File 1 HOTTENTOT
1 BLACK MTN

GEOCHEMICAL SURVEY

6000 0132 (076)

PROJECT: WK Reservation
WEATHER:
REMARKS:
DATE: 7-3-63
TOPO SHEET REFERENCE:
COLLECTOR: WJW
SOIL ☐ FRACTURE ☐ ROCK ☐ WASH ☐ STREAM ☐ SPRING ☐ PLANT ☐
ANALYSIS BY: HJ
METHOD OF ANALYSIS:

LINE & STATION	SAMPLE NO.	HEAVY METALS PPM	COPPER COLD	COPPER HOT	LEAD PPM	ZINC PPM	MERC. PPM	ARSENIC PPM	MOLY PPM	
6-13-63	-1		4						4	Big Draw off Reservation (NW Corner of Sec 23 T13 R27)
6-15-63	-1		<1						—	
	-2		<1							
	-3		1							
	-4		—							
	-5		4						8	
	-6		80						4	
	-7		<1							
	-8		2							
	-9		—							
	-10		2							
	-11		1							
	-12		40						4	
	-13		>120						4	
	-14		4						—	
	-15		1							
	-16		<1							
3-12-63	-1		3						WEST WASH (JCT BELOW SO. MOTT)	
	-2		—						EAST WASH " "	
	-3		—						2000' DOWNSTREAM " "	

60000 0132 (0760)
BM

ROCKY MOUNTAIN GEOCHEMICAL LABORATORIES

Post Office Box 2217
SALT LAKE CITY, UTAH 84110

Phone 466-9172
Area Code: 801

CERTIFICATE OF ANALYSES

Date June 10, 1966

Client
Mr. J. H. Volgamore
Walker-Martel Mining Co.
100 Washington St.
Reno, Nevada

Report on:
29 Samples

Submitted by:
Mr. Volgamore

Date: 5-26-66

Analysis:
Copper, Zinc, Lead, Molybdenum & Silver

Remarks:
Copper, Zinc & Silver analyzed by atomic absorption. Lead & Molybdenum done colorimetrically.

cc: Enc.
file

JJJ:wsj

1 ppm = 0.0001% · 1 Troy oz./ton = 34.27 ppm % Mo x 1.6683 = % MoS_2

Sample No.	Copper	Zinc	Lead	Molybdenum	Silver
V 1-1	20	55	5	1	-1
V 1-2	50	50	10	2	-1
V 1-3	25	60	5	2	-1
V 1-4	65	50	5	3	-1
V 1-5	20	60	5	1	-1
V 1-6	35	45	5	1	-1
V 1-7	50	75	15	2	-1
V 1-8	60	50	10	3	-1
V 1-9	65	40	15	2	-1
V 1-10	120	55	10	2	-1
V 1-11	105	40	10	3	-1
V 2-1	90	50	10	2	-1
V 2-2	50	50	15	3	-1
V 2-3	40	45	15	2	-1
V 2-4	30	40	10	2	-1
V 2-5	35	40	5	2	-1
V 2-6	40	45	15	1	-1
V 2-7	40	35	10	2	-1
V 2-8	95	35	10	2	-1
V 2-9	65	40	10	1	-1
V 2-10	210	55	10	2	-1
V 2-11	120	45	10	2	-1
V 2-12	125	45	10	2	-1
RV-1	25	55	10	-1	-1
RV-2	30	70	15	1	-1

Sample No.	Copper	Zinc	Lead	Molybdenum	Silver
RV-3	30	50	10	2	-1
RV-4	50	70	15	1	-1
RV-5	15	130	15	1	-1
RV-6	55	75	15	1	-1

Rocky Mountain Geochemical Laboratories
Salt Lake City, Utah June 10, 1966

By _____
James J. Johnson

6000 0132 (070)

GEOCHEMICAL SURVEY

PROJECT: Front Wassuk Range
DATE: 6-27-66
COLLECTOR: J.H.V.
ANALYSIS BY: R.M.T. Geochem Lab.
WEATHER:
TOPO SHEET REFERENCE: Calico 1"=1000'
REMARKS:
SOIL | FRACTURE | ROCK | WASH X | STREAM | SPRING | PLANT
METHOD OF ANALYSIS: Cu-Zn-Ag Atomic Absorption Pb-Mo Colorimetric

LINE & STATION	SAMPLE NO.	HEAVY METALS PPM	COPPER COLD	COPPER ~~Hot~~ Total	LEAD PPM	ZINC PPM	MERC. PPM	ARSENIC PPM	MOLY PPM	Ag
V 1-1	1			20	5	55			1	-1
1-2	2			50	10	50			2	-1
1-3	3			25	5	60			2	-1
1-4	4			65	5	50			3	-1
1-5	5			20	5	60			1	-1
1-6	6			35	5	45			1	-1
1-7	7			50	15	75			2	-1
1-8	8			60	10	50			3	-1
1-9	9			65	15	40			2	-1
1-10	10			120	10	55			2	-1
1-11	11			105	10	40			3	-1
V 2-1	1			90	10	50			2	-1
2-2	2			50	15	50			3	-1
2-3	3			40	15	45			2	-1
2-4	4			30	10	40			2	-1
2-5	5			35	5	40			2	-1
2-6	6			40	15	45			1	-1
2-7	7			40	10	35			2	-1
2-8	8			95	10	35			2	-1
2-9	9			65	10	40			1	-1
2-10	10			210	10	55			2	-1
2-11	11			120	10	45			2	-1
2-12	12			125	10	45			2	-1
RV 1	1			25	10	55			-1	-1
RV 2	2			30	15	70			1	-1
RV 3	3			30	10	50			2	-1
RV 4	4			50	15	70			1	-1
RV 5	5			15	15	130			1	-1
RV 6	6			55	15	75			1	-1

File 1 BLACK MTN
1 CALICO
1 MISC. PROSPECTS

6000 0132 (0760)

GEOCHEMICAL SURVEY

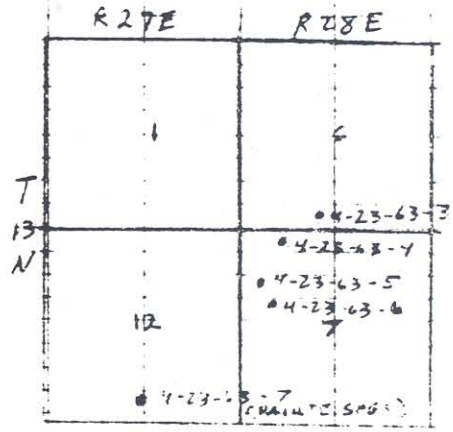
PROJECT: UPRR	WEATHER:	REMARKS:
DATE:	TOPO SHEET REFERENCE:	
COLLECTOR: wdc akw jr	SOIL FRACTURE ROCK WASH STREAM SPRING PLANT	
ANALYSIS BY: HIL	METHOD OF ANALYSIS:	

LINE & STATION	SAMPLE NO.	HEAVY METALS PPM	COPPER COLD	COPPER HOT	LEAD PPM	ZINC PPM	MERC. PPM	ARSENIC PPM	MOLY PPM
4-23-63	1		<1						
	2		<1						
	3		<1						
	4		1						
	5		-						
	6		<1						
↓	7		<1						
4-24-63	1		3						
	2		-						
	3		-						
	4		<1						
	5		<1						
	6		4						
	7		1						
	8		-						
	9		1						
	10		1						
	11		1						
	12		1						
	13		15						
	14		<1						
	15		-						
	16		<1						
	17		-						
	18		-						
	19		1						
	20		1						
	21		-						
	22		1						
	23		-						
	24		1						
	25		1						
	26		<1						
	27		-						
	28		-						
	29		-						
	30		-						
	31		<1						
	32		-						
	33		-						
	34		-						
	35		-						
↓	36		-						

SEE MAP SHOWN

SITE ANOM EAST END LITTLE CALICO
ER ANOM LITTLE CALICO
SW¼ Sec 6 T 13 R 2E
NW¼ Sec 7 T 13 R 2E
NW¼ Sec 7 T 13 R 2E
SW¼NW¼ Sec 7 T 13 R 2E
PAIUTE SPGS ADIT SW¼ 12 - T 13 R 1E

BLACK MTN TRAVERSE
SEE PHOTOGS-EL 7-24
For LOCATION.



6000 0132 (0766)

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TUCSON, ARIZONA 85704
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3-20-67

TO : Jim Bungarner - Chief Geologist, Base Metals

FROM : Ron Haxby - Mining and Computer Applications Engineer

RE : FIRST YEAR COSTS FOR NON-IRON MINERAL EXPLORATION ON THE WALKER RESERVATION, SCHURZ, NEVADA

INTRODUCTION

On March 17, 1967, Mr. John Roberts requested the anticipated costs during the first year of exploration for non-iron minerals on the reservationwwith OXY contributing 100% of the funds. A description and breakdown of costs for each prospect is included in the February 10, 1967 report titled "Walker Reservation Exploration Proposal for Non-Iron Minerals" (Appendix I).

It is seemed that the technical personnel will include at least one geologist and one engineer in addition to part-time non-skilled laborers. More personnel would allow an expanded program.

Table I is an activity analysis of the first year non-iron exploration costs. Some of costs are higher than shown in Appendix I so as to take into account new exploration developments.

PROSPECT PRIORITY

The following three prospects deserve immediate attention.

Priority

1. Black Mountain (See Appendix I, p.5 for location)
2. West Calico
3. East Calico (Calico Copper)

TABLE OF CONTENTS

APPENDICES

TABLE I

ACTIVITY ANALYSIS OF THE FIRST YEAR NON-IRON EXPLORATION COSTS

Prospect	PHASE I* Time: 2 months	PHASE IIA Time: 6 months	PHASE IIB Time: 4 months
BLACK*** MOUNTAIN	$10,000		
		PROSPECT I** $67,000	$65,000
WEST CALCIO	$18,000		

COST SUMMARY

Exploration costs	$	160,000
Geology and Engineering cost 20%	$	32,000
Overhead 10%	$	16,000
First year Total Cost	$	208,000

* Both prospects will be evaluated at the same time.

** The best prospect based on PHASE I will continue as PROSPECT I.

*** Black Mountain costs do not include lease or purchase price money paid to the owners if the claims are valid non-indian claims. Lease money would probably be $4,000 / year.

Both the Black Mountain and West Calico will be evaluated through PHASE I. Then the best of the two prospects will be drilled. East Calico has a difinite copper potential but should be drilled after the West Calico. The East Calico drill holes will cost more and also, more control is necessary for selecting drill sites. The West Calico holes will not be as deep (thus a lower cost) and will provide information for East Calico drilling.

THE BLACK MOUNTAIN CLAIM SITUATION

Parker and Bailey hold 14 claims in the main Black Mountain area (See Status of the Black Mountain Claims in the Walker Reservation, Black Mountain Area, Feb.1, 1967). These claims possibly are valid. If they are, and we make a deal with Parker and Bailey, we would be drilling on non-indian land.

As far as OXY is concerned, the best prospect should be drilled first, However, a political situation may develop demanding we drill on indian land. If this situation develops OXY would be obligated to drill the West Calico first before, or possibly in addition to the Black Mountain area.

EXPLORATION PLANNING

PHASE I

Exploration will start simultaneously on both the Black Mountain and West Calico areas.

1. Black Mountain

PHASE I	$10,000

2. West Calico

Since the February 10th report, another geophysical technique for exploration is being considered.

PHASE I	$10,000
additional geophysics	8,000
	$18,000

Time for both prospects: 2 months

At the end of the two month period, the most favorable area (Prospect I) will be selected for drilling. Then, most attention will be directed towards Prospect I unless preliminary drill indicates an unfavorable target.

As shown in Table II (Appendix I, page 4) the PHASE IIA costs are nearly the same.

PROJECT I

(Exclusive of lease or purchase price for the Black Mountain area)

PHASE IIA	$57,000
"Cutoff" points @ $10,000 increments.	
Additional road building	$10,000
If PROJECT I is "cutoff", PROSPECT II will be undertaken.	
PHASE IIB	$65,000
Time: 4 months (to the end of the year)	
"Cutoff" points @ $15,000.	
The Exploration total cost for the <u>first year</u> is	$160,000

CONCLUSIONS

The total cost for the first year is estimated at $208,000 providing the projects are not "cutoff". If any project is "cutoff", another will take its place and money will be allocated according to the respective exploration PHASES.

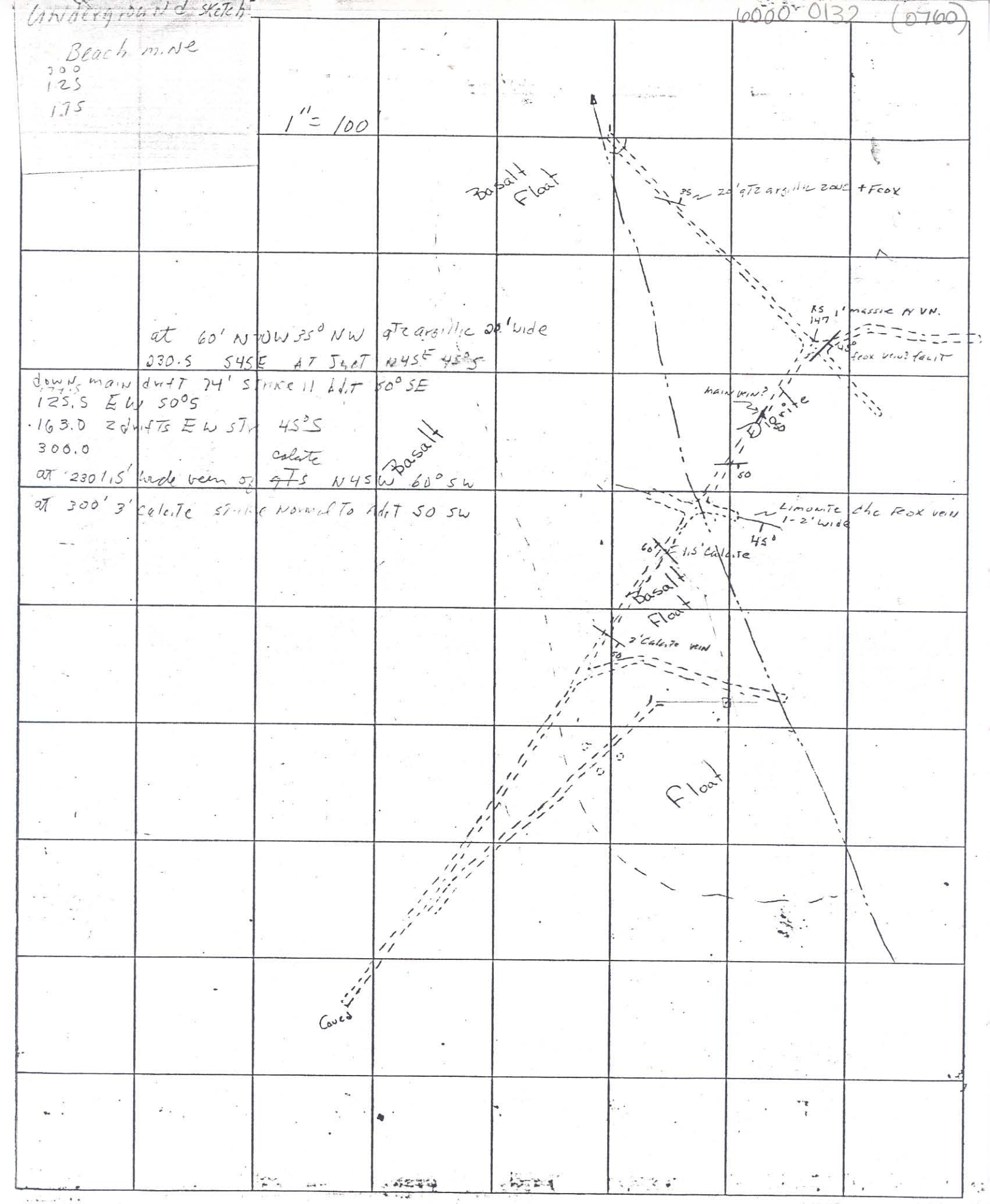
Underground Sketch

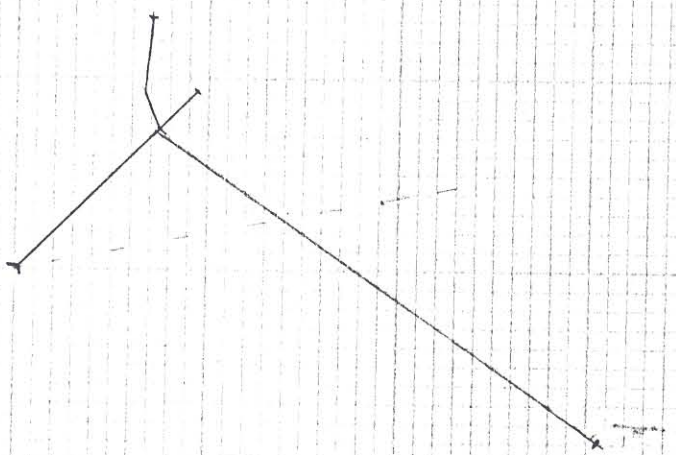
60000 0132 (0760)

Beach mine

300
125
175

1" = 100





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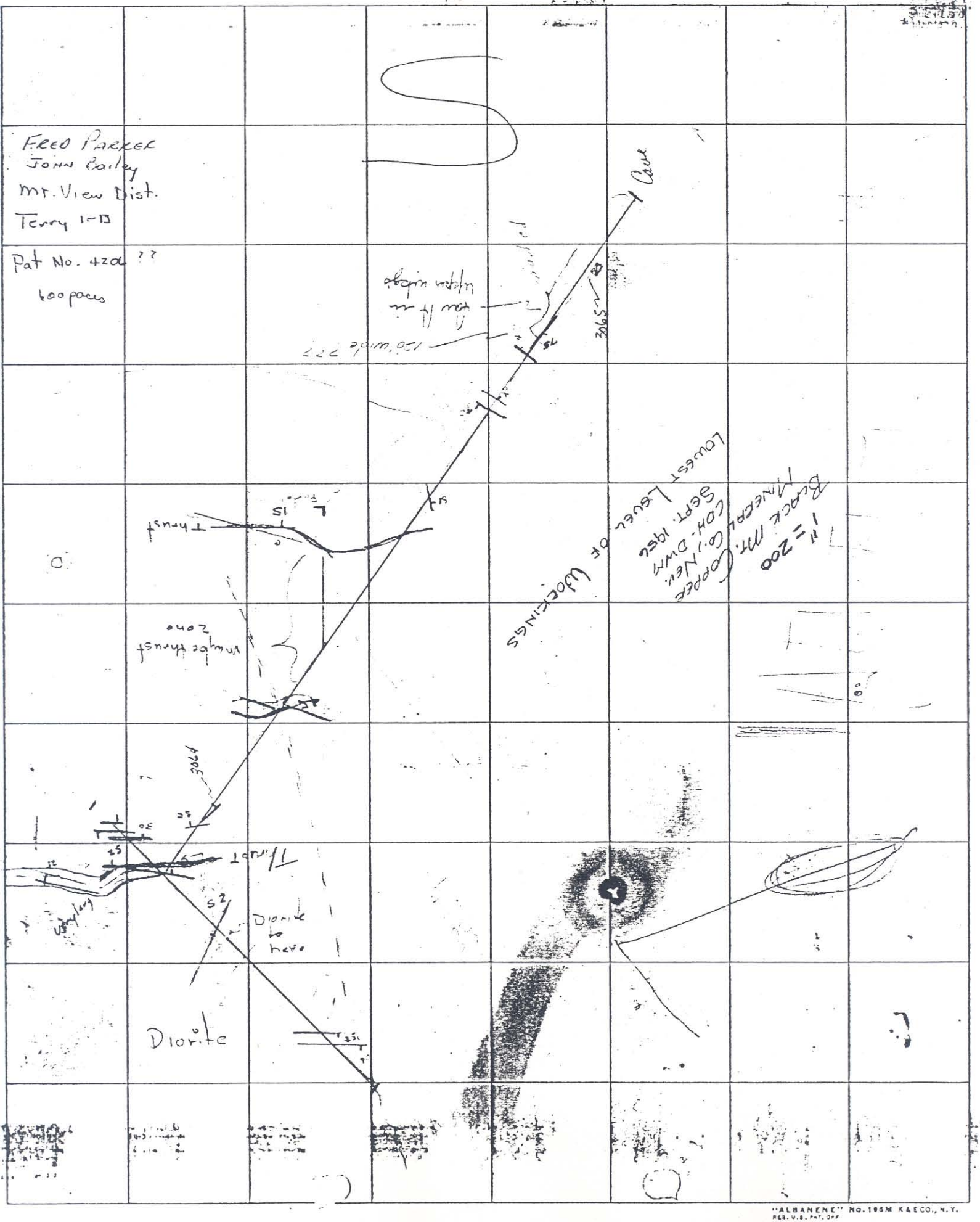

Development consists of a tunnel 80 feet long and several open-cuts. The barite is in a series of parallel veins, each averaging about 6 feet in width.

MOUNTAIN VIEW DISTRICT

The Mountain View or Granite district is near two abandoned camps of the same name, about 1 1/2 miles apart, near the crest of the north end of the Wassuk Range 9 miles northwest of Schurz.

Gold was discovered at Mountain View by William Wilson in 1904, when the area formed part of the Walker Lake Indian reservation. In 1906, part of the reservation was thrown open to prospectors, and several claims were located at Mountain View by William Wilson. About 1908 some gold ore carrying some silver was mined and treated at a 5-stamp mill then operating at Nordyke, 15 miles from Mountain View. Later, a small stamp mill operated for a short time at Mountain View.

Small amounts of copper ore carrying a little gold and silver and some oxidized gold ore have been shipped by lessees, but in recent years there has been no activity in the area.

The formation is principally granodiorite. At the Mountain View mine the mineralization follows a narrow decomposed diorite dike that dips about vertical. The vein filling is principally quartz and iron oxide.

A vein 8 to 25 feet in width at the surface shows copper carbonate in a gangue of quartz and crushed granodiorite. A tunnel several hundred feet long was driven to prospect this deposit at depth, but no commercial ore was found.

MOUNTAIN GRANT DISTRICT

The Mountain Grant, also known as the East Walker district, covers that portion of the Wassuk Range that lies between Cory Canyon on the south and Cottonwood Canyon on the north. A considerable portion of this area has been withdrawn from the public land in order to establish the Naval Ammunition Depot at Hawthorne.

The area in the vicinity of Mountain Grant is accessible by automobile road via either Cottonwood or Cory Canyon. This road was constructed in 1934 and 1935 by the Civil Conservation Corp under the supervision of the Forest Service and the Naval Ammunition Depot at Hawthorne.

The principal property in the district in the early days was the Big Indian mine. In recent years the only mining activity has been small-scale operations by owners or lessees. For the past 3 years the principal property has been a small-scale placer operation in Laphan Meadows.

Grant Mountain Gold Mine

The Grant Mountain Gold Mine is owned by C. B. Murray, of Reno, and associates. This company owns 13 unpatented placer claims at Laphan Meadows,

e mine (No. 15, Pl. XIII, p. 114), of which are patented, has had a ry in 1862. It has been opened and ious lessees, none of whom has ever the property. The ore occurs in tered in a bed of silicified limestone feet. The limestone is interbedded itorted slates. This zone is parallel d west and dipping from 5°–35° E. le of Kingston Canyon for about a number of long, inclined tunnels a 50-foot basic dike about 200 feet l to the structure of the sedimentary

f rather porous, iron-stained quartz rbonates. With depth the quartz l has pyrite, galena, sphalerite, and through it. Argentite and silver ound in the old Victorine tunnels

treat this ore. The largest, at the as being remodeled in September, nethods.

production for this mine, though a ge was hauled to Austin for treat were built.

allic vein (No. 1, Pl. XIII, p. 114) Victorine and is similar to it in

ode (No. 9, Pl. XIII, p. 114) is Kingston, about 1,500 feet above quartz croppings are clearly s similar to that of the Victorine pyrite. The mine was not working r was a financial success on account

group of 18 locations (No. 2, Pl. le of Clear Creek Canyon, the th of Kingston. The country rock intercalated with dark limestone c beds. These sediments are ong a zone of crushing that

., op. cit., p. 336.

north to N. 25° E. They are cut by at least two northward-striking basic dikes in the vicinity of the claims.

The main development work is a 350-foot crosscut tunnel that runs N. 55° E. into the hill toward the croppings of the largest of the veins seen on the surface. In this crosscut the crumpled lime schists are cut by a multitude of small irregular white quartz stringers running in all directions, though the larger veins have a general northerly trend and low angles of dip, either east or west. The quartz stringers carry a small amount of iron oxide that seems to have altered from pyrite. In the last 250 feet of the crosscut the quartz stringers are particularly abundant and the schist between them has been mineralized, carrying small crystals of pyrite that are rather abundant. This whole body is said to assay 4 ounces of silver and 60 cents in gold to the ton.

GRANITE DISTRICT, MINERAL COUNTY, NEV.

LOCATION AND PRESENT ACTIVITIES.

The Granite district (No. 12, Pl. I, p. 18) is situated along the summit of the Wassuk Range about 6 miles west-northwest of Schurz in an air line. The region is shown in the northwest corner of the Hawthorne topographic sheet of the United States Geological Survey. Schurz, the supply point on the Hazen-Tonopah branch of the Southern Pacific Railroad, is about 15 miles by good roads from the mines. The district was visited in 1908 by F. L. Ransome,[1] who published a brief description of it.

There were formerly two small settlements in the district—Mountain View, on the west of the summit, and Granite, near the head of an eastward-draining canyon. In the summer of 1912 both places were abandoned. At the Beach mine, belonging to the Yerington Mountain Copper Co., a few men were working in July, 1912, and it is said that a little work was being done at some copper claims about 3 miles south of the Beach mine. The only recorded production from the district was made in 1909, when about $4,500 in gold and silver were recovered.

There are two wells in the canyon bottom near Granite, but the water is not particularly good and the supply is small. There are also two small depressions southwest of Black Mountain, a basaltic peak south of the Beach mine in which some water is held for a time after the spring thaw. The drinking water used at the Beach camp is hauled from Schurz.

[1] The Yerington copper district, Nev.: U. S. Geol. Survey Bull. 380, pp. 118–119, 1909.

TOPOGRAPHY.

The Wassuk, or, as it is locally known, the Walker River Range, has a very steep eastern escarpment overlooking Walker Lake, along which Russell[1] has postulated a pre-Quaternary fault. The mountains attain a height of 8,000 feet in a distance of 2 miles west of the edge of Walker Lake, whose elevation is 4,050 feet above sea level. The fault scarp is modified by erosion, which has resulted in the cutting of many short, deep canyons that have very steep gradients from the summit of the range to Walker Lake. Practically all these canyons are dry except for short periods after the spring thaw. The western side of the range, on the contrary, has a much gentler slope and in general a smoother topography than the eastern side. At the south end of Mason Valley there are groups of low hills between the flats and the range which tend to make the slope appear less abrupt.

GEOLOGY.

Granodiorite.—The main mass of the Wassuk Range is composed of a gray granular igneous rock composed of feldspar, quartz, biotite, and either augite or hornblende with accessory magnetite, apatite, and zircon. Ransome refers to it as "granodiorite or quartz monzonite." As the plagioclase appears to be a little more abundant than the orthoclase the rock is here called granodiorite, though it may be nearer a quartz monzonite in chemical composition.

The granodiorite is cut by east-west dikes of granodiorite porphyry, aplite, and augite andesite. The granodiorite porphyry has essentially the same mineral composition as the granodiorite. Phenocrysts of plagioclase and orthoclase, the largest being one-eighth inch in diameter, are set in a granular groundmass of the two feldspars with quartz, biotite, augite, and hornblende. These dikes are not abundant and are usually from 10 to 20 feet wide. The aplite dikes are quite narrow, few of them exceeding 5 feet and most of them being 2 feet or less in width. The wider dikes are pinkish and are composed of small granules of quartz and orthoclase. Some of the narrow dikes are composed of glass with more or less crystalline quartz and feldspar, and the edges of some of the wide dikes show the same glassy base. A few small basic dikes having an eastward strike cut the granodiorite on the summit between the Beach and Big Twenty mines. This dark porphyry has a groundmass composed of andesine laths, augite, now largely chloritized, and magnetite, in which there are small andesine and augite phenocrysts. The rock is quite similar in mineralogic composition to the lower

[1] Russell, I. C., Geological history of Lake Lahontan: U. S. Geol. Survey Mon. 11, p. [illegible], map opp. pp. 28 and 70, 1885.

flow rock on Black Mountain. A thin section of the later rock is much fresher, showing the augite to be very light colored, and that the rock contains abundant accessory apatite.

Where the road from Schurz to Granite enters the mountains it skirts the southern side of White Mountain, a mass composed of granodiorite so cut by white siliceous dikes that the hill is almost white in color. These dikes appear to be largely quartz and orthoclase, which Spurr[1] has called alaskite-aplite.

This large mass of granodiorite is probably to be correlated with the granodiorite intrusions of the Sierra Nevada, which occurred in late Cretaceous or early Tertiary time.

Andesites and rhyolites.—On the western side of the mountains flow rocks obscure the granodiorite.[2] These flow rocks were seen by the writer only in the vicinity of Mountain View, where gray and reddish-colored andesites and rhyolites occur and, according to Ransome, are capped by basalt south of Mountain View. These flows are probably of Tertiary age.

ORE DEPOSITS.

Occurrence.—The veins of the Granite district occur in the granodiorite in some places near the intrusive dikes, though they do not seem to be closely related to them. There are two veins near Granite which have been developed to some extent, but only one of these veins was being worked in July, 1912. Ransome[3] gives some notes on these deposits to which but little can be added.

Beach vein.—The Beach vein, controlled by the Yerington Mountain Copper Co., is opened by a drift tunnel whose mouth is 1½ miles south of Granite, near the summit of the range. In July, 1912, the tunnel was 650 feet long and the air connection 143 feet deep. A small amount of stoping on the vein within 300 feet of the portal and on an ore shoot 190 feet from the face of the drift comprise the workings. The country rock is granodiorite that is somewhat seritized near the vein. A dike of aplite cuts the granodiorite at the mouth of the tunnel and 300 feet from the mouth a 10-foot northward-striking dike of aplite is cut by the vein.

At a point 140 feet from the face of the tunnel there is a small body of alaskite that seems to be intrusive into the granodiorite on the hanging wall of the vein. The vein is covered by the augite andesite flows about 1,500 feet southwest of the tunnel mouth.

[1] Spurr, J. E., Descriptive geology of Nevada south of the fortieth parallel and adjacent portions of California: U. S. Geol. Survey Bull. 208, p. 115, 1903.
[2] Idem, p. 116.
[3] Ransome, F. L., The Yerington copper district, Nev.: U. S. Geol. Survey Bull. 380, pp. 118–119, 1909.

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The croppings of the vein, from 8 to 25 feet wide, stand above the surface, striking about N. 50° E. Underground the average strike of the vein is N. 35° E. and the dip ranges from 60° to 70° SE. The strongly siliceous croppings contain copper carbonates. They are rather misleading, as underground the vein appears to split up and become irregular. The tunnel follows the largest of the stringers, which ranges from 3 inches to 4 feet in width. The vein here consists of crushed granodiorite partly cemented by quartz in which there is some pyrite, copper carbonates, and chalcocite. At the face of the drift the vein is very narrow and carries no copper minerals. A north-south zone of fracture crosses the drift 120 feet out from the face. Copper minerals were not seen beyond a point 460 feet from the mouth of the tunnel and about 150 feet vertically below the surface, where there is a small pocket of ore. About 400 feet in from the portal a shoot of ore 4 feet wide and 30 feet long has been stoped for about 20 feet. In this shoot the pyrite is coated and in some places completely replaced by chalcocite (copper glance), which has suffered further alteration to the copper carbonates.

The picked carbonate ore, none of which has been shipped, though there are several hundred tons on the dump, is reported to carry between 12 and 15 per cent of copper and small quantities of silver.

Postmineral movement has taken place along the vein, forming a heavy gouge on both walls and crushing the ore to some extent.

It would seem from the short inspection of this deposit that its valuable content is almost entirely secondary and has resulted from a concentration by downward-moving solutions carrying the copper. The primary ore appears to be a noncupriferous or only slightly cupriferous pyrite, so that the source of the copper is not thoroughly clear.

Big Twenty and Mountain View system.—The Big Twenty and Mountain View veins strike N. 75° E. and stand vertical or have a steep northerly dip. At the Mountain View workings, west of the summit, there is a single, almost vertical vein which ranges from 1 foot to 2 feet in width. It is opened by three short drifts and a shaft near the base of the hill. The vein occurs in a fracture along the south side of a dark dikelike mass of granodiorite. The vein filling is largely sericitized country rock with some soft porous quartz in which there is some specularite and sulphur. In the lowest tunnel pyrite is disseminated in the altered country rock together with some specularite and a little quartz.

East of the summit on the Big Twenty ground there are three subparallel veins that seem to be without much question the continuation of the Mountain View. They outcrop near the crest of a spur that lies east and west and rises several hundred feet above the site of Granite. They are developed by several inclined shafts on the

vein and by a long crosscut tunnel which could not be entered. They were seen, however, in a short crosscut midway between the croppings and the mouth of the lower crosscut. The croppings of these veins consist of iron-stained quartz from a few inches to 4 feet in width, which stands well above the surface. Underground they are represented by fracture zones, along which the granodiorite is sericitized for a width of 1 foot to 2 feet. Small iron-stained quartz stringers cut the altered rock in a few places, showing some manganese stain.

The valuable constituent of this vein is said to be gold, which occurred in small irregular pockets in the upper portion of the veins, and exploitation was not attended with success. The veins as a whole were not rich enough to work, and it seems probable that with depth they will turn into low-grade pyritic veins.

Other mines.—It is reported that at the Searchlight and Esther claims, 4½ miles south of Granite, some copper and lead ore is being mined. The Searchlight claim is situated on the west side of the summit and the copper-bearing vein is said to lie in granodiorite. At the Esther claim, on the Walker Lake drainage area, two veins are reported. One of these veins lies between granodiorite and diorite and is said to carry argentiferous galena and a little gold. The other, a copper deposit, is said to occur along a contact of diorite and limestone.

On the Nimo claim, 3 miles east-northeast of Granite, there is said to be a 2 to 4 foot vein having an easterly strike in granodiorite, near a dike of "rhyolite porphyry," which is probably a porphyritic phase of the aplite dikes common to this region. Lead-silver ores were being shipped in July, 1912, from the Flynn mine, 3 miles west of Schurz. The vein is said to run nearly east and west in granodiorite.

PINE GROVE DISTRICT, MINERAL COUNTY, NEV.

LOCATION AND ACCESSIBILITY.

The Pine Grove district (No. 13, Pl. I, p. 18) is in the northwest part of Mineral County, Nev., about 17 miles in an air line south-southeast of Yerington, the largest town in Mason Valley. The settlement of Pine Grove is 4 miles east of the Mineral-Lyon county line, on the abandoned Lobdell Summit road between East and West Walker rivers, and is shown in the lower right-hand quarter of the Wellington topographic sheet of the United States Geological Survey. The district is most easily reached from Yerington, on the Nevada Copper Belt Railroad, which joins the Southern Pacific at Wabuska and is operated by the Mason Valley Copper Co. between its mines at Ludwig and Yerington and its smelter at Thompson.

later than those in which the deposits of the first and second classes were formed. The economic importance of the deposits of the third class is as yet unproved.

The total quantity of oxidized ore exposed in the district is small and there is no indication of any extensive sulphide enrichment. The quantity of gold or silver in the ores is practically negligible. The future of the mines depends on the working of low-grade primary deposits. The conditions are in some respects favorable for cheap mining and concentrating; a railroad could be constructed from Wabuska along Walker River with very little difficulty, water is more plentiful than in most other parts of Nevada, and many agricultural products can be grown in Mason Valley. On the other hand, water, tailings, and smelter fumes are subjects concerning which miners and farmers usually find agreement difficult.

MOUNTAIN VIEW AND GRANITE.

Although the settlements of Mountain View and Granite are not in the Yerington district, they were hastily visited in the course of the reconnaissance, and such observations as were made may conveniently be recorded in this place. Mountain View is 15 miles east of Yerington, near the crest of the Walker Range. The general country rock is granodiorite or quartz monzonite, which is overlapped by rhyolite along the west side of the range. Both andesite and rhyolite occur on the crest of the range south of Mountain View, resting on the granodiorite and capped by basalt.

The Mountain View mine is developed by three short tunnels. The lode, which follows a narrow decomposed dioritic dike, strikes N. 75° E., and is about vertical. The mineralization is mainly on the south side of the dike, and much of the vein filling is a soft, light pumice-like quartz that contains a little native sulphur. This material has probably resulted from the oxidation of a pyritic vein. It is said to carry up to $50 a ton in gold and silver. The lower tunnel at the time of visit was just getting into pyrite, the tenor of which was not known. But little vein quartz was visible on this level, the pyrite being disseminated through the dike accompanied by a few small bunches of specularite.

The same dike and attendant fissures continue eastward over the crest of the range, and on the east slope, near the summit, were being worked by lessees on the Big Twenty ground. Here there were three or four shafts up to 100 feet deep. A little oxidized gold ore had been shipped, but the lessees had not received returns at the time of visit and did not know its tenor.

East of these leases and about 1½ miles east of Mountain View is Granite, a new town of 30 or 40 tents and board cabins. This set-

tlement, which is most easil
Mina branch of the Southe
at the time of visit and pro
along the line of the Moun
the Beach copper mine, abo
crest of the range. At this
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8 to 25 feet wide at the su
gangue of quartz and crus
length has been run from
shows that the granodiorit
vein, so large above, has a
below. No ore had been fo
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ground. Here there were three
A little oxidized gold ore had
received returns at the time of

niles east of Mountain View is
ts and board cabins. This set-

tlement, which is most easily reached from Schurz, on the Hazen-Mina branch of the Southern Pacific Railroad, was not very active at the time of visit and prospecting appeared to be in progress only along the line of the Mountain View and Big Twenty lode and at the Beach copper mine, about 1½ miles south of town and near the crest of the range. At this place there is a prominent vein in granodiorite, which strikes N. 50° E. and dips 60° SE. This vein is from 8 to 25 feet wide at the surface and shows copper carbonates in a gangue of quartz and crushed granodiorite. A tunnel 400 feet in length has been run from 100 to 200 feet below the croppings and shows that the granodiorite is considerably disturbed and that the vein, so large above, has a tendency to split up and become irregular below. No ore had been found on this level at the time of visit, but work was still in progress.

Deposits of

ite have been found in other
56 the principal activity in
ranium at the southeast end
altered zones along fracture
uttonite, and uranothorite
rals), but no ore had been
956.

trict
n part of the Garfield Hills,
county. Development of the
a substantial production of
quartz veins(?) in volcanic
nd limestone of the Luning
, silver, gold, and lead were
rtz veins of the Mabel mine,
rfield mine. In addition small
ve been produced from con-
his district.

istrict
e west part of the Garfield
uk Range southwest of Haw-
en referred to as the Pamlico
production was from the La
's and 1880's. Gold and silver
l oxidized iron-stained masses
formation at Pamlico and
nlike zone that has replaced
tion at La Panta. These two
ion of as much as $1,000,000.
liscovered by a crew working
veins in volcanic rocks and
have accounted for a produc-
gold, and lead. Other deposits
ude quartz veins worked for
replacements of limestone by
ic tactite deposits containing
954 a moderate-sized open pit
which occurs in stains and
derlying basalt, north of La
of 1956, however, there had
was idle.

Ross - 1961

NEV State Bull. 58
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Mount Grant District

The Mount Grant district, also known as the Walker Lake, Cat Creek, and East Walker district, includes all of the Wassuk Range from the north end of Walker Lake south to the Lucky Boy area. The district was a minor producer of principally gold and silver from quartz veins in granitic rocks as early as the 1870's, from properties around Big Indian Mountain and south to Cory Creek. Most of the district is now within the boundary of the Naval Ammunition Depot and access is therefore restricted.

Mountain View District

The Mountain View district, also known as the Granite or Reservation district, is in the north end of the Wassuk Range. In the early 1900's small amounts of gold and silver were produced from quartz veins in granitic rocks. Copper was also produced, chiefly during World War I, from fissure veins in the granitic rocks and sheared limestone of the Excelsior formation. The total recorded production of the district is only a few tens of thousands of dollars.

CV, Avail

Pilot Mountains District

The Pilot Mountains district, also referred to as the Sodaville district, is east of Mina. The district is best known for its quicksilver deposits, which began to be exploited after Charles Keough and Thomas Pepper discovered cinnabar in 1913 while chasing lost steers. The cinnabar occurs as fracture fillings, as disseminated grains in fault gouge, and as replacements of limy sedimentary rocks. All the mines and prospects, with the exception of the Lake View property, are beneath northward-dipping, low-angle thrust faults. Numerous small, but in some cases high-grade, cinnabar deposits have been developed in the district and a production of about $600,000 is recorded (Phoenix and Cathcart, 1952, p. 146), although in 1956 there was no activity. In 1916, on the east flank of the Pilot Mountains, scheelite was discovered in tactite that has replaced limestone of the Luning formation along and near contacts with granitic rocks; production from the several properties that have been developed, and which in 1956 were idle, is not known. Small-scale operations have also been carried on in the past in deposits containing gold, silver, and copper minerals.

Regent District

The Regent district, also known as the Rawhide district, is in the north part of the county and includes the area between the

Mountain View - Double Springs Marsh District.

GS, NBM, etc Data

1961

60000 0132 (0760)

INDEX TO file

BOO BOO

Geochem Results & mag profiles NO LOCATION

- ~~Potatly~~ located in afterthought area

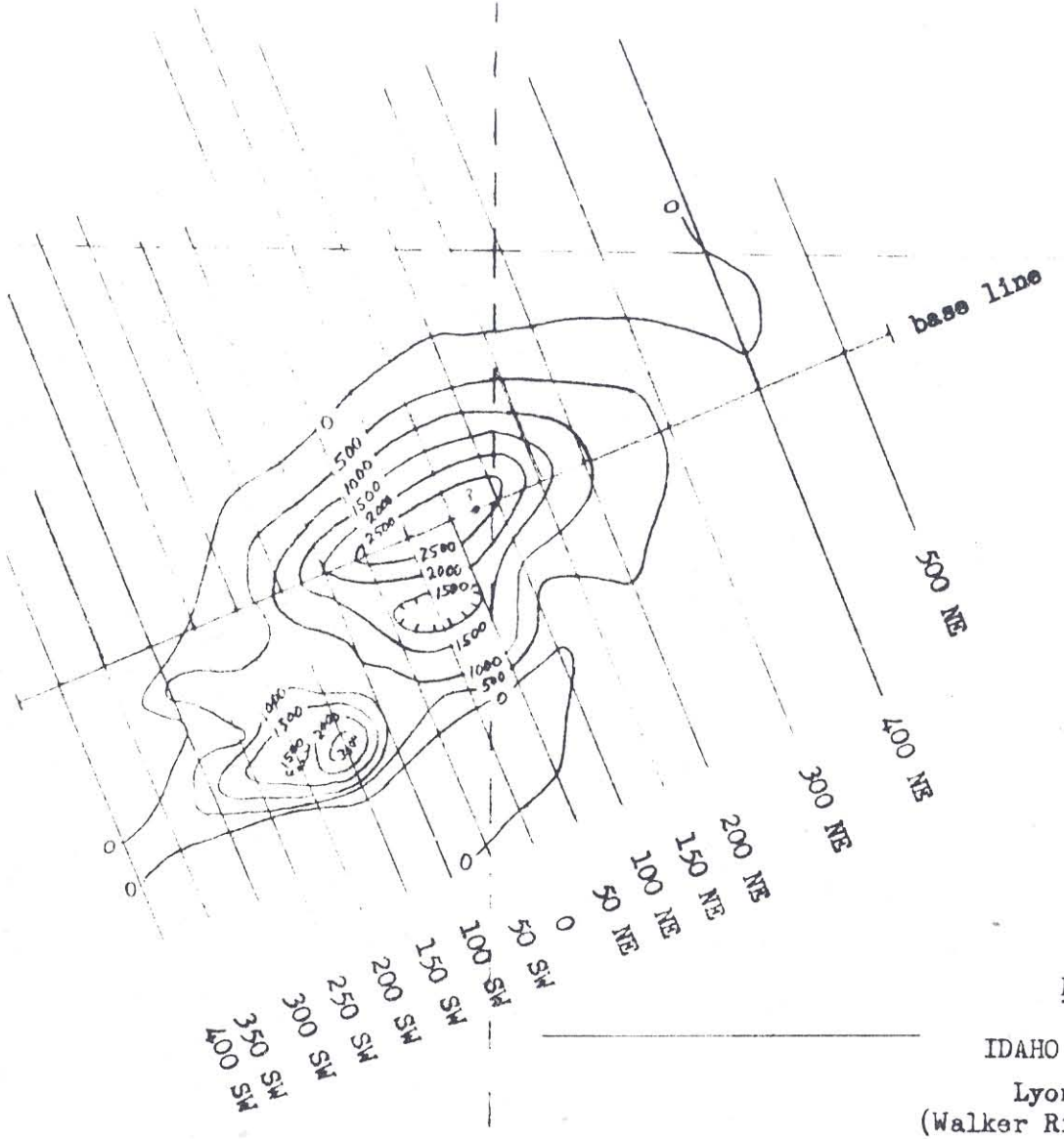
6000 0132 (0760)

NW¼ SE¼

SW¼ SE¼

NE¼ SE¼

SE¼ SE¼



N

Magnetic contours on 500 and 1000 gamma intervals

BOO BOO PROSPECT

IDAHO MINING CORPORATION

Lyon County, Nevada
(Walker River Paiute Reservation)

A portion of the SE¼ of Section 1, T 14 N, R 28 E, MDB&M

SCALE: 1" = 200'

1 6
12 7

File 1 BOO BOO / 1 SO. HOTT.

GEOCHEMICAL SURVEY

60000 0132 (0760)

PROJECT: WRPR | WEATHER: | REMARKS:

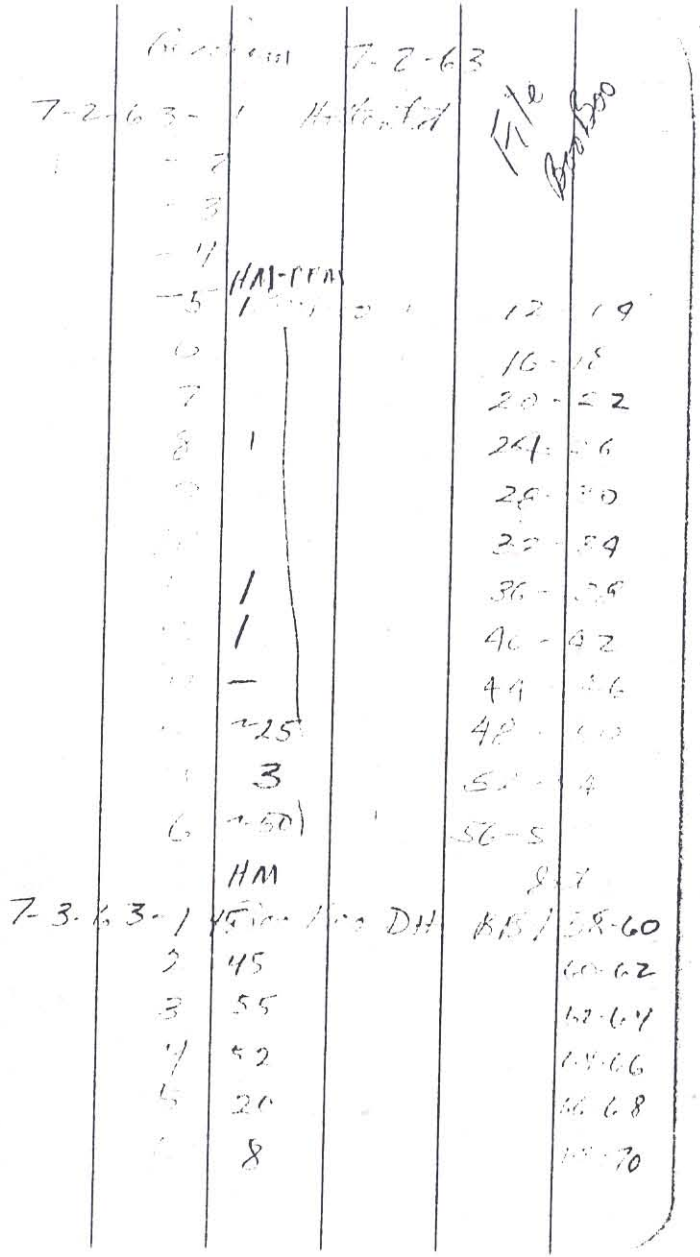
DATE: | TOPO SHEET REFERENCE:

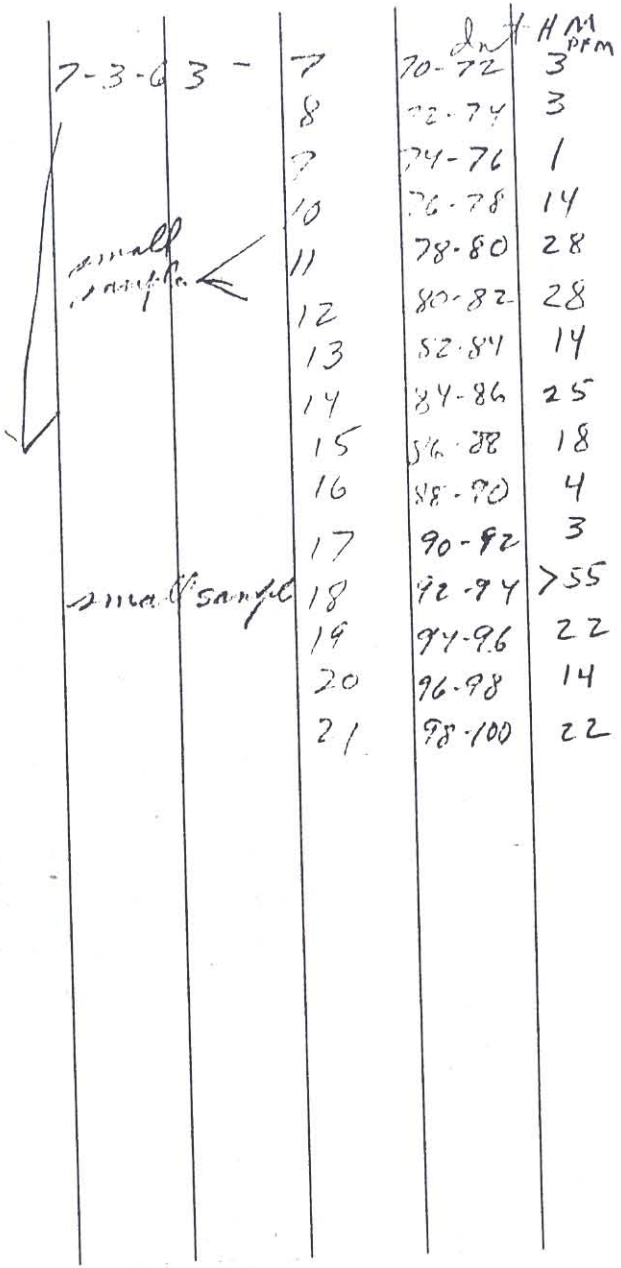
COLLECTOR: WSW | SOIL ☐ FRACTURE ☐ ROCK ☐ WASH ☐ STREAM ☐ SPRING ☐ PLANT ☐

ANALYSIS BY: HJL | METHOD OF ANALYSIS:

LINE & STATION	SAMPLE NO.	HEAVY METALS PPM	COPPER COLD	COPPER HOT	LEAD PPM	ZINC PPM	MERC. PPM	ARSENIC PPM	MOLY PPM	Sample Descr.	
										Sa HOTT CONTACT	#W200N
											0W 600 N
										Aplite Knob by car park 50E 25S	
										Fe outcrop by road	100E 75S
7-2-63	1		1								
	2		1								
	3		<1								
	4		1								
	5	4	1						4	BOO BOO DH1	12-14'
	6		1								16-18'
	7		1								20-22'
	8	1	<1								24-26'
	9		1								28-30'
	10		1								32-34'
	11	1	1								36-38'
	12	1	1								40-42'
	13	—	<1								44-46'
	14	~25	1								48-50'
	15	3	1								52-54'
	16	~50	1	10	none	100			0		56-58'
7-3-63	1	45		none	none	50					58-60'
	2	45									60-62'
	3	55		<10	none	50			0		62-64'
	4	52									64-66'
	5	20									66-68'
	6	8									68-70'
	7	3									70-72'
	8	3							0		72-74'
	9	1									74-76'
	10	14									76-78'
	11	28									78-80'
	12	28		10	none	80					80-82'
	13	14									82-84'
	14	25									84-86'
	15	18									86-88'
	16	4									88-90'
	17	3									90-92'
	18	>55		20	none	150					92-94'
	19	22						4			94-96'
	20	14									96-98'
	21	22									98-100'
4-10-63	-2		—							BOO BOO Base 0"	
	3		—								100 N
	4		—								200 N
	5		—								300 N
	6		—								400 N
	7		—								500 N
	8		—								100 S
	9		—								200 S
	10		—								300 S
	11		—								400N ER ANOM.

6000 0132 (0760)





6000 0132 (0760)

42-383

4-10-63

Rock Cu ppm

—	AF	2					
—	AF	3					
—	AF	4					
—		5					
—		6					
—		7					
—		8					
—	"	9					
—	4-10-63-1		SS below dike -	sec 4-9	T 12 N R 29 E		
—	"	-2	Boo Boo 0	(Base line)			
—		-3	100 N				
—		-4	200 N				
—		-5	300 N				
—		-6	400 N				
—		-7	500 N				
—		-8	100 S				
—		-9	200 S				
—		-10	300 S				
—		-11	ER ANOM	300' N of Boo Boo			
1		-12	afterthought pit				
—		-13	dike matl sec 4-9	T13N R29E		Cu, Mo	

6000 0132 (0760)

NATIONAL
42-383

Cold Cu 4/24/63

Sample #	ppm
AF-1	—
AF-2	—
AF-3	—
AF-4	—
AF-5	—
AF-6	—
AF-7	—
AF-8	—
AF-9	—
4/10/63-1	—
4/10/63-2	—
4/10/63-3	—
4/10/63-4	—
4/10/63-5	—
4/10/63-6	—
4/10/63-7	—
4/10/63-8	—
4/10/63-9	—
4/10/63-10	—
4/10/63-11	—
4/10/63-12	1
4/10/63-13	—
	—

Ley HJL

6000 0132 (0760)

Heavy Metals 7/7/63
Total ~~[illegible]~~ Cu, Pb, Zn 7/23/63

Sample #	H.M. ppm	Cu ppm	Zn ppm	Pb ppm
7/3/63 -1	25	none	50	none
2	21			
3	55	<10	50	none
4	52			
5	20			
6	8			
7	3			
8	3			
9	1			
10	14			
11	28			
12	28	10	80	none
13	14			
14	25			
15	18			
16	4			
17	3			
18	755	20	150	none
19	22			
20	14			
21	22			
7/2/63 -15	3			
7/2/63 -16	755	10	100	none

all this sheet trans to data sheet # 3-30-65 WW

6000 0132 (0760)

Idaho Ag Lab July 3 1963

Sample #	ppm
7/2/63-1	1
-4	1
-5	1
-6	1

Heavy metals 7/3/63

Sample #	ppm
7/3/63-5	4
-8	1
11	1
12	1
13	—
14	~25
16	~50

Trans to data sheet 3-30-65 WSW

Sample #	ppm
7/2/63-1	1
-4	1
-5	1
-6	1
-2	<1
3	= 1
4	—
5	4
6	80
7	<1
8	2
9	—
10	2
11	1
12	40
13	7120
14	4
15	1
16	<1
7/2/63 -1	1
2	1
3	<1
4	1
5	1
6	1
7	1
8	<1
9	1
10	1
11	1
12	1
13	<1

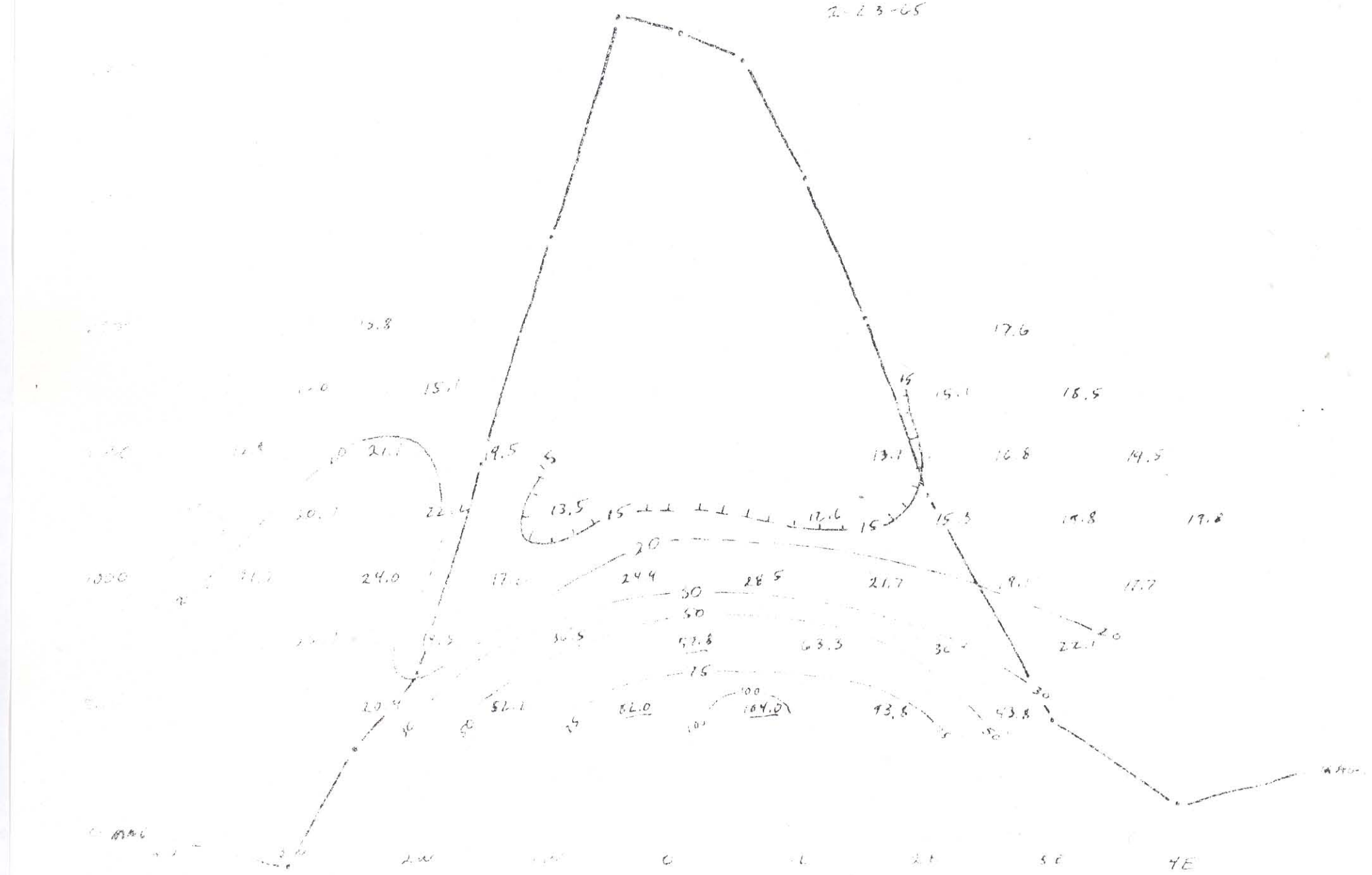
All this page from to data sheet 3-30-65 WSW

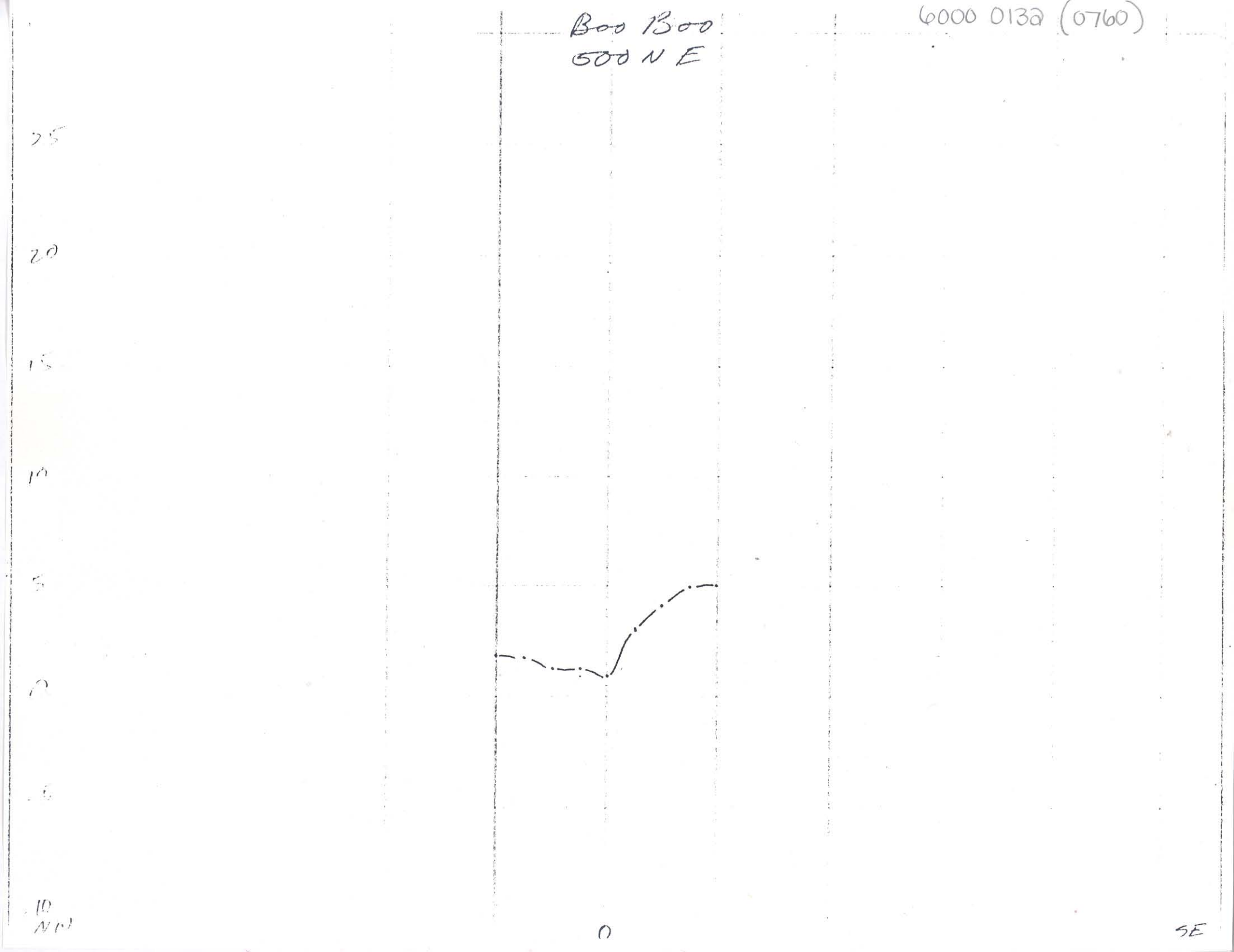
6000 0132 (0760)

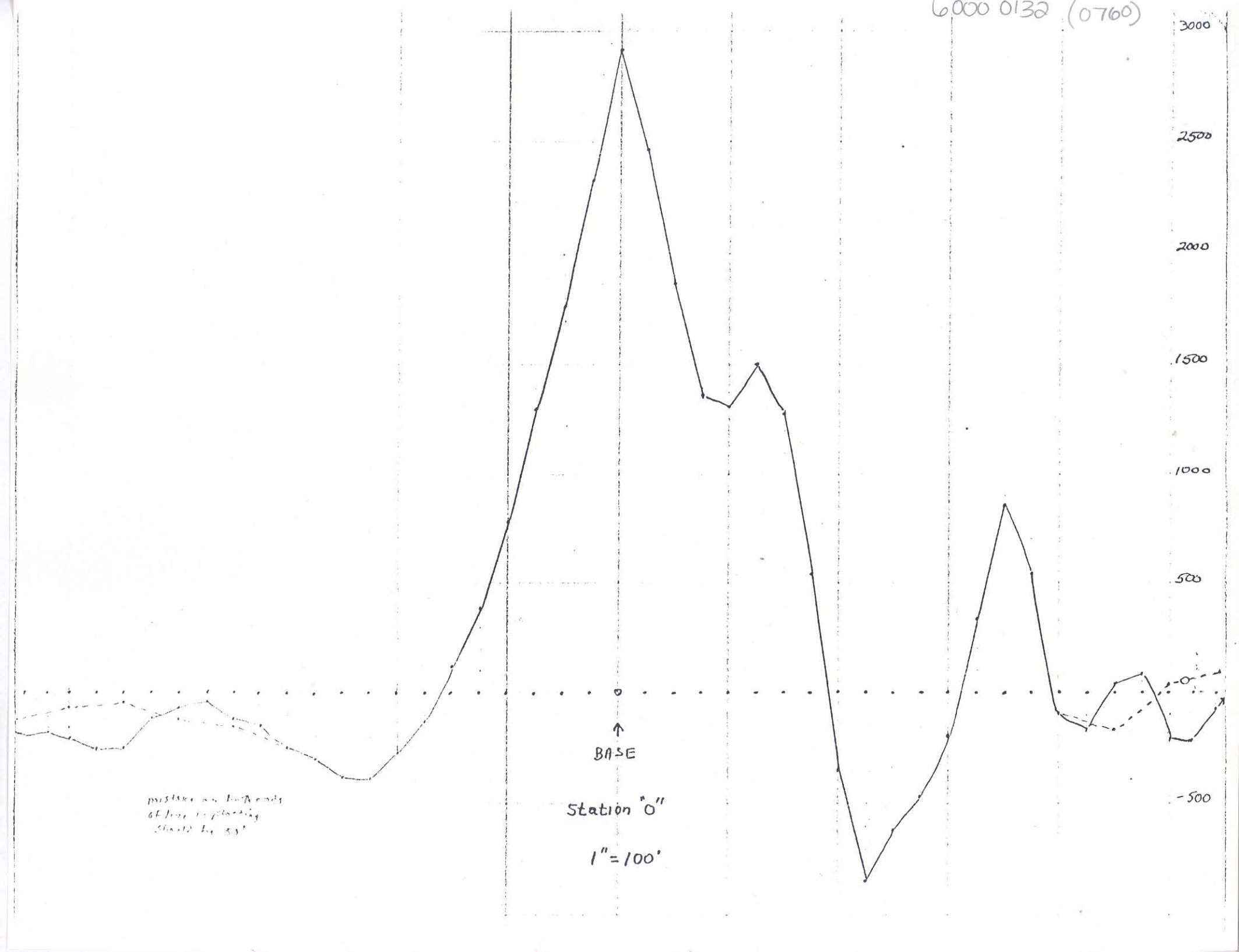
800 800 BASE LINE - RESISTIVITY & MAGNETICS

1"=100' 100' SPREADS

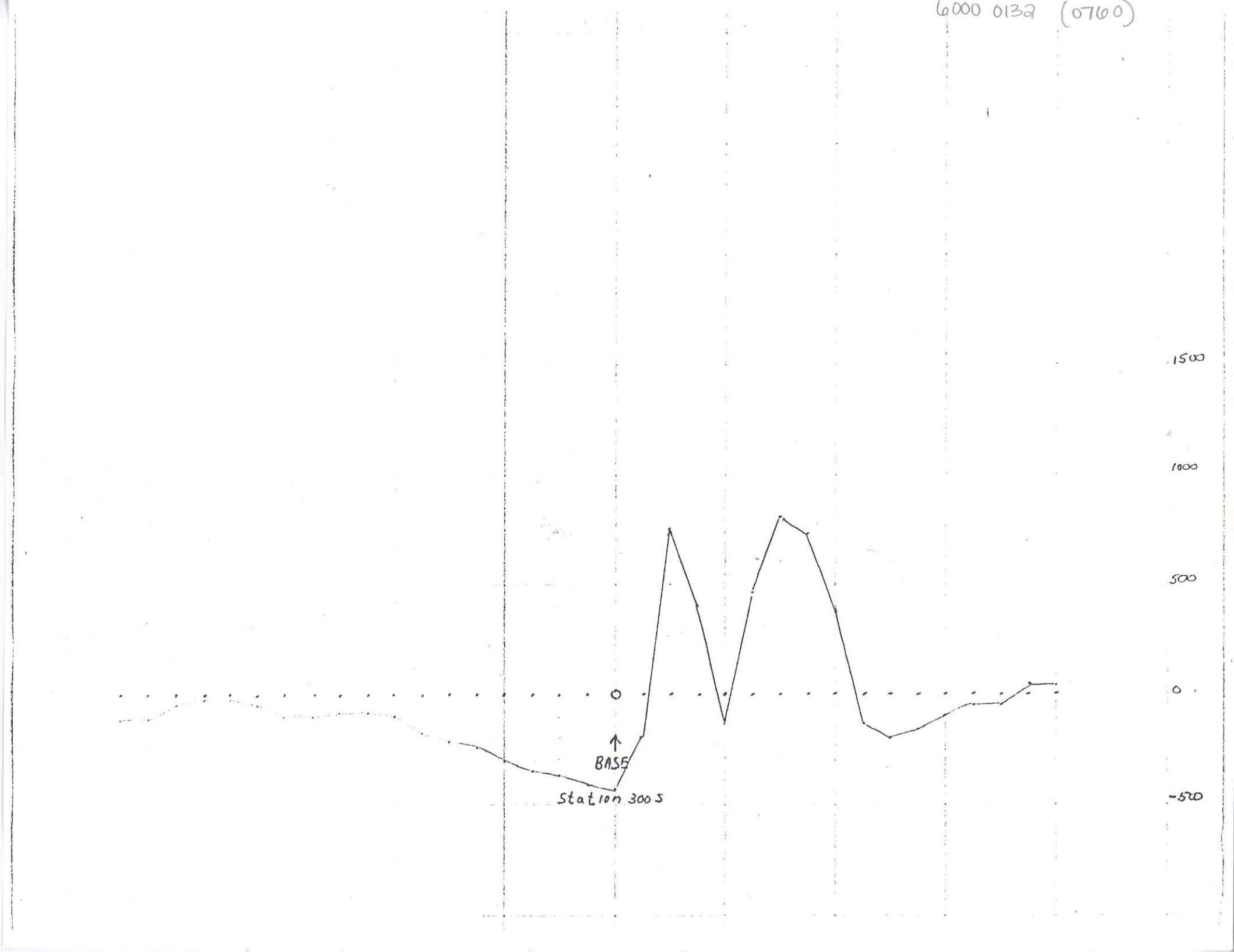
L. L 3-65




Boo Boo
600 NE
6000 0132 (0760)
25
20
15
10
5
0
10
NW
0
SE


6000 0132 (0760)
3000
2500
2000
1500
1000
500
-0-
-500
BASE
Station "0"
1"=100'

6000 0132 (0760)



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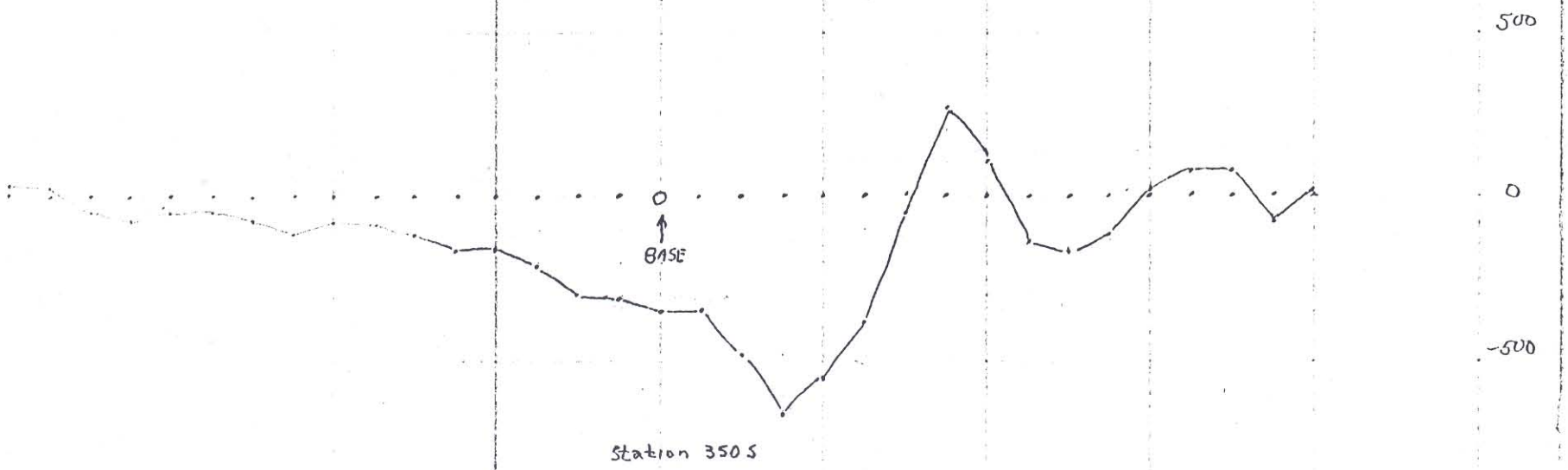

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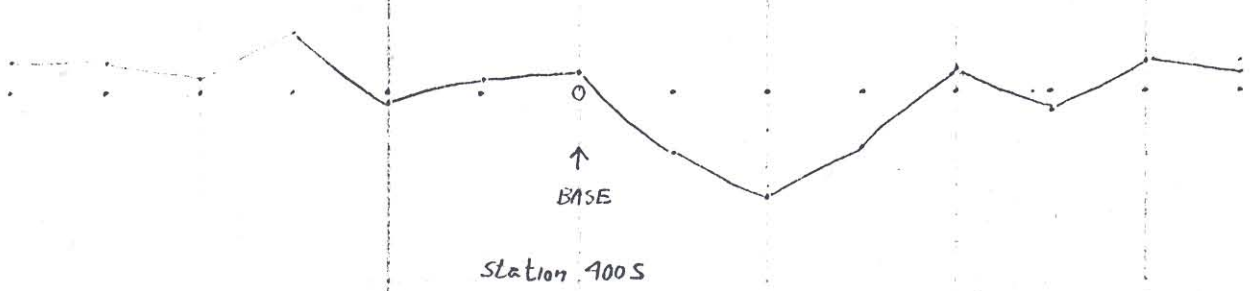

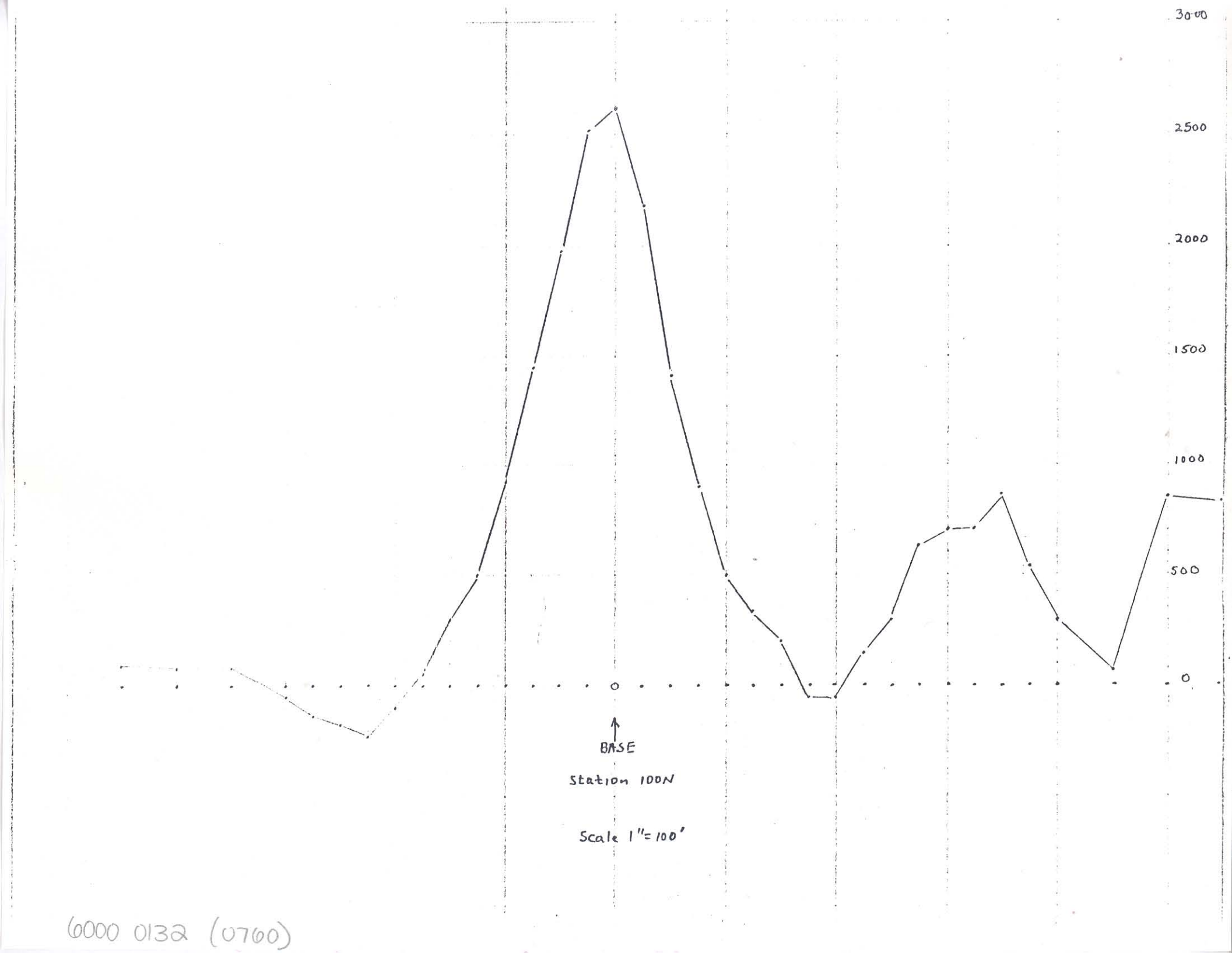

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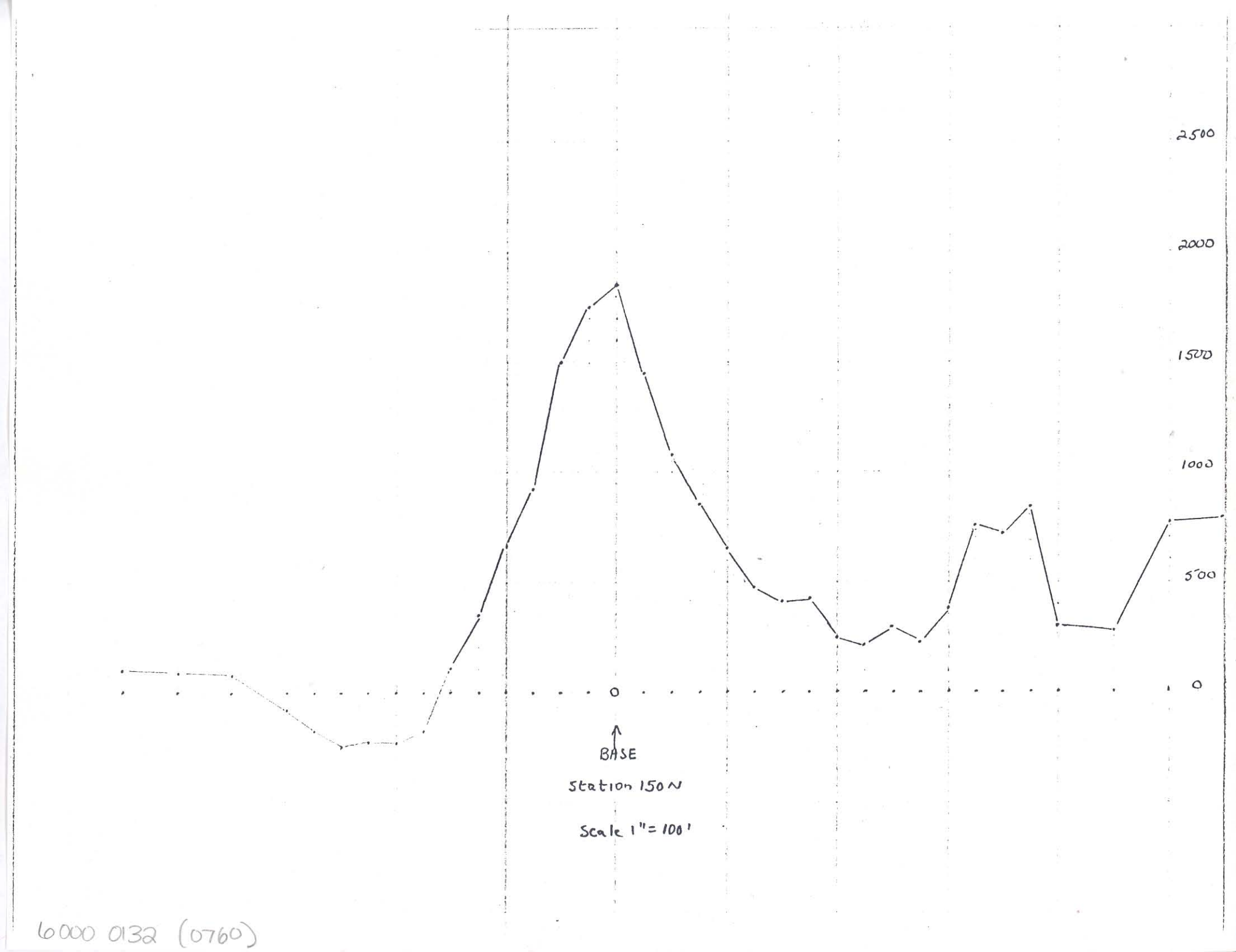

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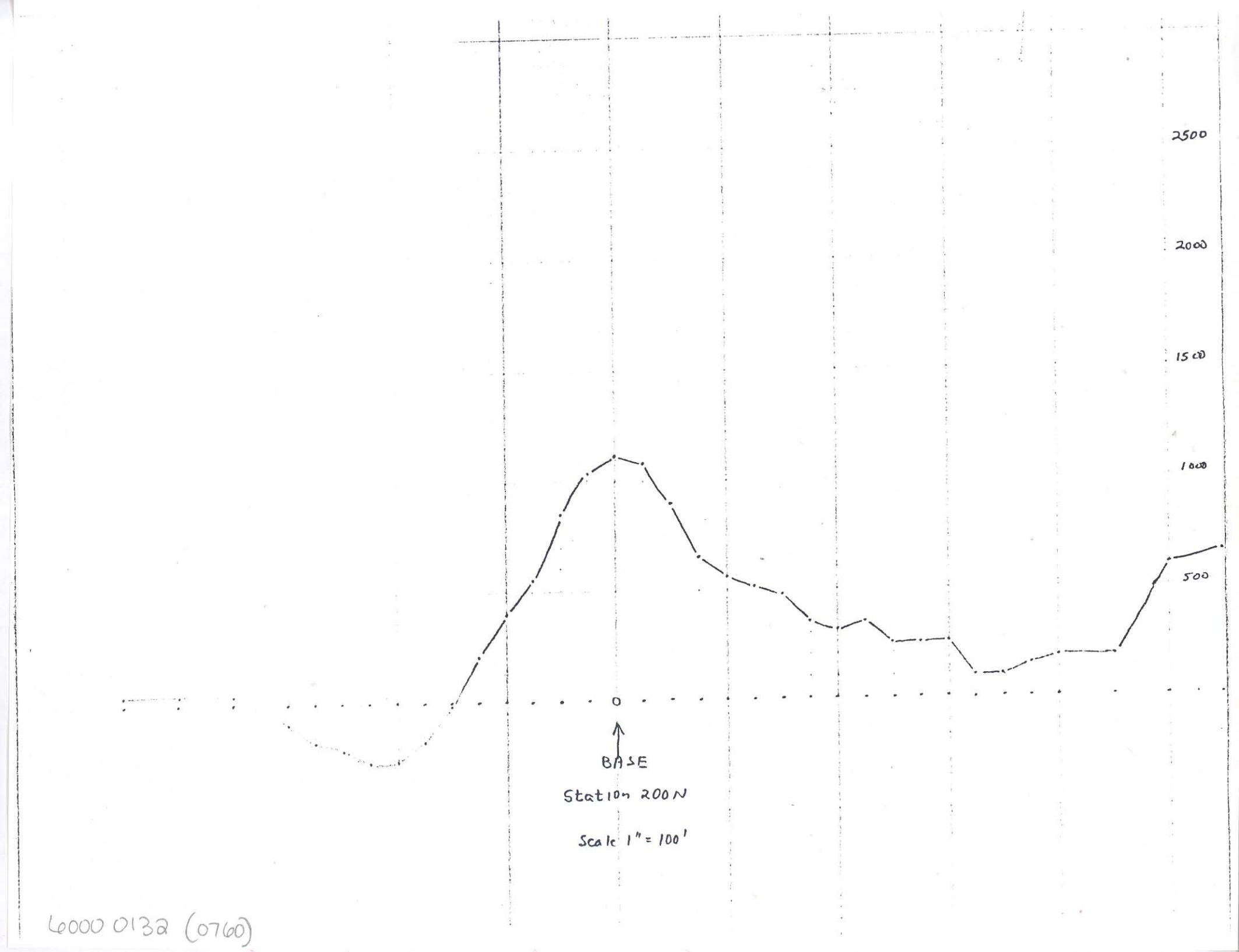

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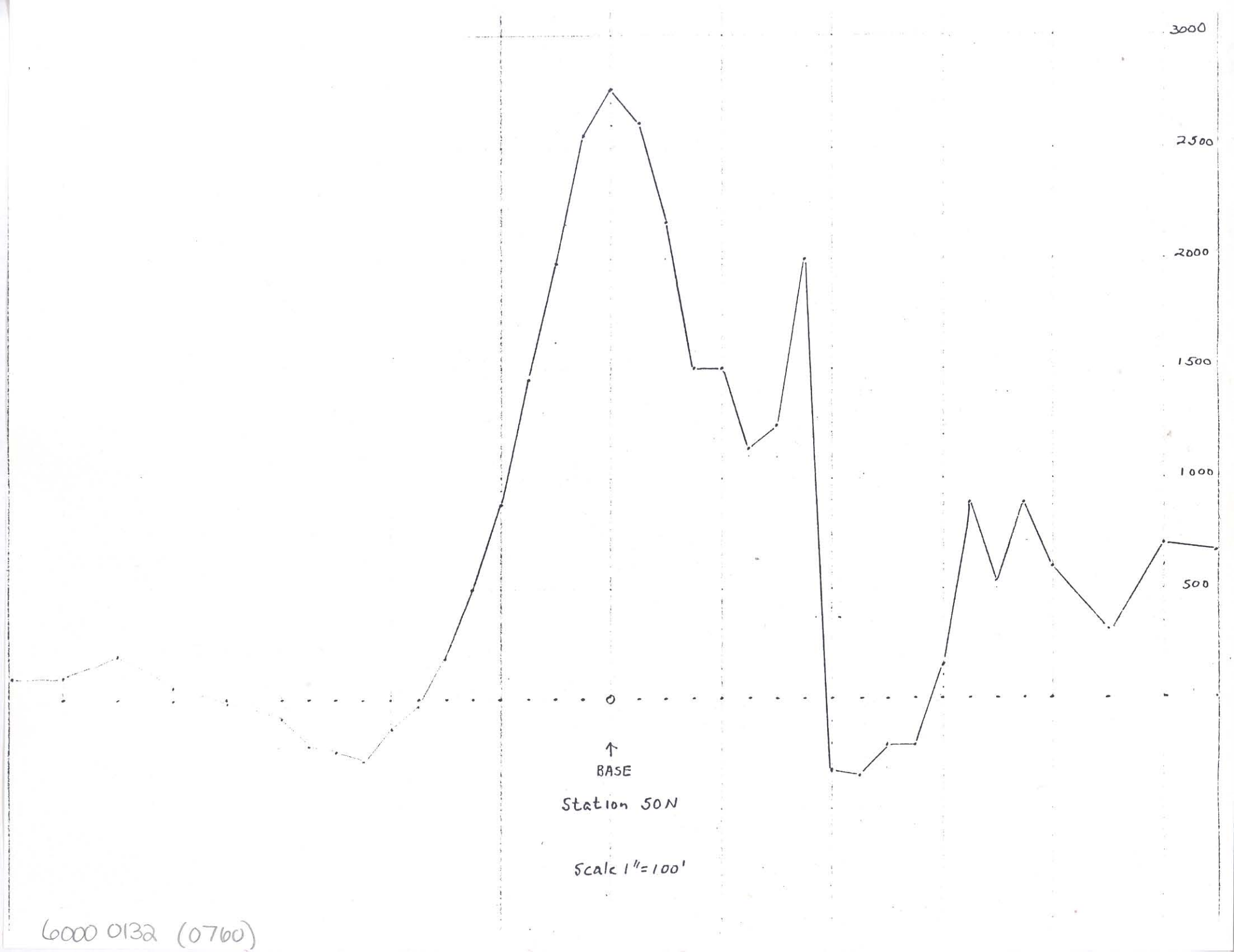

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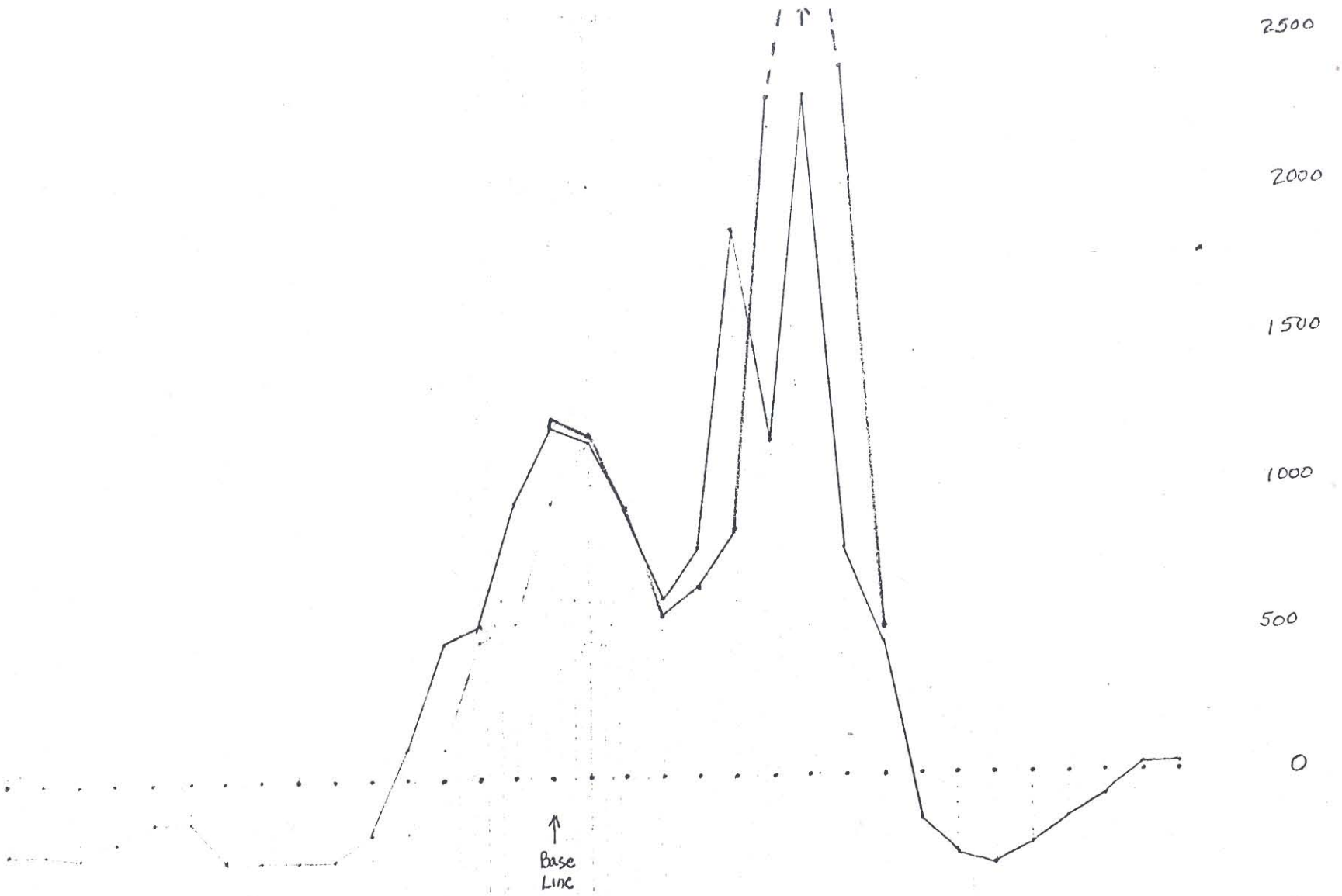

1" = 100'

Station 150.5

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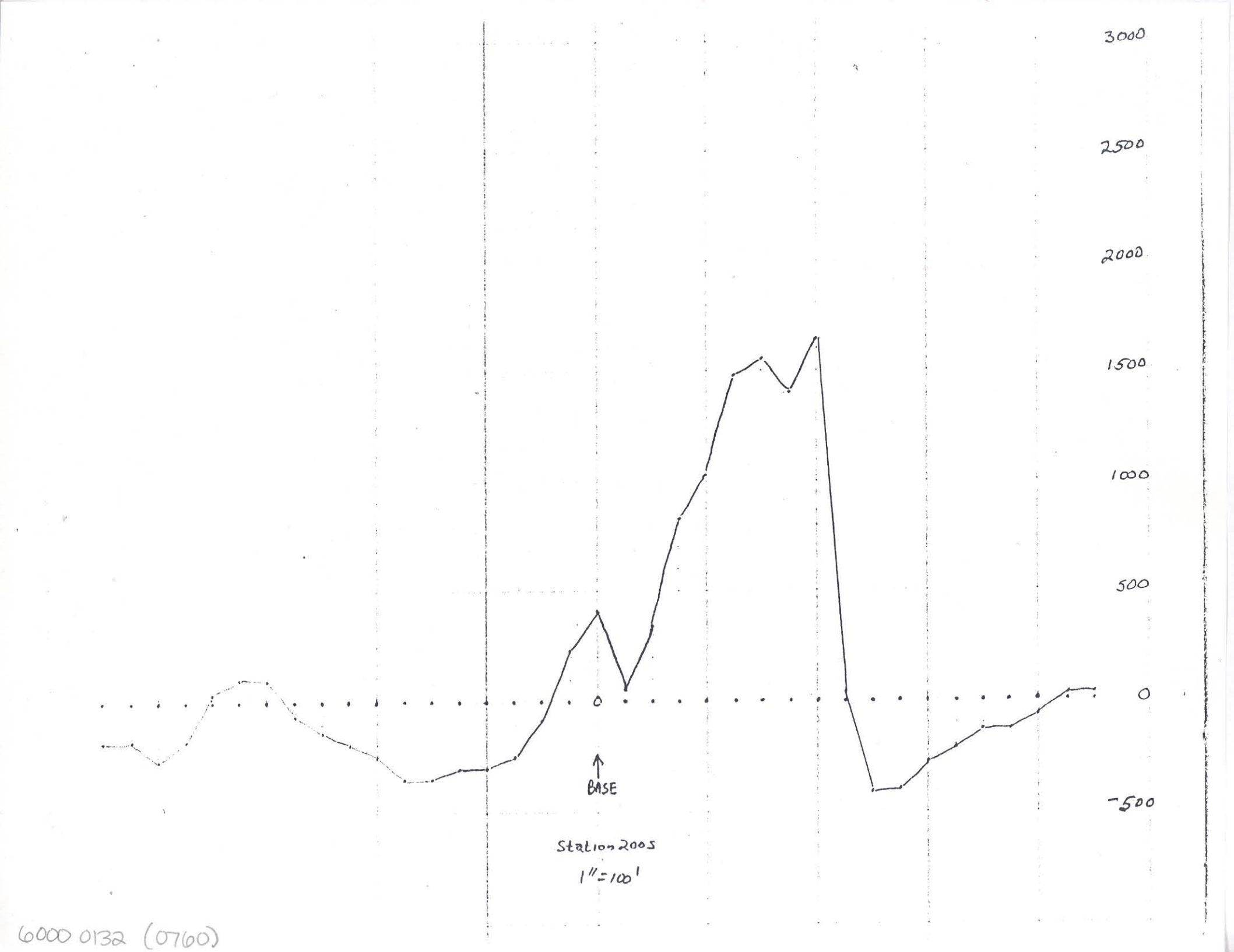

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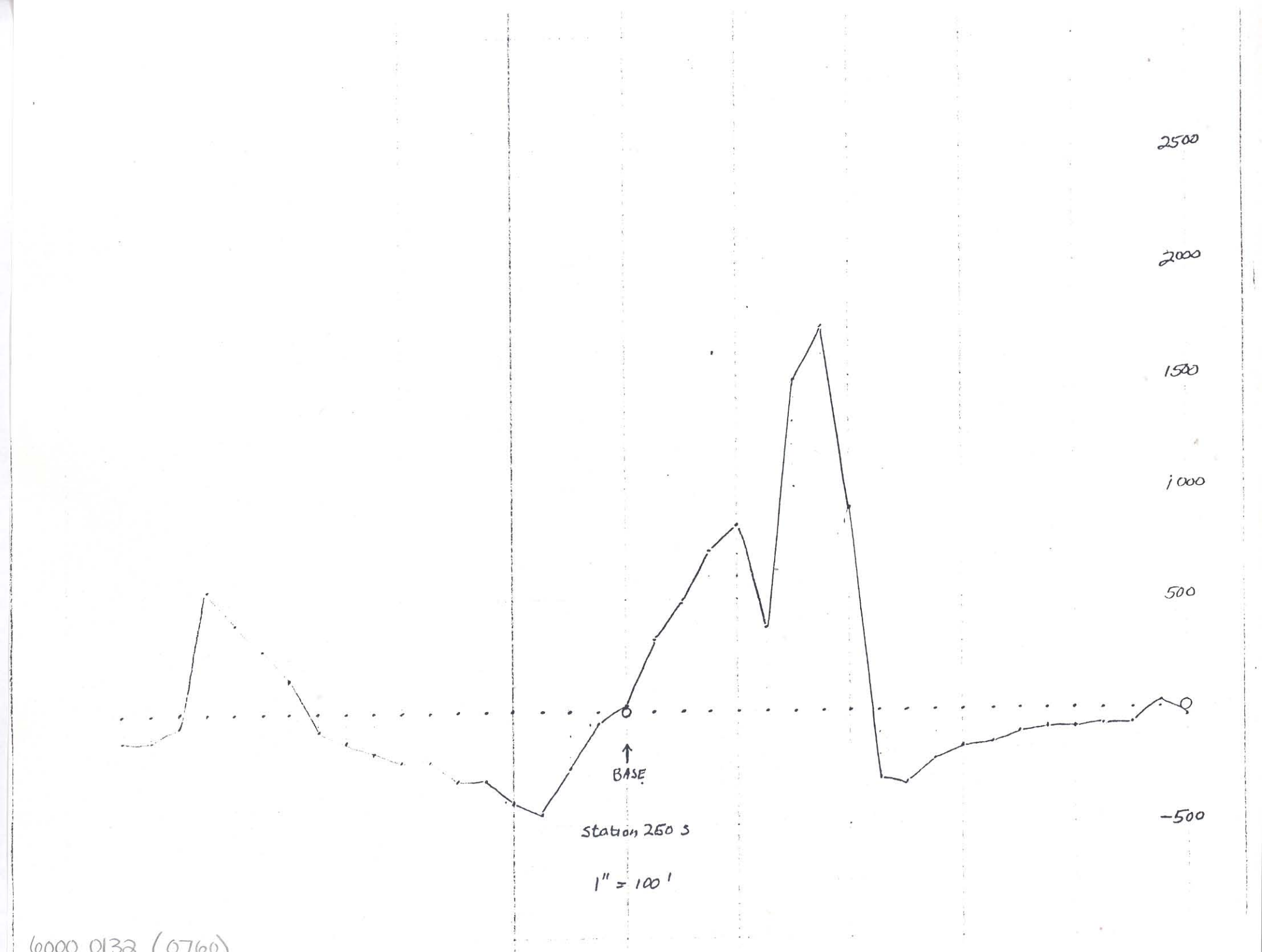

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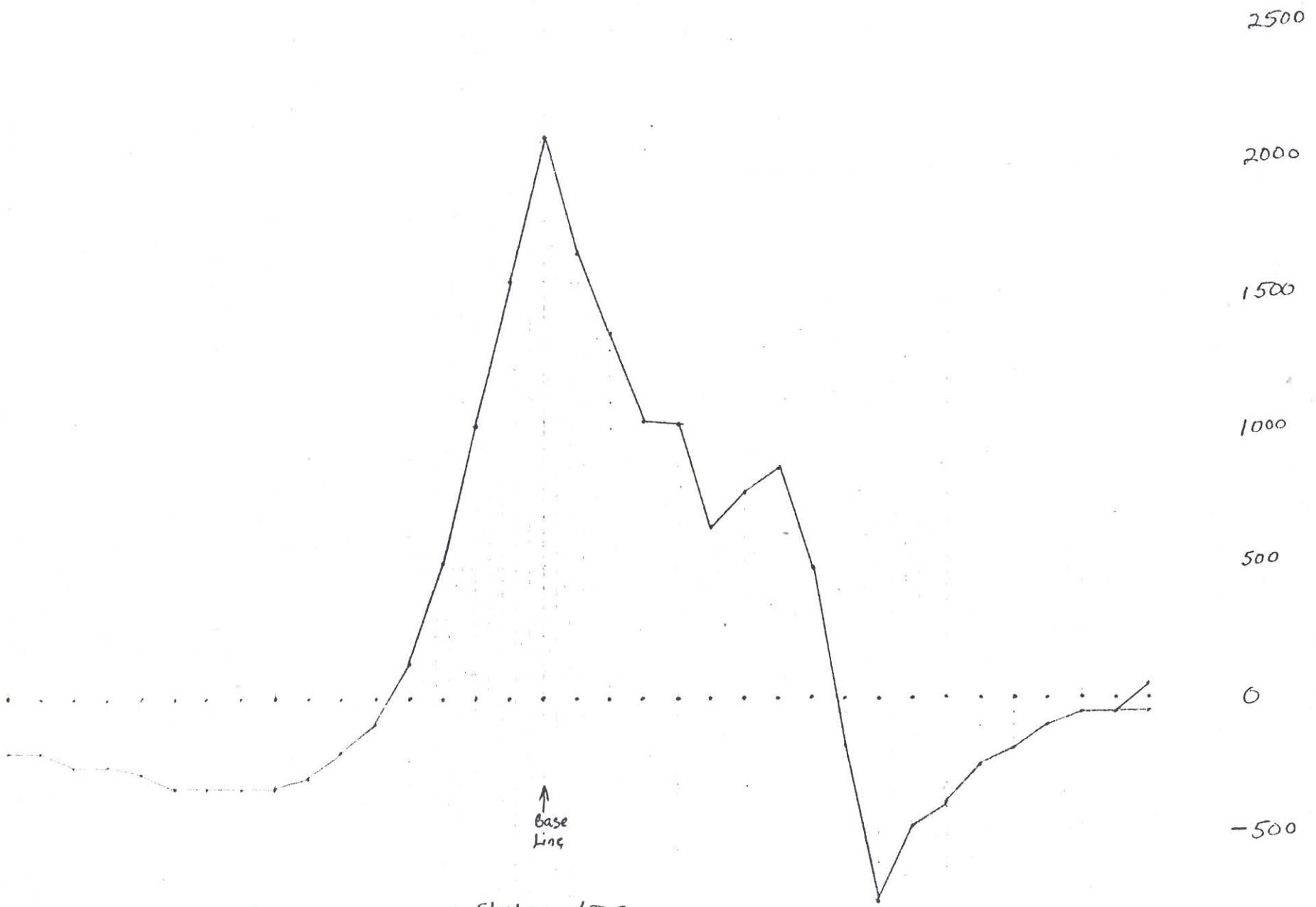

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1"=100'

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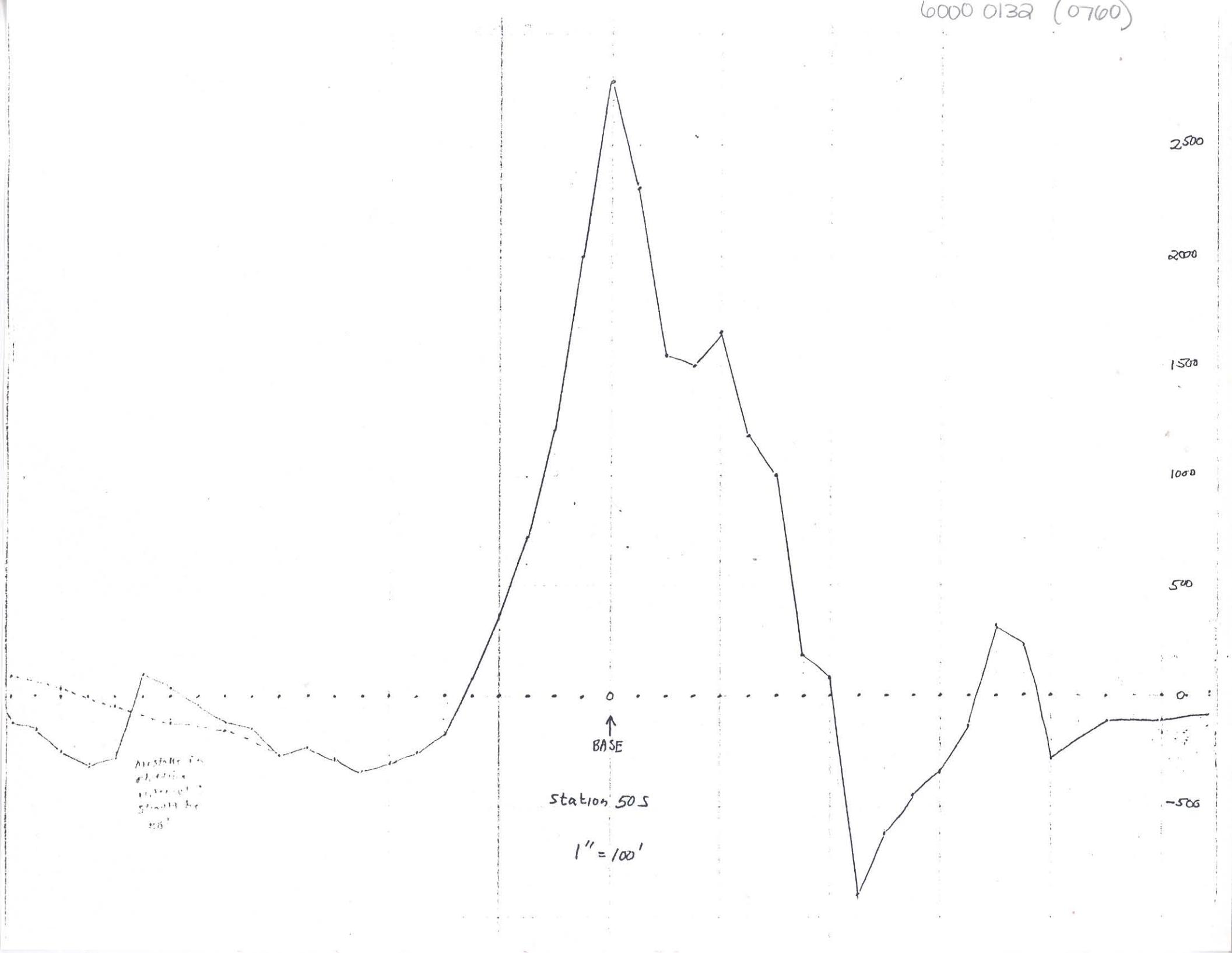

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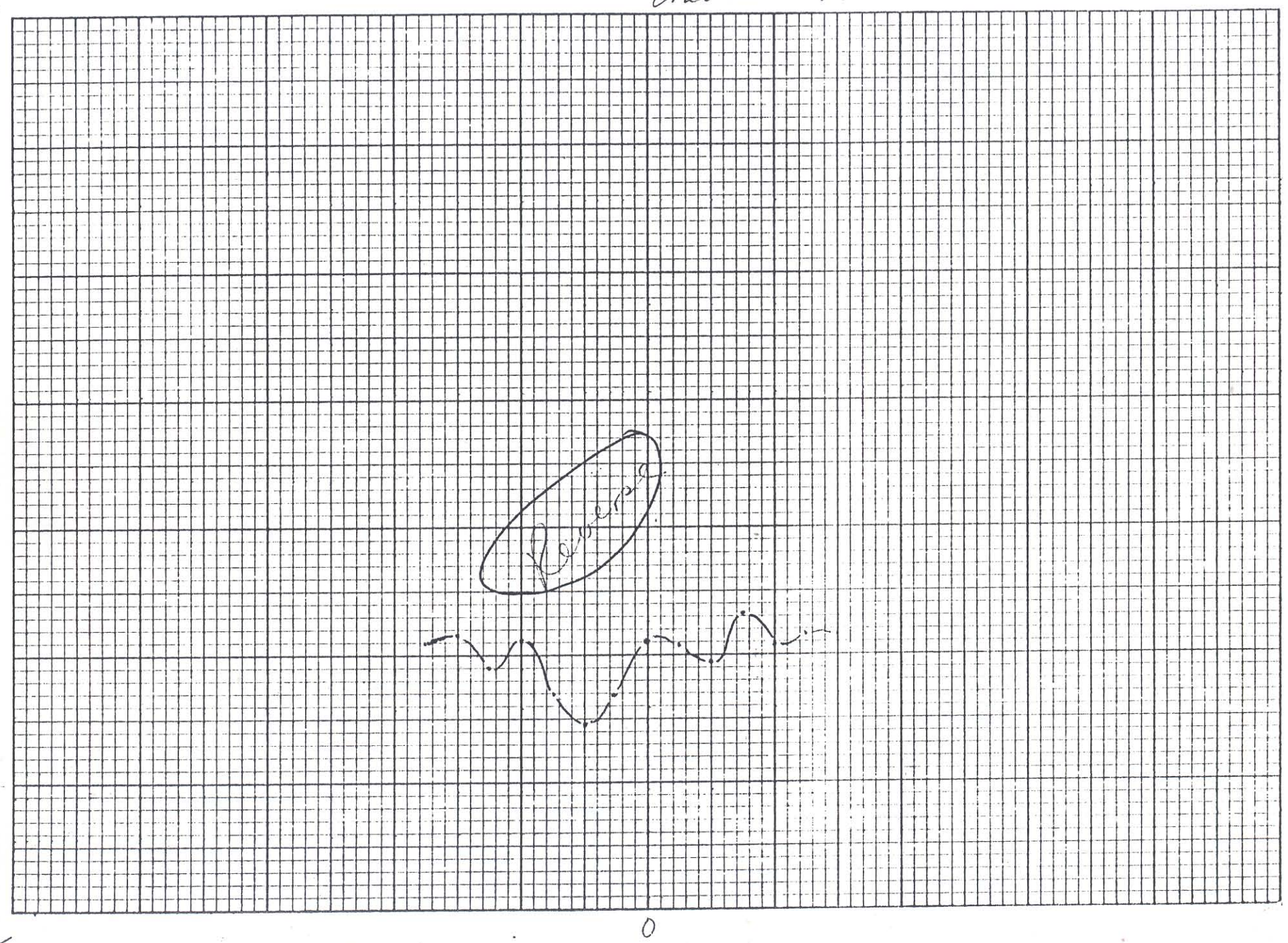
Boo Boo Prospect

Traverse #00 [illegible]



6000 0132 (0760)

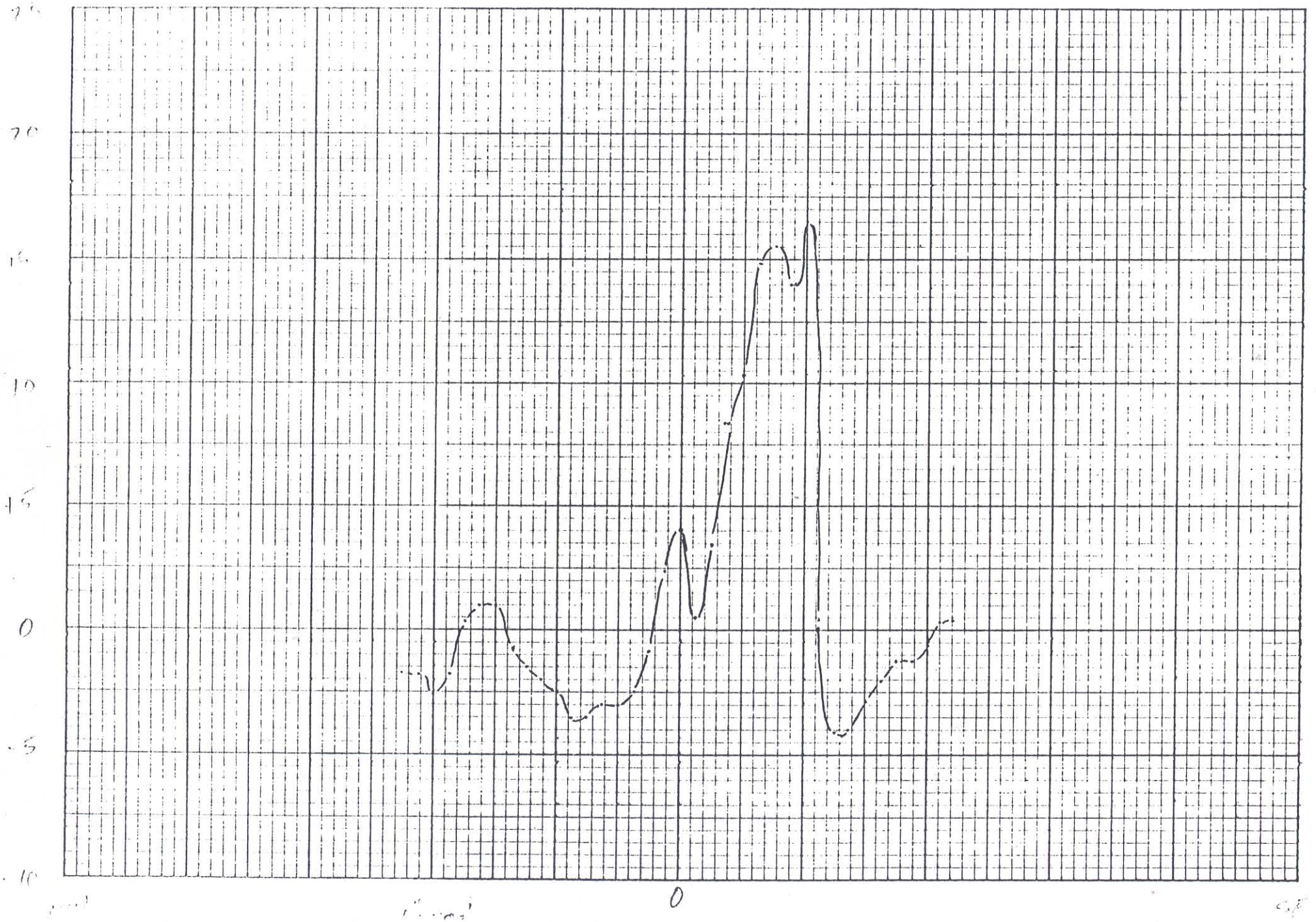
Boo Boo Prospect

Traverse 300 SW

6000 0132 (0760)

Boo Boo Prospect

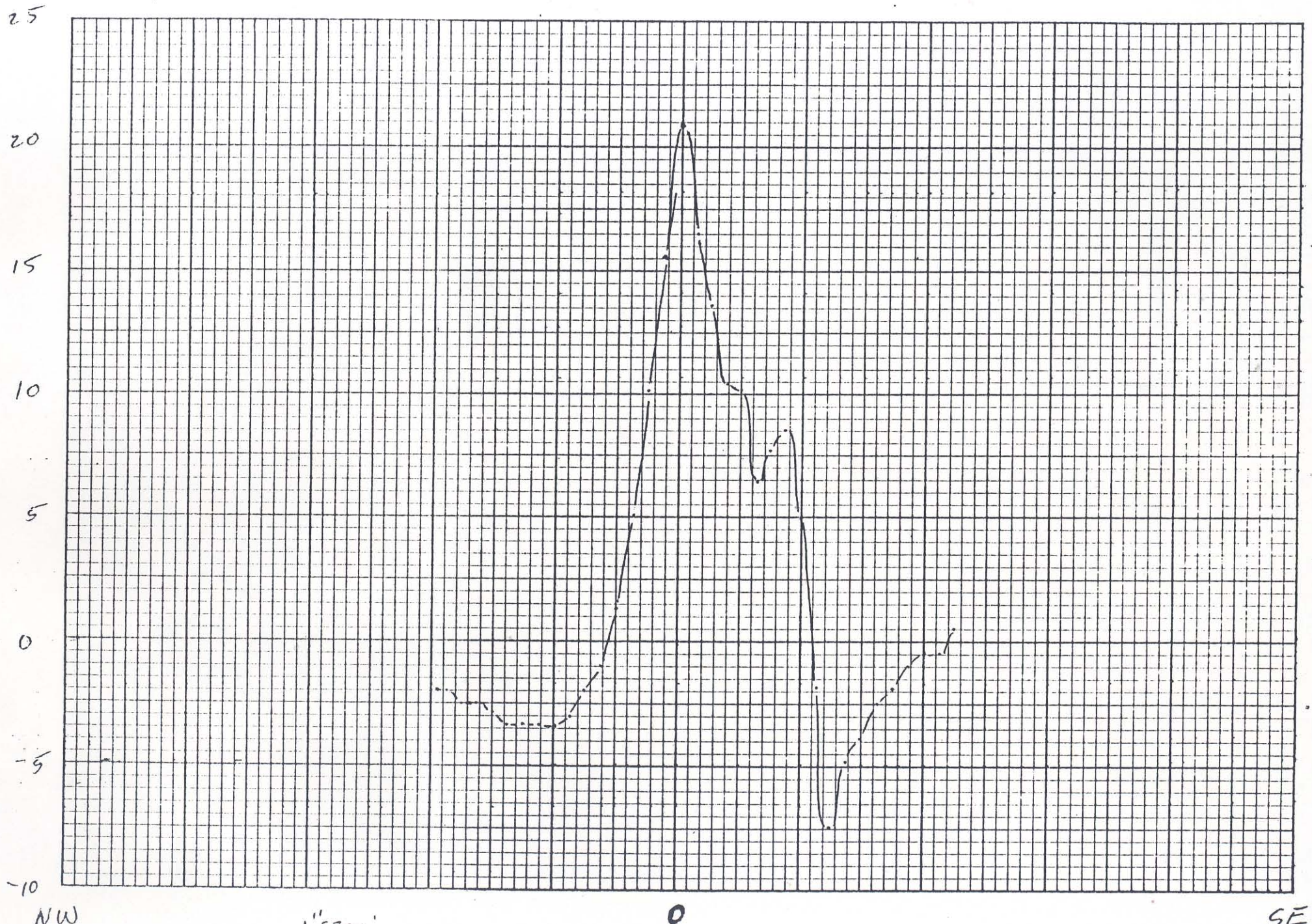
Traverse 2.00 SW



Boo Boo Prospect

Trav 100 SW

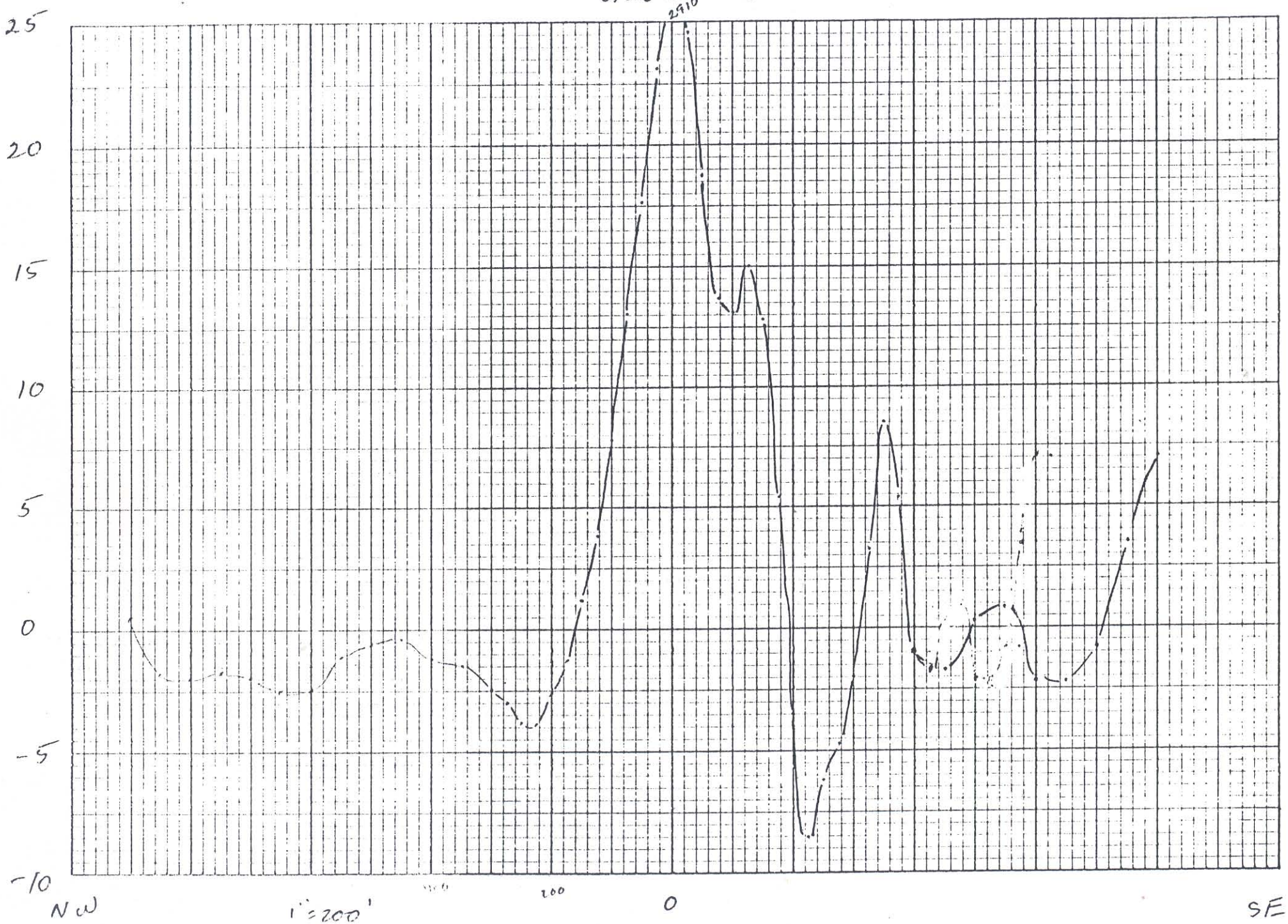
6000 0132 (0760)



6000 0132 ('0760)

Boo Boo Prospect

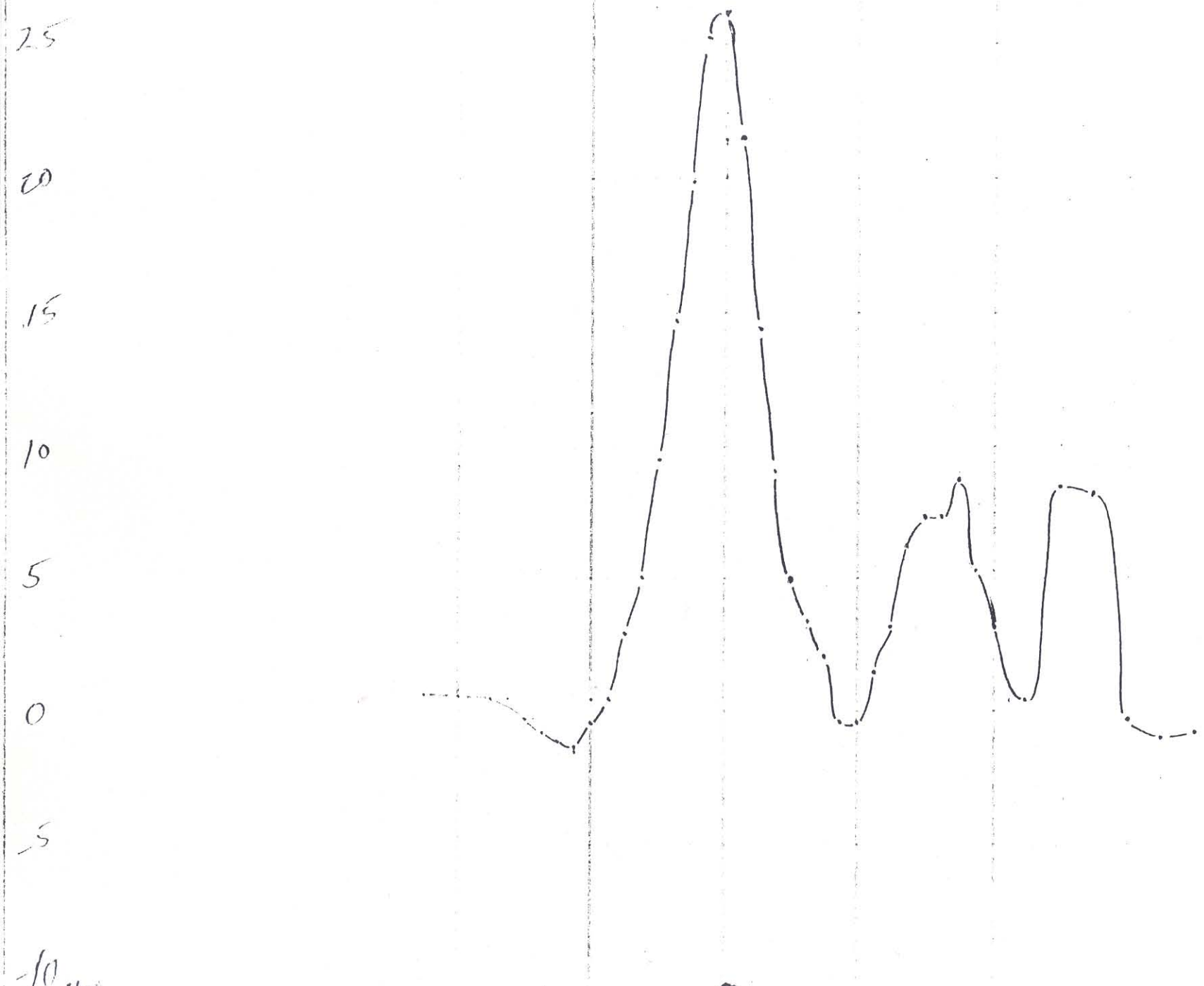
trave 0



6000 0132 (0760)

Boo Boo Prospect

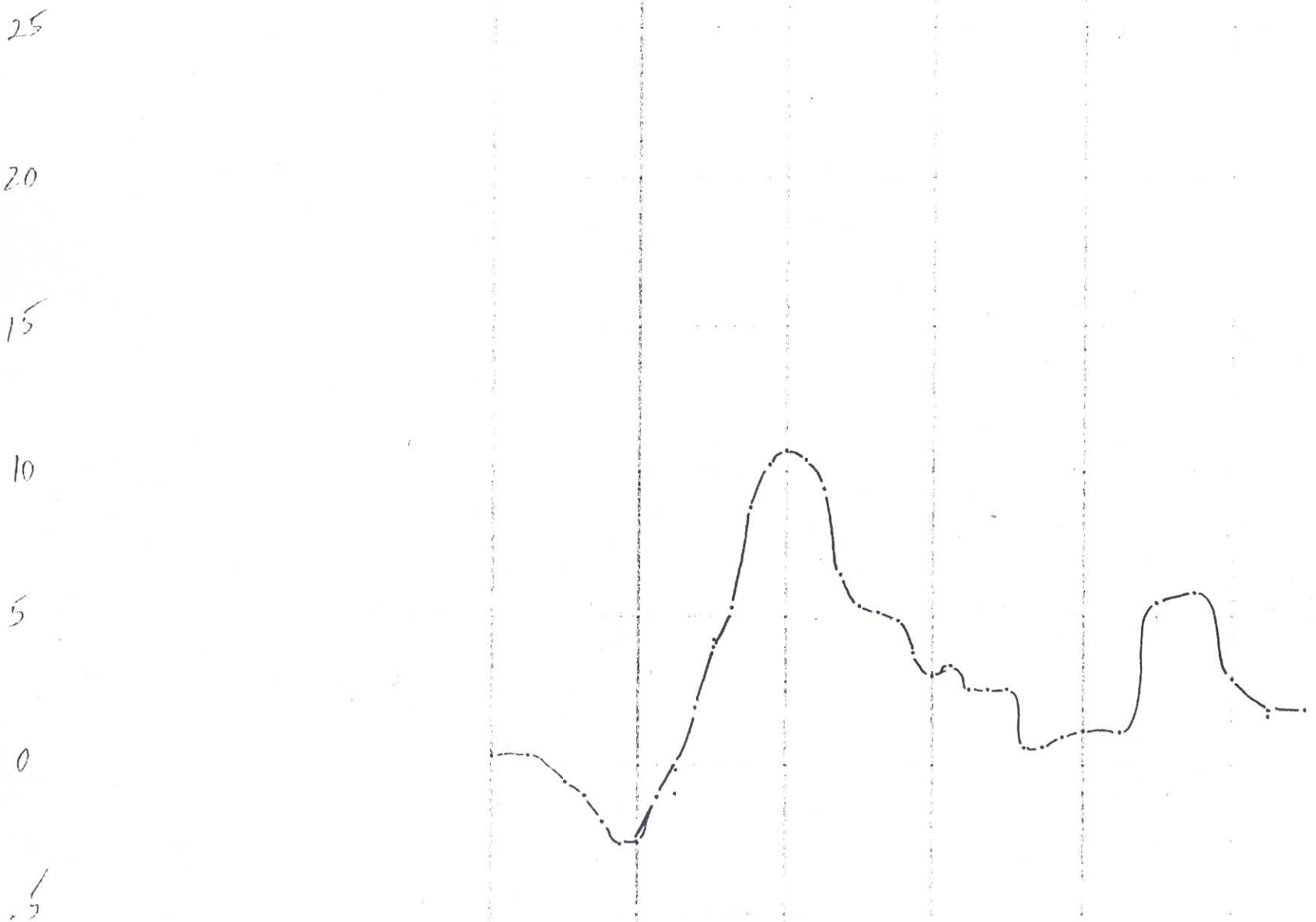
Trav 100 NE

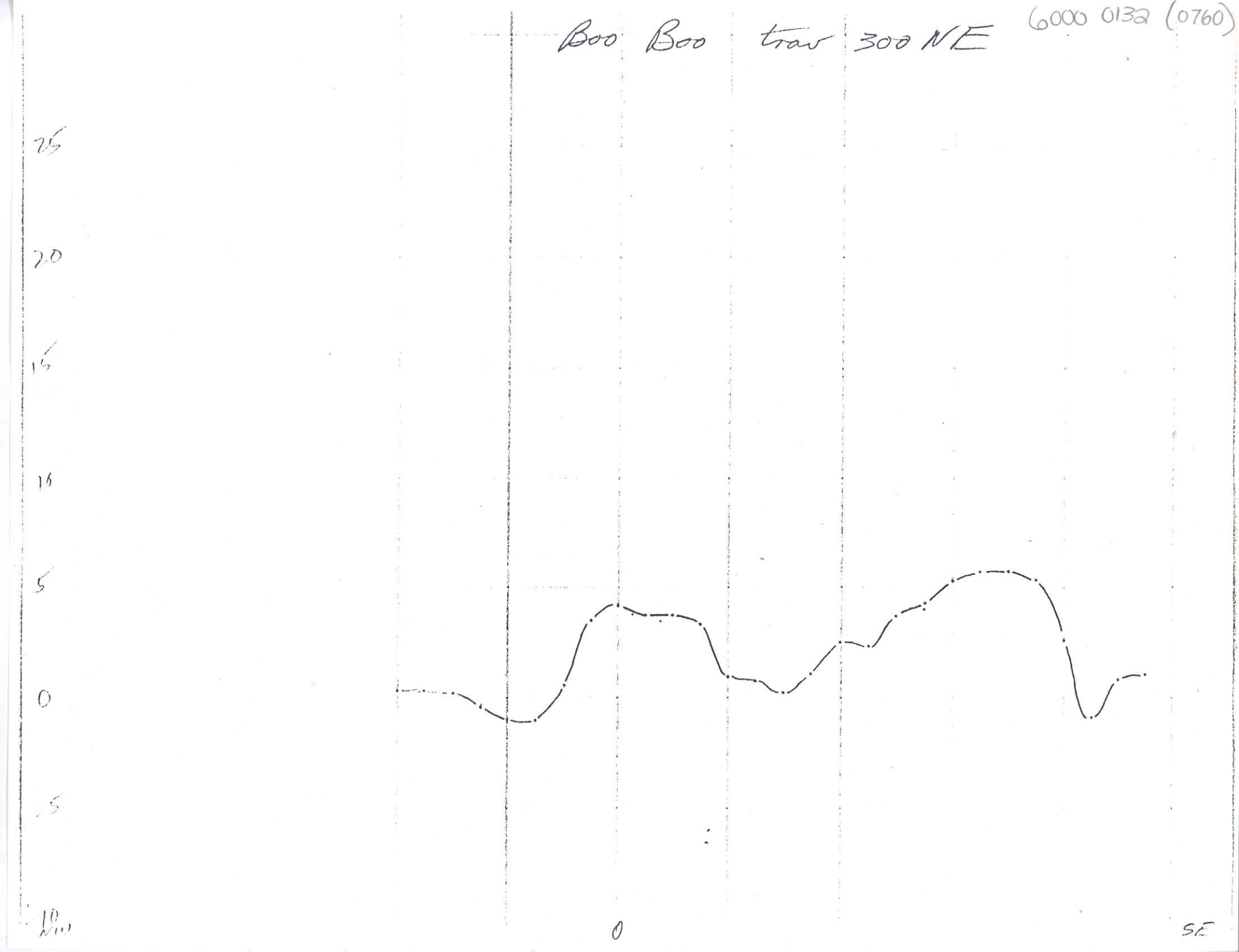


6000 0132 (0760)

Boo Boo

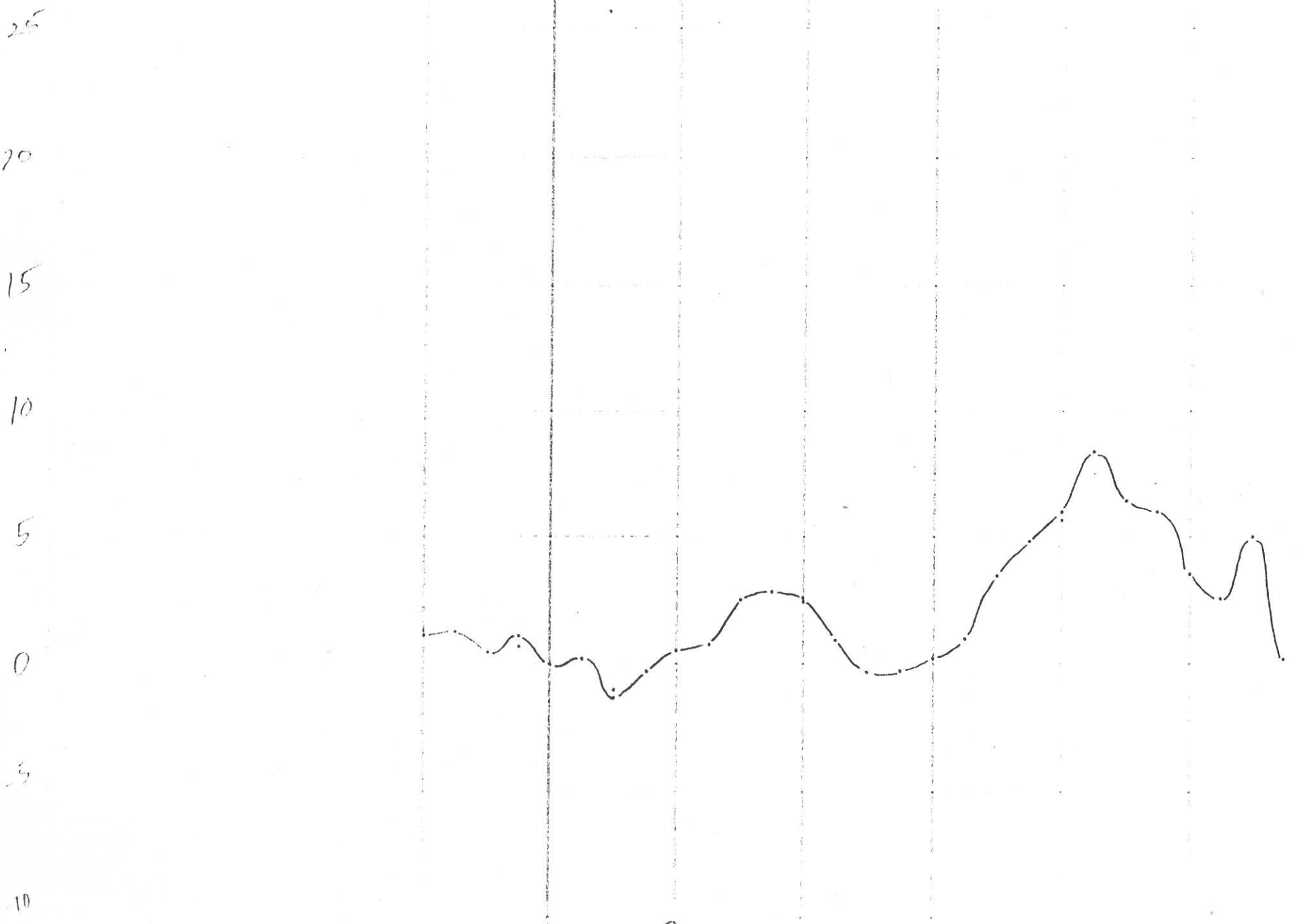
trav 200 NE




Boo Boo trav 300 NE
6000 0132 (0760)
25
20
15
10
5
0
5
10
0
SE

Boo Boo
Trawl 400 NE

6000 0132 (0760)



6000 0132 (0760)

Mertel

Appears To be contact deposit

Bob—

Wasn't able to finish this along w/ working on the gentry — I'll finish it ~~after~~ on the 25th (I'll be in office most of the day)

Bill

0271M p 8-9

WHITE, Wm

BADGER Summary

6000 0132 (0760)

Introduction

Previous & Present work

Location NE1/4 sec 12, T. 12 N., R. 30 E.

Geology

1. Qtz porphyry intrusive, remaining surface outcrops recent volcanics

Geochem

Geophysics

1. Aeromag survey of Res. identified many anomalies — Badger was one, 1965-
2. Ground mag survey done on Badger by Idaho Mining Corp, indicating modest-sized target
3. 1966 - single line I.P. survey done by McPhar Geophys for Walker Martel
4. 1976 - Gamma log of Hole BA-4 made to depth of 268 ft. no significant Uranium detected.

Drilling

1974: 3 holes air rotary — BA-1, 210 ft T.D.; BA-2, 240 ft T.D.; BA-3, 200 ft T.D. } location ?

1975: 1 hole analysed for Au, Ag — BA-4, 702 ft T.D. — splits of samples from hole — only low values detected.

air rotary ??

Recommendations

Plates

1. Magnetic anomaly & I.P. line location
2. Geology — after Hardyman ?
3. Workings & drill hole locations

WHITE, Wm

BADGER PROSPECT

Introduction

Location: The Badger Prospect is located on the northeast flank of the Gillis Range, just east of Hu Pwi Wash, and approximately 1.5 mi southeast of the Hotlentot Prospect. Its approximate legal description is NE 1/4 sec. 12, T. 12 N., R. 30 E. (unsurveyed).

Previous work: The entire Walker River Reservation has been surveyed at least twice by aeromagnetic survey companies. The first total intensity survey was performed in 1963 for Walker Martel Mining Company by Aero Service Corporation; the second total intensity survey was flown in 1969-70 for Occidental Minerals Corporation by Lockwood, Kessler, & Bartlett Inc. Magnetic anomalies associated with the Badger Prospect were identified by both surveys. During 1965, Idaho Mining Corporation conducted a ground magnetic survey of the Badger Prospect, focusing on the area covered by the aero magnetic anomaly identified in 1963. The ground magnetic survey resulted in a more detailed anomaly which suggested a possible, modest-sized target lying at a relatively shallow depth. In 1966, McPhar Geophysics Limited was contracted by Walker Martel Mining Company to run a single induced polarization line across the prospect. Results of this survey identified a possible target which coincided with both aeromagnetic & ground magnetic anomalies

Three shallow exploratory holes (BA-1, 2, & 3)

Previous work:

Martel Mining Company, Occidental Minerals Corporation, & Idaho Mining Company conducted intermittent exploration on the property from 1963 to 1975. Work consisted of geophysical surveys, & rotary drilling.

were drilled in 1974. The deepest of the three holes (BA-2) was ~~drilled to a depth of~~ 240 ft, according to Idaho Mining Company, & never penetrated total depth of the surface volcanics. Locations of the three holes with respect to the prospect are currently unknown.

A fourth hole (BA-4) was drilled for Idaho Mining Company in 1975, & reached a total depth of 702 ft. Its location was based on the proximity of the I.P. anomaly to the ground magnetic anomaly (figure ___). ~~A massive sulfide zone, approximately 180 ft thick, was encountered~~ started ~~at 315 ft, & continued to 495 ft. The zone is comprised mainly of pyrite, pyhrrotite, magnetite, & some minor chalcopyrite, & makes up 50 to 85 percent of the calc-silicate hostrock.~~

In 1975, Idaho Mining Corporation proposed additional exploration drilling for the Badger Prospect; However, the company's as a result of favorable mineralization encount in hole BA- exploration permit on the reservation was due to expire in February 1976. It is currently unknown if an extention of that permit was granted, or if additional exploration was performed.

Geology

The Badger Prospect is an iron-copper skarn deposit formed along the contact of a Cretaceous diorite porphyry (Khd) with a Triassic shale-argilite (Tsh - a Luning Formation equivalent). The most recent geologic mapping of the prospect & vicinity was done by Hardyman (1980), & is summarized in figure ___. The prospect area is dominated by Tertiary volcanics comprised (from oldest to youngest) of the Singatse Tuff (Tbs), Intermediate Lavas (Tlpa), & Basaltic Andesite (Tba).

Due to poor surface exposures, the size & extent of the skarn, or skarns, is unknown. Although a vertical shaft was driven at the diorite-shale/argilite contact, all available data on mineralization are from Idaho Mining Corporation's drill hole BA-4. This hole is located approximately 2800 ft northwest of the vertical shaft (figure ___), & is collared in the Singatse Tuff (Tbs). Its location was based on overlapping aeromagnetic, ground magnetic, & I.P. anomalies. A mineralized zone 175-ft thick extends from 320 ft to 495 ft, & is comprised of pyrite, pyhrrotite, magnetite, & minor chalcopyrite in a limey-hornfelsic matrix. Copper content in the 175-ft thick mineralized zone ranges from 710 ppm to 3900 ppm. A single gold assay of 0.004 oz/T was noted from 415 ft, & from 10 ppm to 66 ppm Mo occurred

between 370 ft & 415 ft. Drill log data are summarized in Table ___.

		oz/T		ppm	
		Au	Ag	Cu	Mo
0 - 85	Fresh & alt vol.	Nil	Nil	15	< 1
85 - 105	Alt. int. (granite)	Nil	Nil	20	< 1
105 - 180	Alt. int. (granite)	0 - 0.002	0 - 0.002	20 - 250	< 1 - 1
180 - 230	Alt vol (andesite?)	Nil	0.001 - 0.002	70 - 205	< 1
230 - 300	Alt Vol (andesite?)	Nil	Nil	125 - 865	< 1
300 - 310	Lt & dk gray ls	0.002	0.003	270	< 1
310 - 370	Hfls with py, po, cp, mag	0.001 - 0.002	0 - 0.003	270 - 3000	< 1 - 8
370 - 415	Ls with little Hfls	0.001 - 0.002	nil	155 - 365	10 - 66
415 - 460	Hfls & calc-silicate, with py, po, little cp, & minor mag.	0.001 - 0.002	nil	1900 - 3900	< 1 - 4
460 - 495	do	Na	Na	710 - 1500	< 1 - 1
495 - 702 TD.	do, with minor metallic minerals	Na	Na	130 - 245	1 - 3

Geophysics

Two total intensity aeromagnetic surveys were made of the Walker River Indian Reservation. The first was performed in 1963 for Walker Martel Mining Company by Aero Service Corporation; the second survey was flown in 1969 & 1970 for Occidental Minerals Corporation by Lockwood, Kessler, & Bartlett Inc. Both surveys identified two east-west-trending magnetic highs associated with the Badger Prospect (figure ___). The smaller of the two highs coincides with the diorite - shale/argilite contact near the vertical shaft. During 1965, Idaho Mining Corporation conducted a Talander vertical field ground magnetic survey of the prospect focusing on the larger magnetic high identified by the 1963 aeromagnetic survey. The ground magnetic survey outlined a more detailed anomaly which suggested a modest-sized target lying at relatively shallow depth. In 1966, McPhar Geophysics Limited was contracted by Walker Martel Mining Company to run a single Induced Polarization line across the prospect. Results of this survey identified a possible target which coincided with the overlapping aeromagnetic & ground magnetic anomalies (figure ___).

Drilling

Three shallow exploratory drill holes (BA-1, 2, & 3) were drilled on the prospect for Idaho Mining Company in 1974. According to company records, the deepest of the three holes (BA-2) was 240 ft, & never penetrated the total depth of the Tertiary volcanics. Location of these holes is currently unknown. A 702-ft deep hole (BA-4) was drilled for Idaho Mining Company in 1975. Its location was based on the proximity of the I.P. anomaly to the ground magnetic anomaly (figure ___). Drill log data & assays are summarized in table ___.

Table ___, Summary of Drill Hole BA-4, Badger Prospect.

Recommendations

The limits of the 175-ft thick mineralized zone encountered in drill hole BA-4 have not been defined. Additionally, the significance of the aeromagnetic high that coincides with the diorite-shale/argilite contact near the vertical shaft (figure —) has not been fully explored. The following suggestions (in order of increasing cost) may provide a more detailed picture of the Badger Prospect:

2. Step out 300 ft east-southeast of BA-4 with an 800-1000-ft deep core hole (figure —). This site coincides with a 1800 gamma high similar in size and trend to the high found at BA-4.

1. Run three N-S proton magnetometer survey lines through the east-west trending aeromagnetometer high that coincides with the diorite-shale/argilite contact. Place one line at each end of the high & one through the center (figure —). Based on results, a grided survey can be expanded from these three profiles. If magnetic highs (specifically in the area of the aeromagnetic 2350 gamma high on figure —) can be identified by the proton magnetometer survey, these may be potential drilling targets.

University of Nevada

Reno

Volcanic Stratigraphy and Structural Geology

of

Gillis Canyon Quadrangle, Northern Gillis Range

Mineral County, Nevada

A dissertation submitted in partial fulfillment of the

requirements for the degree of Doctor of Philosophy

by

Richard Frank Hardyman

August 1978

The granodiorite intrusion is bounded by moderately steep normal faults on the east and west and by alluvium on the north. The exposure is bounded on the south by a low-angle fault contact with Tertiary volcanics. Nowhere is an intrusive contact of this granite exposed.

Granite of Red Granite Mine: A granite, here informally designated granite of Red Granite Mine, is exposed in two localities in the Gillis Canyon quadrangle (Fig. 3 and Plate II). In the vicinity of the Red Granite Mine this intrusive rock is in low-angle fault contact with Tertiary ash-flow tuffs and is depositionally overlain by younger Tertiary lava. A second exposure of this granite occurs south of Hu-Pwi Wash in the Gum Drop Hills. Here the granite intrudes sediments of the shale-argillite sequence and is depositionally overlain by, and in low angle-fault contact with, Tertiary volcanic rocks. The granite in this area is also in intrusive contact with hornblende diorite porphyry (map unit Khd) but the relative age relationship between these rocks has not been determined from this poorly exposed contact.

In both areas of exposure this granite forms a subdued topography of rounded, spheroidally weathered outcrops. In outcrop, the rock is pinkish-brown to reddish-brown to brownish-grey in color.

The granite is medium to coarse-grained and equigranular. Pink alkali feldspar and quarts dominate the rock. Plagioclase constitutes approximately 15 percent and biotite about 6 percent of this granite. As observed on a sawed surface, the alkali feldspars are distinctly perthitic and slightly zoned.

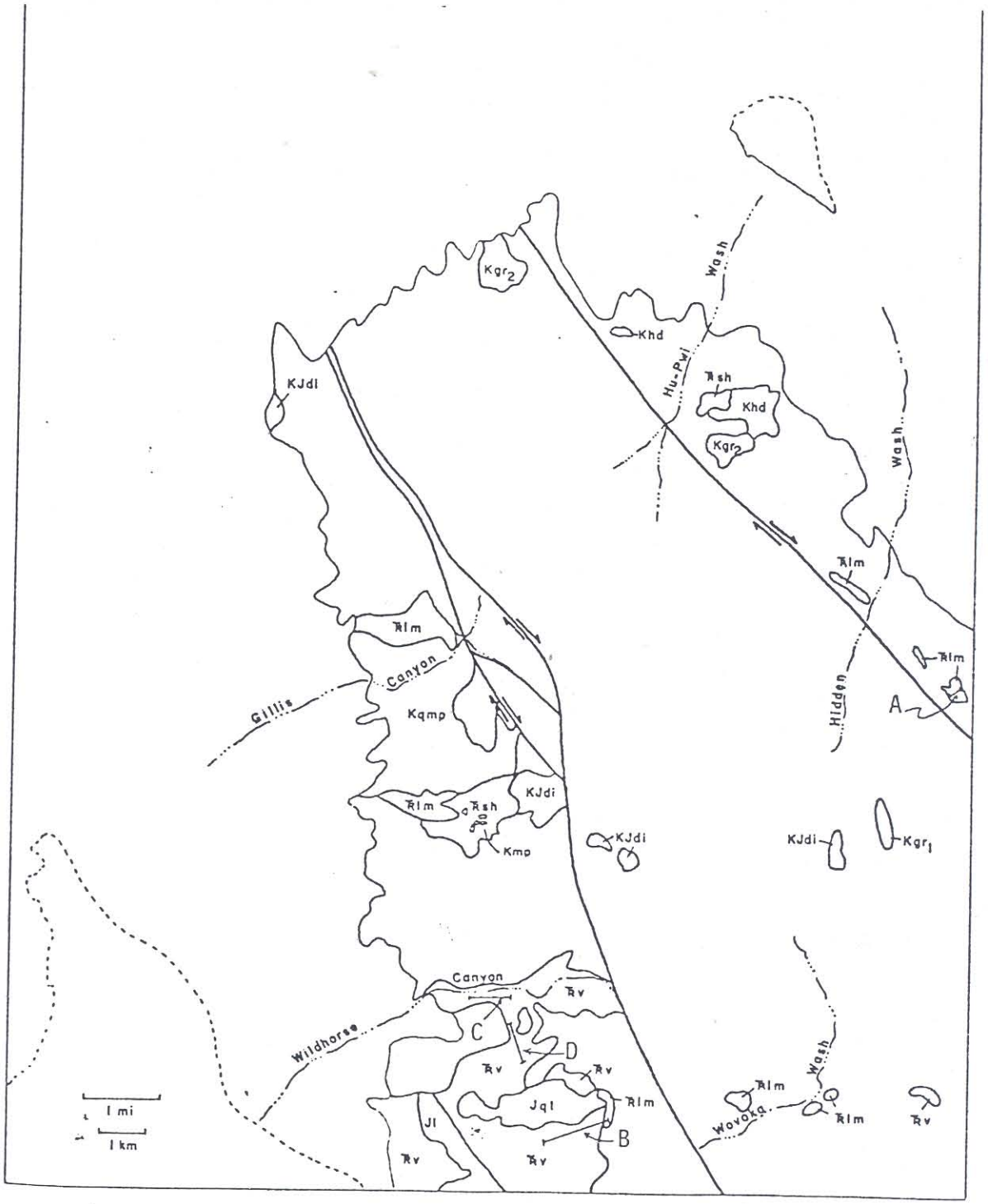


FIGURE 3. Generalized distribution map of Mesozoic rocks - Gillis Canyon quadrangle. Letters A,B,C,D refer to FIGURES 4,5,6,7 respectively.

Gum Drop Hills Fault: The Gum Drop Hills Fault is a major northwest trending fault that extends along the west flank of the Gum Drop Hills (Figure 24). This fault can be traced southeast along strike to Soda Spring Valley near Luning, Nevada (see Figure 21). North of the Gillis Canyon quadrangle, the trace of this fault is uncertain but it probably extends northwest along the west side of the Terrill Mountains (see Reno 1:250,000 topographic map) and continue northwest through Long Valley. The probable strike length of this fault is in excess of 90 kilometers (56 miles). Just southeast of the Gillis Canyon quadrangle, this fault displaces older alluvial fan gravels. Farther south, this fault is intruded by an aphyric latite dike dated at 5.8 m.y. (Ekren and others, in press).

The Gum Drop Hills Fault is a major strike-slip fault of the Walker Lane system as is shown by; the knife-sharp linear trace defineable in bedrock for about 60 of its proabable 90 kilometer (56 mile) length, the variable and inconsistent stratigraphic juxtapositions along strike, and the variation in apparent vertical offsets along strike. The Gum Drop Hills Fault is exposed in bedrock only along the central part of its trace in the Gillis Canyon quadrangle. For most of its extent in the quadrangle, the fault is concealed by younger alluvium which does not appear disturbed by this fault. Lateral displacement on the Gum Drop Hills Fault in the Gillis Canyon quadrangle is indicated by the apparent right-lateral offset of the granite of Red Granite Mine, map unit Kgr_2 (see Figure 24). Although the intrusive contacts of this granite are not exposed in the vicinity of the Red Granite Mine, the limits (at least the northern limit) of the granite on the east

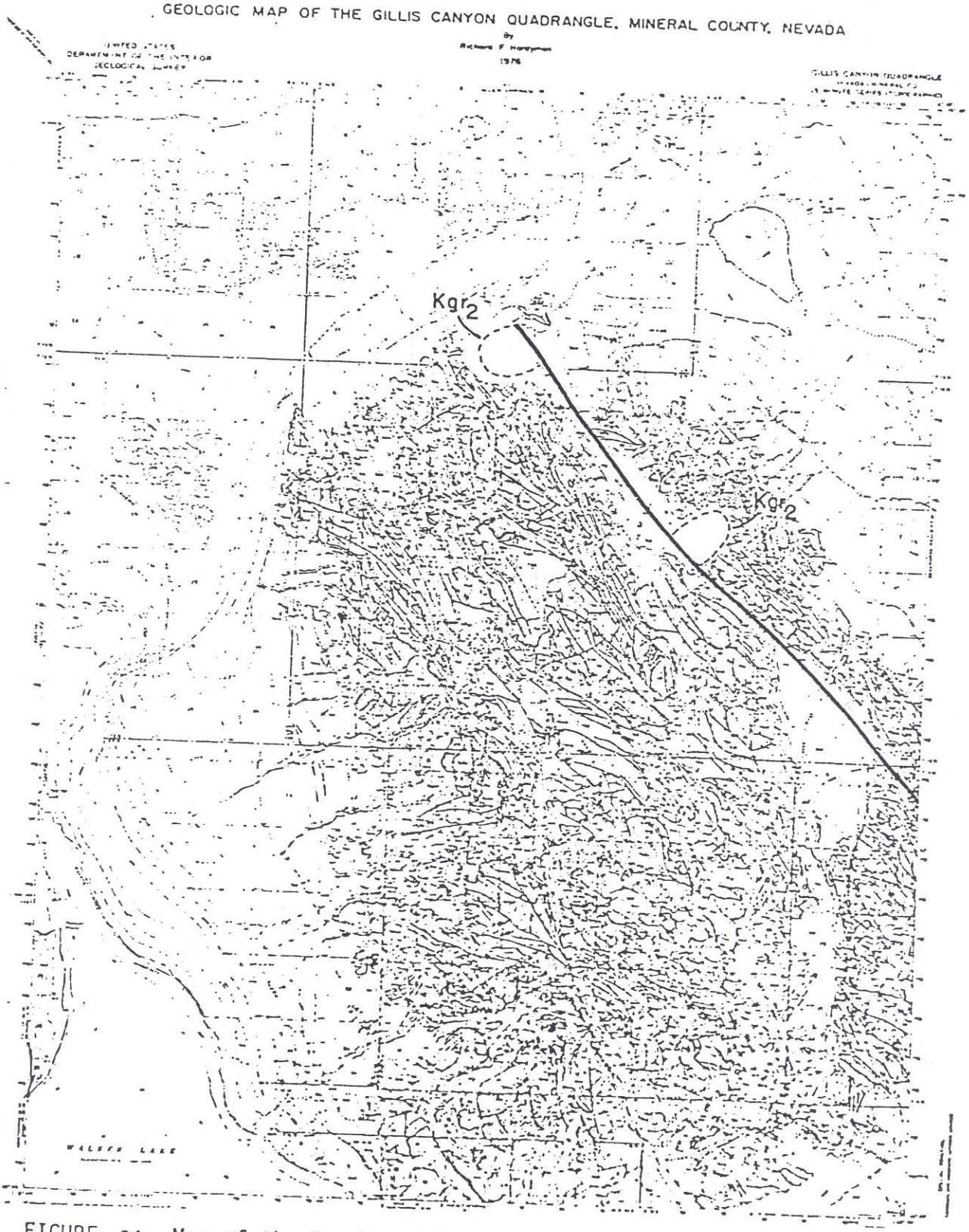


FIGURE 24. Map of the Gum Drop Hills Fault showing lateral offset of the Red Granite Mine granite - map unit Kgr_2.

side of the fault, south of Hu-Pwi Wash, are more constrained. The granite of both localities is megascopically and microscopically identical and displays the same weathering and erosional characteristics. Although a small alluvial valley ("Hu-Pwi basin" - see Notes on Quaternary Geology) occupies much of the area along the fault separating the two exposures of granite, there is no evidence to suggest that this granite is present beneath the valley fill and therefore continuous in subcrop between the two exposures. Aeromagnetic data does not indicate a continuity of the granite between the two areas and diamond drilling to pre-Tertiary basement rocks in the narrow constriction of the valley adjacent to the Hottentot prospect (1 mile south of Sec. 35, T. 13 N, R.30E, Gillis Canyon NE 7.5 min. quadrangle - Plate ID) (Lawrence and Wilson, 1966) did not reveal the presence of the granite of Red Granite Mine. It appears, therefore, that this granite is indeed offset by the Gum Drop Hills Fault. The amount of right-lateral displacement of the granite is estimated to be about 4 miles (6.4 kilometers). Where the Gum Drop Hills Fault crosses the low bedrock divided between the Hu-Pwi and Hidden Wash alluvial basins, the fault is defined by a relatively easily weathered zone of cataclastically crushed welded tuff bordering a central zone of clay gouge. Blocks of "smashed" limestone occur within this gouge zone. The nearest exposures of limestone are approximately .8 miles (1.3 kilometers) southeast along strike of the fault.

6000 0132 (0760)

ROCKY MOUNTAIN GEOCHEMICAL LABORATORIES

Post Office Box 2217
SALT LAKE CITY, UTAH 84110

322-2396
Phone ~~466-3072~~
Area Code: 801

CERTIFICATE OF ANALYSES

Date July 20, 1966

Client Mr. W. L. Wilson
Walker-Martel Mining Company
100 Washington Street
Reno, Nevada

Report on: 25 rock & rock core samples

Submitted by: Mr. Wilson

Date: June 30, 1966

Analysis: Copper, Zinc, Lead & Molybdenum

Remarks: Copper & zinc analyses by atomic absorption. Lead & molybdenum determined colorimetrically.

cc: Enc.
file

JJJ:kt

Sample No.	Copper	Zinc	Lead	Molybdenum
AF-4-25-35	70	85	10	5
AF-4-35-45	90	40	10	5
AF-4-45-55	180	40	10	9
AF-4-55-65	160	75	10	8
AF-4-65-75	365	200	10	8

1 ppm = 0.0001% 1 Troy oz./ton = 34.27 ppm % Mo x 1.6683 = % MoS_2

Sample No.	Copper	Zinc	Lead	Molybdenum
AF-4-75-85	170	140	20	5
AF-4-85-95	175	65	5	7
AF-4-95-105	235	390	10	10
AF-4-105-115	150	650	15	4
AF-4-115-125	85	340	25	5
AF-4-125-135	45	120	5	4
AF-4-135-145	60	110	5	7
AF-4-145-155	75	85	10	6
AF-4-155-165	70	55	10	10
AF-4-165-175	50	50	5	6
AF-4-175-180	75	145	10	5
AF-5-1 835-845	5	440	15	5
AF-5-2 845-855	10	400	10	4
AF-5-3 855-865	10	210	10	3
AF-5-4 865-875	10	710	15	2
AF-5-5 875-885	30	175	10	5
AF-5-6 885-895	45	115	10	6
AF-5-7 895-905	120	230	55	8
AF-5-8 905-915	110	90	10	7
AF-5-9 915-920	170	140	10	6

Rocky Mountain Geochemical Laboratories
Salt Lake City, Utah July 20, 1966

By _____
James J. Johnson

6000 0132 (0760)

ROCKY MOUNTAIN GEOCHEMICAL LABORATORIES

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AF-4-65-75	365	200	10	8

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AF-4-105-115	150	650	15	4
AF-4-115-125	85	340	25	5
AF-4-125-135	45	120	5	4
AF-4-135-145	60	110	5	7
AF-4-145-155	75	85	10	6
AF-4-155-165	70	55	10	10
AF-4-165-175	50	50	5	6
AF-4-175-180	75	145	10	5
AF-5-1	5	440	15	5
AF-5-2	10	400	10	4
AF-5-3	10	210	10	3
AF-5-4	10	710	15	2
AF-5-5	30	175	10	5
AF-5-6	45	115	10	6
AF-5-7	120	230	55	8
AF-5-8	110	90	10	7
AF-5-9	170	140	10	6

Rocky Mountain Geochemical Laboratories
Salt Lake City, Utah July 20, 1966

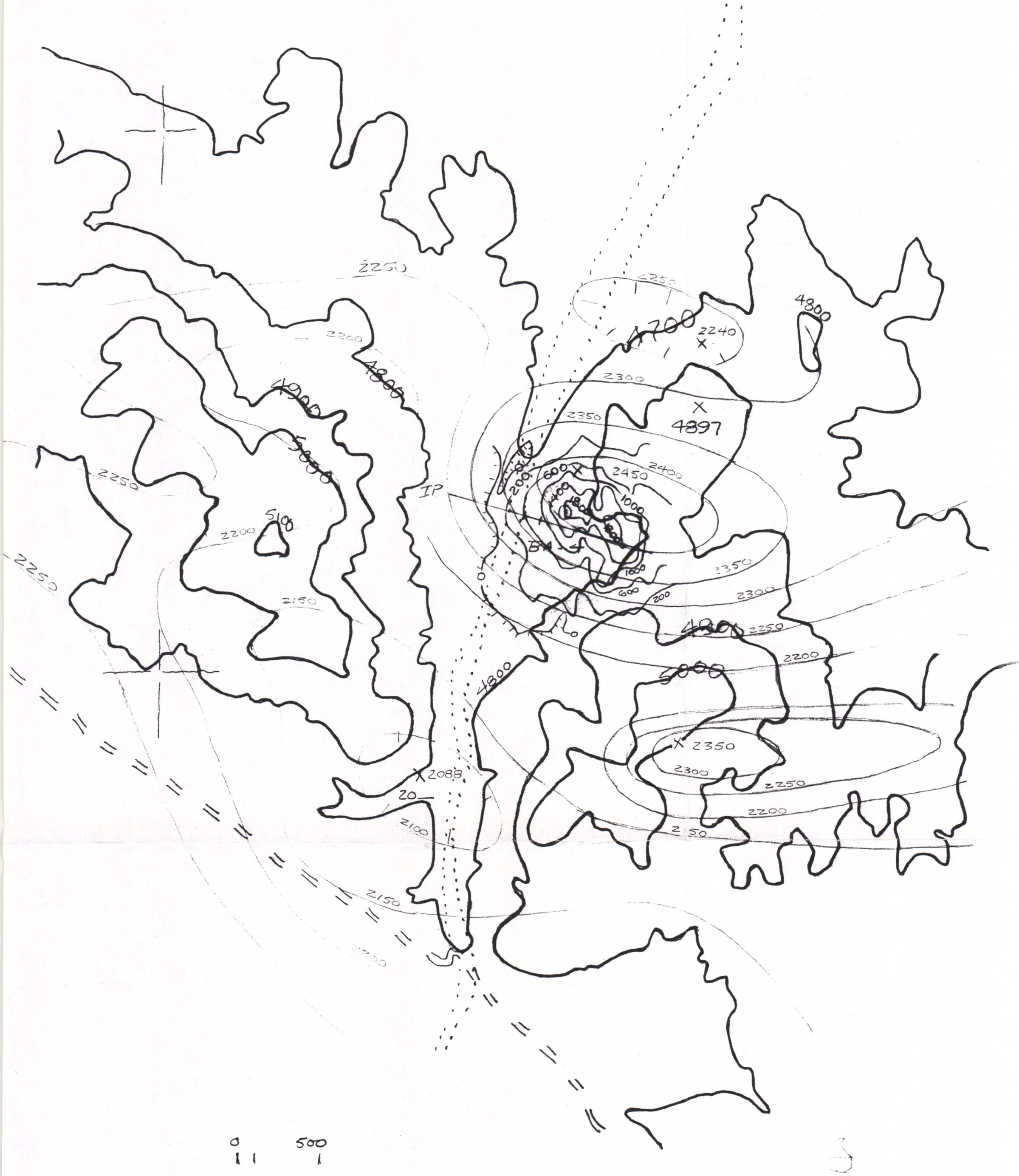
By _____
James J. Johnson

6000 0132 (0760)

Badger

1) see aspens #1

6000 0132 (0760)



0 500

1 inch = 500 ft

BADGER

60000 0132 (0760) (2)

N

1700 N
1600 N
1500 N
1400 N
1300 N
1200 N
1100 N
1000 N
900 N
800 N
700 N
600 N
500 N
400 N

IP LINE

BA4

0 E-W

IDAHO MINING CORPORATION

BADGER

SCALE : 1"= 100'

JALANDER #57102-VERTICAL FIELD

MAG DATA-JUNE, 1965

CONTOUR INTERVAL 200 γ