#8

GEOTECHNICAL ENGINEERS INC.

RESULTS OF SECOND OBSERVATION EPOCH MONITORING OF CREST AND SURVEY MONUMENTS BALL MOUNTAIN DAM JAMAICA, VERMONT

Delivery Order No. 8
Contract DACW33-85-D-0010

November 26, 1986

Submitted to

U.S. Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, Massachusetts 02254-9149

by

Geotechnical Engineers Inc.
1017 Main Street
Winchester, Massachusetts 01890
(617) 729-1625

Project 86003

450 Summer Street
Boston MA
02210

The BSC Group

617 350 4090

November 14, 1986

Mr. Stephen L. Whiteside, P.E.
Geotechnical Engineers, Inc.
1017 Main Street
Winchester, MA 01890

REFERENCE: Epoch 2 Analysis
Ball Mountain Dam

Dear Steve:

I am pleased to provide the attached copies of the network analysis resulting from the observations undertaken during Epoch 2. In your review of the error ellipse data the following should be noted:

- Absolute Error Ellipses: a graphic display of a minimally constrained solution, point 166 (pillar P6) was held fixed in addition to the azimuth of line 164 - 166 (Pillars P4 and P6)

- Relative Error Ellipses, this graphic output shows both the design and actual ellipses at the 95% level of confidence. There is conformity between both ellipses which is indicative of adherence with the project specifications.

After the next campaign a rigorous analysis will be performed utilizing Intergraph's Localization and Analysis of Deformations (LAD) software. At this time, deformations will be determined for the network stations and for the slope and crest monuments.

Sincerely,

THE BSC GROUP
Boston Survey Consultants

Kevin

Kevin Hanley, P.L.S.
Division Manager

KH/gh
1-1654.00

Engineers
Surveyors
Scientists
Architects
Landscape Architects
Planners

The BSC Group

BALL MOUNTAIN DAM

JAMAICA, VERMONT

EPOCH 2

DEFORMATION ANALYSIS

SEPTEMBER 1986

STATION NUMBERING

At the present time, alpha-numeric station numbering cannot be used in Intergraph's Geodetic Network Analysis software. The following list shows the analysis station numbering which corresponds with the standard nomenclature.

Pillars		Crest/Slope Monuments "A"-line		"B"-line		"C"-line	
P1	161	A1	31	B1	21	C1	11
P2	162	A2	32	B2	22	C2	12
P3	163	A3	33	B3	23	C3	13
P4	164	A4	34	B4	24	C4	14
P5	165	A5	35	B5	25	C5	15
P6	166	A6	36	B6	26	C6	16
		A7	37	B7	27	C7	17
		A8	38	B8	28	C8	18
		A9	39	B9	29	C9	19

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TIME: 20:07:17 DATE: 12-NOV-86

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*                                                                           *
*  GNA PARAMETER FILE  :: BOSTON SURVEY CONSULANTS INC.                     *
*                         BALL MOUNTAIN DAM, JAMAICA VT.                    *
*                         PROJECT NO. 1-1654.00                             *
*                         EPOCH TWO                                         *
*                                                                           *
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PROJECT INFORMATION:

BOSTON SURVEY CONSULTANTS
BALL MOUNTAIN DAM EPOCH 2
11654002.DBS -HORIZONTAL

GEODETIC NETWORK ANALYSIS
SLAP #797
INTERGRAPH CORPORATION
ONE MADISON INDUSTRIAL PARK
HUNTSVILLE, ALABAMA USA 35805

1.0 OPTIONS REPORT

O P T I O N S I N E F F E C T

PROGRAM CONTROL:

- PREANALYSIS OR ADJUSTMENT ..... ADJUSTMENT
- PERFORM VARIANCE COMPONENT ESTIMATION ..... NO
- ANGULAR I/O IN DEGREES OF GRADS ..... DEGREES
- LINEAR I/O IN METERS OR FEET ..... METERS
- MAXIMUM CPU TIME ..... 9999.0 SECONDS
- MAXIMUM NUMBER OF LEAST-SQUARES ITERATIONS 10
- ITERATION CONVERGENCE BOUNDARY VALUE 0.000100
- NUMBER OF EIGENVALUES COMPUTED ..... NONE

DEFAULT STANDARD DEVIATIONS:

MEASUREMENT TYPE	STANDARD DEVIATION
DIRECTIONS	0.01000 SEC
AZIMUTHS	0.01000 SEC
ANGULAR TARGET ECCENTRICITY	0.00000 CM
CONSTANT PART OF EDM MEASUREMENT	0.25000 CM
VARIABLE PART OF EDM MEASUREMENT	5.00000 PPM
ZENITH DISTANCE	0.70000 SEC
HEIGHT DIFFERENCE	0.10000 CM
WEIGHTED STATIONS	0.00100 CM

EDM RELATED FACTORS:

- MEAN RADIUS OF EARTH ..... 6378.0 KM
- EDM PHASE SHIFT ..... 0.00000 DEG
- EDM WAVELENGTH ..... 10.00000 METERS
- EDM ZERO ERROR ..... -0.25000 CM
- NETWORK SCALE FACTOR ..... 0.00000 PPM
- EDM CYCLIC ERROR (AMPLITUDE) ..... 0.00000 CM
- REFRACTION COEFFICIENT 0.130

2.1 FIXED STATIONS INPUT REPORT

STATION NAME	FIXED COORDINATES EASTING (METERS)	STD. DEV. (CM)	NORTHING (METERS)	STD. DEV. (CM)	ELEVATION (METERS)	STD. DEV. (CM)
166	10000.0376		9999.9562		1000.0000	

2.2 FREE STATIONS INPUT REPORT

STATION NAME	PRELIMINARY COORDINATES EASTING (METERS)	STD. DEV. (CM)	NORTHING (METERS)	STD. DEV. (CM)	ELEVATION (METERS)	STD. DEV. (CM)
11	9977.1180		10173.6813		1000.3652	FIXED
12	9979.0457		10174.9292		1000.4073	FIXED
1218	9846.9511		10016.2084		1010.9505	FIXED
13	9980.7109		10173.6663		1000.1920	FIXED
14	9995.5499		10177.1486		992.6119	FIXED
15	10022.2480		10176.3926		977.6857	FIXED
16	10026.6265		10176.3898		975.1160	FIXED
161	9884.6171		9926.4503		1000.9619	FIXED
162	10087.6907		9917.4357		1014.8176	FIXED
163	10203.6895		10080.8575		924.7435	FIXED
164	10000.0376		10273.8141		1006.2115	FIXED
165	9843.3644		10241.7545		1009.5959	FIXED
17	10039.5987		10175.6123		966.7571	FIXED
18	10050.7138		10174.8516		960.3082	FIXED
19	10076.4320		10173.1752		946.5979	FIXED
21	9977.1003		10124.0837		1000.2669	FIXED
22	9979.5687		10123.5339		1000.3948	FIXED
23	9981.5821		10124.0348		1000.2361	FIXED
24	9996.6706		10128.3924		991.7977	FIXED
25	10020.8892		10129.7586		978.1127	FIXED
26	10028.1527		10129.6740		973.9339	FIXED
27	10040.6826		10130.6524		965.7364	FIXED
28	10050.4783		10130.9427		960.4833	FIXED
29	10075.9156		10132.3636		946.5199	FIXED
31	9981.3288		10075.7331		1000.4678	FIXED
32	9983.6872		10076.4485		1000.4731	FIXED
33	9986.1726		10076.5799		1000.0926	FIXED
34	10000.9408		10074.1711		992.0623	FIXED
35	10025.8935		10077.3734		977.6932	FIXED
36	10032.7422		10077.9119		973.8380	FIXED
37	10046.3973		10079.8531		965.2433	FIXED
38	10055.2812		10081.0788		960.4949	FIXED
39	10080.0085		10084.1964		946.7214	FIXED

2.3 WEIGHTED STATIONS INPUT REPORT

STATION NAME	WEIGHTED COORDINATES					
	EASTING (METERS)	STD. DEV. (CM)	NORTHING (METERS)	STD. DEV. (CM)	ELEVATION (METERS)	STD. DEV. (CM)

THERE ARE NO WEIGHTED STATIONS

2.4 OBSERVED DIRECTIONS INPUT REPORT

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (DEG-MIN-SEC)	STAND. DEV. (SEC)	MISCLOSURE (SEC)
161	165	0- 0- 0.000	0.700	0.000
161	164	25-50- 3.200	0.700	-0.344
161	11	27-58- 1.800	0.700	0.059
161	12	28-15-43.700	0.700	0.298
161	13	28-41-43.000	0.700	0.189
161	21	32-31-52.700	0.700	-0.089
161	22	33-10-41.000	0.700	0.469
161	23	33-35-36.500	0.700	-0.180
161	31	40-23-27.400	0.700	0.514
161	32	40-53-52.300	0.700	0.556
161	33	41-31-49.800	0.700	0.343
161	1218	344-41-21.400	0.700	0.604
162	165	0- 0- 0.000	0.700	0.000
162	31	3- 5-42.900	0.700	0.888
162	32	3-48-21.000	0.700	0.714
162	33	4-27-33.000	0.700	1.256
162	34	8- 1-45.200	0.700	0.884
162	35	15-52- 1.400	0.700	0.405
162	36	18- 5-28.100	0.700	0.651
162	37	22-43-40.800	0.700	0.597
162	38	25-47-24.600	0.700	-0.003
162	29	33-51-24.600	0.700	0.346
162	28	27- 6-21.500	0.700	0.669
162	27	24-33-34.700	0.700	0.614
162	26	21-19-21.600	0.700	0.506
162	25	19-31-40.500	0.700	0.090
162	24	13-39-14.800	0.700	-0.298
162	23	9-48-28.100	0.700	0.215
162	22	9-18-37.700	0.700	-0.073
162	21	8-50-19.800	0.700	0.929
162	11	13-39- 7.200	0.700	0.310
162	12	14- 6-58.200	0.700	0.097
162	13	14-19-53.000	0.700	-0.103
162	14	17-27-32.400	0.700	0.052
162	15	22-48-36.300	0.700	0.361
162	16	23-43-27.200	0.700	0.613
162	17	26-26-27.800	0.700	1.081
162	18	28-49- 7.000	0.700	1.467
162	19	34-28-19.000	0.700	0.312
162	164	23-10-29.100	0.700	0.148
162	163	72-21-37.200	0.700	0.389
163	162	0- 0- 0.000	0.700	0.000
163	39	56-10-43.300	0.700	-0.324
163	38	54-43- 5.200	0.700	0.988
163	37	54-15-59.000	0.700	-0.539
163	36	53-38-42.900	0.700	0.067

2.4 OBSERVED DIRECTIONS INPUT REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (DEG-MIN-SEC)	STAND. DEV. (SEC)	MISCLOSURE (SEC)
163	35	53-30-35.400	0.700	0.220
163	34	52-44-36.800	0.700	0.053
163	33	53-30-21.500	0.700	0.659
163	23	65-38- 1.000	0.700	0.786
163	24	67-33-51.900	0.700	0.496
163	25	69-36-33.000	0.700	0.690
163	26	70-10-24.900	0.700	0.074
163	27	71-37- 9.600	0.700	0.769
163	28	72-44- 6.800	0.700	0.356
163	29	76-35-14.200	0.700	1.240
163	18	86-12- 1.600	0.700	-0.382
163	17	84-38-12.200	0.700	-0.402
163	16	82-58-51.200	0.700	-0.286
163	15	82-24- 3.400	0.700	0.789
163	14	79-27-32.600	0.700	0.351
163	13	77-13-50.300	0.700	0.152
163	164	98- 5-16.000	0.700	0.335
163	166	32-58- 1.800	0.700	1.292
164	162	0- 0- 0.000	0.700	0.000
164	39	350-57- 0.000	0.700	-1.529
164	38	357-49-26.600	0.700	-0.008
164	37	0-22-30.100	0.700	-1.794
164	36	4-20-23.800	0.700	-0.781
164	35	6-19-10.000	0.700	-0.699
164	34	13-33-29.700	0.700	-1.646
164	33	17-50-18.500	0.700	-2.009
164	32	18-33-11.800	0.700	-1.406
164	31	19-12-49.500	0.700	0.863
164	21	22-31-37.500	0.700	-1.091
164	22	21-34-27.000	0.700	0.049
164	23	20-50-32.100	0.700	-0.460
164	24	15- 8-39.400	0.700	0.034
164	25	5-34-54.100	0.700	-0.118
164	26	2-46-49.600	0.700	-1.019
164	27	357-58- 5.700	0.700	0.340
164	28	354-22-20.100	0.700	-0.374
164	29	345-36-27.800	0.700	0.569
164	19	336-36-57.000	0.700	-0.583
164	18	346-42- 6.500	0.700	-0.971
164	17	351-52-31.200	0.700	-1.038
164	16	358-33- 8.200	0.700	-1.147
164	15	0-58-29.800	0.700	-0.145
164	14	16-28-33.400	0.700	-0.079
164	13	24-44-25.700	0.700	-0.759
164	11	26-42-37.000	0.700	-0.345
164	161	32-11-53.200	0.700	-0.687
164	1218	44-32-23.000	0.700	0.715

2.4 OBSERVED DIRECTIONS INPUT REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (DEG-MIN-SEC)	STAND. DEV. (SEC)	MISCLOSURE (SEC)
164	165	92-15-10.800	0.700	-1.041
164	163	327-16-23.200	0.700	-0.324
165	162	0- 0- 0.000	0.700	0.000
165	161	29-32-18.100	0.700	-1.196
165	1218	36- 4-53.600	0.700	-0.043
165	164	295-25-40.800	0.700	0.007
165	11	333-57-58.500	0.700	0.154
165	12	333-12-49.000	0.700	-0.101
165	13	333-21-43.200	0.700	-0.342
165	21	348-20-10.800	0.700	-0.051
165	22	347-56-57.900	0.700	-0.193
165	23	347-24-49.700	0.700	0.791
165	31	357-15-58.300	0.700	0.997
165	32	356-39-55.900	0.700	-0.974
165	33	356- 8-46.800	0.700	0.189
166	162	0- 0- 0.000	0.700	0.000
166	31	212-51-33.600	0.700	1.245
166	32	214-39-43.100	0.700	-0.254
166	33	216-28-15.200	0.700	-0.137
166	34	227-25-29.200	0.700	-0.192
166	35	245-11-45.800	0.700	0.453
166	36	249-29-13.600	0.700	0.449
166	37	256-51- 6.200	0.700	-0.162
166	38	260-58-56.400	0.700	1.179
166	39	270-14-17.700	0.700	-0.120
166	29	256-32-36.400	0.700	1.350
166	27	244- 0-10.600	0.700	1.027
166	26	238-57-24.400	0.700	0.153
166	25	235-51-14.300	0.700	1.121
166	24	225-13-34.500	0.700	1.306
166	23	218-16- 4.000	0.700	1.354
166	22	217-19-22.700	0.700	0.895
166	21	216-15-29.200	0.700	0.087
166	11	219-12-44.200	0.700	1.257
166	12	219-53-11.600	0.700	0.676
166	13	220-22-45.000	0.700	0.430
166	14	225-16-38.000	0.700	1.632
166	15	233-54-10.000	0.700	1.305
166	16	235-17-51.200	0.700	-0.418
166	17	239-25-11.200	0.700	-0.444
166	18	242-53-11.400	0.700	-0.344
166	19	250-31-35.500	0.700	0.508
166	163	295- 3-43.800	0.700	0.671
166	161	104-14-11.800	0.700	0.671
166	164	226-43-39.600	0.700	0.340
166	165	193-47-12.000	0.700	1.126

2.5 OBSERVED AZIMUTH INPUT REPORT

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (DEG-MIN-SEC)	STAND. DEV. (SEC)	MISCLOSURE (SEC)
166	164	0- 0- 0.000	0.010	0.000

2.6 OBSERVED HORIZONTAL DISTANCE INPUT REPORT

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (METERS)	STAN. DEV. (CM)	MISCLOSURE (CM)
164	163	280.5370	0.3903	-0.70
164	165	159.9220	0.3300	0.48
164	162	367.0010	0.4335	0.40
164	161	366.0340	0.4330	-0.11

2.7 OBSERVED SLOPE DISTANCE INPUT REPORT

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (METERS)	STAN. DEV. (CM)	MISCLOSURE (CM)

THERE ARE NO SLOPE DISTANCE OBSERVATIONS

2.8 OBSERVED SCALE DISTANCE INPUT REPORT

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (METERS)	STAN. DEV. (CM)	MISCLOSURE (CM)

THERE ARE NO SCALED DISTANCE OBSERVATIONS

2.9 OBSERVED ZENITH DISTANCE INPUT REPORT

INSTRUMENT STATION	TARGET STATION	OBSERVED VALUE (DEG-MIN-SEC)	STAND. DEV. (SEC)	MISCLOSURE (SEC)

THERE ARE NO ZENITH DISTANCE OBSERVATIONS

2.10 OBSERVED HEIGHT DIFFERENCE INPUT REPORT

FROM STATION	TO STATION	OBSERVED VALUE (METERS)	STAN. DEV. (CM)	MISCLOSURE (CM)

THERE ARE NO HEIGHT DIFFERENCE OBSERVATIONS

2.11 OBSERVED RELATIVE POSITIONS INPUT REPORT

FROM STATION	TO STATION	OBSERVED VALUE (DEG-MIN-SEC)	STAN. DEV. (SEC)

THERE ARE NO RELATIVE POSITION OBSERVATIONS

2.12 OBSERVED COORDINATE DIFFERENCE INPUT REPORT

FROM STATION	TO STATION	OBSERVED VALUES (METERS) DX	DY	DZ	COVARIANCES (CM SQUARED) XX	XY	YY	XZ	YZ	ZZ

THERE ARE NO COORDINATE DIFFERENCE OBSERVATIONS

3.0 SOLVABILITY OF NETWORK REPORT

STATION NAME	NUMBER OF TIMES OBSERVED

ALL STATIONS ARE INVOLVED IN AT LEAST TWO OBSERVATIONS

3.1 ARRAY USAGE REPORT

FACTOR	MAXIMUM ALLOWED	ACTUAL
OBSERVATIONS	9000	144
POINTS	1000	34
FIXED & WEIGHTED POINTS	99	1
ORIENTATION UNKNOWNS	1500	6
MATRIX ELEMENTS	99998	2278

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)		RELIABILITY INTERNAL	RELIABILITY EXTERNAL	HORIZONTAL DISTANCE (METERS)
161	165	O:	0- 0- 0.00	0.70		59.77	COM:	0.1 SEC	0.0 CM	317.9907
		C:	- 0- 0- 0.06	0.44			BND:	3.7 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.06	0.54	-0.11					
161	164	O:	25-50- 3.20	0.70		78.60	COM:	-0.8 SEC	0.0 CM	366.0365
		C:	25-50- 3.86	0.32			BND:	3.3 SEC	-0.1 CM	
		V=C-O:	0- 0- 0.66	0.62	1.07					
161	11	O:	27-58- 1.80	0.70		76.89	COM:	-0.1 SEC	0.0 CM	263.9677
		C:	27-58- 1.90	0.34			BND:	3.3 SEC	0.0 CM	
		V=C-O:	0- 0- 0.10	0.61	0.17					
161	12	O:	28-15-43.70	0.70		55.14	COM:	0.2 SEC	0.0 CM	265.8155
		C:	28-15-43.59	0.47			BND:	3.9 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.11	0.52	-0.20					
161	13	O:	28-41-43.00	0.70		77.20	COM:	0.0 SEC	0.0 CM	265.2341
		C:	28-41-42.98	0.33			BND:	3.3 SEC	0.0 CM	
		V=C-O:	- 0- 0- 0.02	0.62	-0.03					
161	21	O:	32-31-52.70	0.70		57.82	COM:	-0.3 SEC	0.0 CM	218.2008
		C:	32-31-52.89	0.45			BND:	3.8 SEC	0.2 CM	
		V=C-O:	0- 0- 0.19	0.53	0.36					
161	22	O:	33-10-41.00	0.70		57.44	COM:	0.7 SEC	0.0 CM	218.7629
		C:	33-10-40.59	0.46			BND:	3.8 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.41	0.53	-0.77					
161	23	O:	33-35-36.50	0.70		65.38	COM:	-0.6 SEC	0.0 CM	220.0938
		C:	33-35-36.87	0.41			BND:	3.6 SEC	0.1 CM	
		V=C-O:	0- 0- 0.37	0.57	0.65					
161	31	O:	40-23-27.40	0.70		30.44	COM:	1.0 SEC	0.1 CM	177.8707
		C:	40-23-27.10	0.58			BND:	5.2 SEC	0.3 CM	
		V=C-O:	- 0- 0- 0.30	0.39	-0.77					
161	32	O:	40-53-52.30	0.70		31.87	COM:	1.1 SEC	0.1 CM	179.7605
		C:	40-53-51.94	0.58			BND:	5.1 SEC	0.3 CM	
		V=C-O:	- 0- 0- 0.36	0.40	-0.91					
161	33	O:	41-31-49.80	0.70		52.24	COM:	0.2 SEC	0.0 CM	181.2510
		C:	41-31-49.71	0.48			BND:	4.0 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.09	0.51	-0.19					
161	1218	O:	344-41-21.40	0.70		3.77	COM:	-0.4 SEC	0.0 CM	97.3440
		C:	344-41-21.42	0.69			BND:	14.9 SEC	0.7 CM	
		V=C-O:	0- 0- 0.02	0.14	0.12					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
162	165	O:	0- 0- 0.00	0.70		76.60	COM:	-0.6 SEC	0.0 CM	406.0521
		C:	0- 0- 0.47	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.47	0.61	0.76					
162	31	O:	3- 5-42.90	0.70		68.87	COM:	0.6 SEC	0.0 CM	190.7119
		C:	3- 5-42.51	0.39			BND:	3.5 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.39	0.58	-0.67					
162	32	O:	3-48-21.00	0.70		67.98	COM:	0.3 SEC	0.0 CM	190.0051
		C:	3-48-20.78	0.40			BND:	3.5 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.22	0.58	-0.38					
162	33	O:	4-27-33.00	0.70		76.01	COM:	1.0 SEC	0.0 CM	188.7669
		C:	4-27-32.28	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.72	0.61	-1.19					
162	34	O:	8- 1-45.20	0.70		65.52	COM:	0.7 SEC	0.0 CM	179.1414
		C:	8- 1-44.72	0.41			BND:	3.6 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.48	0.57	-0.84					
162	35	O:	15-52- 1.40	0.70		60.45	COM:	0.0 SEC	0.0 CM	171.4614
		C:	15-52- 1.41	0.44			BND:	3.7 SEC	0.1 CM	
		V=C-O:	0- 0- 0.01	0.54	0.01					
162	36	O:	18- 5-28.10	0.70		59.29	COM:	0.3 SEC	0.0 CM	169.6231
		C:	18- 5-27.92	0.45			BND:	3.8 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.18	0.54	-0.33					
162	37	O:	22-43-40.80	0.70		57.34	COM:	0.2 SEC	0.0 CM	167.5847
		C:	22-43-40.67	0.46			BND:	3.8 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.13	0.53	-0.25					
162	38	O:	25-47-24.60	0.70		55.77	COM:	-0.8 SEC	0.0 CM	166.8217
		C:	25-47-25.04	0.47			BND:	3.9 SEC	0.2 CM	
		V=C-O:	0- 0- 0.44	0.52	0.84					
162	29	O:	33-51-24.60	0.70		70.49	COM:	-0.2 SEC	0.0 CM	215.2505
		C:	33-51-24.72	0.38			BND:	3.4 SEC	0.1 CM	
		V=C-O:	0- 0- 0.12	0.59	0.21					
162	28	O:	27- 6-21.50	0.70		57.93	COM:	0.4 SEC	0.0 CM	216.7259
		C:	27- 6-21.26	0.45			BND:	3.8 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.24	0.53	-0.45					
162	27	O:	24-33-34.70	0.70		77.95	COM:	0.3 SEC	0.0 CM	218.3375
		C:	24-33-34.49	0.33			BND:	3.3 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.21	0.62	-0.34					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
162	26	O:	21-19-21.60	0.70		78.51	COM:	0.1 SEC	0.0 CM	220.4314
		C:	21-19-21.54	0.32			BND:	3.3 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.06	0.62	-0.10					
162	25	O:	19-31-40.50	0.70		78.40	COM:	-0.5 SEC	0.0 CM	222.5839
		C:	19-31-40.87	0.33			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.37	0.62	0.59					
162	24	O:	13-39-14.80	0.70		75.80	COM:	-0.9 SEC	0.0 CM	229.7554
		C:	13-39-15.50	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.70	0.61	1.15					
162	23	O:	9-48-28.10	0.70		81.23	COM:	-0.3 SEC	0.0 CM	232.2550
		C:	9-48-28.36	0.30			BND:	3.2 SEC	0.0 CM	
		V=C-O:	0- 0- 0.26	0.63	0.41					
162	22	O:	9-18-37.70	0.70		76.28	COM:	-0.7 SEC	0.0 CM	232.7381
		C:	9-18-38.23	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.53	0.61	0.86					
162	21	O:	8-50-19.80	0.70		76.45	COM:	0.5 SEC	0.0 CM	234.3797
		C:	8-50-19.38	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.42	0.61	-0.69					
162	11	O:	13-39- 7.20	0.70		83.46	COM:	-0.2 SEC	0.0 CM	279.0848
		C:	13-39- 7.35	0.28			BND:	3.2 SEC	0.0 CM	
		V=C-O:	0- 0- 0.15	0.64	0.24					
162	12	O:	14- 6-58.20	0.70		77.70	COM:	-0.5 SEC	0.0 CM	279.4760
		C:	14- 6-58.57	0.33			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.37	0.62	0.60					
162	13	O:	14-19-53.00	0.70		85.62	COM:	-0.6 SEC	0.0 CM	277.6671
		C:	14-19-53.55	0.27			BND:	3.1 SEC	0.0 CM	
		V=C-O:	0- 0- 0.55	0.65	0.85					
162	14	O:	17-27-32.40	0.70		80.94	COM:	-0.5 SEC	0.0 CM	275.5738
		C:	17-27-32.79	0.31			BND:	3.2 SEC	0.0 CM	
		V=C-O:	0- 0- 0.39	0.63	0.61					
162	15	O:	22-48-36.30	0.70		86.37	COM:	-0.1 SEC	0.0 CM	267.0986
		C:	22-48-36.40	0.26			BND:	3.1 SEC	0.0 CM	
		V=C-O:	0- 0- 0.10	0.65	0.16					
162	16	O:	23-43-27.20	0.70		86.15	COM:	0.2 SEC	0.0 CM	266.0568
		C:	23-43-27.01	0.26			BND:	3.1 SEC	0.0 CM	
		V=C-O:	- 0- 0- 0.19	0.65	-0.29					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
162	17	O:	26-26-27.80	0.70		83.80	COM:	0.8 SEC	0.0 CM	262.6180
		C:	26-26-27.14	0.28			BND:	3.2 SEC	0.0 CM	
		V=C-O:	- 0- 0- 0.66	0.64	-1.03					
162	18	O:	28-49- 7.00	0.70		80.66	COM:	1.3 SEC	0.0 CM	260.0585
		C:	28-49- 5.99	0.31			BND:	3.2 SEC	0.1 CM	
		V=C-O:	- 0- 0- 1.01	0.63	-1.61					
162	19	O:	34-28-19.00	0.70		72.51	COM:	-0.1 SEC	0.0 CM	255.9876
		C:	34-28-19.10	0.37			BND:	3.4 SEC	0.1 CM	
		V=C-O:	0- 0- 0.10	0.60	0.17					
162	164	O:	23-10-29.10	0.70		88.75	COM:	-0.3 SEC	0.0 CM	367.0000
		C:	23-10-29.40	0.23			BND:	3.1 SEC	0.0 CM	
		V=C-O:	0- 0- 0.30	0.66	0.46					
162	163	O:	72-21-37.20	0.70		50.18	COM:	-0.1 SEC	0.0 CM	200.4058
		C:	72-21-37.26	0.49			BND:	4.1 SEC	0.2 CM	
		V=C-O:	0- 0- 0.06	0.50	0.12					
163	162	O:	0- 0- 0.00	0.70		34.05	COM:	-0.[illegible] SEC	0.0 CM	200.4058
		C:	0- 0- 0.28	0.57			BND:	5.[illegible] SEC	0.2 CM	
		V=C-O:	0- 0- 0.28	0.41	0.69					
163	39	O:	56-10-43.30	0.70		23.99	COM:	-2.8 SEC	-0.1 CM	123.7262
		C:	56-10-43.98	0.61			BND:	5.9 SEC	0.3 CM	
		V=C-O:	0- 0- 0.68	0.34	1.97					
163	38	O:	54-43- 5.20	0.70		32.53	COM:	2.2 SEC	0.1 CM	148.4086
		C:	54-43- 4.47	0.57			BND:	5.1 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.73	0.40	-1.83					
163	37	O:	54-15-59.00	0.70		32.95	COM:	-2.6 SEC	-0.1 CM	157.2956
		C:	54-15-59.85	0.57			BND:	5.0 SEC	0.3 CM	
		V=C-O:	0- 0- 0.85	0.40	2.11					
163	36	O:	53-38-42.90	0.70		31.54	COM:	-0.7 SEC	0.0 CM	170.9728
		C:	53-38-43.11	0.58			BND:	5.1 SEC	0.3 CM	
		V=C-O:	0- 0- 0.21	0.39	0.53					
163	35	O:	53-30-35.40	0.70		29.58	COM:	-0.2 SEC	0.0 CM	177.8304
		C:	53-30-35.45	0.59			BND:	5.3 SEC	0.3 CM	
		V=C-O:	0- 0- 0.05	0.38	0.12					
163	34	O:	52-44-36.80	0.70		20.48	COM:	-1.4 SEC	-0.1 CM	202.8592
		C:	52-44-37.09	0.62			BND:	6.4 SEC	0.5 CM	
		V=C-O:	0- 0- 0.29	0.32	0.90					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION	OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
163	33	O: 53-30-21.50	0.70		46.97	COM:	0.5 SEC	0.0 CM	217.5592
		C: 53-30-21.27	0.51			BND:	4.2 SEC	0.2 CM	
		V=C-O: - 0- 0- 0.23	0.48	-0.49					
163	23	O: 65-38- 1.00	0.70		49.22	COM:	0.9 SEC	0.0 CM	226.2655
		C: 65-38- 0.56	0.50			BND:	4.1 SEC	0.2 CM	
		V=C-O: - 0- 0- 0.44	0.49	-0.89					
163	24	O: 67-33-51.90	0.70		10.68	COM:	1.9 SEC	0.2 CM	212.4065
		C: 67-33-51.69	0.66			BND:	8.8 SEC	0.8 CM	
		V=C-O: - 0- 0- 0.21	0.23	-0.90					
163	25	O: 69-36-33.00	0.70		13.30	COM:	2.5 SEC	0.2 CM	189.2283
		C: 69-36-32.67	0.65			BND:	7.9 SEC	0.6 CM	
		V=C-O: - 0- 0- 0.33	0.26	-1.30					
163	26	O: 70-10-24.90	0.70		16.29	COM:	-1.4 SEC	-0.1 CM	182.1985
		C: 70-10-25.13	0.64			BND:	7.2 SEC	0.5 CM	
		V=C-O: 0- 0- 0.23	0.28	0.83					
163	27	O: 71-37- 9.60	0.70		21.15	COM:	2.2 SEC	0.1 CM	170.4431
		C: 71-37- 9.13	0.62			BND:	6.3 SEC	0.4 CM	
		V=C-O: - 0- 0- 0.47	0.32	-1.44					
163	28	O: 72-44- 6.80	0.70		1.41	COM:	2.7 SEC	0.2 CM	161.1902
		C: 72-44- 6.76	0.70			BND:	24.4 SEC	1.9 CM	
		V=C-O: - 0- 0- 0.04	0.08	-0.45					
163	29	O: 76-35-14.20	0.70		25.88	COM:	3.5 SEC	0.2 CM	137.7646
		C: 76-35-13.30	0.60			BND:	5.7 SEC	0.3 CM	
		V=C-O: - 0- 0- 0.90	0.36	-2.54					
163	18	O: 86-12- 1.60	0.70		37.02	COM:	-2.0 SEC	-0.1 CM	179.5454
		C: 86-12- 2.32	0.56			BND:	4.8 SEC	0.3 CM	
		V=C-O: 0- 0- 0.72	0.43	1.69					
163	17	O: 84-38-12.20	0.70		30.48	COM:	-2.4 SEC	-0.1 CM	189.4845
		C: 84-38-12.94	0.58			BND:	5.2 SEC	0.3 CM	
		V=C-O: 0- 0- 0.74	0.39	1.91					
163	16	O: 82-58-51.20	0.70		19.19	COM:	-3.0 SEC	-0.2 CM	201.1910
		C: 82-58-51.78	0.63			BND:	6.6 SEC	0.5 CM	
		V=C-O: 0- 0- 0.58	0.31	1.89					
163	15	O: 82-24- 3.40	0.70		15.12	COM:	2.7 SEC	0.2 CM	205.0563
		C: 82-24- 3.00	0.64			BND:	7.4 SEC	0.6 CM	
		V=C-O: - 0- 0- 0.40	0.27	-1.47					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)		RELIABILITY INTERNAL	RELIABILITY EXTERNAL	HORIZONTAL DISTANCE (METERS)
163	14	O:	79-27-32.60	0.70		9.15	COM:	0.2 SEC	0.0 CM	229.3343
		C:	79-27-32.58	0.67			BND:	9.6 SEC	1.0 CM	
		V=C-O:	- 0- 0- 0.02	0.21	-0.09					
163	13	O:	77-13-50.30	0.70		59.69	COM:	-0.3 SEC	0.0 CM	241.5224
		C:	77-13-50.49	0.44			BND:	3.7 SEC	0.2 CM	
		V=C-O:	0- 0- 0.19	0.54	0.36					
163	164	O:	98- 5-16.00	0.70		70.34	COM:	0.0 SEC	0.0 CM	280.5469
		C:	98- 5-15.99	0.38			BND:	3.4 SEC	0.0 CM	
		V=C-O:	- 0- 0- 0.01	0.59	-0.02					
163	166	O:	32-58- 1.80	0.70		66.73	COM:	1.6 SEC	0.0 CM	219.1329
		C:	32-58- 0.76	0.40			BND:	3.5 SEC	0.0 CM	
		V=C-O:	- 0- 0- 1.04	0.57	-1.81					
164	162	O:	0- 0- 0.00	0.70		80.40	COM:	0.7 SEC	0.0 CM	367.0000
		C:	- 0- 0- 0.59	0.31			BND:	3.2 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.59	0.63	-0.95					
164	39	O:	350-57- 0.00	0.70		43.71	COM:	-2.1 SEC	-0.1 CM	205.7920
		C:	350-57- 0.91	0.53			BND:	4.4 SEC	0.2 CM	
		V=C-O:	0- 0- 0.91	0.46	1.97					
164	38	O:	357-49-26.60	0.70		67.86	COM:	0.8 SEC	0.0 CM	200.4966
		C:	357-49-26.03	0.40			BND:	3.5 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.57	0.58	-0.99					
164	37	O:	0-22-30.10	0.70		70.22	COM:	-1.7 SEC	0.0 CM	199.4247
		C:	0-22-31.28	0.38			BND:	3.4 SEC	0.1 CM	
		V=C-O:	0- 0- 1.18	0.59	2.02					
164	36	O:	4-20-23.80	0.70		74.54	COM:	-0.2 SEC	0.0 CM	198.6137
		C:	4-20-23.95	0.35			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.15	0.60	0.26					
164	35	O:	6-19-10.00	0.70		76.83	COM:	-0.2 SEC	0.0 CM	198.1353
		C:	6-19-10.12	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.12	0.61	0.20					
164	34	O:	13-33-29.70	0.70		81.65	COM:	-1.3 SEC	0.0 CM	199.6453
		C:	13-33-30.80	0.30			BND:	3.2 SEC	0.0 CM	
		V=C-O:	0- 0- 1.10	0.63	1.73					
164	33	O:	17-50-18.50	0.70		79.40	COM:	-1.8 SEC	0.0 CM	197.7211
		C:	17-50-19.90	0.32			BND:	3.2 SEC	0.0 CM	
		V=C-O:	0- 0- 1.40	0.62	2.24					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
164	32	O:	18-33-11.80	0.70		75.86	COM:	-1.1 SEC	0.0 CM	198.0419
		C:	18-33-12.63	0.34			BND:	3.3 SEC	0.1 CM	
		V=C-O:	0- 0- 0.83	0.61	1.36					
164	31	O:	19-12-49.50	0.70		74.62	COM:	2.0 SEC	0.0 CM	198.9628
		C:	19-12-48.03	0.35			BND:	3.3 SEC	0.1 CM	
		V=C-O:	- 0- 0- 1.47	0.60	-2.43					
164	21	O:	22-31-37.50	0.70		53.27	COM:	-0.9 SEC	0.0 CM	151.4772
		C:	22-31-38.00	0.48			BND:	4.0 SEC	0.1 CM	
		V=C-O:	0- 0- 0.50	0.51	0.98					
164	22	O:	21-34-27.00	0.70		55.16	COM:	1.0 SEC	0.0 CM	151.6679
		C:	21-34-26.45	0.47			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.55	0.52	-1.06					
164	23	O:	20-50-32.10	0.70		58.73	COM:	0.3 SEC	0.0 CM	150.9122
		C:	20-50-31.93	0.45			BND:	3.8 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.17	0.54	-0.32					
164	24	O:	15- 8-39.40	0.70		54.64	COM:	1.0 SEC	0.0 CM	145.4609
		C:	15- 8-38.83	0.47			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.57	0.52	-1.11					
164	25	O:	5-34-54.10	0.70		58.63	COM:	0.8 SEC	0.0 CM	145.5570
		C:	5-34-53.61	0.45			BND:	3.8 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.49	0.54	-0.91					
164	26	O:	2-46-49.60	0.70		58.14	COM:	-0.7 SEC	0.0 CM	146.8567
		C:	2-46-50.03	0.45			BND:	3.8 SEC	0.1 CM	
		V=C-O:	0- 0- 0.43	0.53	0.80					
164	27	O:	357-58- 5.70	0.70		56.23	COM:	1.6 SEC	0.0 CM	148.8199
		C:	357-58- 4.83	0.46			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.87	0.52	-1.66					
164	28	O:	354-22-20.10	0.70		35.12	COM:	0.5 SEC	0.0 CM	151.5143
		C:	354-22-19.91	0.56			BND:	4.9 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.19	0.41	-0.45					
164	29	O:	345-36-27.80	0.70		53.90	COM:	2.2 SEC	0.1 CM	160.5173
		C:	345-36-26.63	0.48			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 1.17	0.51	-2.28					
164	19	O:	336-36-57.00	0.70		4.54	COM:	-0.6 SEC	0.0 CM	126.3500
		C:	336-36-57.02	0.68			BND:	13.6 SEC	0.8 CM	
		V=C-O:	0- 0- 0.02	0.15	0.17					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
164	18	O:	346-42- 6.50	0.70		33.06	COM:	-1.1 SEC	0.0 CM	111.1832
		C:	346-42- 6.87	0.57			BND:	5.0 SEC	0.2 CM	
		V=C-O:	0- 0- 0.37	0.40	0.92					
164	17	O:	351-52-31.20	0.70		32.47	COM:	-1.6 SEC	-0.1 CM	105.8711
		C:	351-52-31.71	0.58			BND:	5.1 SEC	0.2 CM	
		V=C-O:	0- 0- 0.51	0.40	1.27					
164	16	O:	358-33- 8.20	0.70		31.50	COM:	-1.9 SEC	-0.1 CM	100.9876
		C:	358-33- 8.81	0.58			BND:	5.2 SEC	0.2 CM	
		V=C-O:	0- 0- 0.61	0.39	1.56					
164	15	O:	0-58-29.80	0.70		31.04	COM:	1.6 SEC	0.1 CM	99.9213
		C:	0-58-29.31	0.58			BND:	5.2 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.49	0.39	-1.27					
164	14	O:	16-28-33.40	0.70		22.34	COM:	2.2 SEC	0.1 CM	96.7697
		C:	16-28-32.92	0.62			BND:	6.1 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.48	0.33	-1.45					
164	13	O:	24-44-25.70	0.70		28.21	COM:	-0.6 SEC	0.0 CM	101.9957
		C:	24-44-25.88	0.59			BND:	5.4 SEC	0.2 CM	
		V=C-O:	0- 0- 0.18	0.37	0.49					
164	11	O:	26-42-37.00	0.70		26.86	COM:	1.0 SEC	0.0 CM	102.7225
		C:	26-42-36.73	0.60			BND:	5.6 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.27	0.36	-0.73					
164	161	O:	32-11-53.20	0.70		65.29	COM:	0.7 SEC	0.0 CM	366.0365
		C:	32-11-52.76	0.41			BND:	3.6 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.44	0.57	-0.78					
164	1218	O:	44-32-23.00	0.70		18.00	COM:	0.2 SEC	0.0 CM	299.6571
		C:	44-32-22.96	0.63			BND:	6.8 SEC	0.8 CM	
		V=C-O:	- 0- 0- 0.04	0.30	-0.12					
164	165	O:	92-15-10.80	0.70		37.46	COM:	-0.7 SEC	0.0 CM	159.9198
		C:	92-15-11.06	0.55			BND:	4.7 SEC	0.2 CM	
		V=C-O:	0- 0- 0.26	0.43	0.61					
164	163	O:	327-16-23.20	0.70		56.54	COM:	0.4 SEC	0.0 CM	280.5469
		C:	327-16-22.98	0.46			BND:	3.8 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.22	0.53	-0.43					
165	162	O:	0- 0- 0.00	0.70		71.59	COM:	-0.1 SEC	0.0 CM	406.0521
		C:	0- 0- 0.09	0.37			BND:	3.4 SEC	0.0 CM	
		V=C-O:	0- 0- 0.09	0.59	0.15					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
165	161	O:	29-32-18.10	0.70		44.84	COM:	-0.8 SEC	-0.1 CM	317.9907
		C:	29-32-18.46	0.52			BND:	4.3 SEC	0.3 CM	
		V=C-O:	0- 0- 0.36	0.47	0.76					
165	1218	O:	36- 4-53.60	0.70		47.56	COM:	-0.1 SEC	0.0 CM	225.5710
		C:	36- 4-53.66	0.51			BND:	4.2 SEC	0.2 CM	
		V=C-O:	0- 0- 0.06	0.48	0.12					
165	164	O:	295-25-40.80	0.70		38.94	COM:	0.3 SEC	0.0 CM	159.9198
		C:	295-25-40.68	0.55			BND:	4.6 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.12	0.44	-0.27					
165	11	O:	333-57-58.50	0.70		14.08	COM:	1.2 SEC	0.1 CM	150.0800
		C:	333-57-58.33	0.65			BND:	7.7 SEC	0.5 CM	
		V=C-O:	- 0- 0- 0.17	0.26	-0.65					
165	12	O:	333-12-49.00	0.70		9.50	COM:	-1.0 SEC	-0.1 CM	151.2450
		C:	333-12-49.10	0.67			BND:	9.4 SEC	0.6 CM	
		V=C-O:	0- 0- 0.10	0.22	0.46					
165	13	O:	333-21-43.20	0.70		31.29	COM:	-1.1 SEC	-0.1 CM	153.2973
		C:	333-21-43.53	0.58			BND:	5.2 SEC	0.3 CM	
		V=C-O:	0- 0- 0.33	0.39	0.85					
165	21	O:	348-20-10.80	0.70		33.92	COM:	0.0 SEC	0.0 CM	178.1340
		C:	348-20-10.81	0.57			BND:	5.0 SEC	0.3 CM	
		V=C-O:	0- 0- 0.01	0.41	0.02					
165	22	O:	347-56-57.90	0.70		33.36	COM:	-0.6 SEC	0.0 CM	180.3544
		C:	347-56-58.10	0.57			BND:	5.0 SEC	0.3 CM	
		V=C-O:	0- 0- 0.20	0.40	0.50					
165	23	O:	347-24-49.70	0.70		52.16	COM:	1.4 SEC	0.1 CM	181.5547
		C:	347-24-48.95	0.48			BND:	4.0 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.75	0.51	-1.49					
165	31	O:	357-15-58.30	0.70		64.39	COM:	1.5 SEC	0.0 CM	215.8641
		C:	357-15-57.35	0.42			BND:	3.6 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.95	0.56	-1.69					
165	32	O:	356-39-55.90	0.70		63.22	COM:	-1.6 SEC	0.0 CM	216.8331
		C:	356-39-56.92	0.42			BND:	3.6 SEC	0.1 CM	
		V=C-O:	0- 0- 1.02	0.56	1.83					
165	33	O:	356- 8-46.80	0.70		69.58	COM:	0.3 SEC	0.0 CM	218.3503
		C:	356- 8-46.62	0.39			BND:	3.5 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.18	0.58	-0.30					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
166	162	O:	0- 0- 0.00	0.70		24.44	COM:	-2.1 SEC	-0.1 CM	120.3857
		C:	0- 0- 0.50	0.61			BND:	5.8 SEC	0.2 CM	
		V=C-O:	0- 0- 0.50	0.35	1.45					
166	31	O:	212-51-33.60	0.70		28.01	COM:	2.2 SEC	0.1 CM	78.0525
		C:	212-51-32.99	0.59			BND:	5.5 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.61	0.37	-1.65					
166	32	O:	214-39-43.10	0.70		28.55	COM:	-2.9 SEC	-0.1 CM	78.2205
		C:	214-39-43.93	0.59			BND:	5.4 SEC	0.1 CM	
		V=C-O:	0- 0- 0.83	0.37	2.22					
166	33	O:	216-28-15.20	0.70		28.73	COM:	-2.8 SEC	-0.1 CM	77.8683
		C:	216-28-16.00	0.59			BND:	5.4 SEC	0.1 CM	
		V=C-O:	0- 0- 0.80	0.38	2.13					
166	34	O:	227-25-29.20	0.70		17.89	COM:	-3.3 SEC	-0.1 CM	74.2206
		C:	227-25-29.78	0.63			BND:	6.8 SEC	0.2 CM	
		V=C-O:	0- 0- 0.58	0.30	1.97					
166	35	O:	245-11-45.80	0.70		18.59	COM:	-0.3 SEC	0.0 CM	81.6209
		C:	245-11-45.85	0.63			BND:	6.7 SEC	0.2 CM	
		V=C-O:	0- 0- 0.05	0.30	0.17					
166	36	O:	249-29-13.60	0.70		19.36	COM:	-0.8 SEC	0.0 CM	84.5382
		C:	249-29-13.76	0.63			BND:	6.6 SEC	0.2 CM	
		V=C-O:	0- 0- 0.16	0.31	0.53					
166	37	O:	256-51- 6.20	0.70		22.23	COM:	-3.2 SEC	-0.1 CM	92.3730
		C:	256-51- 6.90	0.62			BND:	6.1 SEC	0.2 CM	
		V=C-O:	0- 0- 0.70	0.33	2.12					
166	38	O:	260-58-56.40	0.70		24.74	COM:	2.6 SEC	0.1 CM	98.1466
		C:	260-58-55.77	0.61			BND:	5.8 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.63	0.35	-1.81					
166	39	O:	270-14-17.70	0.70		20.88	COM:	-3.0 SEC	-0.1 CM	116.1542
		C:	270-14-18.33	0.62			BND:	6.3 SEC	0.3 CM	
		V=C-O:	0- 0- 0.63	0.32	1.97					
166	29	O:	256-32-36.40	0.70		31.56	COM:	2.5 SEC	0.1 CM	152.6082
		C:	256-32-35.60	0.58			BND:	5.1 SEC	0.3 CM	
		V=C-O:	- 0- 0- 0.80	0.39	-2.03					
166	27	O:	244- 0-10.60	0.70		34.96	COM:	1.6 SEC	0.1 CM	136.8706
		C:	244- 0-10.04	0.56			BND:	4.9 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.56	0.41	-1.35					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
166	26	O:	238-57-24.40	0.70		38.14	COM:	-1.0 SEC	0.0 CM	132.7299
		C:	238-57-24.78	0.55			BND:	4.7 SEC	0.2 CM	
		V=C-O:	0- 0- 0.38	0.43	0.88					
166	25	O:	235-51-14.30	0.70		40.65	COM:	1.5 SEC	0.1 CM	131.4668
		C:	235-51-13.71	0.54			BND:	4.5 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.59	0.45	-1.33					
166	24	O:	225-13-34.50	0.70		47.13	COM:	1.8 SEC	0.1 CM	128.4805
		C:	225-13-33.66	0.51			BND:	4.2 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.84	0.48	-1.74					
166	23	O:	218-16- 4.00	0.70		54.20	COM:	1.4 SEC	0.0 CM	125.4439
		C:	218-16- 3.24	0.47			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.76	0.52	-1.47					
166	22	O:	217-19-22.70	0.70		53.82	COM:	0.7 SEC	0.0 CM	125.2618
		C:	217-19-22.30	0.48			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.40	0.51	-0.78					
166	21	O:	216-15-29.20	0.70		54.02	COM:	-1.0 SEC	0.0 CM	126.2293
		C:	216-15-29.72	0.47			BND:	3.9 SEC	0.1 CM	
		V=C-O:	0- 0- 0.52	0.51	1.02					
166	11	O:	219-12-44.20	0.70		72.40	COM:	1.0 SEC	0.0 CM	175.2308
		C:	219-12-43.51	0.37			BND:	3.4 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.69	0.60	-1.16					
166	12	O:	219-53-11.60	0.70		42.31	COM:	0.2 SEC	0.0 CM	176.2280
		C:	219-53-11.50	0.53			BND:	4.4 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.10	0.46	-0.21					
166	13	O:	220-22-45.00	0.70		73.22	COM:	-0.2 SEC	0.0 CM	174.7822
		C:	220-22-45.11	0.36			BND:	3.4 SEC	0.1 CM	
		V=C-O:	0- 0- 0.11	0.60	0.19					
166	14	O:	225-16-38.00	0.70		72.26	COM:	1.5 SEC	0.0 CM	177.2495
		C:	225-16-36.89	0.37			BND:	3.4 SEC	0.1 CM	
		V=C-O:	- 0- 0- 1.11	0.60	-1.86					
166	15	O:	233-54-10.00	0.70		54.52	COM:	1.4 SEC	0.0 CM	177.8292
		C:	233-54- 9.23	0.47			BND:	3.9 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.77	0.52	-1.48					
166	16	O:	235-17-51.20	0.70		49.90	COM:	-1.9 SEC	-0.1 CM	178.4261
		C:	235-17-52.13	0.50			BND:	4.1 SEC	0.2 CM	
		V=C-O:	0- 0- 0.93	0.49	1.89					

4.1 ANALYSIS OF DIRECTION OBSERVATIONS REPORT (CON'D)

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY	INTERNAL	EXTERNAL	HORIZONTAL DISTANCE (METERS)
166	17	O:	239-25-11.20	0.70		38.01	COM:	-2.4 SEC	-0.1 CM	180.0563
		C:	239-25-12.12	0.55			BND:	4.7 SEC	0.2 CM	
		V=C-O:	0- 0- 0.92	0.43	2.13					
166	18	O:	242-53-11.40	0.70		31.14	COM:	-2.9 SEC	-0.2 CM	182.0895
		C:	242-53-12.29	0.58			BND:	5.2 SEC	0.3 CM	
		V=C-O:	0- 0- 0.89	0.39	2.28					
166	19	O:	250-31-35.50	0.70		16.78	COM:	0.3 SEC	0.0 CM	189.3173
		C:	250-31-35.45	0.64			BND:	7.1 SEC	0.5 CM	
		V=C-O:	- 0- 0- 0.05	0.29	-0.17					
166	163	O:	295- 3-43.80	0.70		55.67	COM:	0.2 SEC	0.0 CM	219.1329
		C:	295- 3-43.66	0.47			BND:	3.9 SEC	0.2 CM	
		V=C-O:	- 0- 0- 0.14	0.52	-0.26					
166	161	O:	104-14-11.80	0.70		13.60	COM:	-2.4 SEC	-0.1 CM	136.8377
		C:	104-14-12.13	0.65			BND:	7.8 SEC	0.4 CM	
		V=C-O:	0- 0- 0.33	0.26	1.28					
166	164	O:	226-43-39.60	0.70		83.61	COM:	-0.2 SEC	0.0 CM	273.8583
		C:	226-43-39.81	0.28			BND:	3.2 SEC	0.0 CM	
		V=C-O:	0- 0- 0.21	0.64	0.32					
166	165	O:	193-47-12.00	0.70		65.46	COM:	0.8 SEC	0.0 CM	288.1199
		C:	193-47-11.48	0.41			BND:	3.6 SEC	0.1 CM	
		V=C-O:	- 0- 0- 0.52	0.57	-0.92					

4.2 ANALYSIS OF AZIMUTH OBSERVATIONS REPORT

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (DEG-MIN-SEC)	STD. DEV. (SEC)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)	RELIABILITY INTERNAL	RELIABILITY EXTERNAL	HORIZONTAL DISTANCE (METERS)
166	164	O:	0- 0- 0.00	0.01		0.00	COM: NOT		273.8583
		C:	0- 0- 0.00	0.01			BND: CONTROLLED		
		V=C-O:	0- 0- 0.00	0.00	0.00				

4.3 ANALYSIS OF HORIZONTAL DISTANCE OBSERVATIONS REPORT

INSTRUMENT STATION	TARGET STATION		OBSERVATION DATA (METERS)	STD. DEV. (CM)	NORMALIZED RESIDUAL	REDUNDANCY NUMBER (%)		RELIABILITY INTERNAL	RELIABILITY EXTERNAL	HORIZONTAL DISTANCE (METERS)
164	163	O:	280.53700	0.39		74.75	COM:	-1.0 CM	-0.3 CM	280.5469
		C:	280.54441	0.20			BND:	1.9 CM	0.5 CM	
		V=C-O:	0.00741	0.34	2.20					
164	165	O:	159.92200	0.33		86.49	COM:	0.5 CM	0.1 CM	159.9198
		C:	159.91731	0.12			BND:	1.5 CM	0.2 CM	
		V=C-O:	-0.00469	0.31	-1.53					
164	162	O:	367.00100	0.43		65.62	COM:	0.5 CM	0.2 CM	367.0000
		C:	366.99750	0.25			BND:	2.2 CM	0.8 CM	
		V=C-O:	-0.00350	0.35	-1.00					
164	161	O:	366.03400	0.43		64.40	COM:	0.0 CM	0.0 CM	366.0365
		C:	366.03404	0.26			BND:	2.2 CM	0.8 CM	
		V=C-O:	0.00004	0.35	0.01					

5.1 ADJUSTED COORDINATES AND ABSOLUTE ERROR ELLIPSE REPORT

STATION NAME	TYPE	ADJUSTED COORDINATES (METERS)			STANDARD CONFIDENCE ERROR ELLIPSE SEMI-MAJOR	SEMI-MINOR	95% CONFIDENCE ERROR ELLIPSE SEMI-MAJOR	SEMI-MINOR	MARGINAL STANDARD DEVIATIONS	
11	FREE	EAST.:	9977.1180		LTH: 0.15 CM	0.04 CM	0.37 CM	0.09 CM	EAST.:	0.04 CM
		NORT.:	10173.6816		AZI: 174- 8-27	264- 8-27			NORT.:	0.15 CM
		ELEV.:	1000.3652	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.3793
12	FREE	EAST.:	9979.0457		LTH: 0.16 CM	0.05 CM	0.39 CM	0.13 CM	EAST.:	0.06 CM
		NORT.:	10174.9295		AZI: 170- 3- 7	260- 3- 7			NORT.:	0.16 CM
		ELEV.:	1000.4073	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.4009
1218	FREE	EAST.:	9846.9510		LTH: 0.18 CM	0.14 CM	0.43 CM	0.33 CM	EAST.:	0.14 CM
		NORT.:	10016.2123		AZI: 170-16-57	260-16-57			NORT.:	0.17 CM
		ELEV.:	1010.9505	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.0866
13	FREE	EAST.:	9980.7109		LTH: 0.15 CM	0.03 CM	0.36 CM	0.08 CM	EAST.:	0.04 CM
		NORT.:	10173.6666		AZI: 174-26- 2	264-26- 2			NORT.:	0.15 CM
		ELEV.:	1000.1920	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.3654
14	FREE	EAST.:	9995.5499		LTH: 0.17 CM	0.03 CM	0.41 CM	0.08 CM	EAST.:	0.03 CM
		NORT.:	10177.1489		AZI: 178-30-20	268-30-20			NORT.:	0.17 CM
		ELEV.:	992.6119	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.1226
15	FREE	EAST.:	10022.2480		LTH: 0.17 CM	0.04 CM	0.41 CM	0.11 CM	EAST.:	0.04 CM
		NORT.:	10176.3929		AZI: 180-59-53	270-59-53			NORT.:	0.17 CM
		ELEV.:	977.6857	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.0610
16	FREE	EAST.:	10026.6265		LTH: 0.17 CM	0.05 CM	0.40 CM	0.11 CM	EAST.:	0.05 CM
		NORT.:	10176.3901		AZI: 181-44-17	271-44-17			NORT.:	0.17 CM
		ELEV.:	975.1160	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.0979
161	FREE	EAST.:	9884.6183		LTH: 0.15 CM	0.05 CM	0.38 CM	0.12 CM	EAST.:	0.13 CM
		NORT.:	9926.4514		AZI: 233-41-18	323-41-18			NORT.:	0.10 CM
		ELEV.:	1000.9619	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.7999
162	FREE	EAST.:	10087.6908		LTH: 0.12 CM	0.04 CM	0.29 CM	0.10 CM	EAST.:	0.09 CM
		NORT.:	9917.4356		AZI: 134- 2-46	224- 2-46			NORT.:	0.09 CM
		ELEV.:	1014.8176	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.7906
163	FREE	EAST.:	10203.6897		LTH: 0.18 CM	0.06 CM	0.44 CM	0.14 CM	EAST.:	0.17 CM
		NORT.:	10080.8576		AZI: 246-23-39	336-23-39			NORT.:	0.09 CM
		ELEV.:	924.7435	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.7221
164	FREE	EAST.:	10000.0376		LTH: 0.21 CM	0.00 CM	0.52 CM	0.00 CM	EAST.:	0.00 CM
		NORT.:	10273.8145		AZI: 180- 0- 0	270- 0- 0			NORT.:	0.21 CM
		ELEV.:	1006.2115	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.0000
165	FREE	EAST.:	9843.3643		LTH: 0.22 CM	0.07 CM	0.55 CM	0.16 CM	EAST.:	0.13 CM
		NORT.:	10241.7548		AZI: 147-43-12	237-43-12			NORT.:	0.19 CM
		ELEV.:	1009.5959	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.8091

5.1 ADJUSTED COORDINATES AND ABSOLUTE ERROR ELLIPSE REPORT (CON'D)

STATION NAME	TYPE	ADJUSTED COORDINATES (METERS)			STANDARD CONFIDENCE ERROR ELLIPSE SEMI-MAJOR	SEMI-MINOR	95% CONFIDENCE ERROR ELLIPSE SEMI-MAJOR	SEMI-MINOR	MARGINAL STANDARD DEVIATIONS	
166	FIXED	EAST.:	10000.0376	FIXED	LTH: 0.00 CM	0.00 CM	0.00 CM	0.00 CM	EAST.:	0.00 CM
		NORT.:	9999.9562	FIXED	AZI: 0- 0- 0	90- 0- 0			NORT.:	0.00 CM
		ELEV.:	1000.0000	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.0000
17	FREE	EAST.:	10039.5987		LTH: 0.16 CM	0.05 CM	0.39 CM	0.13 CM	EAST.:	0.06 CM
		NORT.:	10175.6126		AZI: 184-54-10	274-54-10			NORT.:	0.16 CM
		ELEV.:	966.7571	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.2187
18	FREE	EAST.:	10050.7139		LTH: 0.16 CM	0.06 CM	0.39 CM	0.14 CM	EAST.:	0.06 CM
		NORT.:	10174.8519		AZI: 188-31-40	278-31-40			NORT.:	0.16 CM
		ELEV.:	960.3082	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.3182
19	FREE	EAST.:	10076.4321		LTH: 0.16 CM	0.07 CM	0.40 CM	0.17 CM	EAST.:	0.08 CM
		NORT.:	10173.1755		AZI: 196-21-13	286-21-13			NORT.:	0.16 CM
		ELEV.:	946.5979	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.4665
21	FREE	EAST.:	9977.1003		LTH: 0.13 CM	0.04 CM	0.32 CM	0.09 CM	EAST.:	0.04 CM
		NORT.:	10124.0840		AZI: 170-56-25	260-56-25			NORT.:	0.13 CM
		ELEV.:	1000.2669	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.4654
22	FREE	EAST.:	9979.5686		LTH: 0.13 CM	0.04 CM	0.32 CM	0.09 CM	EAST.:	0.04 CM
		NORT.:	10123.5342		AZI: 171-43-37	261-43-37			NORT.:	0.13 CM
		ELEV.:	1000.3948	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.4362
23	FREE	EAST.:	9981.5821		LTH: 0.12 CM	0.04 CM	0.29 CM	0.09 CM	EAST.:	0.04 CM
		NORT.:	10124.0350		AZI: 171-38-22	261-38-22			NORT.:	0.12 CM
		ELEV.:	1000.2361	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.4015
24	FREE	EAST.:	9996.6705		LTH: 0.13 CM	0.04 CM	0.32 CM	0.09 CM	EAST.:	0.04 CM
		NORT.:	10128.3926		AZI: 176-50-31	266-50-31			NORT.:	0.13 CM
		ELEV.:	991.7977	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	-0.1702
25	FREE	EAST.:	10020.8892		LTH: 0.13 CM	0.04 CM	0.31 CM	0.10 CM	EAST.:	0.04 CM
		NORT.:	10129.7588		AZI: 184-52-40	274-52-40			NORT.:	0.13 CM
		ELEV.:	978.1127	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.2273
26	FREE	EAST.:	10028.1527		LTH: 0.13 CM	0.04 CM	0.31 CM	0.10 CM	EAST.:	0.05 CM
		NORT.:	10129.6742		AZI: 187-39-28	277-39-28			NORT.:	0.12 CM
		ELEV.:	973.9339	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.3253
27	FREE	EAST.:	10040.6826		LTH: 0.12 CM	0.05 CM	0.30 CM	0.11 CM	EAST.:	0.05 CM
		NORT.:	10130.6526		AZI: 192-36-45	282-36-45			NORT.:	0.12 CM
		ELEV.:	965.7364	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.4526
28	FREE	EAST.:	10050.4783		LTH: 0.13 CM	0.07 CM	0.32 CM	0.18 CM	EAST.:	0.07 CM
		NORT.:	10130.9429		AZI: 186-22-51	276-22-51			NORT.:	0.13 CM
		ELEV.:	960.4833	FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.:	0.1363

5.1 ADJUSTED COORDINATES AND ABSOLUTE ERROR ELLIPSE REPORT (CON'D)

STATION NAME	TYPE	ADJUSTED COORDINATES (METERS)		STANDARD CONFIDENCE ERROR ELLIPSE SEMI-MAJOR	STANDARD CONFIDENCE ERROR ELLIPSE SEMI-MINOR	95% CONFIDENCE ERROR ELLIPSE SEMI-MAJOR	95% CONFIDENCE ERROR ELLIPSE SEMI-MINOR	MARGINAL STANDARD DEVIATIONS
29	FREE	EAST.:	10075.9157	LTH: 0.13 CM	0.05 CM	0.31 CM	0.13 CM	EAST.: 0.08 CM
		NORT.:	10132.3638	AZI: 207- 7- 7	297- 7- 7			NORT.: 0.12 CM
		ELEV.:	946.5199 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: 0.6349
31	FREE	EAST.:	9981.3288	LTH: 0.10 CM	0.03 CM	0.26 CM	0.07 CM	EAST.: 0.04 CM
		NORT.:	10075.7333	AZI: 167-38-35	257-38-35			NORT.: 0.10 CM
		ELEV.:	1000.4678 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: -0.5913
32	FREE	EAST.:	9983.6872	LTH: 0.11 CM	0.03 CM	0.26 CM	0.07 CM	EAST.: 0.03 CM
		NORT.:	10076.4488	AZI: 169- 9-17	259- 9-17			NORT.: 0.10 CM
		ELEV.:	1000.4731 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: -0.5485
33	FREE	EAST.:	9986.1726	LTH: 0.09 CM	0.03 CM	0.22 CM	0.07 CM	EAST.: 0.03 CM
		NORT.:	10076.5802	AZI: 170- 8- 0	260- 8- 0			NORT.: 0.09 CM
		ELEV.:	1000.0926 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: -0.4452
34	FREE	EAST.:	10000.9407	LTH: 0.10 CM	0.03 CM	0.23 CM	0.07 CM	EAST.: 0.03 CM
		NORT.:	10074.1713	AZI: 178-39-16	268-39-16			NORT.: 0.10 CM
		ELEV.:	992.0623 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: -0.0730
35	FREE	EAST.:	10025.8935	LTH: 0.09 CM	0.03 CM	0.22 CM	0.08 CM	EAST.: 0.04 CM
		NORT.:	10077.3735	AZI: 195-58-59	285-58-59			NORT.: 0.09 CM
		ELEV.:	977.6932 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: 0.5636
36	FREE	EAST.:	10032.7423	LTH: 0.09 CM	0.03 CM	0.22 CM	0.08 CM	EAST.: 0.04 CM
		NORT.:	10077.9120	AZI: 200-24-55	290-24-55			NORT.: 0.08 CM
		ELEV.:	973.8380 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: 0.6273
37	FREE	EAST.:	10046.3974	LTH: 0.09 CM	0.03 CM	0.22 CM	0.08 CM	EAST.: 0.05 CM
		NORT.:	10079.8532	AZI: 208-18-14	298-18-14			NORT.: 0.08 CM
		ELEV.:	965.2433 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: 0.6922
38	FREE	EAST.:	10055.2813	LTH: 0.09 CM	0.04 CM	0.23 CM	0.09 CM	EAST.: 0.06 CM
		NORT.:	10081.0789	AZI: 212-54-42	302-54-42			NORT.: 0.08 CM
		ELEV.:	960.4949 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: 0.7138
39	FREE	EAST.:	10080.0086	LTH: 0.11 CM	0.04 CM	0.27 CM	0.11 CM	EAST.: 0.09 CM
		NORT.:	10084.1966	AZI: 226-55- 7	316-55- 7			NORT.: 0.08 CM
		ELEV.:	946.7214 FIXED	ELEV. STD. DEV.:	0.00 CM			CORR.: 0.7341

5.3 RELATIVE ERROR ELLIPSE REPORT

STATION NAME	STATION NAME	HORIZONTAL LINE INFORMATION		STANDARD RELATIVE ERROR ELLIPSE SEMI-MAJOR	STANDARD RELATIVE ERROR ELLIPSE SEMI-MINOR	95% RELATIVE ERROR ELLIPSE SEMI-MAJOR	95% RELATIVE ERROR ELLIPSE SEMI-MINOR	ELEV. DIFF. (METERS)	ELE. DIF. STD. DEV. (CM)	95% RELATIVE PRECISION
161	1218	LTH:	97.3440 M	0.17 CM	0.05 CM	0.42 CM	0.12 CM	9.9886	0.00	HOR.: 1 / 30987
		AZI:	112-45-53	156-13- 7	246-13- 7					VER.:
161	166	LTH:	136.8377 M	0.15 CM	0.05 CM	0.38 CM	0.12 CM	-0.9619	0.00	HOR.: 1 / 38583
		AZI:	32-29-27	233-41-18	323-41-18					VER.:
1218	166	LTH:	153.9473 M	0.18 CM	0.14 CM	0.43 CM	0.33 CM	-10.9505	0.00	HOR.: 1 / 35882
		AZI:	353-56-18	170-16-57	260-16-57					VER.:
161	162	LTH:	203.2725 M	0.18 CM	0.11 CM	0.44 CM	0.27 CM	13.8557	0.00	HOR.: 1 / 75219
		AZI:	357-27-28	262-32-40	352-32-40					VER.:
162	166	LTH:	120.3857 M	0.12 CM	0.04 CM	0.29 CM	0.10 CM	-14.8176	0.00	HOR.: 1 / 42232
		AZI:	136-43-39	134- 2-46	224- 2-46					VER.:
1218	31	LTH:	146.9698 M	0.19 CM	0.13 CM	0.46 CM	0.31 CM	-10.4827	0.00	HOR.: 1 / 32589
		AZI:	23-53-25	187- 6- 6	277- 6- 6					VER.:
31	166	LTH:	78.0525 M	0.10 CM	0.03 CM	0.26 CM	0.07 CM	-0.4678	0.00	HOR.: 1 / 60692
		AZI:	283-52- 6	167-38-35	257-38-35					VER.:
162	39	LTH:	166.9378 M	0.15 CM	0.08 CM	0.36 CM	0.20 CM	-68.0962	0.00	HOR.: 1 / 83413
		AZI:	92-38-15	174-34-36	264-34-36					VER.:
39	166	LTH:	116.1542 M	0.11 CM	0.04 CM	0.27 CM	0.11 CM	53.2786	0.00	HOR.: 1 / 43051
		AZI:	226-29-21	226-55- 7	316-55- 7					VER.:
1218	21	LTH:	169.0418 M	0.20 CM	0.12 CM	0.50 CM	0.29 CM	-10.6836	0.00	HOR.: 1 / 36428
		AZI:	39-39-10	193- 4-47	283- 4-47					VER.:
21	31	LTH:	48.5353 M	0.11 CM	0.04 CM	0.28 CM	0.10 CM	0.2009	0.00	HOR.: 1 / 41151
		AZI:	274-59-53	170-15-13	260-15-13					VER.:
31	34	LTH:	19.6741 M	0.11 CM	0.04 CM	0.26 CM	0.10 CM	-8.4055	0.00	HOR.: 1 / 7496
		AZI:	355-26-45	171-15- 1	261-15- 1					VER.:
34	166	LTH:	74.2206 M	0.10 CM	0.03 CM	0.23 CM	0.07 CM	7.9377	0.00	HOR.: 1 / 108474
		AZI:	269-18-10	178-39-16	268-39-16					VER.:
162	163	LTH:	200.4058 M	0.17 CM	0.07 CM	0.42 CM	0.17 CM	-90.0741	0.00	HOR.: 1 / 51104
		AZI:	54-37-56	210-59-16	300-59-16					VER.:
163	39	LTH:	123.7262 M	0.12 CM	0.06 CM	0.30 CM	0.14 CM	21.9779	0.00	HOR.: 1 / 87480
		AZI:	178-27-12	264-45-54	354-45-54					VER.:
38	39	LTH:	24.9231 M	0.07 CM	0.05 CM	0.18 CM	0.13 CM	-13.7735	0.00	HOR.: 1 / 16144
		AZI:	7-11- 9	234-14-45	324-14-45					VER.:

5.3 RELATIVE ERROR ELLIPSE REPORT

STATION NAME	STATION NAME	HORIZONTAL LINE INFORMATION		STANDARD RELATIVE ERROR ELLIPSE SEMI-MAJOR	STANDARD RELATIVE ERROR ELLIPSE SEMI-MINOR	95% RELATIVE ERROR ELLIPSE SEMI-MAJOR	95% RELATIVE ERROR ELLIPSE SEMI-MINOR	ELEV. DIFF. (METERS)	ELE. DIF. STD. DEV. (CM)	95% RELATIVE PRECISION
38	166	LTH:	98.1466 M	0.09 CM	0.04 CM	0.23 CM	0.09 CM	39.5051	0.00	HOR.: 1 / 45777
		AZI:	235-44-44	212-54-42	302-54-42					VER.:
165	1218	LTH:	225.5710 M	0.24 CM	0.09 CM	0.60 CM	0.21 CM	1.3546	0.00	HOR.: 1 / 107683
		AZI:	270-54-39	181- 9-38	271- 9-38					VER.:
165	21	LTH:	178.1340 M	0.16 CM	0.07 CM	0.38 CM	0.18 CM	-9.3290	0.00	HOR.: 1 / 46330
		AZI:	318-39-22	137-14- 2	227-14- 2					VER.:
21	22	LTH:	2.5288 M	0.11 CM	0.04 CM	0.26 CM	0.11 CM	0.1279	0.00	HOR.: 1 / 968
		AZI:	347-26-34	171- 2-48	261- 2-48					VER.:
22	31	LTH:	47.8333 M	0.11 CM	0.04 CM	0.28 CM	0.10 CM	0.0730	0.00	HOR.: 1 / 43222
		AZI:	272- 6-31	170-46-20	260-46-20					VER.:
31	33	LTH:	4.9173 M	0.09 CM	0.03 CM	0.23 CM	0.08 CM	-0.3752	0.00	HOR.: 1 / 2271
		AZI:	9-55- 0	168-21-34	258-21-34					VER.:
33	34	LTH:	14.9633 M	0.09 CM	0.04 CM	0.22 CM	0.09 CM	-8.0303	0.00	HOR.: 1 / 6763
		AZI:	350-44- 8	173-31-39	263-31-39					VER.:
34	35	LTH:	25.1574 M	0.09 CM	0.04 CM	0.22 CM	0.11 CM	-14.3691	0.00	HOR.: 1 / 11592
		AZI:	7-18-46	183- 7-48	273- 7-48					VER.:
35	166	LTH:	81.6209 M	0.09 CM	0.03 CM	0.22 CM	0.08 CM	22.3068	0.00	HOR.: 1 / 58886
		AZI:	251-31-53	195-58-59	285-58-59					VER.:
163	29	LTH:	137.7646 M	0.13 CM	0.06 CM	0.31 CM	0.16 CM	21.7764	0.00	HOR.: 1 / 56768
		AZI:	158- 2-43	112-34-24	202-34-24					VER.:
29	39	LTH:	48.3408 M	0.07 CM	0.07 CM	0.18 CM	0.16 CM	0.2015	0.00	HOR.: 1 / 29260
		AZI:	274-51-24	192-19-36	282-19-36					VER.:
28	38	LTH:	50.0948 M	0.10 CM	0.06 CM	0.25 CM	0.15 CM	0.0116	0.00	HOR.: 1 / 28085
		AZI:	275-30- 6	156-57-51	246-57-51					VER.:
28	39	LTH:	55.2925 M	0.10 CM	0.07 CM	0.25 CM	0.17 CM	-13.7619	0.00	HOR.: 1 / 22690
		AZI:	302-16-52	142-11-34	232-11-34					VER.:
37	38	LTH:	8.9680 M	0.07 CM	0.04 CM	0.17 CM	0.11 CM	-4.7484	0.00	HOR.: 1 / 5450
		AZI:	7-51-18	205-40-32	295-40-32					VER.:
37	166	LTH:	92.3730 M	0.09 CM	0.03 CM	0.22 CM	0.08 CM	34.7567	0.00	HOR.: 1 / 47266
		AZI:	239-52-32	208-18-14	298-18-14					VER.:
165	11	LTH:	150.0800 M	0.13 CM	0.07 CM	0.32 CM	0.17 CM	-9.2307	0.00	HOR.: 1 / 54224
		AZI:	333- 1-35	117-52-41	207-52-41					VER.:

5.3 RELATIVE ERROR ELLIPSE REPORT

STATION NAME	STATION NAME	HORIZONTAL LINE INFORMATION		STANDARD RELATIVE ERROR ELLIPSE SEMI-MAJOR	STANDARD RELATIVE ERROR ELLIPSE SEMI-MINOR	95% RELATIVE ERROR ELLIPSE SEMI-MAJOR	95% RELATIVE ERROR ELLIPSE SEMI-MINOR	ELEV. DIFF. (METERS)	ELE. DIF. STD. DEV. (CM)	95% RELATIVE PRECISION
11	21	LTH:	49.5976 M	0.10 CM	0.04 CM	0.25 CM	0.11 CM	-0.0983	0.00	HOR.: 1 / 45065
		AZI:	269-58-46	174-41- 9	264-41- 9					VER.:
21	23	LTH:	4.4821 M	0.10 CM	0.04 CM	0.24 CM	0.11 CM	-0.0308	0.00	HOR.: 1 / 1901
		AZI:	359-22-24	170-13-49	260-13-49					VER.:
22	23	LTH:	2.0748 M	0.10 CM	0.04 CM	0.24 CM	0.11 CM	-0.1587	0.00	HOR.: 1 / 927
		AZI:	13-58- 1	170-32-25	260-32-25					VER.:
22	32	LTH:	47.2653 M	0.11 CM	0.04 CM	0.28 CM	0.10 CM	0.0783	0.00	HOR.: 1 / 40678
		AZI:	274-59-56	170-54-32	260-54-32					VER.:
31	32	LTH:	2.4645 M	0.10 CM	0.03 CM	0.26 CM	0.08 CM	0.0053	0.00	HOR.: 1 / 1078
		AZI:	16-52-32	168-27-51	258-27-51					VER.:
32	33	LTH:	2.4889 M	0.09 CM	0.03 CM	0.23 CM	0.08 CM	-0.3805	0.00	HOR.: 1 / 1100
		AZI:	3- 1-35	169-13-21	259-13-21					VER.:
24	33	LTH:	52.8653 M	0.11 CM	0.04 CM	0.26 CM	0.11 CM	8.2949	0.00	HOR.: 1 / 47521
		AZI:	258-32-45	175- 3- 8	265- 3- 8					VER.:
24	34	LTH:	54.3892 M	0.11 CM	0.04 CM	0.28 CM	0.10 CM	0.2646	0.00	HOR.: 1 / 48424
		AZI:	274-30-10	175- 3-39	265- 3-39					VER.:
24	35	LTH:	58.7957 M	0.11 CM	0.05 CM	0.26 CM	0.12 CM	-14.1045	0.00	HOR.: 1 / 32096
		AZI:	299-48-12	173-17-53	263-17-53					VER.:
35	36	LTH:	6.8699 M	0.08 CM	0.04 CM	0.19 CM	0.10 CM	-3.8552	0.00	HOR.: 1 / 3621
		AZI:	4-29-44	193-56-50	283-56-50					VER.:
36	166	LTH:	84.5382 M	0.09 CM	0.03 CM	0.22 CM	0.08 CM	26.1620	0.00	HOR.: 1 / 52863
		AZI:	247-14-26	200-24-55	290-24-55					VER.:
163	19	LTH:	157.2168 M	0.15 CM	0.09 CM	0.36 CM	0.21 CM	21.8544	0.00	HOR.: 1 / 43710
		AZI:	144- 2-28	134-35- 6	224-35- 6					VER.:
19	29	LTH:	40.8150 M	0.11 CM	0.06 CM	0.26 CM	0.14 CM	-0.0780	0.00	HOR.: 1 / 26585
		AZI:	269-16-30	163-59-38	253-59-38					VER.:
28	29	LTH:	25.4770 M	0.10 CM	0.06 CM	0.24 CM	0.15 CM	-13.9634	0.00	HOR.: 1 / 12063
		AZI:	3-11-49	145-18-46	235-18-46					VER.:
28	37	LTH:	51.2524 M	0.10 CM	0.06 CM	0.25 CM	0.16 CM	4.7600	0.00	HOR.: 1 / 31458
		AZI:	265-25-58	160-30-13	250-30-13					VER.:
36	37	LTH:	13.7924 M	0.07 CM	0.04 CM	0.18 CM	0.10 CM	-8.5947	0.00	HOR.: 1 / 7747
		AZI:	8- 5-27	199-37-37	289-37-37					VER.:

5.3 RELATIVE ERROR ELLIPSE REPORT

STATION NAME	STATION NAME	HORIZONTAL LINE INFORMATION		STANDARD RELATIVE ERROR ELLIPSE SEMI-MAJOR	STANDARD RELATIVE ERROR ELLIPSE SEMI-MINOR	95% RELATIVE ERROR ELLIPSE SEMI-MAJOR	95% RELATIVE ERROR ELLIPSE SEMI-MINOR	ELEV. DIFF. (METERS)	ELE. DIF. STD. DEV. (CM)	95% RELATIVE PRECISION
164	165	LTH:	159.9198 M	0.14 CM	0.05 CM	0.33 CM	0.12 CM	3.3844	0.00	HOR.: 1 / 91162
		AZI:	191-33-52	257-32-17	347-32-17					VER.:
164	11	LTH:	102.7225 M	0.10 CM	0.04 CM	0.25 CM	0.09 CM	-5.8463	0.00	HOR.: 1 / 83516
		AZI:	257- 6-27	189- 4-57	279- 4-57					VER.:
11	13	LTH:	3.5929 M	0.08 CM	0.04 CM	0.19 CM	0.11 CM	-0.1732	0.00	HOR.: 1 / 1897
		AZI:	359-45-38	177-53-50	267-53-50					VER.:
13	21	LTH:	49.7139 M	0.10 CM	0.04 CM	0.24 CM	0.11 CM	0.0749	0.00	HOR.: 1 / 46204
		AZI:	265-50- 6	174-15- 7	264-15- 7					VER.:
13	23	LTH:	49.6392 M	0.09 CM	0.04 CM	0.21 CM	0.11 CM	0.0441	0.00	HOR.: 1 / 45524
		AZI:	271- 0-20	173-10-16	263-10-16					VER.:
22	33	LTH:	47.4162 M	0.10 CM	0.04 CM	0.25 CM	0.10 CM	-0.3022	0.00	HOR.: 1 / 40082
		AZI:	278- 0-21	171-13- 0	261-13- 0					VER.:
23	33	LTH:	47.6764 M	0.09 CM	0.04 CM	0.22 CM	0.10 CM	-0.1435	0.00	HOR.: 1 / 43557
		AZI:	275-31-30	170-20-25	260-20-25					VER.:
23	24	LTH:	15.7051 M	0.10 CM	0.05 CM	0.25 CM	0.12 CM	-8.4384	0.00	HOR.: 1 / 6753
		AZI:	16- 6-31	172- 1-26	262- 1-26					VER.:
24	25	LTH:	24.2572 M	0.11 CM	0.05 CM	0.26 CM	0.13 CM	-13.6850	0.00	HOR.: 1 / 9371
		AZI:	3-13-43	173-16- 2	263-16- 2					VER.:
25	35	LTH:	52.6238 M	0.10 CM	0.05 CM	0.24 CM	0.11 CM	-0.4195	0.00	HOR.: 1 / 45983
		AZI:	275-27-24	179-24- 4	269-24- 4					VER.:
26	35	LTH:	52.3495 M	0.10 CM	0.05 CM	0.24 CM	0.11 CM	3.7593	0.00	HOR.: 1 / 46223
		AZI:	267-31-35	181-32-47	271-32-47					VER.:
26	36	LTH:	51.9653 M	0.09 CM	0.05 CM	0.23 CM	0.12 CM	-0.0959	0.00	HOR.: 1 / 44577
		AZI:	275- 4- 0	180-17-53	270-17-53					VER.:
163	164	LTH:	280.5469 M	0.22 CM	0.08 CM	0.54 CM	0.19 CM	81.4680	0.00	HOR.: 1 / 52336
		AZI:	136-32-40	133-53-25	223-53-25					VER.:
164	19	LTH:	126.3500 M	0.13 CM	0.05 CM	0.32 CM	0.12 CM	-59.6136	0.00	HOR.: 1 / 41792
		AZI:	307-12- 6	148-22-15	238-22-15					VER.:
18	19	LTH:	25.7728 M	0.12 CM	0.06 CM	0.29 CM	0.14 CM	-13.7103	0.00	HOR.: 1 / 9246
		AZI:	356-16-14	158-21-23	248-21-23					VER.:
18	29	LTH:	49.4001 M	0.10 CM	0.05 CM	0.25 CM	0.13 CM	-13.7883	0.00	HOR.: 1 / 22822
		AZI:	300-40-27	154-28-48	244-28-48					VER.:

5.3 RELATIVE ERROR ELLIPSE REPORT

STATION NAME	STATION NAME	HORIZONTAL LINE INFORMATION		STANDARD RELATIVE ERROR ELLIPSE SEMI-MAJOR	STANDARD RELATIVE ERROR ELLIPSE SEMI-MINOR	95% RELATIVE ERROR ELLIPSE SEMI-MAJOR	95% RELATIVE ERROR ELLIPSE SEMI-MINOR	ELEV. DIFF. (METERS)	ELE. DIF. STD. DEV. (CM)	95% RELATIVE PRECISION
18	28	LTH:	43.9096 M	0.12 CM	0.06 CM	0.29 CM	0.14 CM	0.1751	0.00	HOR.: 1 / 24538
		AZI:	269-41-33	153-14-18	243-14-18					VER.:
27	28	LTH:	9.8000 M	0.10 CM	0.06 CM	0.25 CM	0.14 CM	-5.2531	0.00	HOR.: 1 / 4250
		AZI:	1-41-51	153-14- 0	243-14- 0					VER.:
27	37	LTH:	51.1198 M	0.09 CM	0.05 CM	0.21 CM	0.12 CM	-0.4931	0.00	HOR.: 1 / 41225
		AZI:	276-25- 6	180-22-54	270-22-54					VER.:
26	37	LTH:	53.0565 M	0.09 CM	0.05 CM	0.22 CM	0.12 CM	-8.6906	0.00	HOR.: 1 / 36553
		AZI:	290- 6-46	176-23-13	266-23-13					VER.:
164	12	LTH:	101.0886 M	0.11 CM	0.06 CM	0.26 CM	0.15 CM	-5.8042	0.00	HOR.: 1 / 67192
		AZI:	258- 0-53	176-11-19	266-11-19					VER.:
11	12	LTH:	2.2964 M	0.09 CM	0.06 CM	0.22 CM	0.14 CM	0.0421	0.00	HOR.: 1 / 1307
		AZI:	32-54-59	159-54-59	249-54-59					VER.:
12	13	LTH:	2.0899 M	0.09 CM	0.06 CM	0.22 CM	0.14 CM	-0.2153	0.00	HOR.: 1 / 973
		AZI:	322-49-22	157-15-52	247-15-52					VER.:
13	24	LTH:	48.0047 M	0.11 CM	0.05 CM	0.26 CM	0.11 CM	-8.3943	0.00	HOR.: 1 / 30828
		AZI:	289-25- 5	172- 1-49	262- 1-49					VER.:
14	24	LTH:	48.7692 M	0.13 CM	0.05 CM	0.31 CM	0.11 CM	-0.8142	0.00	HOR.: 1 / 42032
		AZI:	271-19- 0	175-43-28	265-43-28					VER.:
14	25	LTH:	53.7392 M	0.12 CM	0.05 CM	0.30 CM	0.12 CM	-14.4992	0.00	HOR.: 1 / 26900
		AZI:	298- 7-59	172-56-33	262-56-33					VER.:
25	26	LTH:	7.2640 M	0.10 CM	0.05 CM	0.24 CM	0.12 CM	-4.1788	0.00	HOR.: 1 / 3078
		AZI:	359-19-56	173-31-49	263-31-49					VER.:
164	18	LTH:	111.1832 M	0.12 CM	0.04 CM	0.30 CM	0.09 CM	-45.9033	0.00	HOR.: 1 / 45300
		AZI:	297- 6-57	154-46-27	244-46-27					VER.:
18	27	LTH:	45.3233 M	0.10 CM	0.05 CM	0.25 CM	0.13 CM	5.4282	0.00	HOR.: 1 / 34993
		AZI:	257-12-46	164-52-50	254-52-50					VER.:
26	27	LTH:	12.5680 M	0.09 CM	0.05 CM	0.22 CM	0.12 CM	-8.1975	0.00	HOR.: 1 / 5778
		AZI:	4-27-53	172-40- 7	262-40- 7					VER.:
164	14	LTH:	96.7697 M	0.12 CM	0.03 CM	0.31 CM	0.08 CM	-13.5996	0.00	HOR.: 1 / 113379
		AZI:	267-20-30	179-49- 5	269-49- 5					VER.:
12	14	LTH:	16.6527 M	0.12 CM	0.06 CM	0.30 CM	0.15 CM	-7.7954	0.00	HOR.: 1 / 5668
		AZI:	7-39-32	170- 5-55	260- 5-55					VER.:

5.3 RELATIVE ERROR ELLIPSE REPORT

STATION NAME	STATION NAME	HORIZONTAL LINE INFORMATION		STANDARD RELATIVE ERROR ELLIPSE SEMI-MAJOR	STANDARD RELATIVE ERROR ELLIPSE SEMI-MINOR	95% RELATIVE ERROR ELLIPSE SEMI-MAJOR	95% RELATIVE ERROR ELLIPSE SEMI-MINOR	ELEV. DIFF. (METERS)	ELE. DIF. STD. DEV. (CM)	95% RELATIVE PRECISION
13	14	LTH:	15.2421 M	0.11 CM	0.04 CM	0.27 CM	0.11 CM	-7.5801	0.00	HOR.: 1 / 5839
		AZI:	13-12-24	177- 6-12	267- 6-12					VER.:
14	15	LTH:	26.7089 M	0.13 CM	0.05 CM	0.32 CM	0.12 CM	-14.9262	0.00	HOR.: 1 / 8415
		AZI:	358-22-41	171-15-46	261-15-46					VER.:
15	25	LTH:	46.6539 M	0.12 CM	0.05 CM	0.30 CM	0.12 CM	0.4270	0.00	HOR.: 1 / 38309
		AZI:	268-19-51	170- 1- 9	260- 1- 9					VER.:
16	25	LTH:	46.9828 M	0.12 CM	0.05 CM	0.29 CM	0.12 CM	2.9967	0.00	HOR.: 1 / 39484
		AZI:	262-59- 9	169-37-15	259-37-15					VER.:
16	26	LTH:	46.7408 M	0.12 CM	0.05 CM	0.29 CM	0.12 CM	-1.1821	0.00	HOR.: 1 / 35622
		AZI:	271-52-16	168-27-17	258-27-17					VER.:
164	17	LTH:	105.8711 M	0.12 CM	0.04 CM	0.30 CM	0.09 CM	-39.4544	0.00	HOR.: 1 / 48982
		AZI:	291-56-32	159-24-52	249-24-52					VER.:
17	18	LTH:	11.1412 M	0.11 CM	0.05 CM	0.28 CM	0.11 CM	-6.4489	0.00	HOR.: 1 / 4176
		AZI:	356- 5- 4	157-53-17	247-53-17					VER.:
17	27	LTH:	44.9731 M	0.11 CM	0.05 CM	0.26 CM	0.12 CM	-1.0207	0.00	HOR.: 1 / 32576
		AZI:	271-22-51	165- 2-56	255- 2-56					VER.:
17	26	LTH:	47.3429 M	0.11 CM	0.05 CM	0.27 CM	0.13 CM	7.1768	0.00	HOR.: 1 / 37639
		AZI:	256- 0-32	167-47-35	257-47-35					VER.:
164	15	LTH:	99.9213 M	0.13 CM	0.03 CM	0.31 CM	0.09 CM	-28.5258	0.00	HOR.: 1 / 64053
		AZI:	282-50-34	167- 7-20	257- 7-20					VER.:
15	16	LTH:	4.3785 M	0.13 CM	0.04 CM	0.31 CM	0.11 CM	-2.5697	0.00	HOR.: 1 / 1444
		AZI:	359-57-43	165-29-51	255-29-51					VER.:
16	17	LTH:	12.9955 M	0.12 CM	0.05 CM	0.30 CM	0.11 CM	-8.3589	0.00	HOR.: 1 / 4476
		AZI:	356-34-12	162-18- 5	252-18- 5					VER.:
164	16	LTH:	100.9876 M	0.13 CM	0.04 CM	0.31 CM	0.09 CM	-31.0955	0.00	HOR.: 1 / 58380
		AZI:	285-15-55	165- 6-43	255- 6-43					VER.:

5.4 SUMMARY REPORT

OBSERVATION TYPE	NUMBER	WEIGHTED SUM OF RESIDUALS SQUARED	REDUNDANCY	STD. DEV. OF UNIT WEIGHT
DIRECTIONS	139	0.837444D+02	0.690874D+02	1.10098
AZIMUTHS	1	0.000000D+00	-.426807D-16	1.00000
HORIZONTAL DISTANCE	4	0.627575D+01	0.291262D+01	1.46788
SLOPE DISTANCE	0	0.000000D+00	0.000000D+00	1.00000
SCALED DISTANCE	0	0.000000D+00	0.000000D+00	1.00000
ZENITH DISTANCE	0	0.000000D+00	0.000000D+00	1.00000
HEIGHT DIFFERENCE	0	0.000000D+00	0.000000D+00	1.00000
OBSERVED COORDINATES	0	0.000000D+00	0.000000D+00	1.00000
COORDINATE DIFF.	0	0.000000D+00	0.000000D+00	1.00000
TOTAL	144	0.900201D+02	72	1.11816

STATIONS:	FIXED	1
	FREE	33
	WEIGHTED	0
	TOTAL	34

CONVERGENCE:	ITERATIONS USED	3
	TOLERANCE	0.000100
	COMPUTATION TIME	100.477 SEC

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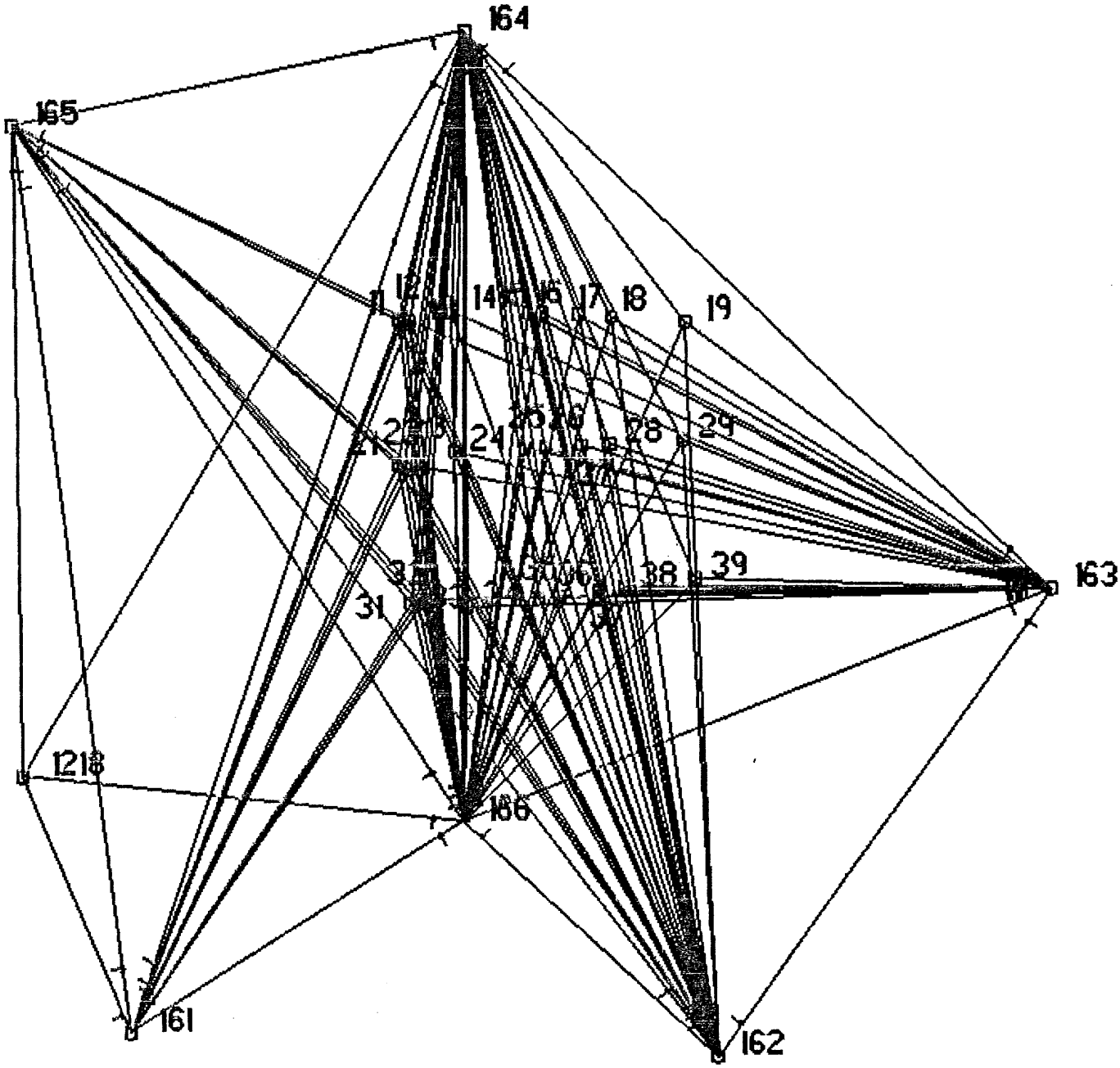
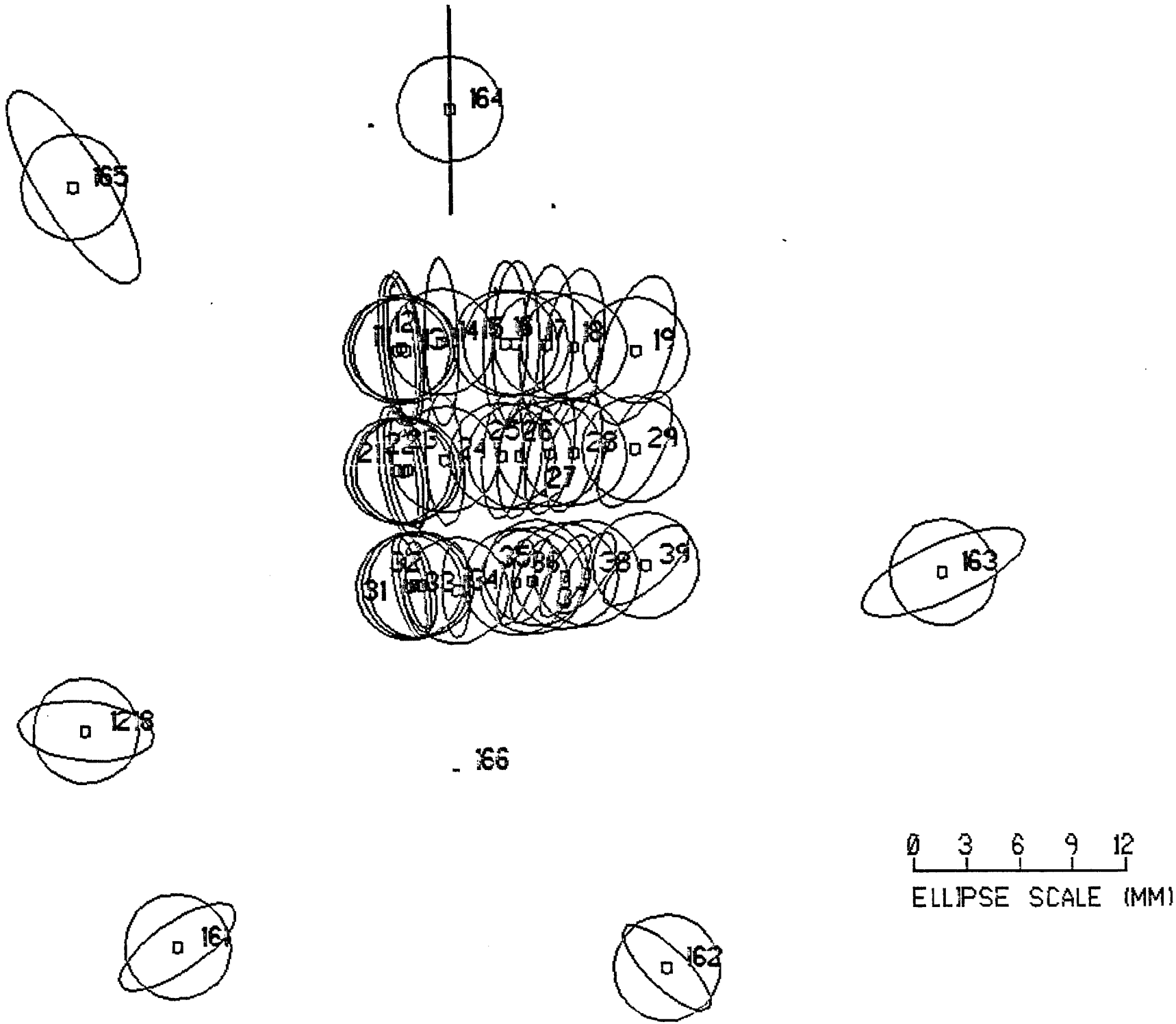
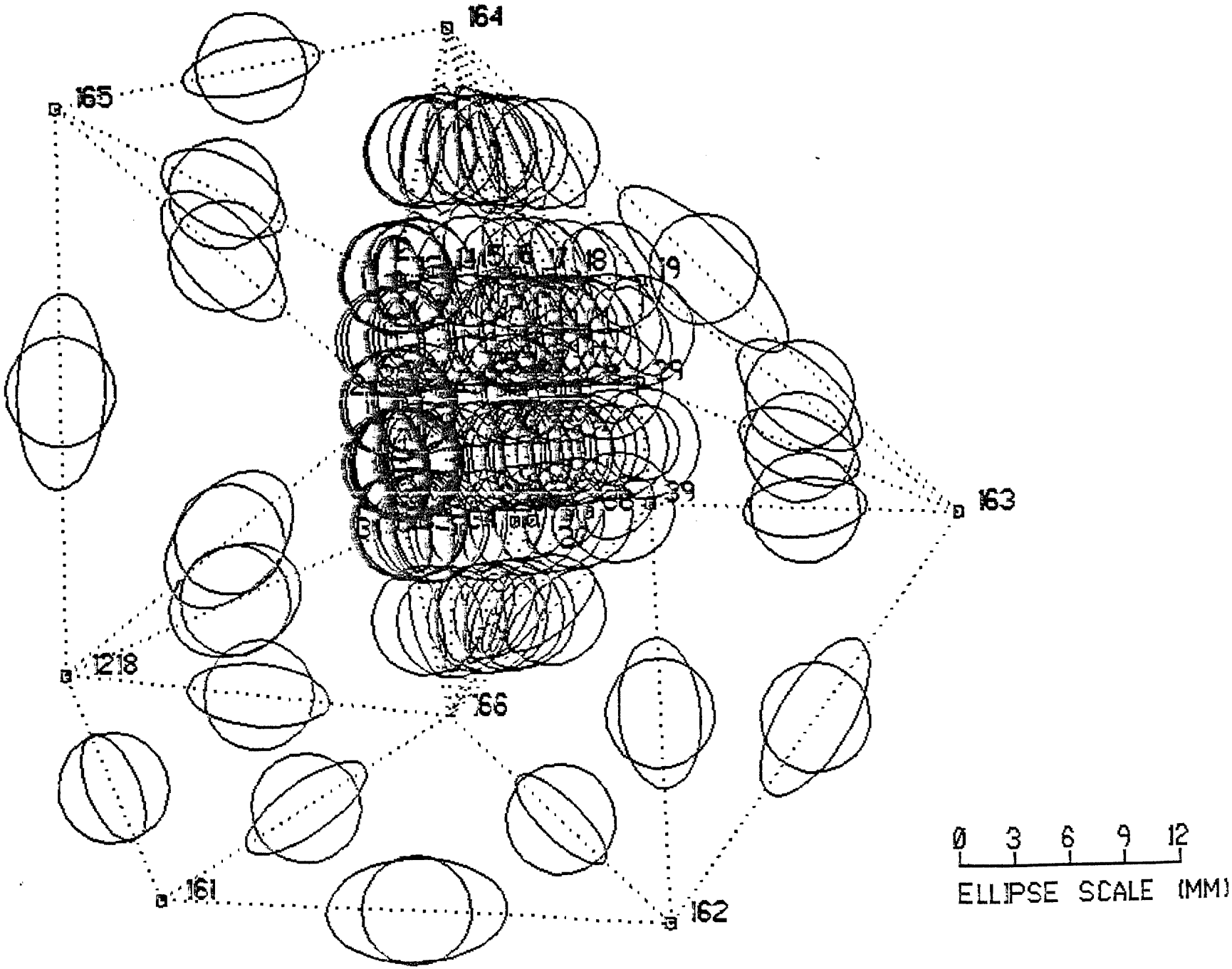
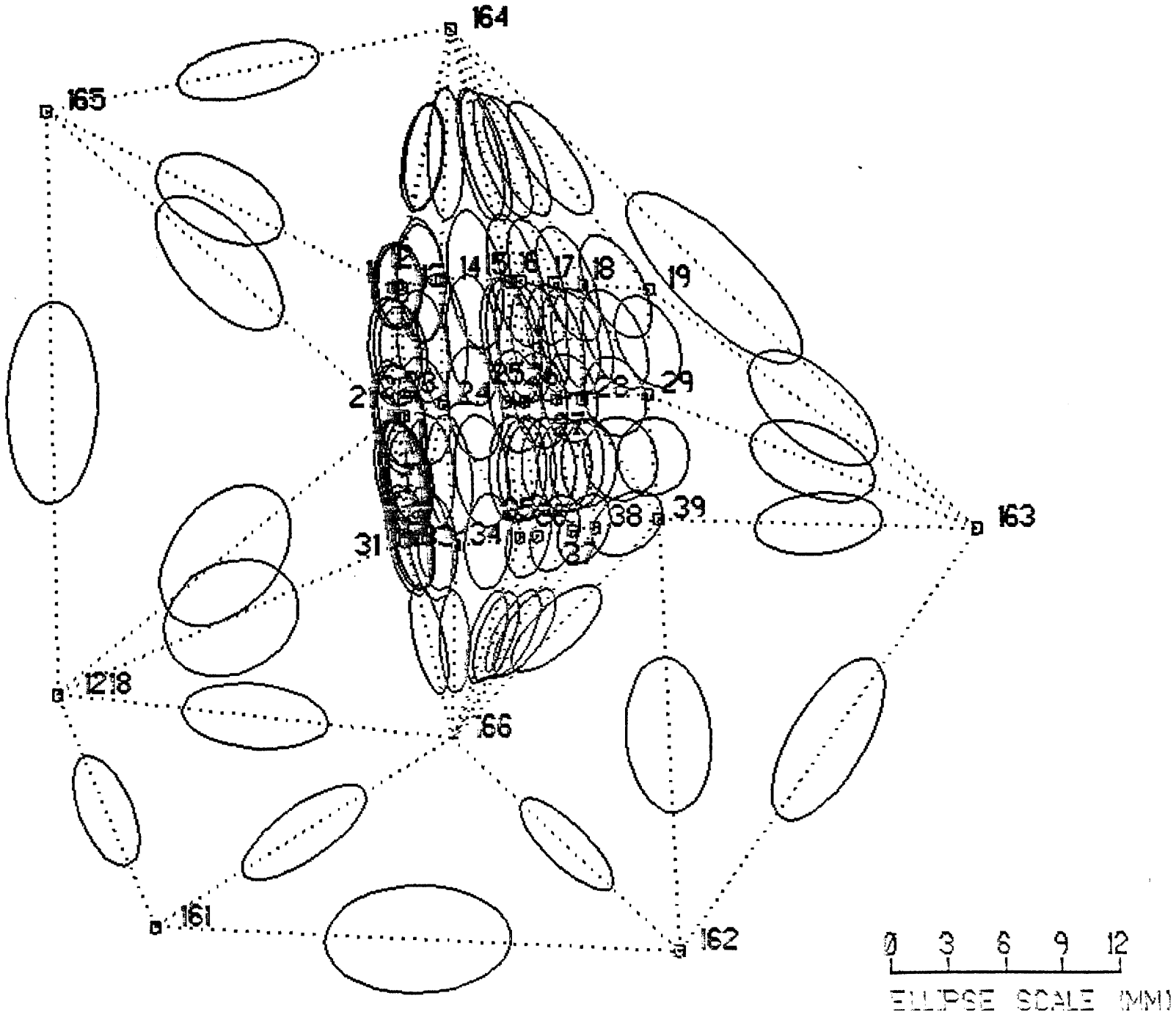
EPOCH 2: OBSERVATION SCHEME



EPOCH 2 ABSOLUTE ERROR ELLIPSES



EPOCH: 2 RELATIVE ERROR ELLIPSES



EPOCH 2: RELATIVE ERROR ELLIPSES