

HOBART BAY
BIOLOGICAL AND BARK DEPTH SURVEY
CONDUCTED ON 5/4/96
BY BOB EDES

HOBART BAY INTRODUCTION AND METHODS

The diving for the Hobart Bay site was done on 5/4/96 by Bob Boes using sport scuba gear. Bob is a marine biologist with 19 years experience diving in southeast Alaska. Bob earned his degree from the University of Florida. Bob has been teaching scuba and diving Alaska since 1977. He has done many LTF site studies for the Forest Service in the recent past.

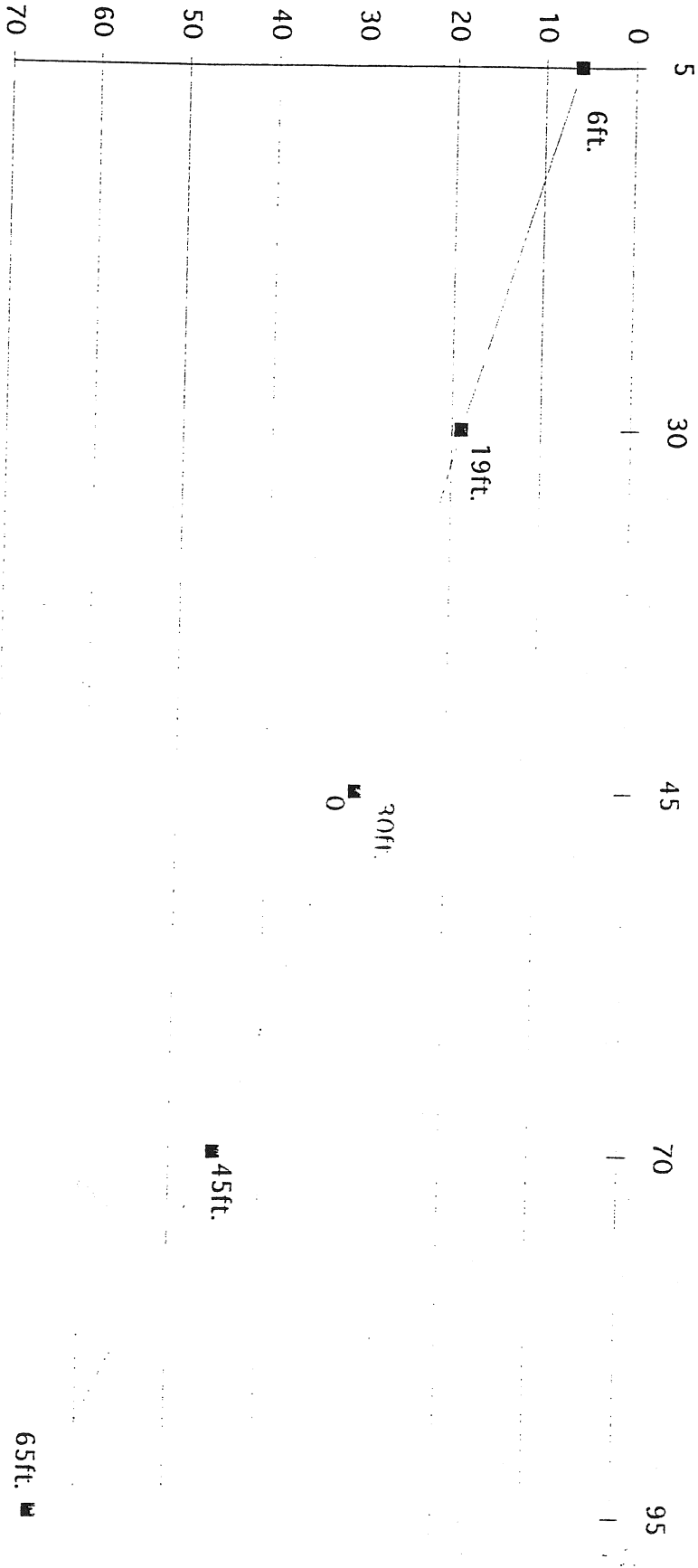
The diving was conducted using traditional sport scuba gear with digital depth gauges. Digital gauges are more accurate than the older style analog gauges, used in the past, so depth readings are more accurate especially in shallower water.

A 300 foot transect tape was laid out along the bottom, to a maximum depth of 75 feet, using predetermined compass headings, established from points on shore. The USFS set up the shore sites using rebar and stakes to mark the beginning of each transect. A total of 15 transects spaced either 50 or 100 feet apart, depending on the shore terrain, were done.

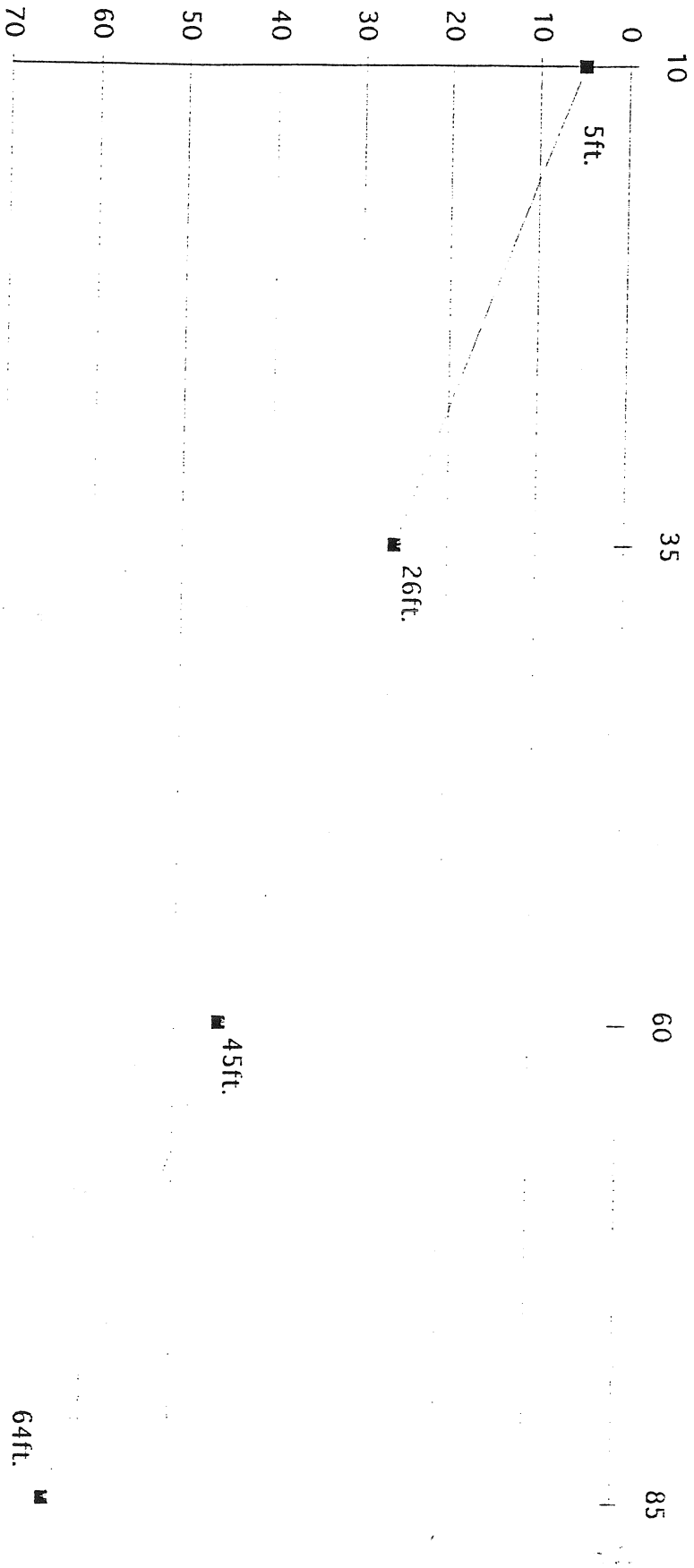
A 3ft. by 3ft. square was established every 25 feet along each 300 foot transect. Bottom composition was noted as well as counting all plant and animal life. Plant life was noted in the type and percentage of coverage along the bottom. Where animals such as acorn barnacles, limpets were too numerous to count they were noted with a plus sign after the number.

Bark depth measurements were taken along each transect at 25 foot intervals. A 1/2 inch aluminum rod marked in centimeters was used to measure the depth. A hole was dug in several places along each transect to make sure bark was being measured not bottom. Bark coverage was shown as either 100% or 50%. Trace was shown when the coverage was less than 50% and less than 10cm deep. Bark is described in the report as either fine, less than 1 inch, chunk, 1 to 5 inches and large for pieces greater than 5 inches. Large debris such as whole logs was noted as such along each transect.

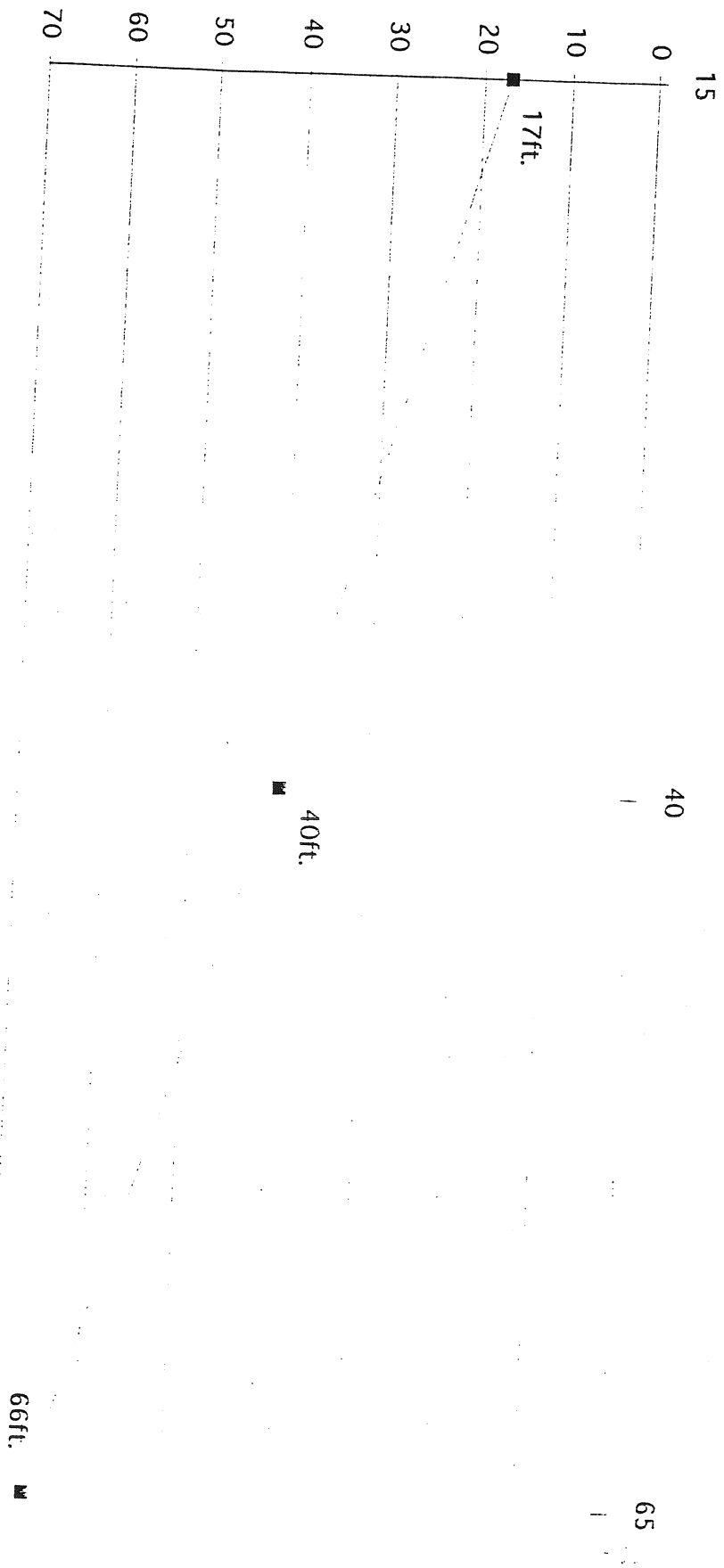
HOBART BAY T #1 DEPTH PROFILE



HOBART BAY T#2 DEPTH PROFILE

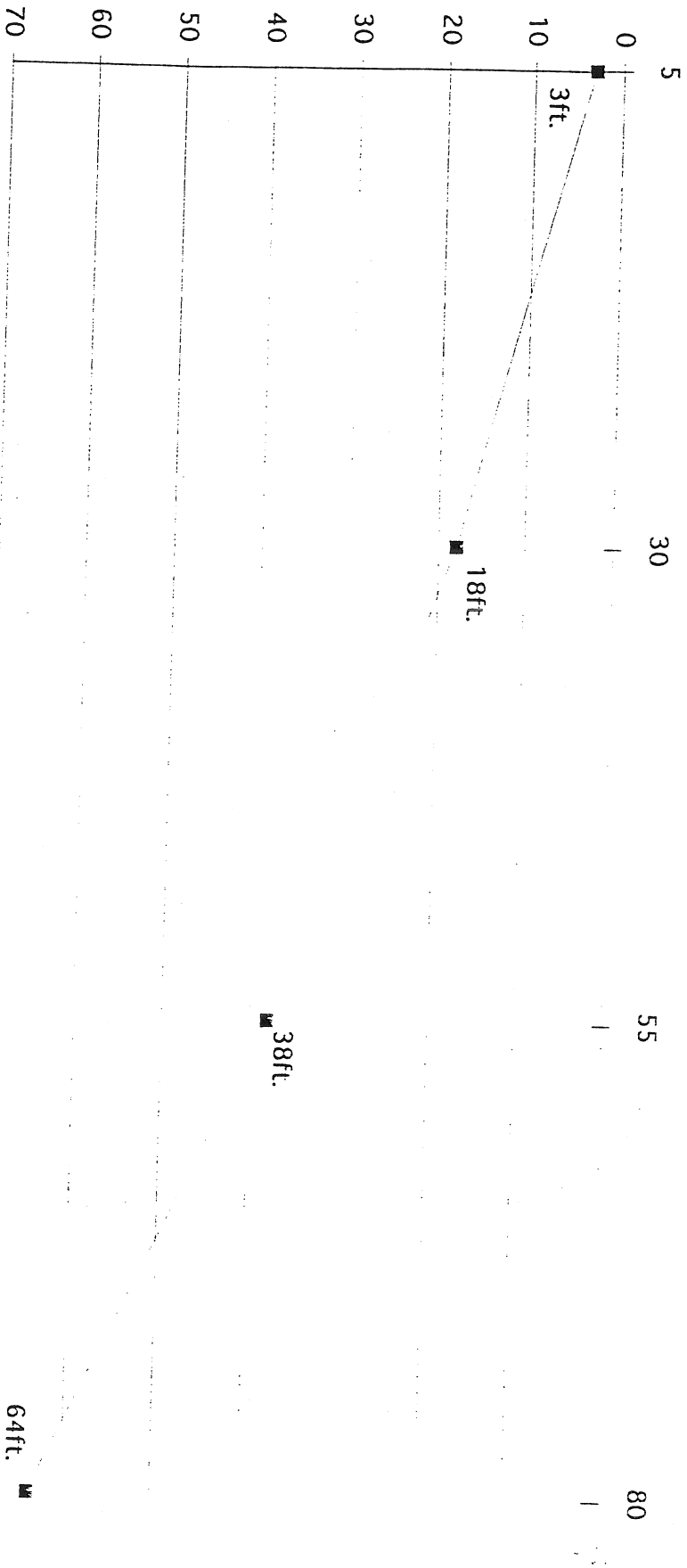


HOBART BAY T/#3 DEPTH PROFILE

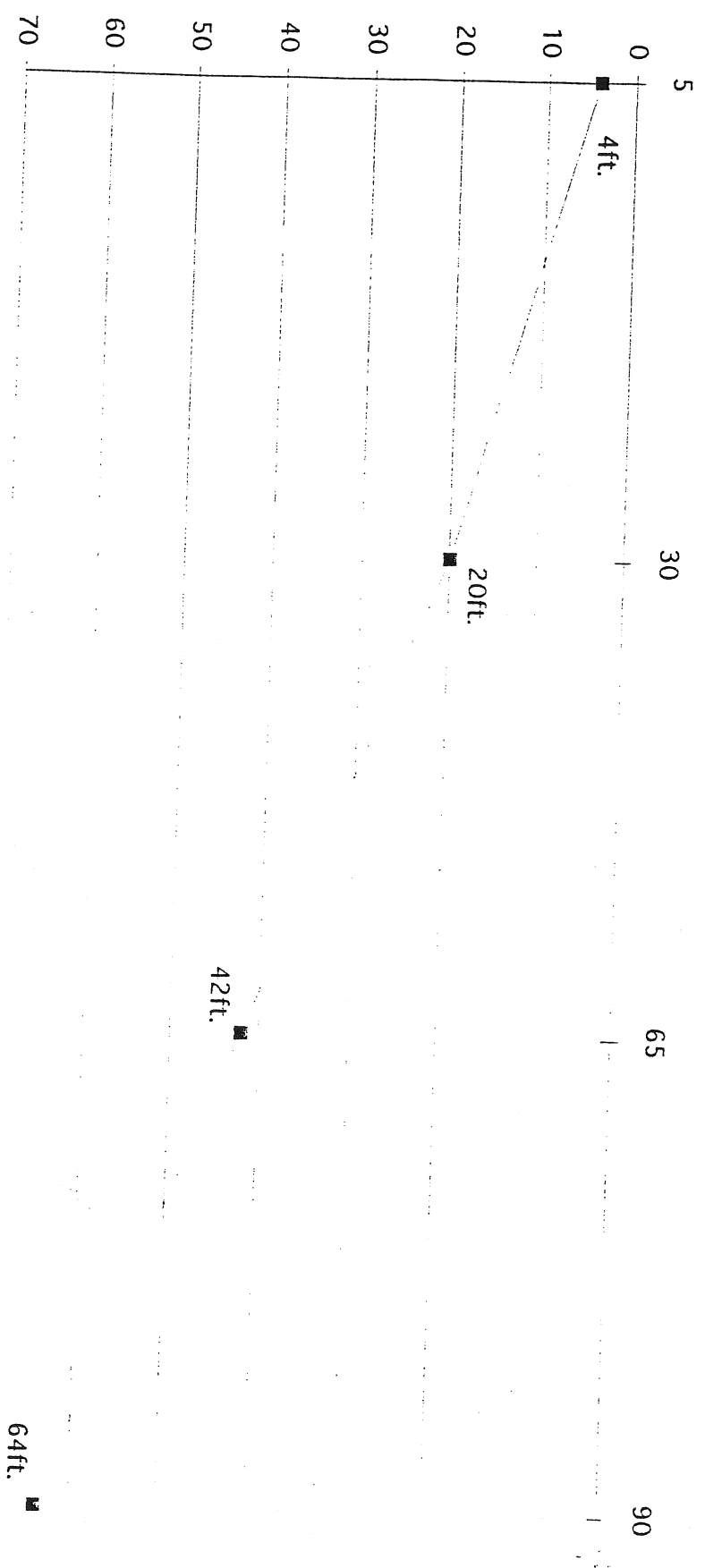


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HOBART BAY T #4 DEPTH PROFILE

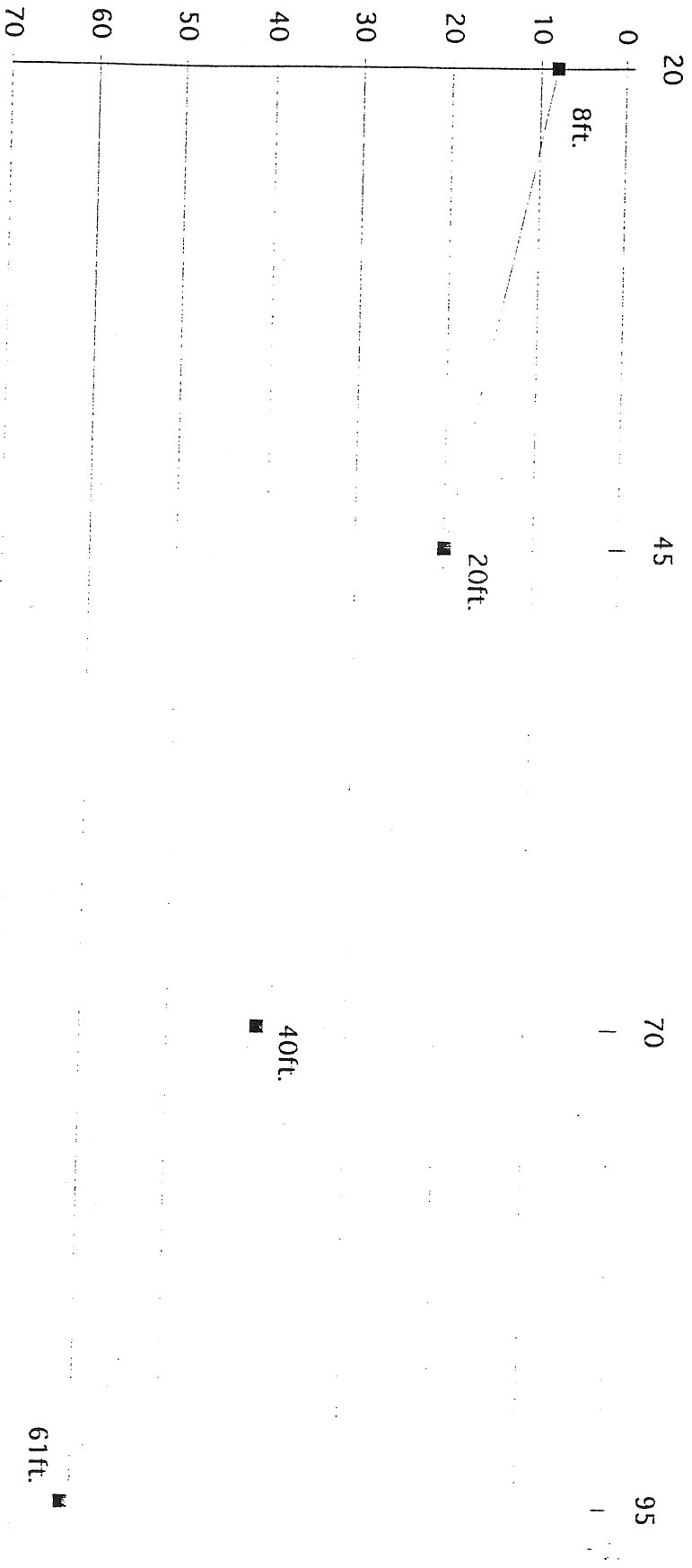


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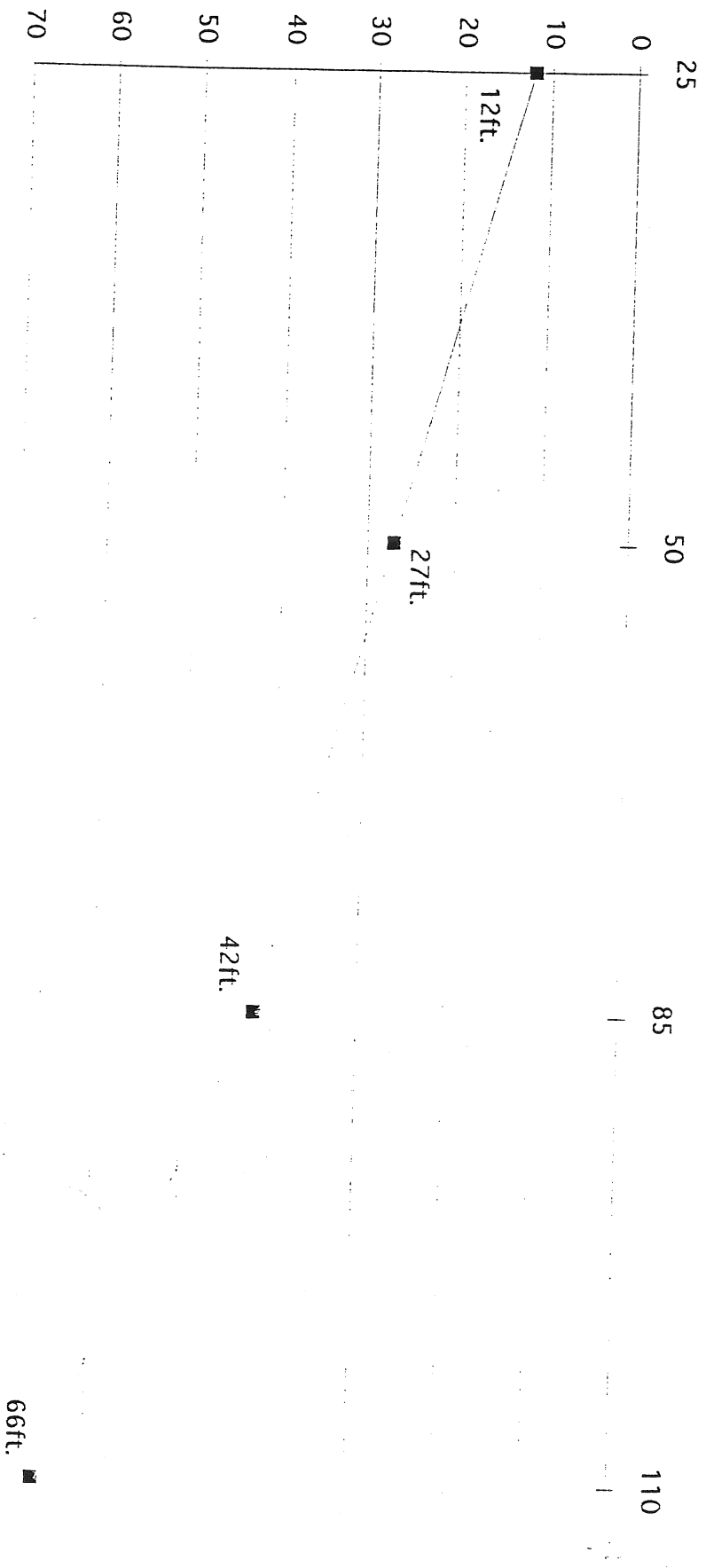
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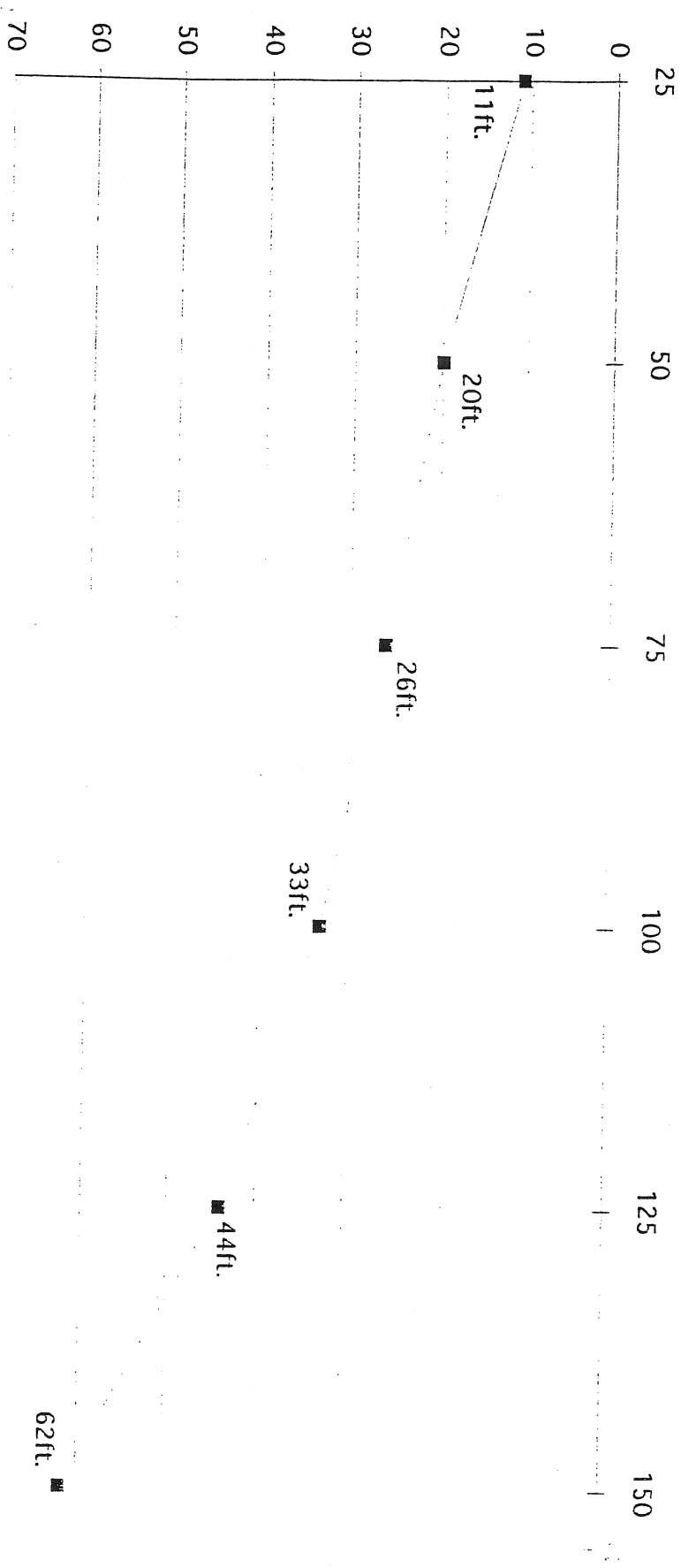


5/4/96

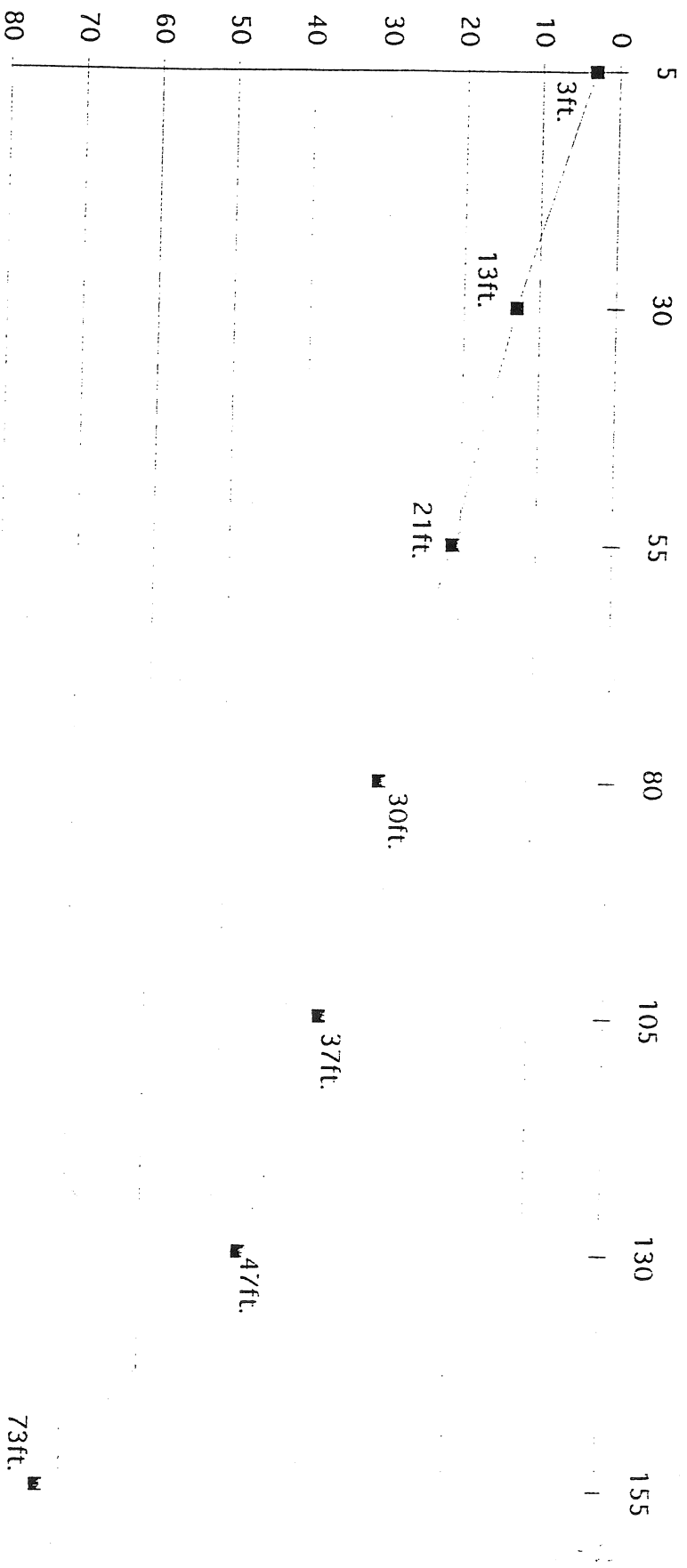
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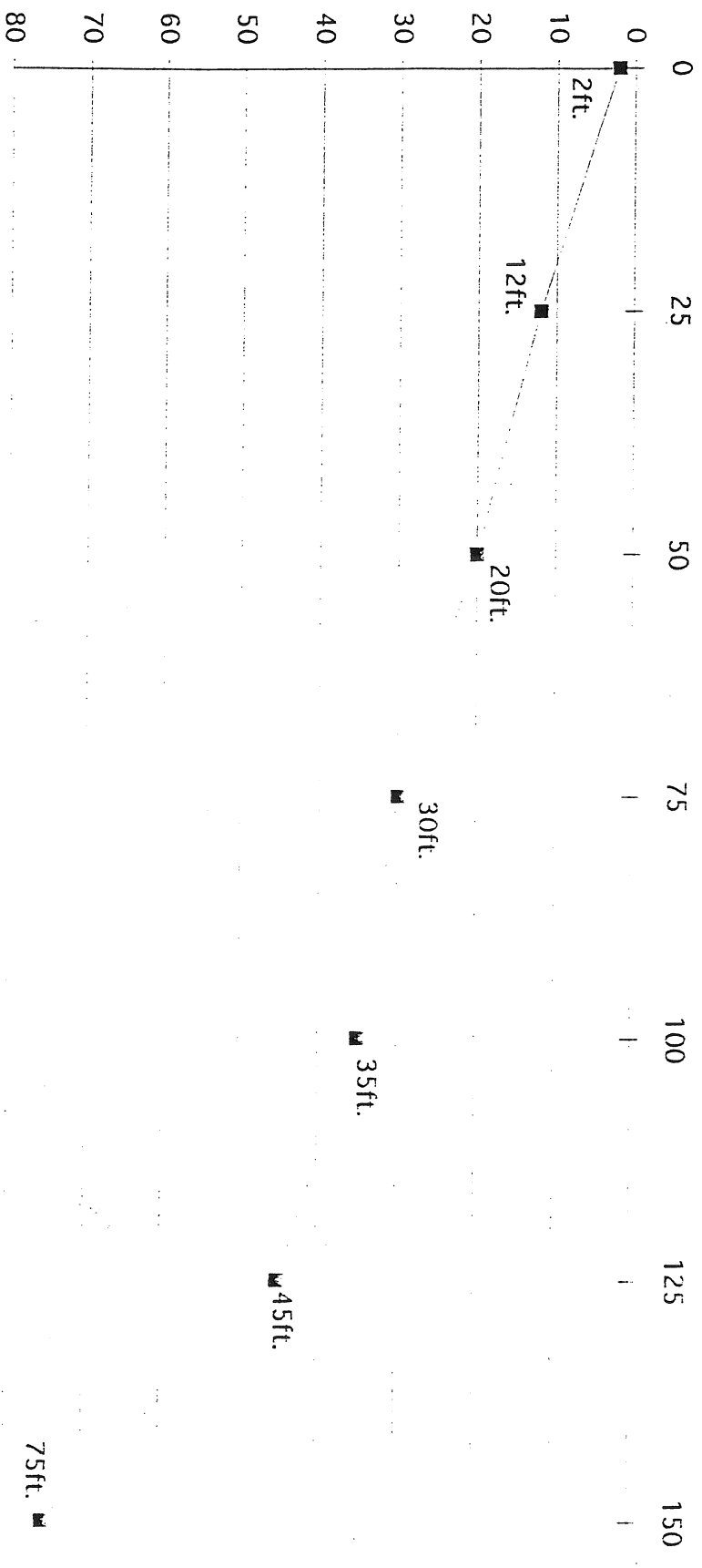
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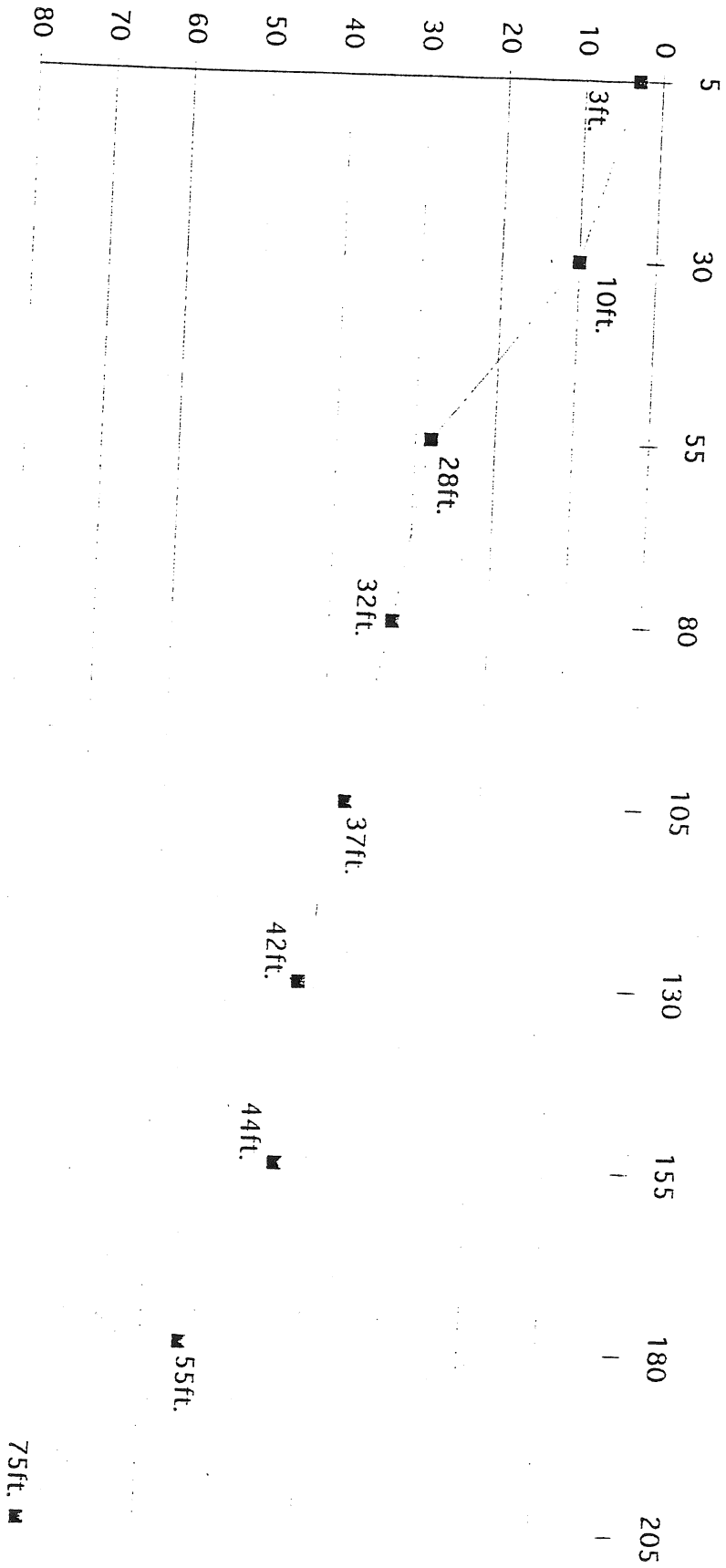
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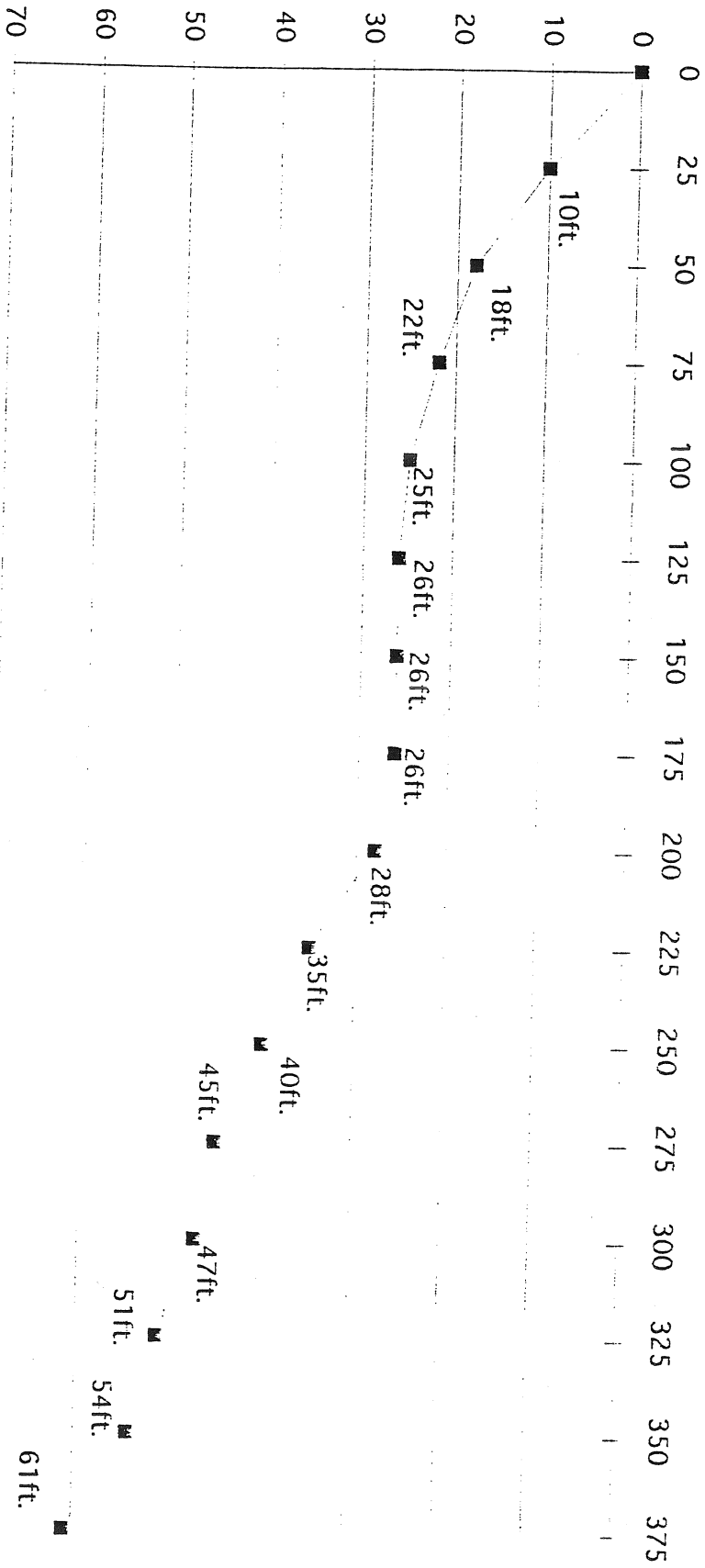
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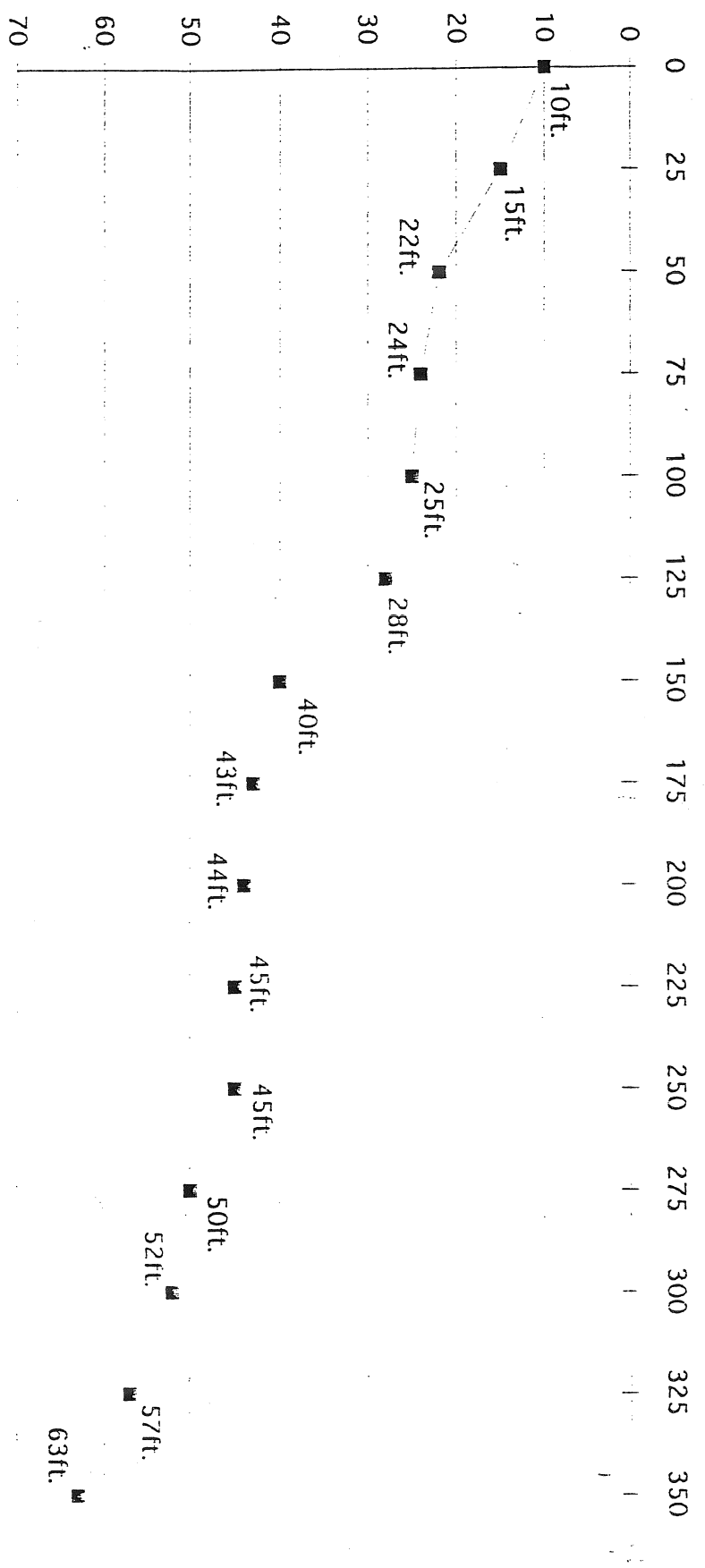
HOBART BAY T #11 DEPTH PROFILE



HOBART BAY T #12 DEPTH PROFILE

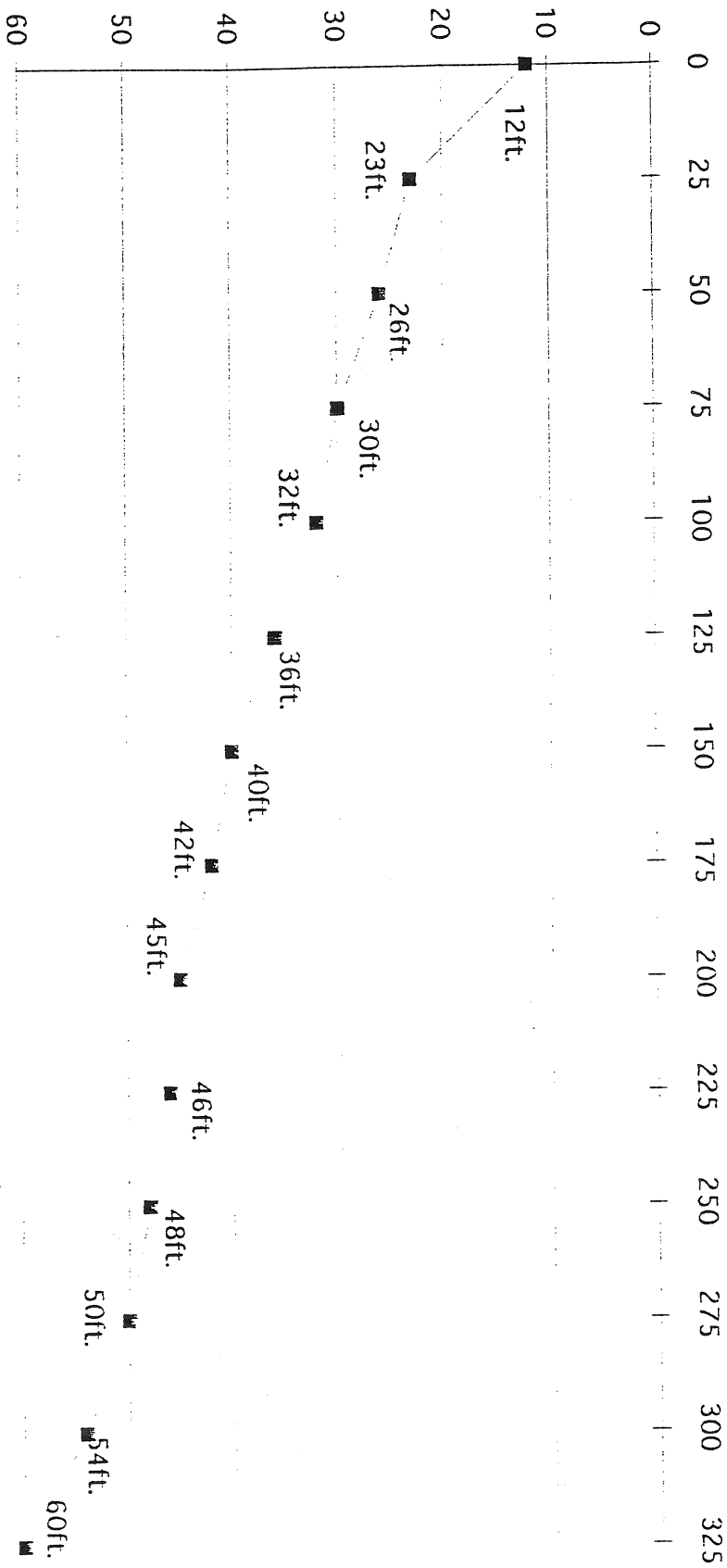


HOBART BAY T # 13 DEPTH PROFILE



5/4/96

HOBART BAY T #15 DEPTH PROFILE



REFERENCE MATERIAL

1. Alaska's Saltwater Fishes and Other Sea Life
Doyme W. Kessler
2. Coastal Fishes of the Pacific Northwest
Andy Lamb and Phil Edgell
3. Tidepool and Reef Marinelife Guide to the Pacific Northwest Coast
Rick M. Harbo
4. Probably More Than You Want to Know About the Fishes of the Pacific Coast
Robin Milton Love
5. Pacific Fishes of Canada
John Lawson Hart
6. Guide to the Coastal Marine Fishes of California
University of California

HOBART BAY CONCLUSION

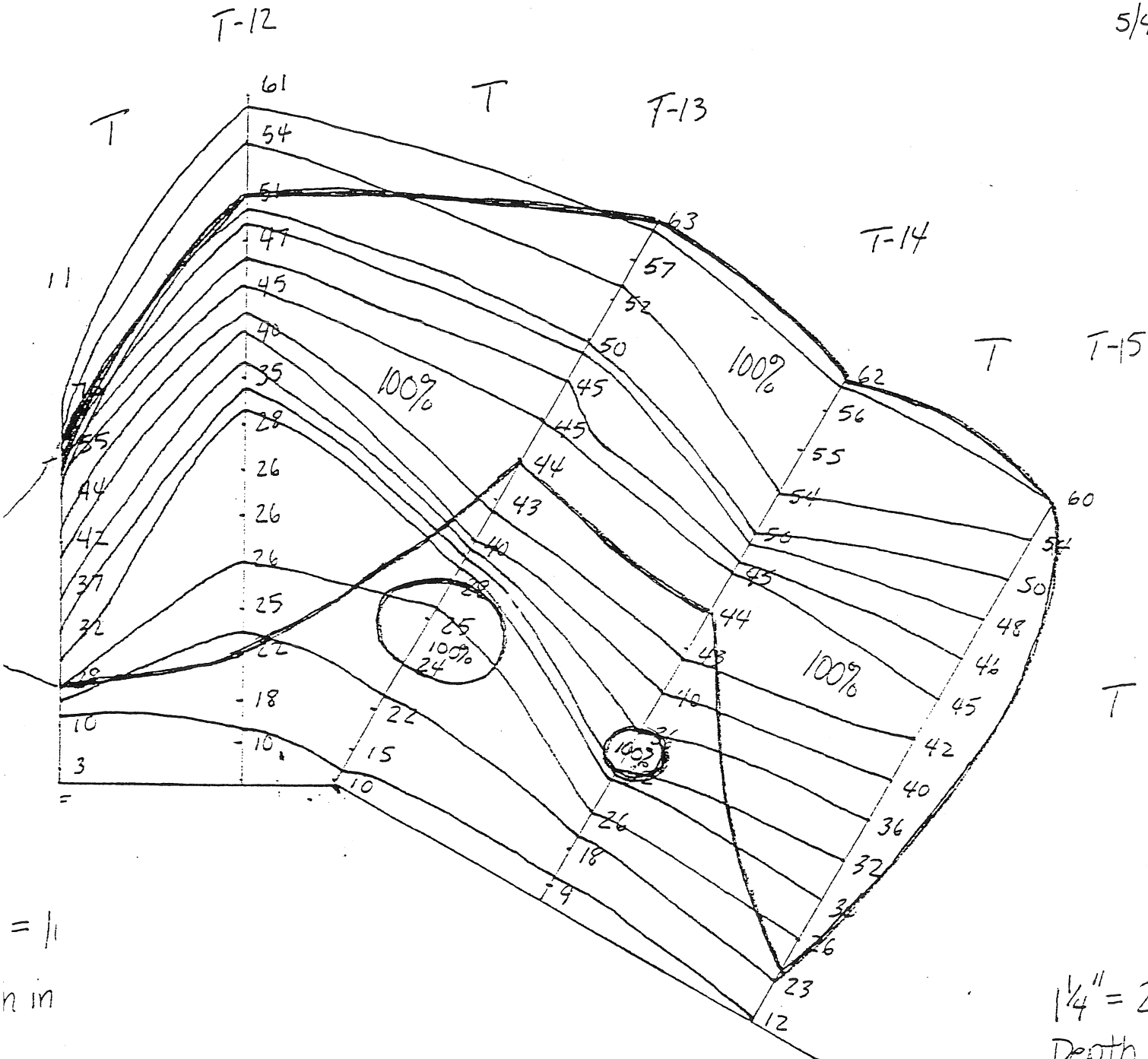
Hobart bay is still being used as an active LTF site. There are several types of methods for logs to enter the water. There is a drive down ramp, a mechanical slide, and an older site that involves a crane. Approximately 350 million board feet of timber has entered the water using all three methods. There is also an older bulkhead that was probably an old LTF site. Because of the scope and size of the area a total of 15 transects were done.

Because of the depth and steepness and strong current, many of the transects showed little signs of life. No significant habitat was found. There was no breeding habitat or commercially valuable species found. The current along all of the area transected was strong. Good flushing action, especially along the deeper transects has kept the bark accumulation to a minimum given the amount of timber that has entered the water. While diving several pelagics including king salmon and a large school of herring were seen. There were also several humpback whales seen feeding just off the floating boom.

The shallower flatter area had the most bark accumulation. Extra long transects were done to reach a depth greater than 60 feet. On all these transects extra area was covered to insure the total area of bark coverage was shown.

There was very little man made debris in the water compared to other sites studied. In conclusion given the amount of timber entering the water, this has been a good area for a LTF site, from the underwater perspective.

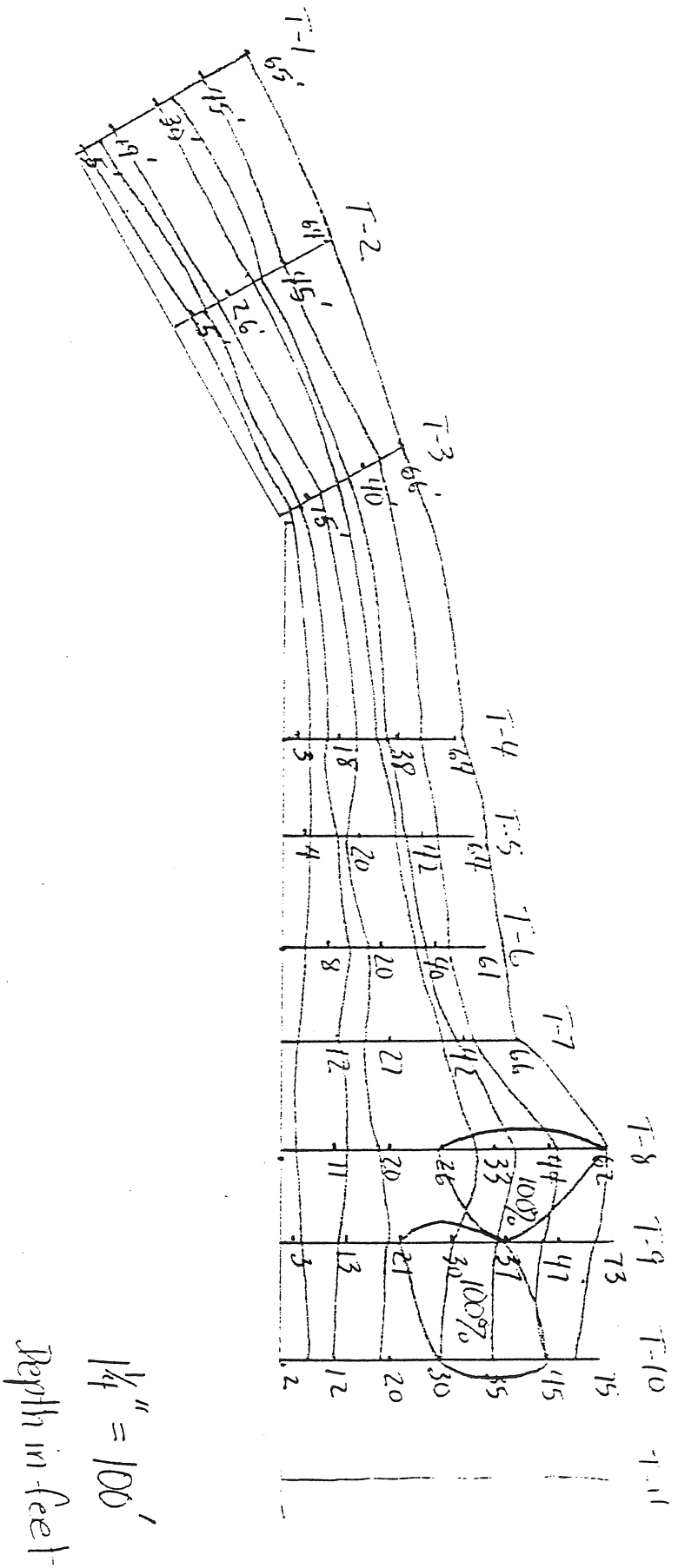
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Contour
5/4/96



= ||
n in

1/4" = 25'
Depth in f

HOLDER 100
 Contours
 Area of 100%
 BARK COVER





C. Kent

Klukwan Forest Products, Inc.

P.O. Box 34659 • Juneau, Alaska 99803-4659

(907) 789-7104 Fax: (907) 789-0675

*sent receipt LTR
on 1-10-92*

December 30, 1991

United States Environmental
Protection Agency
Region 10
1200 Sixth Avenue, WD-135
Seattle, WA 98101

RECEIVED

DEC 31 1991

Department of Environmental Conservation
Southeast Regional Office

Alaska Department of
Environmental Conservation
Southeast Region
410 Willoughby, Suite 105
Juneau, AK 99801

Dear Sirs:

Please find enclosed the 1991 Bark Deposition Monitoring Report for the Hobart Bay II Log Transfer Facility. This report is being submitted on behalf of Goldbelt, Inc. by Klukwan Forest Products in compliance with Permit No. AK-004842-9.

KFP, also in compliance with the NPDES Permit, reports there were no observed oil sheens during the course of KFP's operation of this Facility.

Please be advised KFP no longer is operating in Hobart Bay and this represents the final report for KFP. There may be, however, subsequent operators in Hobart Bay as authorized by Goldbelt, Inc.

Sincerely,

Ronald R. Wolfe
Ronald R. Wolfe
Chief Forester

RRW:acp

cc: Rich Dwyer, Goldbelt, Inc.

**MONITORING OF BARK DEPOSITION
AT HOBART BAY II
LOG TRANSFER FACILITY**

AUGUST 21-22, 1991

**by
RONALD R. WOLFE, CHIEF FORESTER
KLUKWAN FOREST PRODUCTS
AND
JOHN LACHELT, COMMERCIAL DIVER
CHANNEL DIVE CENTER**

OBJECTIVE

The objective of "Monitoring of Bark Deposition" the Hobart Bay II log transfer facility is to determine the areal extent, thickness and percent coverage of bark, in compliance with EPA Permit No. AK-004842-9. This report is the final report for Klukwan Forest Products' operation of the Goldbelt, Inc. facility, and is a continuance of the sampling system established in October, 1988 by Ellis and Calvin.

HISTORY OF USE OF THE FACILITY

Bundles of logs were first put into the water in August, 1988 and, as of July, 1990, approximately 106 MMBF (82% hemlock, 18% spruce) passed over the facility. Operations of this facility were temporarily concluded by KFP in April, 1991. However, Goldbelt may at some point in time in the future resume the transfer of logs at this facility. Between July, 1990 and April, 1991 an additional 20 MMBF was transferred at the facility for a total of 126 MMBF being transferred over the facility to date.

Approximately 70% of the volume was hemlock and the remaining 30% of the volume was spruce.

METHODS

The monitoring system installed by Ellis and Calvin in 1988 as previously reported consists of four permanent transects with 20 permanent bark gauges at sampling stations (Figure 1 of Ellis report 1990). The transects begin near shore and extend out to water depths of 60 feet or to the outer limit of bark deposition. There was no need to add an additional transect as the four transects adequately defined in the limits of 100% coverage with bark debris. Ellis and Calvin between 1989 and 1990 found it necessary to add a fourth transect with four gauging stations (Figure 1, Stations 20, 21, 22 & 23).

Each station that could be located was visited and observed bark depth reported in Table 1. Percent coverage was made by estimate by the observer.

RESULTS

The observed limits of 100% cover of debris are the same as Ellis and Calvin found in 1990 and is shown in Figure 1.

TABLE 1

Hobart Bay Dive Observations
for Bark Monitoring

Dive 8/21/91 and 8/22/91

Station Number	Bark Depth	Estimated Percent Coverage of Bark at Gauge Station
TRANSECT #1		
1	gone	deposition approx. 90 cm 100% coverage
2	40 cm	100% coverage
3	20 cm	100% coverage
4	13 cm	75% coverage
5	gone	mostly sand
TRANSECT #2		
6	Not Found	
7	50 cm	100% coverage
8	40 cm	75% coverage
9	30 cm	75% coverage
10	-0-	
TRANSECT #3		
11	-0-	
12	-0-	
13	-0-	
14	10 cm	15% coverage
15	-0-	mostly sand
16	-0-	mostly sand
TRANSECT #4		
20	-0-	mostly sand
21	3 cm	50% coverage, mostly sand
22	-0-	mostly sand
23	5 cm	50% coverage, mostly sand

(Note: There are no existing Stations 17, 18 or 19.)

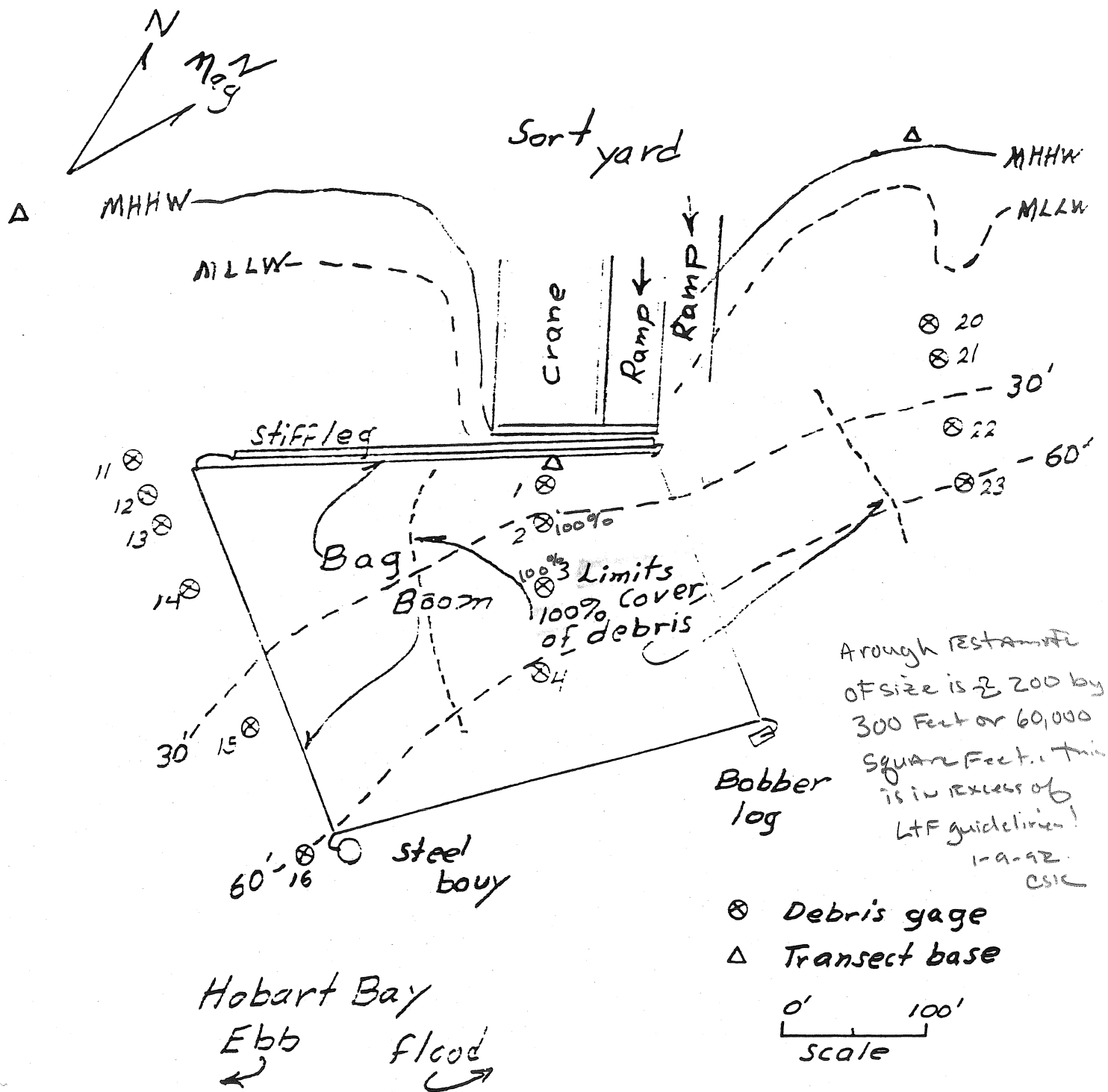


Figure 1. Locations of transects and sampling sites for monitoring bark debris at the Hobart Bay 2 log transfer facility, and approximate limits of 100% cover of wood debris, 26-28 July 1990.

MONITORING OF BARK DEBRIS AT HOBART BAY 2
LOG TRANSFER FACILITY
JULY 1990

By

Robert J. Ellis and Natasha I. Calvin
P.O. Box 2966, Sitka, Alaska 99835

For

Goldbelt, Incorporated
Goldbelt Place, Suite 300
801 West 10th Street
Juneau, Alaska 99801

MONITORING OF BARK DEBRIS AT THE HOBART BAY 2
LOG TRANSFER FACILITY
26 - 28 JULY 1990

OBJECTIVE

The objective of "monitoring bark deposition" at the Hobart Bay 2 log transfer facility is to determine "areal extent, thickness, and percent coverage of bark debris", in compliance with EPA Permit No. AK-004842-9. To accomplish this we designed and installed a sampling system in October 1988.

HISTORY OF USE OF THE FACILITY

Bundles of logs were first put into the water here in August 1988. Since then, a total of 106 MMBF (82% hemlock, 18% spruce) has passed over the Hobart Bay 2 Log transfer facility.

METHODS

The monitoring system installed in 1988 consists of three permanent transects with 16 permanent debris gages at sampling stations (Figure 1). The transects are situated to define limits of 100% coverage with bark debris and may be moved or expanded if experience warrants. The transects begin near shore and extend out to water depths of 60 feet or to the outer limit of expected bark deposition.

Details of our method of monitoring the bark debris are presented in "Proposal: A Plan to Monitor Woody Debris at the Hobart Bay 2 Log Transfer Facility", by Robert J. Ellis and Natasha I. Calvin, 1988.

Briefly, the method involves use of permanent vertical gages installed on the bottom along three transects situated adjacent to the dump face. The gages are two foot long sections of white plastic pipe marked at 10 centimeter intervals, and supported by rebar rods. Data are obtained by divers reading the height of debris on each gage.

Other measurements of debris depth are made with a hand held ruler. We objectively determine percent coverage by debris (when less than complete or 100%) by using a 6 foot length of wire marked at regular intervals to provide 20 points. The sampler is cast randomly within one meter of the gage station and the diver counts points intersecting woody debris.

BARK DEBRIS IN 1990

We dived and sampled bark debris at the Hobart Bay 2 facility on 26, 27 and 28 July, 1990. The locations of sampling transects and gages relative to the transfer facility are shown in Figure 1. The approximate limits of 100% cover of wood debris at the time we sampled are also shown in Figure 1. The depth of woody debris and percent coverage by woody debris at sampling sites along each transect are shown in Table 1.

Because Transect 2 had reached 100% cover of debris in 1989, we abandoned that transect in 1990 and installed a new one, Transect 4, 100 feet east of it (toward the head of the bay). Transect 1 in front of the dump now has up to 100 centimeters of accumulated debris. We were unable to continue measurements on Transect 1 beyond about 75 feet from the dump due to extremely low visibility (as low as one foot).

As in 1989, bark debris completely covers the bottom within the bag boom down to 60 foot depth.

FUTURE OBSERVATIONS

The Hobart Bay 2 facility will next be monitored in summer, 1991.

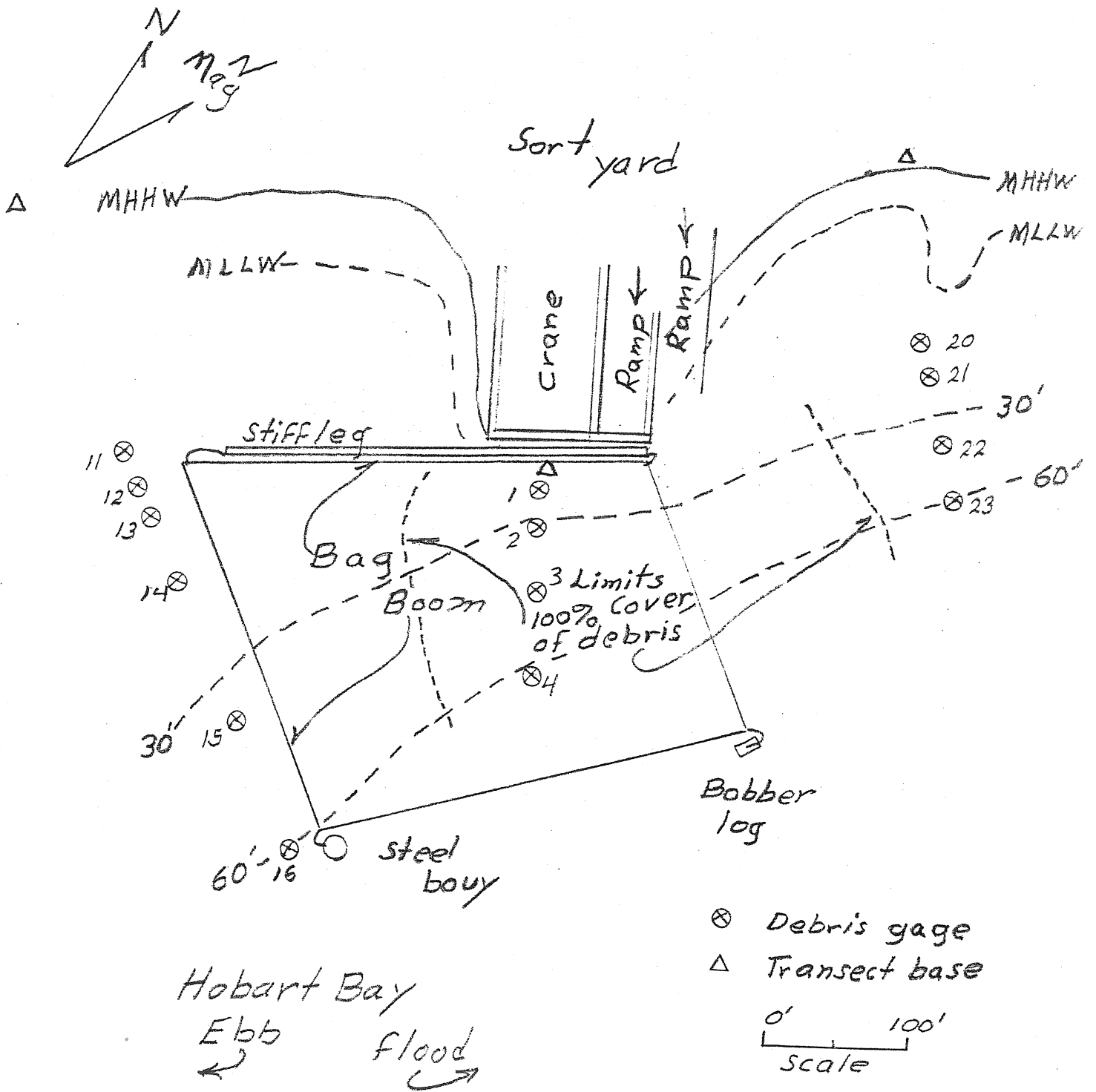


Figure 1. Locations of transects and sampling sites for monitoring bark debris at the Hobart Bay 2 log transfer facility, and approximate limits of 100% cover of wood debris, 26-28 July 1990.

Table 1. Depth and percent cover of bark debris on the ocean bottom at the Hobart Bay 2 log transfer facility on 26-28 July 1990.

<u>Transect No.</u>	<u>Station No.</u>	<u>Woody Debris Cover %</u>	<u>Debris Depth cm</u>	<u>Notes</u>
1	1	100	70	(1)
	2	100	100	
3	11	<1	<1	scattered debris
	12			not found
	13	<5	<5	
	14	40	<5	
	15	15	<5	
	16	10	<1	(2)
4	20	0	--	
	21	35	<1	
	22	20	<1	
	23	20	<1	

(1) Visibility was so poor on Transect 1 that we could not use the permanent gages on this transect, or continue observations beyond about 75 feet on the transect line.

(2) Gage showed 5 cm inorganic silt.

MONITORING OF BARK DEBRIS AT HOBART BAY 2

LOG TRANSFER FACILITY

SEPTEMBER 1989

By

Robert J. Ellis and Natasha I. Calvin

For

Goldbelt Inc.

SUMMARY

The Hobart Bay 2 log transfer facility began operation in August 1988, and by September 1989 had passed about 55 MMBF of timber (82% hemlock, 18% spruce) into the water. The area of bottom completely covered by bark debris is restricted to a radius of about 150 feet from the face of the dump. Maximum depths observed were 30 and 45 centimeters (about 14 inches).

MONITORING OF BARK DEBRIS AT THE HOBART BAY 2

LOG TRANSFER FACILITY

2 to 4 SEPTEMBER 1989

OBJECTIVE

The objective of "monitoring bark deposition" at the Hobart Bay 2 log transfer facility is to determine "areal extent, thickness, and percent coverage of bark debris", in compliance with EPA Permit No. AK-004842-9. To accomplish this we designed and installed a sampling system in October 1988.

HISTORY OF USE OF THE FACILITY

Bundles of logs were first put into the water here in August 1988. Since then, a total of 55 MMBF (82% hemlock, 18% spruce) has passed over the Hobart Bay 2 log transfer facility.

METHODS

The monitoring system installed in 1988 consists of three permanent transects with 16 permanent debris gages at sampling stations (Figure 1). The transects are situated to define limits of 100% coverage with bark debris and may be moved or expanded if experience warrants. The transects begin near shore and extend out to water depths of 60 feet or outer limit of expected bark deposition.

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Other measurements of debris depth are made with a hand held ruler. We objectively determine percent coverage by debris (when less than complete or 100%) by using a 6 foot length of wire marked at regular intervals to provide 20 points. The sampler is cast randomly within one meter of the gage station and the diver counts points intersecting woody debris.

BARK DEBRIS IN 1989

We dived and sampled bark debris at the Hobart Bay 2 facility on 2,3 and 4 September. The locations of sampling transects and gages relative to the transfer facility are shown in Figure 1. The depth and percent of bottom covered by woody debris along each transect are shown in Table 1.

Bark debris now completely covers the bottom within the bag boom down to 60 feet depth, and extends somewhat beyond the boom to the east. This includes most of the bottom described by a 150 foot radius centered at the face of the log bulkhead. Within the area of 100% cover of debris the depth of debris ranged from 1 to 45 centimeters.

FUTURE OBSERVATIONS.

We will monitor the Hobart Bay 2 facility next in summer, 1990. At that time, another transect should be installed north of Transect 2 to define limits of coverage in that direction.

Table 1. Depth and percent cover of bark debris on the ocean bottom at the Hobart Bay 2 log transfer facility on 2 to 4 September, 1989.

<u>Transect</u> <u>No.</u>	<u>Station</u> <u>No.</u>	<u>Woody</u> <u>Cover %</u>	<u>Debris</u> <u>Depth cm</u>	<u>Notes</u>
1 (1)	1	100	30	Many large pieces
	2	100	45	
	3	100	20	
	4	100	15	
	5	---	---	
2	6	100	10	
	7	100	10	
	8	100	7	
	9	100	3	
	10	100	2	
3	11	<1	< 1	Traces of bark debris
	12	---	---	
	13	<5	< 5	
	14	15	< 5	
	15	20	< 5	
	16	1	---	

(1) Visibility was so poor we could not use the permanent gages. Debris depth data are from readings on a meter stick.

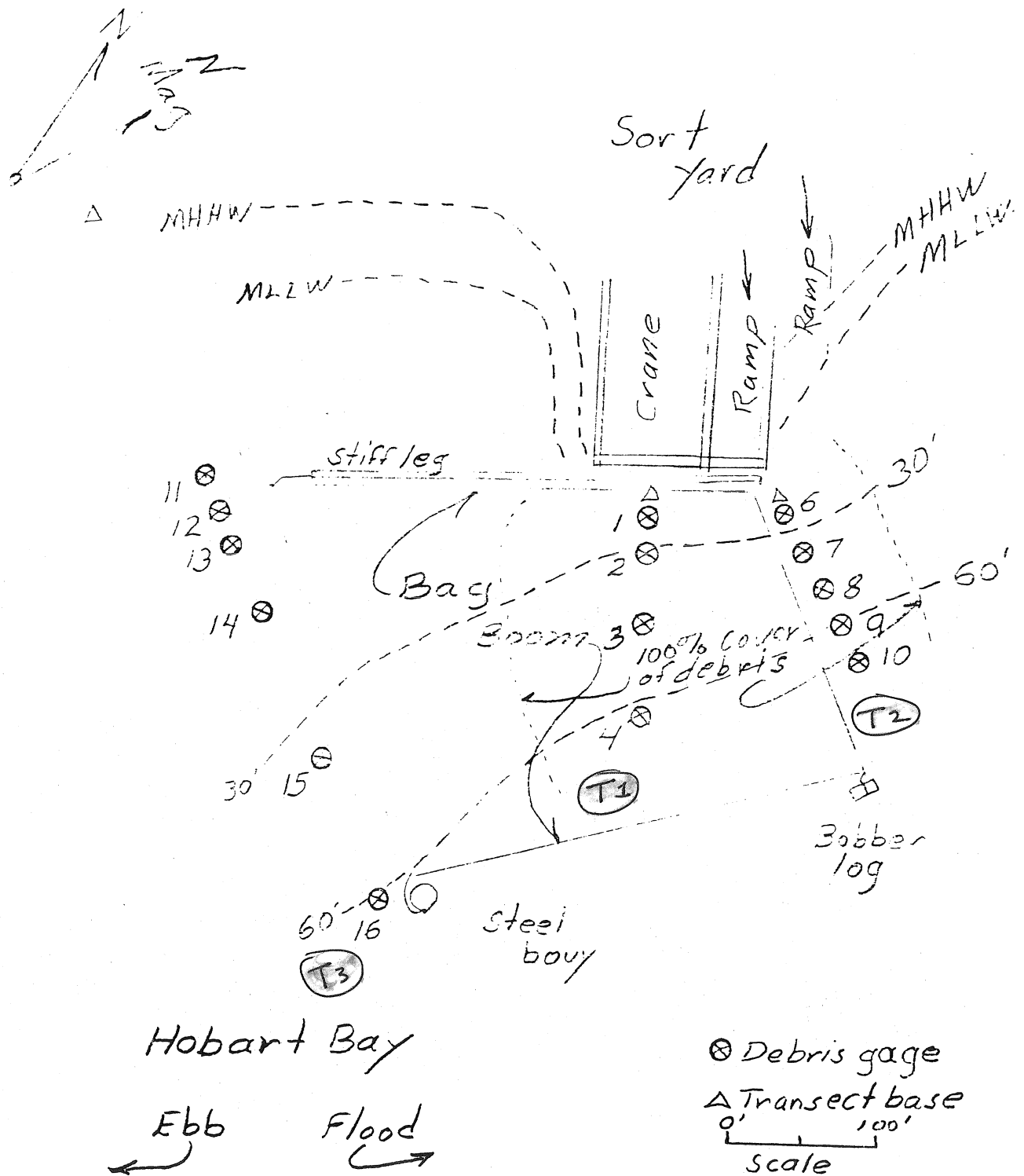


Figure 1. Locations of transects and sampling sites for monitoring bark debris at the Hobart Bay 2 log transfer facility, 2 - 4 September 1989.