

SEABROOK UPDATED FSAR

APPENDIX 2F

GEOTECHNICAL REPORT - REACTOR BORINGS. JULY 1974

The information contained in this appendix was not revised, but has been extracted from the original FSAR and is provided for historical information.

GEOTECHNICAL REPORT
REACTOR BORINGS
SEABROOK STATION, NEW HAMPSHIRE

Submitted to
YANKEE **ATOMIC ELECTRIC CO.**

GEOTECHNICAL **ENGINEERS** INC.
1017 Main Street
Winchester, Massachusetts 01890

July 31, 1974

TABLE OF CONTENTS

	<u>Page No.</u>
TABLE OF CONTENTS	i
LIST OF FIGURES	
LIST OF APPENDICES	iii
TEXT	
1.0 INTRODUCTION	1
1.1 Purpose	1
1.2 Scope	1
2.0 BORING DATA	2
2.1 Boring Logs	2
2.2 Overburden	2
2.3 Rock Type	2
2.4 Orientation Data	3
TABLE 1 - ZONES ORIENTED IN REACTOR BORINGS	
FIGURES	

LIST OF FIGURES

1. Plan of Reactor Sites showing generalized dip and strike of joints
2. Plan of Reactor Sites showing generalized dip and strike of foliations
3. Plan of Reactor Sites showing generalized dip and strike of slickensided surfaces
4. Contoured Equal Area Upper Hemisphere Polar Projection to joints in Reactor 1; Borings E2-11, 12, 13, and 14
5. Contoured Equal Area Upper Hemisphere Polar Projection to joints in Reactor 2; Borings E2-15, 16, 17, and 18
6. Contoured Equal Area Upper Hemisphere Polar Projection to slickensided surfaces in Reactor 2; Borings E2-15, 16, 17, and 18

1.0 INTRODUCTION

1.1 Purpose

An excavation approximately 150 feet in diameter and 70 feet deep will be required for each of the two proposed reactors at Seabrook Station.

To design the side slopes of the excavation and to estimate the quantity of excavation, it is necessary to determine the frequency and orientation of fractures in the rock. For this purpose inclined borings were made around the perimeter of each of the two proposed excavations. The core was oriented and the orientation of joints, slickensided surfaces, and foliation was determined.

1.2 Scope

Four inclined borings were made around the perimeter of each proposed reactor excavation. The borings ranged in length from 165 to 169 feet, and in inclination from 39° to 41.5° , measured from vertical. (The bottom of a 165-foot-long boring inclined at 40° is at a vertical difference in elevation of 126 feet below the ground surface.)

2.4 Orientation Data

Core was oriented from near the rock surface to the bottom of the hole, with three exceptions: Boring E2-11 in which orientation starts at 63 ft (inclined length) below the rock surface; Boring E2-17 in which orientation terminates at 65 ft (inclined length) in a borehole that was 165 ft long; and Boring E2-15 in which orientation terminates at 42 ft (inclined length) in a borehole that was 165 ft long.

Appendix II is a summary of all the orientation data, and Appendix III contains polar equal area stereo net projections for the features oriented in each borehole.

Fig. 1 is a plot of generalized dip and strike data for joints in each of the borings.

Fig. 2 is a plot of generalized dip and strike data for foliation. As shown on the individual boring logs in Appendix I, the rock at the two reactor sites does not exhibit much foliation.

Fig. 3 is a plot of generalized dip and strike data for slickensided surfaces.

Fig. 4 is a contoured plot of the projections of poles for 230 joints measured in the core from borings at Reactor 1; Fig. 5 is a contoured plot of the projections of poles for 93 joints in Reactor 2; and Fig. 6 is a contoured plot of the projections of poles for 114 slickensided surfaces in Reactor 2.

Fig. 4 shows that there are two dominant sets of fracture surfaces at Reactor No. 1 with strikes and dips roughly as follows (listed in order of decreasing frequency of occurrence):

N30E, 40NW
N40E, 60SE

Figs. 5 and 6 show that there are three dominant sets of fracture surfaces at Reactor No. 2, with strikes and dips roughly as follows (listed in order of decreasing frequency of occurrence):

N30E, 30 NW
N45E, 55SE
N15W, 60 SW

TABLES

TABLE 1

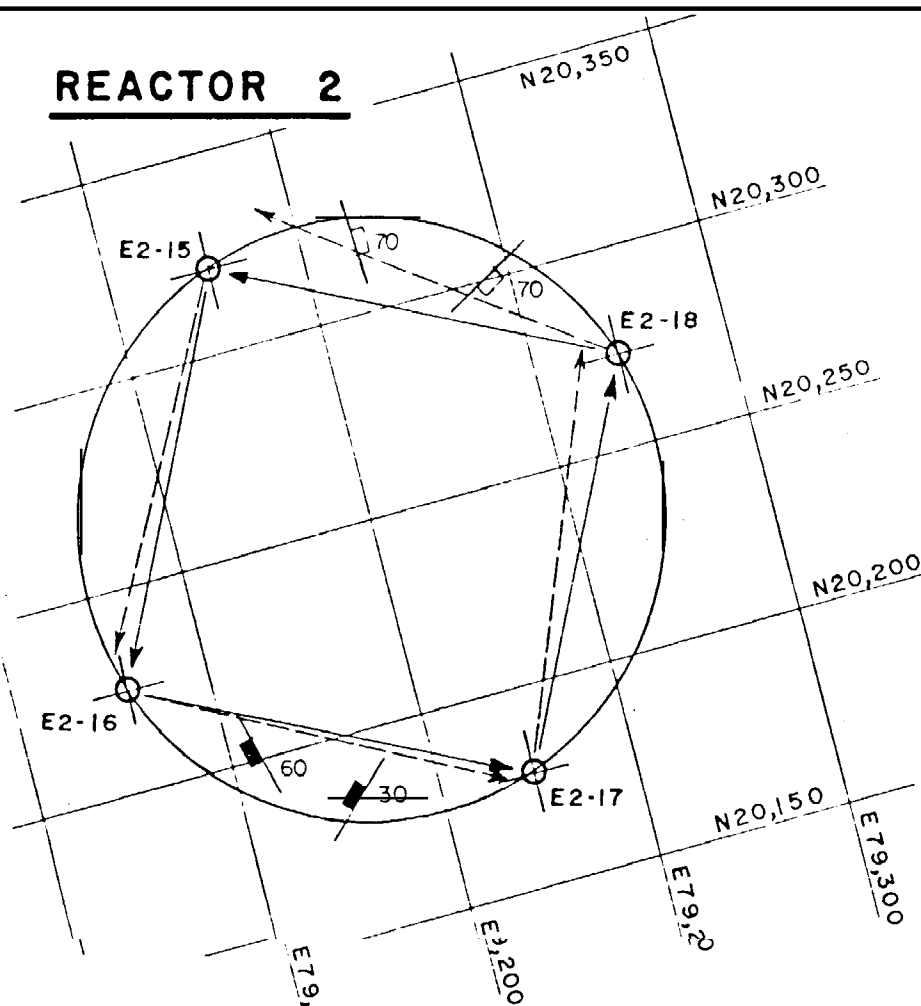
ZONES ORIENTED IN REACTOR BORINGS

<u>Reactor No.</u>	<u>Boring No.</u>	<u>Length of Boring*</u> (feet)	<u>Inclination of Boring Measured From Vertical</u>	<u>Length Oriented*</u> (feet)	<u>Vertical Depth to Top of Rock</u> (feet)
1	E2-11	168.0	40°	63-168	13.5
1	E2-12	165.7	41°	13.8-165.7	0.7
1	E2-13	169.0	41°	22-169	0.0
1	E2-14	166.0	41.5°	11-166	2.2
2	E2-15	165.0	41.5°	13.5-42	8.6
2	E2-16	165.1	41°	18-165	7.1
2	E2-17	165.0	41°	22-65	14.3
2	E2-18	168.0	39°	15.5-168	10.8

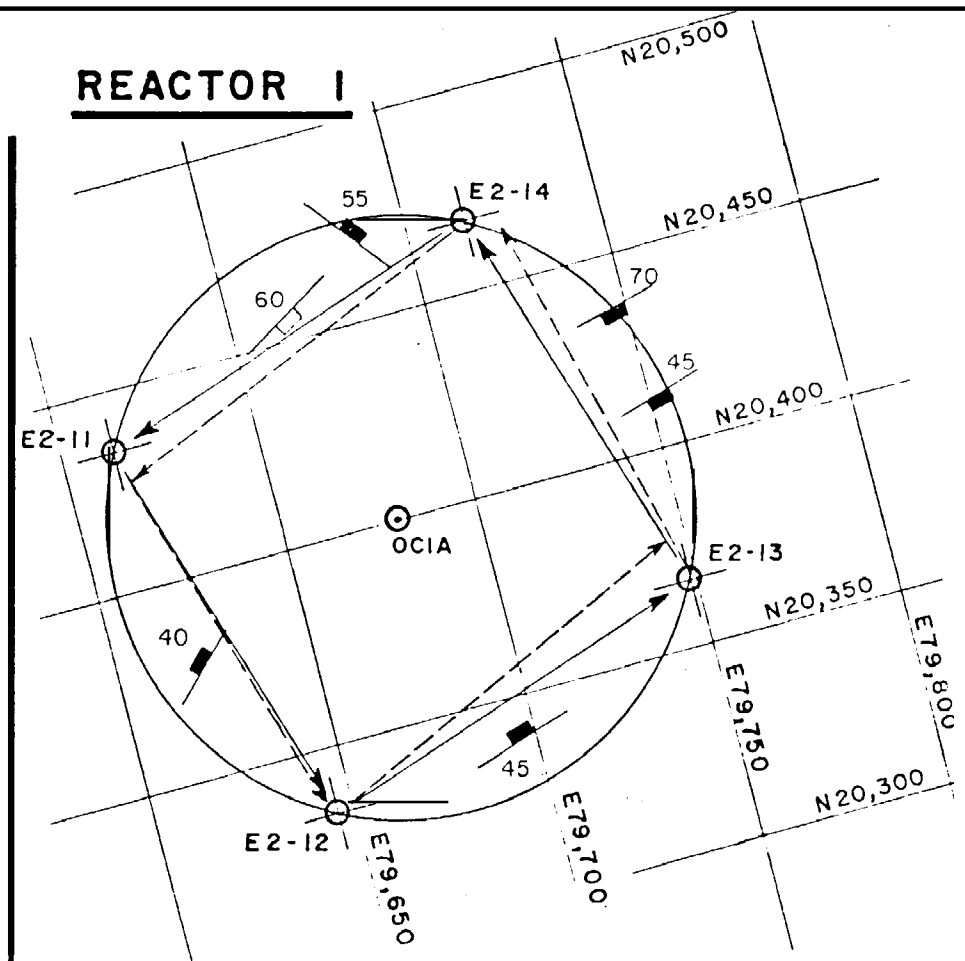
*Measured along inclined axis of borehole.

FIGURES

REACTOR 2



REACTOR 1



PROPOSED DIRECTION OF ANGLE BORINGS
 ACTUAL DIRECTION OF ANGLE BORINGS

NOTE: LENGTH OF ARROWS INDICATES PROJECTION OF HOLE TO HORIZONTAL

10 POINTS PER CLUSTER OF FEATURES

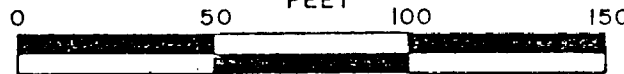
>10 POINTS PER CLUSTER OF FEATURES

OVERCORE BORING

ANGLE BORING

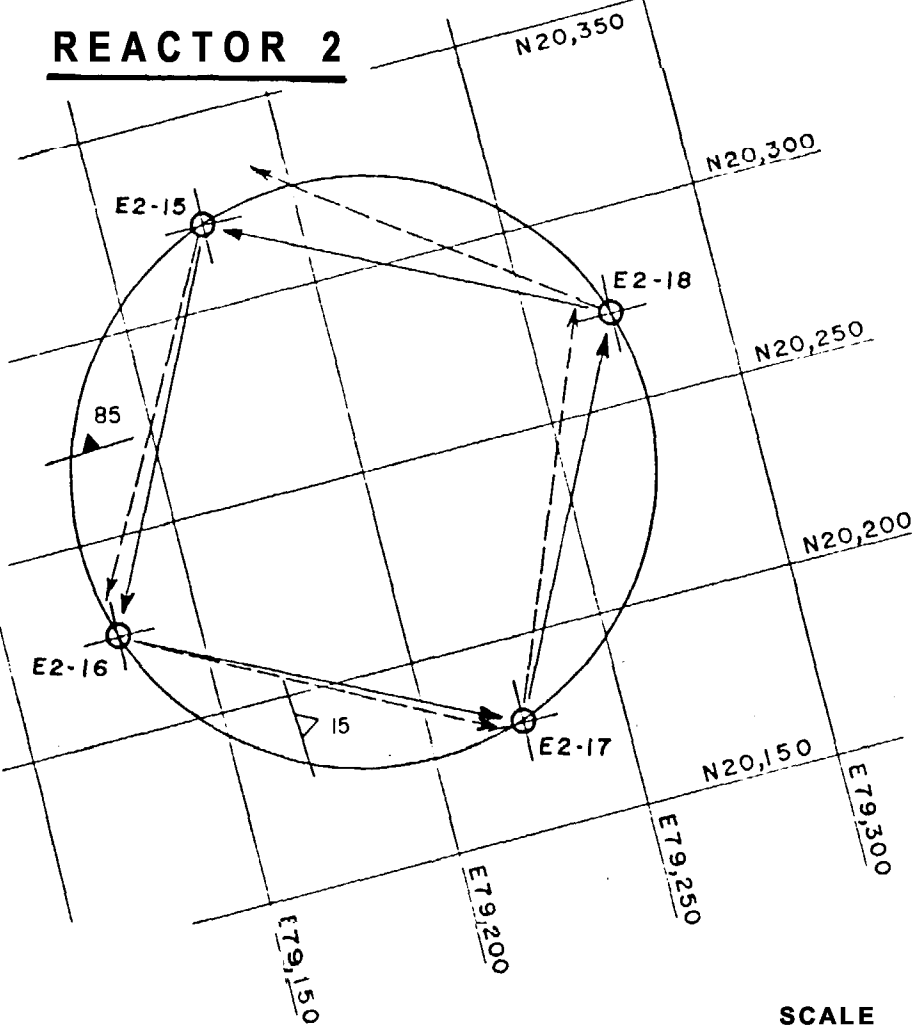


SCALE
FEET

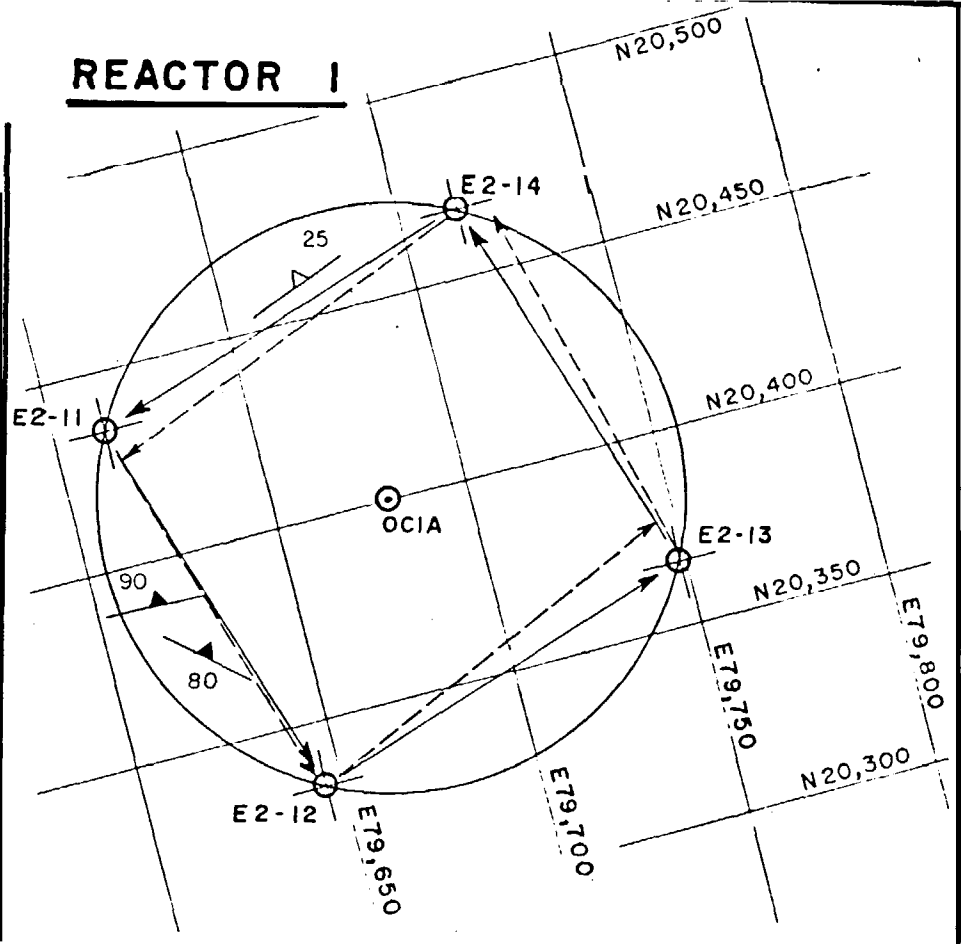


YAN K EE ATOMIC	SEABROOK STATION	PLAN OF REACTOR SITES SHOWING GENERALIZED DIP & STRIKE OF JOINTS
GEOTECHNICAL ENGINEERS, INC. WINCHESTER, MASSACHUSETTS	PROJECT 7206	JULY 1974 FIG. 1

REACTOR 2



REACTOR 1



PROPOSED DIRECTION OF ANGLE BORINGS
 ACTUAL DIRECTION OF ANGLE BORINGS

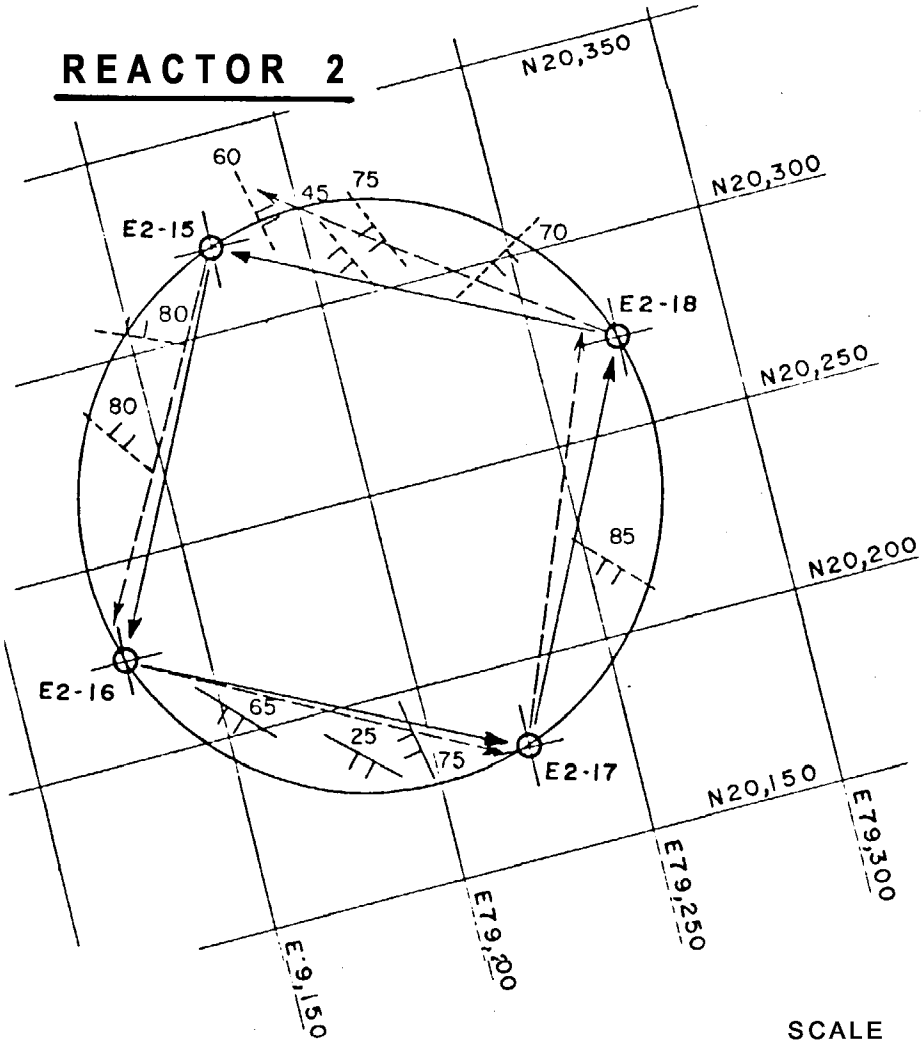
NOTE: LENGTH OF ARROWS INDICATES PROJECTION OF HOLE TO HORIZONTAL.

- < 2 POINTS PER CLUSTER OF FEATURES
- > 2 POINTS PER CLUSTER OF FEATURES
- OVERCORE BORING
- ANGLE BORING

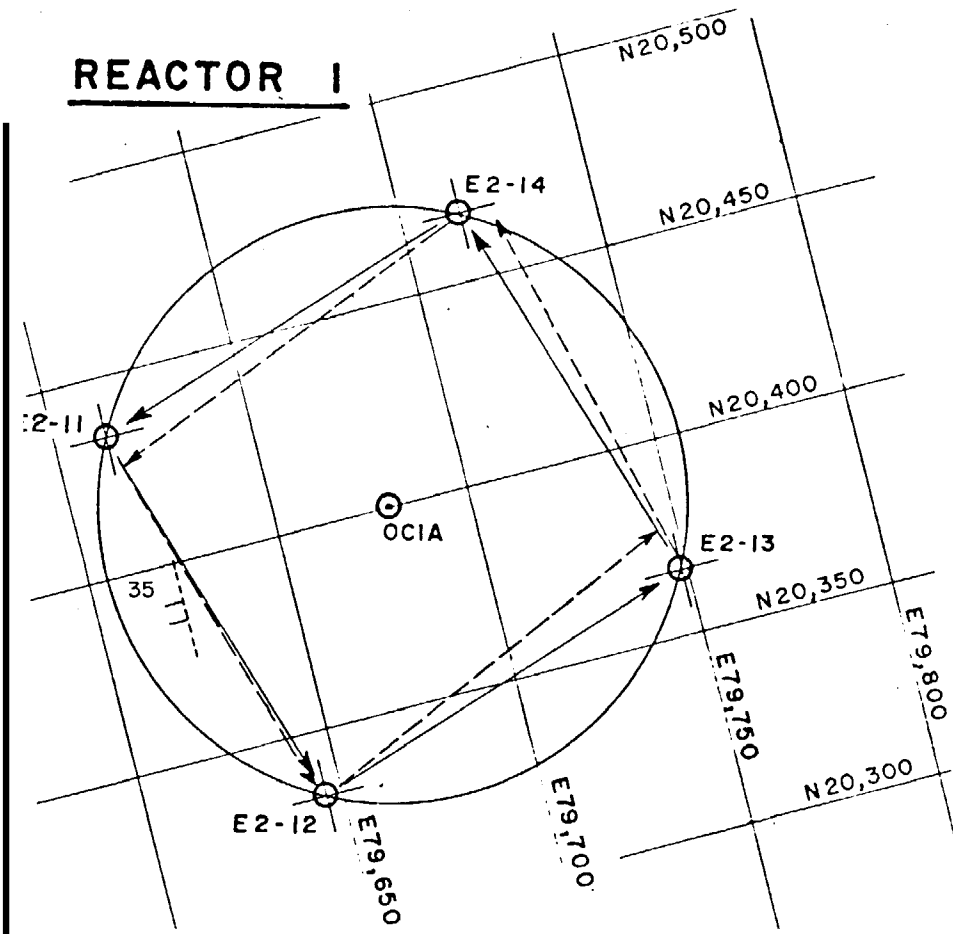


YANKEE ATOMIC GEOTECHNICAL ENGINEERS, INC. WINCHESTER, MASSACHUSETTS	SEABROOK STATION	PLAN OF REACTOR SITES SHOWING GENERALIZED DIP & STRIKE OF FOLIATIONS
	PROJECT 7286	JULY 1974 FIG. 2

REACTOR 2



REACTOR 1



——— PROPOSED DIRECTION OF ANGLE BORINGS
 - - - - ACTUAL DIRECTION OF ANGLE BORINGS

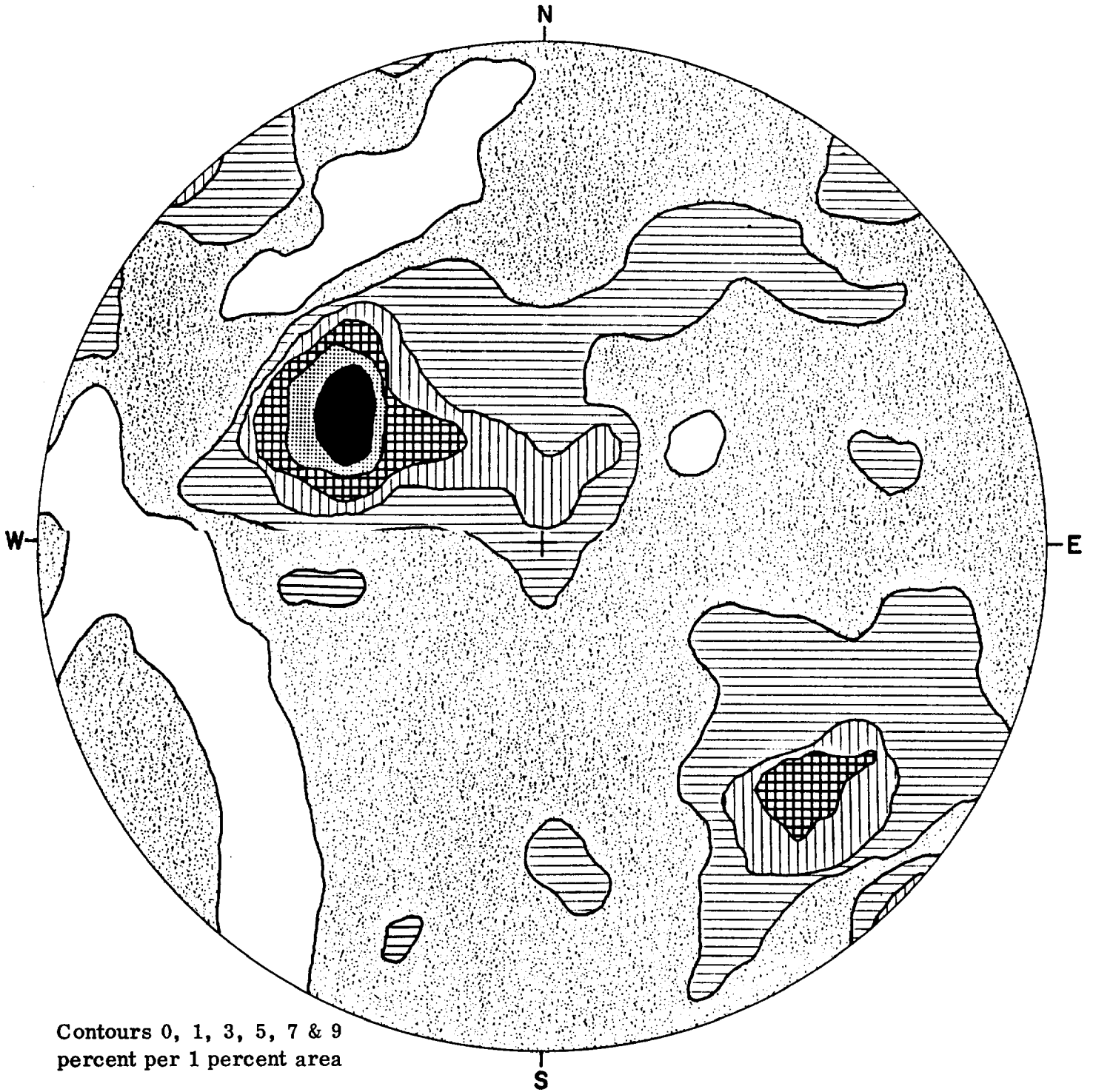
NOTE: LENGTH OF ARROWS INDICATES PROJECTION OF HOLE TO HORIZONTAL.

--- > 8 POINTS PER CLUSTER OF FEATURES

○ OVERCORE BORING
 ⊕ ANGLE BORING



YANKEE ATOMIC GEOTECHNICAL ENGINEERS, INC WINCHESTER, MASSACHUSETTS	SEABROOK STATION	PLAN OF REACTOR SITES SHOWING GENERALIZED DIP & STRIKE OF SLICKENSIDED SURFACES
	PROJECT 7266	JULY 1974 FIG. 3

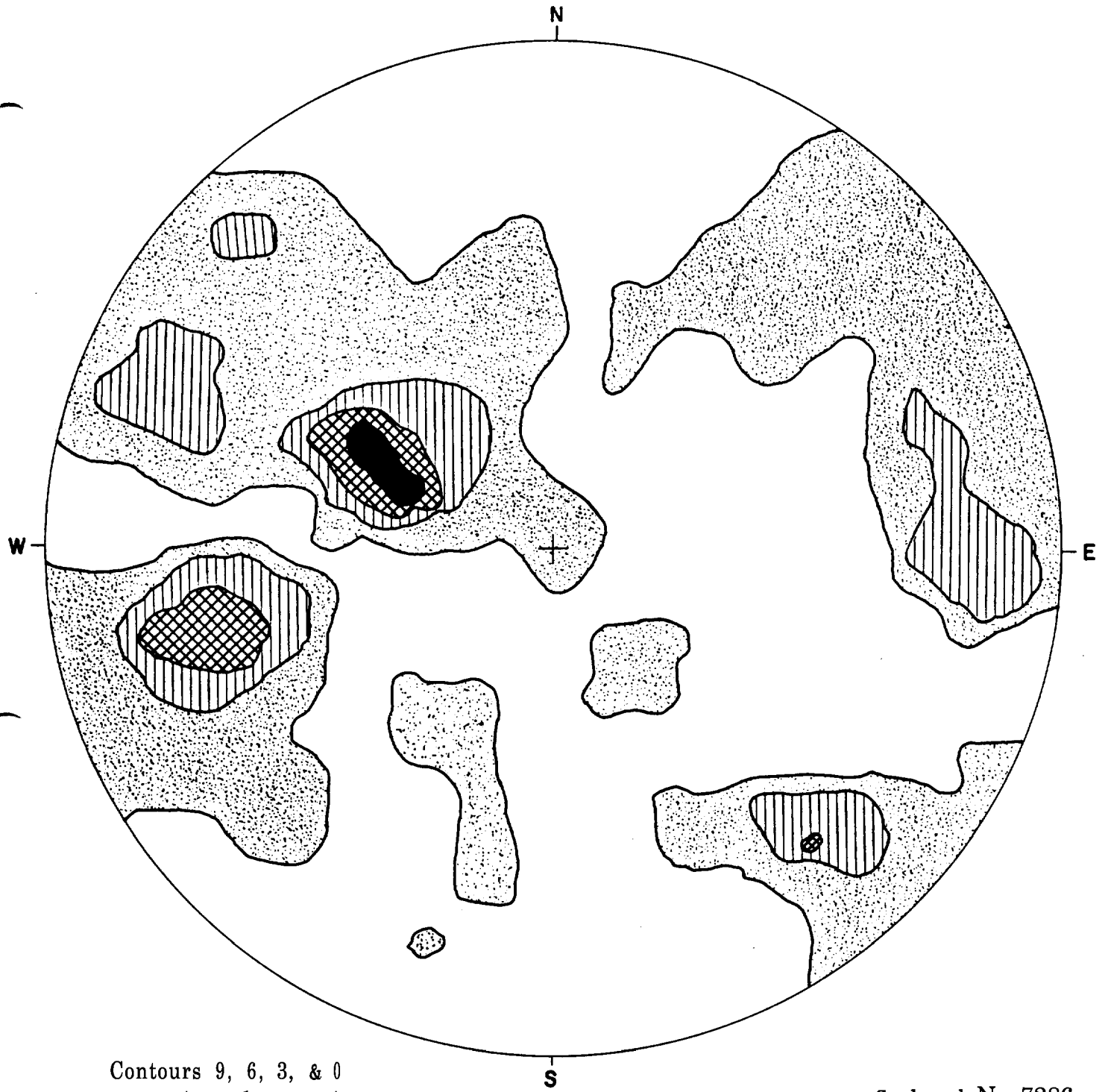


Seabrook No. 7286



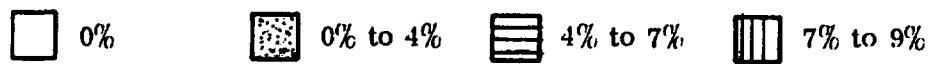
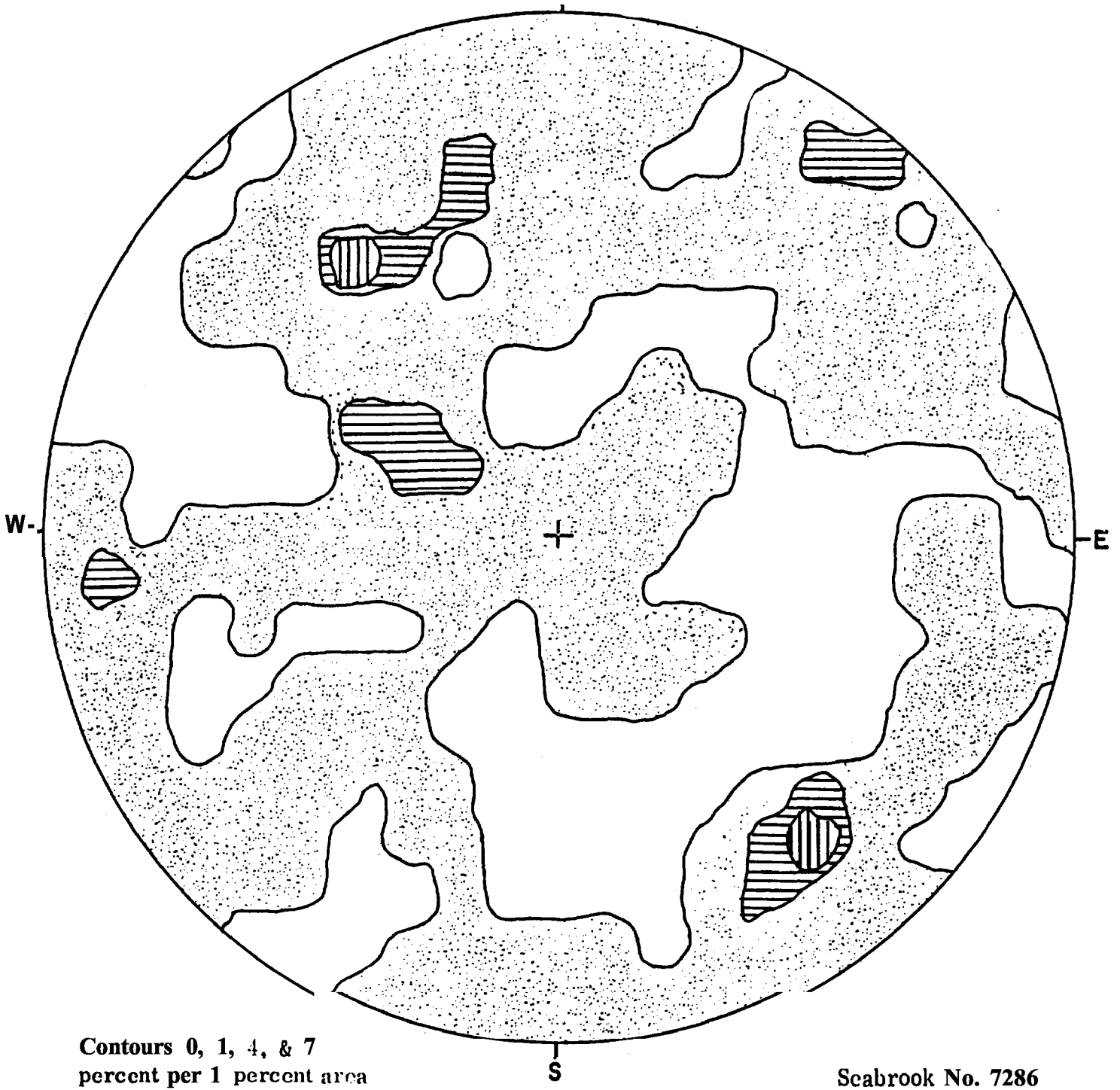
Contoured Equal Area Upper Hemisphere Polar Projection of Poles to 230 Joints In Reactor 1; Borings E2-11, 12, 13 & 14

Fig. 4



0%
 0% to 3%
 3% to 6%
 6% to 9%
 9% to 11%

Contoured Equal Area Upper Hemisphere Polar Projection of Poles to 93 Joints In Reactor 2; Borings E2-15, 16, 17, 18.



Contoured Equal Area Upper Hemisphere Polar Projection of Poles to 114 Slickensided Surfaces in Reactor 2; Borings E2-15, 16, 17, & 18.

Fig. 6

APPENDIX I

APPENDIX I

Boring Logs

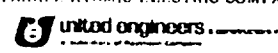
Note: All holes are angle holes. Depths are measured along core axis. Inclinations of holes are measured from vertical.

BORING LOCATION S2013, 17611, Plot 896 **INCLINATION** 10° **PAIRING** S3U **DATE START/FINISH** June 20, 1971 / June 27, 1971
CASING ID 3 in. **CORE SIZE** 2.19 - 1.75 in. **TOTAL DEPTH** 168.0 ft **DRILLED BY** American Drilling & Reinc. Co. - J. Canine
GROUND EL. (MSL) 75.0 ft **DEPTH TO WATER** DATE 7-7-71 **LOGGED BY** Soil - E. J. Hall, Rock - J. H. Hand

E.L. MSL ft	DEPTH ft	SAMPLE Type and No.	N OF REC.	RATE OF ADV. min/ft	WATER CONTENT or RQD		PRESSURE TEST		STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	CORE AREAS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
					%	Grainable	psi	Computed				
75.0									S = Sluckenaid			
									TOP OF TILL			
6.5	10	XX-1 XX-2 NQ-3 NQ-4 NQ-5	100 99 16 31 57									
									TOP OF ROCK			
20		NQ-6	76						1.5' core lost Rusty stain Rusty stain	Fresh internally. Some minor rusty staining on joints and partings. Not chloritic.	Diorite. Medium fine grained, medium dark gray. Massive texture.	
30		NQ-7	100						Minor rusty			
40		NQ-8	100						Minor rusty	Fresh and hard. Drills well. Most joints and partings are clean. Not chloritic.	Pegmatite Diorite. Predominantly medium-fine grained, medium dark gray with occasional medium coarse quartz diorite.	
50		NQ-9	100									
60		NQ-10	100						Solid core	Fresh and hard. Drills very well. Joints and partings clean. Not chloritic. Most partings break across core.	Diorite. Fine to medium fine grained, medium dark gray. Massive texture.	
70		NQ-11	100							N21E, 13NW J	Diorite. Medium-fine grained, medium gray. Massive.	
80		NQ-12	100							N15E, 69NW J		
90		NQ-13	100							N13E, 54NW J N12W, 59SW S	Fresh and hard. Joints and partings generally clean. Some minor chlorite on joints and partings in diabase.	Used intrusive contact Diabase. Fine to medium-grained, dark greenish gray. Locally calcitic.
100		NQ-14	100							N86E, 69NW J N15W, 62SW S N17W, 19SW S		Used contact
110		NQ-15	100							N11W, 40SW J N65W, 55NE J	Pyrite	Diorite. Medium-fine grained, medium gray. Massive.
120		NQ-16	100									Diorite. Medium-fine, massive. Becoming gneissoid foliated toward base.
130		NQ-17	100									
140		NQ-18	100									
150		NQ-19	100									
160		NQ-20	100									Used Diabase, fine calcitic - calcite veining Used
170		NQ-21	100									
180		NQ-22	100									
190		NQ-23	100									
200		NQ-24	100									
210		NQ-25	100									
220		NQ-26	100									
230		NQ-27	100									
240		NQ-28	100									
250		NQ-29	99									
260		NQ-30	98									
270		NQ-31	98									
280		NQ-32	98									
290		NQ-33	98									
300		NQ-34	98									
310		NQ-35	98									
320		NQ-36	98									
330		NQ-37	98									
340		NQ-38	98									
350		NQ-39	98									
360		NQ-40	98									
370		NQ-41	98									
380		NQ-42	98									
390		NQ-43	98									
400		NQ-44	98									
410		NQ-45	98									
420		NQ-46	98									
430		NQ-47	98									
440		NQ-48	98									
450		NQ-49	98									
460		NQ-50	98									
470		NQ-51	98									
480		NQ-52	98									
490		NQ-53	98									
500		NQ-54	98									
510		NQ-55	98									
520		NQ-56	98									
530		NQ-57	98									
540		NQ-58	98									
550		NQ-59	98									
560		NQ-60	98									
570		NQ-61	98									
580		NQ-62	98									
590		NQ-63	98									
600		NQ-64	98									
610		NQ-65	98									
620		NQ-66	98									
630		NQ-67	98									
640		NQ-68	98									
650		NQ-69	98									
660		NQ-70	98									
670		NQ-71	98									
680		NQ-72	98									
690		NQ-73	98									
700		NQ-74	98									
710		NQ-75	98									
720		NQ-76	98									
730		NQ-77	98									
740		NQ-78	98									
750		NQ-79	98									
760		NQ-80	98									
770		NQ-81	98									
780		NQ-82	98									
790		NQ-83	98									
800		NQ-84	98									
810		NQ-85	98									
820		NQ-86	98									
830		NQ-87	98									
840		NQ-88	98									
850		NQ-89	98									
860		NQ-90	98									
870		NQ-91	98									
880		NQ-92	98									
890		NQ-93	98									
900		NQ-94	98									
910		NQ-95	98									
920		NQ-96	98									
930		NQ-97	98									
940		NQ-98	98									
950		NQ-99	98									
960		NQ-100	98									

LEGEND
 N - Standard penetration resistance, blows/ft
 Rec - Length recovered, length cored, ft
 RQD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample
 U - Undisturbed sample
 S - Shelby tube N - Denton
 F - Fixed platen P - Pitcher
 O - Osterberg G - GEI
 D - Drilling break k - Coefficient of permeability
 x - Weathered, weathering

NOTES
 1) - Washed through soil # - 6.3 in. No samples taken.
 2) - No clays present; therefore no water contents determined.
 x - Oriented core

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 Date: July 11, 1971 Project 7286
 PAGE 1 of 2 LOG OF BORING 12-11

BORING LOCATION S2015, E70611, Plant Site INCLINATION 10° TO AIRING SUE DATE START/FINISH June 20, 1971 / June 27, 1971
 CASING ID 3 in. CORE SIZE 2-1/8 x 1-7/8 in. TOTAL DEPTH 169.0 ft DRILLED BY American Drilling & Boring Co., J. Canning
 GROUND EL. (MSL) 27.0 DEPTH TO WATER DATE 27 June 21, 1971 LOGGED BY Soil, K. Pull, Rock - J. R. Boyd

EL. MSL ft	SAMPLE			RAIL OF ADV. min ft	WATER CONTENT		PRESSURE TEST		STRIKE, DIP F - Folation J - Joint C - Contact B - Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)		
	Depth ft	Type and No.	N or Rec.		%	Graphic	psi	Computed k 10 ⁻³ cm/sec			SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)		
									S - Shaken soil		CONTINUED FROM PREVIOUS PAGE		
146	NQ-30	100	100						N27E, 32NW J	Slight wx	Fresh and hard. Drills	X X X	Diorite. Mixed fine and medium coarse grained textures. Locally gneissoid.
150	NQ-31	100	100						N26E, 28NW J	Slight wx Solid core	Fresh and hard. Drills well. Partings are clean.	X X X X X X	
	NQ-32	100	100						N63W, 25NE F	Solid core		X X X X X X	
160	NQ-33	100	100						N18W, 71NE J		Fresh and hard. Drills well. Joints and partings are clean.	X X X X X X X X X	Diorite. Predominantly fine, medium dark with patches of coarse quartz diorite.
168	NQ-31	97	93						N30E, 75NW J			X X X X X X	
									N50W, 61NE F			X X X	
									BOTTOM OF BORING				

LEGEND

N - Standard penetration resistance, blows ft
 Rec - Length recovered, length cored, %
 RQD - Length of sound core 4 in. and longer, length cored, %
 S - Split spoon sample
 U - Undisturbed samples

S - Shelby tube N - Denton
 F - Fixed piston P - Pitcher
 O - Osterberg G - GEI

D - Drilling break k - Coefficient of permeability
 wx - Weathered, weathering

NOTES

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

United engineers
A Division of American Cyanamid

Date: June 11, 1971 Project 7286


PAGE 2 of 2 LOG OF BORING 12-11

BORING LOCATION N2034, E79642, Plant Site INCLINATION 11 BEARING N66E DATE START/FINISH June 10, 1971 / June 19, 1971
 CASING ID 3 in. CORE SIZE 2-1/8 - 1-7/8 in. TOTAL DEPTH 165.5 ft DRILLED BY American Drilling & Boring Co., A. Whittaker
 GROUND EL. (MSL) 21.5 ft DEPTH TO WATER/DATE 7.1 ft June 12, 1971 LOGGED BY Soil. L. Doh., Res. J. H. Hand

EL. MSL ft	SAMPLE			WATER CONTENT or RQD	PRESSURE TEST		STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)
	Depth ft	Type and No.	N or Rec.		ADV. min/ft	Graphic			
21.5									
		NX-1	100	2	16				Rusty
		NX-2	85	3	6				Rusty
		NX-3	100	3	46				Rusty
		NX-4	100	3	25				Rusty
		NQ-5	81	3	43				Rusty
		NQ-6	100	4	82				Rusty
		NQ-7	98	4	44				Rusty
		NQ-8	100	4	68				Rusty
		NQ-9	100	4	97				Rusty
		NQ-10	100	4	98				Rusty
		NQ-11	100	5	89				Rusty
		NQ-12	100	5	92				Rusty
		NQ-13	100	6	90				Rusty
		NQ-14	98	16	89				Rusty
		NQ-15	100	20	100				Rusty
		NQ-16	100	15	92				Rusty
		NQ-17	100	6	85				Rusty
		NQ-18	100	8	92				Rusty
		NQ-19	100	6	83				Rusty
		NQ-20	100	6	64				Rusty
		NQ-21	100	5	89				Rusty
		NQ-22	100	6	25				Rusty
		NQ-23	100	6	90				Rusty
		NQ-24	100	8	100				Rusty
		NQ-25	97	5	94				Rusty
		NQ-26	100	4	90				Rusty
		NQ-27	97	5	75				Rusty
		NQ-28	100	6	95				Rusty
		NQ-29	100	6	100				Rusty
		NQ-30	94	6	94				Rusty
		NQ-31	95	6	75				Rusty

LEGEND
 Rec - Standard penetration resistance, blow/blows
 RQD - Length recovered/length cored, %
 S - Split spoon sample
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg G - GEI
 D - Drilling break k - Coefficient of permeability
 wx - Weathered, weathering

11 - Washed through #10 0-1 ft. No samples taken.
 21 - This is only a partial list of dip and strike data.

SEABROOK STAT10 N
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 Date: July 11, 1971 Project 7286
 PAGE 1 of 2 LOG OF BORING

BORING LOCATION N2007, 129715; Elev. Sta. INCLINATION 41' PLACING SLOW DATE START/FINISH June 20, 1971 / July 1, 1971

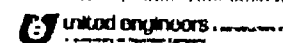
CASING ID 3 in. CORE SIZE 1-7/8 x 2-1/8 in. TOTAL DEPTH 160.0 ft DRILLED BY American Drilling & Boring Co. A. Whitaker

GROUND ELEVATION 309.5 ft DEPTH TO WATER TABLE 133.0 ft DATE 6/21, 1971 LOGGED BY SOLI, R. FOLK, ROY, J. R. RIND

F.L. MSL	DEPTH ft	SAMPLE Type and No.	N or Rec.	DATE OF ADV. min	WATER CONTENT %	OR RQD	PRESSURE TEST	STRIKE, DIP	SOIL AND ROCK DESCRIPTIONS	CORE BREAKS	
											Geologic
	10.5	NX-1	88	3.0	17			S - Slackens	Rusty staining		Diorite. Mixed fine-grained, medium dark gray diorite with patches of medium to medium-coarse quartz diorite.
		NX-2	72	1.0	0			2)	Slight wx	Slightly wx to about 8" and fresh and hard below. Not chloritic.	
	10	NX-3	100	5.0	13				Rusty staining		Diorite. Mixed fine-grained dark gray diorite in medium coarse, medium gray quartz diorite.
		NX-4	100	5.0	96				Moderate wx		
	20	NX-5	100	4.0	85				Rusty	Fresh and hard. Slight rusty staining on joints. Not chloritic or slickensided.	Diorite. Mixed fine-grained dark gray diorite in medium coarse, medium gray quartz diorite.
		NX-6	100	4.0	100				Slight rusty		
		NX-7	75	5.0	46			N40E, 28NW	Slight rusty		Diorite. Mixed fine-grained dark gray diorite in medium coarse, medium gray quartz diorite.
		NQ-8	93	7.0	43			N40E, 58SE	Moderate wx	U zone of moderate wx. Core lost.	
	30	NQ-9	100	0.0	82				Horiz.		Diorite. Mixed fine-grained, dark gray diorite in medium to medium-coarse, medium gray quartz diorite.
		NQ-10	100	12.0	80			N30E, 83NE	Slight wx	Fresh and hard. Some joints and partings show minor powder to rusty surface wx effects. Not chloritic.	
	40	NQ-11	100	14.0	100				N32E, 67SE	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium to medium-coarse, medium gray quartz diorite.
		NQ-12	100	15.0	83				Slight wx		
	50	NQ-13	100	16.0	100				N65E, 27NW	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse to coarse, medium gray quartz diorite. Predominantly fine-grained.
		NQ-14	97	18.0	83				N25E, 67SE	Slight wx	
	60	NQ-15	100	4.0	83				N55E, 45SE	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse to coarse, medium gray quartz diorite. Predominantly fine-grained.
		NQ-16	100	5.0	98				N55E, 17SE	Slight wx	
	70	NQ-17	100	6.0	92				N28E, 61NE	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-18	97	9.0	88				N35E, 66SE	Slight wx	
	80	NQ-19	98	2.0	97				N09W, 30SW	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-20	97	5.0	80				N35W, 63NE	Moderate wx	
	90	NQ-21	100	20.0	97				N55E, 7NW	Minor vuggy	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-22	100	4.0	80				N53E, 84SE	Severe wx	
	100	NQ-23	98	6.0	98				N46E, 86NW	Moderate wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-24	00	8.0	93				N80E, 30SE	Moderate wx	
	110	NQ-25	00	9.0	88				N83E, 52SE	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-26	00	0.0	00				N15E, 21NW	Slight wx	
	120	NQ-27	00	5.0	67				N16E, 58SE	Moderate wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-28	00	20.0	75				N15E, 57NW	Slight wx	
	130	NQ-29	97	4.0	63				N15W, 57NE	Slight wx	Diorite. Mixed fine-grained, dark gray diorite in medium coarse, medium gray quartz diorite. Medium coarse textures predominate.
		NQ-30	00	5.0	83				N21E, 89NE	Rusty stain	
	140	NQ-31	100	6.0	74				N35E, 84SE	Minor rusty	Diorite. Medium-grained medium gray.
		NQ-32	98	6.0	75				N67W, 83SW	Slight wx	
		NQ-33	98	6.0	70				N15W, 17NE	Slight wx	Diorite. Medium-grained medium gray.
									N70E, 23NW	Minor rusty	
									N50W, 30NE	Minor rusty	Fused contact (broken)
									N16W, 41NE		
									N60W, 51NE		Diorite. Medium-coarse grained, medium gray. Somewhat porphyritic.
									N56E, 83SW		
									N45E, 35SE		Fused contact
									East, 8N		
									N50E, 19NW	Minor rusty	Diorite. Medium-coarse grained, medium gray. Somewhat porphyritic.
									N31E, 42SE	Slight wx	
									N28E, 30SE	Moderate wx	

N - Standard penetration resistance, blows/ft
 Rec - Length recovered/length cored, %
 RQD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg G - GEI
 D - Drilling break k - Coefficient of permeability
 wx - Weathered, weathering

NOTES
 1) No clay samples present; therefore no water contents were determined.
 2) This is only a partial list of dip and strike data.

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 Date: July 16, 1971 Project: 7286
 PAGE 1 of 2 LOG OF BORING 12-13

BORING LOCATION N2005, E79715, West side INCLINATION 0° BEARING N30W DATE START/FINISH June 20, 1971 / July 3, 1971
 CASING ID 3 in. CORE SIZE 1-7/8 - 2-1/8 in. TOTAL DEPTH 169.0 ft DRILLED BY American Drilling & Boring Co., A. Whitaker
 GROUND FL. (MSL) 162.5 ft DEPTH TO WATER DATE 13.0 ft June 21, 1971 LOGGED BY Sofsky, Bob, Rockwell, R. Bond

E.L. MSL ft	SAMPLE			WATER CONTENT or RQD	PRESSURE TEST		STRIKE, DIP F - Foliation J - Joint C - Contact B - Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.)		(Type, texture, mineralogy, color, hardness, etc.)
	Depth ft	Type and No.	N or Rec.		Rate of Adv. in ft	Graphical			Computed k 10 ⁻¹ cm/sec	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.)	
								S - Stickenside	CONTINUED FROM PREVIOUS PAGE		
144	NQ-31	95	3.0	25			N22E, 45SE	J	Slight wx	Fresh and hard. Some minor wx effects and rusty staining on joints.	Veining Diorite. Medium-grained medium gray. Somewhat porphyritic.
150	NQ-35	100	4.0	33			N46E, 60SE	J	Severe wx		
	NQ-36	100	6.0	85			N76E, 79NW	J	Rusty stain		
	NQ-37	100	7.0	83			N30E, 81SE	J	Rusty stain		
	NQ-38	100	8.0	87			N35E, 46SE	J	Vuggy		
							N99E, 86SE	J	Minor rusty		
							N49E, 66SE	J	Slight wx		
							N55E, 63SE	J			
							N67E, 76SE	J	Slight wx		
169							BOTTOM OF BORING				

LEGEND
 N - Standard penetration resistance, blows/ft
 Rec - Length recovered/length cored, %
 RQD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample
 U - Undisturbed samples
 S - Shelby tube
 F - Fixed piston
 O - Osterberg
 D - Drilling break
 wx - Weathered, weathering
 N - Denison
 P - Pitcher
 G - GEI
 k - Coefficient of permeability

NOTES

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

United Engineers a subsidiary of
a subsidiary of Southern Company


Date: July 11, 1971 Project 7286
 PAGE 2 of 2 LOG OF BORING E2-13

BORING LOCATION N20167, 179213 Plot No. INCLINATION 11.5 BEARING S55W DATE START/FINISH June 6, 1971 / June 19, 1971
 CASING ID CORE SIZE 2-1/8 x 1-1/8 TOTAL DEPTH 166.0 ft DRILLED BY American Drilling & Boring Co.; T. Canning
 GROUND EL. (MSL) 29.9 ft DEPTH TO WATER TABLE 11.9 ft (on 11, 1971) LOGGED BY Soil - K. L. Poff, Rock - J. R. Row

E.L. MSL ft	SAMPLE			WATER CONTENT or ROD	PRESSURE TEST	STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)
	Depth ft	Type and No.	N or Rec.				
29.9						S - Slickenside	
16.0	31					TOP OF ROCK	
10.0	NX-1	100	3.8	21			Rusty staining Generally fresh and hard internally. Joints and partings have thin minor rusty staining. Closely spaced joints and partings.
10.0	NX-2	100	4.1	33			
10.0	NQ-3	90	2.1	23		N65E, 43NW J N53W, 48SE J N11E, 69SE J N73W, 72NE J	
10.0	NQ-4	93	1.4	27			
20.0	NQ-5	90	2.4	30			Rusty staining Subject to slight to moderate wx although generally hard between joints and partings. Rusty staining on joints. Not slickensided.
20.0	NQ-6	73	2.9	17			
20.0	NQ-7	68	2.7	11		N28E, 67SE J	
30.0	NQ-8	100	4.5	11			
30.0	NQ-9	83	4.1	0			Suggy Fresh and hard. Partings clean.
30.0	NQ-10	39	2.5	0			
30.0	NQ-11	97	1.1	60			
40.0	NQ-12	100	4.4	90		N22E, 53SE J N60W, 69SE J N13E, 10NW J	
40.0	NQ-13	100	5.2	92			Fresh and hard. Drills well. Partings generally clean. Not slickensided.
40.0	NQ-14	100	6.2	87		N 3W, 67NE J N57W, 41NE J	
40.0	NQ-15	98	5.5	92			
40.0	NQ-16	100	5.6	77		N10E, 35NW J N65W, 14NE J	Moderate wx Fresh and hard with thin local rusty stained areas and some local moderate wx. Not slickensided.
40.0	NQ-17	100	6.1	83		N50E, 12SE J N30E, 30NW J	Minor rusty Minor rusty Moderate wx
40.0	NQ-18	100	6.3	65		N15E, 85NW C N 5E, 49SE J N60E, 55SE J	Rusty stain Rusty stain Slight wx Rusty stain
40.0	NQ-19	100	3.6	32		East, 77S J N15W, 12SW J	Slight wx Rusty stain Fresh and hard. Partings subject to rusty stains. Not slickensided.
40.0	NQ-20	100	1.8	71			
40.0	NQ-21	166	5.5	80		N16W, 97NE J N 6E, 64SE J N11E, 77SE J	
40.0	NQ-22	97	1.8	62			Minor rusty Minor rusty Minor rusty Minor rusty Minor rusty
40.0	NQ-23	89	2.7	0			
40.0	NQ-24	100	5.0	11		N10E, 68SE S	
40.0	NQ-25	95	5.3	81			
40.0	NQ-26	100	4.8	67		N78E, 10SE J N75E, 18NW J N73E, 16NW J N26E, 38NW J	Fresh and hard. Some minor wx effects on partings. No chlorite. Not slickensided.
40.0	NQ-27	94	5.0	75		N50E, 62SE J N20W, 67NE J	
40.0	NQ-28	100	5.4	82			
40.0	NQ-29	94	5.7	85		N22W, 58W J	Fresh and hard. Drills well. Joints and partings are clean.
40.0	NQ-30	100	6.0	81			
40.0	NQ-31	100	5.4	100			
40.0	NQ-32	94	6.7	94			
40.0	NQ-33	100	4.6	53		N10E, 22NW J N55E, 69SE J N63E, 72SE J	Fresh and hard. Joints and partings are clean. Not chloritic.
40.0	NQ-34	74	5.7	94			

LEGEND
 N - Standard penetration resistance, blows/ft
 Rec - Length recovered/length cored, %
 ROD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg G - GFI
 D - Drilling break k - Coefficient of permeability
 wx - Weathered, weathering

NOTES
 1) - This is only a partial list of dip and strike data.
 2) - No clays present, therefore no water contents were determined.
 3) - Washed through soil 0-3 ft. No samples taken.
 x - Oriented core

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 Date: July 2, 1971 Project 7246
 PAGE 1 of 2 LOG OF BORING 1-11

BORING LOCATION N2921, E7919, Plant Site INCLINATION 41.7 BEARING S10W DATE START/FINISH June 3, 1971 / June 5, 1971

CASING ID 3 in. CORE SIZE 2-1/8 - 1-7/8 in. TOTAL DEPTH 165.0 ft DRILLED BY American Drilling & Boring, A. Whitaker

GROUND E.L. (MSL) 13.9 ft DEPTH TO WATER DATE June 1, 1971 LOGGED BY Soil: K. Cole, Rock: J. R. Rind

E.L. MSL ft	SAMPLE		RATIO OF ADV. min/ft	WATER CONTENT or RQD		PRESSURE TEST Computed k 10 ⁻¹ cm ² /sec	STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding S = Slippage	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
	Depth ft	Type and No.		Graphic	Graph				1	2
13.9		D								
11.5										
0		NQ-2	81	5.0	0					
10		NQ-3	100	6.0	37		N85W, 80NE N71W, 35NE N58E, 19NW	Rusty Rusty Minor chlorite Minor chlorite	Generally fresh and hard internally. Some minor chlorite on joints and partings.	Foliated quartzite
20		NQ-4	100	6.0	8					
30		NQ-5	100	6.0	42		N75E, 82NW N69E, 81NW	Severe wx	tionable.	Foliated quartzite ⁽²⁾
40		NQ-6	100	3.0	18		N88E, 82NW	Minor chlorite Chips	Fresh and hard, joints and partings clean. Some minor chlorite.	Diorite. Fine-grained dark gray locally resembles quartzite with zones of medium coarse quartz diorite.
50		NQ-7	100	3.0	99		N80E, 35E N83E, 39SW	D		
60		NQ-8	100	3.0	57		N50W, 85NE	Minor chlorite		
70		NQ-9	100	3.0	73				Fresh and hard, joints or partings not chloritic.	Diorite (?) to dioritized quartzite schist (?). Fine to medium grained, medium dark gray feldspathic rock.
80		NQ-10	100	3.0	67			Slight wx		Diorite. Medium, medium gray.
90		NQ-11	100	4.0	67			Moderate wx	Fresh and hard, joints and partings not notably chloritic.	Metagranite (?)
100		NQ-12	98	4.0	73				Fresh and hard. Some joints or partings show minor chlorite.	Metagranite (?). Schist. Fine-grained medium dark gray. Locally well foliated.
110		NQ-13	100	4.0	73			Minor chlorite Pyrite Chlorite Polished-conchoidal		Metagranite (?)
120		NQ-14	100	5.0	49			Minor chlorite	Fresh and hard. Some joints or partings have minor chlorite surfaces. Some chlorite development.	Fused contact
130		NQ-15	98	5.0	72			Minor chlorite Slight wx Minor chlorite		Diorite. Predominantly granodiorite, saussuritized feldspars. Medium-coarse grained. Local patches of fine-grained diorite (?) or quartzite (?) locally foliated.
140		NQ-16	91	5.0	65			1' core unaccounted for	Fresh and hard, joints and partings locally show minor chloritic surfaces.	Metagranite (?) or diorite (?). Fine-grained, medium dark gray. Generally foliated rock.
150		NQ-17	100	4.0	80			Minor chlorite Minor chlorite Minor chlorite		
160		SQ-1	100	5.0	80					

- Legend**
- N - Standard penetration resistance, blows/ft
 - Rec - Length recovered/length cored, %
 - RQD - Length of sound core 4 in. and longer/length cored, %
 - S - Split spoon sample
 - U - Undisturbed samples
 - S - Shelby tube
 - F - Fixed piston
 - O - Osterberg
 - D - Drilling break
 - xx - Weathered, weathering
 - N - Denison
 - P - Pitcher
 - G - GEI
 - k - Coefficient of permeability

NOTES

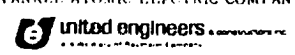
1) - Washed through soil 0 - 11.5 ft. No soil samples taken.

2) - This is only a partial list of dip and strike data. Orientation discontinued at 42 ft.

x - Oriented core

SEABROOK STATION
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

YANKEE ATOMIC ELECTRIC COMPANY

 **United Engineers**

Date: July 2, 1971 Project 7286

PAGE 1 of 2 LOG OF BORING 12-15

BORING LOCATION B20321, E79179, Plant Site INCLINATION 11.5° BEARING S16°W DATE START/FINISH June 3, 1974 / June 5, 1974
 CASING ID 3 in. CORE SIZE 2-1/8" - 1.75 in. TOTAL DEPTH 165.0 ft DRILLED BY American Drilling & Boring, A. Whitaker
 GROUND EL. (MSL) +13.0 ft DEPTH TO WATER DATE June 1, 1974 LOGGED BY Soil - K. P. B., Rock - J. R. Rind

E.L. MSL ft	SAMPLE			WATER CONSIST or RQD	PRESSURE TEST		SHOKE, DIP F = Foliation J = Joint C = Contact B = Bedding S = Sluckenside	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)		
	Depth ft	Type and No.	N or Rec.		RATE OF ADV. min. ft	T			Graphic	Computed psi 10 ⁻¹ k cm/sec	
									CONTINUED FROM PREVIOUS PAGE		
-140	Q-1	95	5.0	81					Minor chlorite	Fresh and hard. Drills well. Some minor smooth chlorite development on some joints or partings.	Metaquartzite (?). Fine-grained medium dark gray locally feldspathized. Local vague banding or foliation.
-150	Q-2	104	5.0	76					Minor chlorite		
-160	Q-2	101	3.0	75					Chlorite	Fresh and hard. Some thin chlorite on joints as shown.	Metaquartzite (?). Fine-grained, medium dark gray vaguely foliated.
-165									Chlorite		
									BOTTOM OF BORING		

LEGEND

N - Standard penetration resistance, blows/ft
 Rec - Length recovered length cored, %
 RQD - Length of sound core 4 in. and longer length cored, %
 S - Split spoon sample
 U - Undisturbed samples


S - Shelby tube N - Denison
 F - Fixed platon P - Pitcher
 O - Osterberg G - GEI

D - Drilling break
 W - Weathered, weathering

k - Coefficient of permeability

NOTES

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 **United engineers**

Date: July 2, 1974 Project 7286

PAGE 2 of 2 LOG OF BORING E2 15

BORING LOCATION N26227, E7010; Plant Site INCLINATION 4° BEARING S78° E DATE START/FINISH May 20, 1971 / May 20, 1971
 CASING ID 3 in. CORE SIZE 2-1/8 - 1-7/8 in. TOTAL DEPTH 155.2 ft DRILLED BY American Drilling & Boring Co. - A. Whalser
 GROUND EL. (MSL) 15.0 ft DEPTH TO WATER TABLE 2.3 ft May 20, 1971 LOGGED BY Soil: R. L. Doh; Rock: J. R. Bond

EL. MSL. ft	SAMPLE			WATER COMPLET. or RQD	PRESSURE TEST	STRIKE, DIP F = Foliation J = Joint C = Contact B = Bedding	CORE BREAKS	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)	
	Depth ft	Type and No.	N or Rec.					RAIL OF ADV. min. ft	Observed psi
-115.0	NQ-30	100	1.0	32		N10E, 68NW S N82E, 77KW S		Minor chlorite D	Foliated
-150.0	NQ-31	100	1.0	82		N27W, 98SW N81W, 56NE 96°		Pyrrhotite	Fresh and hard. Ex- cellent drilling.
-120.0	NQ-32	100	4.0	92		N59W, 53NE S		D	
-160.0	NQ-33	100	1.0	100		N10W, 72SW S		Bleached	Welded breccia
-165.2						BOTTOM OF BORING			Diorite. Medium-fine grained, medium dark gray. Massive. Mag- netic.

LEGEND


N - Standard penetration resistance, blows-ft
 Rec - Length recovered/length cored, %
 RQD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample
 U - Undisturbed samples

S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg G - GET

D - Drilling break k - Coefficient of
 ws - Weathered, weathering permeability

NOTES

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 **United Engineers**
A Division of The McGraw-Hill Companies


Date: June 25, 1971 Project: 7286

PAGE 2 of 2 LOG OF BORING: E2-16

BORING LOCATION N20117, F72221, Plant Site INCLINATION 11° BEARING N6,5E DATE START / FINISH May 30, 1971 / June 5, 1971
 CASING ID 3 in. CORE SIZE 1.75 in. TOTAL DEPTH 165.0 ft DRILLED BY American Drilling & Boring, T. Canning
 GROUND EL. (MSL) 3.2 ft DEPTH TO WATER DATE June 5, 1971 LOGGED BY Col. J. P. Rock, J. H. Reed

EL. MSL. ft	SAMPLE			WATER CONTENT	PRESSURE TEST	STRIKE, DIP	SOIL AND ROCK DESCRIPTIONS
	Depth ft	Type and No.	N or Rec.				

EL. MSL. ft	Depth ft	Type and No.	N or Rec.	WATER CONTENT %	PRESSURE TEST	STRIKE, DIP	SOIL AND ROCK DESCRIPTIONS
-100	137	NQ-26	98	2.5	81		Minor chlorite
-140							
-150	150	NQ-27	100	2.9	75		Slight wx Polish Pyrite Fresh and hard. Conchoidal and fused polished surfaces on some joints as shown.
-160							Metagraywacke (G). Feldspathic. Fine to medium grained, medium gray. Only vague local foliation.
-160	160	NQ-28	89	2.5	25		
-120	165	NQ-29	100	3.0	55		
BOTTOM OF BORING							

LEGEND N - Standard penetration resistance, blows/ft Rec - Length recovered/length cored, % RQD - Length of sound core 4 in. and longer/length cored, % S - Split spoon sample U - Undisturbed samples S - Shelby tube F - Fixed piston O - Osterberg D - Drilling break wx - Weathered, weathering	NOTES N - Denison P - Pitcher G - GEI k - Coefficient of permeability	SEABROOK STATION PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE YANKEE ATOMIC ELECTRIC COMPANY 	
		Date: July 3, 1971	Project: 7286
PAGE 2 of 2		LOG OF BORING F2-17	

BORING LOCATION N20270, F75272 Plant Site INCLINATION 39 BEARING N68.5W DATE START/FINISH May 22, 1971 / May 28, 1971
 CASING ID 3 in. CORE SIZE 1-7/8 in. TOTAL DEPTH 168.0 ft DRILLED BY American Drilling & Boring Co. - T. Cannon
 GROUND EL. (MSL) 11.0 ft DEPTH TO WATER TABLE 21.0 ft May 21, 1971 LOGGED BY Soil - G. Polk, Rock - J. R. Rand

EL. MSL ft	SAMPLE			WATER CONTENT or RQD	PRESSURE TEST		SOUND, DIP F = Foliation J = Joint C = Contact B = Bedding	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.)	SOIL AND ROCK DESCRIPTIONS (Type, texture, mineralogy, color, hardness, etc.)	
	Depth ft	Type and No.	N or Rec.		Graphical	Sum psi				Computed k 10 ⁻¹ cm/sec
11.0							5' SLICKENSIDE			
10										
14.0							TOP OF ROCK			
0							N28W, 50SW S	Slight wx Rock broken on close chlorite- coated joints. Minor to moderate chlorite on joints	Fresh. Some slight wx on closely- spaced joints. Joints have minor chlorite coatings.	Diorite (?) Fine-grained medium dark gray. Looks somewhat like quartzite. Magnetic.
20							N53E, 25SE J	Powdery wx Slight to moderate wx - stained	Fresh, intermit- tent slight to mod- erate wx on joint zones. Some minor bleaching. Minor rust. Magnetic.	Mixed fine quartzose diorite. Medium dark gray. May be meta- quartzite (?) Rock is magnetic. Apparently disseminated pyrrhotite.
30							N 51E, 73SE J N55E, 25SE J	Slight wx Chips - moderate wx		
40							N30W, 72NE J N87E, 46SE S N25E, 41SE J N18W, 41SW S N 8W, 69SW S	Slight wx Minor chlorite Slight rusty D	Fresh and hard. Not affected by wx. Joints and partings are not chlorite- coated. Minor powdery wx effects only on joints.	Quartzite. Fine- grained medium gray, locally feldspathized medium coarse-grained, medium light gray quartz diorite?
50							N50W, 87NE S	Minor chlorite	Fresh and hard inter- nally. Some local slight to mod- erate wx. No rust.	Feldspar porphyroblasts Diorite. Mixed fine- grained medium-dark gray diorite and medium to medium coarse grained diorite. Feldspars show saussurization. Mag- netic.
60							N63W, 71NE S N61E, 80SW S N45E, 85NW J	Slight wx		
70							N75W, 61SE J N14W, 68NE J N20W, 66NE S	Slight wx Chips-moderate wx Slight chlorite		
80								Chips - 2.2' core lost - rock looks OK. No chlorite 2' core lost Chips-chlorite Chlorite Chips	Rock which was re- covered is fresh and hard.	Diorite. Fine-grained, medium dark gray. Locally medium-coarse grained, saussurized. Magnetic.
90								Chlorite- Slight-mod. wx Chips-chlorite coated joints	Fresh internally. Cut by closely- spaced chlorite coated joints. (See Boring E2-1.)	Diorite. Fine to medium- fine grained medium dark gray. Magnetic. Slight greenish tinge.
100								Pyrite	Fresh and hard. Chlorite-coated joints 102.0' to 105.0'. Joints and partings generally fresh.	Diorite. Mixed fine- grained medium gray diorite and medium coarse- grained medium gray quartz diorite. Magnetic disseminated pyrrhotite local 1.2" feldspar por- phyroblasts.
110							N37W, 44SW S N 11, 76SE J N11W, 67NE J N61E, 18W S		Fresh and hard. Drills well. No chlorite on joints. Joints and partings show only minor surface wx effects.	
120							N77W, 50NE S N54E, 68SE J		Fresh and hard. Most joints are clean. Local minor chlorite partings.	Diorite. Fine-grained, medium dark gray. Massive. Magnetic. Disseminated pyrrhotite.
130							N32W, 50NE S N48E, 64SE S N45E, 25NW S	Vertical joint Slight wx		
140										
148										

LEGEND
 N - Standard penetration resistance, blows/ft
 Rec - Length recovered/length cored, %
 RQD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg G - GFI
 D - Drilling break k - Coefficient of permeability
 wx - Weathered, weathering

NOTES
 1) - Roller bitted from 11.0 ft to 15.5 ft.
 2) - No clays sampled; therefore no water contents were determined.
 3) - Washed through soil 0-14 ft. No samples taken.
 * - Not available.
 x - Oriented core.

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

United engineers a contractors inc.
A SUBSIDIARY OF UNITED COMPANY

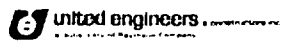
Date: July 1, 1971 Project: 4266

PAGE 1 of 2 LOG OF BORING

BORING LOCATION N20270, 179270, 1 Plant Site INCLINATION 39 BEARING S69.5W DATE START/FINISH May 22, 1971 / May 28, 1971
 CASING ID 3 in. CORE SIZE 1-7/8 in. TOTAL DEPTH 168.0 ft DRILLED BY American Drilling & Boring Co., T. Canning
 GROUND EL (MSL) 119.0 DEPTH TO WATER DATE May 23, 1971 LOGGED BY Sol. L. Poff, R. J. J. B. Reed

E.L. MSL ft	SAMPLE			WATER CONTENT or RQD	PRESSURE TEST	STRIKE, DIP	SOIL AND ROCK DESCRIPTIONS (Weathering, defects, etc.) (Type, texture, mineralogy, color, hardness, etc.)
	Depth ft	Type and No.	N or Rec.				
118							
150		NQ-34	100	5	87	230E, 28SW 3	Minor chlorite
150		NQ-34	100	0	25	113W, 66SE 3	Minor chlorite
160		NQ-40	97	8	80	19W, 86NE 8	Pyrite chlorite
160		NQ-40	97	8	80	152E, 66SE 8	Pyrite
168		NQ-11	98	0	100	235E, 72SE 8 236W, 53SW 8	Pyrite Fresh and hard. Some chlorite and pyrite on joints.
168						250E, 67SE 4 177W, 52SW 1	Pyrite Pyrite
						BOTTOM OF BORING	

LEGEND
 N - Standard penetration resistance, blows/ft
 Rec - Length recovered/length cored, %
 RQD - Length of sound core 4 in. and longer/length cored, %
 S - Split spoon sample ∇ Groundwater
 U - Undisturbed samples
 S - Shelby tube N - Denison
 F - Fixed piston P - Pitcher
 O - Osterberg G - GEI
 D - Drilling break k - Coefficient of permeability
 wx - Weathered, weathering

SEABROOK STATION
 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
 YANKEE ATOMIC ELECTRIC COMPANY

 Date: Jul. 1, 1971 Project: 7286
 PAGE: 2 of 2 LOG OF BORING: 1 of 1

APPENDIX I I

Boring No. E2-11

Ground Elevation (MSL) = + 25.0

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
66.1	N21E	43MW	X				
70.2	N15E	64NW	X				
74.0	N13E	53NW	X				
75.9	N67W	45NE	X				
76.0	N12W	50SW			X		
76.1	N80W	70NE			X		
77.0	N30W	69SW			X		
78.5	N86E	67NW	X				
81.1	N15W	62NW			X		
82.9	N39E	15NW			X		
83.0	N45E	84NW			X		
84.0	N17W	49sw			X		
85.1	N50E	7SE	X			X	Diabase over Diorite
87.0	N14W	40sw	X				
87.4	N65E	80NW	X				
88.5	N65W	55NE	X				
99.3	N45E	72SE				X	Diorite over Diabase
99.9	N30E	75NW			X		
100.6	N55E	76NW				X	Diabase over Diorite
103.1	N50W	25SW	X				
105.5	N52E	68NW	X				
108.1	N35E	45NW	X				
108.9	N85E	86NW		X			
110.9	N38E	48NW	X				
110.9	N10E	85SE	X				
111.0	N50E	81NW	X				
111.1	N50E	81NW	X				
111.2	N50E	81NW	X				
112.0	N27W	72NE	X				
113.1	N65E	90NW	X				
113.4	N50E	53NW	X				
113.5	N15W	55NE	X				
114.0	N65W	55SW		X			
121.5	N75E	90NW		X			
123.5	N75E	89NW		X			
124.8	N75E	82NW					
129.3	N34E	19NW	X				
129.8	N29E	40NW	X				
129.9	N82E	37NW	X				
131.1	N33E	36NW	X				
133.1	N15E	50NW	X				
133.1	N15E	50NW					
133.2	N30W	75NE					
133.5	N25E	37NW	X				
134.5	N40E	41NW	X				
135.2	N43E	80NW	X				

Project Seabrook
Project No. 7286

Boring No. E2-11

Ground Elevation (MSL) = + 25.0

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
137.5	N74W	61NE			X		
142.8	N44E	40NW	X				
143.3	N25E	40NW	X				
143.6	N47E	46NW	X				
143.8	N30E	45NW	X				
144.2	N25E	36NW	X				
144.8	N30E	45NW	X				
144.9	N20E	45NW	X				
145.4	N70W	80NE		X			
146.0	N31E	22NW	X				
147.4	N27E	32NW	X				
148.5	N70E	90NW		X			
149.6	N70W	71NE		X			
152.0	N26E	28NW	X				
154.4	N85E	70NW		X			
155.3	N63W	25NE		X			
158.2	N35E	41NW	X				
159.0	N18W	70NE	X				
161.0	N85W	16NE	X				
162.0	N30E	75NW	X				
163.1	N25E	45NW	X				
163.9	N70W	15NE	X				
164.8	N50W	43NE					

Boring No. E2-12Project Seabrook
Project No. 7286Ground Elevation (MSL) = t 21.5

Type of Feature

Feature Depth	Strike	Dip	Joint'	Foliation	Slickensided Surface	Contact	Remarks
19.2	N18E	43NW	x				
19.8	N17E	46NW	X				
20.2	Horizontal		X				
21.2	North	21w	X				
21.9	N35E	25SE		X			
23.0	N23W	39SW	X				
24.0	N17E	47NW	X				
24.4	N50E	61SE	X				
25.1	Horizontal		X				
25.8	N38W	73NE	X				
27.1	N73W	15NE	X				
29.0	N41W	67NE	X				
35.1	N23E	47NW	X				
40.0	N73W	82SW		X			
44.3	N63W	37SW	X				
48.9	N12E	67NW	X				
50.4	N63E	45NW	X				
53.3	N40E	46NW	X				
57.3	N38E	52NW	X				
59.4	N34E	43NW	X				
60.0	N8W	79NE	X				
61.5	N51E	37NW	X				
75.0	N26W	86NE	X				
77.0	N75W	55SW	X				
77.5	N9E	48NW	X				
77.6	N9E	48NW	X				
82.0	N19W	81 SW	X				
82.4	N41E	40NW	X				
83.0	N81E	55SE	X				
85.7	N26E	65NW	X				
89.0	N35E	45NW				X	Diabase Dikelet
89.1	N35E	45NW	X			X	Diabase Dikelet
103.9	N28W	43sw	X				
108.0	N26E	37NW	X				
111.9	N65W	67SW	X				
114.3	N36E	45NW	x				
119.5	N35E	44NW	X				
119.6	N35E	44NW	X				
119.7	N60E	22NW	X				
132.1	N15E	12NW	X				
133.0	N40E	43NW	X				
136.0	N45E	12NE	X				
143.1	N35E	42NW	X				
143.9	N55E	50SE		X			
144.9	N75E	73SE		X			
153.7	N25E	37NW	X				
156.8	N25E	26NW	X				

Project Seabrook
 Project No. 7286

Boring No. E2-13

Ground Elevation (MSL) \square + 30.5

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
23.6	N83E	28NW	X				
25.3	N40E	58SE	X				
28.7	N15E	75SE	X				
34.0	Horizontal		X				
34.5	N25E	12SE	X				
35.1	N30E	83SE	X				
35.7	N35E	22sw	X				
38.3	N32E	67SE	X				
39.2	N5W	31NE	X				
44.2	N65E	27NW	X				
49.5	N25E	67SE	X				
50.8	N34E	30SE	X				
50.9	N29E	51SE	X				
51.8	N55E	85SE					
52.5	N55E	11SE	X				
55.9	N28E	25NW	X				
62.8	N28E	64SE	X				
63.0	N32E	60SE	X				
64.3	N35E	66SE	X				
67.0	N79W	39sw	X				
70.5	N35W	63NE	X				
70.8	N40W	54NE	X				
76.8	N55E	7NW	X				
77.0	N50E	4NW	x				
77.3	N52E	22NW	X				
78.7	N53E	84SE	X				
81.2	N46E	86NW	X				
82.0	N67E	75SE	X				
83.8	N80E	30SE	X				
89.5	N83E	52SE	X				
90.3	East	58S	X				
98.8	N45E	21NW	X				
99.3	N51E	65SE	X				
100.6	N46E	58SE	X				
101.7	N23E	39sw	x				
102.8	N45E	87NW	X				
105.0	N15W	57NE	X				
108.4	N21E	88SE	x				
110.4	N35E	88SE	X				
112.5	North	36W	X				
115.3	N19E	86SE				X	Diabase over Diorite
117.3	N67W	83SW	X				
117.8	Horizontal		X				
118.2	N40E	N40E				X	Diorite over Diabase
118.3	N45W	N40E				X	Diabase over Diorite
120.1	N30E	N45W	X				

Project Seabrook
 Project No. 7286

Boring No. E2-13

Ground Elevation (MSL) = + 30.5

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
121.8	N30E	38SE	X				
123.0	N70E	23NW		X			
123.7	N80W	37NE	X				
125.0	N50W	30NE	X				
125.4	N44E	57SE	X				
128.0	N16W	44NE	X				
129.3	N68W	54NE	X				
131.3	N56E	83NW				X	Diorite over Diabase
131.6	N15W	19%	X				
131.7	N45E	76SE	X			X	Diabase over Diorite
132.8	N60E	44SE	x				
134.1	N45E	35SE	X				
135.0	N42E	37SE	X				
136.3	East	8NE	X				
136.8	N38E	73SE	X				
138.0	N50E	18NW	X				
139.3	N35E	43SE	X				
140.5	N31E	42SE	X				
142.4	N28E	30SE	X				
142.5	N40E	46NW	X				
145.0	N22E	45SE	X				
145.2	N22E	45SE	X				
149.7	N46E	63SE	X				
150.0	N34E	34SE	X				
150.5	N21E	73SE	X				
151.3	N56E	79NW	X				
151.7	N26E	48SE	X				
153.0	N30E	81SE	X				
154.7	N26E	78SE	X				
154.9	N38E	46SE	X				
157.4	N89E	86SE	X				
158.0	N75W	72SW	X				
159.9	N49E	66SE	X				
162.3	N55E	63SE	X				
163.7	N60E	70SE	X				
165.5	N67E	76SE	X				

Boring No. E2-14

Ground Elevation (MSL) = + 29.9

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
11.8	N65E	43NW	X				
12.0	N65W	77SW	X				
13.6	N83W	88NE	X				
13.8	N70W	42NE	X				
13.9	N70W	42NE	X				
14.5	N44E	69SE	X				
15.8	N37E	67SE	X				
16.5	N73W	72NE	X				
28.9	N28E	67SE	X				
29.0	N85E	26NW	X				
42.2	N22E	53SE	X				
43.2	N87E	37NW	X				
44.0	N60W	69NE	X				
46.0	N43E	40NW	X				
50.8	N3W	67NE	X				
51.8	N57W	71NE	X				
53.2	N57W	41NE	X				
58.9	N30E	35NW	X				
62.5	N65W	14NE	X				
63.8	N71W	52NE	X				
65.3	N50E	42St	X				
65.4	N75E	38SE	X				
66.7	N42W	50NE	X				
67.0	N30E	30NW	X				
70.0	N45E	85NW				X	Diorite over Diabas
70.8	N30W	21NE	X				
72.9	N5E	49SE	X				
73.5	N43W	68NE	X				
74.6	N60E	55SE	X				
78.2	East	77s	X				
80.0	N15W	42SW	X				
80.2	N70E	12NW	X				
80.4	N49E	33NW	X				
81.2	N46W	87NE	X				
85.0	N34W	82SW	X				
87.5	N6E	64SE	X				
87.8	N48W	14NE	X				
88.2	N3W	89NE	X				
89.3	N11E	77SE	X				
89.6	N65E	86SE	X				
94.3	N10E	68SE					
94.6	N59E	59SE					
99.3	N78E	40SE	X				

Boring No. E2-14

Ground Elevation (MSL) = + 29.9

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
101.3	N75E	18NW	X				
103.8	N73E	46NW	X				
104.0	N77E	46NW	X				
105.0	N26E	38NW	X				
107.5	N50E	62SE	X				
108.0	N46E	63SE	X				
108.3	N21E	62SE	X				
109.8	N20W	61NE	X				
110.1	N45E	81SE	X				
110.4	N45E	81SE	X				
112.3	N 22W	5 SW	X				
112.4	N65E	38NW	X				
129.3	N40E	22NW		X			
129.5	N60E	33NW		X			
131.5	N55E	69SE	X				
131.9	N84W	7511E	X				
132.2	N50W	64NE	X				
133.5	N63E	72SE	X				
141.9	N71W	25NE	X				
142.5	N 73W	20NE	X				
146.8	N63W	60NE	X				
148.9	N49E	62SE	X				
149.2	N 75W	53NE	X				
150.0	N34E	70SE	X				
153.2	N6 1W	54NE	X				
154.6	N70W	39NE	X				
155.9	N65E	48NW					
158.0	N55E	29NE	X				
164.8	N25W	20SW		X			

Boring No. E2-15Project Seabrook
Project No. 7286Ground Elevation (MSL) = + 13.9

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
17.0	N85W	80NE			X		
17.6	N85E	89NW		X			
18.6	N73W	70NE		X			
18.7	N45E	36NW	X				
19.4	N74W	35NE	X				
20.9	N69E	65NW			X		
21.7	N58E	49NW			X		
16.5	N82E	88NW			X		
24.9	Horizontal		X				
26.6	N75E	82NW		X			
27.6	N69E	83NW		X			
28.1	N77W	78NE			X		
30.0	N50W	78NE			X		
29.3	N63E	86SE			X		
31.0	N88E	82NW			X		
31.5	N86E	80NW			X		
32.0	N49W	73NE			X		
35.5	N80E	3SE		X			
37.5	N83E	39NW			X		
40.3	N50W	85NE			X		
41.5	N55W	86NE			X		
39.7	N60W	60NE			X		

Boring No. E2-16Project Seabrook
Project No. 7286Ground Elevation (MSL) = + 16.0

Feature Depth	Strike	Dip	Type of Feature				Remarks
			Joint	Foliation	Slickensided Surface	Contact	
17.3	N36E	28NW	X				
18.3	N10W	56SW	X				
20.0	N5W	85SW			X		
20.6	N20W	70SW	X				
23.0	N18W	58SW	X				
23.5	N25E	15NW	X				
23.9	N25W	50SW	X				
24.3	N25W	53SW	X				
25.3	N45W	64SW	X				
25.9	N5E	86SE	X				
29.9	N15W	64SW	X				
30.0	N15W	64SW	X				
32.0	N21W	68SW	X				
33.9	N10W	68SW	X				
34.3	N8W	47SW	X				
35.0	N46W	30NE		X			
41.2	N11W	83SW	X				
41.7	N10W	55SW	X				
43.7	N57E	38NW	X				
44.5	N50E	30NW			X		
44.6	N52W	61NE			X		
45.1	N43E	69NW	X				
45.6	N19E	71NW	X				
46.1	N25E	89NW	X				
47.5	N44E	61NW			X		
48.0	N39W	67SW	X				
49.0	N70E	46NW	X				
50.0	N84W	68NE			X		
50.4	N42E	77NW	X				
52.4	N16E	84NW	X				
52.5	N16E	84NW	X				
53.0	Horizontal		X				
54.6	N15E	78SE			X		
56.9	N21E	69NW	X				
57.7	N27E	77NW	X				
58.2	N51E	47NW			X		
58.3	N86W	59NE			X		
58.13	N7E	62NW	X				
75.4	N31E	28NW	X				
77.4	N20E	73NW	X				
78.4	N43E	40NW	X				
79.7	N19E	37NW	X				
81.5	North	26W			X		
81.6	N26E	27NW			X		
82.3	N26E	38NW	X				
82.7	N15E	28NW	X				

Boring No. E2-16Project Seabrook
Project No. 7286Ground Elevation (MSL) = + 16.8

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
83.8	N15E	25NW	X				
86.8	N22E	34NW	X				
87.5	N5E	76SE	X				
88.0	N55W	82NE	X				
89.0	N12W	74SW			X		
96.5	N20E	33NW			X		Trend=N35W Plunge=27
100.8	N53E	68NW	X				
102.5	N12E	28SE		X			
104.9	N5W	60SW			X		Trend=N71W Plunge=54
106.2	N41W	85SW			X		Trend=S34W Plunge=87
107.0	N50E	5NW			X		Trend=N66W Plunge=19
107.5	N30W	11NE		X			
101.9	N25W	81SW			X		Trend=S16E Plunge=18
109.1	N21W	45SW	X				
109.3	N41E	25NW	X				
110.9	N5W	84SW			X		Trend=S20W Plunge=70
111.1	Horizontal		X				
112.1	N36E	50NW			X		Trend=N71W Plunge=45
112.3	N15E	15NW			X		Trend=S60E Plunge=16
113.0	N5E	85NW			X		Trend=S55W Plunge=70
115.3	N23E	32NW	X				
115.4	N15E	20NW	X				
115.9	N20E	30NW	X				
116.9	N26E	32NW	X				
118.9	N29E	72NW	X				
121.3	N25E	35NW	X				
121.11	N70E	17SE			X		
121.8	N70W	74NE		X			
122.0	N30E	30NW	X				
123.1	N35E	22NW			X		Trend=N35W Plunge=22
124.3	N15W	81SW			X		
125.6	N30E	21NW	X				
126.7	N28W	84SW	X				
127.6	N61E	56SW			X		Trend=N60W Plunge=33
128.8	N48W	76 SW		X			
129.3	N35W	77SW			X		
130.1	N40W	24NE			X		
131.0	N15W	14NE		X			
131.2	N64W	51NE			X		
132.4	N23W	76 SW			X		
133.0	N5W	74SW			X		
133.0	N70E	30NW	X				
133.3	N40E	83SE	X				
133.5	N10W	11NE			X		
134.0	N35E	35NW			X		
134.3	N45W	45NE	X				

Boring No. E2-16

Project Seabrook
Project No. 7286

Ground Elevation (MSL) = +16.8

Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
140.5	N21E	30NW			X		
142.2	N53E	45NW			X		Trend=N35E Plunge=10
142.3	N41E	10NW			X		
143.1	N50E	65NW			X		
143.2	N71E	69NW			X		Trend=N40E Plunge=33
143.9	N81E	55NW			X		Trend=N35E Plunge=35
144.1	N72E	65NW			X		
144.1	N17E	54NW	X				
146.1	N59E	80NW			X		Trend= N5W Plunge=73
146.5	N37E	63NW			X		Trend=N20E Plunge=17
147.2	N40E	68NW			X		
147.5	N8W	48SW			X		
140.1	N59E	80NW			X		
148.2	N68E	62NW			X		
148.3	N82E	77NW			X		
149.5	N53E	65NW			X		
151.2	N27W	90SW			X		
151.8	Horizontal		X				
152.0	N81W	56NE			X		
154.0	N35E	29NW			X		
155.7	N59W	53NE			X		
162.0	N10W	72 SW			X		

Boring No. E2-17

Project Seabrook
Project No. 7286

Ground Elevation (MSL) = t 13.3

Type of Feature

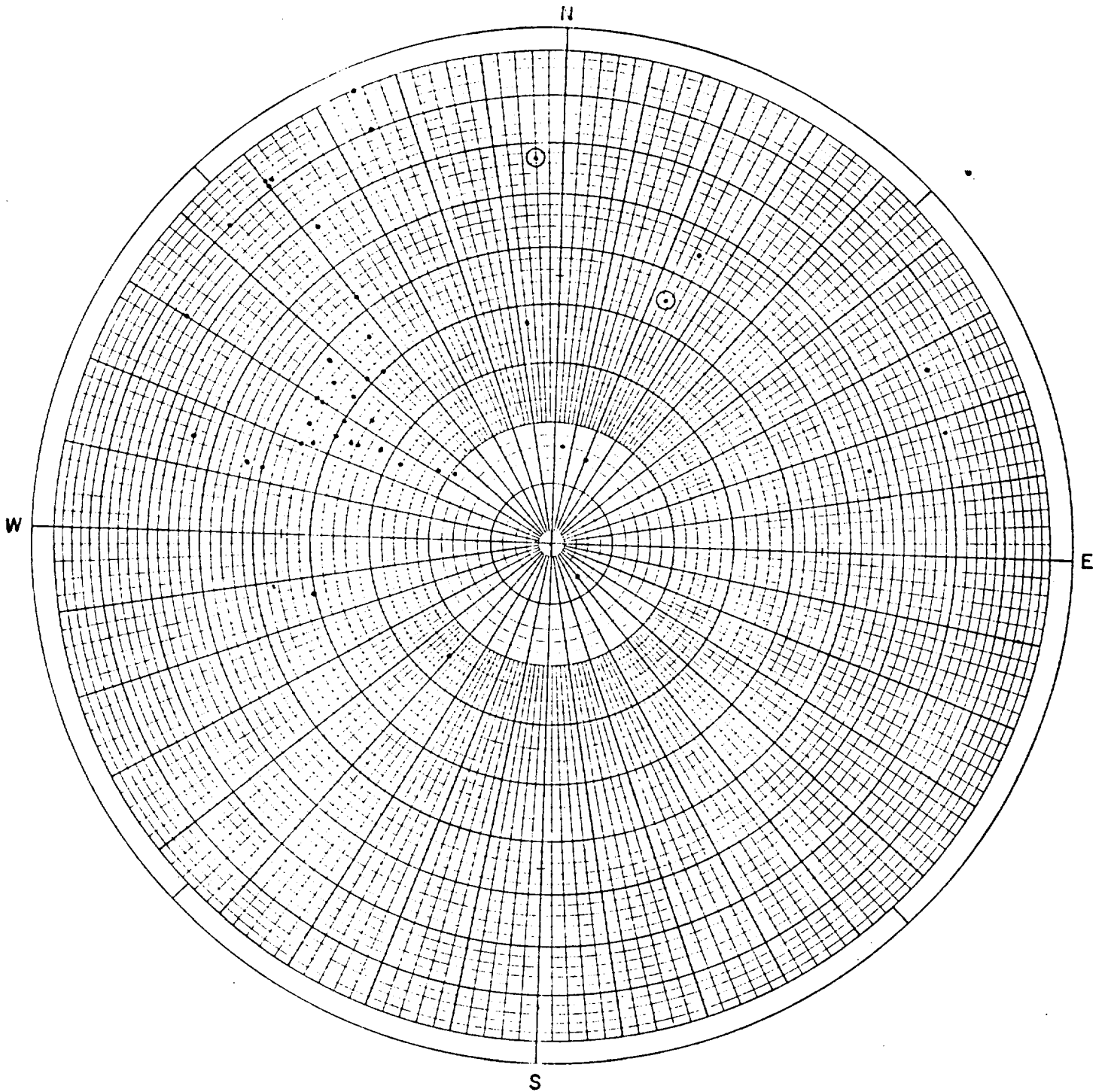
Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
28.0	N37E	34NW	X				
29.5	N55E	59sc	X				
33.3	N87W	87SW		X			
34.3	N47W	23NE			X		
35.9	N17W	77NE	X				
42.6	N50W	78NE			X		
43.4	N49E	23NE			X		
44.1	N61E	52NE	X				
45.0	N24W	10NE			X		
45.1	N49E	60NE			X		
45.3	N73E	84NE			X		
45.9	N51E	24NE	X				
54.7	N55W	80NE		X			
55.5	N78W	86NE			X		
56.0	N68E	80NE			X		
56.2	N76W	86NE			X		
56.3	N44E	64NE			X		
56.4	N44E	64NE			X		
60.5	N71W	89NE			X		

Boring No. E2-18Project Seabrook
Project No. 7286Ground Elevation (MSL) = + 14.9Type of Feature

Feature Depth	Strike	Dip	Joint	Foliation	Slickensided Surface	Contact	Remarks
22.8	N28W	50SW			X		
36.0	N53E	25SE	X				
42.0	N5E	73SE	X				
42.6	N42E	64SE	X				
43.1	N55E	25SE	X				
44.0	N8W	45SW	X				
46.6	N30W	72NE	X				
57.0	N45W	75SW			X		
47.5	N40W	81SW			X		
49.1	N87E	86SE			X		
50.2	N87E	73SE			X		
50.3	N60W	36SW	X				
51.3	N25E	81SE	X				
53.0	N48W	44SW			X		
54.0	N8W	34SW			X		
54.1	N76W	56SW	X				
54.2	N73W	73SW			X		
54.3	N21E	70SE			X		
56.0	N8W	69SW			X		
57.11	North	East	X				
61.7	N50W	87NE			X		
64.6	N63W	74NE			X		
66.6	N64E	80SW	X				
67.3	N5W	52SW			X		Trend=N79W Plunge=18
67.9	N55E	89SE	X				
68.0	N45E	85NW	X				
68.3	N45E	85NW	X				
68.5	N23E	45NW	X				
72.2	N55W	61NE	X				
73.6	N45E	62SE	X				
74.8	N14W	68NE	X				
75.0	N42E	71SE	X				
76.0	N20W	66NE			X		
123.8	N37W	44SW			X		
125.0	N4E	76SE	X				
126.0	N21W	63NE			X		Trend=S62E Plunge=52
176.1	N6E	64SE			X		
126.3	N17W	64NE			X		
128.0	N14W	67NE	X				
129.6	N70E	53NW	X				
131.1	N64E	1NW			X		
132.5	N15W	68NE	X				
135.6	N77W	50NE			X		
137.1	N54E	68SE			X		
137.4	N42W	62NE			X		
143.9	N32W	50NE			X		Trend=S25E Plunge=38

APPENDIX I I I

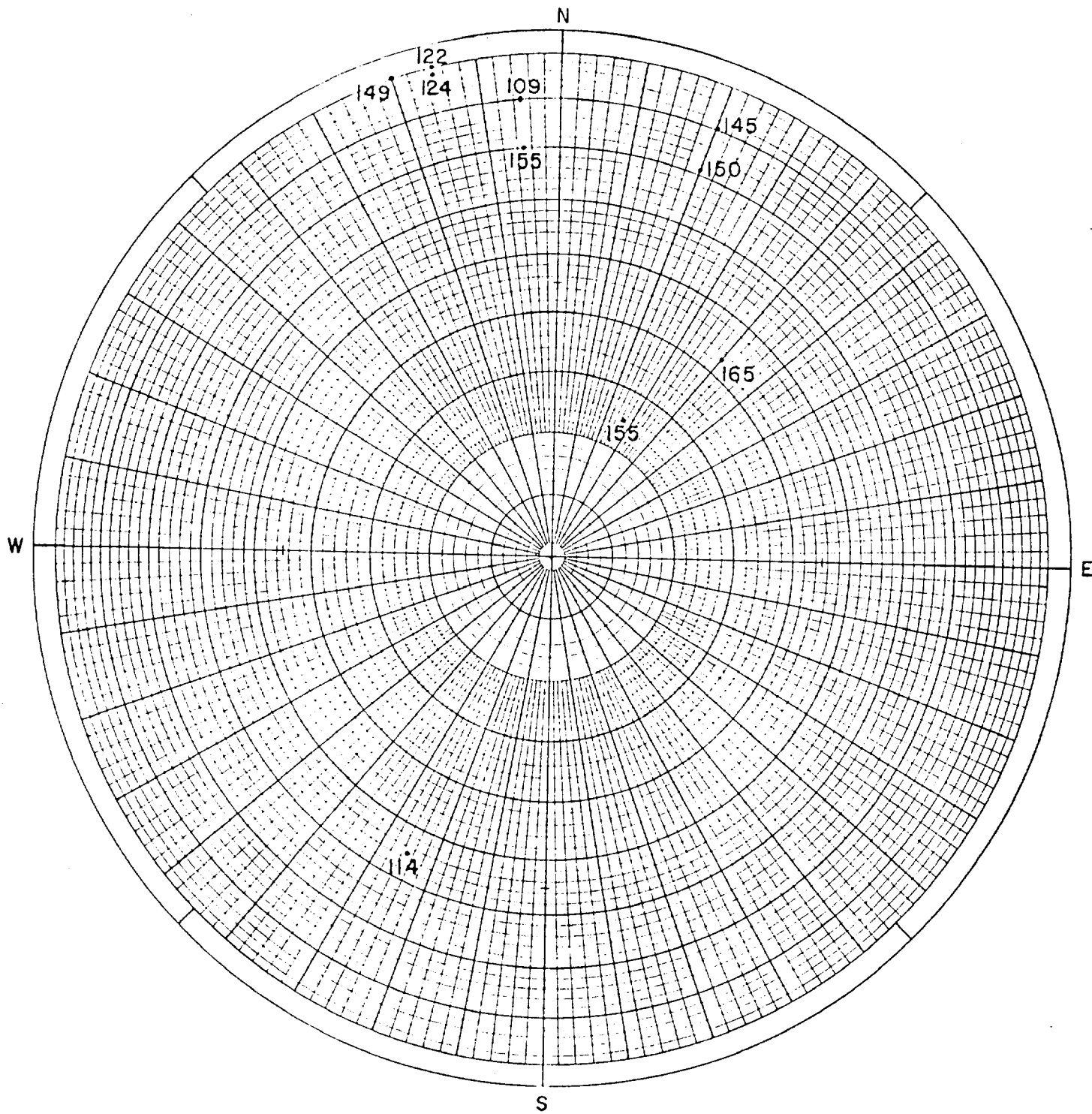
APPENDIX III
Polar Equal Area Stereo Net Projections



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-11
Ground Elevation (MSL) +25.5 ft
Joints in:

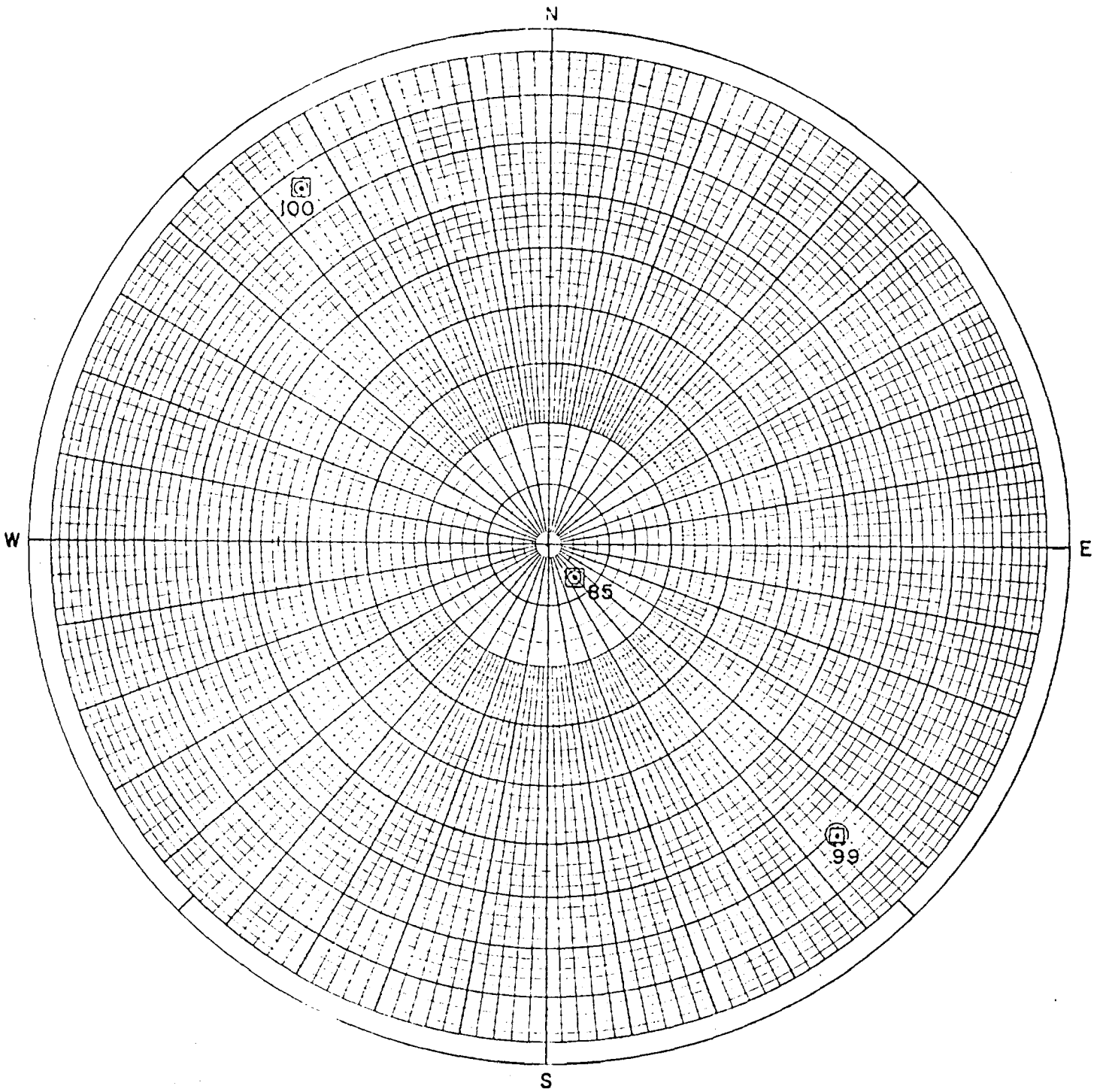
- Diorite
- ⊙ Diabase



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Seabrook Station
 June 1974

Boring E2-11
 Ground Elevation (MSL) +25.0 ft
 Foliation in:

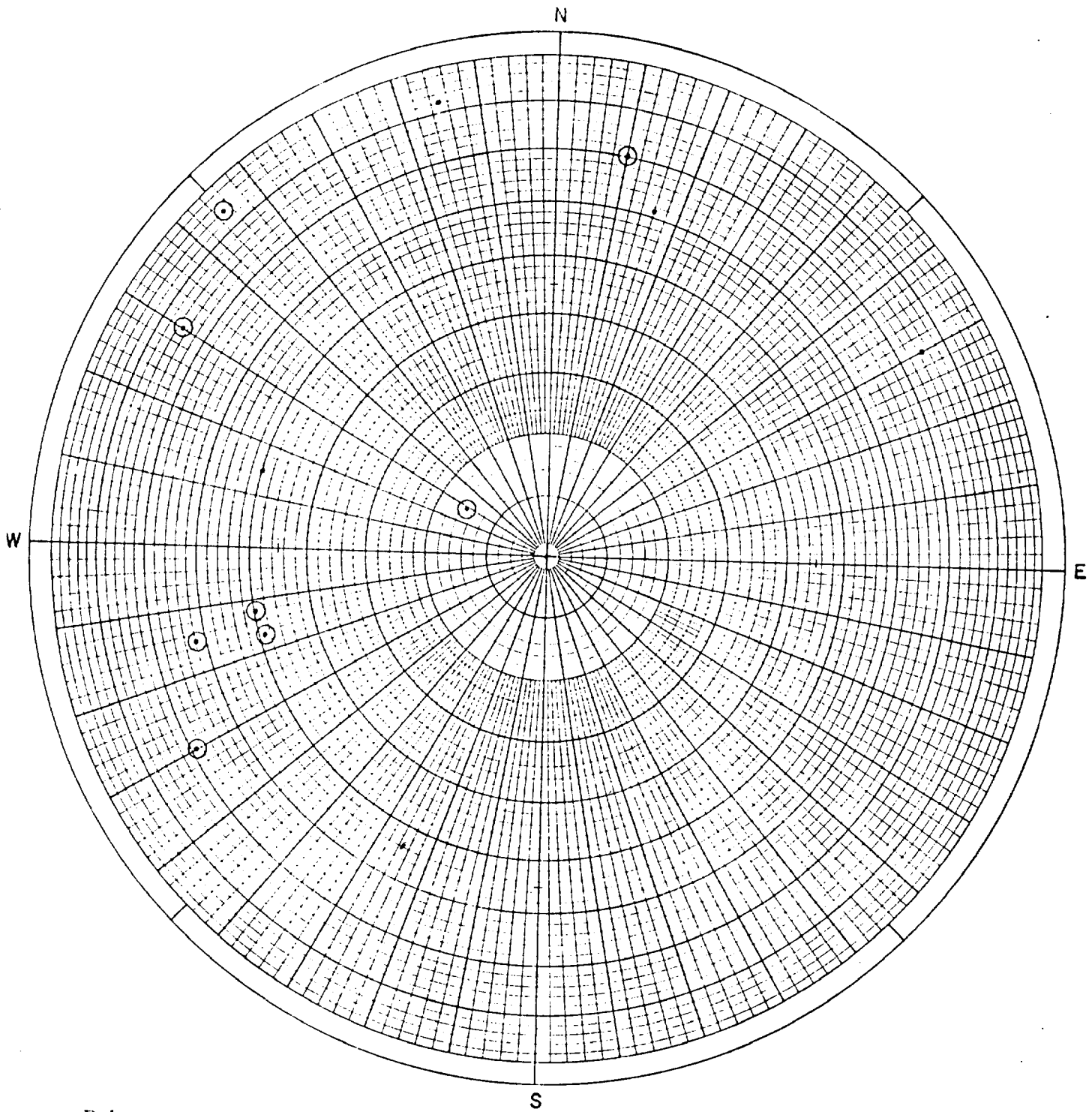
. Diorite



Polar Equal Area Sterco Net
 Geotechnica | Engineers, Inc.
 Seabrook Station
 June 1974

Boring E2-11
 Ground Elevation (MSL) +25.0 ft
 Contacts and Depth :

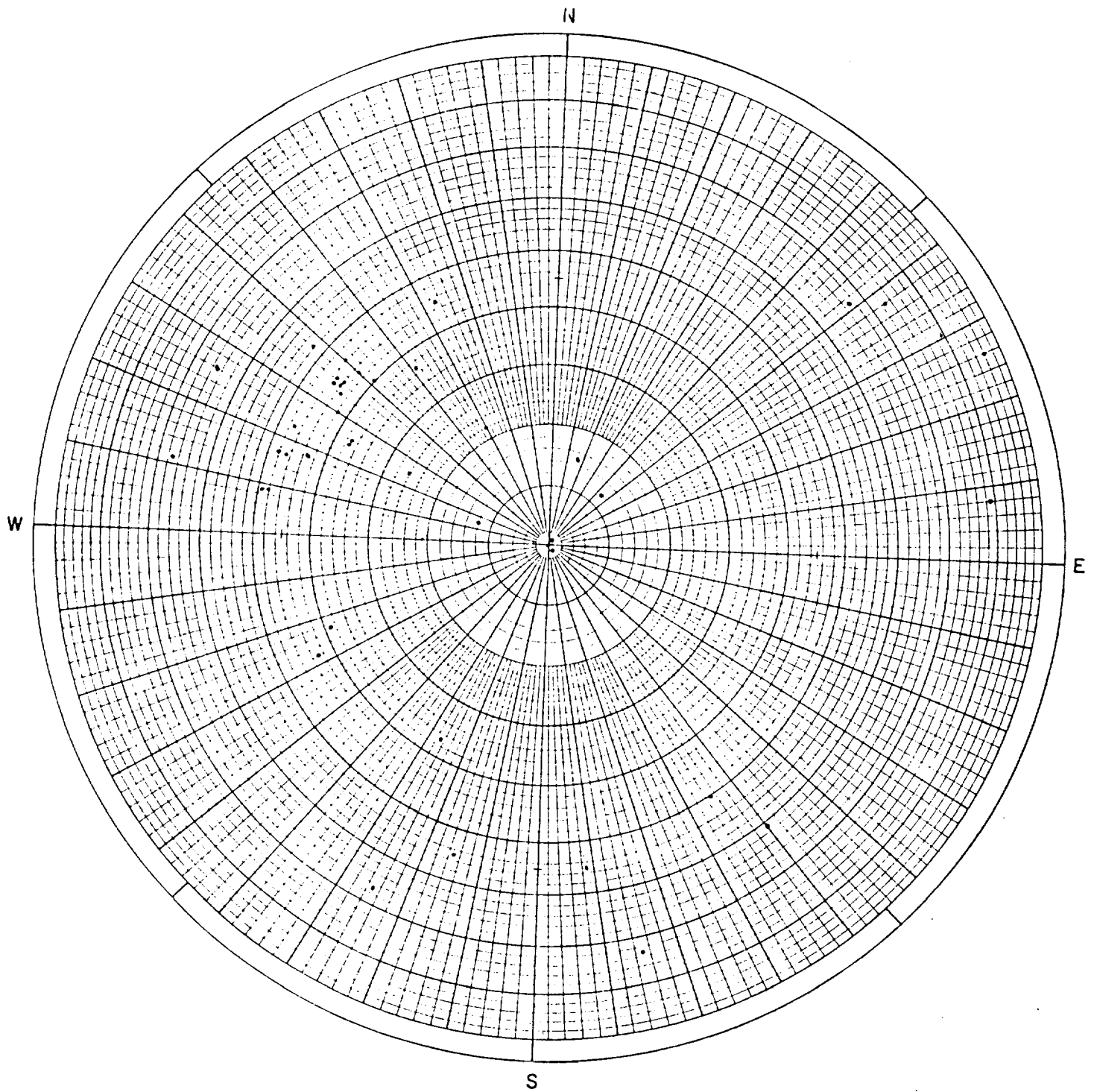
- ⊠ Diorite over Diabase
- ⊙ Diabase over Diorite



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Seabrook Station
 June 1974

Boring F2-11
 Ground Elevation (MSL) i-25.0 ft
 Slickensided Surfaces in:

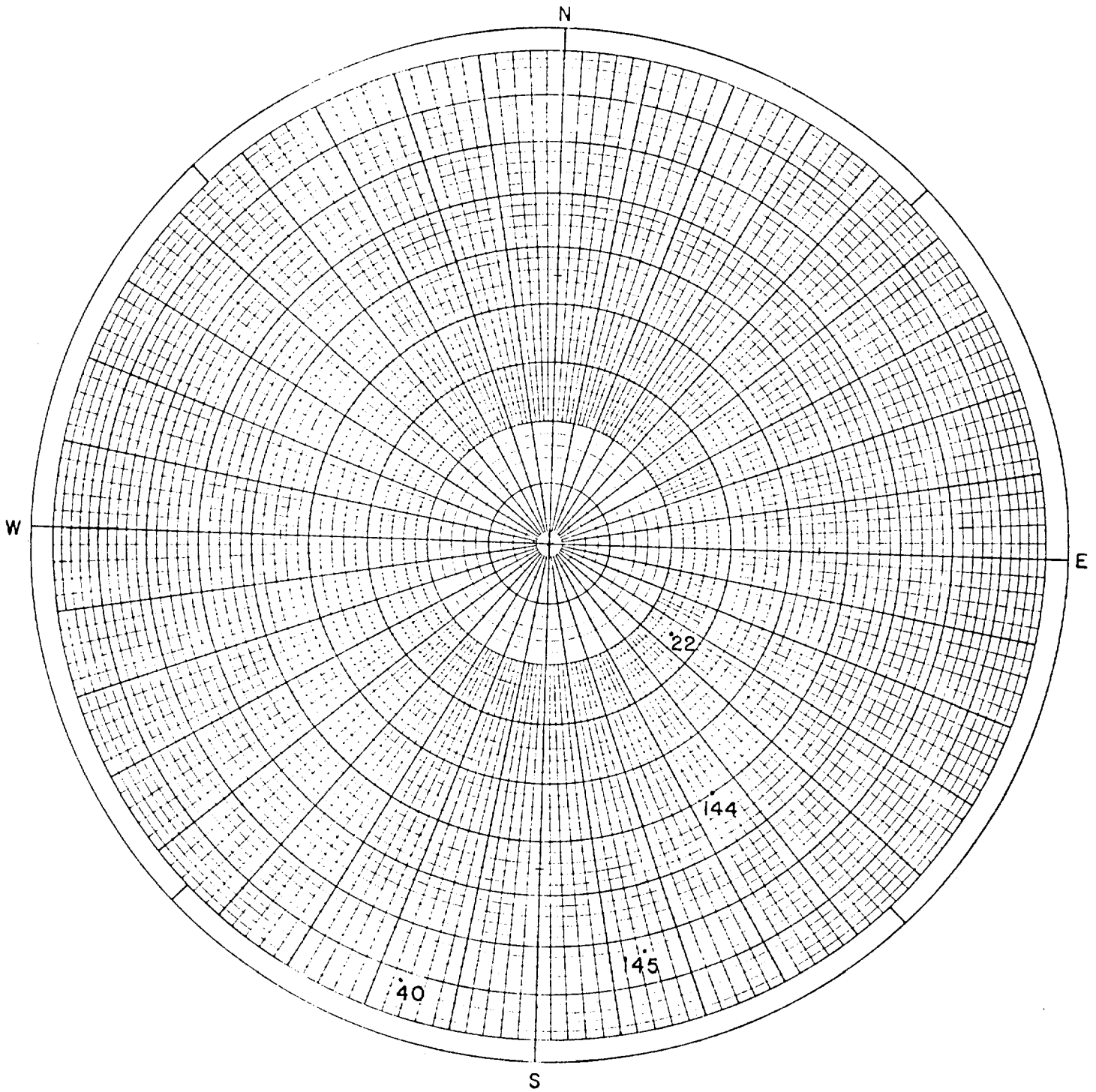
- . Diorite
- ⊙ Diabase



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring F2-12
Ground Elevation (MSL) +21.5 ft
Joints in

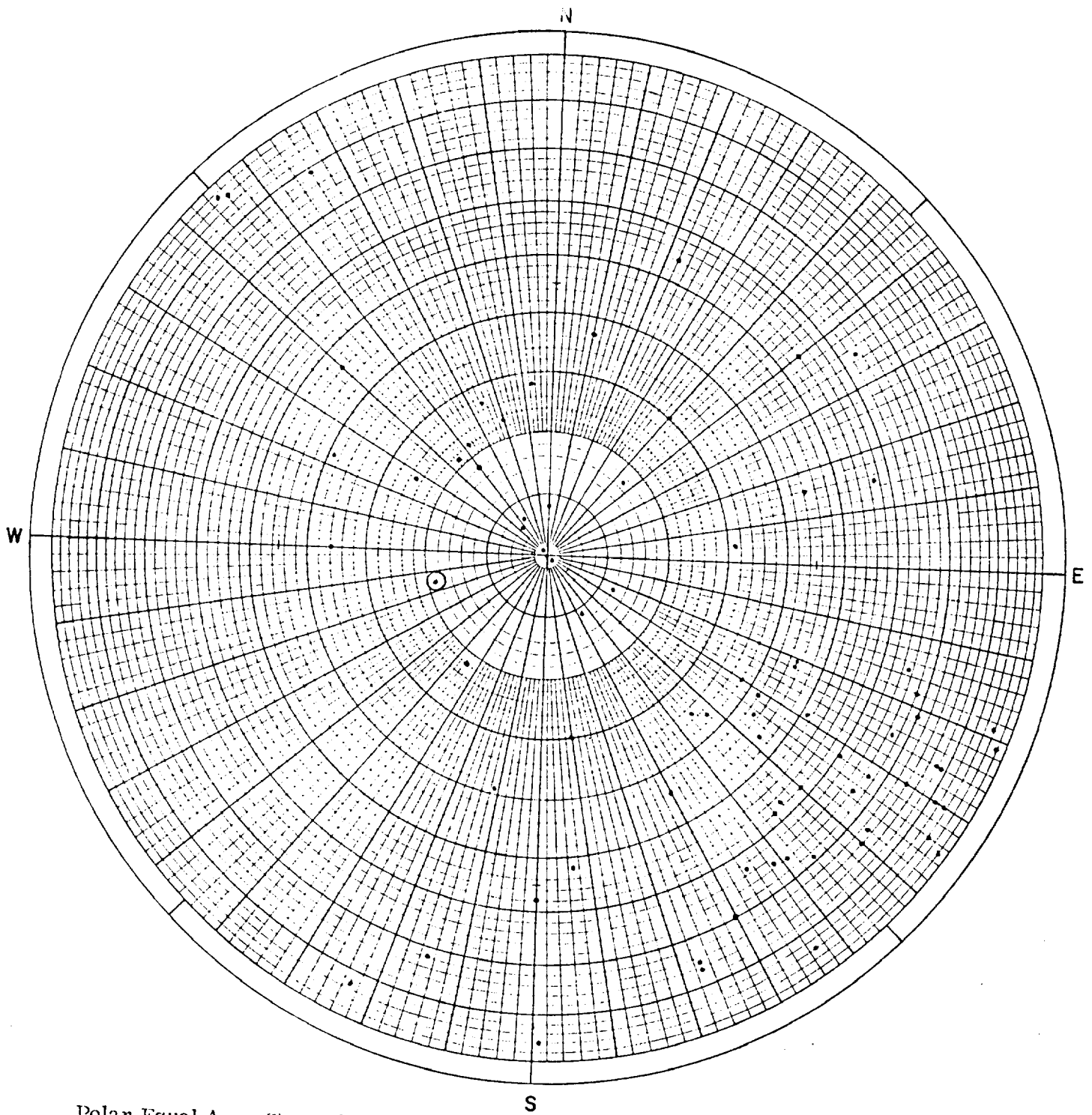
. Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Scabrook Station
June 1974

Boring E2-12
Ground Elevation (MSL) +21.5
Foliation and Depth in:

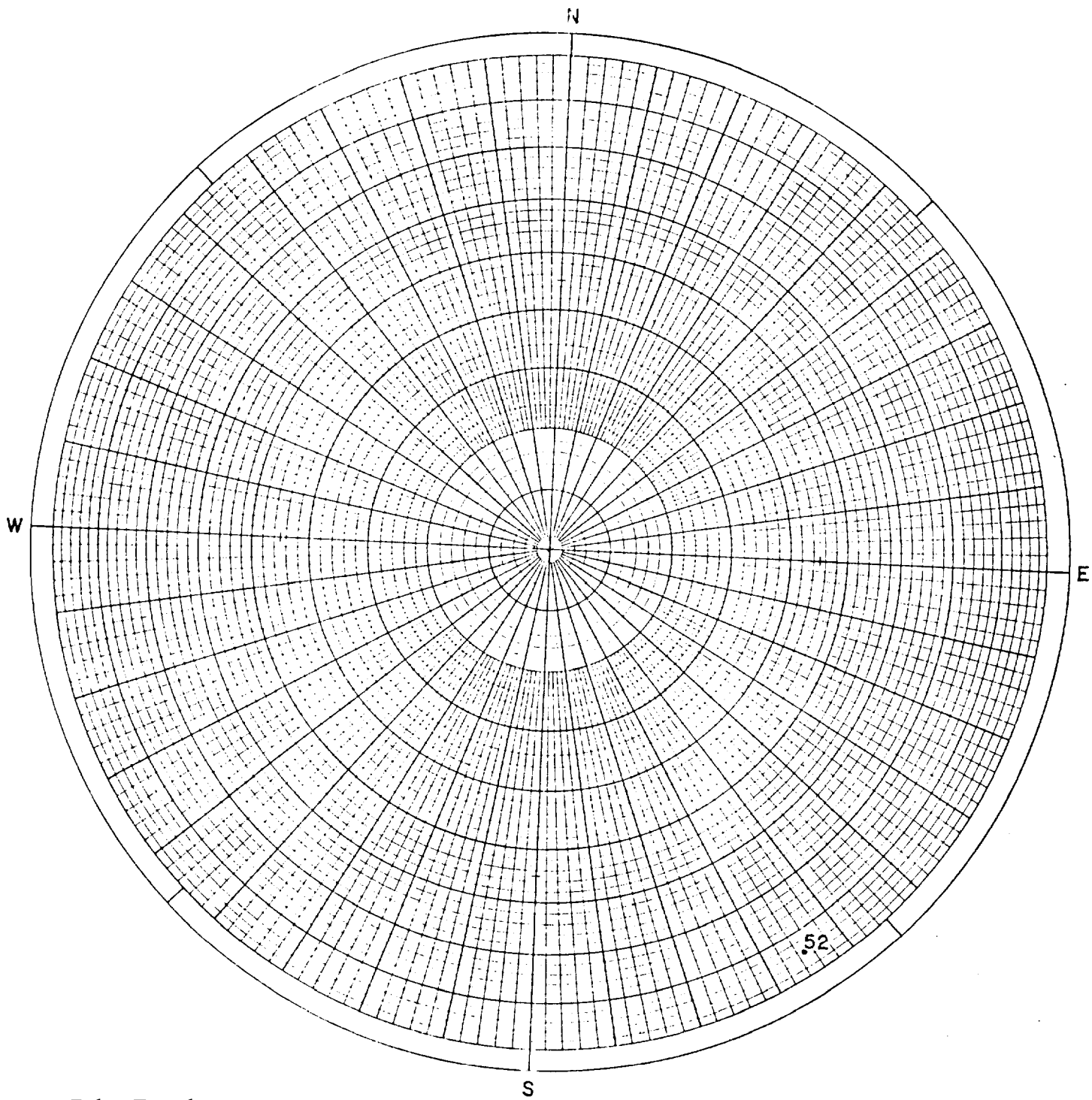
• Diorite



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Seabrook Station
 June 1974

Boring E2-13
 Ground Elevation (MS L) +30.5 ft
 Joints in:

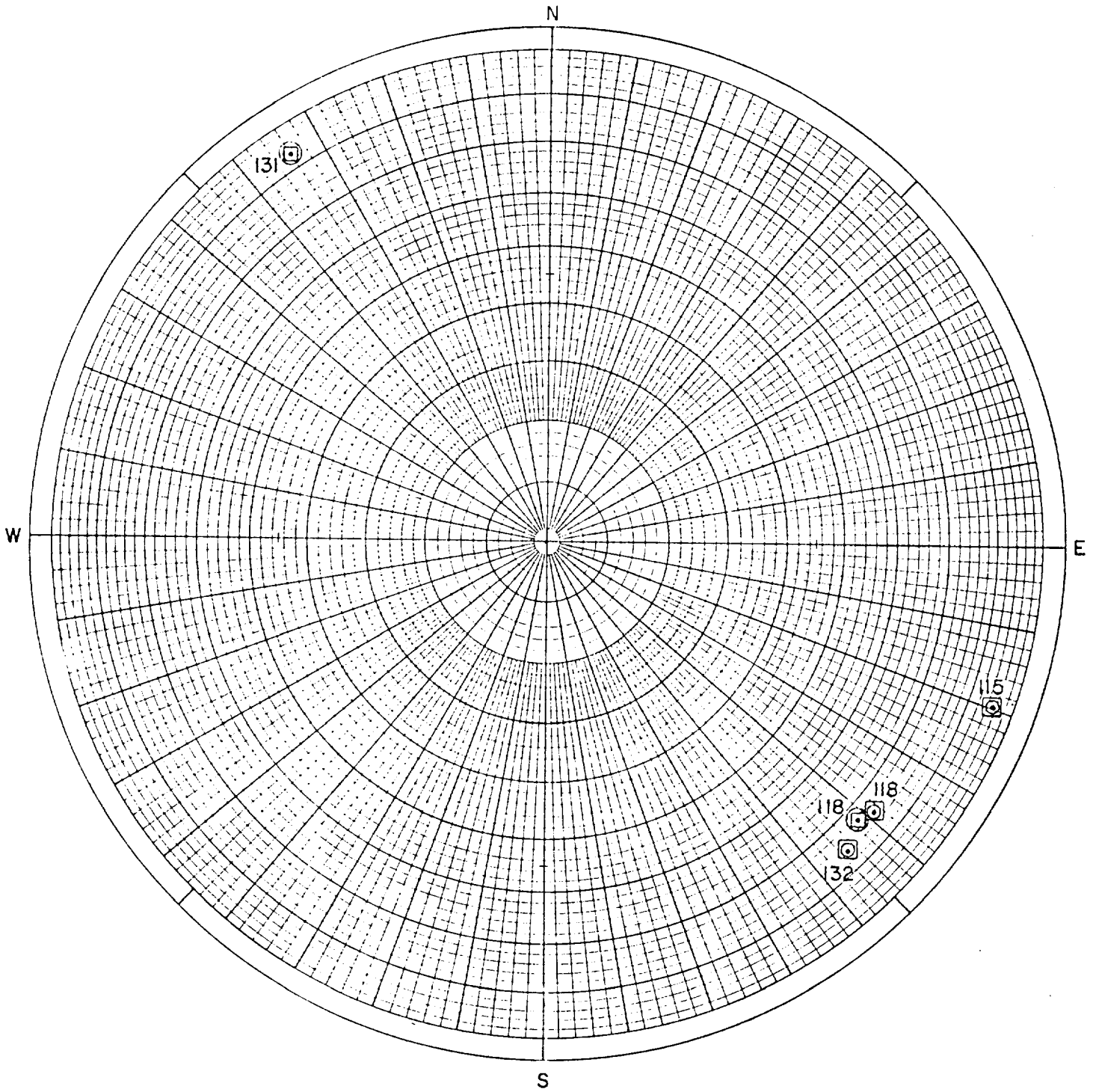
- . Diorite
- ⊙ Diabase



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-13
Ground Elevation (MSL) +30.5 ft
Foliation and Depth in:

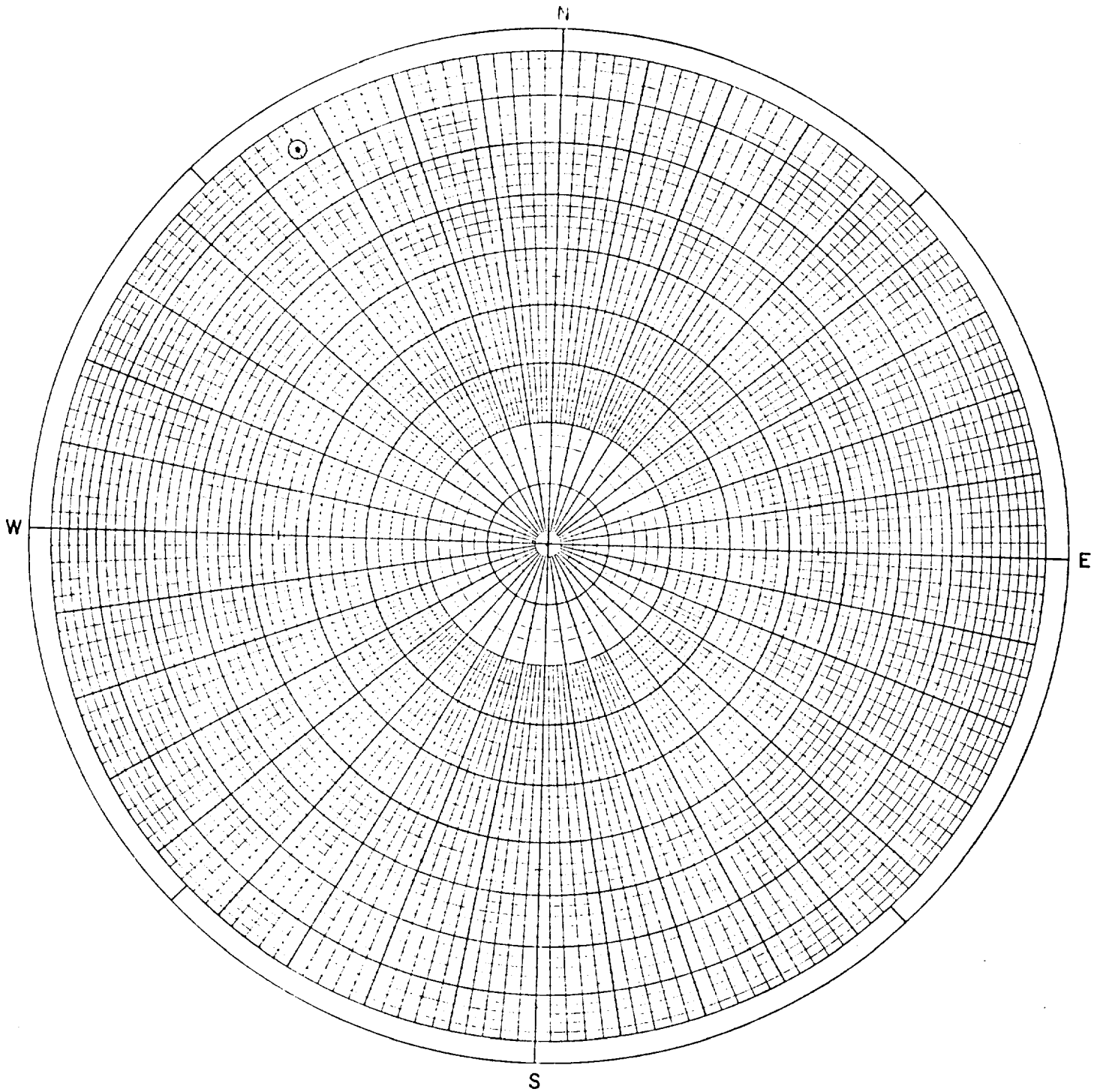
. Diorite



Polar Equal Area Stereo Net
 Geotechnica I Engineers, Inc.
 Seabrook Station
 June 1974

Boring E2-13
 Ground Elevation (MSL) -130.5 ft
 Contacts and Depth:

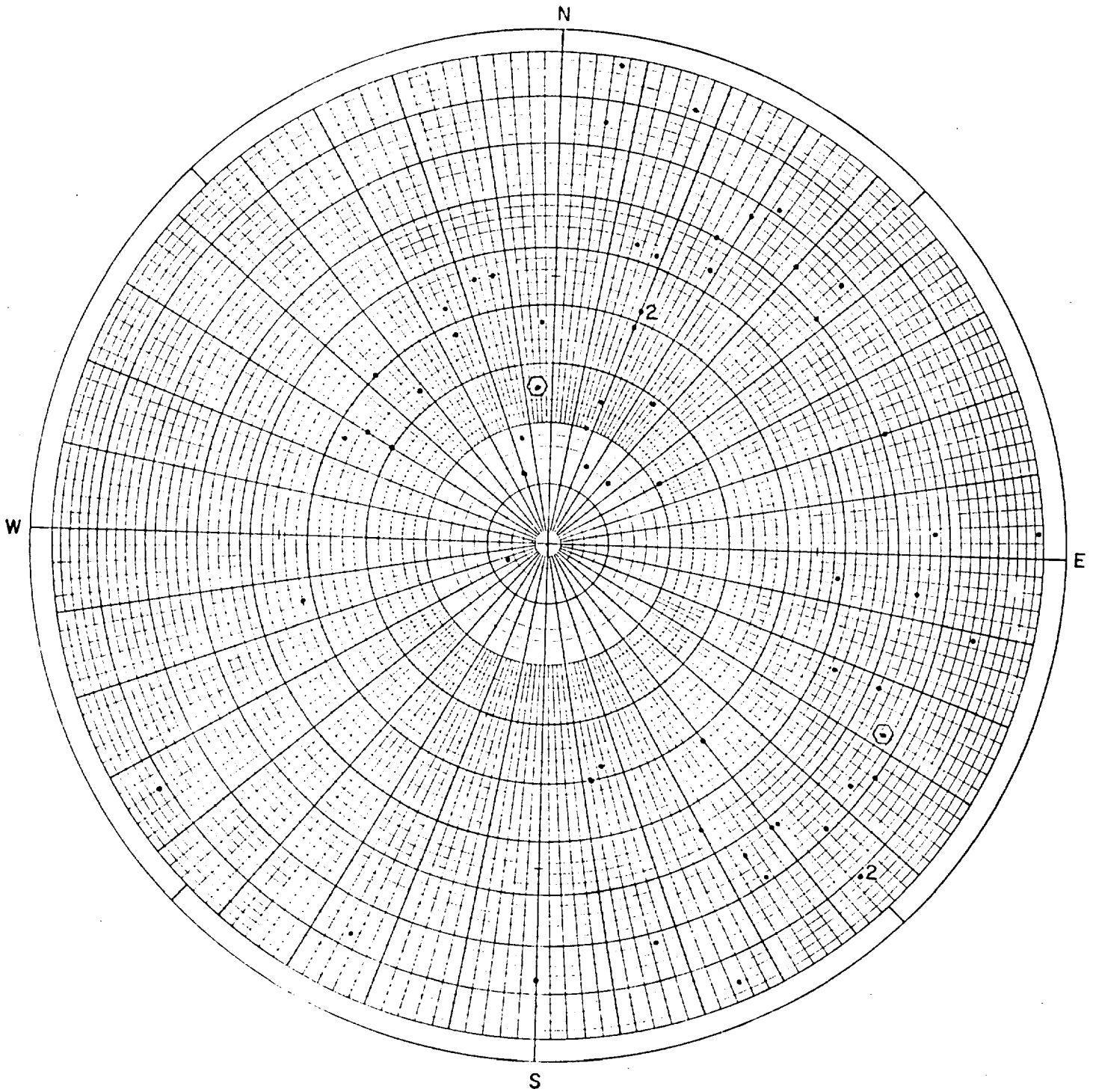
- ☐ Diorite over Diabase
- ⊙ Diabase over Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Scabrook Station
June 1974

Boring E2-13
Ground Elevation (MSL) +30.5 ft
Slickensided Surfaces in:

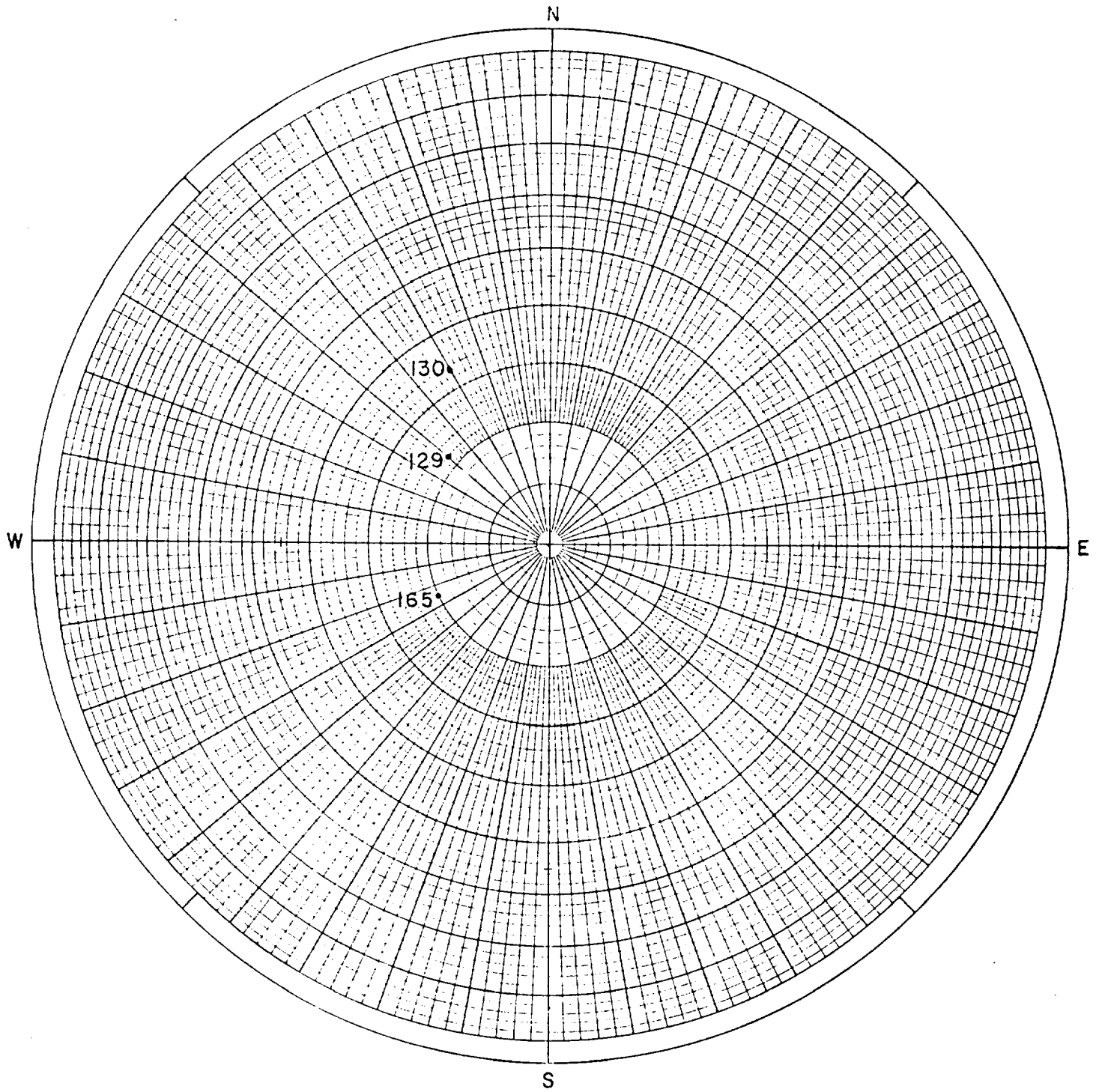
⊙ Diabase



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Seabrook Station
 June 1974

Boring E2-14
 Ground **Elevation** (MSL) +29.9 ft
Joints in:

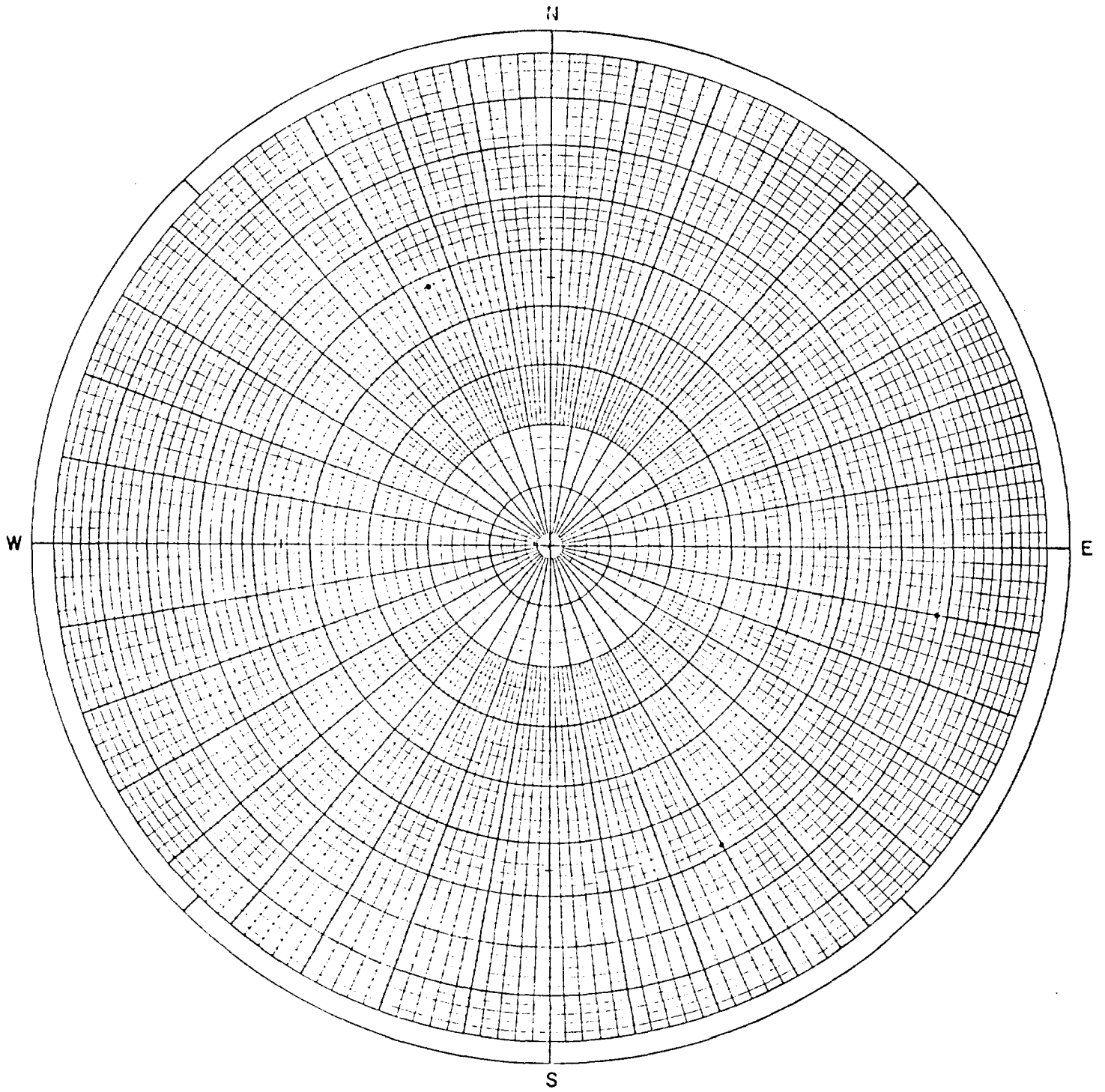
- . Diorite
- ⊙ Pegmatite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-14
Ground Elevation (MSL) + 29.9 ft
Foliation and Depth in:

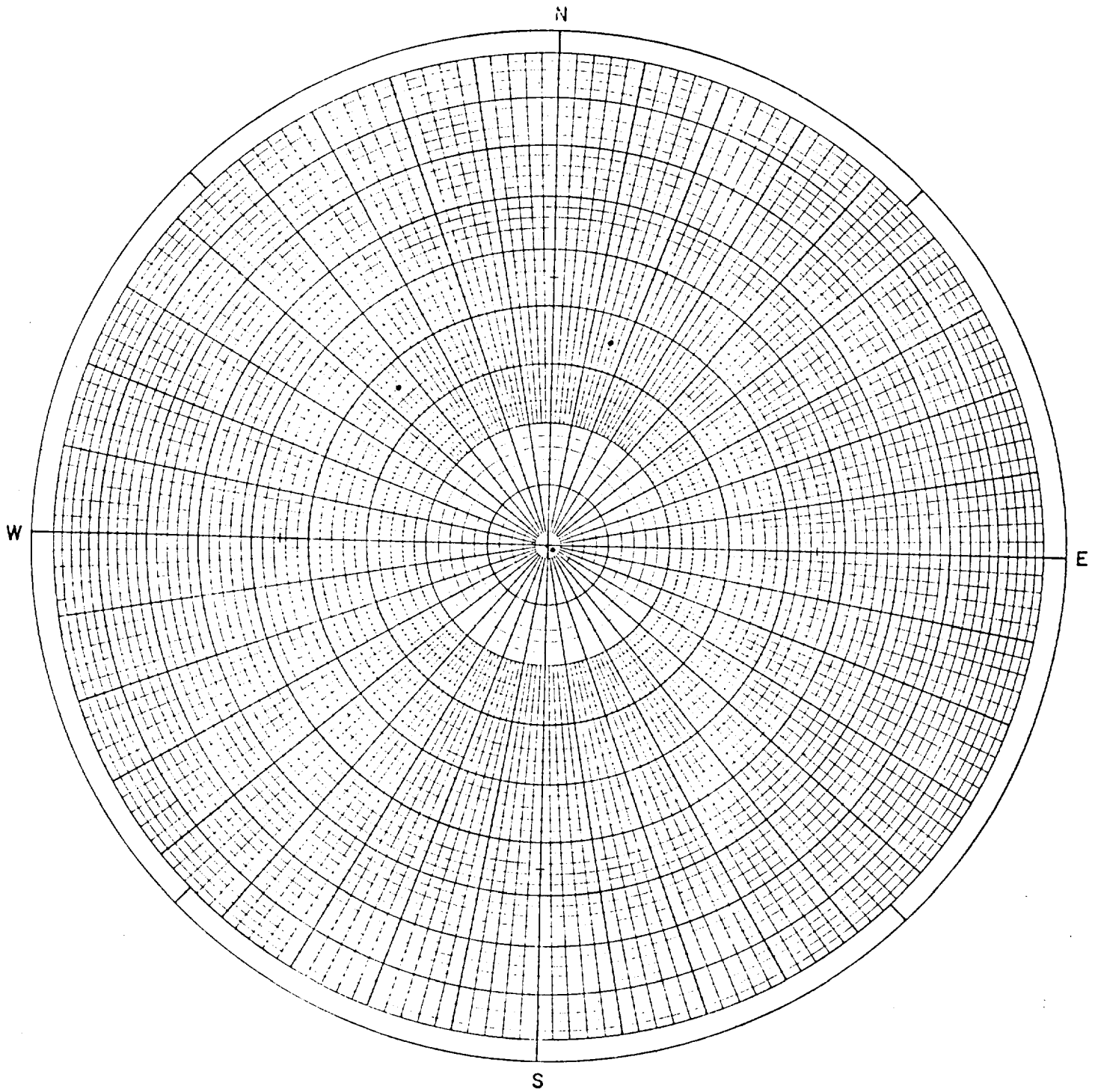
- Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-14
Ground Elevation (MSL) +29.9 ft
Slickensided Surfaces in:

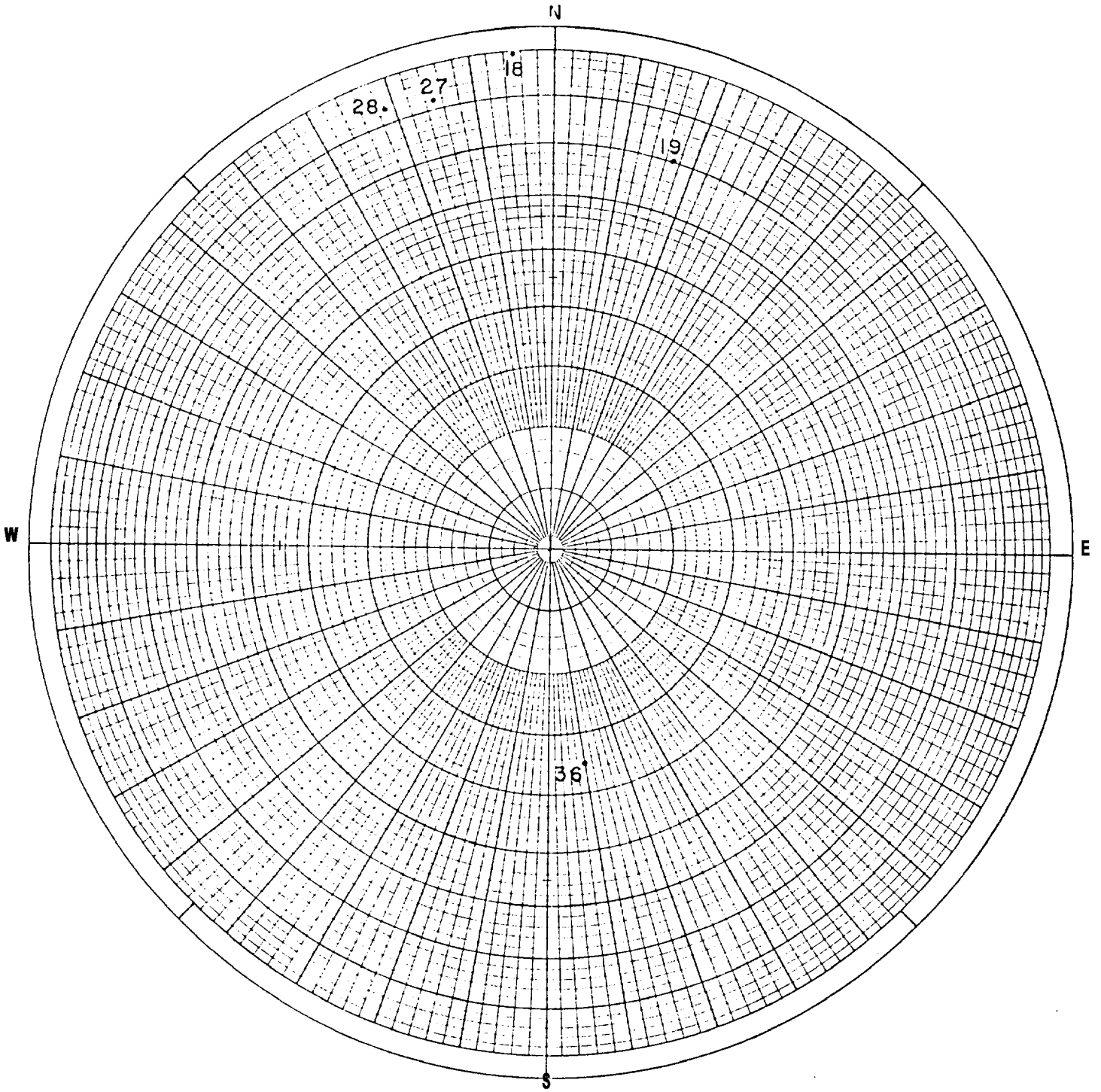
. Diorite



Polar Equal Area Sterco Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-15
Ground Elevation (MSL) + 13.9 ft
Joints in:

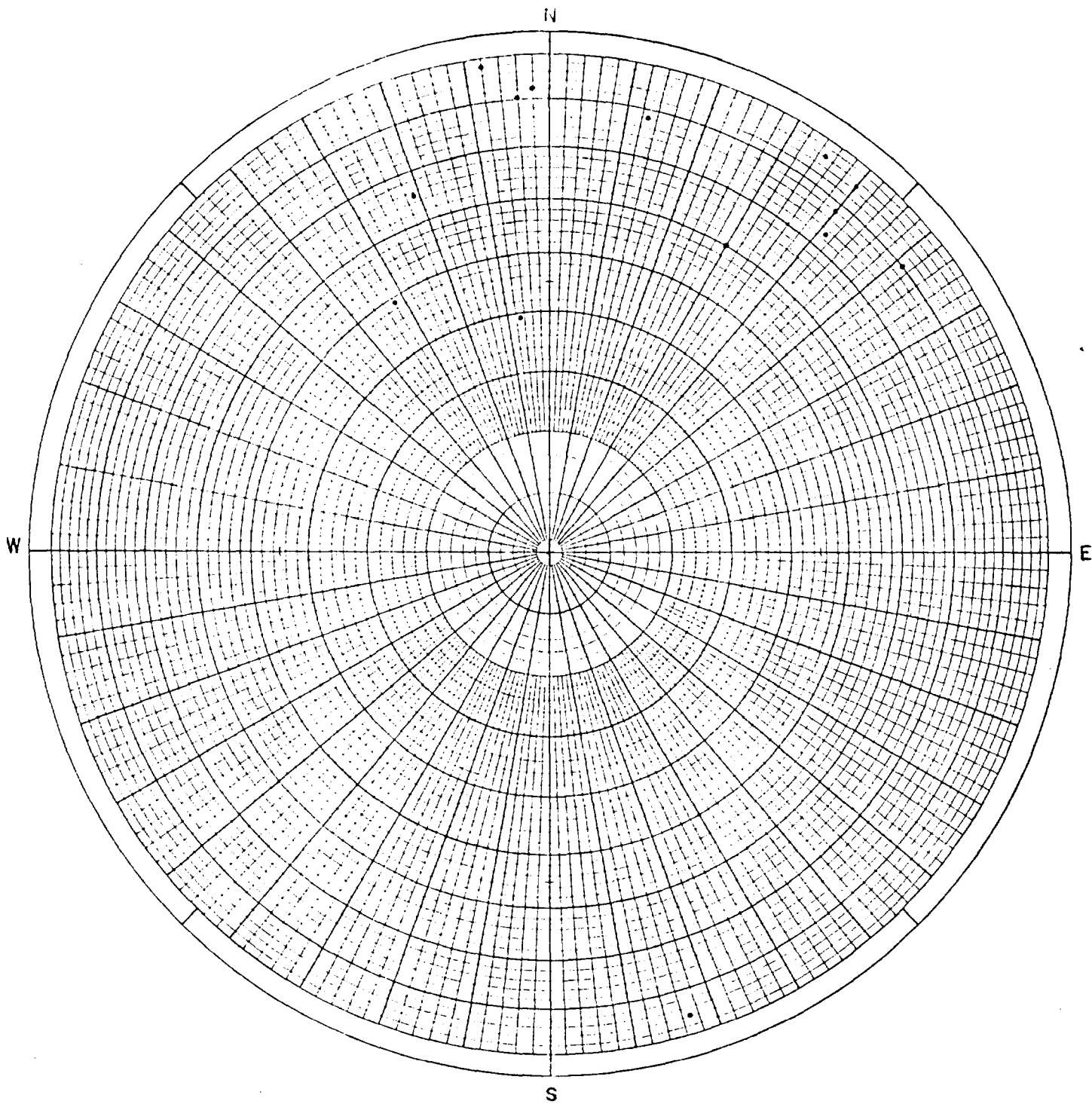
. Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-15
Ground Elevation (MSL) +13.9 ft
Foliation in:

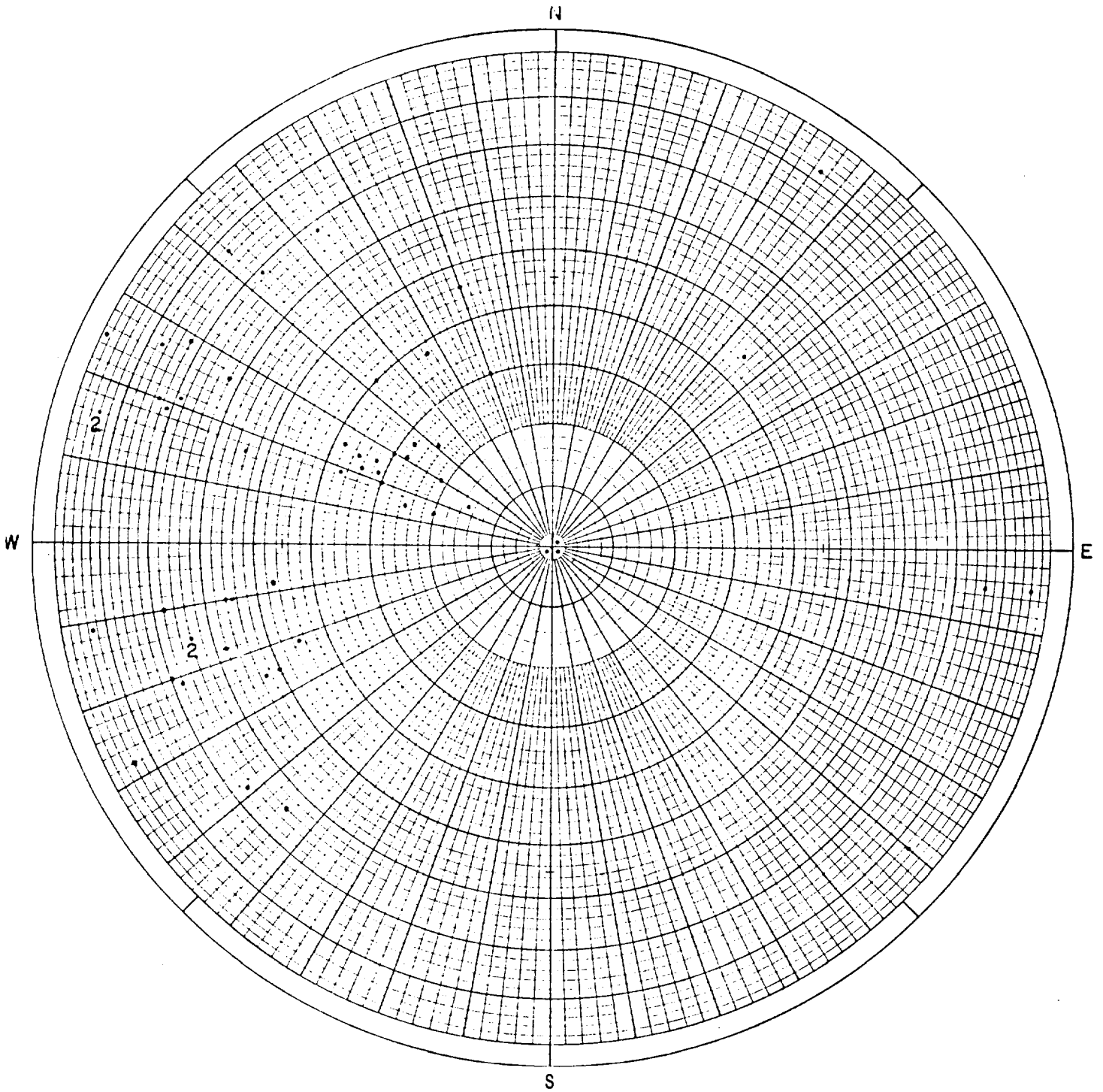
. Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-15
Ground Elevation (MSL) $t-13.9$ ft
Slickensided Surfaces in:

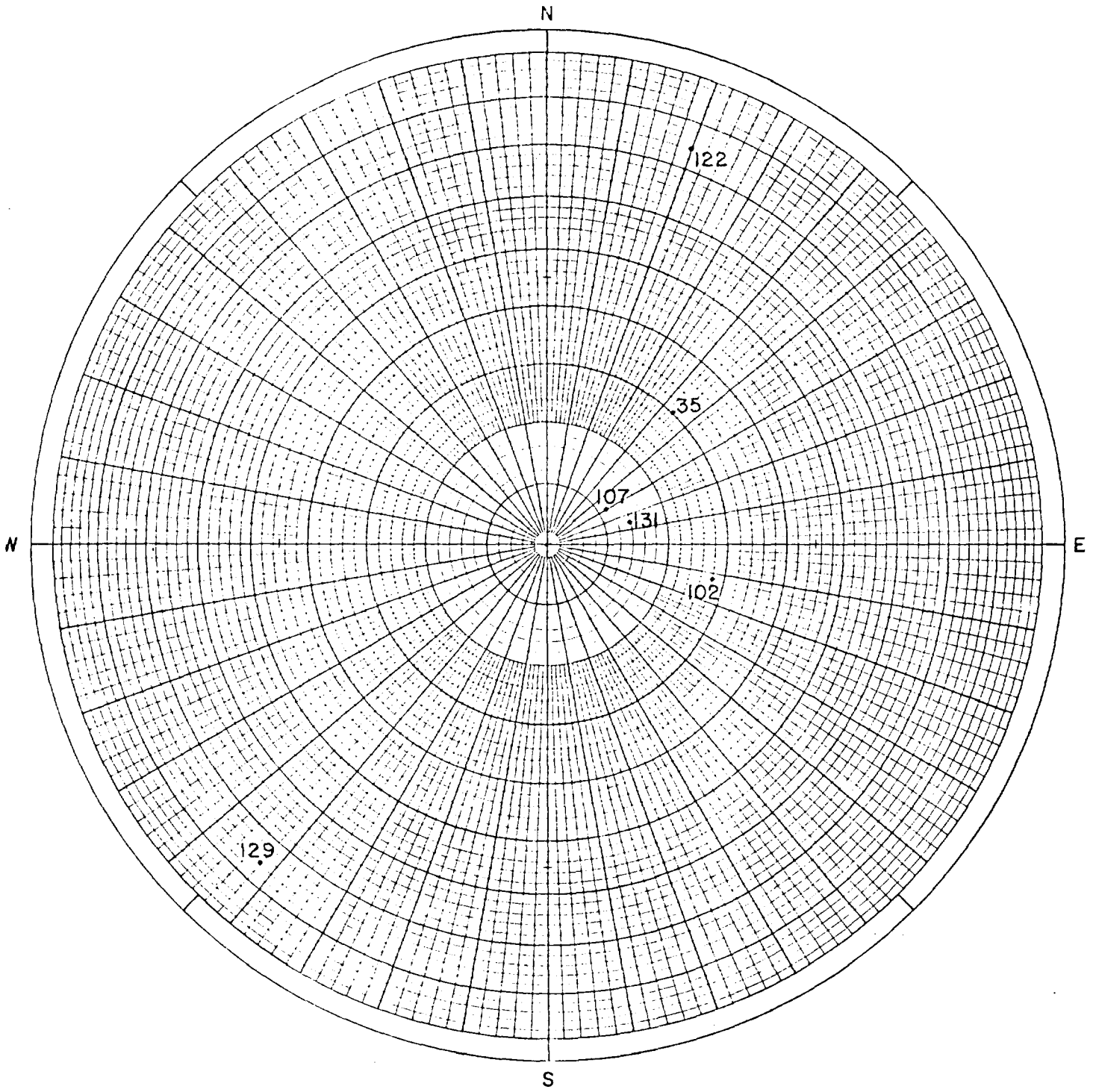
. Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Scabrook Station
June 1374

Boring E2-16
Ground Elevation (MSL) +16.8 ft
Joints in:

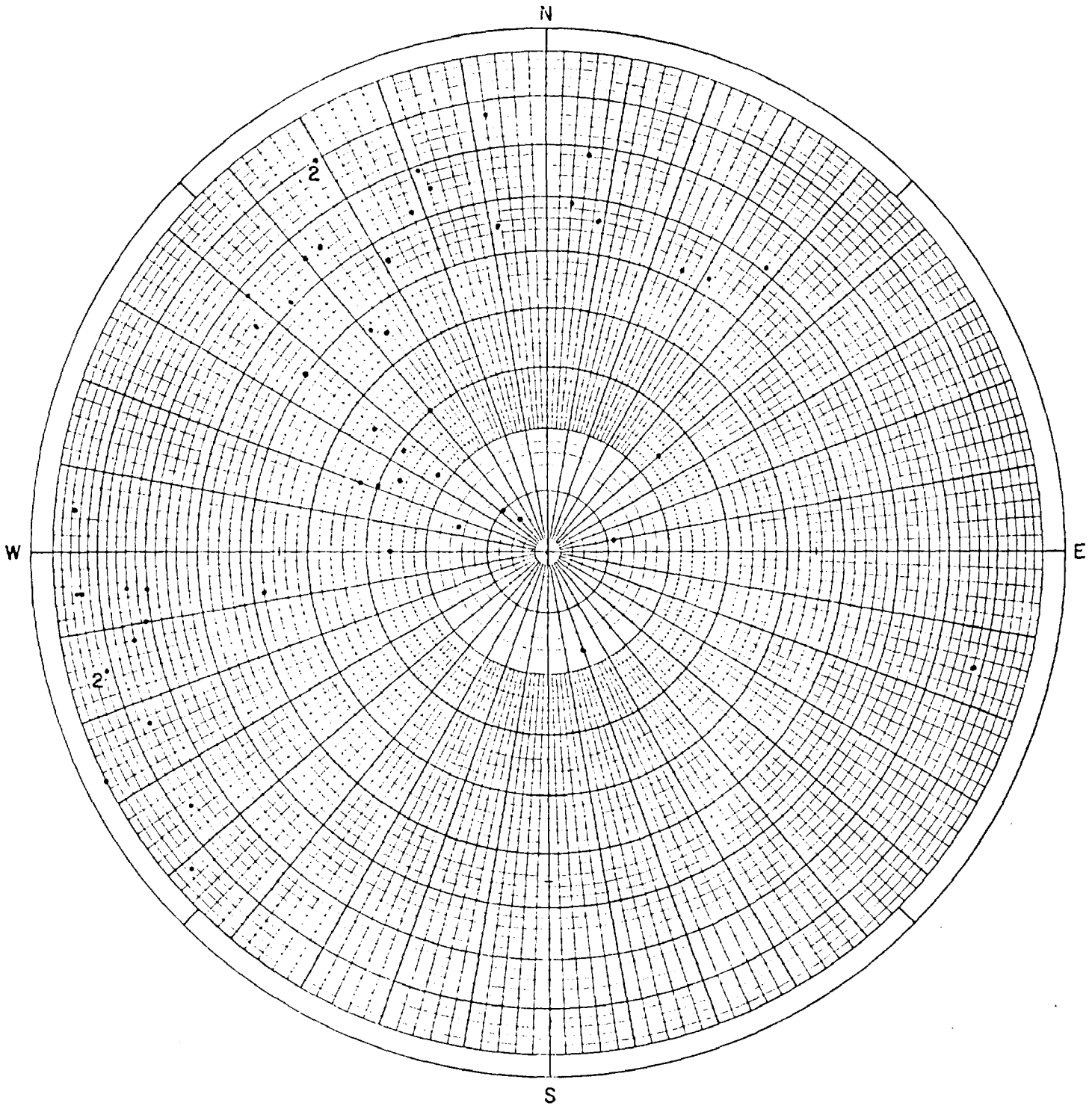
• Diorite



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Scabrook Station
 June 1974

Boring E2-16
 Ground Elevation (MSL) +16.8 ft
 Foliation and Depth in:

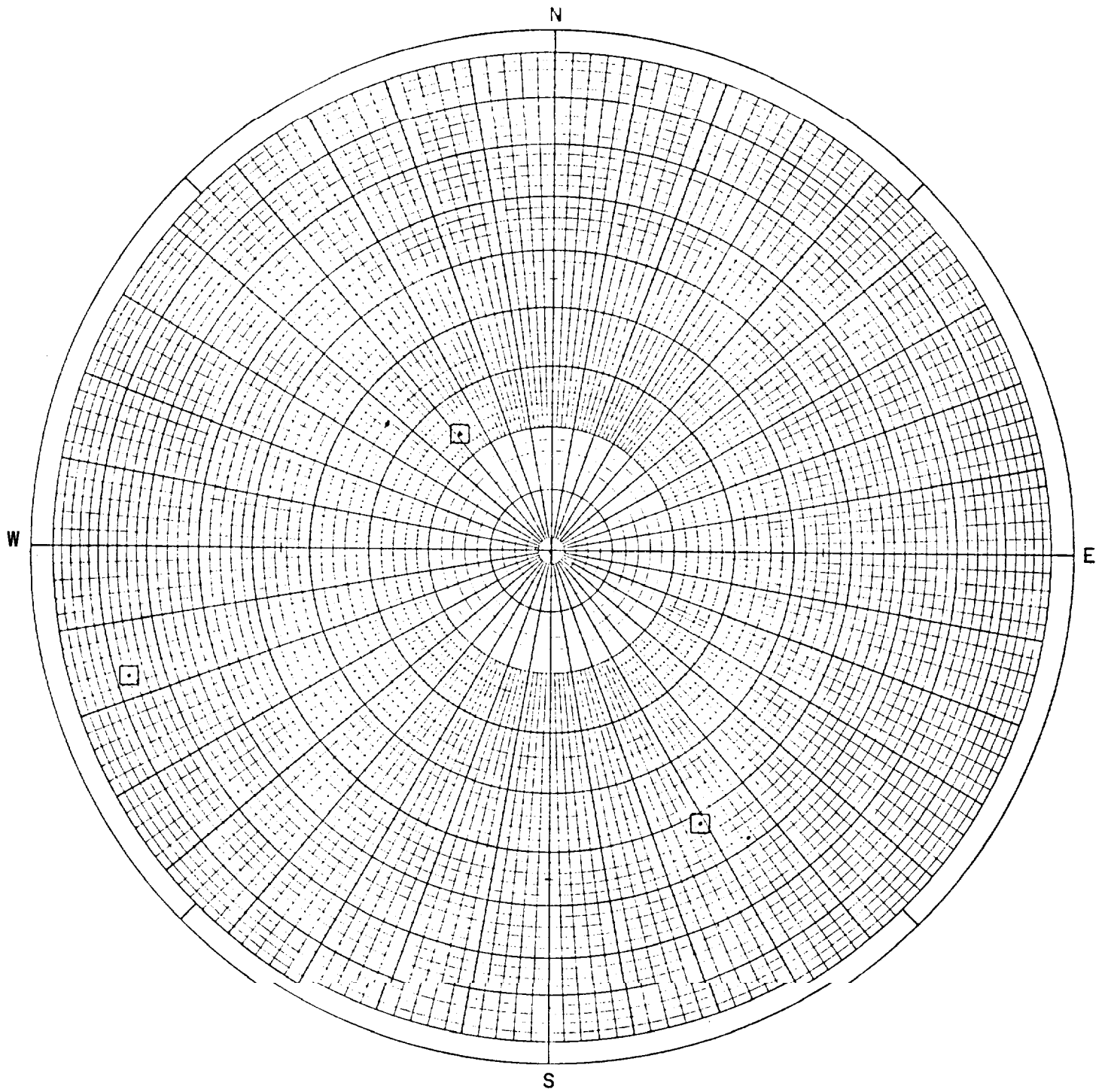
. Diorite



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Seabrook Station
 June 1374

Boring E2 - 16
 Ground Elevation (MSL) +16.8 ft
 Slickensided Surfaces in:

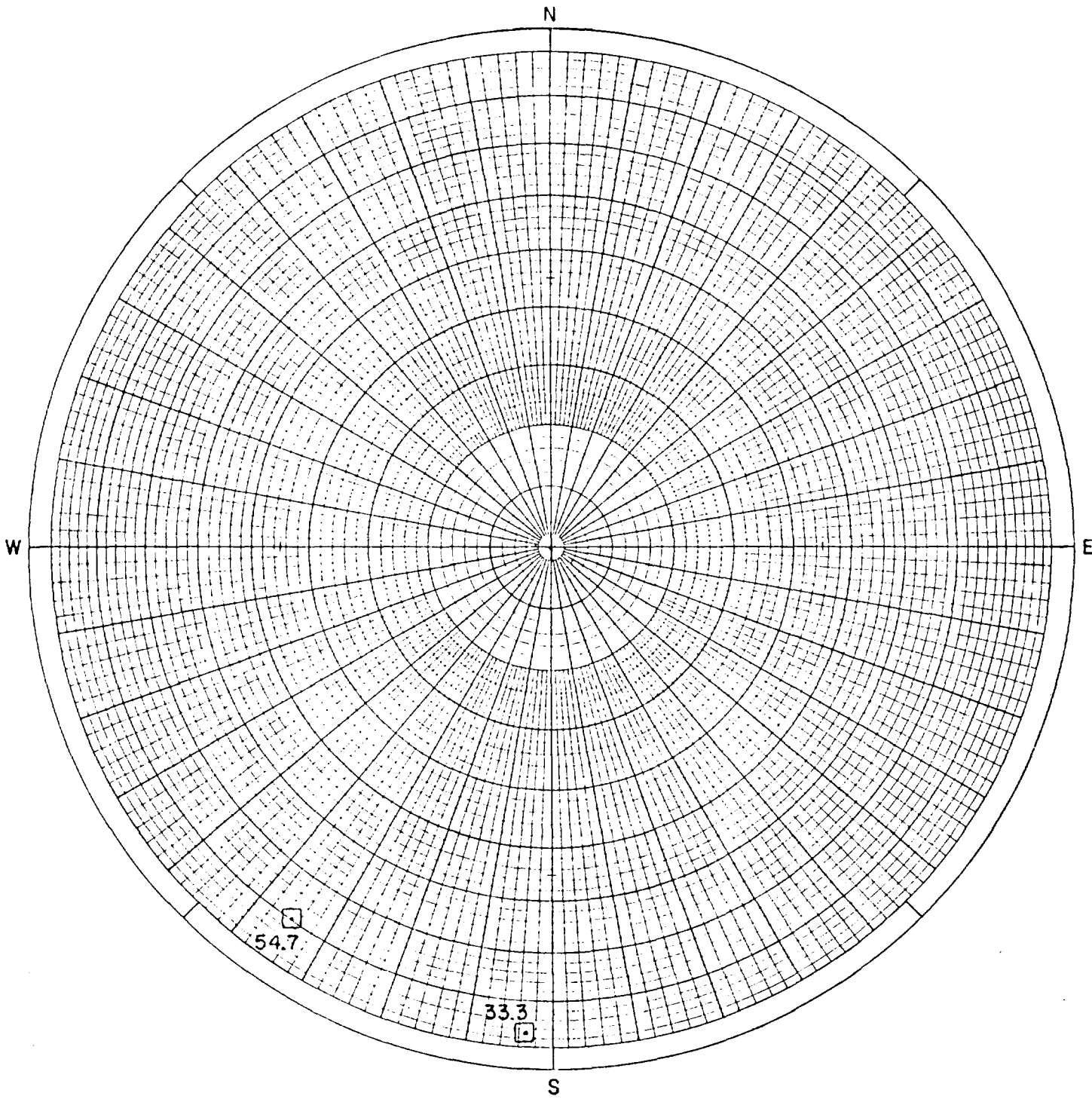
• Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-17
Ground Elevation (MS L) +13.3
Joints in:

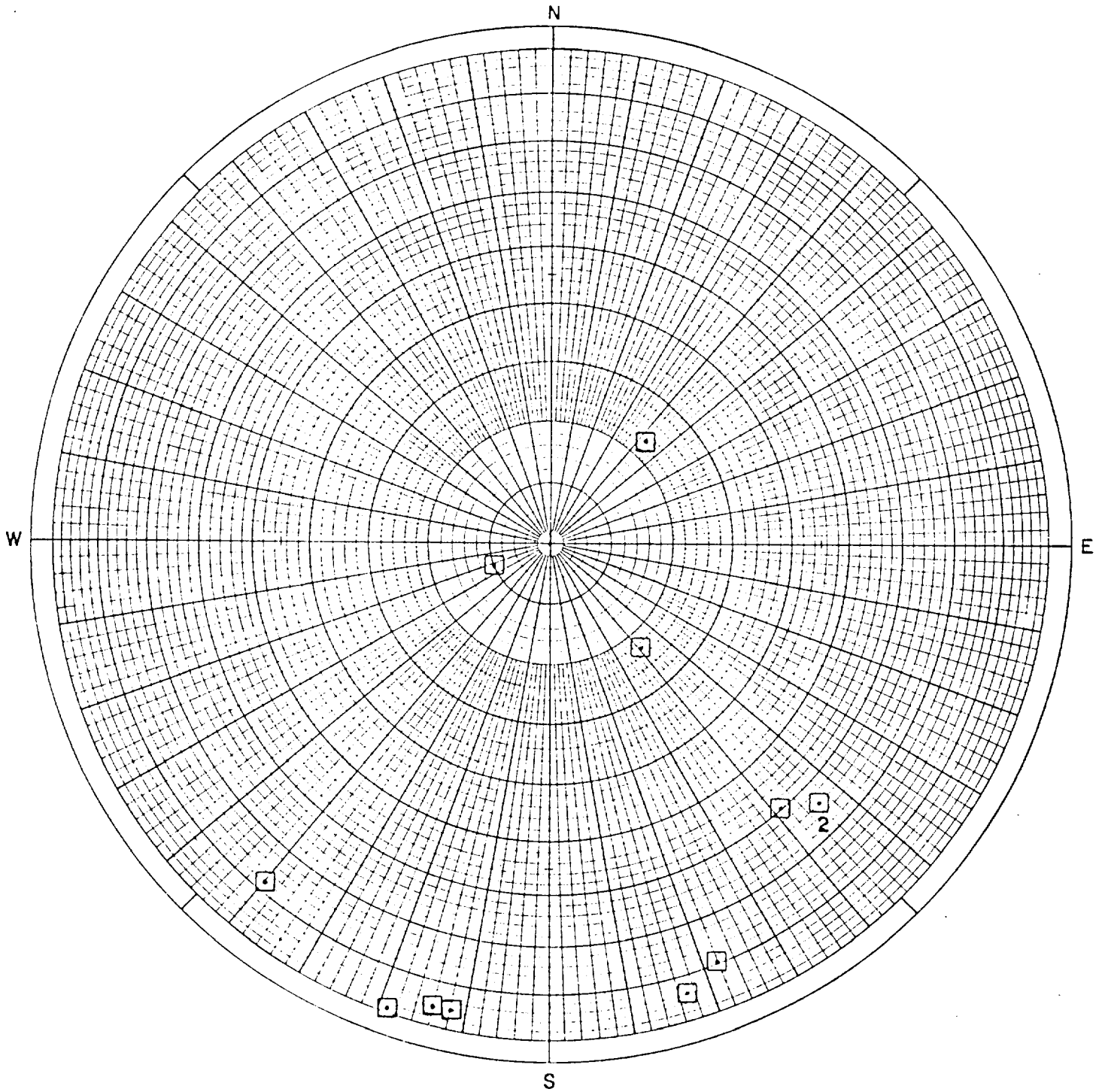
- Diorite
- ◻ Schist



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-17
Ground Elevation (MSL) + 13.3 ft
Foliation and Depth in:

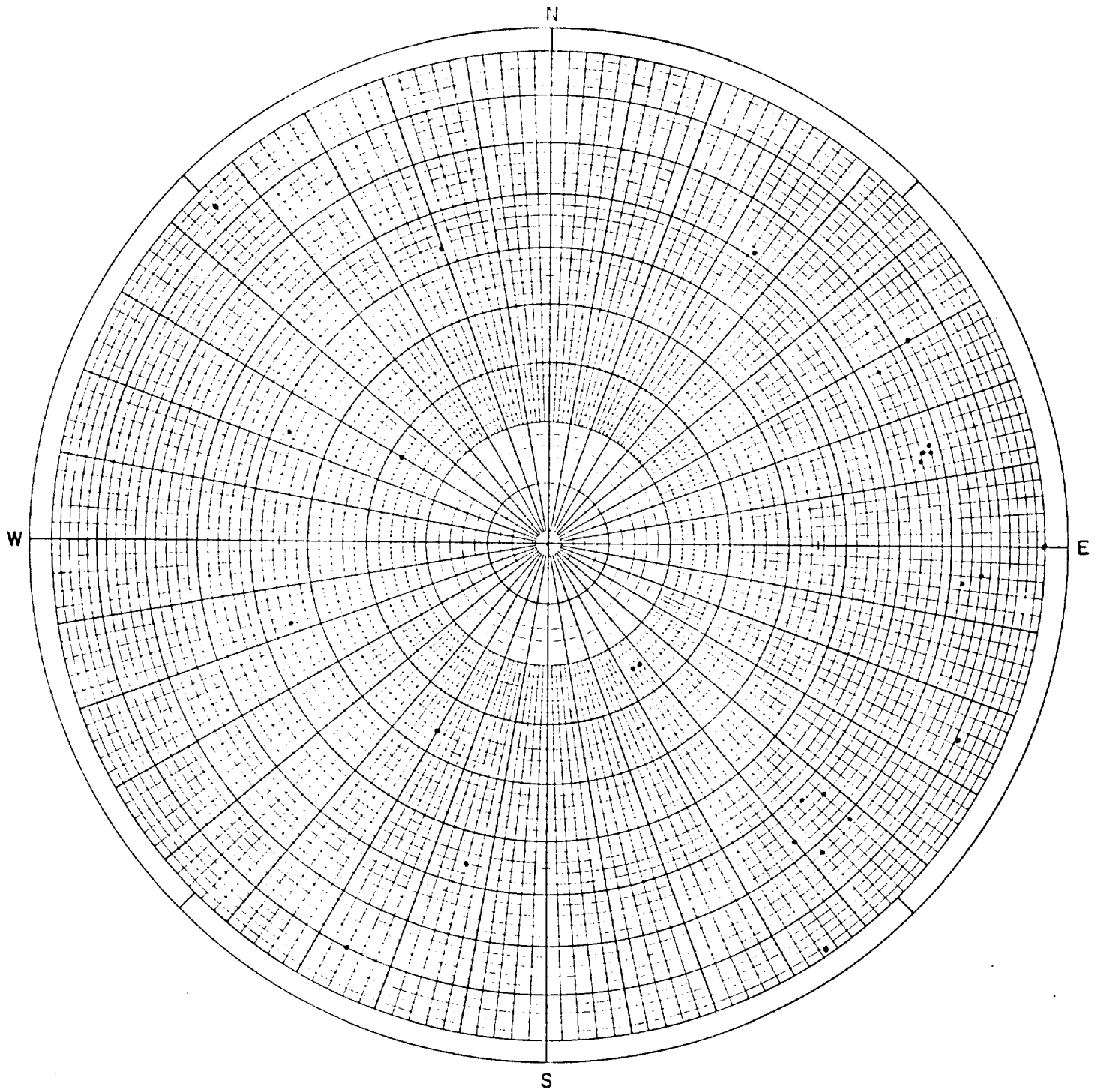
□ Schist



Polar Equal Area Stereo Net
 Geotechnical Engineers, Inc.
 Scabrook Station
 June 1974

Boring E2-17
 Ground Elevation (MSL) + 13.3 ft
 Slip Surfaces in:

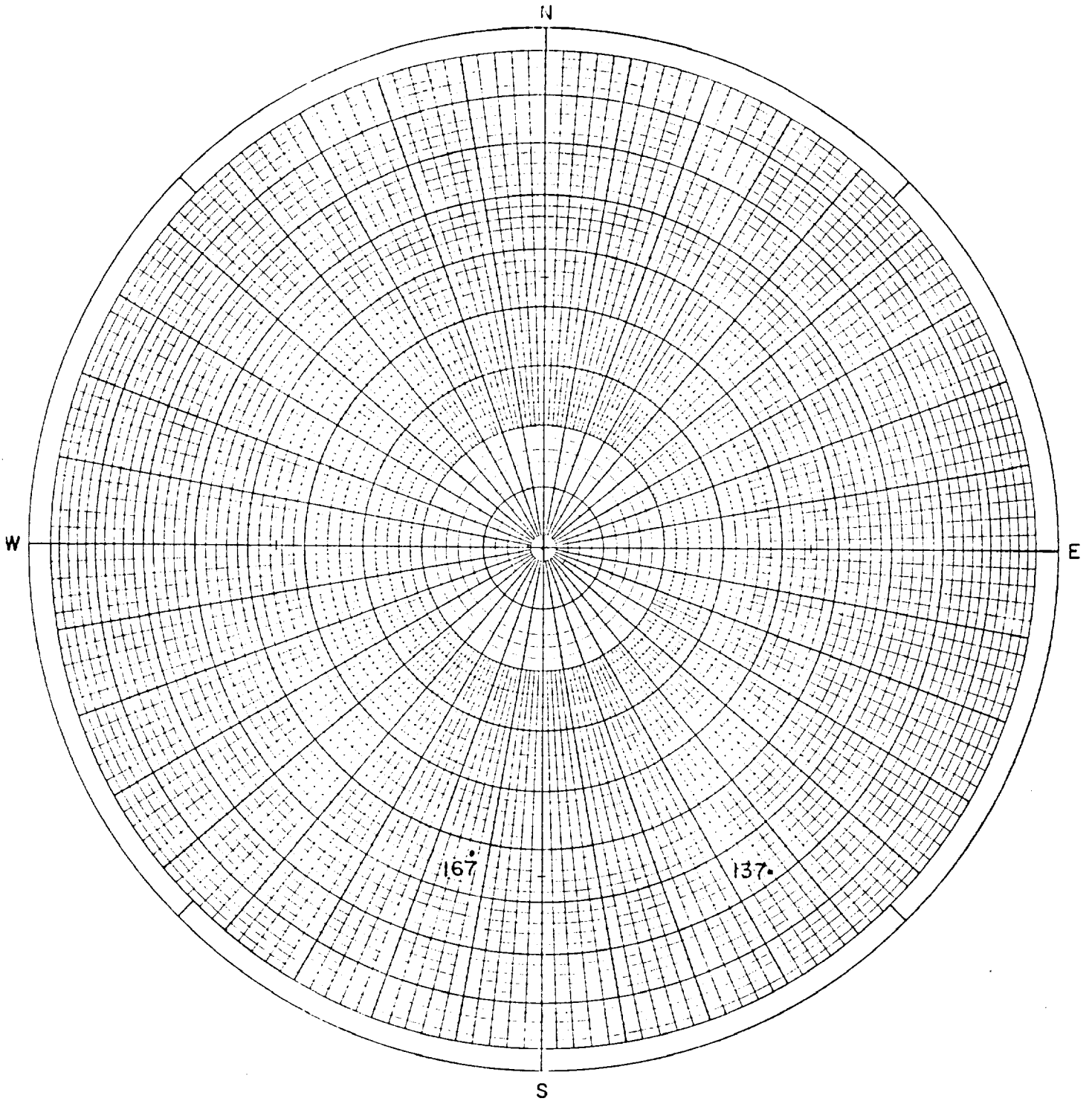
□ Schist



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-18
Ground Elevation (MSL) +14.9 ft
Joints in:

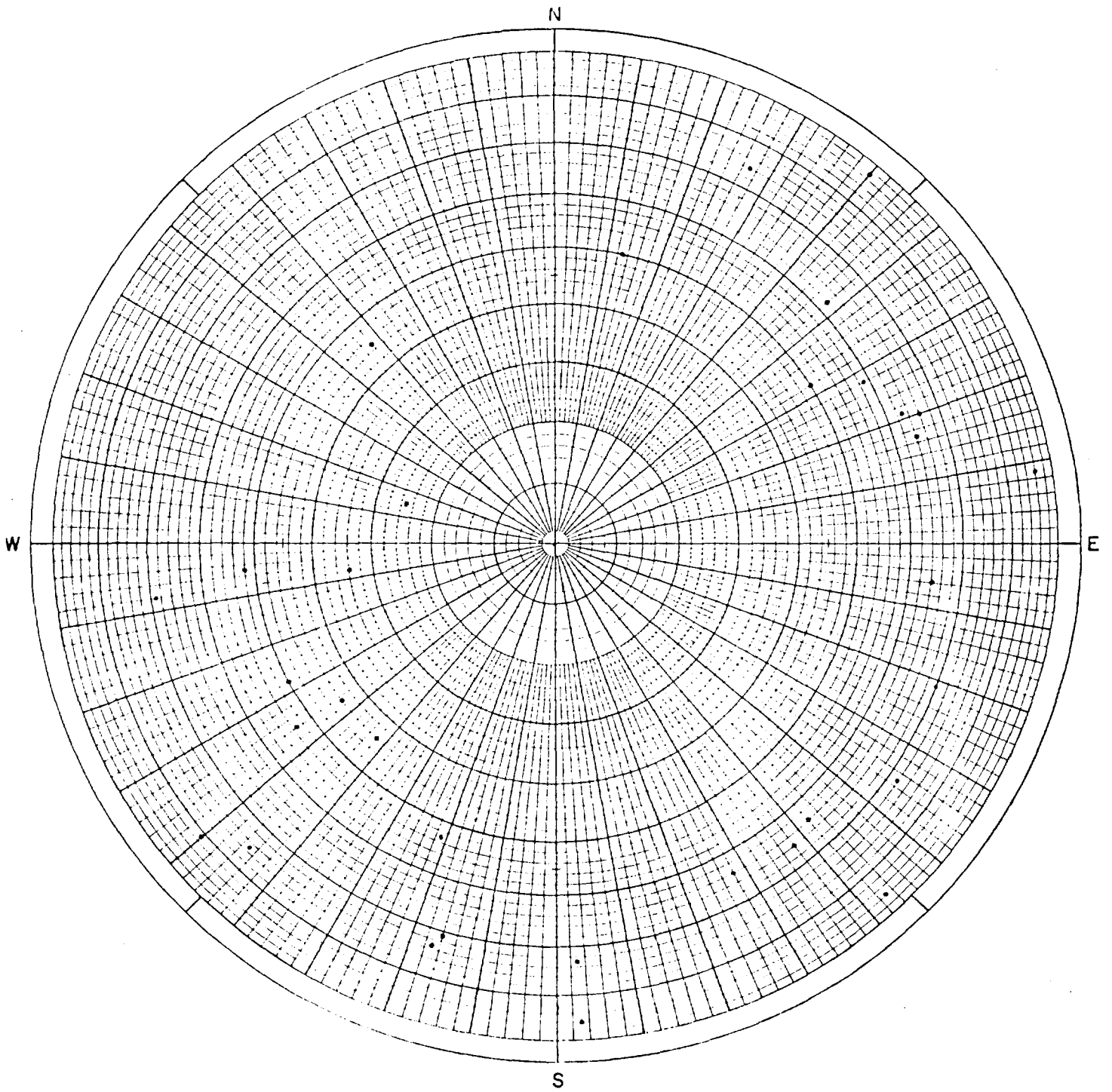
. Diorite



Polar Equal Area Sterco Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-18
Ground Elevation (MSL) +14.9 ft
Foliation and Depth in:

. Diorite



Polar Equal Area Stereo Net
Geotechnical Engineers, Inc.
Seabrook Station
June 1974

Boring E2-18
Ground Elevation (MSL) +14.9 ft
Slickensided Surfaces in:

- Diorite

APPENDIX IV

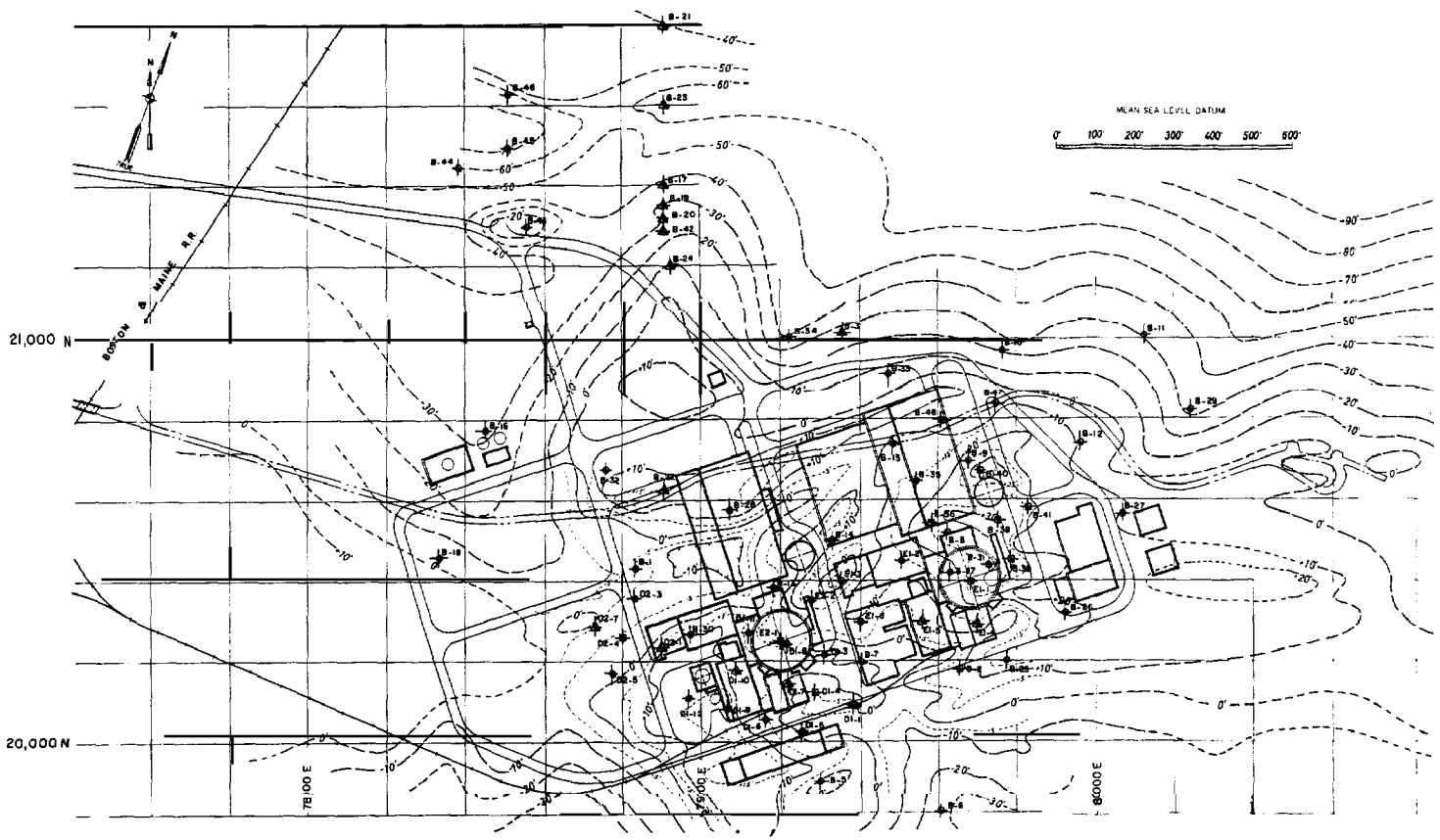
APPENDIX IV

Overburden Descriptions

Note: The boring layout and soil descriptions are taken from the PSAR.

CONTENTS OF APPENDIX IV

1. Fig. 2.5-9 from PSAR
2. Boring Logs from Appendix 2D of PSAR:
 - D1-11
 - D1-8
 - E2-1
 - E1-1



PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE SEABROOK STATION <i>Preliminary Safety Analysis Report</i>	ESTIMATED TOPOGRAPHY OF THE BEDROCK SURFACE FIG. 2.5-8
--	--

SOIL DESCRIPTIONS

Ground Elevation: 13.8 ft

Depth to Water Level: 1.2 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	0-2	1-1-4-7	Top is dark brown peat with many roots up to 1 mm diameter. Bottom is brown sand. Fine grained; uniform; contains few black organic pieces < 1 mm in size; < 5% silt.
2	5- 6.5	7-10-12	Light gray silty sand. Fine grained; uniform; very fast reaction to shaking test; contains ~ 30-40% nonplastic fines; part of sample is silty gravelly sand containing gravel up to 28 mm in size; angular grains
3	10-11.5	27-30-44	Gray silty sand. Widely graded; angular to subrounded grains; contains ~ 25-30% nonplastic fines; few gravel pieces up to 8 mm in size. w. = 7.5.g



BORING NO. D1-8
SOIL DESCRIPTIONS

Ground Elevation: 15.9 ft
Depth to Water Level: 1.9 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	0- 1.5	1-1-12	Top is dark brown fine-sandy organic silt containing several roots < 1 mm diameter. Bottom is brown and rusty-brown sandy silt <i>containing many</i> dark brown organic pieces < 0.5 mm in size.
2	5- 6 . 5	31-40-72	Brown slightly gravelly silty sand. Widely graded; angular to subrounded grains; contains ~ 30-40% nonplastic fines and ~ 10-15% gravel up to 35 mm in size; fast reaction to shaking test.
3	8.5- 9	127	Gray-brown silty gravelly sand. Widely graded; angular grains; contains ~ 30-40% gravel up to 25 mm in size and ~ 20-30% nonplastic fines.

BORING NO. E2-1
SOIL DESCRIPTIONS

Ground Elevation: 15.9 ft

Depth to Water Level: 6.0 ft

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
1	0- 2	1-1-7-19	Top is brown sandy organic silt containing roots up to 12 mm diameter. Bottom is light brown to gray-brown gravelly silty sand. Widely graded; generally angular grains; contains ~ 20-30% nonplastic fines and ~ 10-20% gravel up to 18 mm in size; several rusty-brown spots up to 10 mm in size.
2	5- G.6	31-60-74	Similar to bottom portion of Sample No. 1, but slightly less silty and fewer rusty-brown spots.

BORING NO. E1-1
SOIL DESCRIPTIONS

Ground Elevation: 28.9 ft
Depth to Water Table:

Project No. 7286

Sample No.	Depth ft	Number of Blows per 6"	Description
			No soil samples taken. (Bedrock at ground surface.)