Base prepared photogrammetrically by Walker-Alaska Aerial Surveys, Inc. from aerial photography taken Sept. 30, 1988.

SCALE 1:6,000

500 0 500 1000 1500 2000 2500 FEET

100 0 100 200 300 400 500 600 METERS

CONTOUR INTERVAL 10 AND 20 FEET
DATUM MEAN LOWER LOW WATER

ALASKA — STUDY AREA

APPROXIMATE MEAN DECLINATION, 1987

MAP SYMBOLS

- Location of exposed section or test pit from this study (source TS) or USGS well drilled in 1988 (source A).
- Location of borehole, well, or test pit from previous study.

SUBSURFACE GEOLOGIC DATA FOR AREA II, U.S. COAST GUARD RESERVATION, KODIAK, ALASKA

Compiled by

R.D. Allely and R.A. Combellick

1989

EXPLANATION

Subsurface geologic data summarized on this map include U.S. Geological Survey (USGS) wells drilled in 1988 for geohydrologic studies (source A), field observations from the current study (source TS) in support of the USGS project, and numerous other previous studies by USGS, U.S. Coast Guard, U.S. Department of Navy, and private contractors retained by the U.S. Coast Guard. This map is intended as an index to these data sources and a summary of basic subsurface data from boreholes, test pits, wells, and exposed sections. In addition to data presented below, most of the original reports include other information, such as detailed logs, water-level, and geotechnical data.

Because low permeability of till and bedrock in the study area strongly influences ground-water flow, depths from ground surface to the top of these layers were compiled for this report and converted to elevations. Depending on terminology used in the source report, depth to the shallowest layer described as till, dense clay, or dense pebbly clay was recorded as depth to top of till. Till was not encountered at all locations. Depth to bedrock is the depth of drilling refusal for most boreholes and wells. Till contains numerous large, hard boulders with the same lithology as bedrock in this area; consequently, it is not always possible to determine whether refusal was at the bedrock surface or against a till stone.

Elevation of the ground surface was determined by a variety of methods among the data sources. Some elevations were surveyed, some were estimated from USGS topographic maps, and some were not determined in the original report but scaled from this map. Although most reported elevations agree within 5 ft of the elevations shown on this map, a few disagree as much as 20 ft; most larger discrepancies occur in the upper Buskin River valley near Buskin Lake. For this reason, elevations are rounded to the nearest whole number and should be regarded as approximate.

For detailed descriptions of bedrock lithology and structure, see Solie and Reifenstuhl (1989). Brown (1989) summarizes geotechnical and geohydrologic properties of the bedrock, and Allely (1989) presents cross sections of the surficial deposits and contour maps of the bedrock-surface elevations based on these subsurface data and seismic-refraction profiles.

DATA SUMMARY

All depths and elevations in feet.

MAP NUMBER	SOURCE	SOURCE STATION NUMBER	GROUND SURFACE ELEVATION	TOTAL DEPTH OR HEIGHT*	DEPTH TO TOP OF TILL	DEPTH TO BEDROCK	ELEV. OF TOP OF TILL OR CLAY	ELEV. OF BEDROCK SURFACE
1	TS	114	182	*1.9	1.1	1.9	181	180
2	TS	115	98	*23.4	0.4	>23.4	98	<75
3	TS	120	210	*2.6	2.0	>2.6	208	<207
4	TS	119	66	2.1	—	>2.1	—	<64
5	A	24	194	20.0	20.0	>20.0	174	<174
6	TS	51	205	*22.3	1.3	2.4	204	203
7	TS	131	276	*3.8	3.3	3.8	273	272
8	TS	130	228	*6.1	1.5	>6.1	227	<222
9	K	18	135	42.0	—	39.0	—	96
10	TS	109	77	2.7	2.4	>2.7	75	<74
11	A	2A	89	7.0	—	7.0	—	82
12	A	2	89	10.0	—	10.0	—	<79
13	TS	107	58	3.6	3.3	>3.6	55	<54
14	TS	129	135	*5.2	1.4	>5.2	134	<130
15	TS	128	92	*36.0	1.0	3.0	91	89
16	TS	137	133	*27.0	1.8	21.0	131	112
17	TS	351	105	*4.4	2.6	>4.4	102	<101
18	TS	103	118	*4.3	—	>4.3	—	<114
19	TS	102	167	*4.4	2.3	4.4	165	163
20	TS	106	125	1.8	1.8	>1.8	123	<123
21	TS	97	70	*2.6	1.1	2.6	69	67
22	TS	98	81	*5.2	1.7	5.2	79	76
23	TS	108	95	*2.1	—	>2.1	—	<93
24	TS	101	99	6.3	3.5	6.3	96	93
25	TS	100	133	*7.1	1.5	2.3	132	131
26	K	14	43	15.0	—	10.0	—	33
27	K	13	38	10.0	—	5.0	—	33
28	A	7	49	18.5	—	>18.5	—	<31
29	TS	136	114	*6.0	1.5	6.0	113	108
30	TS	352	50	*6.5	2.5	6.5	48	44
31	TS	135	57	*30.0	2.3	>30.0	55	<27
32	TS	127	66	*2.5	2.1	2.5	64	64
33	A	10A	66	13.0	13.0	>13.0	53	<53
34	TS	99	94	1.7	—	>1.7	—	<92
35	TS	95	88	*3.2	3.2	>3.2	85	<85
36	TS	94	95	*2.7	—	2.7	—	92
37	K	12	29	27.0	—	23.0	—	6
38	A	6	40	15.5	14.0	>15.5	26	<25
39	K	21	30	33.0	—	29.0	—	1
40	A	6A	41	9.0	5.0	>9.0	36	<32
41	A	7B	87	8.0	7.0	>8	80	<79
42	TS	126	45	*9.8	0.8	>9.8	44	<35
43	A	10	32	20.0	—	>20.0	—	<12
44	TS	346	29	*1.7	—	1.7	—	27
45	TS	139	53	*20.0	1.7	>20.0	51	<33
46	S	B12	70	15.8	8.0	>15.8	62	<54
47	S	B11	73	31.0	9.0	>31.0	64	<42
48	S	B18	77	11.5	9.0	>11.5	68	<66
49	S	B10	76	16.5	13.5	>16.5	62	<59
50	S	B17	83	11.5	4.0	>11.5	79	<71
51	S	B9	81	16.5	12.5	>16.5	68	<66
52	S	B16	84	11.5	4.5	>11.5	79	<73
53	S	B8	82	16.5	13.0	>16.5	69	<66
54	S	B7	82	21.5	19.0	>21.5	63	<61
55	S	B15	82	26.0	19.0	>26.0	63	<56
56	S	B14	89	26.5	17.0	>26.5	72	<62
57	S	B5	84	9.2	—	>9.2	—	<74
58	S	B6	82	20.8	14.0	>20.8	16.8	<61
59	S	B13	87	10.5	1.0	>10.5	86	<77
60	S	B4	82	21.0	5.0	>21.0	77	<61
61	S	B3	82	25.5	12.0	>25.5	70	<57
62	S	B2	82	21.5	12.0	>21.5	70	<61
63	S	B1	82	21.5	12.5	>21.5	70	<61
64	TS	146	72	*9.3	1.3	>9.3	71	<63
65	TS	134	47	*24.0	1.8	>24.0	45	<23
66	TS	125	124	1.2	1.0	>1.2	123	<123
67	M	TH6	63	7.6	—	7.6	—	55
68	M	TH3	65	10.8	—	>10.8	—	<54
69	M	TH4	60	12.0	—	>12.0	—	<48
70	M	TH5	62	8.8	—	8.6	—	53
71	M	TH2	63	6.0	2.5	6.0	61	57
72	TS	124	58	*12.2	2.2	3.5	56	119
73	TS	123	42	*6.0	1.1	2.4	41	40
74	M	TH1	59	7.7	—	7.6	—	51
75	A	5	139	15.5	—	>15.5	—	123
76	TS	93	129	*6.0	2.5	>6.0	127	<123
77	TS	59	42	*3.7	1.9	3.5	40	39
78	A	9	29	12.0	—	>12.0	—	<17
79	TS	132	77	*50.0	1.0	5.0	76	72
80	TS	133	60	*40.0	—	0.0	—	60
81	TS	350	30	*2.9	1.8	>2.9	28	<27
82	TS	142	60	2.9	2.6	>2.9	57	<57
83	TS	144	69	*3.7	3.4	>3.7	66	<65
84	TS	145	60	*2.4	1.8	2.4	58	58
85	not used							
86	A	77	34	24.0	—	>24.0	—	<10
87	K	20	21	37.0	—	33.0	—	-12
88	TS	138	75	*5.0	0.2	0.5	75	75
89	TS	143	116	*2.0	1.8	>2.0	114	<114
90	TS	141	50	*3.2	1.6	3.2	48	47
91	K	19	21	35.0	—	30.0	—	-9
92	Z	J15	35	50.0	—	>50.0	—	<15
93	Z	J16	38	20.0	—	>20.0	—	<18
94	Z	T1	27	5.5	—	>5.5	—	<22
95	K	15	20	24.0	—	>24.0	—	-2
96	TS	140	25	*22.3	—	>22.3	—	<3
97	not used							
98	not used							
99	Z	J25	40	30.0	5.0	>30.0	35	<10
100	Z	T2	23	7.0	—	>7.0	—	<16
101	A	8	49	39.0	—	>39.0	—	<10
102	Z	J24	50	21.0	3.0	>21.0	47	<29
103	B	TH13	50	15.0	—	>15.0	—	<35
104	Z	J12	40	20.0	—	>20.0	—	<20
105	Z	J9	44	20.0	—	>20.0	—	<24
106	Z	J6	44	20.0	—	>20.0	—	<24
107	Z	J8	44	20.0	—	>20.0	—	<24
108	Z	J3	49	30.5	—	>30.5	—	<20
109	Z	J21	43	20.0	3.0	>20.0	4.0	<23
110	B	TH30	50	15.0	—	>15.0	—	<35
111	K	10	24	48.0	—	42.0	—	-18
112	Z	T3	22	6.0	—	>6.0	—	<16
113	A	12A	28	26.0	—	>26.0	—	<2
114	A	12	21	27.0	—	>27.0	—	<6
115	Z	J5	50	11.0	—	>11.0	—	<39
116	Z	J11	49	50.0	43.0	>50.0	6	-1
117	Z	J18	49	20.0	—	>20.0	—	<39
118	Z	J5	50	26.0	—	>26.0	—	<24
119	Z	J19	49	20.0	—	>20.0	—	<29
120	Z	J2	50	20.0	—	>20.0	—	<30
121	Z	J22	48	20.0	—	>20.0	—	<28
122	TS	65	50	*12.0	11.2	>12.0	39	<38
123	TS	64	61	*35.5	5.6	5.9	55	56
124	TS	91	220	*1.3	—	>1.3	—	<219
125	Z	J14	50	27.0	—	25	—	36
126	Z	J13	54	21.0	—	>21.0	—	<33
127	Z	J10	53	20.0	—	>20.0	—	<33
128	Z	J7	50	20.0	—	>20.0	—	<32
129	Z	J4	51	30.0	—	>30.0	—	<21
130	Z	J20	51	20.0	—	>20.0	—	<31
131	Z	J1	50	20.0	—	>20.0	—	<30
132	Z	J23	51	20.0	—	>20.0	—	<31
133	Z	T6	51	8.0	—	>8.0	—	<43
134	B	TH24A	60	15.0	—	14.0	—	46
135	B	TH25A	75	14.0	—	13.0	—	62
136	B	TH26A	65	10.0	—	9.0	—	56
137	B	TH1	51	20.0	—	>20.0	—	<31
138	B	TH3	51	30.0	—	>30.0	—	<21
139	B	TH24	51	15.0	—	>15.0	—	<36
140	Z	T8	65	6.0	—	1.5	—	64
141	B	TH5	51	15.0	—	>15.0	—	<36
142	A	7B	61	17.0	17.0	>17.0	44	<44
143	Z	T10	55	10.0	—	>10.0	—	<45
144	Z	T11	44	9.0	—	>9.0	—	<35
145	Z	T9	59	10.0	—	>10.0	—	<49
146	A	13	21	26.0	—	>26.0	—	<5
147	B	TH14A	27	15.0	—	>15.0	—	<12
148	B	TH17	75	10.0	—	>10.0	—	<65
149	B	TH2A	68	9.0	—	>9.0	—	<59
150	B	TH22	59	10.0	—	>10.0	—	<49
151	B	TH4A	54	15.0	—	>15.0	—	<39
152	B	TH9A	45	25.0	—	>25.0	—	<20
153	B	TH10A	37	20.0	—	>20.0	—	<17
154	B	TH12A	26	15.0	—	>15.0	—	<11
155	B	TH22A	26	15.0	—	>15.0	—	<11
156	B	TH14A	22	25.0	—	>25.0	—	<3
157	B	TH16A	20	15.0	—	>15.0	—	<5
158	B	TH19A	18	11.0	—	>11.0	—	<7
159	K	456	18	50.0	—	>50.0	—	-32
160	C	TH3	17	30.0	—	>30.0	—	<14
161	B	TH18A	17	15.0	—	>15.0	—	<2
162	B	TH21A	18	15.0	—	>15.0	—	<3
163	C	TH7	21	14.0	—	>14.0	—	<7
164	C	TH9	21	15.0	—	>15.0	—	<6
165	C	TH11	22	15.0	—	>15.0	—	<7
166	C	TH13	23	10.0	—	>10.0	—	<13
167	TS	89	371	0.5	0.5	>0.5	371	<371
168	TS	88	259	*4.3	2.8	>4.3	256	<255
169	TS	87	100	*30.0	0.5	6.0	100	94
170	TS	84	92	*4.0	0.0	4.0	92	88
171	A	11	71	6.0	—	6.0	—	65
172	TS	77	112	*4.3	1.7	>4.3	110	<108
173	TS	76	110	*2.5	0.6	>2.5	109	<108
174	A	17	40	38.0	33.0	>38.0	7	<4
175	A	82	44	38.0	38.0	>38.0	6	<6

* Height of exposed section.

DATA SOURCES

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M) Dryden & Larse, 1981, unpublished borehole data for airport substation, Kodiak Electric Association, 10 p. 1 sheet.
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