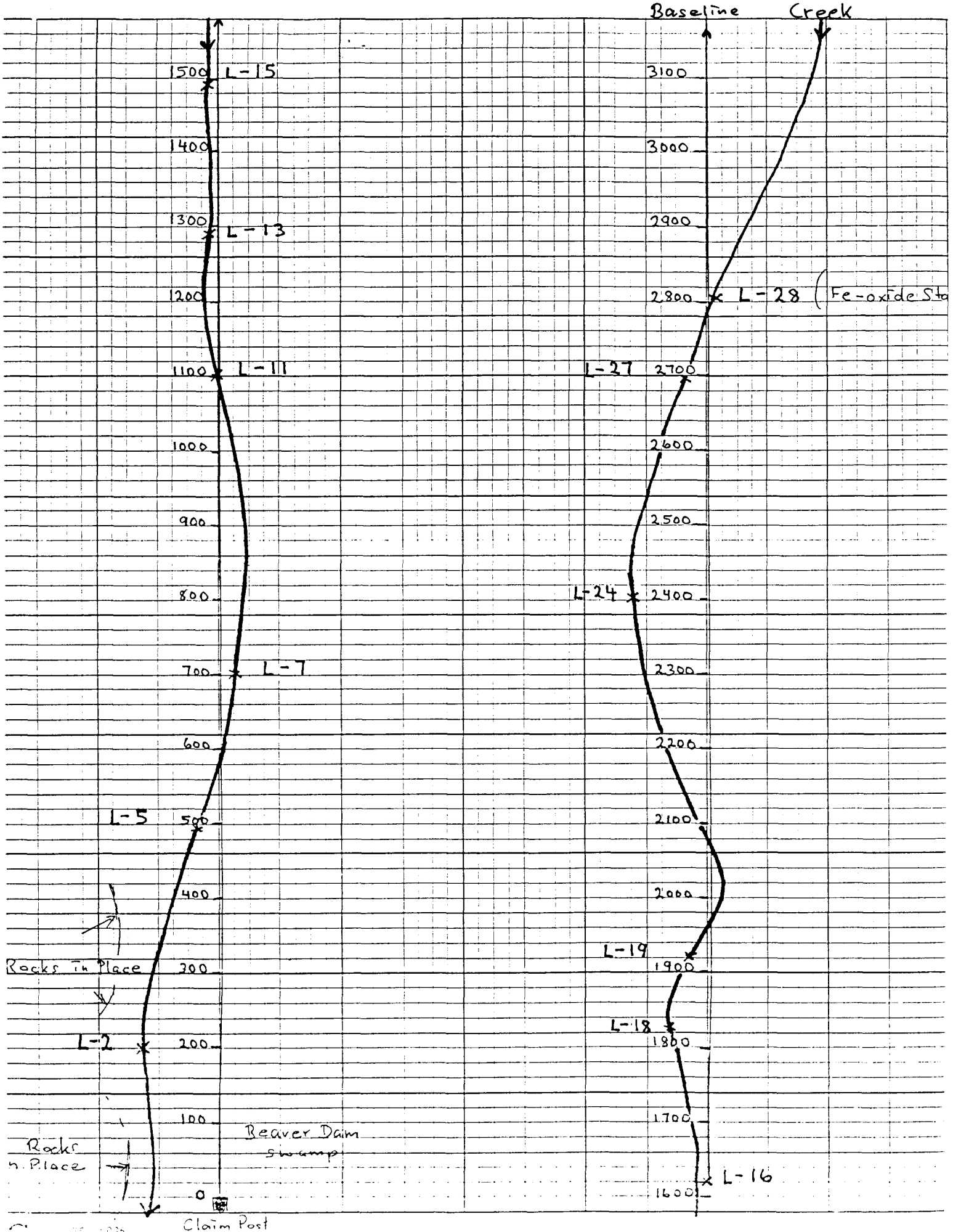
Detailed Maps of Survey of Stream

and

Silt Sample Locations

: June 1988

scale: 1 square = 20 feet; Page #1



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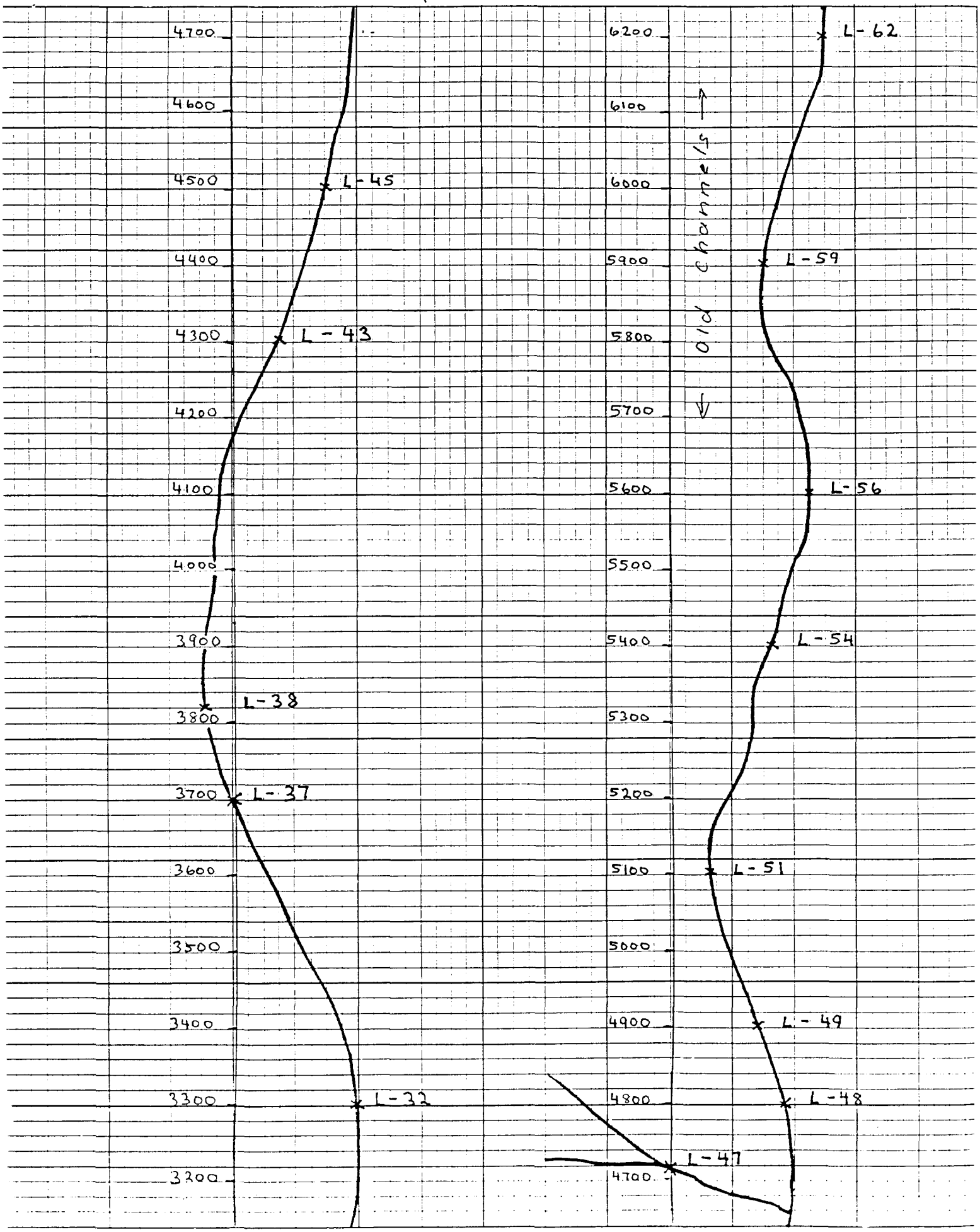
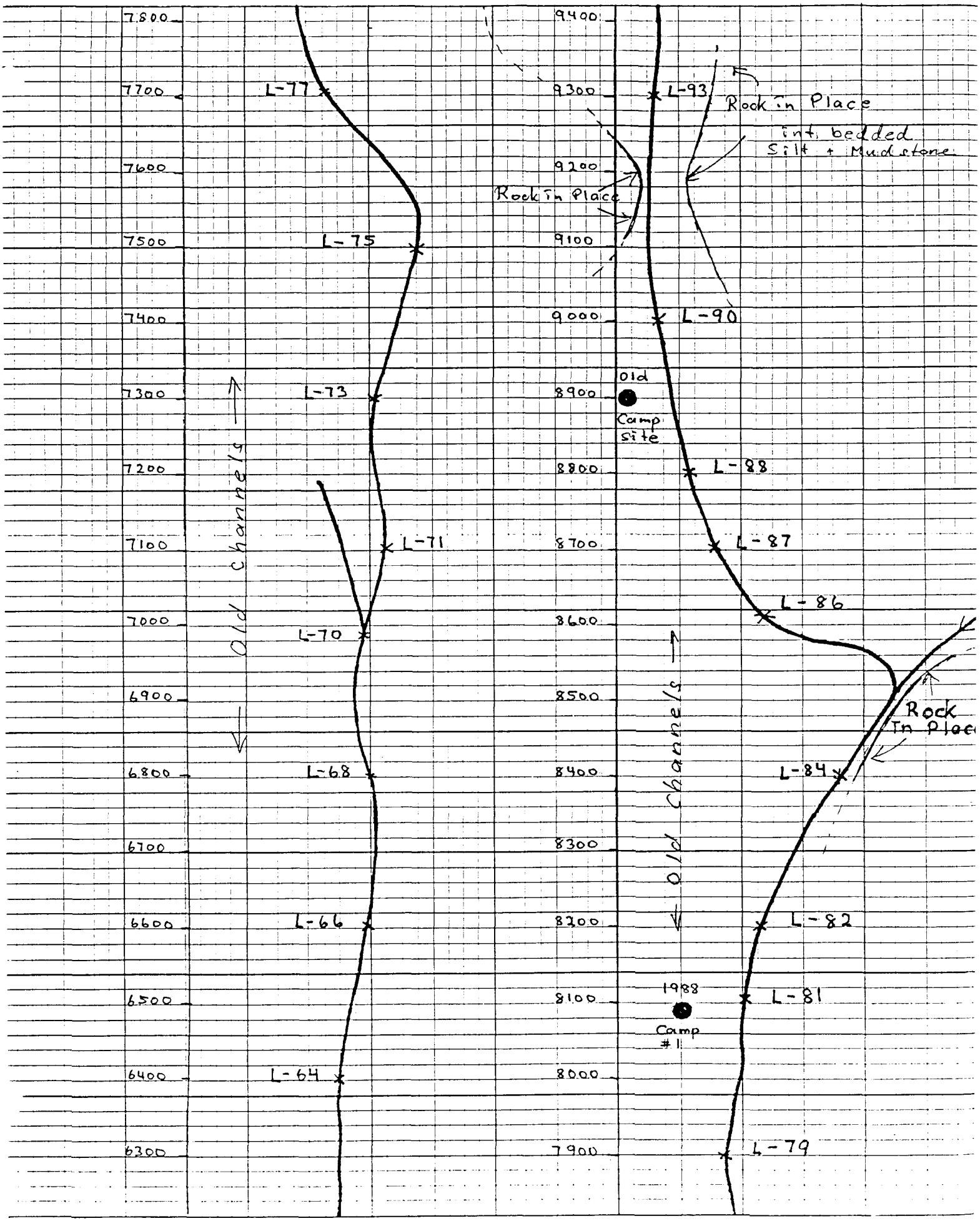
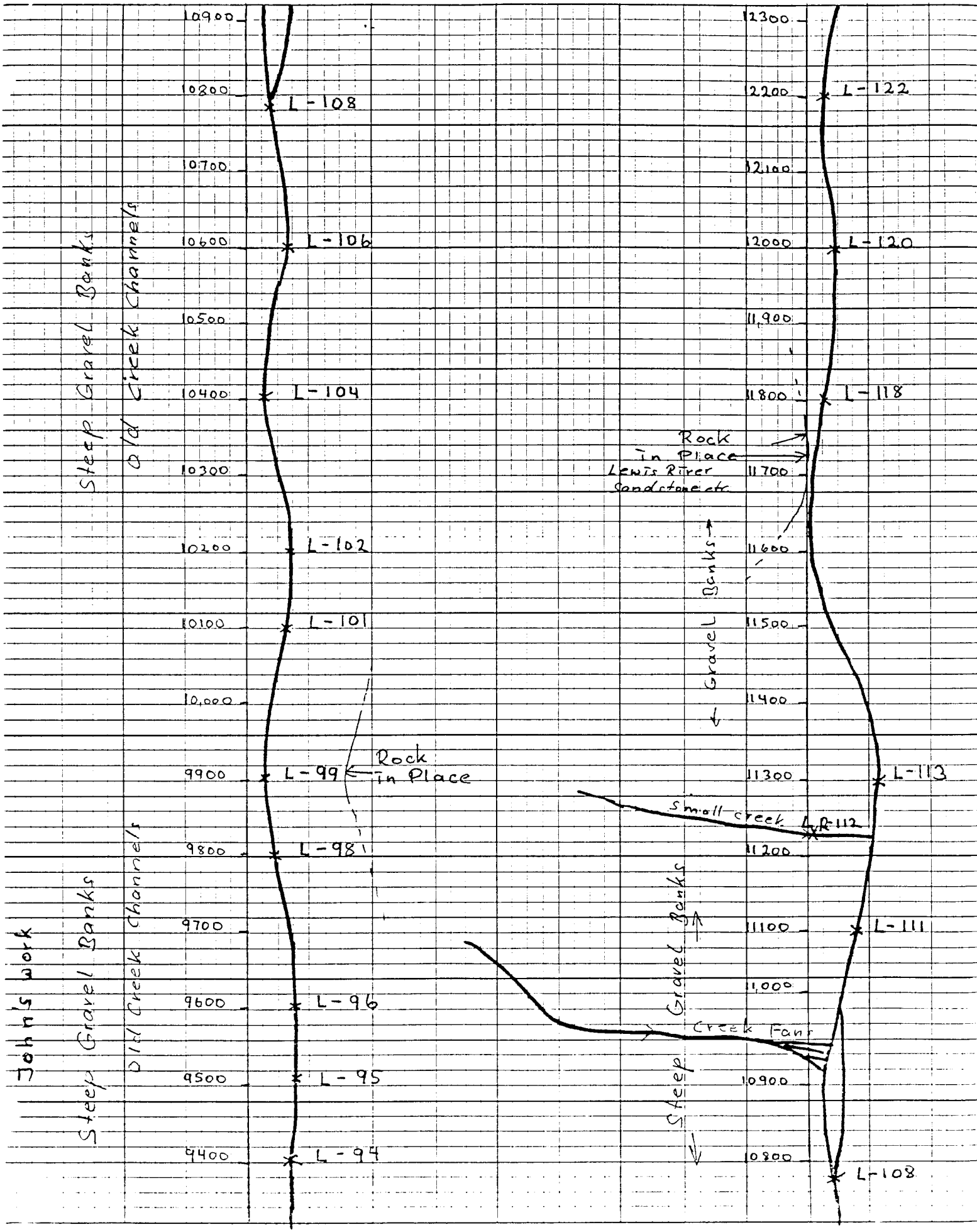


Date: 1988
June, July, Aug

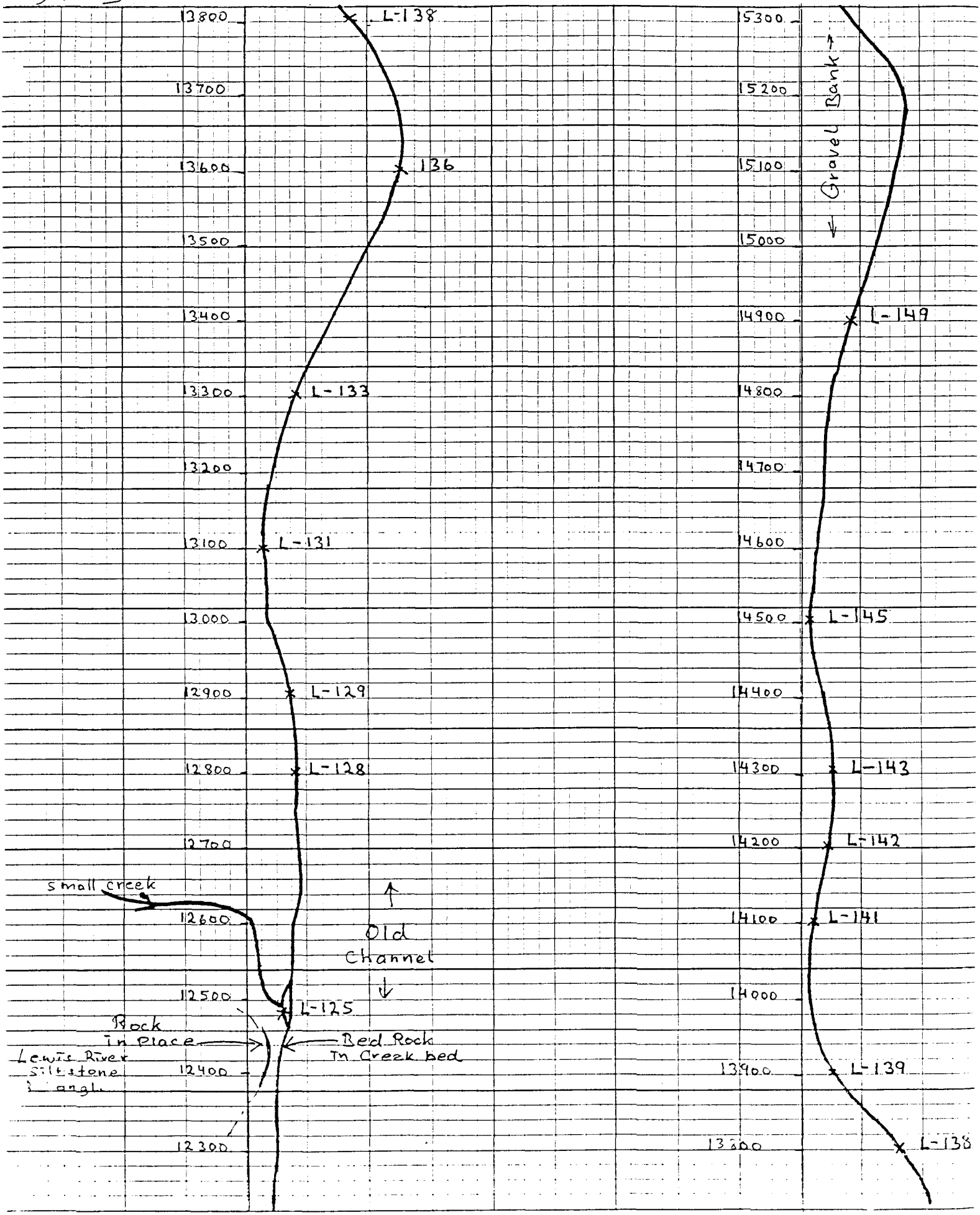
Scale: 1 square = 20 feet




10900
10800
L-108
10700
10600
L-106
10500
10400
L-104
10300
10200
L-102
10100
L-101
10,000
9900
L-99
9800
L-98
9700
9600
L-96
9500
L-95
9400
L-94
Steep Gravel Banks
Old Creek Channels
Rock in Place
12300
12200
L-122
12100
12000
L-120
11,900
11800
L-118
Rock in Place
Lewis River Sandstone etc
11700
11600
Gravel Banks
11500
11400
11300
L-113
Small creek
L-112
11200
11100
L-111
1,000
Gravel Banks
Creek Fan
10900
Steep
10800
L-108
Johns work
Steep Gravel Banks
Old Creek Channels

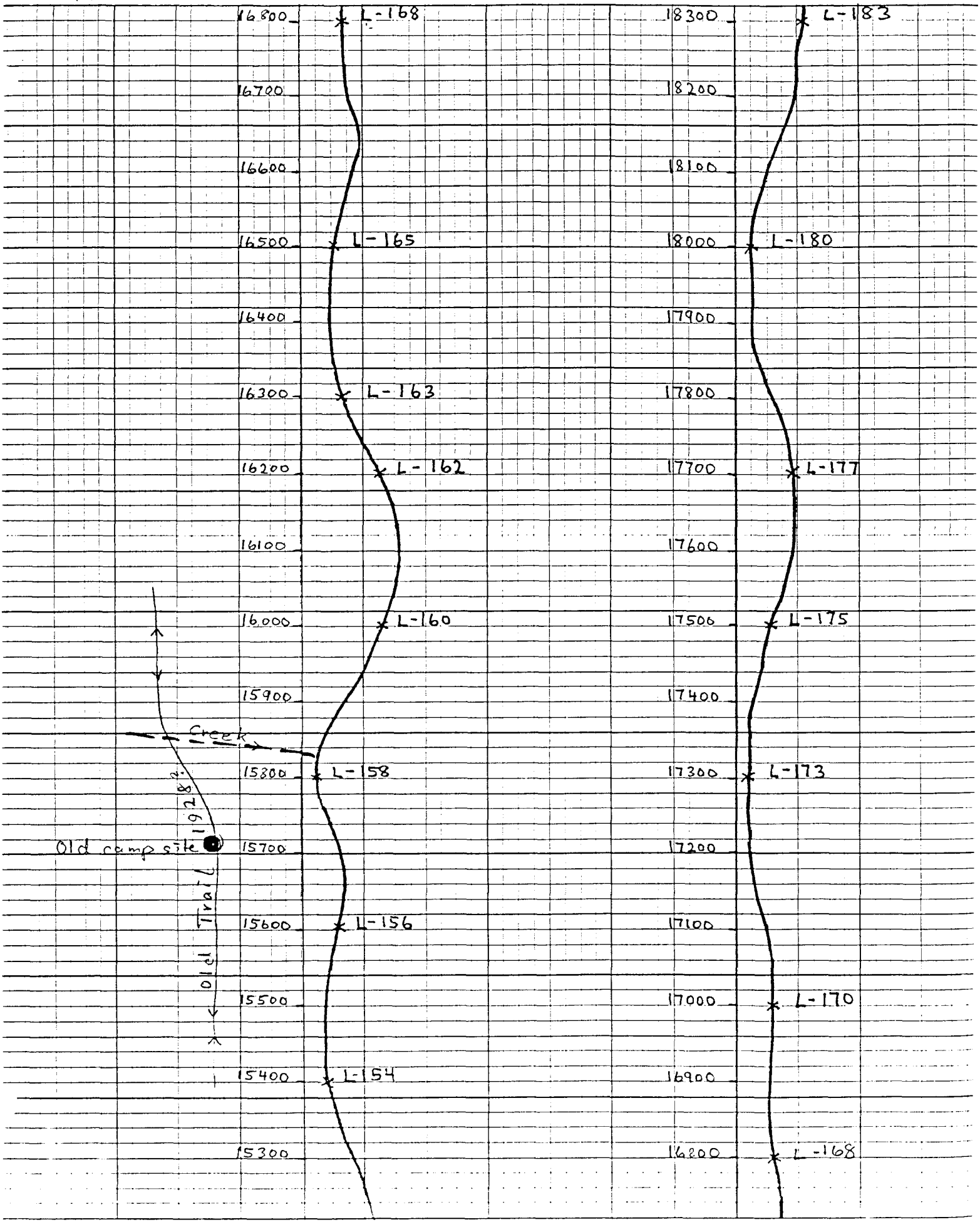
Date: 1988
July, Aug

scale: 1 square = 20 feet



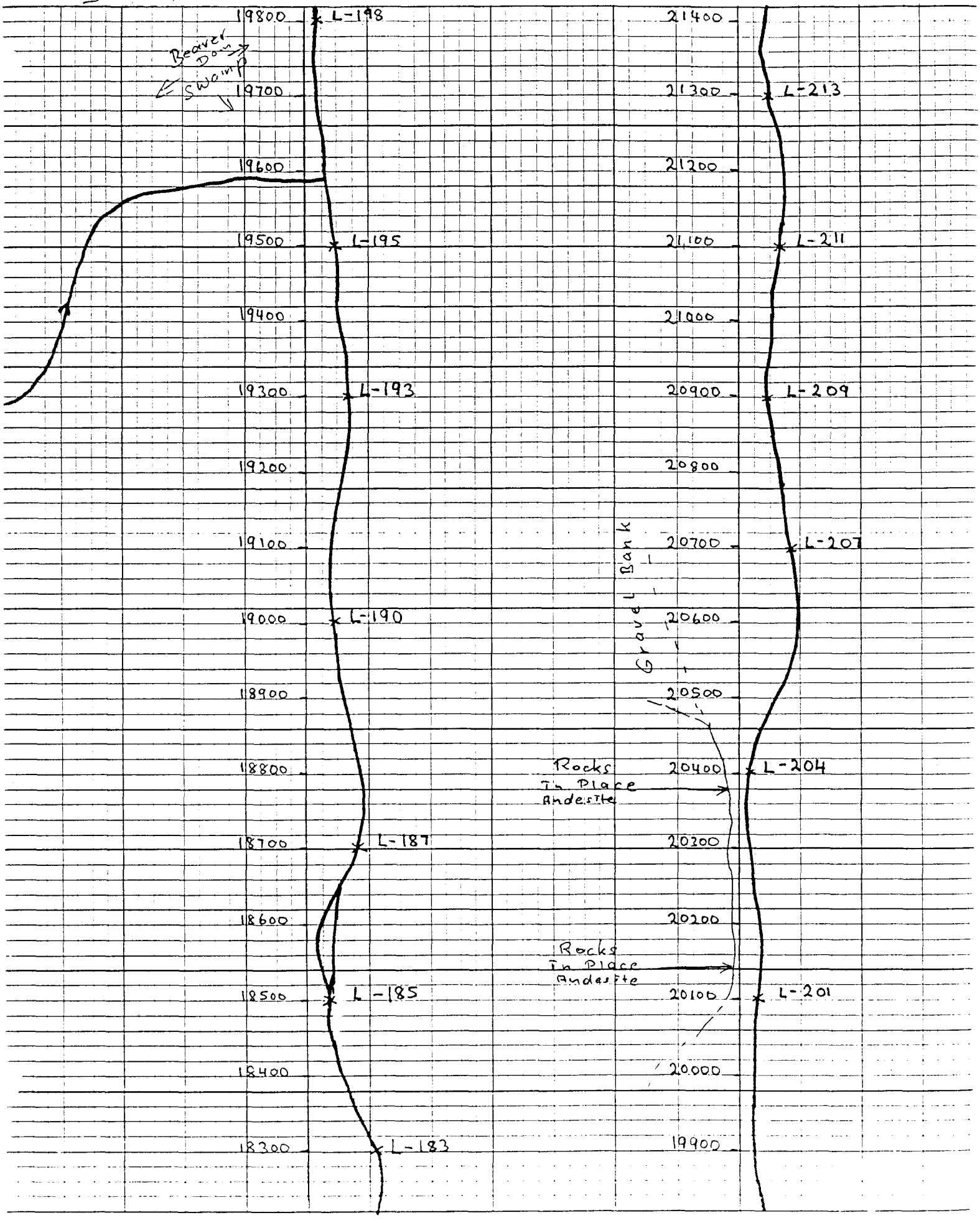
Date: 1988 Aug

scale: 1 square - 20 feet



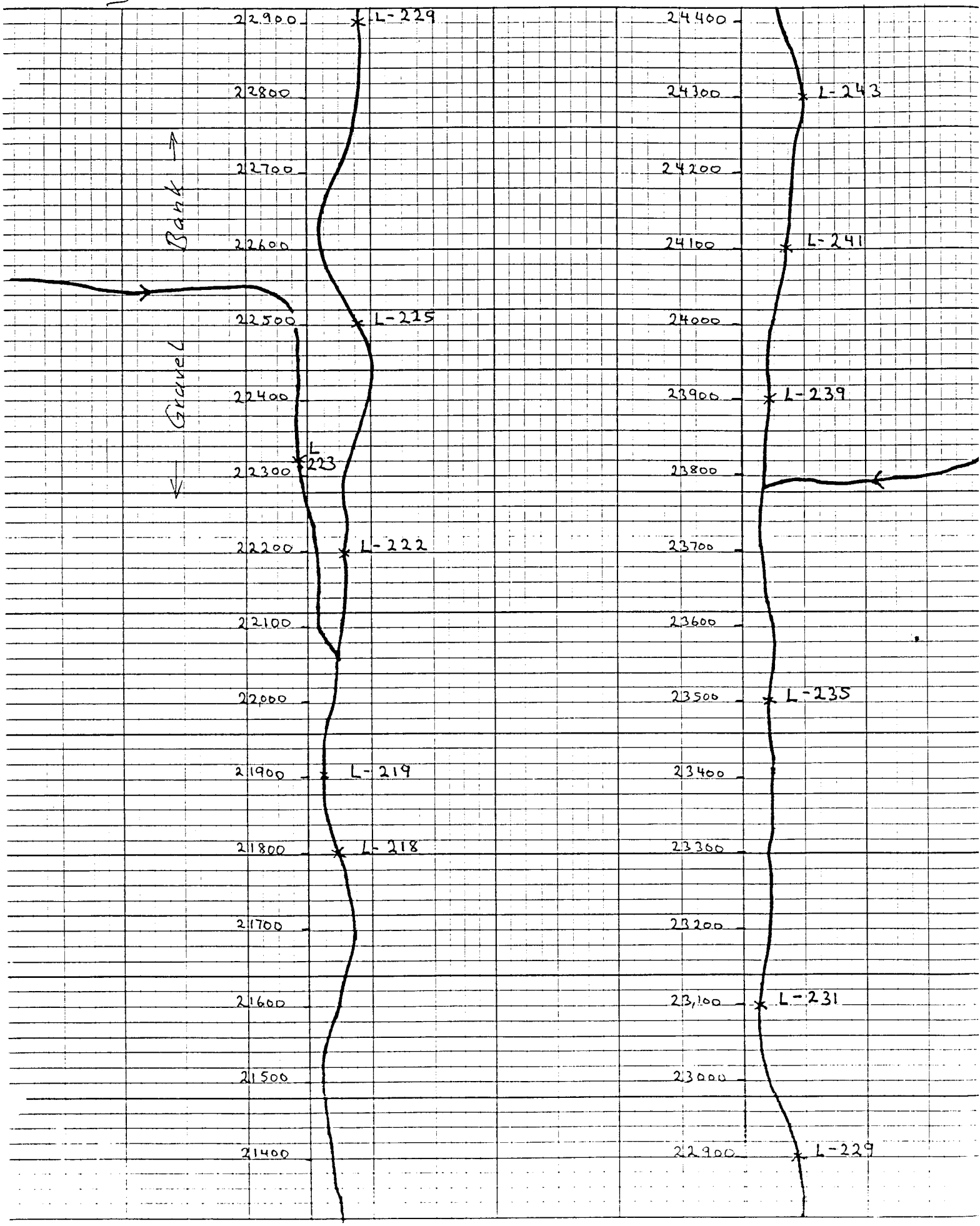
Date : 1988 Aug.

scale : 1 square = 20 feet



Date: 1988 Aug.

scale: 1 square = 20 feet



Date 1988 Aug.

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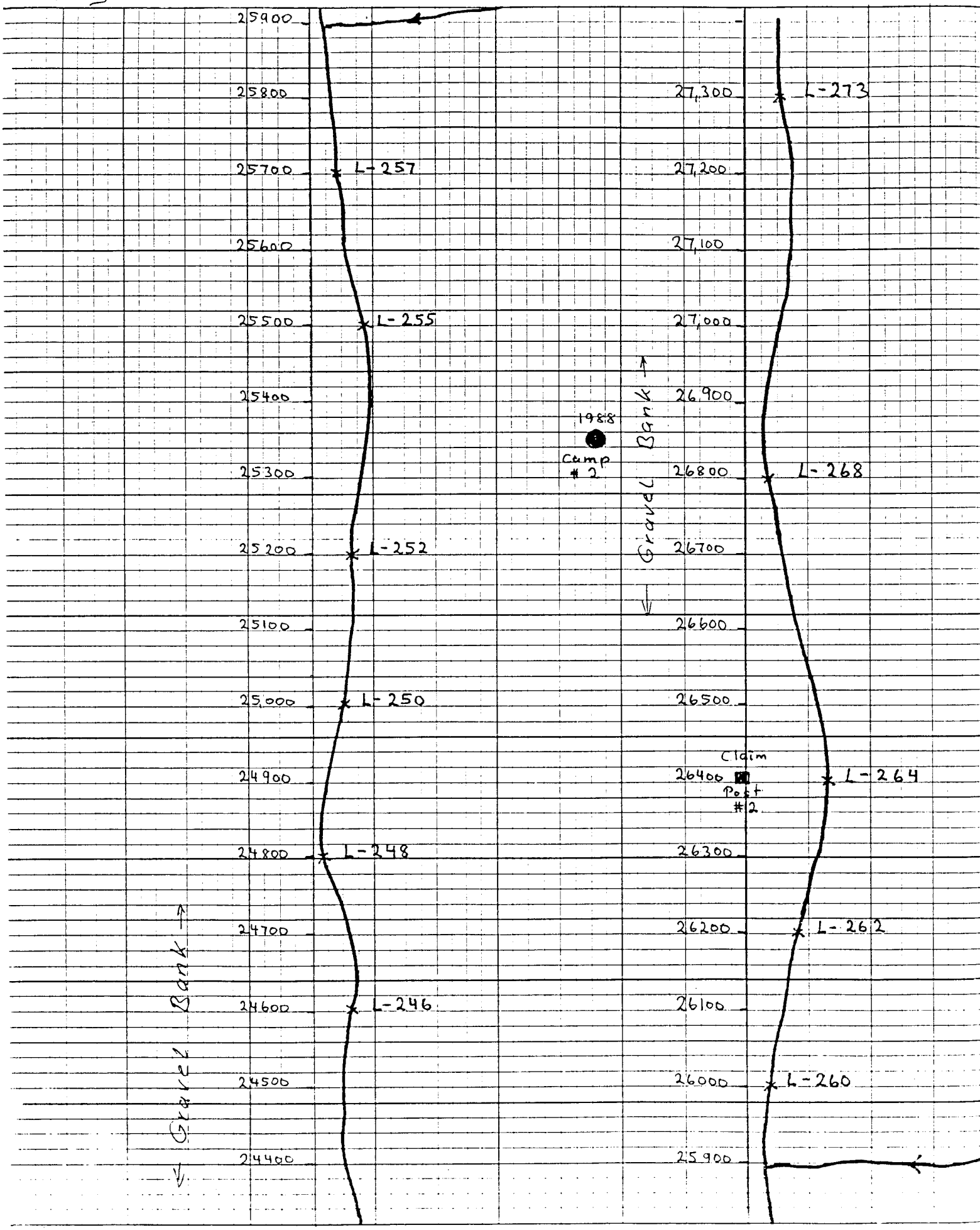

Appendix A

General Geochemical Statistical Data

MIN
• EN
LABORATORIES LTD.

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
TELEX: VIA U.S.A. 7601067 • FAX (604) 980-9621

TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Analytical Report

Company:ERWIN KREFT
Project:
Attention:ERWIN KREFT

File:8-1219
Date:AUG 26/88
Type:SILT GEOCHEM

Date Samples Received :AUG 5/88
Samples Submitted by :ERWIN KREFT

Report on .....58 SILTS..... Geochem Samples
..... Assay Samples

Copies sent to:
1. ERWIN KREFT, WHITEHORSE, YUKON
2.
3.

Samples: Sieved to mesh .....-80..... Ground to mesh .....

Prepared samples stored:.....X..... discarded:.....
rejects stored:..... discarded:.....X.....

Methods of analysis:

12 ELEMENT TRACE ICP
AU WET GEOCHEM

Remarks

MIN
• EN
LABORATORIES LTD.

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

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TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Analytical Report

Company:E.KREFT
Project:STAR
Attention:E.KREFT

File:8-1516
Date:SEPT.19/88
Type:SILT GEOCHEM

Date Samples Received :SEPT.11/88
Samples Submitted by :E.KREFT

Report on .....79 SILT..... Geochem Samples
..... Assay Samples
.....

Copies sent to:
1. E.KREFT, WHITEHORSE, YUKON
2.
3.

Samples: Sieved to mesh ....-80..... Ground to mesh .....

Prepared samples stored:.....X..... discarded:.....
rejects stored:..... discarded:.....X.....

Methods of analysis:

AU-WET GEOCHEM
12 ELEMENT TRACE ICP

Remarks

COMPANY: BRADY KREFT | MIN-EN LABS ICP REPORT | (HOTMAIL) PAGE 2 OF 2
PROJECT NO: | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 8-1219/R1
ATTENTION: E.KREFT | (604)980-5814 OR (604)988-4524 | X TYPE SILT SEDIMENT | DATE RECEIVED: DEC 1988

(VALUES IN PPM)	AU-PPB
L02	5
L05	5
L07	5
L1140M	5
L13	10
L15	200
L16	390
L18	5
L20	25
L24	20
L27	10
L28	5
L33	10
L3740M	5
L38	5
L47	5
L68	5
L7040M	10
L71	5
L72	5
L75	5
L7740M	5
L79	10
L81	5
L82	11
L84	10
L86	5
L87	40
L88	5
L90	10

COMPANY: ERWIN KREFT
PROJECT NO:
ATTENTION: E.KREFT

MIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524 * TYPE SOIL GEOCHEM *

(ACT:F31) PAGE 1 OF 1
FILE NO: 9-1219/P1
DATE:AUGUST 25, 1989

(VALUES IN PPM)	AG	AS	CD	CO	CU	MO	NI	PB	SB	SN	W	ZN
L02	.6	4	.3	21	18	8	21	15	3	1	1	58
L05	4.5	43	.6	15	20	8	17	15	13	1	4	41
L07	.7	3	.8	21	19	8	25	13	3	1	1	71
L1140M	.3	14	.4	21	18	8	26	13	1	1	2	64
L13	.6	18	.7	22	22	8	26	15	1	1	1	65
L15	.5	11	.8	23	23	8	30	14	1	1	1	68
L16	.9	6	.7	22	19	9	27	16	1	1	2	71
L18	.8	6	.7	22	17	8	26	11	1	1	1	72
L20	.9	10	.8	23	21	9	27	14	1	1	2	71
L24	.5	15	.7	25	24	9	28	16	1	2	1	73
L27	.6	15	.7	24	23	9	29	17	1	2	2	76
L28	.7	7	.7	24	16	10	26	17	1	1	1	79
L32	.4	5	.9	25	21	9	28	12	4	1	1	80
L3740M	.5	15	.5	23	14	9	23	17	2	2	2	78
L38	1.0	17	.9	25	23	9	28	19	1	2	1	78
L47	.8	6	.9	24	16	10	27	15	1	2	1	74
L68	1.0	21	.8	25	18	10	27	15	2	2	3	86
L7040M	.5	14	.7	23	24	9	27	16	4	2	2	66
L71	.9	1	.9	26	19	9	27	19	3	3	1	85
L73	.6	9	.8	25	12	10	26	12	1	2	1	96
L75	.7	2	.7	26	19	9	30	19	3	2	2	94
L7740M	1.0	17	.6	25	22	9	28	15	1	2	2	76
L79	.7	13	.7	24	22	10	29	15	1	2	2	75
L81	.5	16	.5	24	19	9	25	14	2	1	1	81
L82	.9	7	.9	26	17	10	25	15	1	[illegible]	1	91
L84	.4	4	1.1	25	5	11	23	12	1	1	1	59
L86	.6	13	1.0	28	32	9	32	15	4	2	1	78
L87	.4	24	.9	29	29	9	30	16	2	1	1	81
L88	.7	11	1.0	29	24	5	31	17	1	1	2	80
L90	.9	10	.8	30	31	10	35	19	3	2	3	87

COMPANY: ERWIN HSIEH
PROJECT NO:
ATTENTION: ERWIN HSIEH

VIN-EN 1988 ICP REPORT
715 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-3814 OR (604)980-4524

(VALUES IN PPM) AL-1998

L93	5
L94	5
L95	860
L96	5
L98	5
L99	5
L101	5
L102	10
L104	5
L106	5
L109	5
L111	5
L112	10
L114	5
L115	5
L116	5
L117	10
L119	5
L121	5
L122	10
L124	5
L125	5
L126	5

COMPANY: ERWIN KRAFT | MIN-EN LABS ICP REPORT | PAGE 1 OF 2
PROJECT NO: | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: A-1017/P2
ATTENTION: ERWIN KRAFT | (604)980-5814 OR (604)988-4524 | * TYPE SOIL SAMPLES * | DATE: AUGUST 26, 1988

(VALUES IN PPM)	AE	AG	BE	CD	CO	CU	NI	PB	SB	SN	V	ZN
L93	.6	4	.6	22	20	7	27	17	2	3	1	71
L94	.6	14	.7	21	23	8	25	16	1	2	1	64
L95	.5	34	2.7	21	1	8	1	10	6	1	1	383
L96	.9	16	.6	22	24	8	26	16	1	3	1	67
L98	.6	7	.7	20	20	8	26	17	2	2	1	63
L99	.5	1	.8	22	24	8	23	11	2	3	1	64
L101	.8	17	.6	21	22	8	26	15	1	2	2	65
L102	.5	19	.6	22	23	8	24	16	1	2	1	65
L104	.4	2	.9	23	21	8	26	17	2	2	1	70
L106	.7	3	.6	23	23	7	26	18	3	2	1	67
L108	.7	16	.8	21	22	7	25	13	1	3	1	64
L111	.5	19	.8	22	23	8	26	16	1	2	1	68
L113	.9	13	.7	21	21	8	25	14	1	2	1	65
L011	.6	7	.7	19	19	7	18	14	1	2	2	51
L012	.7	8	.6	17	24	8	19	14	3	2	1	52
L013	.4	12	.8	18	21	8	18	14	2	2	1	50
L014	1.1	9	.7	16	26	7	20	12	2	2	1	50
L015	.5	6	.9	25	38	8	28	17	1	3	2	66
L016	.7	9	.7	19	27	8	23	16	7	2	2	58
L017	.7	13	.7	19	24	8	22	14	2	2	1	57
L019	.5	23	1.2	20	34	9	25	16	1	3	2	74
L021	1.1	11	.4	17	21	8	19	13	2	2	1	49
L021	.5	10	.7	25	27	9	28	18	1	1	2	70
L021DUP	.5	9	.5	18	21	7	21	15	1	2	1	57
L022	.6	12	.6	19	26	7	21	16	1	2	2	51
L024	.5	2	.7	17	19	9	19	15	4	2	2	57
L025	.4	14	.7	17	21	8	17	12	1	2	1	52
L026	.5	8	.6	17	22	7	19	15	1	2	2	50

COMPANY: E.KREFT
PROJECT NO: STAR
ATTENTION: E.KREFT

MIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524 # TYPE SILT GEOCHEM #

(ACT:F31) PAGE 1 OF 1
FILE NO: 8-1516S/P1+2
DATE:SEPTEMBER 20, 1988

(VALUES IN PPM)	AG	AS	BE	CO	CU	MO	NI	PB	SB	SN	W	CR	AU-PPB
L16	.8	10	.8	14	13	3	23	15	1	1	3	48	5
L18	.8	9	.8	13	6	3	20	10	1	2	2	50	5
L19	.8	5	.8	12	5	2	20	10	1	2	2	49	10
L4340M	.9	9	.8	19	4	2	17	14	2	2	2	60	10
L45	1.0	8	1.0	24	18	3	26	15	2	2	2	58	5
L48	.6	4	.6	12	11	5	16	11	1	1	2	39	5
L4940M	.9	15	1.0	22	15	2	25	15	1	3	1	49	5
L51	.3	1	.9	33	53	4	38	19	1	2	1	59	5
L5440M	1.0	6	.9	21	14	3	22	10	1	3	2	49	5
L56	.8	4	.9	17	15	3	24	9	2	2	2	48	10
L59	.9	7	1.2	29	26	2	29	14	2	3	2	68	5
L62	1.0	12	1.2	29	27	2	30	9	3	3	2	66	5
L64	.6	6	1.2	31	53	3	34	19	2	2	1	60	5
L66	.8	14	1.0	25	23	2	26	18	2	3	2	63	10
LR112	.9	9	.6	10	10	3	16	12	1	1	3	53	5
L11840M	.8	10	.8	14	8	3	20	15	1	1	2	50	5
L120	.8	10	.8	15	10	3	19	12	1	2	2	56	5
L125	.9	11	.7	13	11	3	19	12	1	1	2	56	10
L128	1.0	11	.8	16	11	3	22	16	1	2	2	54	5
L129	.6	13	.9	17	23	3	28	13	1	2	2	59	5
L131	.7	7	.9	16	10	3	22	14	2	2	2	63	5
L13340M	.8	16	.7	12	9	3	18	13	1	2	2	41	5
L13640M	1.0	8	.7	13	10	4	19	6	1	2	2	41	10
L138	.8	2	.7	15	11	3	20	11	1	2	2	53	5
L139	.7	6	.9	16	8	3	22	13	1	2	3	62	10
L141	1.0	9	.8	13	7	3	19	11	1	2	2	44	5
L142	.8	8	.7	16	9	4	20	12	1	2	2	56	50
L143	.8	9	.8	16	11	3	20	14	1	1	2	54	5
L145	.8	12	.6	13	8	3	17	11	1	1	2	42	5
L149	.7	4	.9	16	23	3	21	13	1	2	2	52	5
L15440M	.8	10	.8	13	2	4	15	12	1	1	3	58	5
L156	1.0	13	.7	14	3	3	16	11	1	2	2	51	5
L158	1.0	6	1.0	16	5	3	19	12	1	2	3	61	10
L160	1.0	19	.9	15	8	3	21	15	1	2	3	52	5
L162	1.0	12	.9	16	11	3	20	13	1	2	3	52	5
L163	.8	16	.8	15	7	4	19	14	1	1	3	54	5
L165	.9	11	.9	14	5	3	16	11	1	1	2	56	5
L168	1.0	10	.8	15	7	3	20	14	1	1	2	55	10
L170	1.0	15	.9	15	12	4	19	17	1	2	3	52	5
L17340M	.9	11	.9	14	2	3	17	13	1	2	3	54	10
L17540M	1.1	16	.7	14	7	3	15	10	1	2	2	43	5
L17740M	1.2	15	.7	13	7	3	17	15	2	2	3	42	5
L180	1.0	12	.9	17	9	3	18	15	1	2	3	55	5
L183	.9	8	1.0	17	11	3	21	15	1	2	3	57	5
L18540M	1.1	17	.8	14	8	3	19	13	1	2	2	45	10
L18740M	.9	10	.8	14	7	3	18	11	1	2	2	53	5
L19040M	1.0	15	.8	15	3	3	18	12	1	2	3	58	5
L193	.9	9	.8	16	5	3	19	14	2	2	3	62	10
L195	.8	6	1.0	16	3	2	17	14	2	2	4	75	5
L198	1.0	14	.9	16	4	3	20	15	1	2	3	55	5
L201	1.0	14	.8	16	5	4	19	15	1	2	3	56	5
L20440M	1.0	15	.7	17	4	2	14	14	1	2	2	48	5
L20740M	1.0	7	.7	15	9	2	20	12	1	1	2	49	10
L20940M	1.0	13	.8	15	6	3	18	13	1	2	3	51	10
L211	.8	12	.9	18	12	3	22	19	1	2	2	56	5
L21340M	1.1	11	.8	16	10	3	21	14	1	2	2	52	5
L21840M	1.1	19	.8	15	4	3	20	14	1	2	2	53	400
L219	1.1	11	.8	15	10	3	19	12	1	2	2	50	5
L222	1.0	11	.9	18	11	3	21	13	1	2	2	57	5
L223	.8	9	.7	12	5	3	18	10	1	1	3	52	5

COMPANY: E.KREFT
PROJECT NO: STAR
ATTENTION: E.KREFT

MIN-EN LABS ICP REPORT
705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524 # TYPE SILT GEOCHEM #

(ACT:F31) PAGE 1 OF 1
FILE NO: 8-1516S/P3
DATE:SEPTEMBER 20, 1988

(VALUES IN PPM)	AG	AS	BE	CO	CU	MO	NI	PB	SB	SN	W	CR	AU-PPB
L22540M	1.1	13	.8	16	8	2	19	14	1	2	3	48	5
L229	1.0	14	.9	19	17	3	25	18	1	3	2	57	10
L231	1.2	6	1.0	20	11	3	24	16	1	3	2	61	5
L235	1.1	30	.9	18	10	3	20	14	1	3	2	58	10
L239	1.2	10	.9	18	7	3	19	19	1	2	4	60	5
L241	.8	4	1.0	19	3	3	20	14	2	1	3	72	5
L243	1.0	10	1.0	19	13	3	20	15	1	2	3	58	5
L24640M	.8	24	1.1	18	3	4	16	19	2	1	7	81	10
L24840M	1.2	15	.8	18	10	4	23	14	1	2	3	56	5
L250	1.0	8	.9	21	16	3	23	15	1	2	3	60	5
L252	1.0	13	1.0	21	14	3	21	16	1	2	3	59	5
L25340M	1.1	11	.8	17	9	4	20	12	1	2	2	48	5
L25740M	1.1	8	.9	18	8	3	21	16	1	2	3	54	10
L26040M	1.0	7	.9	17	11	3	21	14	1	2	2	50	5
L262	1.0	9	1.0	19	7	3	20	16	1	2	3	64	5
L26440M	1.2	11	.8	18	7	2	20	20	1	2	2	55	5
L26840M	1.3	12	.9	21	4	2	19	18	1	4	3	66	5
L27340M	1.2	12	1.1	20	5	2	18	15	1	3	3	69	5
L122	1.0	13	1.0	17	15	3	24	15	1	2	3	63	5

Appendix B

Pearson Correlation Matrix

TOTAL OBSERVATIONS: 120

	AG	AS	BE	CO	CU
N OF CASES	120	120	120	120	120
MINIMUM	0.300	1.000	0.500	12.000	1.000
MAXIMUM	4.500	43.000	2.700	33.000	53.000
MEAN	0.864	11.217	0.856	19.558	14.850
STANDARD DEV	0.401	6.236	0.225	5.051	9.753

	MO	NI	PB	SB	SN
N OF CASES	120	120	120	120	120
MINIMUM	2.000	1.000	6.000	1.000	1.000
MAXIMUM	11.000	38.000	20.000	13.000	4.000
MEAN	4.942	22.750	14.292	1.575	1.942
STANDARD DEV	2.832	5.150	2.690	1.376	0.612

	W	AU	DIST	CR
N OF CASES	120	120	120	120
MINIMUM	1.000	5.000	2.000	41.000
MAXIMUM	7.000	860.000	273.400	383.000
MEAN	2.100	19.167	130.242	64.475
STANDARD DEV	0.911	87.234	76.077	31.768

NUMBER OF OBSERVATIONS: 120

PEARSON CORRELATION MATRIX

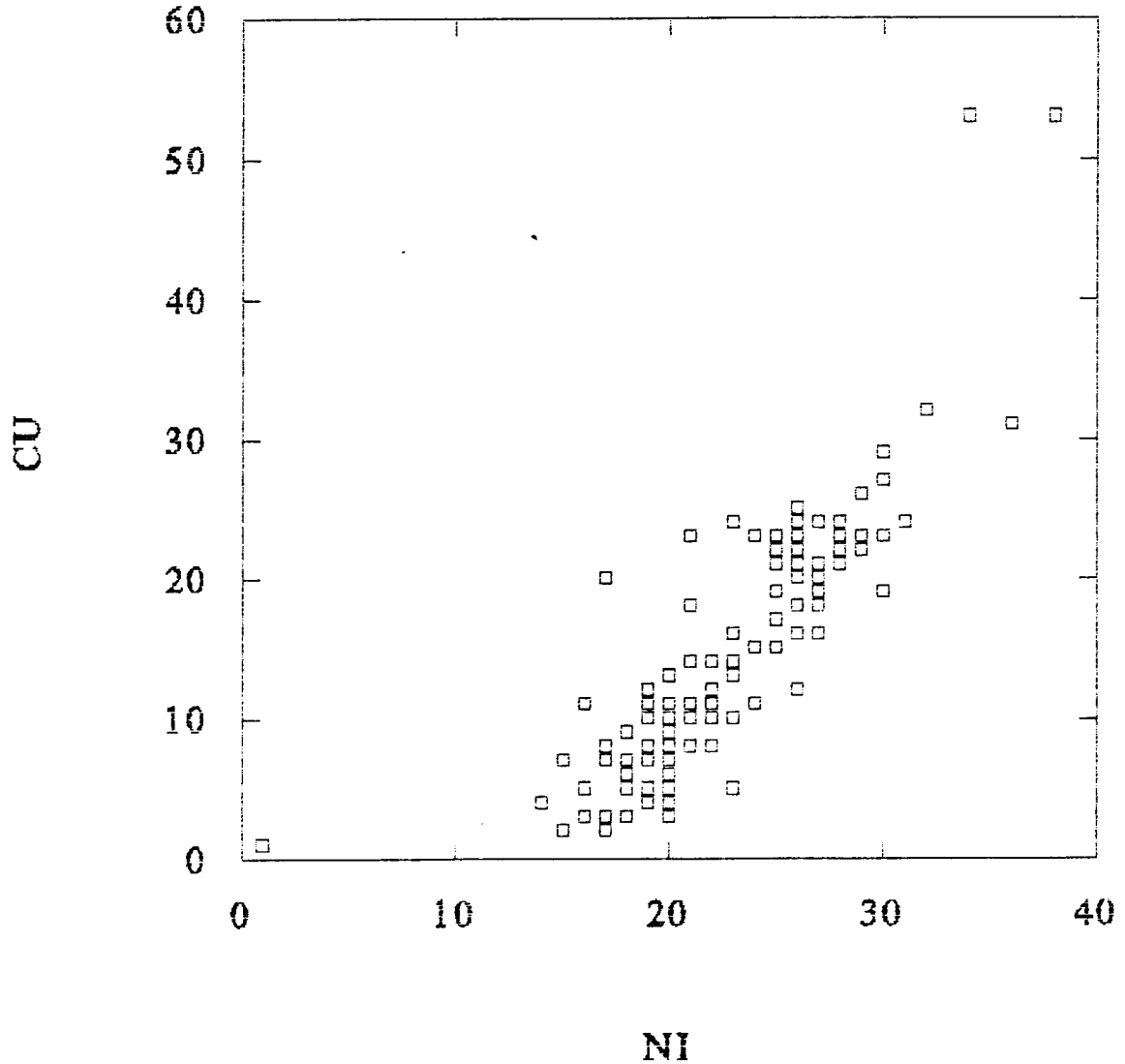
	AG	AS	BE	CO	CU
AG	1.000				
AS	0.475	1.000			
BE	-0.104	0.135	1.000		
CO	-0.305	-0.102	0.250	1.000	
CU	-0.225	-0.127	0.039	0.796	1.000
MO	-0.230	0.065	-0.158	0.535	0.378
NI	-0.301	-0.265	-0.143	0.810	0.853
PB	-0.011	0.086	-0.028	0.449	0.390
SB	0.521	0.357	0.216	0.239	0.221
SN	0.043	-0.016	0.121	0.296	0.205
W	0.429	0.233	0.026	-0.427	-0.492
AU	-0.076	0.353	0.656	0.007	-0.140
CR	-0.226	0.261	0.733	0.301	0.017

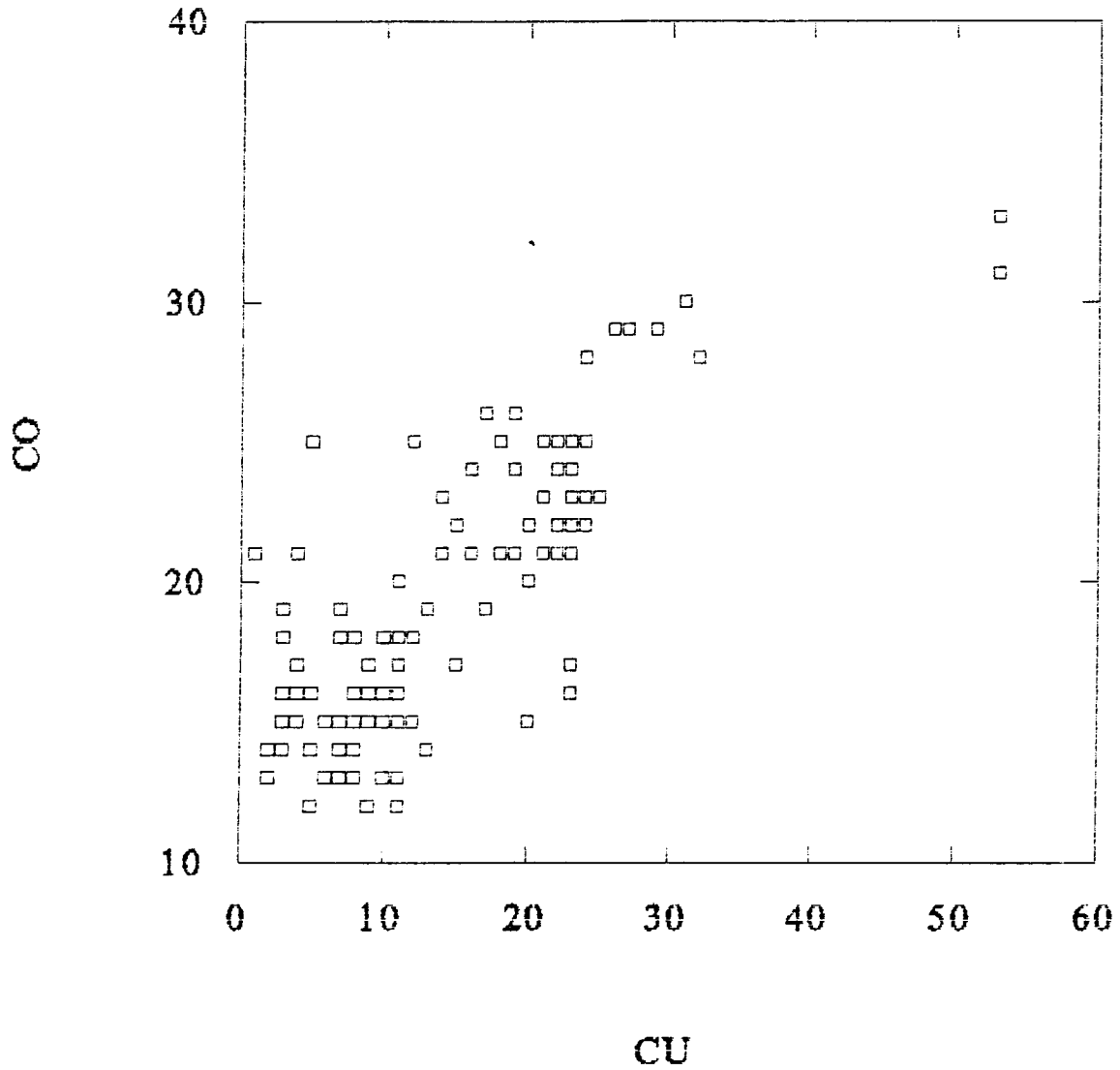
	MO	NI	PB	SB	SN
MO	1.000				
NI	0.438	1.000			
PB	0.228	0.429	1.000		
SB	0.319	0.032	0.043	1.000	
SN	-0.206	0.283	0.179	-0.139	1.000
W	-0.444	-0.421	0.043	0.021	-0.110
AU	0.093	-0.336	-0.140	0.241	-0.154
DIST	-0.574	-0.502	0.023	-0.337	0.119
CR	0.375	-0.150	0.001	0.338	-0.130

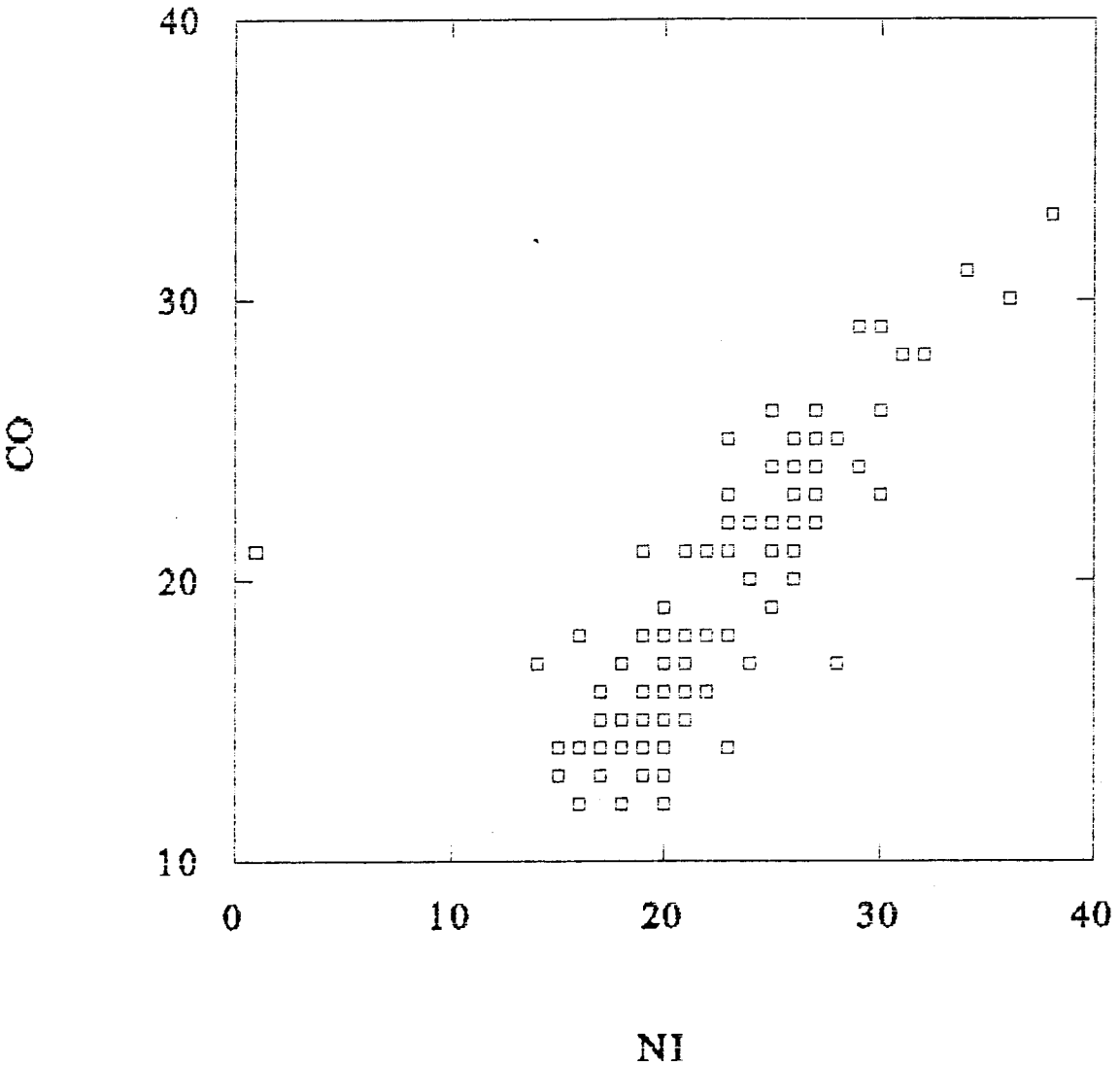
	W	AU	CR
W	1.000		
AU	-0.130	1.000	
CR	-0.184	0.815	1.000

Appendix C

Significant Element-Element Correlation Plots (ppm)

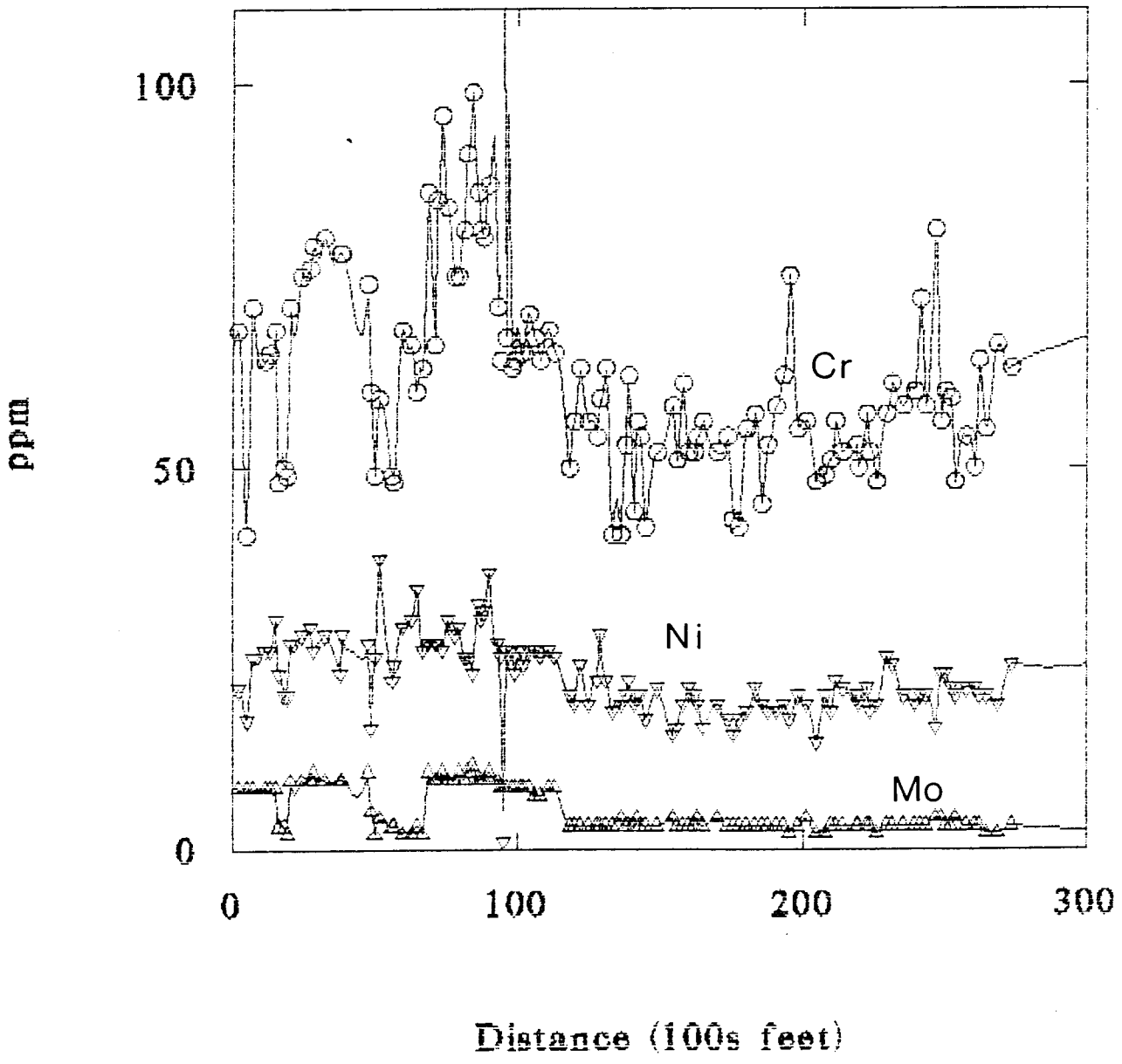

60
50
40
30
20
10
0
CU
0
10
20
30
40
NI

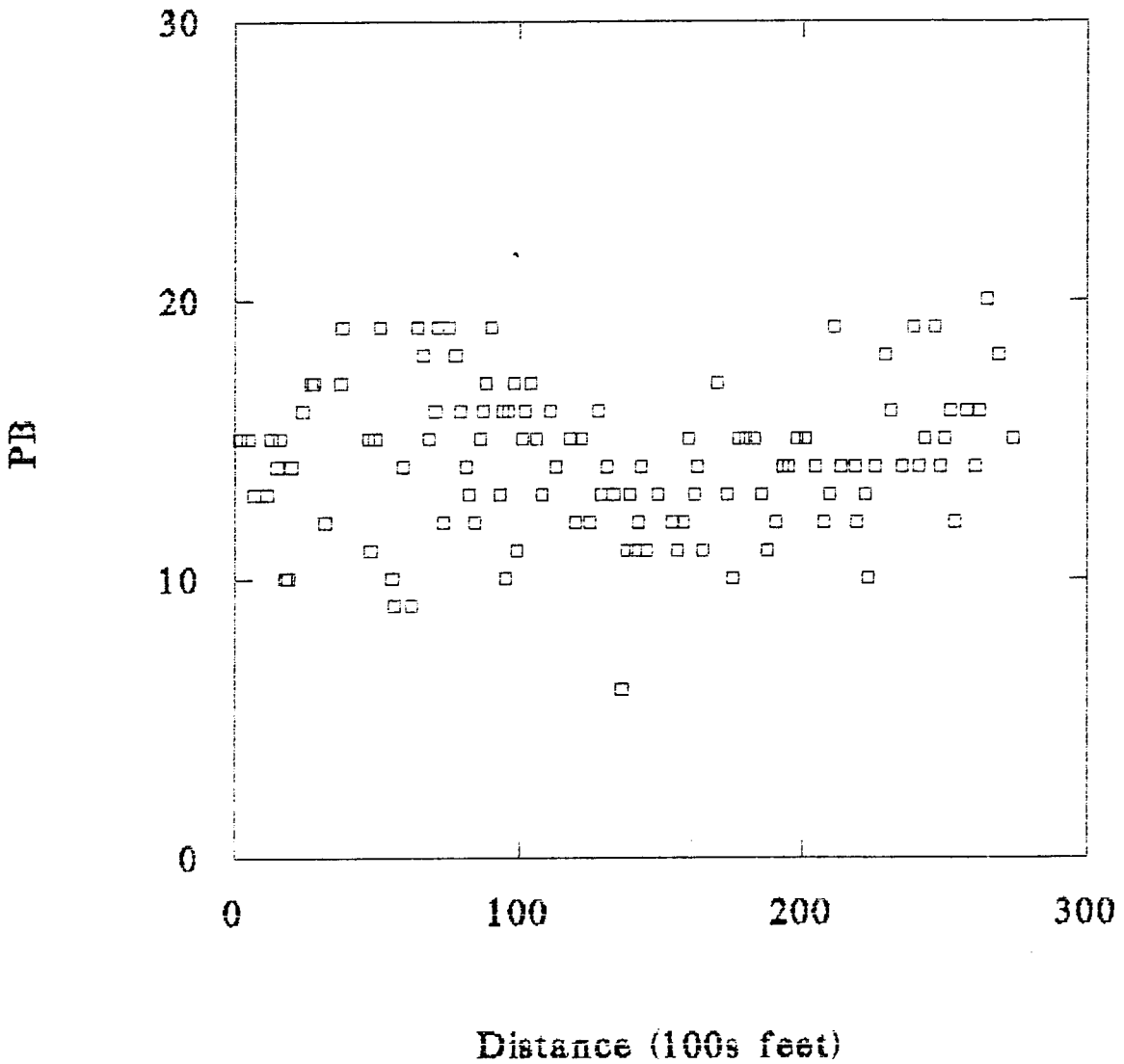

40
30
20
10
CO
0
10
20
30
40
50
60
CU

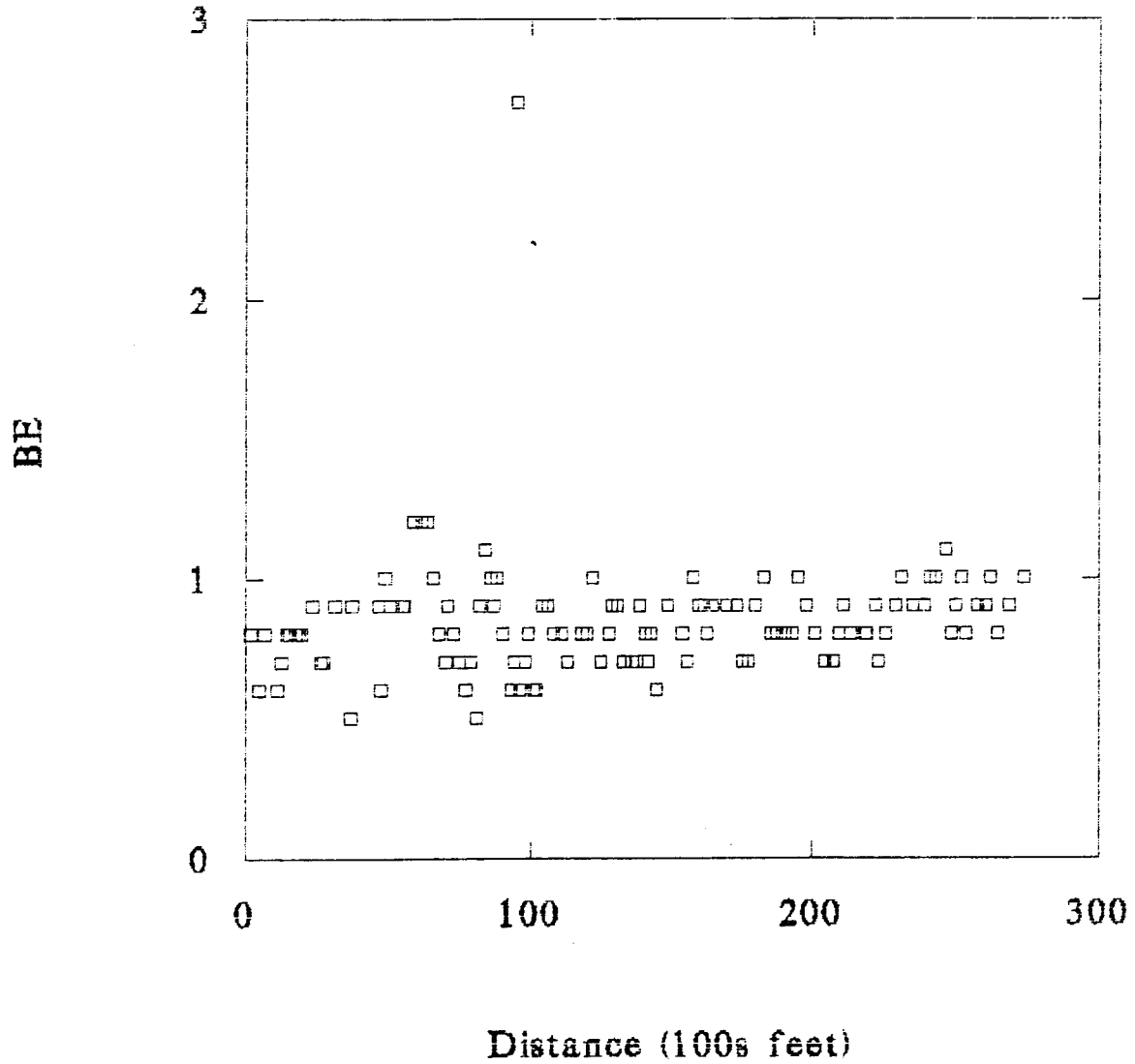

40
30
20
10
CO
0
10
20
30
40
NI

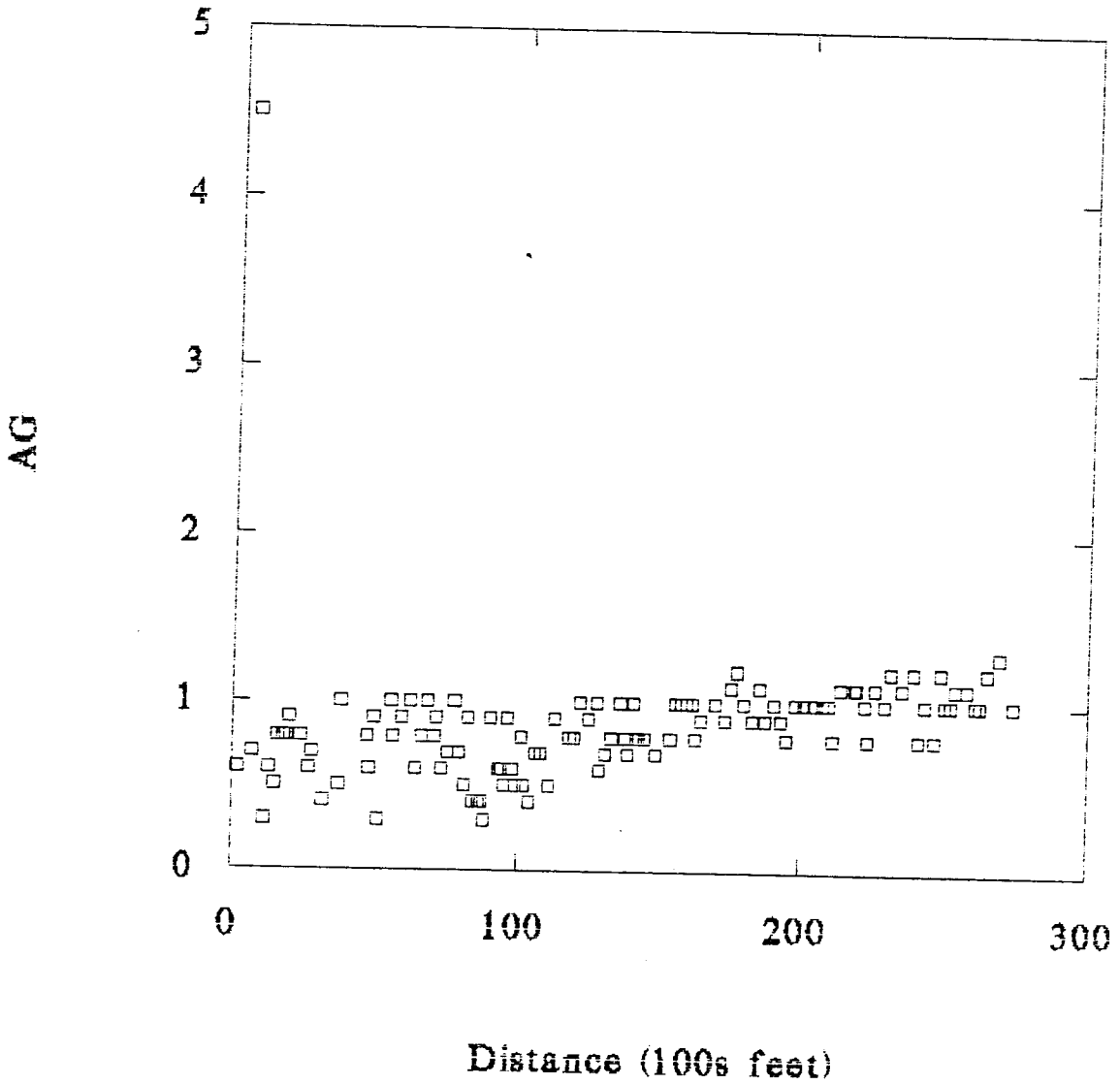
Appendix D

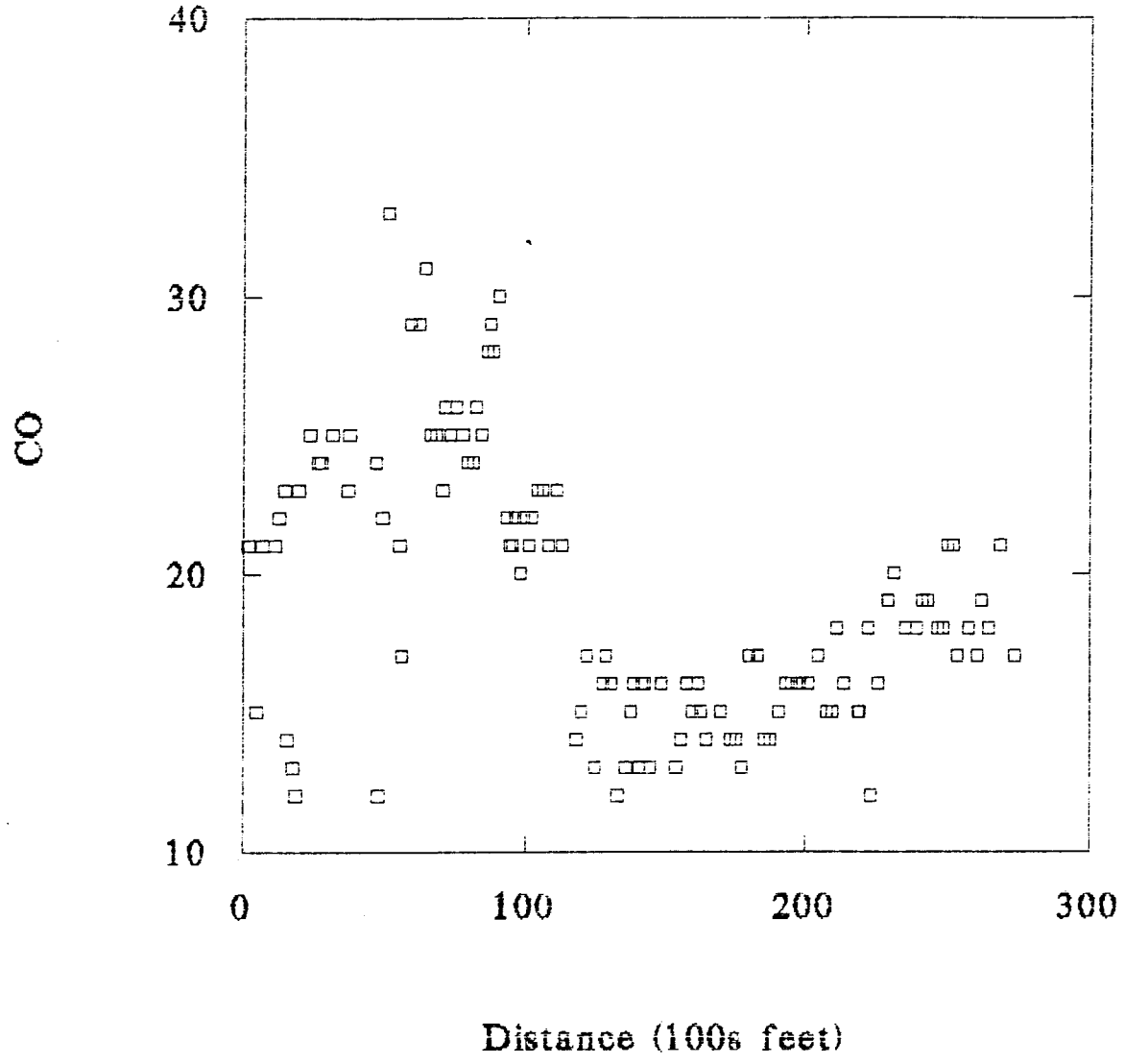
Upstream Geochemical Trends
(Au in ppb; all others ppm)

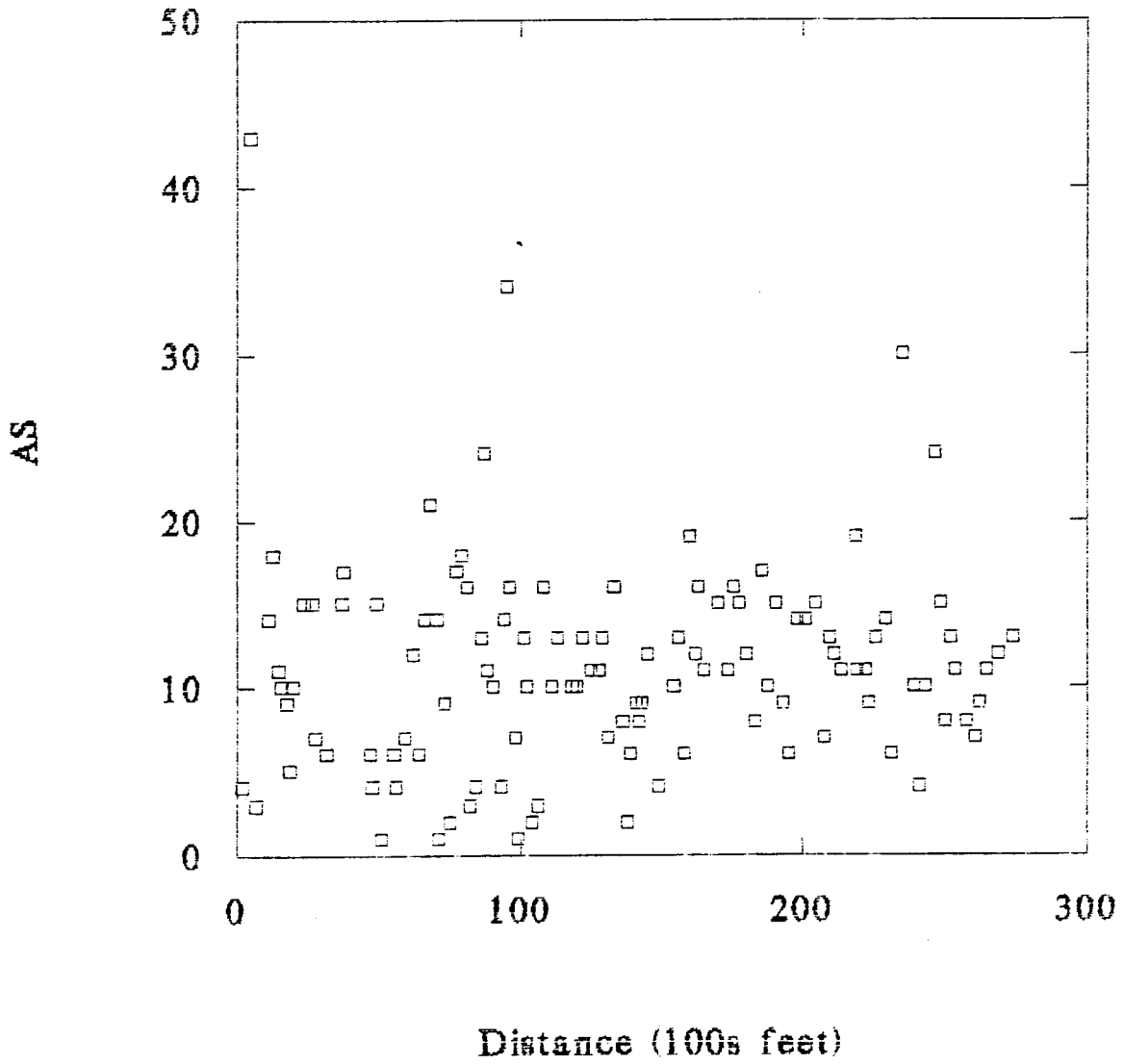

100
50
0
ppm
Cr
Ni
Mo
0
100
200
300
Distance (100s feet)

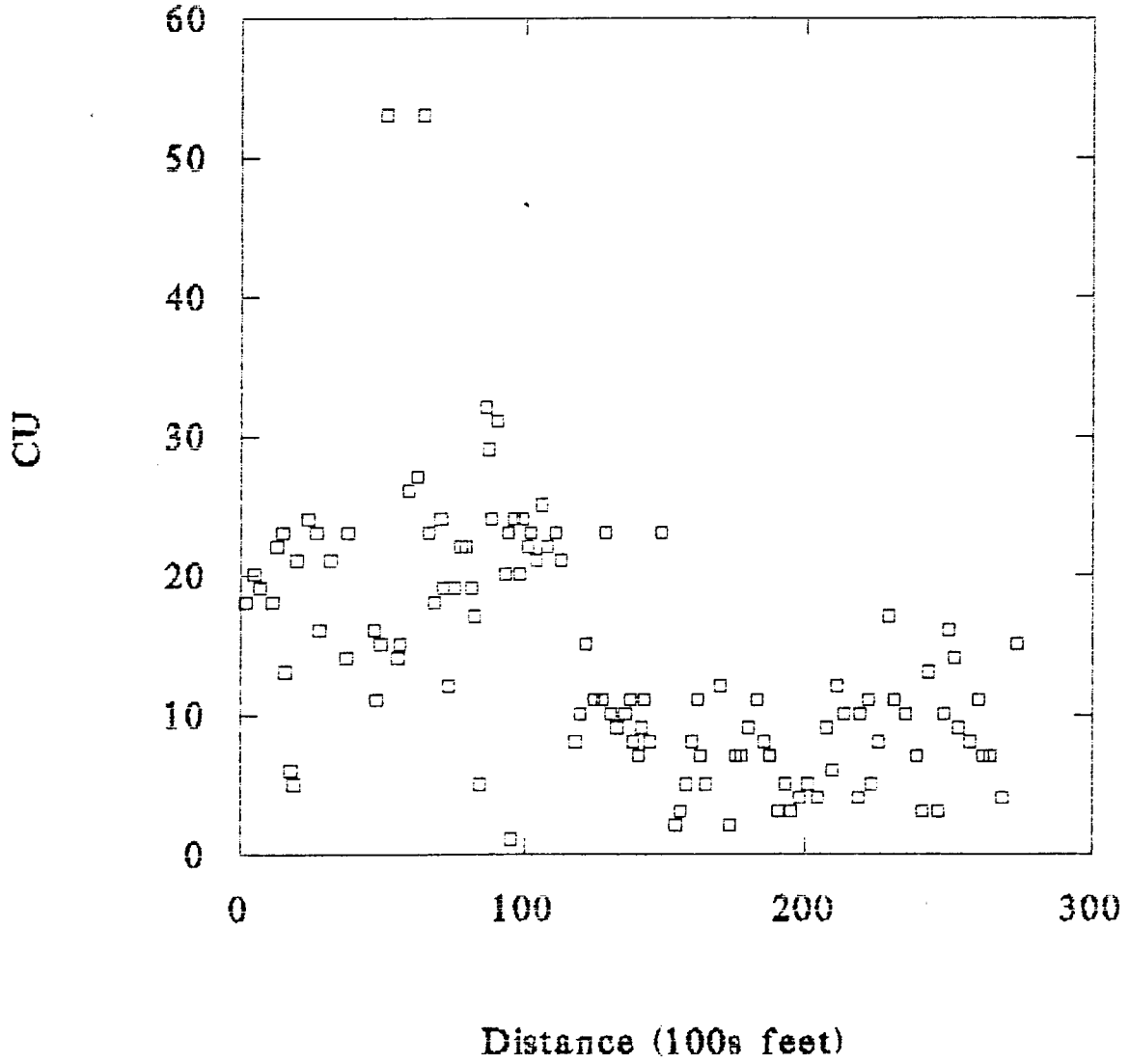

30
20
10
0
PR
0
100
200
300
Distance (100s feet)

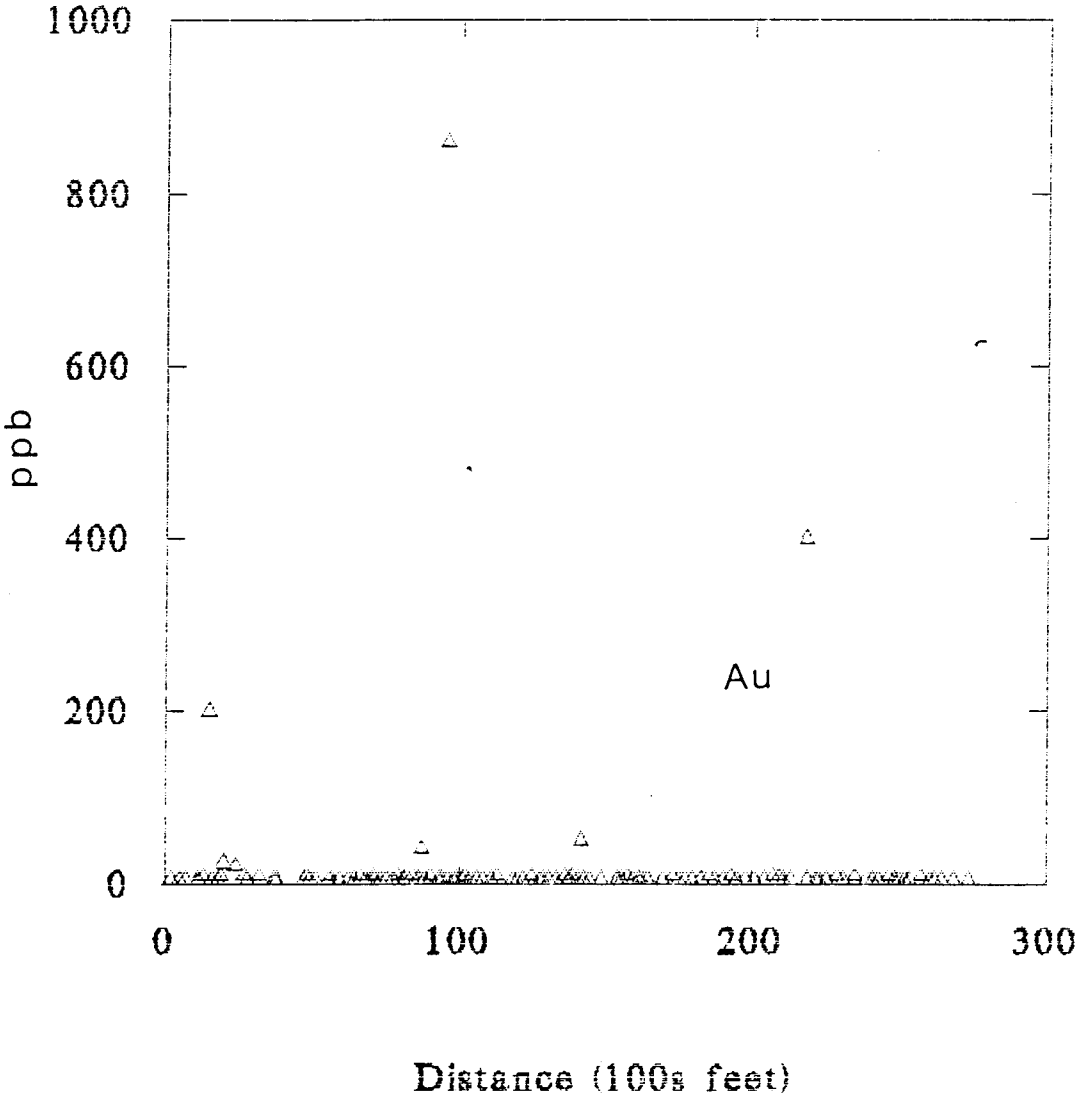

3
2
1
0
BE
0
100
200
300
Distance (100s feet)

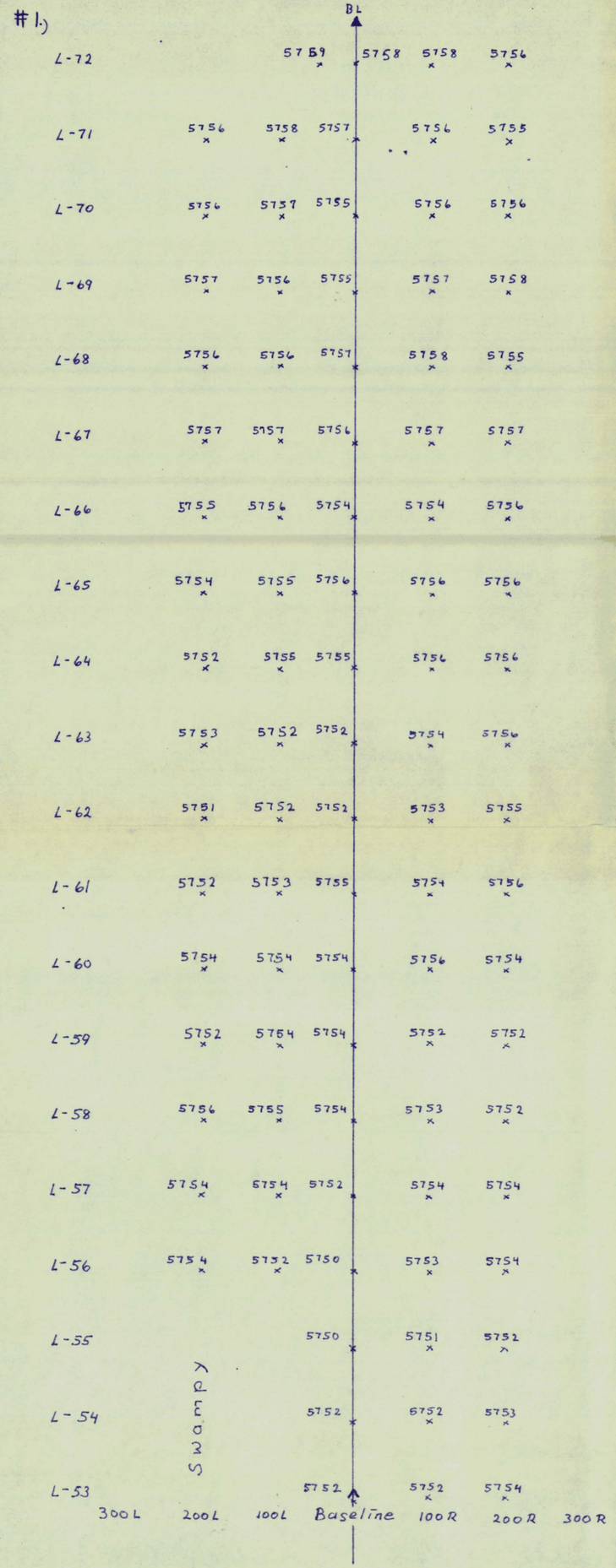

AG
5
4
3
2
1
0
0
100
200
300
Distance (100s feet)

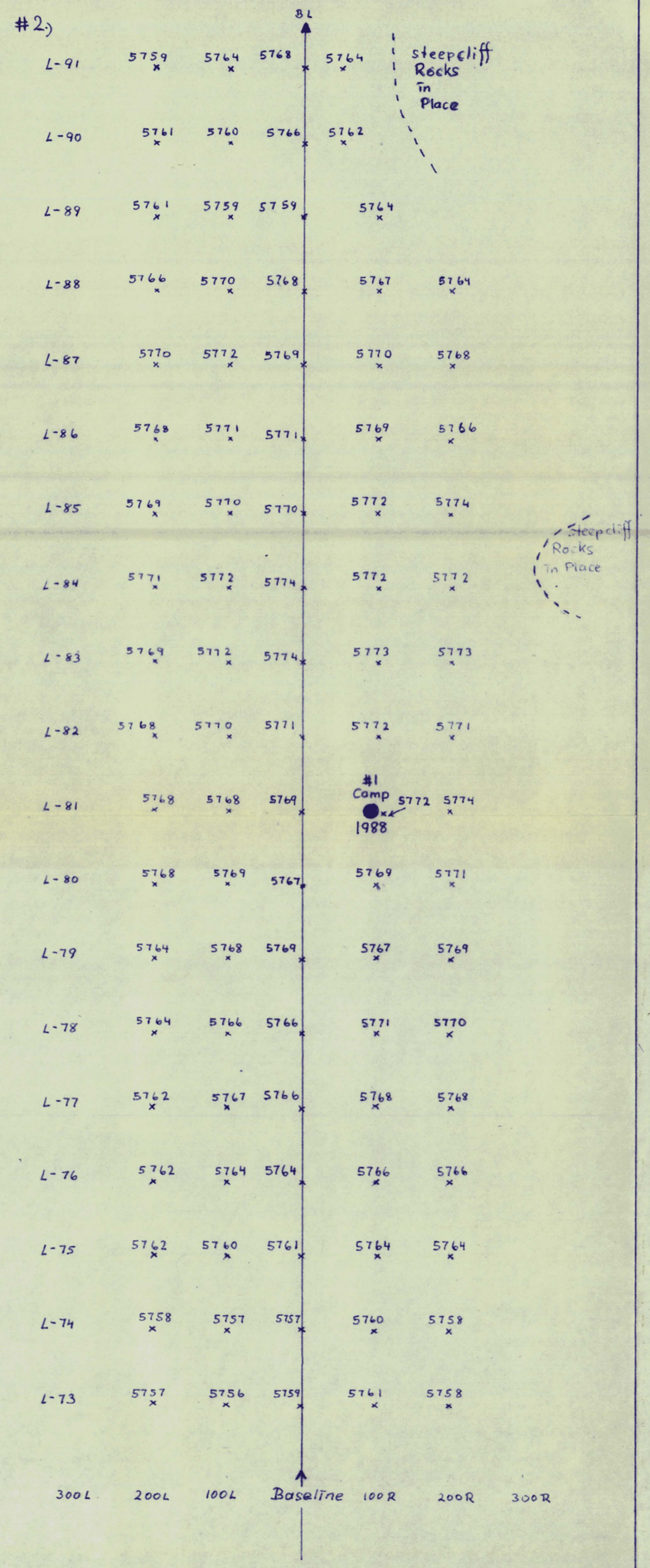

40
30
20
10
CO
0
100
200
300
Distance (100s feet)

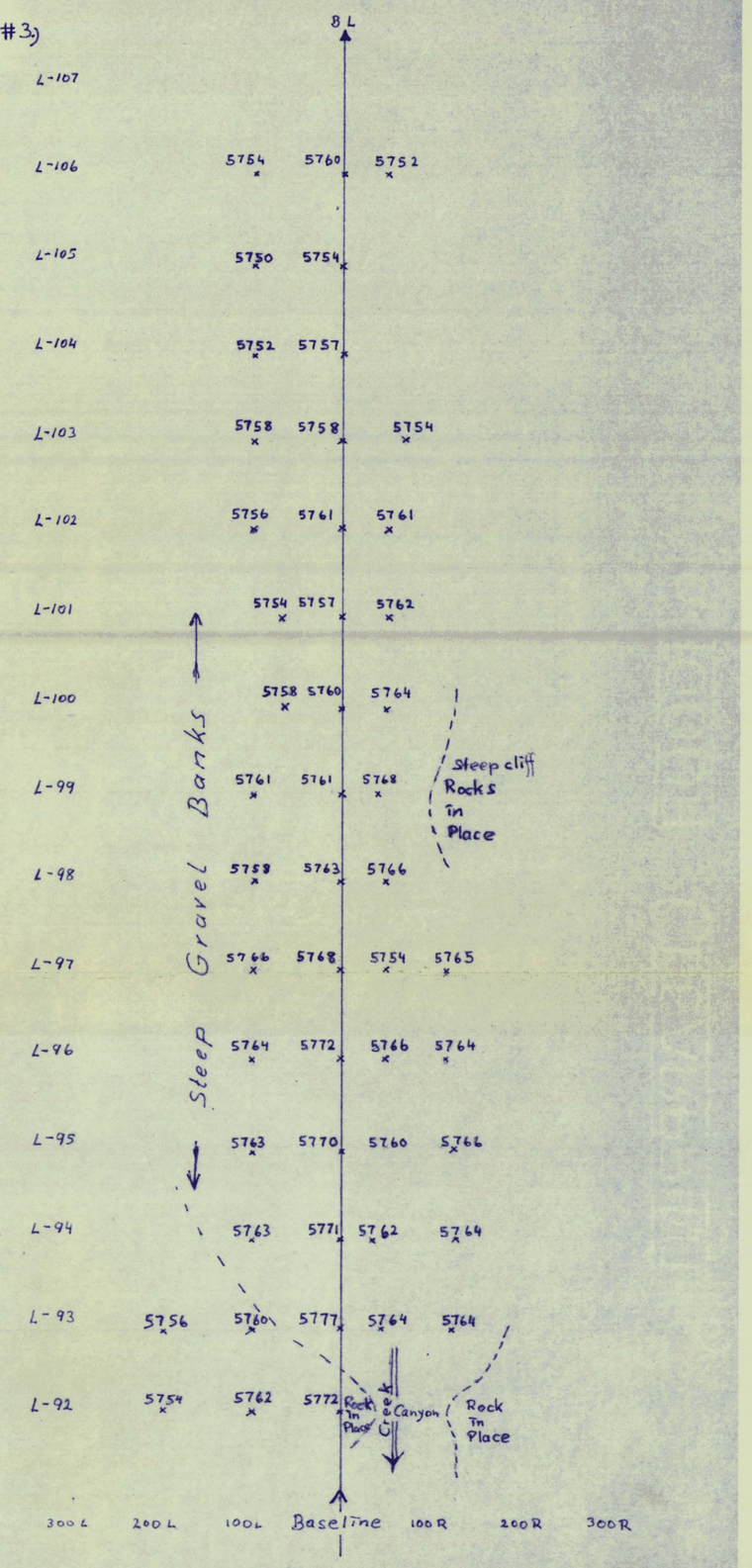

50
40
30
20
10
0
AS
0
100
200
300
Distance (100s feet)


60
50
40
30
20
10
0
CU
0
100
200
300
Distance (100s feet)


1000
800
600
400
200
0
ppb
Au
0
100
200
300
Distance (100s feet)







Magnetometer Survey
Laurier creek
by E. Kreft
Date, August 1988
Scale: 2cm = 100 feet
Instr: Uni-Mag G-836

120108 (2)