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FILE ENVIRO

<b>FROM:</b> Pacific Gas & Electric Company San Francisco, Cal. 94106 F. T. Searls	<b>DATE OF DOC:</b> 5-8-73	<b>DATE REC'D</b> 5-10-73	<b>LTR</b> x	<b>MEMO</b>	<b>RPT</b>	<b>OTHER</b>
<b>TO:</b> Gordon K. Dicker	<b>ORIG</b> 1 signed	<b>CC</b>	<b>OTHER</b>	<b>SENT AEC PDR</b> x <b>SENT LOCAL PDR</b> x		
<b>CLASS:</b> (U) PROP INFO	<b>INPUT</b>	<b>NO CYS REC'D</b> 1	<b>DOCKET NO:</b> 50-275 <u>50-323</u>			

**DESCRIPTION:**

Ltr trans the following:

**ACKNOWLEDGED**  
**DO NOT REMOVE**

PLANT NAMES: Diablo Canyon Units 1 & 2

**ENCLOSURES:**

APPLICANT'S Responses to Comments submitted by the Department of the Interior & the State of California on the Draft Enviro Statement notarized 5-7-73 & (2) Drawings as supplementary info in connection with our responses to Environmental Protection Agency comments

(3 signed & 47 conf'd cys response & 50 cys ea Dwgs)

FOR ACTION/INFORMATION

5-10-73 LB

BUTLER(L)	SCHWENCER(L)	ZIEMANN(L)	YOUNGBLOOD(E)
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OGC, ROOM P-506A	SCHROEDER	GAMMILL	NUSSBAUMER	G. WILLIAMS	E
MUNTZING/STAFF	MACCARY	KASTNER		SHEPPARD	E
CASE	KNIGHT	BALLARD	LIC ASST.		
GIAMBUSSO	PAWLICKI	SPANGLER	SERVICE	L	A/T IND
BOYD	SHAO		WILSON	L	BRAITMAN
V. MOORE-L(BWR)	STELLO	ENVIRO	GOULBOURNE	L	SALTZMAN
DEYOUNG-L(PWR)	HOUSTON	MULLER	SMITH	L	
SKOVHOLT-L	NOVAK	DICKER	GEARIN	L	PLANS
P. COLLINS	ROSS	KNIGHTON	DIGGS	L	MCDONALD
	IPPOLITO	YOUNGBLOOD	TEETS	L	DUBE
REG OPR	TEDESCO	REGAN	LEE	L	
FILE & REGION(2)	LONG	PROJ LEADER	MAIGRET	L	INFO
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EXTERNAL DISTRIBUTION

1-LOCAL PDR San Luis Obispo, Cal.	(1) NATIONAL LAB'S ORNL	1-PDR-SAN/LA
1-DTIE(ABERNATHY)	1-R. CARROLL-C, GT-B227	1- GERALD LELLOUCHE
1-NSIC(BUCHANAN)	1- R. CATLIN, E-256-GT	BROOKHAVEN NAT. LAB
1-ASLB-YORE/SAYRE	1- CONSULTANT'S	1-AGMED(WALTER KOESTER,
WOODWARD/H ST.	NEWMARK/BLUME/AGABIAN	RM C-427, GT)
16-CYS ACES HOLDING	1- GERLAD ULRIKSON....ORNL	1- RD...MULLER...F-309C



Regulatory

File Cy.

# PACIFIC GAS AND ELECTRIC COMPANY

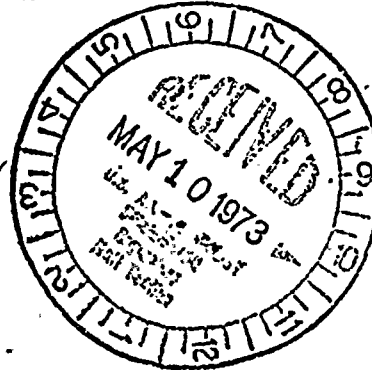
PG&E + 77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211

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ROBERT L. HARRIS  
ATTORNEYS

U. S. Atomic Energy Commission  
Washington, D. C. 20545

Attention: Mr. Gordon K. Dicker, Chief  
Environmental Projects Branch 2  
Directorate of Licensing

Re: Dockets 50-275, 50-323  
Diablo Canyon Site  
Units 1 and 2

Gentlemen:

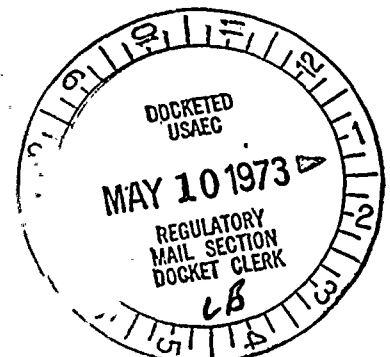
Enclosed are 3 signed and 47 conformed copies of our responses to comments submitted by the Department of the Interior and the State of California on the Draft Environmental Statement for Units 1 and 2 at the Diablo Canyon Site. Also enclosed are 50 copies each of two drawings submitted as supplementary information in connection with our responses to the Environmental Protection Agency.

Kindly acknowledge receipt of the above material on the enclosed copy of this letter and return it to me in the enclosed addressed envelope.

Very truly yours,

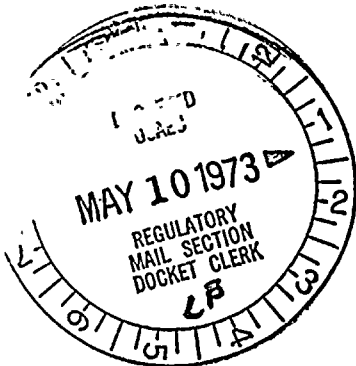
*F. T. Searls*

Enclosures



3066





Regulatory

File Cy.  
File Cy.

Received w/Lt. 5-8-73

UNITED STATES OF AMERICA  
ATOMIC ENERGY COMMISSION



In the Matter of )

PACIFIC GAS AND ELECTRIC COMPANY )

(Diablo Canyon Site - Units 1 and 2) )

Docket No. 50-275

Docket No. 50-323

Pacific Gas and Electric Company hereby submits its responses to comments submitted by the Department of the Interior and the State of California on the Draft Environmental Statement for Units 1 and 2 at the Diablo Canyon Site. The comments covered in this response are those forwarded by the AEC with letters of transmittal dated April 4, and April 19, 1973.

Also enclosed are copies of the following drawings:

1. General Layout of Breakwaters.
2. Theoretical X-Sections of Soundings Between  
East and West Breakwaters.

These drawings are submitted as supplementary information in connection with PGandE's responses to Environmental Protection Agency comments on the AEC Draft Environmental Statement. Responses to these comments were included with the submittal to the Commission dated March 21, 1973. These drawings relate to the Environmental Protection Agency comments concerning



the velocity of water entering the intake cove (page 12, paragraph 2 of EPA comments dated February, 1973).

Subscribed in San Francisco, California, this 7th day of May, 1973.

Respectfully submitted,

PACIFIC GAS AND ELECTRIC COMPANY

By J. D. WORTHINGTON  
J. D. Worthington  
Senior Vice President

FREDERICK T. SEARLS  
JOHN C. MORRISSEY  
PHILIP A. CRANE, JR.

By PHILIP A. CRANE, JR.  
Philip A. Crane, Jr.

Subscribed and sworn to before me  
this 7th day of May, 1973

THEODORA COOKE (SEAL)  
Theodora Cooke, Notary Public in  
and for the City and County of  
San Francisco, State of California

My Commission expires January 28, 1977



[The body of the document contains several paragraphs of text that are extremely faint and illegible due to the quality of the scan. The text appears to be organized into multiple sections, possibly separated by headings or subheadings, but the specific content cannot be discerned.]



PG&E has reviewed the comments on the Draft Environmental Statement submitted by the United States Department of the Interior and the State of California and submits the following responses:

1. United States Department of the Interior  
Letter of March 28, 1973

Historic and Natural Landmarks

Requests that the "... statement should assess the impact of plant construction on the archeological resources identified and discuss steps that will be taken to preserve or salvage archeological values."

PG&E Response

PG&E's responses to other agency comments, submitted March 23, 1973, contained a statement on the archaeological investigations. This was in response to comments by the Advisory Council on Historic Preservation.

Breakwater Construction in South Cove

- a) Comments that "... no effort has been made in the statement to evaluate the population of seals existing prior to construction and that expected to exist when construction is completed."

PG&E Response

Observations by Clifton of harbor seal activity in the Diablo area are contained in the PG&E Environmental Report, Supplement 2, Appendix I, pages 116-137. Clifton reported a resident population of about 40; the largest numbers being observed in the morning and evening and at low tide. However, systematic observations of harbor seals in the Cove have not been made by PG&E. Harbor seals have been observed by PG&E staff biologists on numerous occasions in 1971, 1972, and 1973. For example, a midday observation on April 8, 1973, counted 17 harbor seals. California Department of Fish and Game conducts periodic counts of seals, sea lions, and sea otters along the California coast.

- b) Comments: "The deposition of silt in South Cove as a result of intake construction activities and the biotic degradation of the cove should be described and quantified to the extent possible."



#### PG&E Response

The effects of silt deposition on benthic biology are discussed on Pages IV-E-27 to IV-E-29 of Supplement No. 2 to PG&E's Environmental Report. Depths of silt observed during reconnaissance surveys in March and April of 1972 are also described. During subsequent construction, some additional silting has occurred. The attached drawings show silt depths recorded during a survey on March 31, 1973.

Intake construction is now almost complete, and cofferdam removal is scheduled to take place soon. This action is not expected to create any significant changes in the silt depths that are shown on the attached drawings.

#### Aquatic Impact

Comments that survival rates of transplanted abalone should be indicated.

#### PG&E Response

In general, survival rates were above 80 percent, except for those abalone which were cut during removal (less than 10% of the total transplanted). Many legal-sized abalone were removed by sports fishermen immediately after transplanting.

#### Effects of Temperature

- a) Comments in third paragraph that: "Since one of the largest kelp beds is found directly in front of and near the discharge, we think an element of uncertainty should be reflected as to the significance of the impacts."

#### PG&E Response

PG&E's Environmental Report, Supplement 2, pages IV - E-50 to IV - E-52 contains a discussion of temperature effects on kelp. A kelp density investigation and continued monitoring program is being conducted in the Diablo area by PG&E biologists.

- b) Recommends in fourth paragraph that the section comparing Diablo Canyon and Morro Bay flora and fauna be deleted and ". . . no attempt be made to compare these two very different situations."

#### PG&E Response

The similarities between Morro Bay and Diablo Cove flora and fauna are considered by PG&E to be more marked than the dissimilarities. PG&E's Environmental



Report, Supplement 2, Table IV-E-15, pages IV-E-43 to IV-E-48, presents the species shared by the two locations. If species found in the "transitional region" and the "normal region" of Morro Bay are considered together (see Table 5.18 of the AEC Draft Environmental Statement), comparison with Diablo Cove species shows even more similarities.

The difference in the amount of heat released to the cooling water from the Diablo Canyon Units and from the fossil - fired Morro Bay Units has been taken into account by PG&E in the prediction of marine ecological effects in Diablo Cove.

- c) Comments in the fifth paragraph that: "In-cove fish larvae densities computed from off-the-coast samples are not acceptable, nor are figures for computed losses based on such hypothetical densities."

#### PG&E Response

It should be noted that during plant operation the cooling water will be drawn from the offshore area outside the breakwaters, through South Cove. Consequently, use of offshore fish larval density data is appropriate. In the absence of larval fish density data in the 70 to 150 foot depth waters immediately outside the breakwater, California Cooperative Oceanic Fisheries Investigations (CalCOFI) data was used as the basis for computing loss estimates. PG&E is planning to conduct larval fish density studies in the waters immediately outside the breakwater entrance.

#### Conclusions and Recommendations

##### PG&E Response to Recommended Stipulation No. 1

Post-operational environmental monitoring programs will be conducted by PG&E as required by the appropriate agencies and as defined in the "Environmental Technical Specifications" contained in the AEC Operating License. PG&E has and will continue to cooperate with these agencies in developing the details of the monitoring program and the Environmental Technical Specifications.

PG&E continues to recognize its obligations for mitigation of significant adverse environmental effects.

##### PG&E Response to Recommended Stipulation No. 2

PG&E believes it is improper for the license for Units 1 and 2 to include a stipulation prohibiting future units at the Diablo Canyon site. Future units should be evaluated on their own merits.



2. State of California  
Letter of April 3, 1973

- a) Comment concerning displacement of harbor seal caused by breakwater construction.

PG&E Response

See preceding response to similar comment by U.S. Department of the Interior.

- b) Comment concerning siltation in South Cove.

PG&E Response

See preceding response to similar comment by U.S. Department of the Interior.

- c) Comment concerning differences between species composition at Morro Bay and Diablo Canyon.

PG&E Response

See preceding response to similar comment by U.S. Department of the Interior.

- d) Comment questioning use of fish egg and larval data from CalCOFI stations.

PG&E Response

See preceding response to similar comment by U.S. Department of the Interior.

- e) Comment concerning need to perform onsite studies on entrainment to adequately assess losses of larval fish and eggs.

PG&E Response

As stated in response to a preceding comment by Interior, PG&E plans to conduct larval fish density studies in the waters immediately outside the breakwater entrance. In addition, it is planned to develop a program for determining susceptibility of eggs and larval fish to entrainment and the mortality resulting from entrainment.

- f) Comment concerning need for documentation of expected plankton loss and larval fish loss during heat treatment.





PG&E Response

Estimates of annual larval fish loss due to entrainment during heat treatment were obtained from a larval fish density of 1.1 fish/m<sup>3</sup>, 48 hours/year of heat treatment per unit at a flow of 485 ft<sup>3</sup>/sec, and assuming 100 percent mortality from  $\Delta T = 50^{\circ}\text{F}$  during the 48 hours (most of this time would be in build-up to  $\Delta T = 50^{\circ}\text{F}$ , in practice).

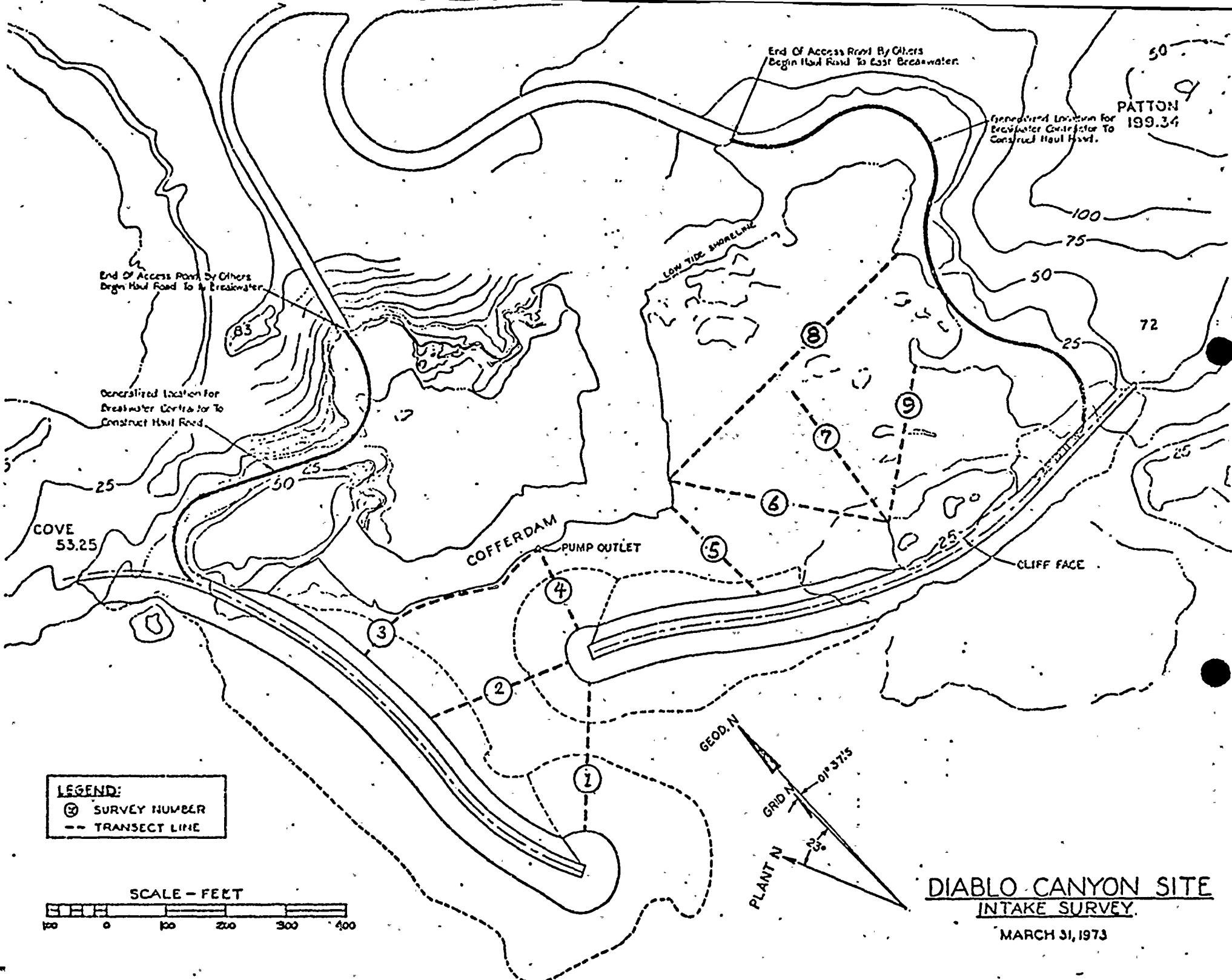
Zooplankton loss was calculated in a similar fashion, using 0.305 g/m<sup>3</sup> biomass concentration in the intake water.

- g) Comment concerning "Preoperational Aquatic Surveys" and "Studies Planned by California Fish and Game."

PG&E Response

Comment No. 50, of PG&E's comments on the Draft Environmental Statement, recommended a complete revision of the description of marine biological studies that is contained on page 6-2 of the Draft Statement. This revision gave a more precise and complete description of the marine studies that have been completed and are continuing in the Diablo area.

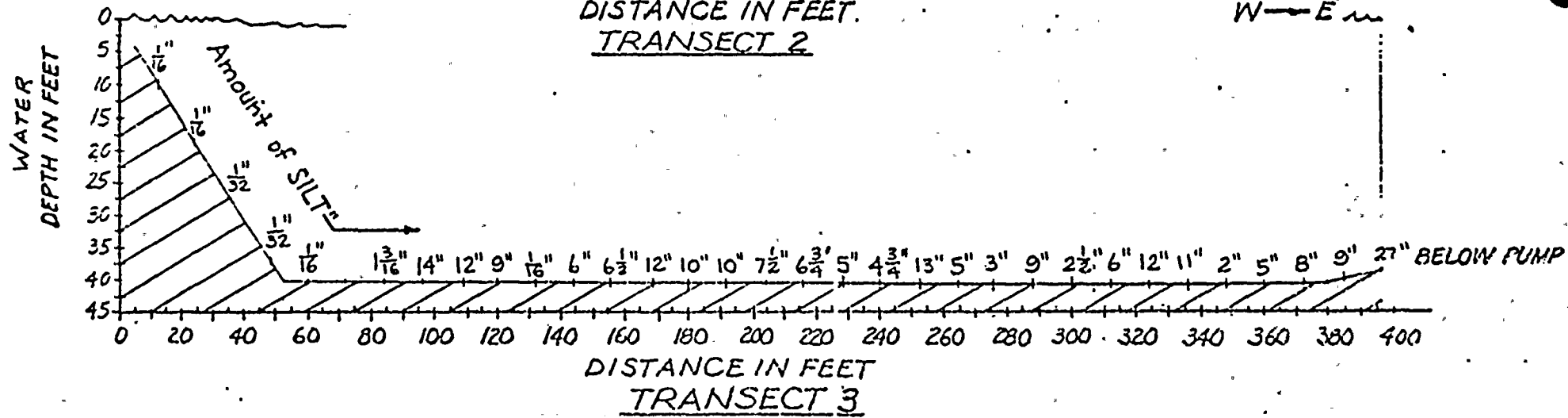
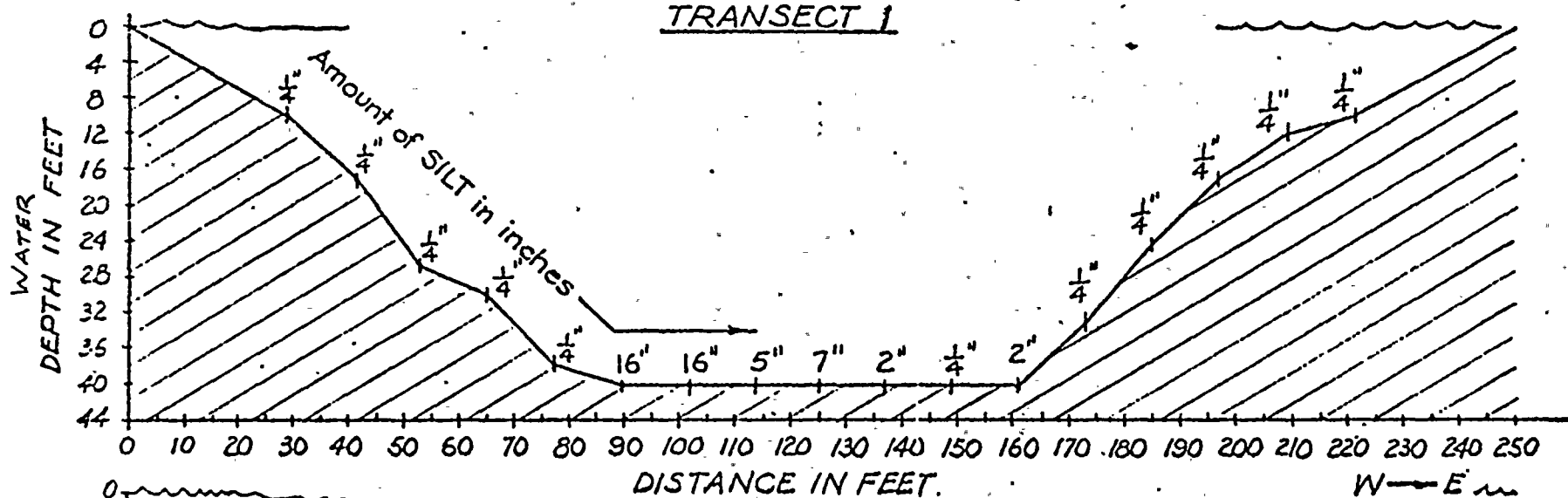
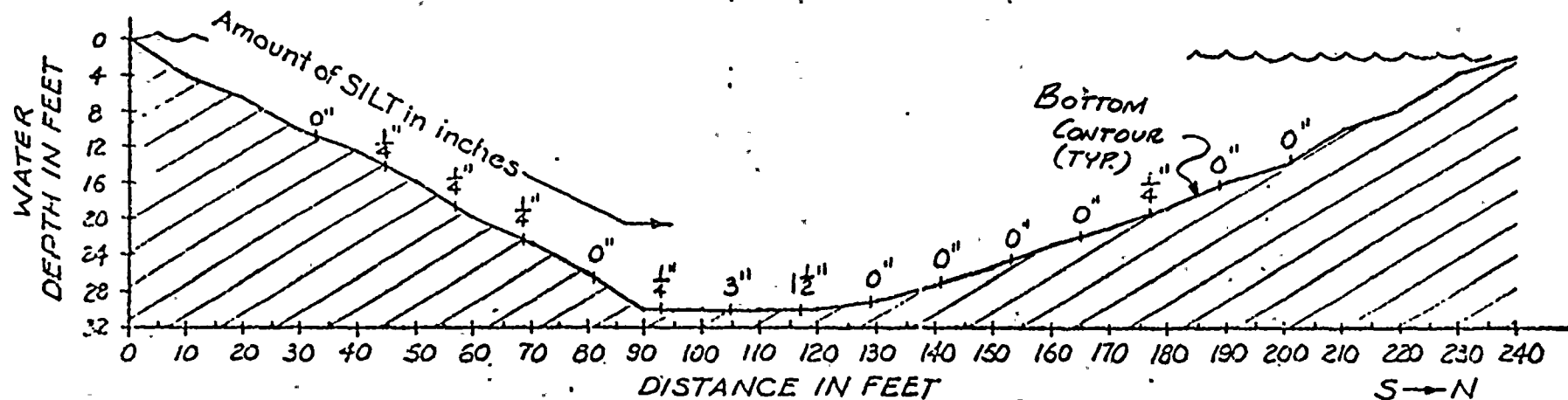






# DIABLO CANYON INTAKE SURVEY

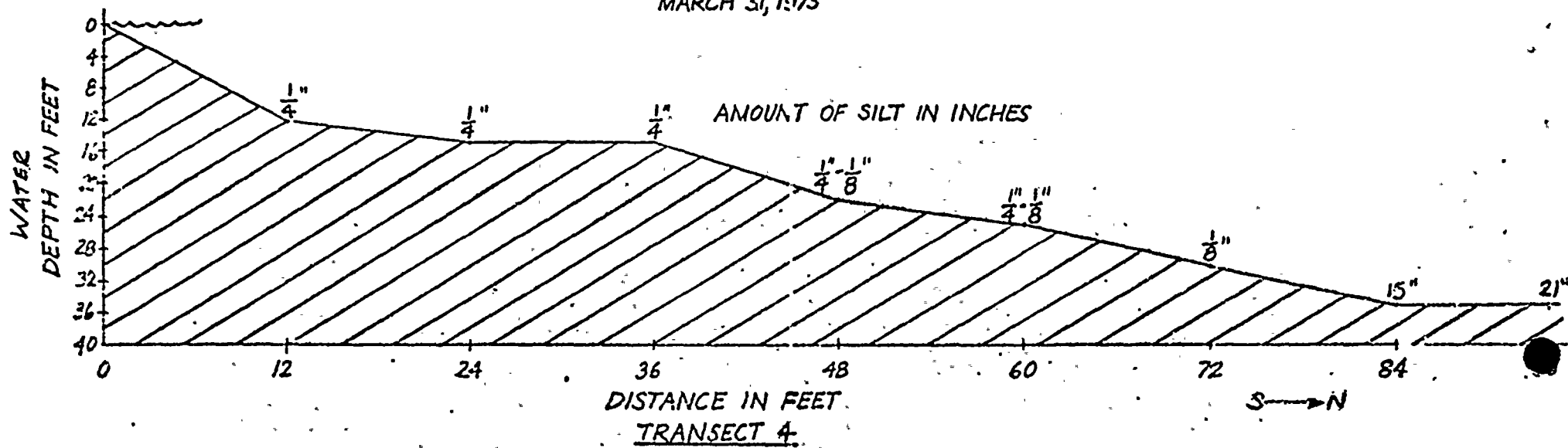
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# DIABLO CANYON

MARCH 31, 1973

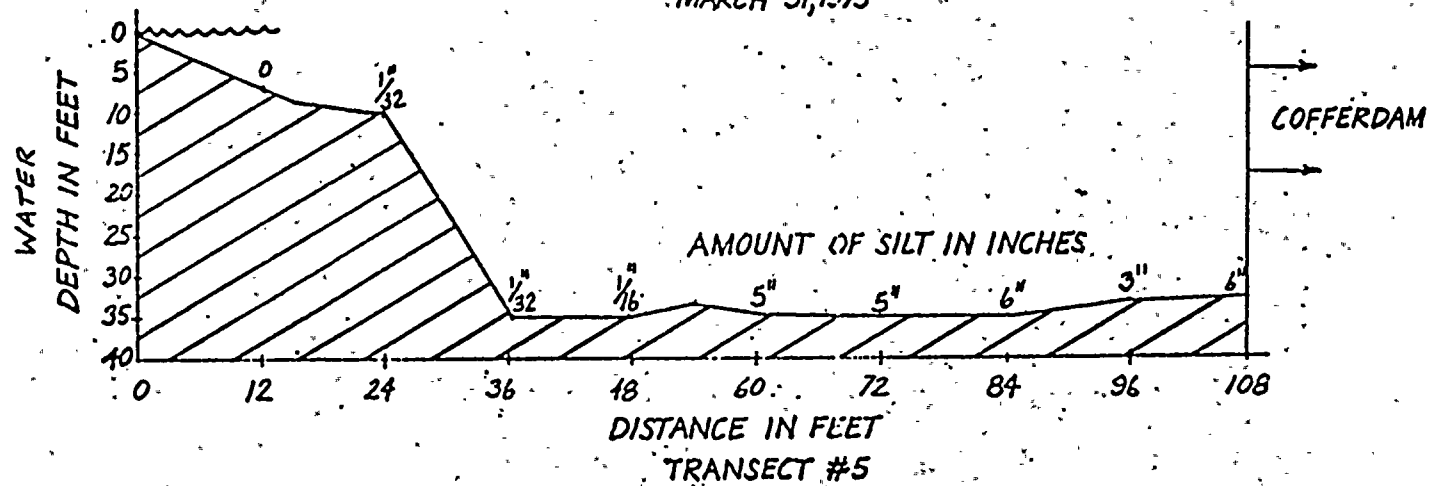






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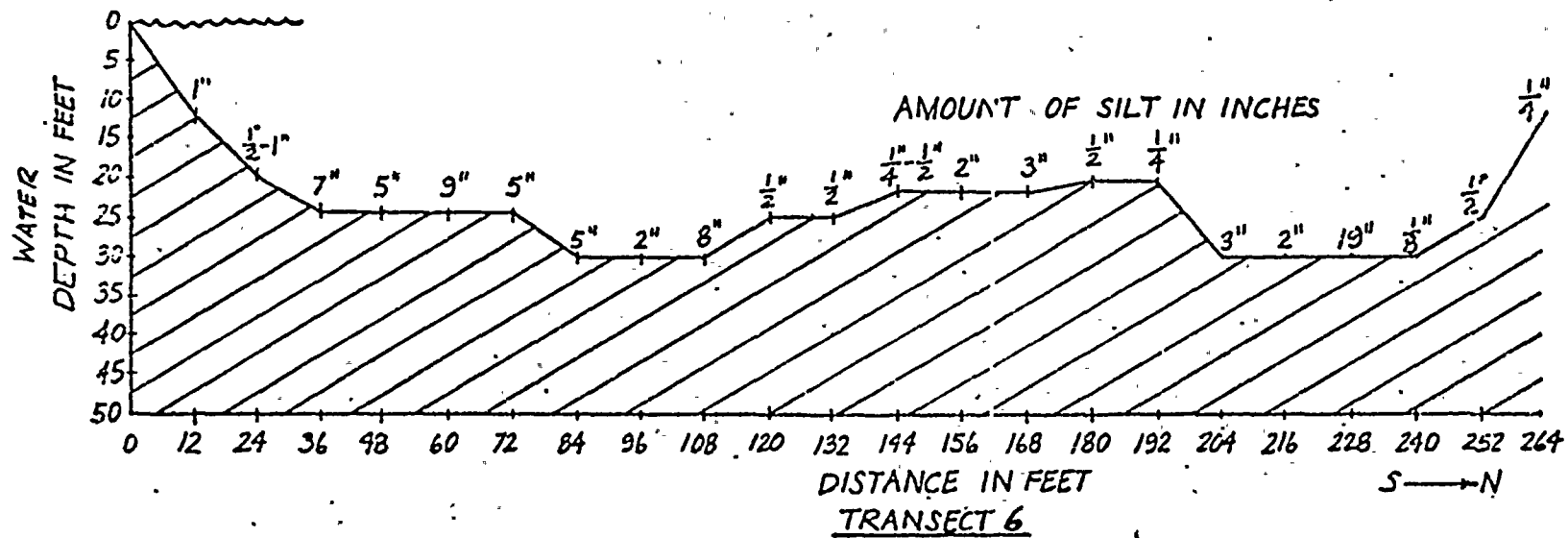
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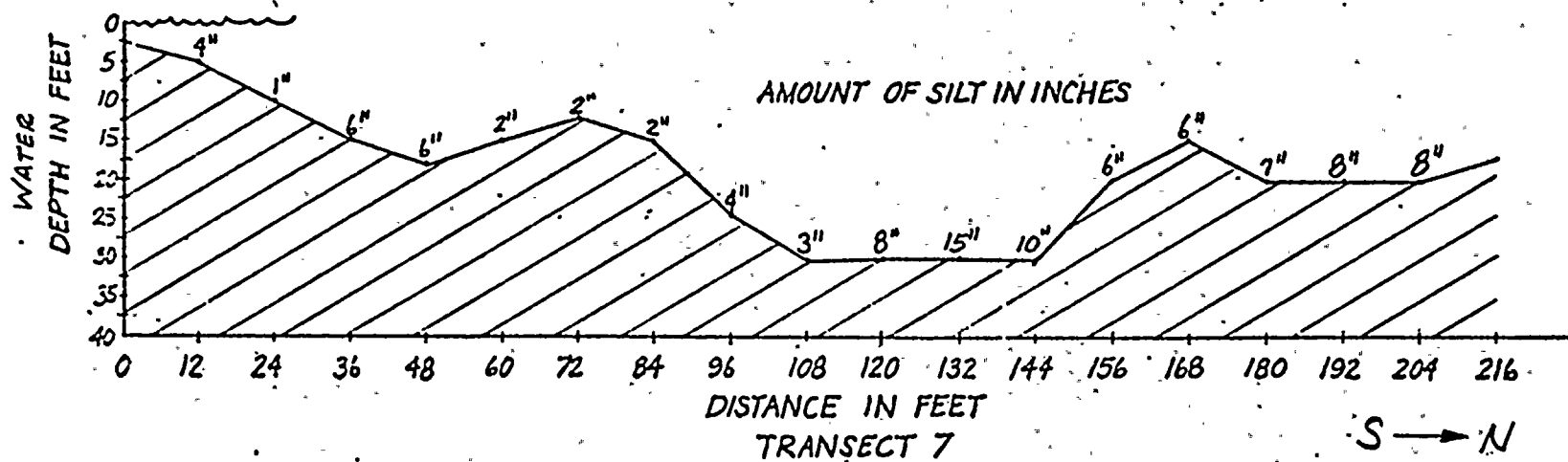
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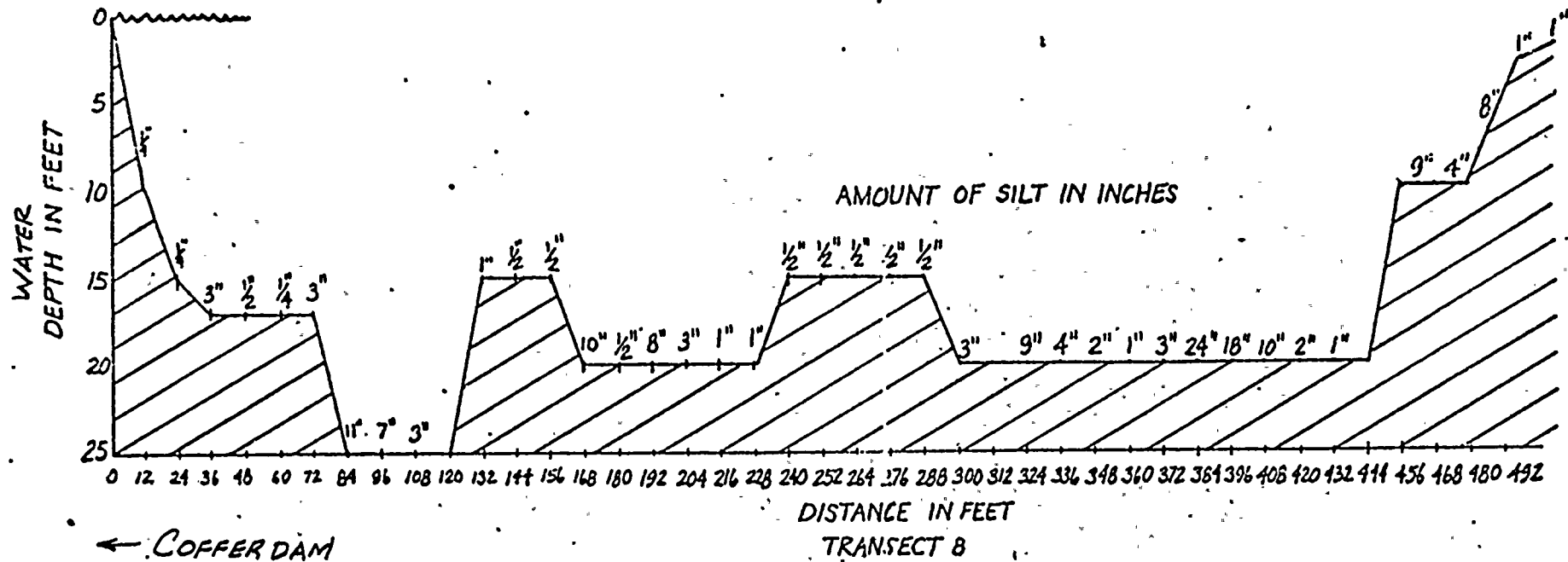
MARCH 31, 1973





# DIABLO CANYON

MARCH 31, 1973



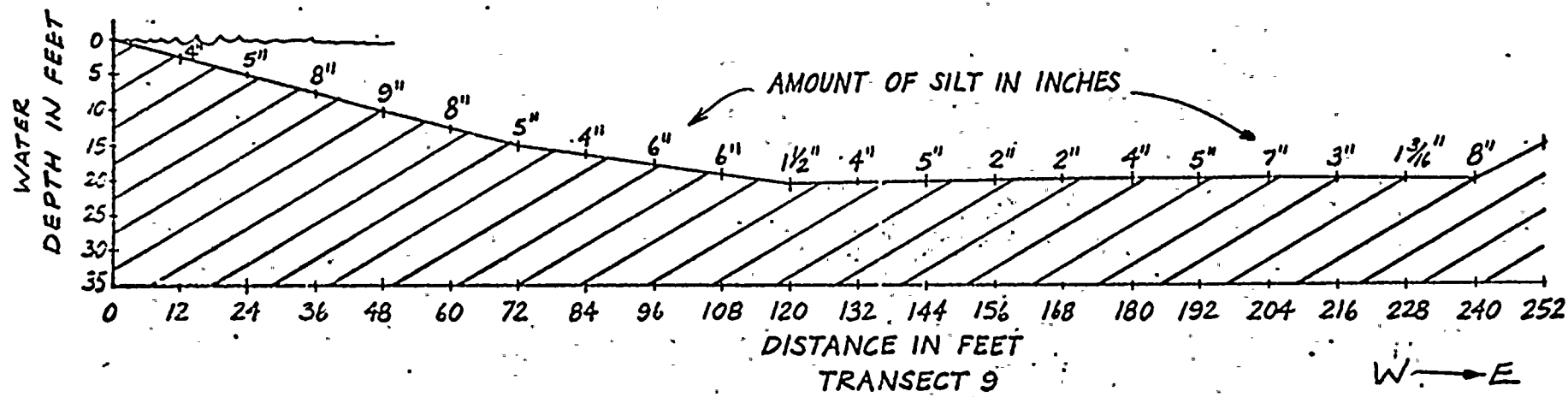


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# DIABLO CANYON

MARCH 31, 1973





# INTAKE BASIN BREAKWATERS FOR DIABLO CANYON SITE PACIFIC GAS & ELECTRIC COMPANY

## NOTES—

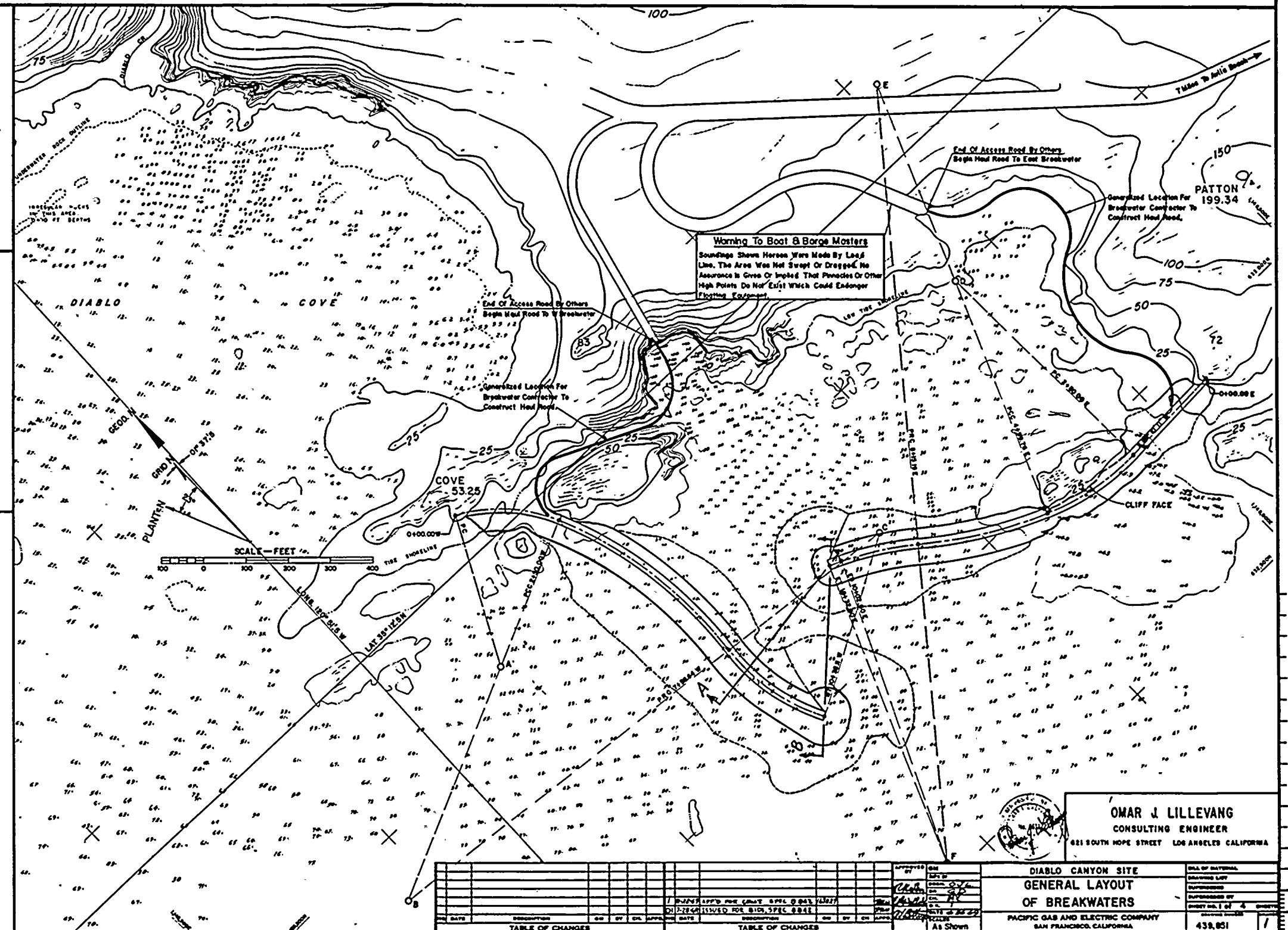
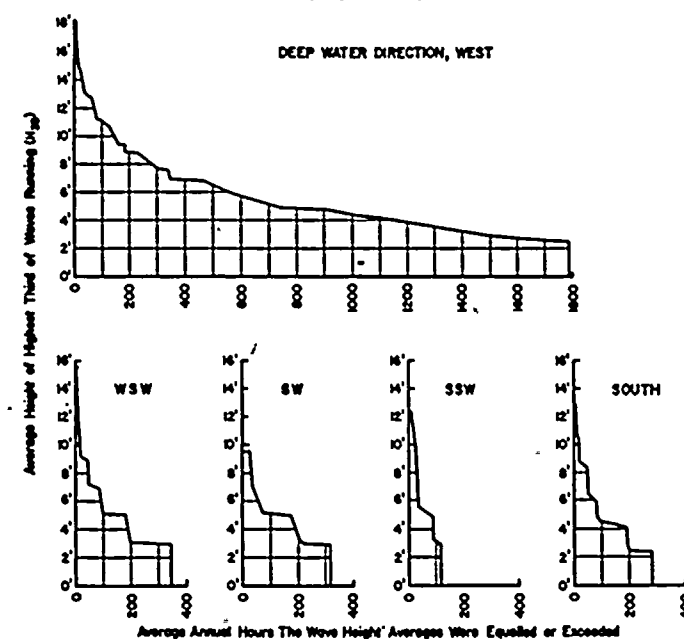
1. Soundings refer to Mean Lower Low Water Datum.
2. Contours shown above "Low Tide Shoreline" refer to Sea Level Datum and are from an aerial survey made before power plant excavation was started. Bidders shall ascertain by visit to the site, before submitting bids, what effect the site excavations have, if any, on the cost of the work to be done in building the breakwaters.
3. To convert elevations from one datum to the other, apply the following:  $Elev_{MLLW} = Elev_{SLD} + 2.6 \text{ Ft.}$
4. Coordinate positions shown refer to California Coordinate System, Zone 5, a Lambert Conformal Projection. Conversion of arbitrary Plant Grid System is made as follows:  
 $N_s = 576,067.06 + .9205049 N_p + .3907311 D_p$   
 $E_s = 1,161,806.12 + .9205049 E_p - .3907311 D_p$
5. Horizontal extent of breakwaters illustrated herein relate to Tribar construction alternate. The Dolos construction alternate horizontal coverage differs slightly; refer to typical cross-sections.

## LOCATION DATA FOR BREAKWATERS—

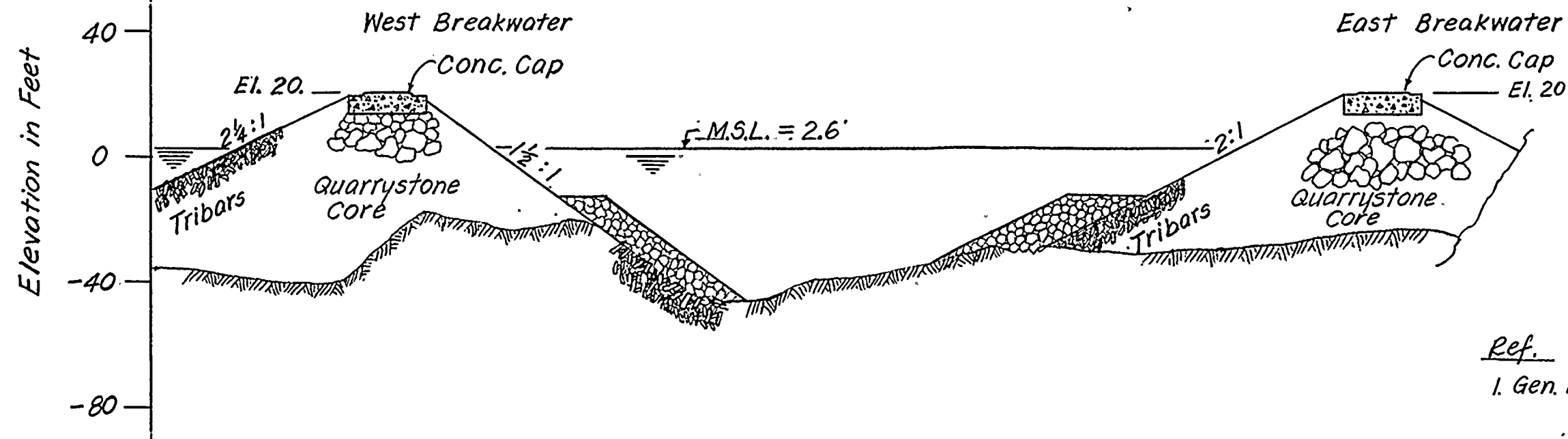
POINT	COORDINATES		DESCRIPTION
	NORTH	EAST	
0+00.00 W	633,929.30	1,146,842.20	Reference C, West Breakwater
A	633,801.56	1,146,470.50	Center, 370' Radius Curve, $\Delta = 38^\circ 42' 45''$
2+50.00 W	633,749.91	1,146,809.46	PCC
B	633,365.00	1,145,930.00	Center, 960' Radius Curve, $\Delta = 30^\circ 21' 27''$
7+58.64 W	633,252.66	1,146,883.41	PRC
C	633,200.00	1,147,330.31	Center, 450' Radius Curve, $\Delta = 36^\circ 34' 59''$
10+38.11 W	632,982.78	1,146,936.21	West Breakwater Terminus
0+00.00 E	632,918.14	1,146,140.66	Reference C, East Breakwater
2+50.00 E	632,908.15	1,147,890.79	PCC
D	633,492.85	1,147,872.11	Center, 585' Radius Curve, $\Delta = 24^\circ 27' 41''$
4+59.76 E	632,962.90	1,147,647.00	PCC
E	633,948.74	1,148,062.59	Center, 1080' Radius Curve, $\Delta = 16^\circ 44' 02''$
8+18.19 E	633,114.77	1,147,377.58	PRC
F	632,534.93	1,146,901.89	Center, 750' Radius Curve, $\Delta = 16^\circ 36' 31''$
10+32.60 E	633,228.06	1,147,192.00	East Breakwater Terminus (If Tribars)
10+02.60 E	633,214.39	1,147,219.43	East Breakwater Terminus (If Dolos)

## AVERAGE ANNUAL WAVE HEIGHTS AT 60-FT DEPTH CURVE

Estimated From Wave Data For 1956, 1957, 1958 Made By National Marine Consultants



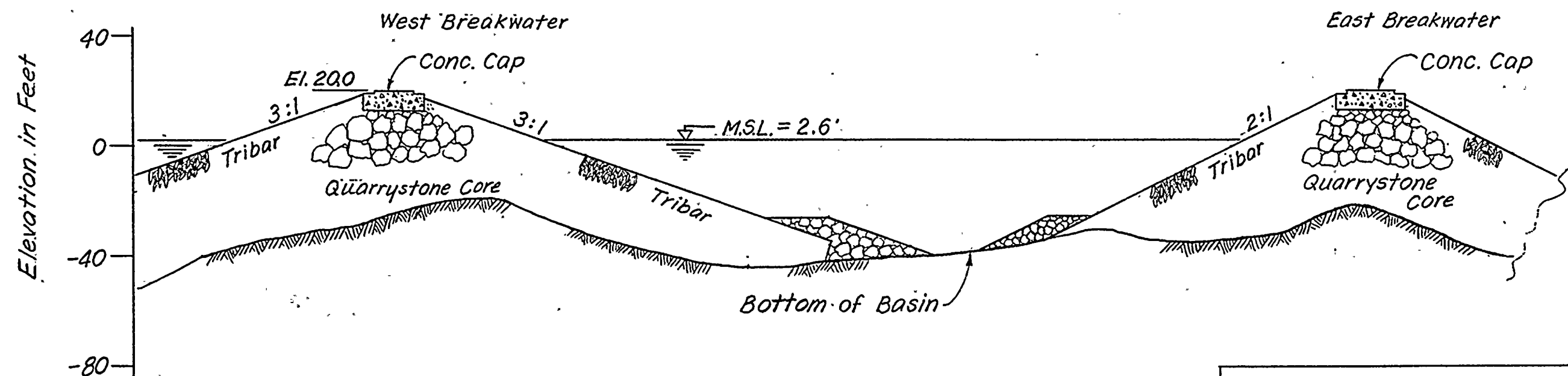




Ref.

1. Gen. Layout of Breakwater ---439851

LINE A  
Scale: 1" = 40'-0"



LINE B  
Scale: 1" = 40'-0"

DIABLO CANYON  
Theoretical X-Sections of Soundings  
Between East & West Breakwaters

by: J. Leong  
3-22-73

Regulatory File Cy.

Received by/for Dated 5-8-73

