

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Hills STATE/COUNTY ALASKA BOOK NO. 2 PAGE 1 OF
 LINE/LOOP NO. 46 TYPE SURVEY CLIENT Husky DATE 20 BY 2 MO 7 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		
1												
2												
3												
4												
5		<u>B.O.L 2000</u>	<u>2920</u>		<u>88 21 20</u>	<u>10</u>	<u>596</u>					
6					<u>271 38 05</u>	<u>-</u>	<u>594</u>		<u>2336²</u>	<u>239²</u>		
7												
8												
9		<u>B.O.L 2000</u>	<u>2920</u>		<u>88 21 08</u>	<u>10</u>	<u>597</u>	<u>2275⁸</u>				
10					<u>271 38 28</u>	<u>-</u>	<u>596</u>			<u>2275⁸</u>		
11		<u>1998</u>	<u>2200</u>			<u>5²</u>						
12		<u>1996</u>	<u>1980</u>		<u>88 22 15</u>	<u>5²</u>	<u>51²</u>		<u>2326⁸</u>			
13		<u>1994</u>	<u>1760</u>			<u>5²</u>						
14		<u>1992</u>	<u>1540</u>		<u>88 30 25</u>	<u>5²</u>	<u>35°</u>		<u>2310⁶</u>			
15		<u>1990</u>	<u>1320</u>			<u>5²</u>						
16		<u>1988</u>	<u>1100</u>		<u>88 19 55</u>	<u>5²</u>	<u>26⁸</u>		<u>2302⁵</u>			
17		<u>1986</u>	<u>880</u>			<u>5²</u>						

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. N PAGE 2 OF
 LINE/LOOP NO. 96 XS TYPE SURVEY CLIENT HUSKY DATE 20 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> \odot	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												
2		1984	660		88 17 44	52	14 ⁺		2275 ¹			1
3		1982	440									2
4		1980	220		88 26 26	4	2 ^o				2277 ⁶	3
5		1978	0		-	56	-5 ⁶				2270 ⁰	4
6		1976	220		91 17 30	54	-10 ⁺				2265 ³	5
7		1974	440									6
8		1972	660		91 14 10	4	-12 ²				2257 ⁴	7
9		1970	880									8
10		1968	1100		91 02 20	54	-25 ^o				2250 ⁶	9
11		1966	1320		90 41 08	54	-21 ²				2254 ⁴	10
12		1964	1540		90 05 45	54	-7 ⁹				2267 ⁷	11
13		1962	1760									12
14		1960	1980		89 40 34	54	5 ⁹				2271 ⁵	13
15		1958	2200		89 36 40	54	9 ⁶				2275 ²	14
16	\odot	B.M. 79420	2400		89 34 49	5	12 ⁷				2288 ²	15
17	-				270 24 53	-	12 ⁶					16
												17

2288² B.M.
 2288²
 -2

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 3 OF
 LINE/LOOP NO. 46 Xs TYPE SURVEY CLIENT HUSKY DATE 20 BY 2 MO. 19 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		
1		B.M. 79420	1780		86 45 00	10	91°	21975	22884	21975	1	
2	-				273 14 40	-	90°				2	
3											3	
4		1956	1760		86 48 50	11°	87°		22854		4	
5		1954	1540								5	
6		1952	1320		86 46 40	5°	69°		22665		6	
7		1950	1100								7	
8		1948	880		87 30 52	5°	33°		22305		8	
9		1946	660								9	
10		1944	440		87 49 50	5°	115°		22090		10	
11		1942	220								11	
12		1940	0		-	56	-56		21919		12	
13		1938	220								13	
14		1936	440		93 18 50	4	29°		21681		14	
15		1934	660								15	
16		1932	880		92 02 25	2	-33°		21642		16	
17		1930	1100		91 23 15	2	-29°		21689		17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 4 OF
 LINE/LOOP NO. 4675 TYPE SURVEY CLIENT HUSKY DATE 20 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		LR OR DR		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1													
2		1928	1320		88 44 00	10	42 ²		2239 ⁸				
3		1926	1540		87 29 34	5	62 ⁴		2259 ⁸		2259 ⁸		
4	-				272 29 52	-	62 ³						
5													
6		1926	1980		89 26 38	5	14 ³	22457					
7	-				270 32 50	-	14 ¹				22457		
8		1924	1760										
9		1922	1540		89 18 10	5 ²	13 ⁶		2259 ²				
10		1920	1320		89 19 53	5 ²	10 ²		2255 ⁹				
11		1918	1100										
12		1916	890		89 46 42	5 ²	-1 ⁸		2243 ⁹				
13		1914	660										
14		1912	440		9126 28	4 ¹	-15 ²		2230 ⁵				
15		1910	220										
16		1908	0		-	5 ⁶	5 ⁵		2240 ¹				
17		1906	220										

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 4 PAGE 5 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 20 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ						INST	ROD			
1													1	
2		1904	440		89 59 30	4		-3 ²		2242 ⁵			2	
3		1902	660										3	
4		1900	880		89 45 45	5 ⁴		-1 ⁷		2243 ⁹			4	
5		1898	1100										5	
6		1896	1320		89 52 53	6 ⁹		.26		2243 ⁰			6	
7		1894	1540										7	
8		1892	1760		89 54 20	5 ⁴		-2 ⁴		2243 ²			8	
9		130 + 1890	1980										9	
10		1888	2200		89 59 05	5 ⁴		-4 ⁷		2240 ⁹			10	
11	⊙	B.M. 79421	2090		89 50 28	10		4 ¹		2241 ⁴			11	
12	-				270 09 10	-		4 ²					12	
13									3.M.	2239 ⁹			13	(2239.99)
14	Δ	B.M. 79421	1320		88 18 12	13		26 ¹	2213 ⁹				14	
15	-				271 41 04	-		26 ⁰					15	
16													16	
17													17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 6 OF
 LINE/LOOP NO. 96 XS TYPE SURVEY CLIENT HUSKY DATE 20 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		
1											1	
2		1886	1100		88 21 47	6 ^s	24 ⁹		2238 ⁹		2	
3		1884	880								3	
4		1882	660		88 11 47	5 ²	156		2229 ⁵		4	
5		1880	440		88 03 37	4	10 ⁹		2224 ⁸		5	
6		18 1778	220		88 03 37	4					6	
7		1776	0		-	5 ⁶	56		2208 ³		7	
8		1774	220								8	
9		1772	440		92 07 03	5 ³	-21 ⁶		2192 ³		9	
10		1770	660								10	
11		1768	880		92 07 03	5 ³	-37 ⁸		2176 ¹		11	
12		1766	1100								12	
13		1764	1320		92 04 43	5 ³	-53 ¹		2160 ⁸		13	
14		18 1762	1540		92 07 02	5	61 ⁸		2151 ⁹		14	
15	-				267 52 20	-	62 ⁰				15	
16											16	
17											17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. W PAGE 7 OF
 LINE/LOOP NO. 4623 TYPE SURVEY CLIENT HUSKY DATE 20 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1124

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			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1			1980		88 02 12	5	-62 ⁹	2089 ³			1		
2	-				271 56 57	-	-62 ⁷				2		
3		1860	1760								3		
4		1858	1540		88 03 25	4 ³	48 ¹	2137 ³			4		
5		1856	1320		88 02 15	4 ³	40 ⁹	2130 ²			5		
6		1854	1100								6		
7		1852	880		88 03 20	4 ³	25 ⁶	2114 ⁸			7		
8		1850	660								8		
9		1848	440		88 12 56	4 ⁰	9 ⁷	2099 ⁰			9		
10		1846	220								10		
11		1844	0		-	56	-56	2083 ⁷			11		
12		1842	220								12		
13		1840	440		91 50 50	5 ³	-195	2069 ⁸			13		
14		1838	660								14		
15		1836	880		91 33 00	5 ³	29 ¹	2060 ²			15		
16		1834	1100								16		
17		1832	1320		91 31 39	5 ³	40 ⁵	2048 ⁸			17		

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 8 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 20 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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 DIR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1									2099 ³			1	HEAT WAVES BAD.
2		1830	1540									2	
3		1828	1760			91 22 00	5 ³		52 ³		2036 ⁹	3	
4		1826	1980			91 24 56	10		58 ⁸		2030 ⁷	4	
5						269 35 02	-		58 ⁸			5	
6												6	
7			1540			87 54 52	10		46 ²	1984 ⁶		7	87 54 42 ¹⁰
8	-					272 04	-		45 ⁸			8	272.03 30
9		1824	1320			88 01 26	4 ³		41 ³		2025 ⁹	9	
10		1822	1100									10	
11		1820	880			87 58 10	4 ³		26 ⁹		2011 ⁵	11	
12		1818	660									12	
13		1816	440			87 56 00	4		11 ⁹		1996 ⁵	13	
14		1814	220									14	
15		1812	0			-	5 ⁶		-5 ⁶		1979 ²	15	
16		1810	220									16	
17		1808	440			91 29 08	5 ³		-16 ⁷		1967 ⁹	17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 9 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 20 DAY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> ∇ <input type="checkbox"/> SS <input type="checkbox"/> \odot	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			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1									1984 ⁶			1	
2		1806	660									2	
3		1804	890			91 28 02	+	-26 ⁵		1958 ¹		3	
4		1802	1100									4	
5		1800	1320			91 24 52	5 ³	37 ⁸		1946 ⁸		5	
6	\odot	1798	1540			91 19 25	10	-43 ³		1941 ³	1941 ³	6	
7	-					268 45 19	-	-43 ³				7	
8												8	
9	Δ		1980			89 03 40	5	27 ⁵	1914 ⁰			9	
10	-					270 55 25	-	27 ³			1912 ⁰	10	
11		1796	1760									11	
12		1794	1540			89 14 45	4 ³	16 ⁰		1930 ⁰		12	
13		1792	1320			89 17 30	4	12 ⁴		1926 ²		13	
14		1790	1100			89 17 30	*					14	
15		1788	880			89 21 12	4 ³	5 ⁶		1919 ⁷		15	
16		1786	660									16	
17		1784	440			89 49 05	4 ³	2 ⁹		1911 ¹		17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 10 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 21 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1												1	
2		1782	220							1914°			2
3		1780	0		56		-56			19084			3
4		1768	220										4
5		1776	440			90 05 45	53	6°		1808°			5
6		1774	660			89 16 45	53	3°		1917°			6
7		1772	880										7
8		1770	1100			89 34 00	53	3°		1917'			8
9		1768	1320			89 58 30	53	3°		1917'			9
10		1766	1540										10
11		1764	1760			89 40 48	53	46		19186			11
12		1762	1980										12
13		1760	2200			89 26 26	10	116		19254	19254		13
14	-	58				270 33 00	-	114					14
15		56											15
16		54											16
17													17

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 7 PAGE 11 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 21 BY 2 MO 72 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> ∇ <input type="checkbox"/> \odot	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		1100		91 37 38	5	-34 ⁹	1960 ⁴		1960 ⁹	1	
2	-				268 25 52	-	-35 ⁰				2	
3		1758	880								3	
4		1756	660		91 53 15	4 ³	26 ⁰		1934 ²		4	
5		1754	440								5	
6		1752	220		91 56 56	7	115		1949 ⁰		6	
7	∇	1750	0		-	5 ⁶	-56		1954 ⁸		7	
8		1748	220								8	
9		1746	440		86 47 38	5 ³	19 ³		1979 ⁸		9	
10		1744	660		86 42 38	4 ⁰	33 ⁹		1994 ³		10	
11		1742	880								11	
12		1740	1100		86 38 00	5 ³	59 ³		2019 ⁸		12	
13		1738	1320								13	
14	\odot	1736	1540		86 30 52	5	88 ⁷		2049 ¹		14	
15	-				273 27 50	-	88 ⁶			2049 ¹	15	
16											16	
17											17	

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SYMBOLS

Δ = BACKSIGHT

∇ = INSTRUMENT SET-UP

SS = SIDESHOT

\odot = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 12 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 21 DY 2 MO 79 YR
 SURVEYOR BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		
1			1100		90 15 52	10	15'	2064 ³			1	
2					269 43 20	-	-15 ²			2064 ²	2	
3		1734	880								3	
4		1732	660		90 18 27	4 ³	-6 ⁹		2057 ⁴		4	
5		1730	440								5	
6		1728	220		90 20 32	4	-5 ³		2059 ⁰		6	
7		1726	0		-	5 ⁶	-5 ⁶		2058 ⁷		7	
8		1724	220								8	
9		1722	440		90 13 13	5 ²	-6 ⁹		2057 ⁴		9	
10		1720	660		90 18 26	5 ³	-8 ⁸		2055 ⁵		10	
11		1718	880								11	
12		1716	1100		90 04 42	5 ³	-6 ⁸		2057 ⁵		12	
13		1714	1320								13	
14		1712	1540		89 58 17	5 ³	-4 ⁵		2059 ⁸		14	
15		1710	1760								15	
16		1708	1980		89 58 08	6 ⁵	-5 ³		2058 ⁹		16	
17											17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. 2 PAGE 13 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 21 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	 	STATION	VERTICAL							HORIZONTAL		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													
2		Bm. 79369	1740		85 56 20	5	118 ³		2182 +				
3	-				224 03 08	-	118 ²		2178 2		Bm. 79369		(2178.27)
4									718 (+42)				
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													

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HORIZONTAL AND VERTICAL SURVEY NOTES

EST. AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 14 OF
 LINE/LOOP NO. 47 XS TYPE SURVEY CLIENT HUSKY DATE 21 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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 DJI	RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ						INST	ROD			
1												1	+60 82 52 36	
2		B.M. 79369	T 10.9	590' 1/2		82 55 30	+6.0	140 ⁹	2038 ⁰	2178.2		2	Reference: G.A.S. SURVEY 277 06 40	
3			C 5.0	1180' ✓		278 03 25		140 ²				3		
4		1706	440			271 42 45	-4.3	+12.8	+8.5	2046 ⁸		4		
5		1704	220			88 31 15	-4.3	+5.8	+1.5	2039 ³		5		
6		1702	0			90° 00 00	-5.6	-	-5.6	2032 ⁴		6		
7		1700	220			93 08 52	-4.0	-12.2	-16.2	2021 ⁹		7		
8		1698	440			-						8		
9		1696	660			93 08 52	-5.3	-36.5	-41.8	1996 ⁴		9		
10		1694	880			-						10		
11		1692	1100			93 08 12	-10.0	-60.8	-70.8	1967 ⁸		11		
12						266 51 02						12		
13												13		
14												14		
15		1692	1780			88 06 18	+6.0	-	60 ⁵	1907 ⁵		15		
16						271 52 50			60 ³			16		
17												17		

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 15 OF
 LINE/LOOP NO. 46 X5 TYPE SURVEY CLIENT HUSKY DATE 21 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184










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 DJF	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1									1907 ⁵			1	
2		1690	1760									2	
3		1688	1540		88 15 52	-4.3	+44.8	+40.5		1949 ⁹		3	
4		1686	1320									4	
5		1684	1100		88 49 00	-4.3	+22.4	+18.1		1925 ⁹		5	
6		1682	880									6	
7		1680	660		89 27 20	-4.3	+6.8	+1.5		1909 ⁵		7	
8		1678	440									8	
9		1676	220		90° 14' 40"	-4.3	-0.6	-4.9		1902 ³		9	
10	X	1674	0		90° 00' 00"	-5.6	-	-5.6		1901 ⁹		10	
11		1672	220		94 04 18	-4.0	-15.3	-19.3		1887 ⁹		11	
12		1670	440									12	
13		1668	660		92 59 50	-5.3	-34.5	-39.8		1867 ⁷		13	
14		1666	880									14	
15		1664	1100		92 33 00	-5.3	-48.0	-53.3		1853 ³		15	
16		1662	1320									16	
17		1660	1540		92 12 12	-5.3	-58.2	-63.5		1843 ⁰		17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 16 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKEY DATE 21 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184












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			LIR OR DIR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE 					HORIZ 	INST			
1									1907 ⁵			1	
2		1658	1760									2	
3		165C	1980	92 00 30	-5.0		-74 ³		1833 ¹			3	
4				267 59 05			-74 ⁴					4	
5												5	
6												6	
7		1656	2640	89 01 25	+10.1		-35 ⁰		1798 ²			7	
8				270 58 10			-34 ⁹					8	
9		1654	2420									9	
10		1652	2200	89 10 55	+3	+32.0	+27.7		1825 ⁴			10	
11		1650	1980									11	
12		1648	1760	89 14 00	+3	+25.6	+21.3		1817 ⁵			12	
13		1646	1540									13	
14		1644	1320	89 16 00	+3	+15.4	+11.1		1810 ⁸			14	
15		1642	1100									15	
16		1640	880	89 18 33	+3	+10.2	+5.9		1804 ⁵			16	
17		1638	660									17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. U PAGE 17 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 21 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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	
				SLOPE 					HORIZ 	INST				ROD
1												1		
2		1636	440		89 36 18	-4.3	+2.6	-1.3		1798 ²			2	
3		1634	220		-								3	
4		1632	0		90°00'00	-5.6	-	-5.6					4	
5		1630	220		-								5	
6		1628	440		90 42 22	-4.0	-5.1	-9.1					6	
7		1626	660		-								7	
8		1624	880		90 36 30	-5.3	-10.2	-15.5					8	
9		1622	1100		-								9	
10		1620	1320		90 36 30	-5.3	-15.4	-20.7					10	
11		1618	1540		-								11	
12		1616	1760		90 37 02	-5.3	-20.5	-25.8					12	
13		1614	1980		-								13	
14		1612	2200		90 36 10	-5.3	-25.6	-30.9					14	
15		1610	2420		-								15	
16		1608	2640		90 30 50	-10.0	-	33 ⁵					16	TARGET
17					249 28 48								17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 18 OF
 LINE/LOOP NO. 46XS TYPE SURVEY CLIENT HUSKEY DATE 21 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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												1	
2		1600	2200		89 44 44	+5.0	-	49	17599			2	
3					270 14 26			46				3	
4		1606	1980		-							4	
5		1604	1760		89 49 10	-4.3	+5.5	+1.2	1761 ²			5	
6		1602	1540		-							6	
7		1600	1320		89 53 55	-4.3	+3.8	-0.5	1758 ⁰			7	
8		1328	1100		-							8	
9		1596	880		89 53 55	-4.3	+2.6	-1.7	1757 ²			9	
10		1594	660		-							10	
11		1592	440		89 56 23	-4.0	+0.0	-4.0	1756 ⁴			11	
12		1590	220		-							12	
13		1588	0		90 00 00	-5.6	-	-5.6	1754 ³			13	
14		1586	220		-							14	
15		1584	440		90 25 04	-4.6	-2.8	-7.8	1752 ⁷			15	
16		1582	660		-							16	
17		1580	880		90 31 00	-5.3	-4.7	-13.0	1746 ⁷			17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 19 OF
 LINE/LOOP NO. 4885 TYPE SURVEY CLIENT HUSKY DATE 21 BY 2 MO 29 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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	LINE
				SLOPE 					HORIZ 	INST			
1									1759 ⁹		1		
2		1578	1100								2		
3		1576	1320	90 30 40	13.0		24 ⁷		1785 ²		3		
4				267 28 50			24 ⁸				4		
5											5		
6											6		
7		1576	2200	108 59 30	+10.0		28 ⁹	1706 ⁺			7	(108 58 30) +10.0	
8				270 39 57			28 ⁷				8	(271 38 10)	
9		1574	1980								9	USE THIS Δ ANGLE	
10		1572	1760	89 12 30	-4.3	+25.6	+21.3		1726 ⁵		10	271 04 36 +13.0	
11		1570	1540								11	88 54 42	
12		1568	1320	87 22 44	-4.0	+15.4	+11.4		1716 ⁸		12	28 ⁹	
13		1566	1100								13		
14		1564	880	89 45 50	-4.2	+2.6	-1.7		1705 ⁸		14		
15		1562	660								15		
16		1560	440	91 02 50	-4.3	-7.7	-12.0		1694 ¹		16		
17		1558	220								17		

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 = BACKSIGHT
 = INSTRUMENT SET-UP
 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD HILLS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 20 OF
 LINE/LOOP NO. 46XS TYPE SURVEY CLIENT HUSKY DATE 21 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE		STATION	VERTICAL						ELEVATION		L/R OR DJ	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		RIGHT TURNED HORIZONTAL ANGLE		
			SLOPE	HORIZ				LINE						
1												1		
2	π	1556	0		90 00 00	-5.6	-	-5.6		1706 ⁷			2	
3		1554	220		-								3	
4		1552	440		89 55 00	+0	+0.0	-4.0		1703 ¹			4	
5		1550	660		-								5	
6		1548	880		89 57 57	-6.3	+2.0	-5.3		1701 ⁷			6	
7		1546	1100		-								7	
8		1544	1320		90 07 08	-5.3	-3.8	-9.1		1698 ⁴			8	
9	o	1542	1540		90 06 35	+4.5	-	-17 ⁷		1688 ⁹			9	
10	o				269 53 05			17 ⁵					10	
11													11	
12													12	
13	Δ	1542	1100		88 47 10	+5.0	-	18 ³		1670 ⁷			13	
14	Δ				271 12 16			18 ²					14	
15		1540	880		-								15	
16		1538	660		89 27 00	+4.3	+5.8	+1.5		1672 ⁸			16	
17		1536	440		89 45 38	+4.0	+1.3	-2.7		1668 ⁶			17	

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SYMBOLS Δ = BACKSIGHT π = INSTRUMENT SET-UP SS = SIDESHOT \odot = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. 2 PAGE 21 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT Husky DATE 21 BY 2 MO 72 YR
 SURVEYOR B. Benedict INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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																						
2		1534	220		90 35 25	-4.0	-2.6	-6.6		1670 ⁷												
3	X	1532	0		90 00 00	-5.6	-	-5.6		1664 ⁴												
4	SS	BANK MARKER	T 12.7	790	88 50 30	-5.0	+	11 ⁰		1665 ¹												
5	SS	# 78257	B 5.0		271 09 05			10 ⁹		TK. 1683.5												TARGET (1683.5)
6		1530	220							1681 ²												
7		1528	440		91 24 48	-5.3	-10.2	-15.5		1683.5												
8		1526	660		90 39 20	-5.3	-7.7	-13.0		1656 ⁴												
9		1524	880		-					1659 ⁷												
10		1522	1100		90 26 20	-5.3	-9.6	-14.9		1622 ⁵												
11		1520	1320		90 27 47	-4.3	-11.5	-15.8		1658 ⁹												
12		1518	1540		-					1657 ⁶												
13	0	1516	1750		90 22 15	-5.0	-	16 ³		1656 ¹												
14	0				269 37 15	-		16 ⁵														
15																						
16																						
17																						

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 22 OF
 LINE/LOOP NO. 46 - XS TYPE SURVEY CLIENT HOVAK DATE 21 BY 2 MO 22 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE	HORIZ					INST	ROD			
1													1	
2	Δ	1516	1760		89 25 20	+10.0	-	7.8	1648.4			1648.9	2	
3	Δ				270 34 08			7.7					3	
4		1514	1540		-								4	
5		1512	1320		89 28 40	-4.3	+11.5	+7.8				1656.2	5	
6		1510	1100		-								6	
7		1508	880		89 24 07	-4.3	+10.2	+4.9				1653.3	7	
8		1506	660		-								8	
9		1504	440		89 33 03	-4.0	+3.8	-0.5				1647.9	9	
10		1502	220		-								10	
11	τ	1500	0		90° 00 00	-5.6	-	-5.6				1642.8	11	
12		1498	220		-								12	
13		1496	440		90 49 10	-4.0	-6.4	-10.4				1638.1	13	
14		1494	660		-								14	
15		1492	880		90 28 48	-5.3	-7.7	-13.0				1635.8	15	
16		1490	1100		-								16	
17		1488	1320		90 25 50	-7.0	-11.5	-18.5				1634.6	17	












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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 23 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT MUSKY DATE 21 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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 DJI		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE 					HORIZ 	INST			
1												1	
2		1486	1540									2	
3		1484	1760	90 07 30	10.0	-	-13.8		16347		16375	3	
4				269 52 30			-13.8					4	
5												5	
6												6	
7		1484	1540	90 45 54	+5.0	+	25.5	16603			1660.	7	
8				269 13 38			25.5					8	
9		1482	1320									9	
10		1480	1100	91 17 50	4.0	-	25.6		16319			10	
11		1478	880									11	
12		1476	680	93 56 22	2.0	-	46.0		16129			12	
13		1474	440									13	CREEK
14		1472	220	97 16 10	4.0	-	28.1		16294			14	
15		1470	0	90 00 00	-5.6	-	-5.6		16547			15	TARGET
16		1468	220	89 09 50	2.0	+	3.2		1661			16	
17		1466	440									17	

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  = SIDESHOT
  = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 24 OF
 LINE/LOOP NO. 46 - XS TYPE SURVEY CLIENT MURK DATE 21 .DY 2 .MO 19 .YR
 SURVEYOR B. BENEFICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		LR OR DR		RIGHT TURNED HORIZONTAL ANGLE	
				SLOPE					HORIZ	INST				ROD
1														
2		1467	660		88 57 00	-5.3	+11.5	+6.2		1660 ³			2	TARGET
3		1462	880										3	
4		1460	1100		89 00 45	-5.3	+19.2	+13.9				1674 ⁰	4	
5		1458	1320										5	
6		1456	1540		88 53 38	-10.1	+	197				1679 ⁹	6	
7					271 05 50	-		19 ⁶					7	
8													8	
9													9	
10		1456	2420		91 00 57	+5.0		47 ⁸		1727 ⁹			10	
11					268 58 15			48 ¹				1727 ⁵	11	
12		1454	2200		-								12	
13		1452	1980		91 06 12	-4.3	-38.1	-42.4				1625 ⁶	13	
14		1450	1760		-								14	
15		1448	1540		91 08 36	-4.3	-30.7	-35.0				1693 ⁰	15	
16		1446	1320		-								16	
17		1444	1100		91 08 36	-4.3	-22.4	-26.7				1701 ⁷	17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 25 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT HUSKY DATE 22 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		LR OR DR		RIGHT TURNED HORIZONTAL ANGLE	LINE										
				SLOPE					HORIZ	INST					ROD									
1																								
2		1442	880							1727 ⁹														
3		1440	660			71 12 12	4.3	-13.4	-17.7		1709 ⁸													
4		1438	440																					
5		1436	220			91 34 40	4.3	-5.8	-10.4		1717 ⁶													
6	⊗	1434	0			90° 00' 00"	-5.6	-	-5.6		1728 ³													
7		1432	220			89 41 12	5.3	+1.3	-4.0		1723 ⁸													
8		1430	440																					
9		1428	880			88 33 15	5.3	+23.0	+18.7		1744 ⁹													
10	○	1426	1100			88 48 48	10.0	+	12 ⁸		1740 ⁷													
11	○					271 10 50			127															
12																								
13																								
14	△	1426	1760			89 39 28	+5.0	+	56	1735 ³														
15	A					270 19 52			54															
16		1424	1540																					
17		1422	1320			70 53 15	4.3	-19.2	-24.5		1710 ⁶													OFFSET FROM LAKE

WORKED BY BBD CHECKED BY 1ST 2ND

SYMBOLS △ = BACKSIGHT ⊗ = INSTRUMENT SET-UP ○ = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 26 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 22 BY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1104

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		LIR OR DII		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1		1420	1100		-				1735 ³			1	OFFSET FROM LAKE
2		1418	880		71 16 16	-4.3	-20.5	-25.8		1711 ⁸		2	
3		1416	660		71 31 07	-4.3	-17.3	-21.6		1713 ⁵		3	
4		1414	440	-	-							4	
5		1412	220		71 23 48	-2.0	-5.1	-7.4		1727 ⁹		5	
6		1410	0		90° 00 00	-5.6	-	-5.6		1729 ⁷		6	
7		1408	220		89 47 52	-4.0	+0.6	-3.4		1732 ¹		7	
8		1406	440		-							8	
9		1404	660		89 47 52	-4.0	+1.9	-2.7		1733 ⁶		9	
10		1402	880		-							10	
11		1400	1100		89 20 05	-4.0	+12.8	+8.8		1744 ¹		11	
12		1398	1320		-							12	
13		1396	1540		88 53 43	-4.6	+31.4	+25.4		1761 ⁰		13	
14		1394	1760		88 34 52	-4.6	+46.1	+39.1		1774 ⁹		14	
15		1392	1980		88 19 22	-4.0	+63.3	+59.3		1792 ⁸		15	
16		1390	2200		87 52 52	-5.3	+83.2	+78.9		1811 ⁴		16	
17												17	

WORKED BY B. B. B. CHECKED BY 1ST 2ND

SYMBOLS = BACKSIGHT
 = INSTRUMENT SET-UP
 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 27 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT LUSKY DATE 22 BY 2 MO 72 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184







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		
1												
2		1388	2420		87 48 36	-5.0 +	87 6					
3					272 10 49		87 4		1822 7		1822 3	
4												
5												
6		1388	1760		91 41 02	+10.0 +	61 7		1884 5			
7					268 18 20		61 8				1884 0	
8		1386	1540		92 31 00	-4.3	-67.2	-71.5			1812 6	
9		1384	1320		93 22 10	-6.7	-76.8	-84.5			1800 2	
10		1382	1100		93 23 50	-6.7	-64.0	-74.7			1812 6	
11		1380	880		93 20 50	-4.3	-51.2	-55.5			1828 8	
12		1378	660		93 06 52	-4.3	-36.5	-40.8			1844 3	
13		1376	440		93 01 15	-4.0	-23.0	-27.0			1857 3	
14		1374	220		-							
15		1372	0		90 00 00	-5.6	-	-5.6			1878 7	
16		1370	220		-							
17		1368	440		88 07 56	-5.3	+14.1	+8.8 ✓			1893 5	

WORKED BY BBB CHECKED BY 1ST 2ND

SYMBOLS = BACKSIGHT
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 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howards Pass STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 28 OF
 LINE/LOOP NO. 46-X3 TYPE SURVEY CLIENT HURLEY DATE 22 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	 SS  ◎	STATION	VERTICAL						HORIZONTAL		LINE	REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS. 	ROD RDG OR HI	ELEV DIFF 	FINAL ELEVATION DIFF	ELEVATION				LIR OR DIR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE 					HORIZ 	INST				
1									1884 ⁵			1		
2		1366	860	-									2	
3		1364	880	88 31 28	5.3	+ 23.0	+17.7		1901 ⁹				3	
4		1362	1100										4	
5		1360	1320	88 23 24	4.0	+ 38.4	+34.4		1917 ⁶				5	
6		1358	1540	88 00 53	4.0	+ 53.7	+49.7		1933 ⁹				6	
7	○	1356	1760	87 52 04	5.0	+	60 ⁵		1944 ⁹				7	10.0 (87 42 15)
8	○			272 07 04			60 ³						8	(272 17 12)
9													9	
10													10	
11	Δ	1356	1320	92 16 56	+ 5.0	+	57 ⁵		2002 ⁶		2002 ⁶		11	
12	Δ			267 42 30			57 ⁶						12	
13		1354	1100	-									13	
14		1352	880	92 27 55	4.0	- 38.4	-42.4		1960 ⁷				14	
15		1350	660	-									15	
16		1348	440	92 34 30	4.0	- 19.2	- 23.2		1978 ⁸				16	
17		1346	220	-									17	

TI-23471B

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SYMBOLS Δ = BACKSIGHT  = INSTRUMENT SET-UP ss = SIDESHOT ◎ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 29 OF
 LINE/LOOP NO. 46-X3 TYPE SURVEY CLIENT MUSKY DATE 22 DY 2 MO 29 YR
 SURVEYOR B. BENEVOLOTT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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 DJI	RIGHT TURNED HORIZONTAL ANGLE											
				SLOPE 					HORIZ 	INST				ROD										
1																								
2		1344	0		90 00 00	-5.6	-	-5.6																
3		1342	220		-																			
4		1340	446		89 08 00	-5.3	+6.4	+1.4																
5		1338	660		-																			
6		1336	880		89 31 56	-5.3	+7.7	+4.4																
7		1334	1100		89 02 50	-5.3	+19.2	+13.8																
8		1332	1320		-																			
9		1320	1540		88 29 49	-5.0	+	354																
10					271 29 38			353																
11																								
12																								
13		1330	1320		92 19 06	-10.0	+	634																
14					267 40 25			635																
15		1328	1100		92 37 35	-4.3	-	51.2																
16		1326	880		-																			
17		1324	660		92 29 31	-4.3	-	30.7																

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SYMBOLS
 = BACKSIGHT
 = INSTRUMENT SET-UP
 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD Pass STATE/COUNTY ALASKA BOOK NO. N PAGE 30 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT HUSKY DATE 22 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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	
			SLOPE	HORIZ				INST	ROD	LINE				
1												1		
2		1322	440										2	
3		1320	220	92 47 45	+3	-10.9	-5.2			2086 ³			3	
4		1318	0	90 00 00	5.6	-	5.6			2095 ⁸			4	
5		1316	220										5	
6		1314	440	89 20 40	-4.0	+5.1	+1.1			2102 ⁴		2098 ⁰	6	
7		1312	660	89 33 08	10.0	+	-4 ⁸			2096 ⁵			7	
8				270 26 38			-49						8	
9													9	
10													10	
11		1312	1980	89 34 10	+5.0	-	-10			2086 ⁷		2086 ¹	11	
12				270 25 20			-98						12	
13		1310	1760										13	
14		1308	1540	90 21 07	-4.0	-9.0	-13.0			2073 ³			14	
15		1306	1320										15	
16		1304	1100	90 54 00	4.0	-16.0	-24.8			2065 ⁴			16	
17		1302	880										17	

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SYMBOLS = BACKSIGHT
 = INSTRUMENT SET-UP
 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 31 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT MURKY DATE 22 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		LIR OR DIA		RIGHT TURNED HORIZONTAL ANGLE		
			SLOPE	HORIZ				INST	ROD	LINE					
1										2086 ⁷			1		
2		1300	660			91 02 07	4.3	-13.4	-17.7		2069 ⁵			2	
3		1298	440			-								3	
4		1296	220			90 55 15	-4.0	-3.9	-7.9		2079 ²			4	
5		1294	0			90 00 00	-5.6	-	-5.6		2081 ¹			5	
6		1292	220			91 27 07	-4.0	-5.8	-9.8		2077 ¹			6	
7		1290	440			-								7	
8		1288	660			89 33 30	-4.0	+5.8	+1.8		2087 ⁸			8	
9		1286	880			-								9	
10		1284	1100			88 33 22	-4.0	+28.8	+28.8		2110 ⁴			10	
11		1282	1320			-								11	
12		1280	1540			88 02 25	-4.0	+63.7	+48.7		2135 ²			12	
13		1278	1760			-								13	
14		1276	1980			87 38 51	-5.0	+	76 ⁴		2102 ⁹			14	
15						272 20 32			76 ²					15	
16														16	
17														17	

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SYMBOLS

= BACKSIGHT









= INSTRUMENT SET-UP

SS = SIDESHOT

= FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 32 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT Husky DATE 22 DY 2 MO 77 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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 DJI	RIGHT TURNED HORIZONTAL ANGLE	
													
1													1
2	A	1276	1760			94 44 17	+10.0	+	155 ³	2318 ³			2
3	A					265 15 12			155 ⁷				3
4		1274	1540			-							4
5		1272	1320			95 26 34	-4.2	-	122.7	-126.9		2191 ²	5
6		1270	1100			-							6
7		1268	880			95 16 45	-4.3	-	81.8	-85.1		2233 ¹	7
8		1266	660			-							8
9		1264	440			95 04 15	-4.3	-	38.3	-43.6		2275 ¹	9
10		1262	220			-							10
11	X	1260	0			90° 00' 00"	-5.6	-	-5.6			2312 ⁷	11
12		1258	220			-							12
13		1256	440			86 24 18	-5.3	+	28.1	+22.8		2340 ⁶	13
14		1254	660			-							14
15		1252	880			86 36 15	-5.3	+	51.2	+45.9		2365 ²	15
16		1250	1100			-							16
17		1248	1320			86 16 15	-4.0	+	84.4	+80.4		2400 ²	17

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SYMBOLS  = BACKSIGHT  = INSTRUMENT SET-UP  = SIDESHOT  = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. 7 PAGE 33 OF
 LINE/LOOP NO. 76-X3 TYPE SURVEY CLIENT Husky DATE 22 BY 2 MO 10 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1124

LINE	 	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD			
1									2319 ³			1	
2		1246	1540	-								2	
3		1244	1760	86 14 42	5.3	+117.7	+110.4		2428 ³			3	
4		1242	1980	-								4	
5		1240	2200	86 19 06	13.0	+	128.9		2446 ⁵		2446	5	
6				273 40 17			128.2					6	
7												7	
8												8	
9		1240	1760	91 42 14	+5.0	+	57 ³	2503 ⁹			2503	9	
10				268 17 20			57 ⁴					10	
11		1238	1540	-								11	
12		1236	1320	91 47 05	4.3	-42.2	-45.5		2458 ⁵			12	
13		1234	1100	-								13	
14		1232	880	92 17 00	-4.3	-35.8	-40.1		2464 ⁵			14	
15		1230	660	-								15	
16		1228	440	92 43 30	-4.3	-20.5	-23.8		2478 ⁶			16	
17		1226	220	-								17	

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SYMBOLS = BACKSIGHT
 = INSTRUMENT SET-UP
 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 34 OF
 LINE/LOOP NO. 46-X3 TYPE SURVEY CLIENT HUSKY DATE 22 DY 2 MO 77 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	 	STATION	VERTICAL						ELEVATION		L/R OR DI	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		RIGHT TURNED HORIZONTAL ANGLE	LINE	
				SLOPE										
1													1	
2		1224	0		90 00 00	5.6	-	-5.6		2503 ⁹			2	
3		1222	220		-								3	
4		1220	440		87 31 17	4.0	+19.0	+15.0		2518 ⁹			4	
5		1218	660		-								5	
6		1216	880		82 57 56	5.3	+30.7	+25.4		2529 ³			6	
7		1214	1100		87 54 57	4.5	+	25 ⁵		2529 ³		2528 ⁹	7	
8					222 04 31			25 ⁵					8	
9													9	
10													10	
11		1214	1100		86 50 05	+13.0	-	47 ⁸	2481 ⁷			2481 ¹	11	
12					273 09 10			47 ⁶					12	
13		1212	880		-								13	
14		1210	660		86 38 27	4.3	+38.4	+24.1		2516 ⁰			14	
15		1208	440		86 30 33	4.0	+26.9	+22.9		2504 ⁵			15	
16		1206	220		86 43 05	4.3	+12.8	+8.5		2490 ⁰			16	
17		1204	0		90 00 00	5.6	-	-5.6		2476 ¹			17	

TI-23471B

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY _____ BOOK NO. 2 PAGE 35 OF _____
 LINE/LOOP NO. 46-XS TYPE SURVEY _____ CLIENT _____ DATE 22 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	 	STATION	VERTICAL						ELEVATION		L/R OR DI	HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD		RIGHT TURNED HORIZONTAL ANGLE	LINE		
			SLOPE	HORIZ											FEET
1															
2		1202	220												
3		1200	440	93 48 45	-4.0	-29.4	-33.4		2448.4						
4		1178	660	93 46 30	-5.3	-44.1	-48.7		2432.9						
5		1176	880												
6		1194	1100	94 01 56	+5.0	-	-82.3		2399.3						
7				265 57 50			-82.4								
8															
9															
10		1184													
11															
12															
13															
14															
15															
16															
17															

WORKED BY BBB CHECKED BY 1ST _____ 2ND _____

SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. ✓ PAGE 36 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 24 DY 2 MO 22 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		
1		1194	2200		85 39 32	5	149'	2250 ⁴			1	85 39 10
2	-					-	148 ⁹			2049 ⁷	2	274 00 10
3		1192	1980		86 01 40	5 ²	132 ⁰		2382 ⁵		3	
4		1190	1760								4	
5		1188	1540		86 08 33	5 ²	98 ³		2348 ⁹		5	
6		1186	1320								6	
7		1184	1100		86 09 48	5 ²	68 ⁴		2318 ⁸		7	
8		1182	880								8	
9		1180	660		85 57 18	5 ²	41 ⁴		2291 ⁸		9	
10		1188	440								10	
11		1176	220		85 53 33	4	118		2262 ²		11	
12		1174	0		—	5 ⁶	-56		2244 ⁹		12	
13		1172	220		95 35 10	2	-23 ⁴		2227 ⁰		13	
14		1170	440								14	
15		1168	660		94 54 40	4	-60 ⁵		2189 ⁹		15	
16		1166	880								16	
17		1164	1100		93 49 22	5 ⁴	-78 ⁷		2171 ⁷		17	CREEK

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 37 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT MURRY DATE 24 DAY 2 MO 72 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184










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		LR OR DR		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1									2250 ⁴			1	
2		1162	1320		92	49	22	3 ²	-68 ²		2182 ²		2
3		1160	1540		91	55	23	4	-55 ⁶		2194 ⁸		3
4		1158	1760		91	11	00	2	-38 ²		2212 ¹		4
5		1156	1980		90	29	29	4	-20 ⁹		2229 ⁵		5
6		1154	2200		90	00	20	2	-2 ¹		2248 ³		6
7		1152	2420		89	55	50	4	0 ⁹		2249 ⁵		7
8		1150	2640		89	54	00	10	5 ²		2244 ⁹	2244 ⁵	8
9	-				270	05	20	-	5 ⁵				9
10													10
11		1150	1760		87	54	21	10	-54 ⁴	2190 ⁷			11
12	-				272	05	05	-	-54 ²			2190 ¹	12
13		1148	1540										13
14		1146	1320		87	56	13	4	43 ⁶		2234 ²		14
15		1144	1100		87	56	13	4	35 ⁶		2226 ³		15
16		1142	880										16
17		1140	660		87	55	40	4	19 ⁹		2210 ⁶		17

WORKED BY BND CHECKED BY 1ST 2ND

SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 7 PAGE 38 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 24 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	  SS	STATION	VERTICAL						HORIZONTAL		LINE	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									2190 ⁷			1		
2		1138	440									2		
3		1136	220			88 28 48	4	2'			2192 8	3		
4		1134	0			—	56	.56			2185 1	4		
5		1132	220			78 16 76						5		
6		1130	440			93 16 16	4	29'			2161 6	6		
7		1128	660			93 27 27	4	41 9			2148 8	7		
8		1126	880									8		
9		1124	1100			93 27 50	5+	71 8			2118 8	9	2084 9	
10		1122	1320									10		
11		1120	1540			93 26 00	13	105 2			2085 5	11		
12	-					266 39 03	-	105 2				12		
13												13	2086 4	
14		1120	1320			88 06 50	5	38 5		2047 1		14		
15	-					271 52 46	-	38 4				15		
16		1118	1100			89 07 50	52	11 5			2058 6	16		
17		1116	880			89 07 50	8	5 4			2052 6	17		

WORKED BY B.B.B. CHECKED BY 1ST 2ND

SYMBOLS  = BACKSIGHT  = INSTRUMENT SET-UP  = SIDESHOT  = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY _____ BOOK NO. ✓ PAGE 39 OF _____
 LINE/LOOP NO. _____ TYPE SURVEY _____ CLIENT _____ DATE _____ BY _____ MO _____ YR _____
 SURVEYOR _____ INSTRUMENT DESC/SERIAL NO. _____ CREW NO. _____

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												1	
2		1114	660		89 18 46	52		27		2047 ¹		2	
3		1112	440		89 57 57	4		-37		2049 ⁶		3	
4		1110	220							2043 ⁴		4	
5		1108	0		—	56		-56		2041 ⁵		5	
6		1106	220									6	
7		1104	440		90 36 45	4		-87		2039 ⁴		7	
8		1102	660									8	
9		1100	880		90 19 19	4		-89		2038 ²		9	
10		1098	1100									10	
11		1096	1320		89 38 50	4		42		2051 ³		11	
12		1094	1540									12	
13		1092	1760		89 33 58	5		84		2055 ⁴		13	
14	—				270 25 48	—		83			2054 ⁵	14	
15												15	
16												16	
17												17	

WORKED BY BAT CHECKED BY 1ST _____ 2ND _____

SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA _____ STATE/COUNTY _____ BOOK NO. V PAGE 40 OF _____
 LINE/LOOP NO. _____ TYPE SURVEY _____ CLIENT _____ DATE _____ DY _____ MO _____ YR _____
 SURVEYOR _____ INSTRUMENT DESC/SERIAL NO. _____ CREW NO. _____

LINE	 	STATION	VERTICAL						ELEVATION		LIR OR DII	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		RIGHT TURNED HORIZONTAL ANGLE	LINE	
				SLOPE										
1			1980		88 22 16	10	46 ⁴	2009 ²				1		
2					271 37 20	-	46 ²					2		
3		1090	1760									3		
4		1088	1540		88 27 50	5 ²	36 ¹			2045 ³		4		
5		1086	1320									5		
6		1084	1100		88 25 05	5 ²	25 ²			2034 ⁴		6		
7		1082	880									7		
8		1080	660		88 25 05	5 ²	13 ⁰			2022 ²		8		
9		1078	440									9		
10		1076	220		89 28 22	2	0 ⁰			2009 ²		10		
11		1074	0		-	5 ⁶	-56			2003 ⁶		11		
12		1072	220		91 23 45	4	-94			1999 ⁸		12		
13		1070	440									13		
14		1068	660		91 40 22	5 ⁴	-24 ⁷			1984 ⁵		14		
15		1066	880									15		
16		1064	1100		91 31 35	4	-33 ³			1975 ⁹		16		
17		1062	1320									17		

WORKED BY PAB CHECKED BY 1ST _____ 2ND _____

SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA _____ STATE/COUNTY _____ BOOK NO. 2 PAGE 41 OF _____
 LINE/LOOP NO. _____ TYPE SURVEY _____ CLIENT _____ DATE _____ BY _____ MO _____ YR _____
 SURVEYOR _____ INSTRUMENT DESC/SERIAL NO. _____ CREW NO. _____







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	
				SLOPE					HORIZ	INST				ROD
1														
2		1060	1540		91 32 52	4		-45 ⁵		2009 ²			1963 ⁵	2
3		1058	1760											3
4		1056	1980		91 32 40	5		-58 ³					1950 ⁸	4
5	-	7084			268 26 58	-		-58 ⁴						5
6		705												6
7			1320		87 51 52	5		44 ²		1906 ⁷				7
8	-				222 06 55	-		44 ¹						8
9		1054	1100											9
10		1052	880		87 54 04	52		27 ⁰					1933 ⁷	10
11		1050	660											11
12		1048	440		87 58 00	4		116					1918 ³	12
13		1046	220											13
14		1044	0		-	56		-56					1901 ¹	14
15		1042	220											15
16		1040	440		91 55 15	4		-18 ⁷					1887 ⁹	16
17		1038	660											17

WORKED BY BMB CHECKED BY - 1ST _____ 2ND _____

SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA _____ STATE/COUNTY _____ BOOK NO. 2 PAGE 42 OF _____
 LINE/LOOP NO. _____ TYPE SURVEY _____ CLIENT _____ DATE _____ BY _____ MO _____
 SURVEYOR _____ INSTRUMENT DESC/SERIAL NO. _____ CREW NO. _____

LINE	   	STATION	VERTICAL						HORIZONTAL		LINE	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									1906 ⁷			1		
2		1036	880			92 02 28	5 ⁴		-36 ⁷		7869 ⁹		2	
3		1034	1100										3	
4		1022	1320			91 41 11	5		-46 ¹		1860 ⁴	1854 ⁵	4	
5		7820				268 12 07	-		-46 ²				5	
6													6	
7			2860			90 13 30	10		+21 ¹	1881 ⁷			7	
8						269 46 00	-		21 ³			1851 ⁷	8	
9		1030	2640										9	
10		1028	2420			90 28 41	5 ²		-25 ³		1856 ⁴		10	
11		1026	2200										11	
12		1024	1980			90 25 03	15 ⁴		29 ³		1852 ³		12	
13		1022	1760										13	
14		1020	1540		5 ² HR.	90 25 03	18		29 ²		1852 ⁵		14	
15		1018	1320										15	
16		1016	1100		HR 5 ³	90 25 03	18		26 ⁰		1855 ⁷		16	
17		1014	880			90 25 03	10		-16 ⁴		1865 ³		17	

WORKED BY APM CHECKED BY 1ST _____ 2ND _____

SYMBOLS  = BACKSIGHT  = INSTRUMENT SET-UP  = SIDESHOT  = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA _____ STATE/COUNTY _____ BOOK NO. 2 PAGE 43 OF _____
 LINE/LOOP NO. _____ TYPE SURVEY _____ CLIENT _____ DATE _____ BY _____ MO _____ YR _____
 SURVEYOR _____ INSTRUMENT DESC/SERIAL NO. _____ CREW NO. _____

LINE	 <small>△</small> <small>SS</small> <small>⊙</small>	STATION	VERTICAL						ELEVATION		L/R OR D/I	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		RIGHT TURNED HORIZONTAL ANGLE	LINE	
				SLOPE 										
1		1012	660		90 17 28	52	-85		1873'			1		
2		1010	440									2		
3		1008	220		90 08 15	4	-40		1877'			3		
4		1006	0		—	56	-56		1876'			4		
5		1004	220									5		
6		1002	440		91 19 00	2	12'		18696			6		
7		1000	660		91 08 53	4						7		
8		998	880		91 08 53	4						8		
9		996	1100		91 13 52	13	-366		1845°			9		
10		-			268 45 35	-	-366					10		
11												11		
12			1980		89 28 07	5	-134		18318			12		
13					270 31 17	-	-133					13		
14		994	1760									14		
15		992	1540		90 02 58	4	-53		18265			15		
16		990	1320									16		
17		988	1100		90 13 18	52	-94		18224			17		

WORKED BY: AMM CHECKED BY 1ST _____ 2ND _____

SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. 2 PAGE 44 OF
 LINE/LOOP NO. 46-X3 TYPE SURVEY CLIENT HURLEY DATE 23 DY 2 MO 12 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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									1831 ⁸			1	
2		986	880		90 12 15	5 ²	33		1823 ⁵			2	
3		984	660		90 04 38	4	49		1826 ⁹			3	
4		982	440									4	
5		980	220		89 52 25	5 ²	47		1827 ¹			5	
6	Δ	978	0		-	5 ⁶	-56		1826 ²			6	
7		976	220		91 02 08	4	-8°		1823 ⁸			7	
8		974	440									8	
9		972	660		90 45 02	4	126		1819 ¹			9	
10		970	880									10	
11		968	1100		90 52 08	4	207		1811 ¹			11	
12		966	1320									12	
13		964	1540		90 34 44	4	195		1812 ³		1905 ²	13	
14		962	1760									14	
15	⊙	960	1980		90 36 17	5	25 ⁸		1805 ⁸			15	TARGET
16	-				269 23 08	-	26°					16	
17												17	

WORKED BY BAB CHECKED BY 1ST 2ND

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

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 45 OF
 LINE/LOOP NO. 46-XS TYPE SURVEY CLIENT HUSKY DATE 23 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 184


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 DJ		RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1		960	1650		87 41 55	5		61 ³	1744 ⁶			1	5-15' E	
2	-				272 17 24	-		61 ¹				2		
3		958	1430		-							3		
4		956	1210		87 54 30	+3		39 ⁹	1784 ⁵			4		
5		954	990		-							5		
6		952	770		88 44 30	-7.5		94	1754 ¹			6		
7		950	550		88 44 30	-7.5		46	1749 ²			7		
8		948	330		87 00 07	-5.2		06	1745 ²			8		
9		946	110		87 16 12	-5.2		00	1744 ⁶			9		
10	X	945	0		90° 00' 00"	-5.6		-5.6	1739 ⁰			10		
11		944	110		95 56 27	-4.0		-15 ⁷	1729 ³			11		
12		942	350		-							12		
13		940	550		95 16 42	-2.0		52 ⁶	1692 ⁰			13	CREEK	
14		938	770		94 30 15	-2.0		62 ⁴	1682 ²			14		
15		936	990		93 50 25	-4.0		70 ⁷	1674 ²			15		
16		934	1210		93 33 06	-5.4		80 ³	1664 ³			16		
17		932	1430		93 30 16	-2.0		92 ⁷	1651 ⁹			17		

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY Alaska BOOK NO. ✓ PAGE 46 OF
 LINE/LOOP NO. 46-X5 TYPE SURVEY CLIENT Husky DATE 24 BY 2 MO 77 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		
1												
2		930							1744 ⁶			
3	○	928	+ 1870		93 06 09	5.0	106'		1638 ³			
4	○		c 5.0		266 53 16		106 ³					
5												
6												
7	△	928	+ 1870		89 28 42	+ 5.0	12'	1626 ⁵				
8	△		c 5.0		270 30 30		119					270 30 30
9		926	1650		89 35 00	5.2	69		1633 ³			89 28 55
10		924	1430		-							
11		922	1210		89 57 45	5.2	5'		1621 ⁹			
12		920	990		90 00 50	7.0	42		1622 ²			
13		918	770		-							
14		916	550		90 53 38	4.0	126		1613 ⁹			
15		914	330		91 29 00	2.0	105		1615 ⁹			
16		912	110		91 10 45	4.0	63		1620 ²			
17	⊗	911	0		90 00 00	5.6	56		1620 ⁹			

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SYMBOLS △ = BACKSIGHT  = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Hounded Pass STATE/COUNTY Alaska BOOK NO. 2 PAGE 47 OF
 LINE/LOOP NO. 46 x3 TYPE SURVEY CLIENT Hooker DATE 24 DY 2 MO 29 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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	ROD	LINE				
1												1		
2		910	110			96 01 20	2.0	-135		16129			2	
3		908	330			92 51 32	2.0	-185		16080			3	
4		906	550			91 50 28	2.0	-197		16068			4	
5		904	770			91 35 25	3.4	-248		16017			5	
6						268 24 20		-248					6	
7													7	
8													8	
9		904	2200	T 13.0		89 07 00	5.0	29'	15729				9	
10				C 2.0		270 52 23		28'					10	
11		902	1980			89 16 13	4.0	21'	15942				11	
12		900	1760			-							12	
13		898	1540			89 29 47	4.0	96	15824				13	
14		896	1320			89 33 47	4.0	38	15767				14	
15		894	1100			-							15	
16		892	880			89 59 16	5.2	50	15679				16	
17		890	660			-							17	

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. 2 PAGE 48 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT HUSKY DATE 24 DY 2 MO 79 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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
				SLOPE					HORIZ	INST			
1									1572 ⁹			1	
2		888	440		89 54 00	7.0		-32		1569 ⁶		2	
3		886	220									3	
4		884	0		90 00 00	-5.6		-5.6		1567 ³		4	
5		882	220		97 00 10	2.0		28 ⁸		1544 ⁰		5	
6		880	440		96 09 19	7.0		-51 ²		1521 ⁷		6	
7		878	660		-							7	
8		876	880		94 36 25	2.0		72 ¹		1500 ²		8	
9		874	1100		-							9	
10		872	1320		93 45 40	4.0		-90 ⁶		1482 ³		10	
11		870	1540		-							11	
12		868	1760		92 55 12	2.0		-91 ⁶		1481 ³		12	
13		866	1980		92 36 20	7.0		-122 ⁷		1450 ²		13	
14		864	2200		92 23 17	5.0		96 ⁶		1476 ¹	1475 1476	14	
15					247 30 05			96 ⁸				15	
16												16	
17												17	

WORKED BY BRB CHECKED BY 1ST 2ND

SYMBOLS

= BACKSIGHT

= INSTRUMENT SET-UP

ss = SIDESHOT

= FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. 2 PAGE 49 OF
 LINE/LOOP NO. 16-XS TYPE SURVEY CLIENT MUSKY DATE 24 DY 2 MO 12 YR
 SURVEYOR B. BENEDICT INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

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		LR OR DR		RIGHT TURNED HORIZONTAL ANGLE										
				SLOPE					HORIZ	INST				ROD									
1																							
2	A	864	2640			88 28 42	+10.0		60 ²	1416 ¹													
3	A					271 30 42			60 ⁰														
4		862	2420			-																	
5		860	2200			88 35 18	+4.0		50 ³		1466 ⁴												
6		858	1980			-																	
7		856	1760			88 48 52	+4.0		32 ⁵		1448 ⁵												
8		854	1540			-																	
9		852	1320			89 20 20	+4.0		11 ³		1427 ³												
10		850	1100			-																	
11		848	880			89 20 35	+4.0		6 ¹		1422 ²												
12		846	660			-																	
13		844	440			89 30 20	+4.0		-02		1415 ⁹												
14		842	220			-																	
15	X	840	0			90 00 00	+5.6		-5.6		1410 ⁵												
16		838	220			-																	
17		836	440			90 51 20	+4.0		-106		1405 ⁵												

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY Alaska BOOK NO. 2 PAGE 50 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT Husky DATE 29 BY 2 MO 29 YR
 SURVEYOR B. Benedict INSTRUMENT DESC/SERIAL NO. CREW NO. 184

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		
1									1416'		1	
2		834	660								2	
3		832	880		90 02 46	-4.0	-47		1411 ⁴		3	
4		830	1100								4	
5		828	1320		89 28 19	-2.0	102		1426 ³		5	
6		827	1430		89 17 51	-3.0	117		1427 ⁷		6	
7					270 37 45	-3.0	117				7	
8											8	
9											9	
10		827	1650		88 21 12	+5.0	425	1385 ⁴			10	
11					271 38 16		423				11	
12		826	1540								12	
13		824	1320		88 41 15	-4.0	26 ³		1411 ⁷		13	
14		822	1100								14	
15		820	880		89 17 32	-4.0	6 ⁹		1392 ³		15	
16		818	660								16	
17		816	440		89 32 50	-2.0	0 ⁵		1384 ⁹		17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. 2 PAGE 5 OF
 LINE/LOOP NO. 46 XS TYPE SURVEY CLIENT Husky DATE 24 BY 2 MO 12 YR
 SURVEYOR B. Benedict INSTRUMENT DESC/SERIAL NO. CREW NO. 1184

LINE	 	STATION	VERTICAL						HORIZONTAL		LINE	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		814	220						1385.4					
3		812	0	90 00 00	5.6	-	-5.6		1379.8					
4		810	220											
5		808	440	90 41 28	4.0		-9.3		1376'					
6		806	660											
7		804	880	90 41 28	2.0		-12.6		1372.8					
8		802	1100	90 28 45	5.0		-14.2		1371'					
9				269 30 44			-14.3		1373.0				465/700?	
10									1370.19					
11													1372.4 1370.0	
12														
13														
14														
15														
16														
17														

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HORIZONTAL AND VERTICAL SURVEY NOTES

52

STATE/COUNTY HOWARD PASS ALASKA BOOK NO. _____ PAGE 1 OF 12
 LINE/LOOP NO. 46-XS TYPE SURVEY _____ CLIENT HUSKY DATE 19 DY 2 MO 72 YR
 SURVEYOR A. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	 	STATION	VERTICAL						ELEVATION		LIR OR DIR	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	RIGHT TURNED HORIZONTAL ANGLE		LINE
			SLOPE	HORIZ											
1													1		
2	Δ	B.M. 79419	04								V	000° 00' 00"	2	328.40 06	
3	Δ		47								L	328.40 06	3		
4	Δ	B.M. 79420	79										4		
5	S	V.P. 2000, L-46XS	98								Va	180° 00' 00"	5	V.P. 1956 + 20'	
6	S	4796.66 FEET	8 16								R	148.40 14	6	328.40 14	
7			4798.16										7		
8			- 1 50										8		
9			4796.66										9		
10												AZ FORWARD FROM 79420	10		
11	\odot	B.M. 79421	-	7360.77			CALCULATED FROM COORD.					25° 38' 05"	11	CALCULATED FROM COORDINATES	
12	\odot	V.P. 1889, L-46XS											12		
13													13		
14													14		
15													15		
16													16		
17													17		

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HORIZONTAL AND VERTICAL SURVEY NOTES

53

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. _____ PAGE 2 OF 12
 LINE/LOOP NO. 46 XS TYPE SURVEY _____ CLIENT MUSKY DATE 21 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	 	STATION	VERTICAL						ELEVATION		L/R OR D/I	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		RIGHT TURNED HORIZONTAL ANGLE	LINE	
1														
2		B.M. 79420			89° 37' 28"	6.0					V ₁	000° 00' 08"	2	173 26' 45
3					270° 22' 51"						L	173 26' 53	3	171 54 45
4		V.P. 1889, L-46 XS B.M. 79421										CALCULATED FROM COORD.	4	V.P. 1889, L-46 XS
5		B.M. 79369	CALCULATED FROM COORD	19,512.98	90° 31' 22"	6.0					V ₂	180° 00' 11"	5	171 54 45
6					269° 29' 05"						R	353 27 00	6	173 26 49
7													7	
8													8	
9		V.P. 1889, L-46 XS B.M. 79421			-						V ₁	000 00 13	9	184 15 36
10					-						L	184 15 43	10	
11		B.M. 79369			90 00 00	5.0							11	
12	SS	T 11.63 FULL	663		140° 48 50	5.4			13		L	238 09 54	12	238 09 41
13	SS	B 5.00 STADIA	V.P. 170B L-46-XS		259 11 00				34		R	50 09 51	13	238 09 23
14		V.P. 1608	11,343.55		92 03 51				42		V ₂	180 00 23	14	
15					267 56 08				2 55		R	04 15 57	15	184 15 29
16									11342 55				16	
17													17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

54

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. _____ PAGE 3 OF 12
 LINE/LOOP NO. 46-XS TYPE SURVEY _____ CLIENT Husky DATE 21 DAY 2 MO 79 YR
 SURVEYOR J. Anderson INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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
			SLOPE	HORIZ				INST	ROD	LINE				
1												1		
2	Δ	B.M. 79369			87 56 33	+6.0					V ₁	000 00 10'	2	177 20 25
3	Δ				272 02 30						L	177 20 35	3	
4	π	1608							15				4	
5									51				5	
6	SS	1708							13		L	357 18 08	6	357 17 58
7	SS								34		R	177 18 38	7	357 18 10
8									4.89				8	
9	O	1470	15,134.89		90 07 40	6.0			15134	89	V ₂	180 00 28	9	
10	O				269 51 39						L	357 20 40	10	177 20 12
11													11	
12	Δ	1608			89 33 05		06		08		V ₁	060 00 15	12	180 04 10
13	Δ				270 26 17			64	89		L	180 04 25	13	175 57 03 FIELD VERIFICATION
14	π	1470						42	93				14	FEB. 28 1979
15	SS	B.M. 78257	6423.57					23	39		L	354 12 39	15	354 12 24
16	SS							357	9 65		R	174 12 47	16	354 12 15
17	O	1388	8939.65		88 58 11			6423 57	8939 65		V ₂	180 00 32	17	175 57 03
											R	00 04 29		180 03 57 TI-23471B

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HORIZONTAL AND VERTICAL SURVEY NOTES

55

GSI AREA HOWARD Pass STATE/COUNTY ALASKA BOOK NO. _____ PAGE 4 OF 12
 LINE/LOOP NO. 26 XS TYPE SURVEY _____ CLIENT HUSKY DATE 23 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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												1	
2		1470			91 01 14			40		V ₁	000 00 15	2	186 31 17
3					268 58 37			00		L	186 31 32	3	
4							02	08				4	
5	SS	1434			-		24	8 03		L	356 45 27	5	356 45 30
6	SS		4008.03		-		41	4008 03		R	176 45 33	6	
7							14	16				7	
8	SS	1410			-		4 11	62		L	04 11 51	8	
9	SS		2414.11		-		2414 11	23		R	184 11 52	9	04 11 52
10								36				10	
11		1388						6 25				11	
12					87 48 58			16236	25	V ₂	180 00 13	12	
13		1240	16,236.25		272 11 38					R	06 31 27	13	186 31 14
14												14	
15												15	
16												16	
17												17	

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HORIZONTAL AND VERTICAL SURVEY NOTES

56

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. _____ PAGE 5 OF 12
 LINE/COP NO. 46 VS TYPE SURVEY _____ CLIENT HUSKY DATE 23 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	 	STATION	VERTICAL						HORIZONTAL		L/R OR DI	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					
									INST	ROD				
1														
2		1388			92 11 06					02				
3					268 48 27					26			180 08 22	2
4		1240				-4.9				63			180 08 34	3
5					88 09 00					33				4
6		1216	2633.01		271 51 15	-7.5				3 01		V ₂	180 00 22	5
7										26 33 01		R	000 08 45	6
8														7
9														8
10		1240			91 44 27	+6.0							000' 00 16'	10
11					268 15 21								179 54 24	11
12		1216				-4.9								12
13													180 00 34'	13
14		1210	660		90 56 44	-7.0				CLAIMED	DISTANCE		359 54 34	14
15					269 02 37									15
16														16
17														17

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 SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

57

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. _____ PAGE 6 OF 12
 LINE/LOOP NO. 46 XS TYPE SURVEY _____ CLIENT Hydro DATE 23 DY 2 MO 79 YR
 SURVEYOR J. Anderson INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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		LR OR DR RIGHT TURNED HORIZONTAL ANGLE		
			SLOPE	HORIZ						INST			ROD	
1														
2	Δ	1216			89 44 10	+6.0			68		V ₁	000 00 15	2	179 58 19
3	Δ				271 16 11				84		L	179 58 34	3	
4	X	1210							44				4	
5	\odot				92 19 54				4 85		V ₂	180 00 15	5	
6	\odot	1149	6844.85		267 40 33				68 44 85		R	359 58 39	6	179 58 24
7													7	
8													8	
9	Δ	1210			87 40 37	+6.5			06		V ₁	000 00 15	9	167 18 56
10	Δ				272 19 39				62		L	167 18 11	10	167-17-56
11	X	1149							25				11	
12	\odot				91 41 54	+6.0			56		V ₂	180 00 31	12	
13	\odot	1092	6256.30		268 17 53				6 30		R	347 18 16	13	167 18 35
14									6256 30				14	167-17-35
15													15	
16													16	
17													17	

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SYMBOLS Δ = BACKSIGHT ∇ = INSTRUMENT SET-UP SS = SIDESHOT \odot = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

58

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. _____ PAGE 7 OF 12
 LINE/LOOP NO. 46 X3 TYPE SURVEY _____ CLIENT Husky DATE 23 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	 SS 	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
			SLOPE	HORIZ										
1													1	
2		1149			88 16 43				01		V ₁	000 00 19	2	166 10 38
3					271 43 33				19		L	166 40 57	3	
4		1092							27				4	
5					91 26 35				74		V ₂	180 00 22	5	
6		1074	1974.30		269 33 52				4 30		R	346 10 57	6	166 10 35
7									1974 30				7	
8													8	
9		1092			88 28 38				07		V ₁	000 00 08	9	166 13 57
10					271 31 41				74		L	166 12 05	10	
11		1074							45				11	
12					90 58 09				57		V ₂	180 00 10	12	
13		1006	7457.77		269 02 11				7 77		R	346 12 17	13	166 12 07
14									7457 77				14	
15													15	
16													16	
17													17	

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SYMBOLS
 = BACKSIGHT
 = INSTRUMENT SET-UP
 = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

59

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. _____ PAGE 8 OF 12
 LINE/LOOP NO. 46 XS TYPE SURVEY _____ CLIENT HUCKY DATE 23 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1												1		
2		1074			89 01 50			05		V	000 00 13	2	183 57 09	
3					270 58 30			50		L	183 59 22	3		
4		1006						04				4		
5					90 46 38			47		V	180 00 16	5		
6		960	5047.30		269 13 13			7 30		R	03 59 24	6	183 57 08	
7								5047 30				7		
8												8		
9		1006			89 12 59			01		V	000 00 15	9	175 40 33	
10					270 47 15			16		L	175 40 48	10		
11		960						64				11		
12					92 25 57			44		V	180 00 26	12		
13		945	1644.07		267 36 07			4 07		R	225 40 50	13	175 40 24	
14								1644 07				14		
15												15		
16												16		
17												17		

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

60

GSI AREA Howard Pass STATE/COUNTY ALASKA BOOK NO. _____ PAGE 9 OF 12
 LINE/LOOP NO. 46-X3 TYPE SURVEY _____ CLIENT Husky DATE 25 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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	INST				
1														
2		960		87 37 17	+5.0			01		V _i	000 00 10	2	191 20 36	
3				272 22 32				18		L	191 20 46	3		
4		945			-4.9			86				4		
5				93 07 17	-3.0			65		V _e	180 00 12	5		
6		928	1865.63	266 52 40				5 63		L	11 20 53	6	191 20 41	
7								1865 63				7		
8												8		
9		945		86 57 40	+3.0			01		V _i	000 00 09	9	188 21 01	
10				273 02 05				18		L	188 21 10	10		
11		928			-4.9			86				11		
12				90 37 57	-3.0			65		V _e	180 00 10	12		
13		911	1865.26	267 22 21				5 26		R	8 21 19	13	188 21 09	
14								1865 26				14		
15												15		
16												16		
17												17		

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HORIZONTAL AND VERTICAL SURVEY NOTES

61

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. _____ PAGE 10 OF 12
 LINE/LOOP NO. 76 XS TYPE SURVEY _____ CLIENT MUSKIE DATE 24 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	 	STATION	VERTICAL							HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR D/I		RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS HORIZ					INST	ROD			
1												1	
2		928		89 28 05						V.	000 00 23	2	179 59 11
3				270 31 34						L	179 59 34	3	
4		911										4	
5				91 29 49						V.	180 00 34	5	
6		903	880	268 30 10				CHAINED	DISTANCE	R	359 59 38	6	179 59 04
7												7	
8		911		88 41 15				02		V.	000 00 15	8	173 27 50
9				271 18 30				20		L	173 28 05	9	
10		903						09				10	
11				90 53 12				90		V.	180 00 30	11	
12		884	2090.00	269 07 05				0 00		R	359 28 10	12	173 27 40
13								2090 00				13	
14												14	
15												15	
16												16	
17												17	

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SYMBOLS = BACKSIGHT
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 SS = SIDESHOT
 = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

62

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. _____ PAGE 11 OF 12
 LINE/LOOP NO. 46-XS TYPE SURVEY _____ CLIENT HUSKY DATE 24 DY 2 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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 D/I		RIGHT TURNED HORIZONTAL ANGLE
				SLOPE	HORIZ									
1													1	
2		903			89 4 58	+3.0		02		V ₁	000 00 11		2	180 06 50
3					270 48 18			21		L	180 07 01		3	
4		884				-5.0		19					4	
5					92 25 04			93		V ₂	180 00 13		5	
6		864	2193.25		267 35 05	-3.0		3 25		R	000 07 06		6	180 06 53
7								2193 25					7	
8													8	
9		884			89 39 47	+3.0		04		V ₁	000 00 15		9	168 20 22
10					222 20 08			40		L	168 20 37		10	
11		864				-5.0		06					11	
12					90 42 18			61		V ₂	180 00 11		12	
13		827	4061.15		269 17 45	-4.0		1 15		R	348 20 53		13	168 20 42
14								4061 15					14	
15													15	
16													16	
17													17	

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SYMBOLS = BACKSIGHT = INSTRUMENT SET-UP = SIDESHOT = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

63

GSI AREA HOWARD PASS STATE/COUNTY ALASKA BOOK NO. _____ PAGE 12 OF 12
 LINE/LOOP NO. 46-XS TYPE SURVEY _____ CLIENT HUSKEY DATE 2 DY 25 MO 79 YR
 SURVEYOR J. ANDERSON INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

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	INST				
1												1		
2	Δ	864			89 18 47	+4.0			02		V	006 00 42	2	185 36 54
3	Δ				270 41 06				27		L	185 27 08	3	
4	\times	827				-5.0			74				4	
5	\odot				91 00 18				42		V ₂	180 00 13	5	
6	\odot	(PIPE) 802 / ^{E.O.L} / 700, L-46	2742.00		268 51 31	-4.0			2 00		R	05 37 05	6	185 36 52
7									2742 00				7	
8													8	
9	Δ	827			85 50 29						V	000 00 16	9	234 02 54
10	Δ				271 09 27						L	234 03 10	10	
11	\times	802 / ^{E.O.L} / 700, L-46	PIPE										11	
12	SS	L-107, V.P. 104	PIPE								L	195 10 02	12	LINE INTERSECTION L-107E & L-46
13	SS	L-46, V.P. 690	PIPE								R	15 10 05	13	V.P. 104 V.P. 690 195 10 04
14	\odot	B.M. 79425			90 22 56						V ₂	180.00 37	14	
15	\odot				269 36 21						L	54 03 26	15	234 02 49
16													16	
17													17	

WORKED BY _____ CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ∇ = INSTRUMENT SET-UP SS = SIDESHOT \odot = FORESIGHT