4662

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R.S. PATTON, *Director*

State: ALASKA

DESCRIPTIVE REPORT

Topographic / ~~*Hydrographic*~~ *Sheet No.* 4662

LOCALITY

KODIAK ISLAND

S.E. ~~OUTSIDE~~ COAST OF

SITKALIDAK ISLAND

19 31

CHIEF OF PARTY

F.B.T.SIEMS, Comdr. U.S.C. & G.S.

U. S. GOVERNMENT PRINTING OFFICE: 1931

DESCRIPTIVE REPORT
TO ACCOMPANY
TOPOGRAPHIC FIELD SHEET "E"

STEAMER SURVEYOR F.B.T.SIEMS, COM'D'G.

Scale 1:20,000

4662

GENERAL DESCRIPTION:

From Black Point to Ocean Bay the coast-line is a rocky bluff that rises gradually from a wide grassy shelf to a ridge paralleling the beach. There are numerous rocks inshore and a heavy kelp bed parallels the coast extending from a quarter to a half mile off shore.

Ocean Bay is an indentation on the south coast of Sitkalidak Island one and a half miles deep and three and a half miles long. It has a wide white sand beach that bares from one to two hundred meters at low tide. There are several ridges terminating in the bay between which deep draws extend inland. In from the middle of the bay a lagoon extends inland within a mile of Port Hobron. Low ground separates the two.

From the eastern side of Ocean Bay to the eastern limits of the sheet the coast line is rugged having high bluffs and rapidly rising ground beyond except in two small bays. Kelp beds extend offshore and there are numerous rocks inshore.

In the westerly of the two small bays only a low gravel bar separates the ocean from MacDonald Lagoon. The easterly bay has a protected entrance to a shoal lagoon. A sand beach extends a mile to the southwest from a rocky peninsula that projects into the bay. This peninsula forms the protection for the entrance to the lagoon.

BLACK POINT:

The bluffs at Black Point are not as dark or as high as the bluffs at the point midway between Black Point and Ocean Bay. It is not as prominent a landmark as Puffin Island to the northwestward.

The low shelf extends the furthest out at the point midway between Black Point and Ocean Bay. There is a pinnacle rock having an elevation of 15 feet that lies at the outer end of a reef extending 300 meters out from this point.

CONTROL:

The triangulation stations, Cliff, Frank, Roost, Hump, Tar, Verde, Flor Surf, Fly, Oceon, Sigma, Fish, Negra, Tufts, Post, Azul, Wes, Ellis, Wed, Zeta, Delta, Speck, Mound, Fin, and Wedge were used for control on this sheet.

Between triangulation stations Cliff and Roost control was obtained by running a theodolite traverse.

SURVEYING METHODS:

Standard plane table methods were used in executing this sheet. Traverses

were run between numerous control points. Rocks were located by plane table cuts and points for elevations were determined in the same way. Elevations were computed using the hypsograph.

SPECIAL SURVEYING METHODS:

A theodolite traverse between triangulation stations Cliff and Roost was executed in the following manner: The theodolite was set up at the initial station (Cliff) and a stake was set up at the first traverse station. An offset stake was set up at right angles to the foresight. The distance between the set-up and off-set stakes was measured with a steel tape. The difference in elevation of the two stakes was determined by raising a pole above the lower and sighting the horizon from the top of the higher. The angle from the first traverse station to triangulation station Puffin was measured to determine the azimuth of the foresight and the horizon was closed. The theodolite was then moved to the first traverse station and the process was repeated sighting on the initial station to determine the azimuth. At this and succeeding traverse stations the angle between the offset stake and setup stakes was measured to determine the distance. The position of the last traverse station #23 and triangulation station Roost were the same point. The traverse was computed and then plotted by plane coordinates and the two positions varied by 76 meters. (see page 94-95 Association of Field Engineer's Bulletin, December 1931)

The results of the traverse were plotted by plane coordinates with the zero at triangulation station Cliff. True north was used as one axis thru triangulation station Cliff and a line drawn at right angles to it was used as the other axis. A plane grid was drawn on the topographic sheet and the stations plotted by latitude and departure.

Computations of this traverse forms part of this report and are attached hereto.

In the easterly lagoon the shoreline was determined by sextant fixes and plotted on the sheet.

FORM LINES:

Cuts were taken with the plane-table to locate points for elevations. The vertical angles were measured from two different set-ups and the mean of the elevations obtained plotted on the sheet.

NEW NAMES:

Ocean Bay -- name in use by fishermen and local inhabitants.

COMPARISON WITH OLD SURVEYS:

The old survey on the outside coast of Sitkalidak Island was reconnaissance in nature and very inaccurate. Black Point as shown on the chart is 1¼ miles too far East and ½ mile too far north. The indentations are also erroneously shown on Chart 8502.

MAGNETIC MERIDIAN:

A magnetic meridian was determined at triangulation station Sigma using the declinatiore and a variation of 24 degrees was obtained.

PLANE TABLE POSITIONS:

	Lat.	D.M.	Long.	D.P.	Elev.
Pinnacle Rock (In small cove at Black Point)	56-59	817	153-19	20	50'
Pinnacle Rock (Off point East of Black Point)	57-00	234	153-14	32	15'
Pinnacle Rock (Off of entrance to Ocean Bay near triangulation station Roost)	57-03	453	153-12	525	20'
Pinnacle Rock (At West of entrance to bay out from MacDonald Lagoon)	57-05	1235	153-05	816	67'

STATISTICS:

Miles of shoreline ---------- 39.5

Miles of shoreline, lakes and rivers---------- 1.0

Sq. Statute miles of topography.---------- 25.0

Respectfully submitted,

sgd. A.C. Thorson.
A.C. Thorson, Jr. H.&G.E.
U.S.C. & G.S.S. SURVEYOR

Approved and Forwarded:

F.B.T.SIEMS, H.&G.E.
Chief of Party, C.&G.S.

(Az - Cliff to Puffin * COMPUTATION 114° 38' 04")

Station	Measured Offset m	Diff. Elev. ft.	Horizon. Offset m	A log	Distance L	B log tan	A-B logs Linear Distance	
A Cliff	15	0.0	15.0000	1.176 09	2 - 44 48	8.681 02	2.495 07	312.7
(Half) 1/2	30	1.5	29.9965	1.477 07	2 50 53	8.696 78	2.780 29	603.0
1	20	0.0	20.0000	1.301 03	1 18 56	8.361 06	2.939 97	870.9
2	20	0.0	20.0000	1.301 03	2 31 28	8.644 32	2.656 71	453.6
3	30	2.5	29.9904	1.476 98	2 45 20	8.682 42	2.794 56	623.0
4	30	0.5	29.9997	1.477 11	2 43 10	8.676 68	2.800 43	631.6
5	30	0.0	30.0000	1.477 12	3 32 54	8.792 46	2.684 66	483.7
6	30	0.0	30.0000	1.477 12	4 33 05	8.900 94	2.576 18	376.9
7	30	2.0	29.9938	1.477 03	8 13 10	9.159 71	2.317 32	207.6
8	30	2.0	29.9938	1.477 03	4 26 32	8.890 35	2.586 68	386.0
9	30	0.0	30.0000	1.477 12	3 56 56	8.839 04	2.638 08	434.6
10	30	0.0	30.0000	1.477 12	4 14 50	8.870 78	2.606 34	404.0
11	30	0.0	30.0000	1.477 12	8 19 58	9.165 74	2.311 38	204.8
12	30	3.1	29.9849	1.476 91	9 37 22	9.229 29	2.247 62	176.9
13	25	0.0	25.0000	1.397 94	4 27 23	8.891 74	2.506 20	320.8
14	30	0.0	30.0000	1.477 12	6 04 00	9.026 45	2.450 67	282.3
15	30	2.2	29.9925	1.477 01	5 53 28	9.013 61	2.463 40	290.7
16	25	0.0	25.0000	1.397 94	3 51 20	8.828 62	2.569 32	371.0
17	30	0.0	30.0000	1.477 12	4 16 10	8.873 05	2.604 07	401.9
18	30	1.6	29.9960	1.477 06	4 40 57	8.913 32	2.563 74	366.2
19	30	3.85	29.9771	1.476 79	4 37 57	8.908 64	2.568 15	370.0
20	30	7.4	29.9150	1.475 89	4 06 35	8.856 44	2.619 45	416.3
21	30	0.0	30.0000	1.477 12	1 57 53	8.535 35	2.941 77	874.5
22	30	2.3m	29.9170	1.475 92	1 40 15	8.464 93	3.010 99	1025.6
Δ Roost 23								1088.6
(9 to Lard)	30	6.2	29.9404	1.476 25	3 21 05	8.767 60	2.708 65	511.3

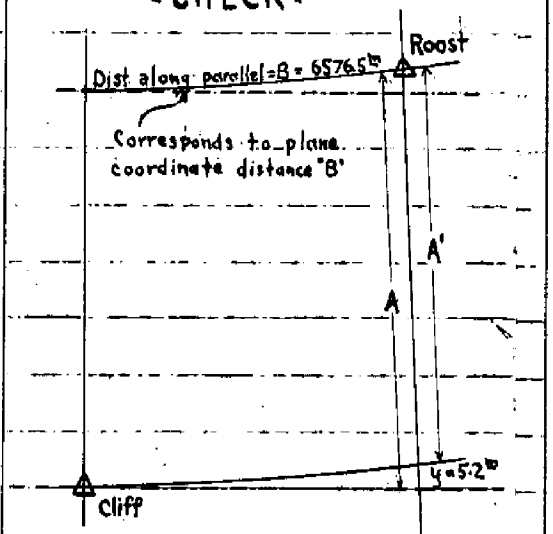
OF THEODOLITE TRAVERSE USING

	x ½ to Puffin °1 & Cliff Diff. Az.	Δ Cliff to ½ + ½ to 1, etc °	C Log Sin	[(A-B)+C] log Diff Dep	D Log Cos	[(A-B)+D] Log Diff Lat
	x 136 21 45	* 114 38 04	9.958 56		9.619 96	
	136 21 45	+ 250 59 49	-9.975 66	2.470 73	-9.512 71	2.007 78
½	189 25 34	° 241 34 15	-9.944 19	2.724 48	-9.677 67	2.457 96
1	180 49 40	240 44 35	-9.940 73	2.880 70	-9.689 07	2.629 04
2	148 49 13	271 55 22	-9.999 76	2.656 47	+8.525 72	1.182 43
3	203 07 10	248 48 12	-9.969 58	2.764 14	-9.558 19	2.352 75
4	180 56 00	247 52 12	-9.966 77	2.767 20	-9.576 01	2.376 44
5	181 55 50	245 56 22	-9.960 52	2.645 18	-9.610 34	2.295 00
6	170 11 00	255 45 22	-9.986 44	2.562 62	-9.391 02	1.967 20
7	187 50 27	247 54 55	-9.966 91	2.284 23	-9.575 16	1.892 48
8	191 05 50	236 49 05	-9.922 69	2.509 37	-9.738 23	2.324 91
9	192 18 47	224 30 18	-9.845 70	2.483 78	-9.853 20	2.491 28
10	192 37 10	211 53 08	-9.722 82	2.329 16	-9.928 96	2.535 30
11	187 48 10	204 07 58	-9.611 57	1.922 95	-9.960 28	2.271 66
12	169 21 43	214 46 15	-9.756 10	2.003 72	-9.914 58	2.162 20
13	176 19 20	218 26 55	-9.793 66	2.299 86	-9.893 85	2.400 05
14	177 25 47	221 01 08	-9.817 11	2.267 78	-9.877 66	2.328 33
15	170 48 35	230 12 33	-9.885 58	2.348 98	-9.806 17	2.269 57
16	185 37 58	224 34 35	-9.846 25	2.415 57	-9.852 67	2.421 99
17	198 25 00	206 09 35	-9.644 32	2.248 39	-9.953 07	2.557 14
18	166 00 05	220 09 30	-9.809 49	2.373 23	-9.883 24	2.446 98
19	209 53 47	190 15 43	-9.250 78	1.818 93	-9.993 00	2.561 15
20	155 02 45	215 12 58	-9.760 92	2.380 37	-9.912 21	2.531 66
21	217 14 50	177 58 08	+8.549 52	1.491 29	-9.999 73	2.941 50
22	170 26 23	168 24 31	+9.303 05	2.314 04	-9.99 105	3.002 04
	Az 9 to 10	224 30 18				
	∠ 10 to Land	103 18 52				
	Az 9 to Land	327 49 10	-9.726 39	2.435 04	+9.927 56	2.636 21

OFFSETS

Dep Meters	Lat. Meters	Sta.	Coordinates Dep.	Lat
		Δ Cliff	0.000	0.00
295.62	101.81	½	295.6	101.8
530.25	287.05	1	825.9	388.9
759.80	425.64	2	1585.7	814.5
453.39	-15.22	3	2039.1	799.3
580.95	225.29	4	2620.0	1024.6
585.06	237.92	5	3205.1	1262.5
441.76	197.24	6	3646.8	1459.7
365.28	92.73	7	4012.1	1552.5
192.41	78.07	8	4204.5	1630.5
323.12	211.31	9	4527.6	1841.8
304.64	309.94	10	4832.3	2151.8
213.38	343.00	11	5045.7	2494.8
83.74	186.92	12	5129.4	2681.7
100.86	145.28	13	5230.3	2827.0
199.47	251.22	14	5429.7	3078.2
185.26	212.98	15	5615.0	3291.2
223.35	186.03	16	5838.3	3477.2
260.36	264.23	17	6098.7	3741.4
177.18	360.69	18	6275.9	4102.1
236.17	279.89	19	6512.0	4382.0
65.91	364.04	20	6578.0	4746.1
240.09	340.14	21	6818.05	5086.2
-31.00	873.98	22	6787.05	5960.2
-206.08	1004.70	23	B 6580.97	A 6964.88
			6576.5	6958.9
			4.5	6.0
+272.30	-432.71	Land	4799.9	1409.1

CHECK



A' = Difference in latitude (Geographic)

A = Plane latitude difference

A = A' + y (from Polyconic Projection Tables)

y (from Polyconic Table) = 5.2 meters

	Latitude	Longitude
Δ Cliff	56° 59' 28.96"	153° 19' 04.06"
Δ Roost	57° 03' 13.75"	153° 12' 33.97"
	A = 03' 44.79"	B = 06' 30.09"

A	B
5568.1	5057.7
1361.2	1011.5
21.6	505.8
2.8	1.5
A = 6953.7 meters	B = 6576.5 meters
y = 5.2 "	
A+y = 6958.9 "	

Error of closure = $\sqrt{(4.5)^2 + (6.0)^2}$

= 7.6 meters.

Computed JBW

Copy of c 843.

" HDC

T-4662

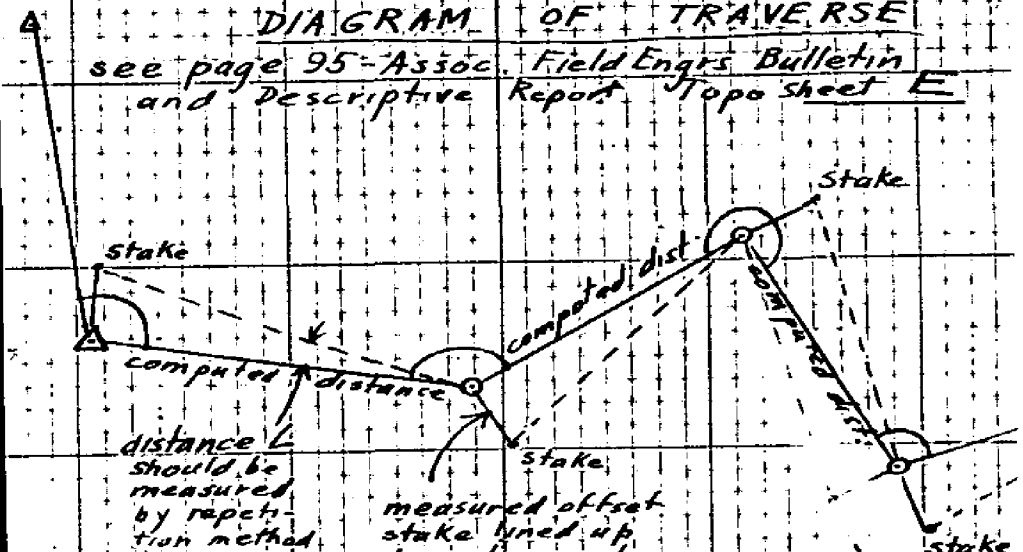
Observations for Theodolite Traverse using offsets.

Sitkalidak I., Kodiak I., from △ CLIFF to △ ROOST

Observer
A. L. Thorsen

DIAGRAM OF TRAVERSE

see page 95 - Assoc. Field Engrs Bulletin and Descriptive Report Topo sheet E



* of Chief of Party

Intention was to measure distance angle with greater degree of accuracy namely to measure the angle 3D & 3R by repetition instead of single pointings as below.

Station #8		#9	00	00	00	55	58
(30 AM) N		#7	191	05	45	50	4850
		30m	199	18	58	60	5800
Next 2 higher		#9			19	00 55	58
Station 9							
		#10	00	00	00	55	58
(30m) S		#8	192	18	45	55	5041
		30m	196	45	20	25	2219
Even pigs		#10	00	00	10	05	08 ✓
Station 10		#11	00	00	00	55	58
(30m N)		30m	188	40	10	15	1214
		#9	192	37	05	10	0810
Even pigs		#11			00	55	58 ✓
Station 11	D	#12	00	00	00	55	58
(30 M N)		#10	187	45	10	15	12 11
		30m	191	59	55	60	58 1
Even Pigs		#12	00	00	05	00	02 ✓
	R	#12	00	00	00	55	58
		#10	187	45	10	05	05 12
		30m	192	00	00	05	02
		#12			00	00	02
Final reduction			187	45	10	05	
			192	00	00		

Sitkalidak Traverse

Station 00 { = Δ Cliff
Intercept - 15 m (2)
from Puffin

stake 2' lower
(2.1')

		00	00	00	55
Puffin - 1	= 130	09	10	15	(1)
1 - Puffin	= 00	00	00	55	

Station # 1

Int = 20 m (5)

to ridge

			A	B
#2	00	00	00	55
Cliff	184	02	40	45
(15 m)	185	00	10	75
Puffin	223	02	45	45
#2			05	00

See page 17

Station # 2 (1.5 lower than 1)

Int 20 m (5)

147-30-20 25

			A	B		
#3	00	00	00	55	58	20
* 20 m	147	30	10	15	12	17
#1	148	49	05	10	08	13
#3	00	00	55	50	52	

stake level

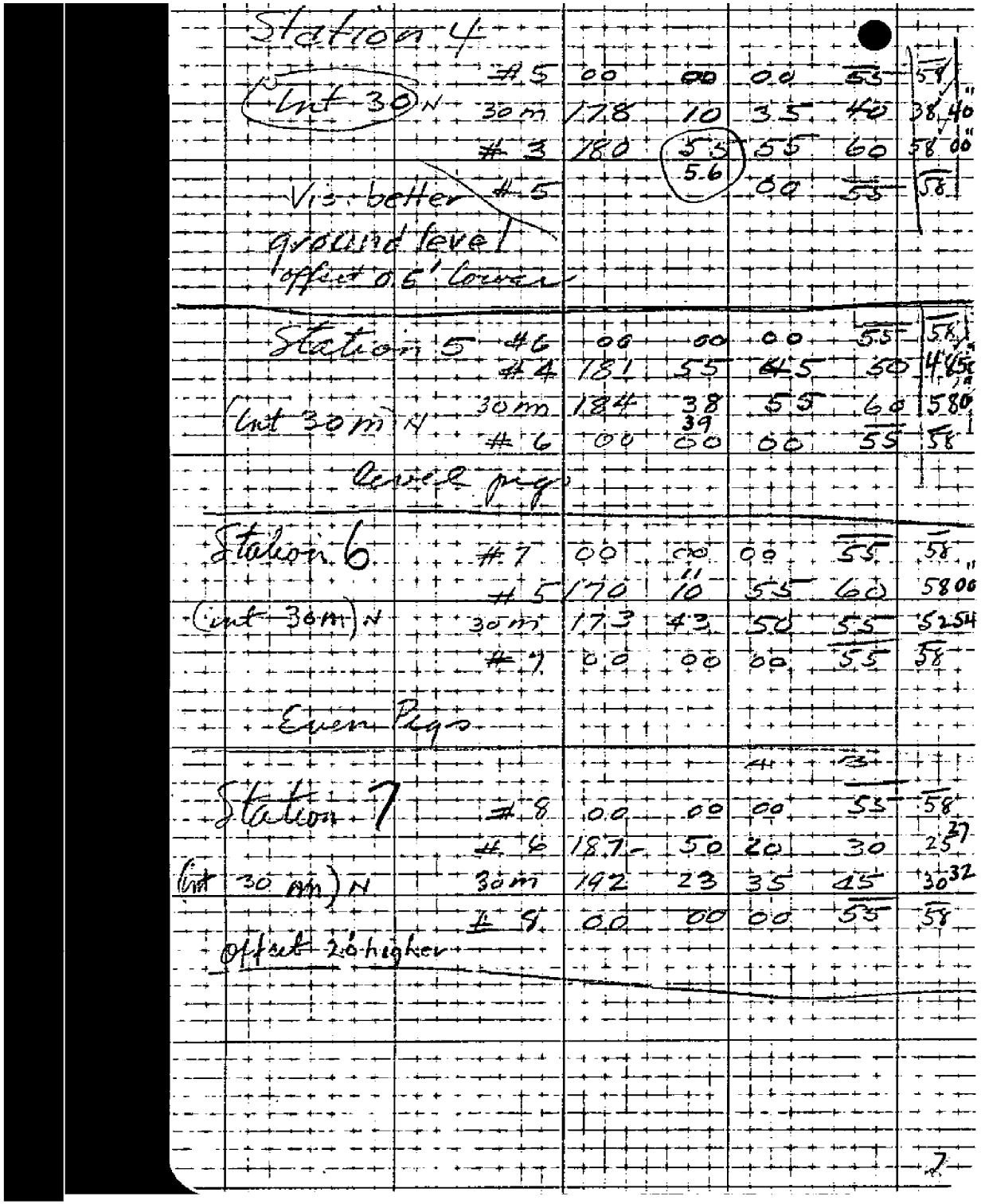
river bush 200 m from bend

Station # 3 5' higher than 2

Int - 30 m (5)

			A	B		
#4	00	00	00	55	58	
20 m	200	15	40	45	42	42
#2	203	07	05	15	10	10"
#4			05	00	02	

30 m stake 2½' lower (2.5)



Station 4
#5 00 00 0.0 53 58
Int 30 N 30m 178 10 35 40 38 40
#3 180 55 55 60 58 00
5.6
Vis. better #5 00 55 58
ground level
offset 0.6' lower

Station 5 #6 00 00 00 55 58
#4 181 55 45 50 46 56
Int 30m N 30m 184 38 55 60 58 00
39
#6 00 00 00 55 58
Level pegs

Station 6 #7 00 00 00 55 58
#5 170 11 10 55 60 58 00
(Int 30m) N 30m 173 43 50 55 52 54
#7 00 00 00 55 58
Even Pegs

Station 7 #8 00 00 00 55 58
#6 187 50 20 30 25 27
(Int 30 m) N 30m 192 23 35 45 30 32
#9 00 00 00 55 58
offset 2.0 higher

Station 12		#13	00	00	00	55	58
		#11	169	21	30	35	32 43
(30 N)		30 m	177	41	30	50	30 41
		#13			45	35	40
Offset Peg	3.1 ft	Higher					✓
Station 13		#12	00	00	00	55	58
(25 m N)		#12	176	19	15	20	18 20
		30 m	185	56	35	45	40 42
Pegs even		#14			00	55	58
Station 14		#15	00	00	00	55	58
		#13	177	25	40	50	45 47
(30 m N)		25 m	181	53	05	10	08 10
Pegs even		#15	00	00	00	55	58 ✓
Station 15		#16	00	00	00	55	58
		#14	170	48	15	25	20 35
(30.14 N)		30 m	176	52	15	25	20 35
9 to 22' high		#16			35	30	32 ✓
							+8
Station 16		#17	00	00	00	55	58
		#15	185	37	45	55	50 58
(25 m N)		30 m	191	31	15	20	16 26
Pegs level		#17			45	45	45 ✓
							11

Station 17		#18	00	00	00	55	58
		#16	198	24 25	55	60	58 00
(30 m N.)		25m	202	16	15	20	18 20
		#19			00	55	58
Even prgo							9
Sta 18		#19	00	00	00	55	58
		#17	166 165	00 59	55	60	05 58
(30 m N.)		30m	170	16	05	10	08 15
		#19			50	45	48
offset 1.6' higher							
Sta 19		#20	00	00	00	55	58
		#19	209	53	40	50	47 45
(30m N.)		30m	214	54	40	45	44 42
		#20			00	55	58
offset 3.85' higher							
Station 20		#21	00	00	00	55	58
		#19	155	02	45	45	45
(30m N.)		30.m	159	40	40	45	42
		#21			05	00	02
OFFSET - 1.4 ft high							
							13

Station 21	#22	00	00	00	0	00
	#20	217	14	50	50	50
(30 MIN)	30 m	221	21	25	25	25
	#22	00	00	00	00	00 ✓
Pago same level						
Station 22						
	#21	00 -	00	00	45	52
						53"
	30 m	01 -	57	50	45	48
						23"
(30 MIN)	#23	170	26 -	15	20	18
				00	55	58 ✓
4' - 15' up to offset peg						
				A	13	
Station 23 or A Roost	#22	00	00	00	55	58
						15"
	30 m	01	40	10	05	08
	#22			50	45	48 ✓

Day ended

Cliff

OFFSET 15M(N)

Δ Puffin	00	00	00	55	58
# ½	136	21	45	45	45
Δ Puffin	00	00	05	00	02

Even Pass ✓

Station ½

OFFSET 30M(S)

	# 1	00	00	00	55	58
34"	Cliff	189	25	30	35	32
22"	15m	192	10	20	20	20
	# 1	00	00	00	55	58
	Puffin	229	17	35	35	39"
				55	50	

OFFSET 1.5' lower # 1

Station # 1

OFFSET 30m(S)

	# 2	00	00	00	55	58
47"	30m	177	58	45	45	45
40"	# ½	180	49	35	40	38
	Puffin	223	02	20	25	
	# 2			00	55	58

stakes level