

LINE	BEARING	DISTANCE FEET	DISTANCE VARAS
L1	N 18°49'16" E	24.13'	8.687
L2	N 42°31'33" W	19.70'	7.091
 	S 88°21'51" W N 01°59'34" E	24.04' 8.54'	3.076
 	N 62°27'51" E	19.24'	6.925
L6	N 14°28'39" W	14.04'	5.053
L7	N 20°51'14" W	50.04'	18.014
L8	N 26°31'58" W	80.42'	28.952
L9 (10	N 46°37'19" W N 06°31'10" E	32.58' 45.94'	11.728
L10 L11	N 05°11'10" E	43.94 54.63'	19.665
L12	N 11°33'02" E	57.80'	20.808
L13	N 08°00'06" E	55.90'	20.125
L14	N 03°14'17" E	53.85'	19.387
L15	N 04°31'37" W	12.37'	4.453
L16 L17	N 20°04'14" W	38.01' 50.01'	13.685
L18	N 09°28'23" W	50.64'	18.229
L19	N 00°12'53" E	52.81'	19.012
L20	N 42°22'56" E	10.30'	3.706
L21	S 79°30'31" E	10.30'	3.706
L22 L23	N 89°15'20" E N 73°33'28" E	29.41' 27.02'	9.727
L23 L24	N 37°44'48" E	18.03'	6.490
L25	N 32°46'37" E	12.81'	4.610
L26	N 74°02'22" E	22.02'	7.928
L27	N 37°44'48" E	32.45'	11.682
L28	N 21°28'01" E	32.65'	11.754
L29 L30	N 14°03'22" E N 15°39'09" E	59.36' 60.46'	21.371
L30 L31	N 17°11'26" E	30.81'	11.090
L32	N 05°04'12" E	27.44'	9.877
L33	N 11°37'08" E	57.68'	20.767
L34	N 22°02'17" E	27.66'	9.957
L35	N 47°36'22" E	35.50' 32.37'	12.781
L36 L37	N 52°00'09" E N 17°01'07" E	32.37' 85.45'	11.652 30.762
L37 L38	N 20°51'11" E	74.15'	26.695
L39	N 33°17'08" E	<i>86.75</i> '	31.230
L40	N 49°32'26" E	36.49'	13.136
L41	N 39°54'53" E	58.33'	20.998'
L42	N 37°28'11" E N 44°17'22" E	59.95'	21.582
L43 L44	N 59°54'33" E	55.88' 15.31'	5.511
L45	N 04°06'27" E	9.32'	3.354
L46	N 67°46'49" E	25.00'	9.000
L47	S 50°54'52" E	11.55'	4.158
L48	N 59°32'54" E	14.46'	5.206
L49 	N 37°32'58" E S 82°28'48" E	13.72' 12.01'	4.940
L51	N 60°22'53" E	38.15'	13.733
L52	S 87°48'16" E	53.38'	19.216
L53	S 85°48'34" E	54.08'	19.470
L54	S 85°48'34" E	54.08'	19.470
L55	S 83°06'14" E S 00°05'52" E	34.32' 10.02'	12.354 3.609
L56 	S 74°05'49" E	4.79'	1.725
L58	N 49°59'41" E	8.66'	3.117
L59	S 76°51'17" E	11.62'	4.185
L60	N 89°06'30" E	52.44'	18.879
L61	S 80°08'30" E	19.14'	6.892
L62 L63	N 46°21'08" E N 81°10'37" E	13.65' 21.24'	4.912
L64	N 63°26'30" E	50.88'	18.318
L65	N 47*53'36" E	<i>55.26</i> '	19.895
L66	N 39°59'52" E	59.57'	21.447
L67	N 35°23'25" E	63.00'	22.680
L68 	N 36°07'21" E N 49°48'25" E	62.40' 54.46'	22.465 19.606
L69 L70	N 49 48 25 E N 59°03'23" E	51.66'	18.599
L71	N 54°16'14" E	32.11'	11.558
L72	N 51°05'57" E	50.35'	18.127
L73	N 33°31'47" E	36.15'	13.014
L74	N 66°14'41" E	17.34' 22 38'	6.241
L75 L76	N 43°13'47" E N 68°20'52" E	22.38' 28.76'	8.055 10.354
L70	N 62°04'59" E	50.01'	18.004
L78	N 51°44'01" E	50.28'	18.102
L79	N 39°46'39" E	27.01'	9.723
L80	N 87°57'45" E	27.94'	10.060
L81 	N 80°07'25" E N 51°10'40" E	21.50' 30.17'	7.738
L83	N 64°20'43" E	25.13'	9.045
L84	S 80°38'20" E	32.89'	11.840
L85	N 85°11'45" E	55.82'	20.094
L86	N 89°36'03" E	58.22'	20.961
L87 L88	S 87°56'06" E S 84°07'14" E	59.82' 62.72'	21.537 22.579
L88 L89	S 84'07 14 E S 80°00'14" E	62.72 66.52'	22.579
L90	S 69°25'59" E	29.56'	10.640
L91	S 80°22'13" E	17.79'	6.406
	S 06°05'38" E	18.00'	6.480
L92		36.05'	12.978
L93	S 34°13'48" E		and the second s
L93 L94	S 18°33'07" E	50.99'	18.357
L93 L94 L95	S 18°33'07" E S 08°23'39" E	50.99' 69.83' 31.08'	18.357 25.139 11.188
L93 L94	S 18°33'07" E	69.83'	25.139
L93 L94 L95 L96	S 18°33'07" E S 08°23'39" E · S 10°21'35" W	69.83' 31.08'	25.139 11.188
L93 L94 L95 L96 L97	S 18°33'07" E S 08°23'39" E · S 10°21'35" W S 12°45'28" W S 07°27'24" W S 04°09'08" W	69.83' 31.08' 52.61' 51.22' 50.60'	25.139 11.188 18.940 18.438 18.215
L93 L94 L95 L96 L97 L98 L99 L100	S 18°33'07" E S 08°23'39" E · S 10°21'35" W S 12°45'28" W S 07°27'24" W S 04°09'08" W S 07°14'40" E	69.83' 31.08' 52.61' 51.22' 50.60' 49.80'	25.139 11.188 18.940 18.438 18.215 17.928
L93 L94 L95 L96 L97 L98 L99 L100 L101	S 18°33'07" E S 08°23'39" E · S 10°21'35" W S 12°45'28" W S 07°27'24" W S 04°09'08" W S 07°14'40" E S 14°39'36" E	69.83' 31.08' 52.61' 51.22' 50.60' 49.80' 50.35'	25.139 11.188 18.940 18.438 18.215 17.928 18.127
L93 L94 L95 L96 L97 L98 L99 L100	S 18°33'07" E S 08°23'39" E · S 10°21'35" W S 12°45'28" W S 07°27'24" W S 04°09'08" W S 07°14'40" E	69.83' 31.08' 52.61' 51.22' 50.60' 49.80'	25.139 11.188 18.940 18.438 18.215 17.928
L93 L94 L95 L96 L97 L98 L99 L100 L101 L102	S 18°33'07" E S 08°23'39" E · S 10°21'35" W S 12°45'28" W S 07°27'24" W S 04°09'08" W S 07°14'40" E S 14°39'36" E S 19°05'58" E	69.83' 31.08' 52.61' 51.22' 50.60' 49.80' 50.35' 51.10'	25.139 11.188 18.940 18.438 18.215 17.928 18.127 18.396

		DISTANCE	DISTANCE	PP
E	BEARING	DISTANCE	VARAS	
2	S 14°39'36" E S 19°05'58" E	50.35' 51.10'	18.127 18.396	
3	S 13°55'57" W	29.46'	10.607	
4	S 32°55'05" W S 48°56'30" E	63.40' 	22.823	
6	S 28°28'27" E	18.38'	6.619	
7	S 21°18'38" W S 45°25'49" W	36.93'	1 <i>3.297</i> 18.394	
9	S 09°16'25" E	51.09' 30.00'	10.800	
0	S 44°26'28" W	28.06'	10.102	
1	S 30°46'34" W S 25°05'01" W	25.00' 28.97'	9.000	
3	S 15°42'27" W	26.93'	9.693	
4	S 31°08'24" W	19.83'	7.140	
5 6	S 46°30'03" W S 22°31'00" W	21.40' 12.53'	7.704 4.511	
7	N 87°59'30" E	14.04'	5.053	
8 9	N 58°26'34" E N 56°44'27" E	23.26' 67.44'	8.373 24.278	
0	N 49°32'46" E	33.66'	12.119	
1	N 35°22'25" E	107.54'	38.713	
2	N 34°43'15" E N 50°21'06" E	65.79' 18.60'	23.684 6.696	
4	N 82°17'47" E	21.54'	7.755	
5	S 77°56'51" E	28.02'	10.086	
5	S 58°05'00" E S 42°43'54" E	29.41' 27.42'	10.588 9.870	
3	S 49°24'16" E	37.74'	13.585	
9	S 71°56'51" E	60.83'	21.898	
2	N 32°19'27" W	<i>39.70'</i>	14.292	
1	N 21°14'22" W N 59°01'47" W	10.05' 18.38'	3.619 6.619	
3	N 49°08'03" W	22.47'	8.090	
4	N 20°01'13" W	25.06'	9.022	
5	N 05°26'46" W N 08°35'25" E	20.62' 17.72'	7.422 6.379	
7	N 19°18'25" W	19.24'	6.925	
3	N 02°12'38" E	45.00'	16.200	
9 7	N 01°40'12" W N 04°46'34" E	50.53' 15.03'	18.190 5.412	
1	N 08°35'25" E	14.00'	5.040	
?	N 28°16'47" W	15.00'	5.400	
3	N 27°34'31" E N 08°35'25" E	9.22' 49.72'	3.320 17.899	
5	N 07°26'17" E	49.73'	17.903	
5	N 00°22'57" W	19.24'	6.925	
7 8	N 08°35'25" E N 54°50'41" W	22.00' 4.47'	7.920	
9	N 15°28'02" W	7.36'	2.649	
0	N 64°54'00" E	7.21'	2.596	
2	N 17°20'11" E N 28°08'01" E	26.31' 20.93'	9.470 7.533	
3	N 39°33'14" E	29.15'	10.496	
4	N 50°15'30" E	33.09'	11.913	
5 6	N 48°46'44" E N 53°45'04" E	65.09' 70.51'	23.431 25.385	
7	N 08°35'25" E	5.00'	1.800	
8	N 59°36'30" W	10.77'	3.877	
9	S 79°33'53" W N 70°24'23" W	30.68' 36.67'	11.043 13.203	
1	N 69°23'54" W	48.05'	17.299	
2	N 60°51'14" W	42.72'	15.379	
3	S 45°27'36" W N 81°24'35" W	10.00' 10.00'	3.600 3.600	
5	N 19°03'44" W	30.17'	10.860	
5	N 25°37'32" W	30.23'	10.884	
7	N 17°18'12" W N 26°09'53" W	27.48' 20.02'	9.892 7.026	
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SHEET 1 OF 3

Counter 83087



BEARING         1 OF 3 FOR LINES         N 14*57'14" W         N 39*14'09" W         N 03*45'00" E         N 03*45'01" E         N 03*17'35" E         N 01*44'36" W         N 03*17'35" E         N 01*44'36" W         N 10*49'47" W         N 09*16'00" E         N 09*16'00" E         N 23*49'52" W         N 23*49'52" W         N 23*18'03" E         N 26*36'54" E         N 27*07'17" E         N 23*18'03" E         N 33*17'08" E         N 33*17'08" E         N 41*07'12" E         N 67*46'49" E         N 67*46'49" E         S 86*08'30" E         N 41*07'05" E         N 67*46'49" E         N 41*07'05" E         N 67*46'49" E         N 67*46'49" E         N 67*46'49" E         N 67*019'02" E         N 79*05'30" E         N 79*05'30" E         N 50*14'39" E         N 79*05'30" E         N 79*05'30" E         N 63*09'10" E         N 50*14'39" E         N 63*09'10" E         N 50*14'39" E         N 63*09'10" E         N	DISTANCE FEET L1 THRU L169 118.30' 116.97' 58.54' 58.54' 58.54' 34.85' 148.75' 38.44' 60.62' 23.64' 141.88' 141.88' 117.26' 18.48' 94.07' 51.06' 137.78' 111.43' 51.06' 137.78' 111.43' 18.04' 86.75' 122.13' 105.37' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53'	DISTANCE VARAS42.58842.11125.39421.07512.54753.55013.84021.8248.50951.07642.2136.65433.86718.38249.59940.1156.49431.23043.96537.93241.28247.72430.21437.44733.42938.18010.71537.92431.43247.83075.67735.15644.830
N 14*57'14" W         N 39*14'09" W         N 03*45'00" E         N 09*59'46" E         N 08*17'35" E         N 01*44'36" W         N 10*49'47" W         N 23*49'52" W         N 09*16'00" E         N 23*49'52" W         N 23*49'52" W         N 23*49'52" W         N 23*10'16" E         N 25*10'16" E         N 26*36'54" E         N 27*07'17" E         N 23*12'08" E         N 33*17'08" E         N 33*17'08" E         N 41*07'12" E         N 67*46'49" E         S 86*08'30" E         N 67*46'49" E         N 41*07'05" E         N 41*07'05" E         N 40*55'05" E         N 50*14'39" E         N 50*19'02" E         N 50*19'03" E <td< td=""><td>118.30'         116.97'         70.54'         58.54'         34.85'         148.75'         38.44'         60.62'         23.64'         141.88'         117.26'         18.48'         94.07'         51.06'         137.78'         111.43'         86.75'         122.13'         105.37'         114.67'         132.57'         83.93'         106.05'         29.76'         105.34'         87.31'         132.86'         210.21'         97.66'         124.53'</td><td>42.11125.39421.07512.54753.55013.84021.8248.50951.07642.2136.65433.86718.38249.59940.1156.49431.23043.96537.93241.28247.72430.21437.44733.42938.18010.71537.92431.43247.83075.67735.156</td></td<>	118.30'         116.97'         70.54'         58.54'         34.85'         148.75'         38.44'         60.62'         23.64'         141.88'         117.26'         18.48'         94.07'         51.06'         137.78'         111.43'         86.75'         122.13'         105.37'         114.67'         132.57'         83.93'         106.05'         29.76'         105.34'         87.31'         132.86'         210.21'         97.66'         124.53'	42.11125.39421.07512.54753.55013.84021.8248.50951.07642.2136.65433.86718.38249.59940.1156.49431.23043.96537.93241.28247.72430.21437.44733.42938.18010.71537.92431.43247.83075.67735.156
N       03*45'00" E         N       09*59'46" E         N       08*17'35" E         N       01*44'36" W         N       10*49'47" W         N       23*49'52" W         N       09*16'00" E         N       50*47'36" E         N       25*10'16" E         N       26*36'54" E         N       23*12'08" E         N       23*12'08" E         N       23*17'08" E         N       33*17'08" E         N       33*17'08" E         N       67*46'49" E         S       86*08'30" E         N       67*46'49" E         S       86*010'06" E         N       41*07'05" E         N       41*07'05" E         N       40*55'05" E         N       40*55'05" E         N       50*19'02" E         N       50*19'03" E <t< td=""><td>70.54'         58.54'         34.85'         148.75'         38.44'         60.62'         23.64'         141.88'         141.726'         18.48'         94.07'         51.06'         137.78'         111.43'         18.04'         86.75'         122.13'         105.37'         114.67'         132.57'         83.93'         104.02'         92.86'         105.34'         87.31'         132.86'         210.21'         97.66'         124.53'</td><td>25.394         21.075         12.547         53.550         13.840         21.824         8.509         51.076         42.213         6.654         33.867         18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156</td></t<>	70.54'         58.54'         34.85'         148.75'         38.44'         60.62'         23.64'         141.88'         141.726'         18.48'         94.07'         51.06'         137.78'         111.43'         18.04'         86.75'         122.13'         105.37'         114.67'         132.57'         83.93'         104.02'         92.86'         105.34'         87.31'         132.86'         210.21'         97.66'         124.53'	25.394         21.075         12.547         53.550         13.840         21.824         8.509         51.076         42.213         6.654         33.867         18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156
N       09*59'46" E         N       08*17'35" E         N       01*44'36" W         N       10*49'47" W         N       23*49'52" W         N       09*16'00" E         N       50*47'36" E         N       25*10'16" E         N       26*36'54" E         N       23*12'08" E         N       23*12'08" E         N       23*17'08" E         N       33*17'08" E         N       41*07'12" E         N       67*46'49" E         S       86*08'30" E         N       67*46'49" E         S       86*010'06" E         S       86*010'06" E         N       41*07'05" E         N       41*07'05" E         N       50*19'02" E         N       50*19'10" E         N       50*19'10" E         N       50*19'10" E         <	58.54'         34.85'         148.75'         38.44'         60.62'         23.64'         141.88'         117.26'         18.48'         94.07'         51.06'         137.78'         111.43'         18.04'         86.75'         122.13'         105.37'         114.67'         132.57'         83.93'         104.02'         92.86'         106.05'         29.76'         132.86'         105.34'         87.31'         124.53'	21.07512.54753.55013.84021.8248.50951.07642.2136.65433.86718.38249.59940.1156.49431.23043.96537.93241.28247.72430.21437.44733.42938.18010.71537.92431.43247.83075.67735.156
N 01*44'36" W         N 10*49'47" W         N 23*49'52" W         N 09*16'00" E         N 50*47'36" E         N 25*10'16" E         N 26*36'54" E         N 26*36'54" E         N 26*36'54" E         N 23*12'08" E         N 33*17'08" E         N 41*07'12" E         N 67*46'49" E         S 86*10'06" E         S 86*31'14" E         N 41*07'05" E         N 40*55'05" E         N 40*55'05" E         N 50*19'02" E         S 89*50'19" E         S 89*50'19" E         S 34*57'03" E         S 34*57'03" E         S 34*57'03" E <td< td=""><td>148.75' 38.44' 60.62' 23.64' 141.88' 141.88' 117.26' 18.48' 94.07' 51.06' 137.78' 137.78' 111.43' 18.04' 86.75' 122.13' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'</td><td>53.55013.84021.8248.50951.07642.2136.65433.86718.38249.59940.1156.49431.23043.96537.93241.28247.72430.21437.44733.42938.18010.71537.92431.43247.83075.67735.156</td></td<>	148.75' 38.44' 60.62' 23.64' 141.88' 141.88' 117.26' 18.48' 94.07' 51.06' 137.78' 137.78' 111.43' 18.04' 86.75' 122.13' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	53.55013.84021.8248.50951.07642.2136.65433.86718.38249.59940.1156.49431.23043.96537.93241.28247.72430.21437.44733.42938.18010.71537.92431.43247.83075.67735.156
N 23*49'52" W         N 09*16'00" E         N 50*47'36" E         N 25*10'16" E         N 26*36'54" E         N 26*36'54" E         N 18*55'33" E         N 27*07'17" E         N 23*12'08" E         N 33*17'08" E         N 41*07'12" E         N 67*46'49" E         S 86*08'30" E         N 41*07'05" E         N 41*07'05" E         N 40*55'05" E         N 40*55'05" E         N 50*19'02" E         S 89*30'46" E         S 75*11'07" E         S 34*57'03" E         S 34*57'03" E         S 34*57'03" E         S 35/511'07" E <t< td=""><td>60.62'         23.64'         141.88'         117.26'         18.48'         94.07'         51.06'         137.78'         111.43'         18.04'         86.75'         122.13'         105.37'         114.67'         92.86'         106.05'         29.76'         105.34'         87.31'         132.86'         210.21'         97.66'         124.53'</td><td>21.824 8.509 51.076 42.213 6.654 33.867 18.382 49.599 40.115 6.494 31.230 43.965 37.932 41.282 41.282 47.724 30.214 30.214 37.447 33.429 38.180 10.715 37.924 31.432 47.830</td></t<>	60.62'         23.64'         141.88'         117.26'         18.48'         94.07'         51.06'         137.78'         111.43'         18.04'         86.75'         122.13'         105.37'         114.67'         92.86'         106.05'         29.76'         105.34'         87.31'         132.86'         210.21'         97.66'         124.53'	21.824 8.509 51.076 42.213 6.654 33.867 18.382 49.599 40.115 6.494 31.230 43.965 37.932 41.282 41.282 47.724 30.214 30.214 37.447 33.429 38.180 10.715 37.924 31.432 47.830
N       09*16'00" E         N       50*47'36" E         N       25*10'16" E         N       26*36'54" E         N       26*36'54" E         N       18*55'33" E         N       23*12'08" E         N       23*17'08" E         N       33*17'08" E         N       33*17'08" E         N       41*07'12" E         N       67*46'49" E         S       86*08'30" E         S       86*08'30" E         S       86*08'30" E         N       41*07'05" E         N       40*55'05" E         N       40*055'05" E         N       50*19'02" E         N       50*19'10" E         S       89*50'19" E         S       89*30'46" E         S       50*14'38" E         S       513*42'38" E         <	23.64' 141.88' 117.26' 18.48' 94.07' 51.06' 137.78' 111.43' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	8.509         51.076         42.213         6.654         33.867         18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156
N 25*10'16" E         N 26*36'54" E         N 18*55'33" E         N 27*07'17" E         N 23*12'08" E         N 23*18'03" E         N 33*17'08" E         N 33*17'08" E         N 41*07'12" E         N 67*46'49" E         S 86*08'30" E         N 41*07'05" E         N 67*46'49" E         S 86*08'30" E         N 41*07'05" E         N 40*55'05" E         N 50*19'02" E         N 50*19'02" E         N 50*18'43" E         N 79*05'30" E         S 89*50'19" E         S 89*50'19" E         S 89*30'46" E         S 75*11'07" E         S 34*57'03" E         S 34*57'03" E         S 34*57'03" E	117.26' 18.48' 94.07' 51.06' 137.78' 111.43' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	42.213         6.654         33.867         18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156
N       18*55'33" E         N       27'07'17" E         N       23'12'08" E         N       23'12'08" E         N       23'17'08" E         N       33'17'08" E         N       41'07'12" E         N       67'46'49" E         S       86'10'06" E         S       86'08'30" E         S       86'08'30" E         N       41'07'05" E         N       40'55'05" E         N       50'19'02" E         N       50'19'10" E         S       89'50'19" E         S       89'50'19" E         S       89'50'19" E         S       61'03'20" E         S       513'42'38" E <t< td=""><td>94.07' 51.06' 137.78' 111.43' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'</td><td>33.867         18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156</td></t<>	94.07' 51.06' 137.78' 111.43' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	33.867         18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156
N 27'07'17" E         N 23'12'08" E         N 23'12'08" E         N 33'17'08" E         N 33'17'08" E         N 41'07'12" E         N 41'22'27" E         N 67'46'49" E         S 86'08'30" E         N 41'07'12" E         N 67'46'49" E         S 86'08'30" E         N 41'07'05" E         N 40'55'05" E         N 20'49'52" E         N 50'19'02" E         N 50'18'43" E         N 63'09'10" E         S 89'50'19" E         S 89'30'46" E         S 34'57'03" E         S 13'42'38" E         S 08'47'18" W	51.06' 137.78' 111.43' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	18.382         49.599         40.115         6.494         31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156
N 23*18'03" E         N 33*17'08" E         N 33*17'08" E         N 41*07'12" E         N 41*07'12" E         N 67*46'49" E         S 86*10'06" E         S 86*08'30" E         S 86*08'30" E         N 41*07'05" E         N 41*07'05" E         N 40*55'05" E         N 40*55'05" E         N 50*19'02" E         S 89*50'19" E         S 89*50'19" E         S 89*30'46" E         S 75*11'07" E         S 61*03'20" E         S 34*57'03" E	111.43' 18.04' 86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	40.115 6.494 31.230 43.965 37.932 41.282 47.724 30.214 37.447 33.429 38.180 10.715 37.924 31.432 47.830 75.677 35.156
N       33*17'08" E         N       41'07'12" E         N       41'22'27" E         N       67'46'49" E         S       86'10'06" E         S       86'08'30" E         S       86'08'30" E         S       86'08'30" E         N       41'07'05" E         N       40'55'05" E         N       20'49'52" E         N       50'19'02" E         N       50'18'43" E         N       50'19'02" E         N       50'19'10" E         S       89'50'19" E         S       89'30'46" E         S       51'1'07" E         S       51'3'42'38" E         S       13'42'38" E         S       08'47'18" W	86.75' 122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	31.230         43.965         37.932         41.282         47.724         30.214         37.447         33.429         38.180         10.715         37.924         31.432         47.830         75.677         35.156
N       41°07'12" E         N       41°22'27" E         N       67'46'49" E         S       86'10'06" E         S       86'08'30" E         S       86'08'30" E         S       86'31'14" E         N       41'07'05" E         N       40'55'05" E         N       20'49'52" E         N       50'19'02" E         S       89'50'19" E         S       89'30'46" E         S       51'03'20" E         S       61'03'20" E         S       34'57'03" E         S       31'42'38" E         S       08'47'18" W	122.13' 105.37' 114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	43.965 37.932 41.282 47.724 30.214 37.447 33.429 38.180 10.715 37.924 31.432 47.830 75.677 35.156
N       67*46'49" E         S       86*10'06" E         S       86*08'30" E         S       86*31'14" E         N       41*07'05" E         N       40*55'05" E         N       20*49'52" E         N       50*19'02" E         N       50*14'39" E         N       50*18'43" E         N       50*18'43" E         N       50*19'02" E         S       89*50'19" E         S       89*30'46" E         S       75*11'07" E         S       61*03'20" E         S       34*57'03" E         S       13*42'38" E         S       08*47'18" W	114.67' 132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	41.282 47.724 30.214 37.447 33.429 38.180 10.715 37.924 31.432 47.830 75.677 35.156
S 86°10'06" E S 86°08'30" E S 86°31'14" E N 41°07'05" E N 40°55'05" E N 20°49'52" E N 50°19'02" E N 50°14'39" E N 50°18'43" E N 63°09'10" E S 89°50'19" E S 89°50'19" E S 89°30'46" E S 61°03'20" E S 34°57'03" E S 13°42'38" E S 08°47'18" W	132.57' 83.93' 104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	47.724 30.214 37.447 33.429 38.180 10.715 37.924 31.432 47.830 75.677 35.156
S 86°31'14" E N 41'07'05" E N 40°55'05" E N 20'49'52" E N 50'19'02" E N 50'14'39" E N 50'18'43" E N 63'09'10" E S 89'50'19" E S 89'50'19" E S 89'30'46" E S 61'03'20" E S 34'57'03" E S 13'42'38" E S 08'47'18" W	104.02' 92.86' 106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	37.447 33.429 38.180 10.715 37.924 31.432 47.830 75.677 35.156
N 40°55'05" E N 20°49'52" E N 50°19'02" E N 50°14'39" E N 50°18'43" E N 63°09'10" E S 89°50'19" E S 89°50'19" E S 89°30'46" E S 61°03'20" E S 34°57'03" E S 13°42'38" E S 08°47'18" W	106.05' 29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	38.180 10.715 37.924 31.432 47.830 75.677 35.156
N 20°49'52" E N 50°19'02" E N 50°14'39" E N 50°18'43" E N 63°09'10" E N 79°05'30" E S 89°50'19" E S 89°30'46" E S 75°11'07" E S 61°03'20" E S 34°57'03" E S 13°42'38" E S 08°47'18" W	29.76' 105.34' 87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	10.715 37.924 31.432 47.830 75.677 35.156
N 50°14'39" E N 50°18'43" E N 63'09'10" E N 79°05'30" E S 89°50'19" E S 89°30'46" E S 75°11'07" E S 61°03'20" E S 34'57'03" E S 13°42'38" E S 08'47'18" W	87.31' 132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	31.432 47.830 75.677 35.156
N 50°18'43" E N 63°09'10" E N 79°05'30" E S 89°50'19" E S 89°30'46" E S 75°11'07" E S 61°03'20" E S 34°57'03" E S 13°42'38" E S 08°47'18" W	132.86' 210.21' 97.66' 124.53' 87.79' 42.31'	47.830 75.677 35.156
N 79°05'30" E S 89°50'19" E S 89°30'46" E S 75°11'07" E S 61°03'20" E S 34°57'03" E S 13°42'38" E S 08°47'18" W	97.66' 124.53' 87.79' 42.31'	35.156
S 89'50'19" E S 89'30'46" E S 75'11'07" E S 61'03'20" E S 34'57'03" E S 13'42'38" E S 08'47'18" W	124.53' 87.79' 42.31'	
S 75*11'07" E S 61*03'20" E S 34*57'03" E S 13*42'38" E S 08*47'18" W	42.31'	
S 61°03'20" E S 34°57'03" E S 13°42'38" E S 08°47'18" W		31.603 15.231
S 13°42'38" E S 08°47'18" W		23.075
	59.62' 92.90'	21.464 33.445
2 U0 20 42 W	63.52' 112.39'	22.868 40.461
S 09*39'02" E	712.39	40.461 28.102
S 11°17'07" E S 02°45'39" E	69.91' 53.68'	25.166 19.324
5 29°18'44" W	55.29'	19.903
N 14°57'14" W N 14°57'14" W	38.54' 16.40'	13.873 5.904
S 88°21'51" W	4.42'	1.590
S 88°21'51" W N 62°27'51" E	19.63' 17.02'	7.065 6.126
N 62°27'51" E	2.22'	0.799 7.994
N 20°51'14" W	27.84'	10.021
N 14°57'14" W N 14°57'14" W	36.66' 26.76'	13.178 9.633
N 26°31'58" W	10.12'	3.645
N 26°31'58" W N 39°14'09" W	11.09'	25.307 4.284
N 39°14'09" W	105.08' 28.15'	37.827 10.134
N 00°12'53" E	24.66'	8.878
N 89°15'20" E N 89°15'20" E	20.42' 8.99'	7.353 3.235
N 50°47'36" E	48.50'	20.093
N 50°47'36" E N 50°47'36" E	24.97 <sup>*</sup> 68.41 <sup>*</sup>	8.988 24.629
N 27°07'17" E	14.122'	5.084 13.298
N 23°12'08" E	79.64'	28.671
N 11°37'08" E N 23°12'08" E	57.69' 58.13'	20.767 20.928
N 67°46'49" E	5.00'	1.800
N 67*46'49" E N 67*46'49" E	25.00' 84.67'	9.000 30.482
S 86°31'14" E	79.65'	28.674
SH	HEET 2	OF 3 _
	N 20°51'14" W         N 14°57'14" W         N 14°57'14" W         N 26°31'58" W         N 26°31'58" W         N 39°14'09" W         N 00'12'53" E         N 00'12'53" E         N 50'47'36" E         N 50'47'36" E         N 27'07'17" E         N 23'12'08" E         N 67'46'49" E         S 86'31'14" E         N 67'46'49" E <td>N 20°51'14" W         22.21'           N 20°51'14" W         27.84'           N 14°57'14" W         36.66'           N 14°57'14" W         26.76'           N 26°31'58" W         10.12'           N 26°31'58" W         70.30'           N 39°14'09" W         11.09'           N 39°14'09" W         105.08'           N 00°12'53" E         28.15'           N 00°12'53" E         20.42'           N 89°15'20" E         8.99'           N 50°47'36" E         48.50'           N 50°47'36" E         68.41'           N 27°07'17" E         14.122'           N 27°07'17" E         36.94'           N 23°12'08" E         57.69'           N 23°12'08" E         58.13'           N 67°46'49" E         5.00'           N 67°46'49" E         5.00'</td>	N 20°51'14" W         22.21'           N 20°51'14" W         27.84'           N 14°57'14" W         36.66'           N 14°57'14" W         26.76'           N 26°31'58" W         10.12'           N 26°31'58" W         70.30'           N 39°14'09" W         11.09'           N 39°14'09" W         105.08'           N 00°12'53" E         28.15'           N 00°12'53" E         20.42'           N 89°15'20" E         8.99'           N 50°47'36" E         48.50'           N 50°47'36" E         68.41'           N 27°07'17" E         14.122'           N 27°07'17" E         36.94'           N 23°12'08" E         57.69'           N 23°12'08" E         58.13'           N 67°46'49" E         5.00'           N 67°46'49" E         5.00'



AREA OF FILLED—IN STATE OF TEXAS LAND IN BULKHEAD AREA	– 25,022 SQUARE FEET (0.5744 ACRES)
AREA OF FILLED-IN STATE OF TEXAS LAND IN COVE AREA	– 36,983 SQUARE FEET (0.8490 ACRES)
TOTAL AREA OF FILLED STATE OF TEXAS LAND	– 62,005 SQUARE FEET (1.4234 ACRES)
AREA OF PERMITTED FILLED STATE OF TEXAS LAND	– 8,890 SQUARE FEET (0.2041 ACRES)
TOTAL EXCESS FILLED—IN STATE OF TEXAS LAND	– 53,115 SQUARE FEET (1.2194 ACRES)
AREA OF EXCAVATED "SEABROOK ISLAND" LAND	– 6,488 SQUARE FEET (0.1489 ACRES)



INE		Construction of the second	-	
	BEARING	DISTANCE FEET	DISTANCE VARAS	
245	1 OF 3 FOR LINES S 86°31'14" E	L1 THRU L168 24.37'	8.773	
246 247	N 41°07'05" E N 41°07'05" E	15.08' 77.78'	5.429 28.001	
248	N 63°26'30" E N 63°26'30" E N 63°26'30" E	14.81' 36.07'	5.332	
249 250	N 63°09'10" E	133.03'	47.889	
.251 252	N 63°09'10" E N 63°09'10" E	40.29' 36.90'	14.505 13.283	
253 254	N 39°46'39" E N 39°46'39" E	4.32' 22.68'	1.556 8.166	
255	N 87°57'45" E	21.45'	7.721	
256 257	N 87°57'45" E N 79°05'30" E	6.50' 14.18'	2.339 5.104	
258 259	N 79°05'30" E N 79°05'30" E	53.58' 29.89'	19.290 10.761	
260	N 51°10'40" E	24.61'	8.860	
.261 262	N 51°10'40" E S 80°38'20" E	5.56' 25.98'	2.003 9.352	
263 264	S 80°38'20" E S 80°00'14" E	6.91' 54.81'	2.487 19.733	
265	S 80°00'14" E	11.71'	4.215	
266 267	S 61°03'20" E S 61°03'20" E	16.28' 47.81'	5.862 17.213	
268 269	S 60°41'16" E S 32°55'05" W	3.52' 55.40'	1.266 19.943	
.270 .271	S 32°55'05" W S 85°39'59" E	8.00' 13.48'	2.880 4.852	
.272	N 08°00'06" E	0.96'	0.346	
.273	N 08°00'06" E N 20°04'14" W	54.94' 28.99'	19.779 10.435	
.275 .276	N 20°04'14" W N 83°39'44" W	9.03' 17.84'	<i>3.249</i> <i>6.422</i>	
.277	S 61°51'36" E	12.33'	4.437	
.278 .279	S 02°45'56" E S 80°41'53" E	13.70' 7.69'	4.934 2.770	
.280	N 81°17'16" E N 31°56'26" E	10.23' 11.56'	3.684 4.163	
.282	N 50°09'55" E	13.90'	5.002	
.283 .284	N 47°17'28" E N 42°57'35" W	15.67' 19.42'	5.643 6.991	
.285 .286	N 27°12'05" W N 28°57'32" E	11.83' 11.89'	4.258 4.280	
.287	N 57°27'15" E	6.38'	2.297	
.288 .289	S 63°11'18" E S 89°19'16" E	16.57' 22.50'	5.966 8.098	
.290	N 77°58'11" E N 51°05'17" E	21.33' 17.18'	7.678 6.184	
.292	S 87°54'26" E	11.80'	4.247	
.293 .294	S 12°43'27" W S 51°42'34" E	19.91' 28.21'	7.167 10.155	
.295 .296	S 82°03'16" E S 78°54'17" E	35.32' 27.73'	12.715 9.984	
297	N 47°44'12" E	14.98'	5.395	
.298 .299	N 08°35'25" E N 23°05'17" W	41.84' 26.72'	15.063 9.619	
.300 1.301	N 83°26'26" W N 00°47'51" W	3.61' 28.18'	1.300 10.145	
302	N 87°56'41" E	6.80'	2.448	
1.303 1.304	N 33°27'14" E N 39°25'26" E	27.48' 26.90'	9.891 9.683	
305	N 40°06'33" E N 28°27'13" E	28.72' 16.33'	10.340 5.878	
307	N 40°02'00" W N 72°19'05" W	53.01' 29.19'	19.085 10.507	
.309	N 57°56'53" W	24.39'	8.781	
310	N 53°47'10" W	21.87'	7.872	
			1	

3701 KIRBY DRIVE, SUITE 1290 HOUSTON, TEXAS 77098 (713) 523-7161 FAX (713) 523-4373



December 1, 2000

Mr. Ben Thomson, RPLS, LSLS Texas General Land Office Surveying Division 1700 N. Congress Avenue Austin, Texas 78701

Re: Seabrook Island Property, Taylor Lake, Seabrook, Texas

Dear Ben,

Enclosed please find the original and 1 blueline copy of the survey of the above referenced site to be filed in the records of the General Land Office in accordance with the requirements of Section 33.136 of the Natural Resource Code "Property Rights: Preservation of Littoral Rights". Also enclosed is the original and 1 copy of the accompanying Surveyors Report to be filed with the Survey.

If you have any questions or need further information, please do not hesitate to give me a call.

Thank you.

Sincerely,

William E. Merten, RPLS, LSLS Director of Surveying - Houston

Cc: Mr. Tony Williams, GLO Asset Inspections Mr. John Neal, GLO LaPorte Office Mr. Jack Carmody, Carmody Investments

TEXAS GENERAL LAND OFFICE Art. 33.136, Natural Resources Code Co. Harris , Skatch No. 8, Sheet 4 File Date 10-10-2006 by D. J. H.

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# SURVEYORS REPORT SURVEY OF THE LITTORAL BOUNDARY WITHIN SEABROOK ISLAND SECTION TWO IN THE RITSON MORRIS SURVEY, ABSTRACT NUMBER 52 HARRIS COUNTY, TEXAS

At the request of Taylor Lake Development and in my capacity as a Licensed State Land Surveyor in and for the State of Texas, I have determined the littoral boundary lines between State owned seabed and private upland owners both prior to and after development in a residential subdivision known as Seabrook Island Section Two on Taylor Lake in southeast Harris County, Texas. This survey was performed as per the requirements outlined in the Coastal Public Lands Management Act of 1973, as amended, Chapter 33, Natural Resources Code, and specifically per Section 33.136, Natural Resources Code, "Property Rights: Preservation of Littoral Rights".

The project site is located on Taylor Lake in the Ritson Morris Survey, Abstract Number 52, a Mexican Title granted on November 14, 1832. Taylor Lake a tidally influenced lake is completely surrounded by the Morris survey and flows into Clear Lake. The project site has approximately 6000 linear feet of lake frontage. To enhance the development a canal was dredged across the private land forming an "island" thus creating additional "waterfront" residential lots. Wood bulkheads were constructed entirely around the created island and along the dredged canal. Dirt fill was placed throughout the site to backfill the bulkheads and to build up pad sites in and around the Cove area near the eastern end of the project.

This survey consisted of three objectives:

- 1. Location the original littoral boundary line between State owned seabed and private upland owners prior to development of the site.
- 2. Location of the newly constructed bulkheads in relation to the original littoral boundary determined prior to development.
- 3. Location of the current line of Mean Higher High Water in the Cove area in relation to the original littoral boundary determined prior to development.

The location of the littoral boundary prior to construction posed a difficult problem in that the original boundary line was destroyed by the construction effort. In a meeting on June 8, 2000, with Tony Williams, Director of Coastal Leasing Asset Inspections, and Ben Thomson, Director of Surveying, both of the General Land Office, it was agreed that the use of rectified aerial photographs of the site prior to construction was the best method to determine the original littoral boundary. After the review of various preliminary aerial photographs, it was also agreed that this site was in an area of erosion where there existed a definite cut bank defining the littoral boundary.

Using Trimble 4000 GPS Equipment and a Topcon 802 Total Station with on board Data Collection, aerial control points surrounding the project area and the newly

Harris co. NRC Art. 33.136 Sketch 8, Sheet 5

constructed bulkhead were located. With this aerial control, a photograph having a scale of  $1^{"} = 100$ ' was prepared by Aerial Viewpoints. The photograph was taken on April 3, 1998, the year prior to the commencement of construction. Using the aerial photo, points along the littoral boundary were located and plotted to scale. On the survey plat, these points were incorporated into meander lines defining the littoral boundary. Along with the littoral boundary, the newly constructed bulkhead was plotted on the survey plat.

In the Cove section of the development, dirt fill had been placed in several areas creating a new shore line seaward of the original littoral boundary. The location of this new littoral boundary line was required to determine the extent of fill placed in Taylor Lake.

In the case of Humble Oil & Refining Co. vs. Sun Oil Co. (190 F 2d 191), the court held that "grants issued by the King of Spain and the Mexican State before the adoption of common law in Texas, the boundary between sea and upland must be determined in accordance with principals announced in Las Siete Partidas, the basic law of Spain and Mexico which defines "shore" as all ground covered with water at high tide during the whole year, whether in winter or summer."

In a decision by the Texas Supreme Court in the case of Luttes vs. State (324 SW 2nd 167, on remand 328 SW 2nd 920) it was found that the littoral boundaries for civil law grants differs from the boundaries of common law grants. The court states that for civil law grants (grants by Spain and Mexico) the boundary is the line of Mean Higher High Water (MHHW) and for common law grants (grants made by the Republic and State of Texas) the boundary is the line of Mean High Water (MHW). This case described that the best method of determining MHHW and MHW is to employ the use of scientific tide gauges.

The Luttes case defined MHHW as a tidal datum that is the average of the higher of the two daily tides observed over a specific 19 year period (epoch) and MHW as a tidal datum that is the average of all high tides over a specific 19 year period (epoch). Tides being defined as the regular and predictable rise and fall in sea level due to the gravitational pull of the sun and moon. Also, sea levels are influenced by weather conditions, geographical location and topography of the coastline. The combination of these conditions can result in a wide variation in the elevation of the tidal datum from location to location. Due to this variation, the tidal datum had to be determined at the project location. Because of the impracticality of obtaining 19 years of tide readings at a specific location, methods have been developed to correct short term observations between project site staff gauges, secondary tide gauges (gauges with more than one year but less than 19 years of observations) and a primary tide gauge (gauges with more than 19 years of observations).

Tide gauges along the Texas coastline are installed, operated and maintained by a joint effort involving the National Oceanic and Atmospheric Administration (NOAA), the Conrad Blucher Institute (CBI) and Lamar University. Tidal datum's, benchmarks and gauge readings are published and available from NOAA and CBI.

Harris Co. NRC Art. 33.136 Sketch 8, Sheet 6

The project site is located in the general vicinity of the Clear Lake Tide Gauge, a secondary gauge referenced to the Galveston Pier 21 Tide Gauge, a primary gauge in use since 1908. Recently, NOAA has adopted new procedures to compute accepted tidal datum's in the Galveston area based on more recent observations. This procedural change is due to the rise in sea level in the Galveston area, being over 0.02 feet per year, which far exceeds the U.S. average rise of 0.005 feet per year. Currently the published tidal datum for the two gauges is based on the 19-year epoch from 1960 to 1979, adjusted for the 5-year series from 1990 through 1994. Due to this relatively rapid change in sea level I felt it was necessary to compute data on a more current epoch in lieu of using the published datum's. A new tidal datum for the Galveston Pier 21 Tide Gauge was calculated for the 19-year epoch ending in May, 2000 and using the Standard Method, the Clear Lake Tide Gauge was adjusted to this same epoch.

A site staff gauge was installed and observed simultaneously with the Clear Lake Tide Gauge for three high tide cycles. These reading were compared to the Clear Lake Tide Gauge using the Amplitude Ratio Method resulting in a calculated elevation for mean higher high water at the site staff gauge.

Using the calculated elevation for the site staff gauge, points were located on the natural contour line of Mean Higher High Water throughout the Cove area. These points were incorporated into surveyed meanders delineating the current littoral boundary.

All lines surveyed were tied to the Texas Coordinate System of 1983, South Central Zone – NAD 83 (1993) using NGS Monument "HGCSD 53" for reference. The scale factor used for this project is 0.999871317.

To the best of my knowledge no artificial fill or any development prior to the construction of the wood bulkheads and site grading that would cause alteration to the littoral boundaries has occurred within the area surveyed.

A plat showing the results of this survey was prepared and filed with this report.

Respectfully submitted,

713-523-7161 August 4, 2000

William E. Merten Licensed State Land Surveyor Halff Associates, Inc. 3701 Kirby Drive, Suite 1290 Houston, Texas 77098

Harris Co. NRC Art. 33.136 Sketch 8, Sheet 7