

# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 1 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY VERT CLIENT USGS DATE 6 BY 1 MO 81 YR  
 SURVEYOR GH CONRAD INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ○	STATION	VERTICAL							HORIZONTAL		REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		RIGHT TURNED HORIZONTAL ANGLE		ENT
				SLOPE					HORIZ	INST			
1		81091 ?									1	<del>Elev 290.4</del>	
2	Δ	<del>81092</del>	2156.4			89-47-45	11.0	3.2	294.6		2	291.4	
3						87-12-25					3		
4							11.0				4		
5	⊥	TS99	0				5.3	✓	223.6	283	289.3	5	
6	SS	TS98	440			87-24-23	11.0			271	288.1	6	
7	SS	TS98	880			87-58-45	11.0			272.9	283.9	7	
8	SS	TS96	1320			90-19-51	11.0			205.0	276	8	
9		TS95	1760							No elev		9	
10	○	TS96	2200			90-10-51	11.0	17.8		205.7	✓	10	
11						269-49-00	11.0				276.7	11	
12												12	
13	Δ	TS99	1760			90-32-20	11.0	27.5	233.1			13	
14						269-27-54	11.0		304.1			14	
15	SS	TS93	1320			90-49-00	11.0			203.3	274.3	15	
16	SS	TS82	880			91-17-56	11.0			202.2	273.2	16	
17	SS	TS91	440			90-35-15	11.0			207.6	288.6	17	

SOMETHING WRONG?

WORKED BY \_\_\_\_\_ CHECKED BY 1ST \_\_\_\_\_ 2ND \_\_\_\_\_

SYMBOLS

Δ = BACKSIGHT

⊥ = INSTRUMENT SET-UP

SS = SIDESHOT

○ = FORESIGHT

# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY AK BOOK NO. 1 PAGE 2 OF 31  
 LINE/LOOP NO. 3981 TYPE SURVEY VERT. CLIENT USGS DATE 6 BY L MO 8 YR  
 SURVEYOR GH CONRAD INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> O	STATION	VERTICAL							HORIZONTAL		REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR D/I		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1													
2	Δ	TS90	0			5.3			233.1	227.8	298.8		
3	SS	TS89	440		88-39-54	11.0				237.4	303.4		
4	O	TS88	880		89-02-37	11.0	3.7			236.8	✓307.8		SOMETHING
5					270-57-28								
6										<del>291.45</del>			WRONG?
7	Δ	81091	2156.4		89-47-45	11.0	3.2	294.6			291.45		
8					270-12-25								
9													
10	Δ	TS87	210.4			5.3		294.6					
11	SS	SP100	440		90-27-51	11.0							
12	SS	SP101	880		90-56-03	11.0							
13	SS	SP102	1320		90-32-51	11.0							
14	SS	SP103	1760		90-07-50	11.0							
15	SS	SP104	2200		89-48-15	11.0							
16	O	SP105	2640		89-46-10	11.0	0.2						
17					270-13-59	11.0				294.4			

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 3 OF 31  
 LINE/LOOP NO. 39 81 TYPE SURVEY VER CLIENT USGS DATE 6 DY 1 MO 81 YR  
 SURVEYOR G.H. CONRAD INSTRUMENT DESC/SERIAL NO. TE CREW NO. 1186

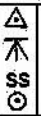
LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> O	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE	
				SLOPE					HORIZ	INST			ROD
1											1		
2	Δ	SP105	2640		90-01-30	11.0	12					2	
3		✓			269-58-31	11.0						3	
4	SS	SP106	2200		90-00-36	11.0						4	
5	SS	SP107	1760		89-57-42	11.0						5	
6	SS	SP108	1320		89-54-31	11.0						6	
7	SS	SP109	880		89-44-29	11.0						7	
8	SS	SP110	440		89-12-55	11.0						8	
9	⊕	SP111	0			5.3		306.4 ✓				9	
10	SS	SP112	440		89-51-26	11.0						10	
11	SS	SP113	880		90-27-41	11.0						11	
12	SS	SP114	1320		90-34-17	11.0						12	
13	O	SP115	1760		90-28-46	11.0			280.7 ✓			13	
14					269-30-53		25.0					14	
15					90-28-59							15	
16					269-31-01							16	
17												17	

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 4 OF 31  
 LINE/LOOP NO. 3981 TYPE SURVEY VER CLIENT USGS DATE 6 BY JAN MO 81 YR  
 SURVEYOR GHCORRAD INSTRUMENT DESC/SERIAL NO. T-2 wild CREW NO. 1186

LINE		STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE
									SLOPE	HORIZ				
1												1		
2		<del>SP 115</del>	2365			89-21-20	11.0	15.7					2	
3		✓				87-20-17	11.0						3	
4		A ✓ SP 115	2365			89-21-03	11.0						4	
5		✓				270-38-56							5	
6	SS	SP 116	1925			89-24-00	11.0						6	
7	SS	SP 117	1485			89-25-49	11.0						7	
8	SS	SP 118	1045			89-11-20	11.0						8	
9	SS	SP 119	505			89-01-23	11.0						9	
10	SS	SP 120	165			87-36-20	11.0						10	
11	⊕	SP 120+165	0			95-22-37	5.0		264.8 ✓				11	
12	SS	SP 121	275			95-22-37	20.0						12	
13	SS	SP 122+	330			96-00-28	17.0						13	
14	○	SP 123	1155			92-36-29	15.0	67.5					14	
15						267-23-12			197.2				15	
16													16	
17													17	

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 5 OF 31  
 LINE/LOOP NO. 39 81 TYPE SURVEY VER CLIENT USGS DATE 7 BY 1 MO 8 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 wild CREW NO. 1186

LINE	 SS	STATION	VERTICAL						HORIZONTAL		REMARKS												
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR DI	RIGHT TURNED HORIZONTAL ANGLE										
				SLOPE					HORIZ	INST				ROD									
1																							
2		SP 123	3245		90 46 31	15.0	58.7	255.8															
3			3245		76 13 40	15.0																	
4																							
5		SP 124	2805		92 24 07	11.																	
6		SP 125	2365		92 33 08	11.																	
7		SP 126	1925		93 07 23	11																	
8		SP 127	1485		94 02 32	11																	
9		SP 128	1045		93 56 25	11																	
10		SP 129	605		95 04 12	11																	
11		SP 130	165		93 40 17	11.																	
12								255.8 ✓															
13		SP 131	215		87 56 35	11																	
14		SP 132	715		89 10 49	11																	
15		SP 133	1155		89 35 20	11																	
16		✓	1155		70 25 30	11				253.2													
17																							

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 = FORESIGHT

### HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 6 OF 81  
 LINE/LOOP NO. 3981 TYPE SURVEY VER CLIENT USGS DATE 7 DY 1 MO 81 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T2-Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊕	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST			
1	⊕	SP 133	1155		89-34-03	11	2.3				1		
2	⊕		1155		270-26-09	11.			253.6		2		
3											3		
4	Δ	SP 133	1760		90-13-19	11.	17.8				4		
5			1760		269-46-53	11.					5		
6		SP 134	1320		91-05-36	30.					6		
7		SP 135	880		90 29 43	11					7		
8		SP 136	440		90 36 38	11					8		
9	Δ	SP 137	-0-		90.0000	5.5		271.3✓			9		
10		SP 138	440		89 19 02	11					10		
11		SP 139	880		90 05 58	11.					11		
12		SP 140	1320		90 23 41	11					12		
13		SP 141	1760		90 35 26	11					13		
14		SP 142	2200		90 35 17	11					14		
15		SP 143	2640		90 31 11	11					15		
16		SP 144	3080		90 16 24	11					16		
17		SP 145	3520		90 12 39	11					17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 7 OF 31  
 LINE/LOOP NO. 3981 TYPE SURVEY VER CLIENT USGS DATE 7 DY 1 MO 8 L YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T2 CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> ⚓ <input type="checkbox"/> ○	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST		
1		SP 146	3960		89 50 42	11						
2	○	SP 147	4400		89 44 50	11	8.0					
3	○	SP 147	4400		270 15 12	11			280.1 ✓			
4									281.4	→ 81027		
5	Δ	BAR.M. 81027		1835.7	89 40 45	11	0.4	281.7				TIE 280.1 -
6	Δ	BAR MARK 81027			290 19 29	11						279.0 = 1.1 HC
7	⚓	TP										
8	○	SP 147	277		88 17 17	11	2.7		279.0 ✓			TAKE OFF NEW ELEV.
9	○	SP 147	277		271 42 54	11						
10												
11	Δ	SP 147	1760		89 45 49	11						
12		SP 147	1760		276 14 41	11						
13		SP 148	1320		90 18 55	11						
14		SP 149	880		90 31 22	11						
15		SP 150	440		91 01 46	11						
16	⚓	SP 151	-0-		90	5.2			282.4 ✓			
17												

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 8 OF 31  
 LINE/LOOP NO. 39 81 TYPE SURVEY VER CLIENT USGS DATE 8 DY 1 MO 81 YR  
 SURVEYOR O'GAADY INSTRUMENT DESC/SERIAL NO. T2 CREW NO. 1186

LINE	  	STATION	VERTICAL							HORIZONTAL		REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR DI		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1		SP 152	440		90 13 59	11						1	
2		SP 153	880		91 05 11	11						2	
3		SP 154	1320		89 19 25	11						3	
4		SP 155	1760		89 26 37	11						4	
5		SP 156	2200		89 35 08	11						5	
6	⊙	SP 157	2640		89 41 12	11	3.6					6	
7	⊙	SP 157	2640		270 18 41	11			286.0	✓		7	
8												8	
9	Δ	SP 157	2200		89 53 46	11	6.9					9	
10	⊏	SP 157	2200		270 06 27	11						10	
11		SP 158	1760		90 05 50	11						11	
12		SP 159	1320		90 17 01	11						12	
13		SP 160	880		89 57 39	11						13	
14	⊙	SP 161	440		89 21 56	11						14	
15	⊏	SP 162	-0-		-90-	5.2			292.0	✓		15	
16		SP 163	440		90 35 10	15.0						16	
17												17	

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⊙ = FORESIGHT



## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 9 OF 31  
 LINE/LOOP NO. 39 81 TYPE SURVEY VER CLIENT \_\_\_\_\_ DATE 8 BY 1 MO 81 YR  
 SURVEYOR O' GRADY INSTRUMENT DESC/SERIAL NO. T2 CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ○	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR DJI	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1		SP164	880		91 10 19	20.						1	
2		SP165	1320		89 53 36	11						2	
3		SP166	1760		89 45 31	11						3	
4	○	SP167	2200		89 48 20	11	3.4					4	
5	○	SP167	2200		270 11 42	11		289.4		✓		5	
6												6	
7	Δ	SP167	2640		<del>89 47 24</del>	11.		89 46 49				7	
8		SP167	2640		270 13 21	11	0.7					8	
9		SP168	2200		89 44 13	11						9	
10		SP169	1760		89 44 01	11						10	
11		SP170	1320		89 46 45	11						11	
12		SP171	880		90 02 21	11						12	
13		SP172	440		90 39 24	11						13	
14	Δ	SP173	-0-		90	5.0		290.0		✓	290	14	
15		SP174	440		89 39 49	11						15	
16		SP175	880		90 18 10	11						16	
17												17	

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA OMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 10 OF 31  
 LINE/LOOP NO. 39 81 TYPE SURVEY VER CLIENT USGS DATE 8 DY 1 MO 81 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. TR CREW NO. 1186

LINE	  	STATION	VERTICAL						ELEVATION		HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD	L/R OR DI		RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE	HORIZ										
1		SP176	1320		90 29 04	11							1		
2		SP177	1760		90 23 07	11							2		
3		SP178	2200		90 16 31	11							3		
4		SP179	2640		90 19 52	11							4		
5		SP180	3080		90 17 04	11							5		
6	⊙	SP181	3520		90 12 47	11	90 13 59 25.1		265.0	✓			6		
7	⊙	SP181	3520		<del>269 47 25</del>	+	269 45 53						7		
8													8		
9	Δ	SP181	1760		90 08 17	11	15.2	✓					9		
10	Δ	SP181	1760		269 51 55	11							10		
11		SP182	1320		89 57 11	11							11		
12		SP183	880		90 02 34	11							12		
13		SP184	440		89 54 03	11							13		
14	Δ	SP185	-0-		90	5.3			280.1	✓			14		
15		SP186	440		89 59 02	11							15		
16		SP187	880		90 08 15	11							16		
17													17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 11 OF 31  
 LINE/LOOP NO. 39 81 TYPE SURVEY VER CLIENT USGS DATE 9 DY 1 MO 81 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. TR CREW NO. 1186

LINE	 SS	STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR DI	RIGHT TURNED HORIZONTAL ANGLE	
									SLOPE	HORIZ				INST
1		SP 188	1320		90 12 18	11							1	
2		SP 189	1760		90 06 32	11							2	
3		SP 190	2200		89 59 30	11							3	
4		SP 191	2640		89 58 58	11							4	
5		SP 192	3080		90 01 02	11							5	
6		SP 192	3080		269 59 06	11	11.7		268.4	<input checked="" type="checkbox"/>			6	
7													7	
8		SP 192	1320		89 30 39	11	0.3						8	
9		SP 192	1320		286 29 30	11							9	
10		SP 193	880		89 12 05	11							10	
11		SP 194	440		88 41 30	11	271.18	8	10			267.1	11	Returned Angle
12		SP 195	0		90.00	5.5			268.1	<input checked="" type="checkbox"/>			12	for closure
13		SP 196	440		90 11 03	11							13	
14		SP 197	880		90 34 14	11							14	267.1 - 264.4 =
15		SP 198	1320		90 40 57	11		26.7					15	2.7 tie
16		SP 198	1320		269 19 13	11			261.4				16	for Elev. of 194
17													17	see page 12

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 12 OF 31  
 LINE/LOOP NO. 3981 TYPE SURVEY VER CLIENT US69 DATE 9 DY 1 MO 8 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. 72 CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		LINE	REMARKS		
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION				L/R OR DI	RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD				
1												1		
2	Δ	BAR STA.		2345.15	90 49 05	6.0	39.4		229.99			2	BAR MARK	
3	Δ	BAR STA			769 10 45	6.0						3	81039	
4												4	ELEV 229.99	
5	⊏	SP 19A	-0-		90	5.0		269.4	264.4			5		
6												6		
7												7	TAKE OFF NEW	
8	Δ	SP 19B	1320		89 00 33	11.	11.9		238.7			8	ELEV. of 19B	
9	Δ	SP 19B	1320		270 59 28	11.						9	238.7	
10		SP 199	880		88 51 12	11						10		
11		SP 200	490		88 25 54	11						11		
12		SP 201	-0-		90	5.0		226.8				12		
13		SP 202	446		94 13 17	4.0						13		
14		SP 203	800		93 54 38	11.0						14		
15		SP 204	1320		89 56 51	11.0						15		
16		SP 205	1760		89 48 05	11.0						16		
17												17		

trav. for tie to Bar mark

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SYMBOLS    Δ = BACKSIGHT    ⊏ = INSTRUMENT SET-UP    SS = SIDESHOT    ⊙ = FORESIGHT

## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY ALASKA BOOK NO. 1 PAGE 13 OF 31  
 LINE/LOOP NO. 3981 TYPE SURVEY VER CLIENT \_\_\_\_\_ DATE 7 DY 1 MO 8 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. JR CREW NO. 1186

LINE	  	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		RIGHT TURNED HORIZONTAL ANGLE	
				SLOPE	HORIZ					INST			ROD
1		SP 206	2200		89 52 05	11		5.8				1	
2		SP 206	2200		290 08 02	11			221.0			2	
3												3	
4		SP 206	1760		89 43 59	11						4	
5		SP 206	1760		270 15 49	11						5	
6		SP 207	1320		89 42 15	11						6	
7		SP 208	880		89 45 42	11						7	
8		SP 209	440		89 35 19	11						8	
9		SP 210	-0-		90	5.2			223.8			9	
10		SP 211	440		89 39 29	11						10	
11		SP 212	880		90 25 33	11						11	
12		SP 213	1320		89 03 30	11		8.5				12	
13		SP 213	1320		89 06 15	11			215.3			13	
14												14	
15												15	
16												16	
17												17	

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**SYMBOLS**

= BACKSIGHT

= INSTRUMENT SET-UP

= SIDESHOT

= FORESIGHT

# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UmiaT STATE/COUNTY Alaska BOOK NO. 1 PAGE 14 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert. CLIENT USGS DATE 11 BY 1 MO 31 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. \_\_\_\_\_ CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL							HORIZONTAL		REMARKS		
			DISTANCE	<input checked="" type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR D/I		RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1												1		
2	Δ	SP 213	880		89 19 54 11		0.6					2		
3	Δ	SP 213	880		216 45 00 11							3		
4												4		
5		SP 214	440		89 32 24 11							5		
6	Δ	SP 215	-0-		90°	5.0		24.8 ✓				6		
7		SP 216	440		89 39 09 11.0							7		
8		SP 217	880		89 19 51 11.0							8		
9		SP 218	1320		89 26 40 11							9		
10		SP 219	1760		89 29 55 11							10		
11	⊙	SP 220	2200		89 39 08 11		5.7					11		
12	⊙		2200		270 25 43 11				220.4 ✓			12		
13												13		
14	Δ	SP 220	2200		89 56 49 11		8.9					14		
15	Δ	SP 220	2200		270 03 11 11							15		
16		SP 221	1760		90 00 30 11							16		
17												17		

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SYMBOLS

Δ = BACKSIGHT

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umioot STATE/COUNTY Alaska BOOK NO. 1 PAGE 15 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert CLIENT USGS DATE 11 DY 1 MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. \_\_\_\_\_ CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1		SP 222	1320		90 08 06	11						1		
2		SP 223	880		89 48 40	11						2		
3		SP 224	440		89 33 30	11						3		
4	Δ	SP 225	-0-		90	9.8		229.2 ✓				4		
5		SP 226	440		89 13 26	11						5		
6		SP 227	880		89 43 54	11						6		
7		SP 228	1320		89 54 01	11						7		
8		SP 229	1760		89 58 55	11						8		
9		SP 230	2200		90 00 08	11						9		
10	⊙	SP 231	2640		89 52 54	11	5.4					10		
11	⊙	SP 231	2640		270 07 05	11			223.8 ✓			11		
12												12		
13	Δ	SP 231	1760		90 11 15	11	16.7					13		
14	Δ	SP 231	1760		269 48 43	11						14		
15		SP 232	1320		90 06 28	11						15		
16		SP 233	880		90 16 51	11						16		
17												17		

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SYMBOLS

Δ = BACKSIGHT

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UmiaT STATE/COUNTY Alaska BOOK NO. 1 PAGE 16 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert. CLIENT USGS DATE 11 BY 1 MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 W: B CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR DI	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1		SP 234	440		89 49 52	11						1		
2	<input checked="" type="checkbox"/>	SP 235	0		90	5.2		240.5	✓			2		
3		SP 236	440		89 03 36	11						3		
4		SP 237	880		89 32 01	11						4		
5		SP 238	1320		89 57 32	11						5		
6		SP 239	1760		89 33 40	11						6		
7	<input checked="" type="checkbox"/>	SP 240	2200		89 34 28	11	5.4					7		
8	<input checked="" type="checkbox"/>	SP 240	2200		270 25 36	11			245.9	✓		8		
9												9		
10	<input checked="" type="checkbox"/>	SP 240	2640		89 49 46	11	0.8					10		
11	<input checked="" type="checkbox"/>	SP 240	2640		270 15 18	11						11		
12		SP 241	2200		89 53 38	11						12		
13		SP 242	1760		90 06 31	11						13		
14		SP 243	1320		90 08 00	11						14		
15		SP 244	880		90 03 43	11						15		
16		SP 245	440		89 48 42	11						16		
17												17		

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SYMBOLS

Δ = BACKSIGHT

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiaf STATE/COUNTY Alaska BOOK NO. 1 PAGE 17 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert. CLIENT USGS DATE 11 BY 1 MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 6011 CREW NO. 186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL					ELEVATION		L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST					ROD
				SLOPE										
1	Δ	SP 246	-0-		90	5.2			245.1 ✓			1		
2		SP 247	490		88 59 40	11.						2		
3		SP 248	880		89 28 26	11						3		
4		SP 249	1320		89 34 91	11						4		
5		SP 250	1760		89 49 09	11						5		
6	⊙	SP 251	2200		89 57 09	11		9.1				6		
7	⊙	SP 251	2200		270 02 53	11			236.0 ✓			7		
8												8		
9	Δ	SP 251	2640		89 23 27	11		17.2				9		
10	Δ	SP 251	2640		270 36 32	11						10		
11		SD 252	2200		89 21 03	11						11		
12		SP 253	2760		89 22 00	11						12		
13		SP 254	1320		89 21 29	11						13		
14		SD 255	880		89 17 28	11						14		
15		SP 256	640		89 00 11	11						15		
16	Δ	SP 257	-0-		90	5.0			218.0 ✓			16		
17												17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiat STATE/COUNTY Alaska BOOK NO. 1 PAGE 18 OF 31  
 LINE/LOOP NO. 39-91 TYPE SURVEY Vert CLIENT USGS DATE 11 BY 1 MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR DJ	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1		SP 258	440		90 12 45	11						1		
2		SP 259	880		89 50 58	11						2		
3	⊙	SP 260	1320		89 40 25	11	3.4					3		
4	⊙	SP 260	1320		270 19 33	11		215.4	✓			4		
5												5		
6	Δ	SP 260	1760		89 51 10	11.	6.4					6		
7	Δ	SP 260	1760		270 08 54	11.						7		
8		SP 261	1320		89 40 52	11						8		
9		SP 262	880		89 30 24	11						9		
10		SP 263	440		88 58 44	11						10		
11	⊥	SP 264	-0-		90	5.2		221.7	✓			11		
12		SP 265	440		89 59 49	11.						12		
13		SP 266	880		89 48 02	11						13		
14		SP 267	1320		89 34 16	11						14		
15	⊙	SP 268	1760		89 56 52	11	9.3					15		
16	⊙	SP 268	1760		270 03 08	11		212.4	✓			16		
17												17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiat STATE/COUNTY ALASKA BOOK NO. 1 PAGE 19 OF 31  
 LINE/LOOP NO. 3A-81 TYPE SURVEY Vert CLIENT USGS DATE 11 DY 1 MO 81 YR  
 SURVEYOR M. O'GLADY INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			SLOPE	HORIZ										
1	Δ	SP 268	2640		89 34 56	11		8.4				1		
2	Δ	SP 268	2640		270 25 04	11						2		
3		SP 269	2700		89 28 56	11						3		
4		SP 270	1760		89 25 11	11						4		
5		SP 271	1320		89 20 43	11						5		
6		SP 272	880		89 26 05	11						6		
7		SP 273	440		88 56 53	11						7		
8	⊥	SP 274	-0-		90	4.8			204.0 ✓			8		
9		SP 275	440		89 15 34	11						9		
10		SP 276	880		89 35 15	11						10		
11		SP 277	1320		89 44 14	11						11		
12		SP 278	1760		89 45 10	11						12		
13		SP 279	2200		89 50 10	11						13		
14	⊙	SP 280	2690		89 55 32	11		7.4				14		
15	⊙	SP 280	2690		270 04 29	11			196.6 ✓			15		
16												16		
17												17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY AK BOOK NO. 1 PAGE 20 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY VERTICAL CLIENT USGS DATE 11 BY 1 MO 81 YR  
 SURVEYOR O. GRADT INSTRUMENT DESC/SERIAL NO. T-2 CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST		
1	Δ	280	3080		89°52'30"	11°	4.1				1	
2					270°07'37"						2	
3											3	
4		281	2640		89°48'32"	11°					4	
5		282	2200		89°45'47"	11°					5	
6		283	1760		89°54'02"	11°					6	
7		284	1320		90°02'25"	11°					7	
8		285	880		90°05'10"	11°					8	
9		286	440		89°48'08"	11°					9	
10	⊗	287				46		200.6 ✓			10	
11		288	440		89°14'51"	11°					11	
12		289	880		89°37'46"	11°					12	
13		290	1320		89°46'43"	11°					13	
14		291	1760		89°48'41"	11°					14	
15		292	2200		89°56'55"	11°					15	
16		293	2640		89°57'37"	11°					16	
17											17	

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SYMBOLS

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SS = SIDESHOT

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY AK BOOK NO. 1 PAGE 21 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY VERT CLIENT USGS DATE 11 BY 1 MO 8 LYR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD		
1												
2	⊙	294	3080		89°58'03"	11°	9.1	191.6	✓			
3					270°01'59"	11°						
4												
5	Δ	294	1760		89°55'10"	11°	8.5					
6					270°04'53"							
7												
8		295	1320		89°54'17"	11°						
9		296	880		89°46'47"	11°						
10		297	440		89°24'25"	11°						
11	⊗	298				55		200.0	✓		BARR MARK	
12											Elev 197.9	
13		81093	960		89°21'21"	11°		198.2	✓		TIE 198.2 -	
14					270°32'41"						197.9 = 0.3	
15											TIE	
16		299	440		89°23'38"	11°						
17		300	880		89°48'15"	11°						

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**SYMBOLS**

Δ = BACKSIGHT

⊗ = INSTRUMENT SET-UP

SS = SIDESHOT

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY AK BOOK NO. 1 PAGE 22 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY VERT CLIENT USGS DATE 11 BY 1 MO 8 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL							HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		RIGHT TURNED HORIZONTAL ANGLE		LINE	
				SLOPE					HORIZ	INST				ROD
1												1		
2		301	1320			89°51'37" 11°							2	
3		302	1760			89°53'13" 11°							3	
4		303	2200			89°55'51" 11°							4	
5													5	
6	⊙	304	2640			89°55'47" 11°		7.6		192 A	✓		6	
7						270°04'14"							7	
8													8	
9	Δ	304	2200			89°50'49" 11°		5.0					9	
10						278°09'23" 11°							10	
11													11	
12		305	1760			89°47'10" 11°							12	
13		306	1320			89°37'04" 11°							13	
14		307	880			89°30'19" 11°							14	
15		308	440			89°08'43" 11°							15	
16	Δ	309				5°				197 A	✓		16	
17		310	440			89°29'08" 11°							17	

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY AK BOOK NO. 1 PAGE 23 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY VERT CLIENT USGS DATE 11 BY 1 MO 81 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 CREW NO. \_\_\_\_\_

LINE	 <small>SS</small> 	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD		
1											1	
2		311	880		90°18'58"	11°					2	
3		312	1320		90°42'58"	18°					3	← CREEK HIROD
4		313	1760		90°14'40"	11°					4	
5		314	2206		90°12'12"	11°					5	
6											6	
7		315	2640		90°09'01"	11°	17.8		179.6		7	
8					269°50'52"						8	
9											9	
10											10	
11											11	
12											12	
13											13	
14											14	
15											15	
16											16	
17											17	

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umial STATE/COUNTY ALASKA BOOK NO. 1 PAGE 2A OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert CLIENT USGS DATE 12 DY 1 MO 81 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input checked="" type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1	Δ	SP 315	2200		89 54 55	11	7.6					1	
2		315	2200		270 05 00	11						2	
3												3	
4		SP 316	1760		89 43 13	11						4	
5		317	1320		89 34 45	11						5	
6		318	880		89 28 16	11						6	
7		319	440		89 09 07	11						7	
8	Δ	320	0		90	5.0		187.2 ✓				8	
9		321	440		89 17 44	11						9	
10		322	880		89 40 43	11						10	
11		323	1320		89 52 40	11						11	
12												12	
13	SS	BAR MARK	1138.17		89 44 40	11	5.9		181.3			13	
14		81050			270 15 08	11						14	
15												15	
16	SS	324	1760		89 57 41	11						16	
17												17	

BAR MARK  
 Ref: 181.6  
 $181.3 - 181.6 = 0.3 \pm 1E$

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SYMBOLS

Δ = BACKSIGHT

⊕ = INSTRUMENT SET-UP

SS = SIDESHOT

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Uniat STATE/COUNTY Alaska BOOK NO. 1 PAGE 25 OF 31  
 LINE/LOOP NO. 39-21 TYPE SURVEY Vert. CLIENT USGS DATE 13 BY 1 MO 01 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> O	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST		
1	<input checked="" type="checkbox"/> SP	325	2200		89 59 44	11						
2	<input checked="" type="checkbox"/> SP	326	2140		90 01 02	11	11.7		175.8			Correction from
3					219 58 48	11						BARR MARK
4												+0.3
5	<input checked="" type="checkbox"/> Δ	JP 326	2200		89 40 47	11	1.4					
6					210 19 10	11						
7		SP 327	1760		89 35 25	11						
8		" 328	1320		89 21 54	11						
9		" 329	880		89 23 41	11						
10		" 330	440		89 05 46	11						
11	<input checked="" type="checkbox"/> Δ	" 321	-0-		90	4.6		174.4				
12		SP 332	440		89 15 22	11						
13		" 333	880		89 40 19	11						
14		" 334	1320		89 52 23	11						
15		" 325	1760		89 42 58	11						
16		" 336	2200		89 47 19	11						
17												

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SYMBOLS

Δ = BACKSIGHT

Δ = INSTRUMENT SET-UP

SS = SIDESHOT

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiat STATE/COUNTY Alaska BOOK NO. 1 PAGE 26 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert CLIENT USGS DATE 12 DY 1 MO 81 YR  
 SURVEYOR M. OGRADSK INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST			
1	⊙	SP 337	2640		89 49 23	11		2.7				1	
2					870 10 30	11			171.7	✓		2	
3												3	
4	Δ	SP 337	2200		89 38 50	11		2.7				4	
5					270 21 15	11						5	
6		SP 338	1760		89 35 35	11						6	
7		" 339	1320		89 34 28	11						7	
8		" 340	880		91 30 07	26.						8	
9		" 341	040		91 04 A	18.						9	
10	Δ	" 342	0		90 00 00	5.2		169.0	✓			10	
11		SP 343	440		89 32 43	11						11	
12		" 344	880		89 33 16	11						12	
13		" 345	1320		89 36 36	11						13	
14		" 346	1760		89 39 54	11						14	
15	⊙	" 347	2200		89 45 17	11		1.5				15	
16					270 14 39	11			167.5	✓		16	
17												17	

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiaf STATE/COUNTY ALASKA BOOK NO. 1 PAGE 27 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert CLIENT USGS DATE 12 DY 1 MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		LIR OR DIR	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION					
			SLOPE	HORIZ				INST	ROD					
1	Δ	SP 347	1760		89 36 06	11		1.3				1		
2					270 23 56	11						2		
3		SP 348	1320		89 29 16	11						3		
4		" 349	880		89 15 27	11						4		
5		" 350	440		88 41 17	11						5		
6	Δ	" 351	-0-		90°	5.3			166.2 ✓			6		
7	⊙	SP 352	440		90 59 54	11		18.7				7		
8					269 00 11	11				147.6 ✓		8		
9												9		
10												10		
11												11		
12												12		
13												13		
14												14		
15												15		
16												16		
17												17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiaat STATE/COUNTY Alaska BOOK NO. 1 PAGE 28 OF 31  
 LINE/LOOP NO. 39-226 TYPE SURVEY Vert CLIENT USGS DATE 13 BY 1 MO 81 YR  
 SURVEYOR O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL							HORIZONTAL		REMARKS		
			DISTANCE	<input checked="" type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR D/I		RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1	Δ	JP 352	1760		87 03 30	11		70.4				1		
2					212 54 40	11						2		
3		SP 353	1320		87 51 45	11						3		
4		" 354	880		88 45 09	11						4		
5		" 355	440		89 31 50	11						5		
6	⊗	" 356	-0-			5.0			69.2 ✓			6		
7		" 357	440		91 27 31	11						7		
8	⊙	" 358	880		89 17 32	11	0.1					8		
9					270 42 11				69.1 ✓			9		
10												10		
11	Δ	358	2260		89 32 38	11	6.6					11		
12					270 27 25	11						12		
13		359	1760		89 44 02	20						13		
14		360	1320		89 20 09	11						14		
15		361	880		89 20 31	11						15		
16		362	440		88 54 30	11						16		
17												17		

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA UMIAT STATE/COUNTY Alaska BOOK NO. 1 PAGE 29 OF 31  
 LINE/LOOP NO. 31-81 TYPE SURVEY Vert CLIENT USGS DATE 13 DY 1 MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. T-2- Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			UR OR DI	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1	<input checked="" type="checkbox"/> Δ	SP 363	-0-		90	4.9			62.4			1		
2		364	440		89 13 25	11						2		
3		365	880		89 26 55	11						3		
4	<input type="checkbox"/> ⊙	366	1320		89 26 17	11						4		
5					270 33 30	11	2.0		64.3			5		
6												6		
7	<input checked="" type="checkbox"/> Δ	SP 366	3080		89 35 17	11	11.3					7		
8					270 21 36	11						8		
9		SP 367	2640		89 40 19	11						9		
10		368	2200		89 37 10	11						10		
11		369	1760		89 26 13	11						11		
12		370	1320		89 38 48	18						12		
13		371	800		89 38 31	11						13		
14		372	440		89 24 21	11						14		
15		373	-0-		90	5.0			53.1			15		
16		374	440		88 28 08	11						16		
17												17		

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# HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umiat STATE/COUNTY Alaska BOOK NO. 1 PAGE 30 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert. CLIENT USGS DATE 13 BY 1 MO 81 YR  
 SURVEYOR M. OGRADY INSTRUMENT DESC/SERIAL NO. \_\_\_\_\_ CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		L/R OR DJI	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			SLOPE 	HORIZ 										
1		SP 375	880		89 13 33	11						1		
2	⊙	376	<del>1320</del>		89 20 57	14.5						2		
3					<del>89 20 57</del>	<del>14.5</del>						3		
4												4	BARR MARK Elev 57.4	
5	SS	81095	2324.8		89 47 40	3.5		4.9		57.8		5	57.8-57.4 0.4 TIE	
6					270 12 03	3.5						6		
7												7		
8												8		
9	⊙	376	1320		89 21 16	14.5						9		
10					270 38 41	14.5				53.5		10		
11												11		
12												12		
13												13		
14												14		
15												15		
16												16		
17												17		

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## HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Umist STATE/COUNTY Alaska BOOK NO. 1 PAGE 31 OF 31  
 LINE/LOOP NO. 39-81 TYPE SURVEY Vert CLIENT USGS DATE 14 BY L MO 81 YR  
 SURVEYOR M. O'GRADY INSTRUMENT DESC/SERIAL NO. T-2 Wild CREW NO. 1186

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD		
1	Δ	SP-376	1760		89 43 37	11			53.5		1	
2					270 16 38	11					2	
3		TS 377	1320		89 39 22	11			52.9		3	
4		" 378	880		89 40 21	11			50.0		4	
5		" 379	910		89 11 05	11			51.2		5	
6	Δ	TS 380	0		90	5.0		56.0	51.0		6	
7		" 381	440		89 58 33	11			45.2		7	
8		382	880		89 41 30	11			49.7		8	
9		383	1320		89 44 55	11			50.8		9	
10		384	1760		90 02 57	11			43.5		10	
11		385	2200		90 17 37	18			26.8		11	
12		386	2640						23.5		12	
13		387	3080						20.7		13	
14		388	3520		90 20 28	18			17.3		14	
15											15	
16											16	
17											17	

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