TRIANGULATION

006516

HOSFORD , IMPEY , WELTER
AND ASSOCIATES LTD.
LEAST SQUARES ADJUSTMENT
OF PLANE COORDINATES

DATE: FEBRUARY 18, 1982
JOB NUMBER: 1713

CLIENT: CYPRUS ANVIL

RE: OPEN PIT ADJUSTMENT TRIANGULATION

NOTE: COORDINATES MODIFIED TO T minus t PROJECTIONS & SCALE CORRECTIONS
CENTRAL MERIDIAN FACTOR (SCM) = 1.0000
FALSE EASTING (CMX) = 4,500.000

APPROXIMATE COORDINATES:

NO.	STATION	NORTHING	EASTING
1	1483	2,943.212	5,451.681
2	1485	3,261.723	3,748.458
3	1486	1,847.867	4,499.824
4	20016	2,831.236	5,095.143
5	81063	2,519.139	4,552.448
6	81064	2,262.496	4,447.590
7	81065	2,129.600	4,510.402
8	81066	2,042.806	4,660.627
9	81067	2,188.039	4,864.691

NOTE: METRIC UNITS

UPDATED COORDINATES AND CORRECTIONS: iteration # 1

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	.000	5,451.681	-.000
2	1485	3,261.723	.000	3,748.458	.000
3	1486	1,847.867	-.000	4,499.824	.000
4	20016	2,831.244	.008	5,095.128	-.015
5	81063	2,519.106	-.033	4,552.413	-.035
6	81064	2,262.461	-.035	4,447.565	-.025
7	81065	2,129.566	-.034	4,510.374	-.028
8	81066	2,042.771	-.035	4,660.602	-.025
9	81067	2,188.002	-.037	4,864.667	-.024

95% C.L. ON S.D.= 2.498 3.800 EXPECTED VALUE = I.000

S.D.= 3.015 MEAN RES.= -.040 D.F.= 45

OBSERVATIONS:

NO.	CODE	FROM	TO	OBSERVATION	S.D.	RESIDUAL (adj-obs)	STANDARD RESIDUAL
1	DIR.	1483	81067	000 00 00.0	2.5000	-2.363	.945
2	DIR.	1483	1486	003 07 56.8	2.5000	.684	.274
3	DIR.	1483	81066	003 26 33.5	2.5000	.411	.165
4	DIR.	1483	81065	011 18 09.3	2.5000	-.426	.171
5	DIR.	1483	81064	018 00 19.5	2.5000	2.887	1.155
6	DIR.	1483	1485	062 44 04.3	2.5000	-1.194	.477
7	DIR.	1485	1483	000 00 00.0	2.5000	-3.435	1.374
8	DIR.	1485	20016	007 08 01.0	2.5000	1.060	.424
9	DIR.	1485	81066	042 35 56.8	2.5000	.437	.175
10	DIR.	1485	81067	033 17 43.2	2.5000	.007	.003
11	DIR.	1485	81065	045 28 00.0	2.5000	1.696	.679
12	DIR.	1485	81064	044 25 43.8	2.5000	1.554	.622
13	DIR.	1485	1486	051 25 10.7	2.5000	-1.321	.528
14	DIR.	1486	1485	000 00 00.0	2.5000	-5.178	2.071 ###
15	DIR.	1486	20016	059 10 33.8	2.5000	-2.248	.899
16	DIR.	1486	81066	067 30 19.3	2.5000	.370	.148
17	DIR.	1486	1483	068 58 30.7	2.5000	5.692	2.277 ###
18	DIR.	1486	81067	074 59 34.7	2.5000	1.365	.546
19	DIR.	20016	81066	000 00 00.0	2.5000	1.932	.773
20	DIR.	20016	1486	002 19 51.2	2.5000	-.509	.204
21	DIR.	20016	81065	010 56 52.8	2.5000	.174	.069
22	DIR.	20016	81064	019 50 50.8	2.5000	-.942	.377
23	DIR.	20016	1485	078 52 07.3	2.5000	-.654	.262
24	DIR.	81063	81067	000 00 00.0	2.5000	-.023	.009
25	DIR.	81063	81066	030 31 30.7	2.5000	.449	.180
26	DIR.	81063	81065	049 28 50.5	2.5000	1.419	.568
27	DIR.	81063	81064	065 32 36.0	2.5000	-.196	.078
28	DIR.	81063	81067	000 00 00.0	2.5000	-.023	.009
29	DIR.	81063	81066	030 31 31.7	2.5000	-.551	.220
30	DIR.	81063	81065	049 28 53.8	2.5000	-1.881	.752
31	DIR.	81063	81064	065 32 35.0	2.5000	.804	.322
32	DIR.	81064	81063	000 00 00.0	2.5000	-2.450	.980
33	DIR.	81064	20016	026 29 00.8	2.5000	-.229	.092
34	DIR.	81064	1483	033 38 29.0	2.5000	2.146	.858
35	DIR.	81064	81067	077 53 55.8	2.5000	1.829	.732
36	DIR.	81064	81066	113 39 29.7	2.5000	1.211	.484
37	DIR.	81064	81065	132 28 53.0	2.5000	-.456	.182
38	DIR.	81064	1485	302 48 02.7	2.5000	-2.050	.820
39	DIR.	81065	81063	000 00 00.0	2.5000	3.639	1.456
40	DIR.	81065	20016	033 38 52.5	2.5000	1.160	.464
41	DIR.	81065	1483	043 00 11.7	2.5000	-4.094	1.638
42	DIR.	81065	81067	074 28 31.8	2.5000	.812	.325
43	DIR.	81065	1485	319 54 07.8	2.5000	-.835	.334
44	DIR.	81065	81064	328 32 43.2	2.5000	-.682	.273
45	DIR.	81066	1485	000 00 00.0	2.5000	-5.375	2.150 ###
46	DIR.	81066	81063	024 00 35.0	2.5000	-.013	.005
47	DIR.	81066	1483	078 06 21.5	2.5000	3.263	1.305
48	DIR.	81066	81067	091 21 59.2	2.5000	2.472	.989
49	DIR.	81066	1486	256 19 31.5	2.5000	.114	.046
50	DIR.	81066	81064	352 41 13.5	2.5000	-.497	.199
51	DIR.	81066	20016	065 39 54.7	2.5000	.037	.015
52	DIR.	81067	81063	000 00 00.0	2.5000	-.336	.135
53	DIR.	81067	81066	277 53 01.5	2.5000	-3.980	1.592
54	DIR.	81067	81065	303 57 25.2	2.5000	-4.622	1.849
55	DIR.	81067	81064	323 26 40.3	2.5000	-4.731	1.892
56	DIR.	81067	81063	000 00 00.0	2.5000	-.336	.135
57	DIR.	81067	1483	081 10 43.8	2.5000	.537	.215
58	DIR.	81067	1486	270 19 43.8	2.5000	.057	.023
59	DIR.	81067	81066	277 52 56.7	2.5000	.820	.328
60	DIR.	81067	81065	303 57 17.5	2.5000	3.078	1.231
61	DIR.	81067	81064	323 26 32.0	2.5000	3.570	1.428

62	DIR.	81067	1483	357	12	31.3	2.5000	5.144	2.057 ***
63	DIR.	81067	81063	000	00	00.0	2.5000	-.336	.135
64	DIR.	81067	1483	081	10	42.3	2.5000	2.037	.815
65	DIR.	81067	1486	270	19	43.5	2.5000	.357	.143
66	DIR.	81067	1485	357	12	37.7	2.5000	-1.257	.503
67	NORTH.	1483	1483			2,943.212	.0010	.000	.102
68	EAST.	1483	1483			5,451.681	.0010	-.000	.206
69	NORTH.	1485	1485			3,261.723	.0010	.000	.141
70	EAST.	1485	1485			3,748.458	.0010	.000	.153
71	NORTH.	1486	1486			1,847.867	.0010	-.000	.243
72	EAST.	1486	1486			4,499.824	.0010	.000	.052

UPDATED COORDINATES AND CORRECTIONS: iteration # 2

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	.000	5,451.681	-.000
2	1485	3,261.723	.000	3,748.458	.000
3	1486	1,847.867	-.000	4,499.824	.000
4	20016	2,831.244	.000	5,095.128	-.000
5	81063	2,519.106	-.000	4,552.413	.000
6	81064	2,262.461	-.000	4,447.565	.000
7	81065	2,129.566	.000	4,510.374	.000
8	81066	2,042.771	.000	4,660.602	-.000
9	81067	2,188.002	-.000	4,864.667	-.000

95% C.L. ON S.D.= .898 1.365 EXPECTED VALUE = 1.000

S.D.= 1.083 MEAN RES.= .000 D.F.= 45

ADJUSTED COORDINATES AND STANDARD DEVIATIONS:

NO.	STATION	NORTHING	S.D.	EASTING	S.D.
1	1483	2,943.212	.0011	5,451.681	.0011
2	1485	3,261.723	.0011	3,748.458	.0011
3	1486	1,847.867	.0011	4,499.824	.0011
4	20016	2,831.244	.0135	5,095.128	.0099
5	81063	2,519.106	.0117	4,552.413	.0072
6	81064	2,262.461	.0073	4,447.565	.0091
7	81065	2,129.566	.0067	4,510.374	.0085
8	81066	2,042.771	.0073	4,660.602	.0064
9	81067	2,188.002	.0075	4,864.667	.0069

ERROR ELLIPSE MULIPLIER = 2.532

95% CONFIDENCE ELLIPSES:

NO.	STATION	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS
1	1483	.003	.003	19.7
2	1485	.003	.003	-49.3
3	1486	.003	.003	71.1
4	20016	.038	.019	29.9
5	81063	.030	.018	-6.4
6	81064	.023	.018	81.0
7	81065	.024	.013	58.0
8	81066	.024	.006	40.6

7 81067 .023 .008 41.7

95% RELATIVE CONFIDENCE ELLIPSES:

ELLIPSES OVER ORDER 2 ARE FLAGGED WITH ###
ACC.FACTOR UNDER: 2=FIRST; 5=2ND; 12=3RD; 30=4TH ORDER

LINE STN - STN	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS (deg)	LINE AZIMUTH (deg)	AZIMUTH ACCURACY (sec)	LENGTH ACCURACY	ACCURACY FACTOR	
1483 - 1485	.004	.004	-12.9	280.6	.5	.004	.200	
1483 - 1486	.004	.004	46.5	221.0	.5	.004	.234	
1483 - 20016	.038	.019	30.1	252.6	16.1	.031	6.599	###
1483 - 81063	.030	.018	-6.3	244.8	6.0	.020	2.493	
1483 - 81064	.023	.018	81.2	235.9	3.3	.022	1.644	
1483 - 81065	.024	.013	58.5	229.2	2.3	.024	1.681	
1483 - 81066	.024	.006	41.2	221.3	1.1	.024	1.708	
1483 - 81067	.025	.008	42.3	217.9	1.7	.025	2.139	
1485 - 1486	.004	.004	-82.0	152.0	.5	.004	.215	
1485 - 20016	.038	.019	29.9	107.7	5.4	.020	2.341	
1485 - 81063	.030	.018	-6.8	132.7	4.5	.026	2.302	
1485 - 81064	.023	.018	82.1	145.0	3.7	.019	1.621	
1485 - 81065	.024	.013	58.1	146.1	3.6	.013	1.537	
1485 - 81066	.024	.007	40.4	143.2	3.1	.008	1.378	
1485 - 81067	.025	.008	41.6	133.9	3.3	.008	1.406	
1486 - 20016	.038	.019	29.6	31.2	3.4	.038	2.809	
1486 - 81063	.030	.018	-6.0	4.5	5.7	.030	3.422	
1486 - 81064	.023	.018	79.7	352.8	11.3	.018	3.720	
1486 - 81065	.024	.013	57.3	2.1	15.5	.018	5.009	###
1486 - 81066	.024	.006	40.2	39.5	4.5	.024	5.271	###
1486 - 81067	.025	.007	41.3	47.0	3.2	.025	3.541	
20016 - 81063	.039	.023	27.0	240.1	9.4	.035	4.706	
20016 - 81064	.038	.022	40.7	228.7	5.3	.037	3.547	
20016 - 81065	.039	.020	38.7	219.8	4.4	.039	3.501	
20016 - 81066	.039	.019	33.4	208.9	4.3	.039	3.539	
20016 - 81067	.038	.020	38.8	199.7	6.9	.036	4.275	
81063 - 81064	.019	.007	22.3	202.2	5.3	.019	3.981	
81063 - 81065	.025	.009	8.2	186.2	4.7	.025	4.308	
81063 - 81066	.031	.010	-9.4	167.2	4.1	.031	4.459	
81063 - 81067	.028	.009	-41.0	136.7	4.3	.028	4.232	
81064 - 81065	.013	.004	-22.4	154.7	5.7	.013	3.638	
81064 - 81066	.020	.007	-40.1	135.9	5.0	.020	3.921	
81064 - 81067	.026	.009	-78.7	100.1	4.2	.026	4.126	
81065 - 81066	.013	.008	-53.8	120.0	9.4	.013	3.592	
81065 - 81067	.023	.008	81.7	80.6	4.6	.023	4.092	
81066 - 81067	.018	.005	53.0	54.6	4.1	.018	3.892	

TIME USED: 0 38 52

CONSTRAINED - ALL OBSERVATIONS

HOSFORD , IMPEY , WELTER
AND ASSOCIATES LTD.
LEAST SQUARES ADJUSTMENT
OF PLANE COORDINATES

DATE: February 19, 1982
JOB NUMBER: 1713

CLIENT: CYPRUS ANVIL

RE: OPEN PIT ADJUSTMENT

NOTE: COORDINATES MODIFIED TO T minus t PROJECTIONS & SCALE CORRECTIONS
CENTRAL MERIDIAN FACTOR (SCM) = 1.0000
FALSE EASTING (CMX) = 4,500.000

APPROXIMATE COORDINATES:

NO.	STATION	NORTHING	EASTING
1	1483	2,943.212	5,451.681
2	1485	3,261.723	3,748.458
3	1486	1,847.867	4,499.824
4	20016	2,831.244	5,095.128
5	81063	2,519.106	4,552.413
6	81064	2,262.461	4,447.565
7	81065	2,129.566	4,510.374
8	81066	2,042.771	4,660.602
9	81067	2,188.002	4,864.667

NOTE: METRIC UNITS

UPDATED COORDINATES AND CORRECTIONS: iteration # 1

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	.000	5,451.680	-.000
2	1485	3,261.723	.000	3,748.458	.000
3	1486	1,847.866	-.001	4,499.824	.000
4	20016	2,831.288	.045	5,095.153	.025
5	81063	2,519.121	.015	4,552.433	.020
6	81064	2,262.481	.020	4,447.590	.025
7	81065	2,129.589	.023	4,510.400	.026
8	81066	2,042.798	.027	4,660.625	.023
9	81067	2,188.029	.027	4,864.687	.021

95% C.L. ON S.D.= 1.619 2.279 EXPECTED VALUE = 1.000

S.D.= 1.893 MEAN RES.= -.097 D.F.= 67

OBSERVATIONS:

NO.	CODE	FROM	TO	OBSERVATION	S.D.	RESIDUAL	STANDARD RESIDUAL

1	DIR.	1483	81067	000	00	00.0	2.5000	-2.463	.985	
2	DIR.	1483	1486	003	07	56.8	2.5000	.512	.205	
3	DIR.	1483	81066	003	26	33.5	2.5000	.338	.135	
4	DIR.	1483	81065	011	18	09.3	2.5000	-.413	.165	
5	DIR.	1483	81064	018	00	19.5	2.5000	3.253	1.301	
6	DIR.	1483	1485	062	44	04.3	2.5000	-1.227	.491	
7	DIR.	1485	1483	000	00	00.0	2.5000	.402	.161	
8	DIR.	1485	20016	007	08	01.0	2.5000	-2.394	.958	
9	DIR.	1485	81066	042	35	56.8	2.5000	-.395	.158	
10	DIR.	1485	81067	033	17	43.2	2.5000	-.618	.247	
11	DIR.	1485	81065	045	28	00.0	2.5000	.407	.163	
12	DIR.	1485	81064	044	25	43.8	2.5000	.022	.009	
13	DIR.	1485	1486	051	25	10.7	2.5000	2.577	1.031	
14	DIR.	1486	1485	000	00	00.0	2.5000	-4.566	1.826	
15	DIR.	1486	20016	059	10	33.8	2.5000	-2.151	.860	
16	DIR.	1486	81066	067	30	19.3	2.5000	1.222	.489	
17	DIR.	1486	1483	068	58	30.7	2.5000	6.104	2.442	***
18	DIR.	1486	81067	074	59	34.7	2.5000	-.609	.243	
19	DIR.	20016	81066	000	00	00.0	2.5000	3.667	1.467	
20	DIR.	20016	1486	002	19	51.2	2.5000	2.477	.991	
21	DIR.	20016	81065	010	56	52.8	2.5000	.314	.126	
22	DIR.	20016	81064	019	50	50.8	2.5000	-1.953	.781	
23	DIR.	20016	1485	078	52	07.3	2.5000	-4.505	1.802	
24	DIR.	81063	81067	000	00	00.0	2.5000	-1.360	.544	
25	DIR.	81063	81066	030	31	30.7	2.5000	.661	.265	
26	DIR.	81063	81065	049	28	50.5	2.5000	1.650	.660	
27	DIR.	81063	81064	065	32	36.0	2.5000	.698	.279	
28	DIR.	81063	81067	000	00	00.0	2.5000	-1.360	.544	
29	DIR.	81063	81066	030	31	31.7	2.5000	-.339	.135	
30	DIR.	81063	81065	049	28	53.8	2.5000	-1.650	.660	
31	DIR.	81063	81064	065	32	35.0	2.5000	1.698	.679	
32	DIR.	81064	81063	000	00	00.0	2.5000	-1.506	.603	
33	DIR.	81064	20016	026	29	00.8	2.5000	-1.967	.787	
34	DIR.	81064	1483	033	38	29.0	2.5000	5.258	2.103	***
35	DIR.	81064	81067	077	53	55.8	2.5000	1.706	.682	
36	DIR.	81064	81066	113	39	29.7	2.5000	1.611	.644	
37	DIR.	81064	81065	132	28	53.0	2.5000	-.395	.158	
38	DIR.	81064	1485	302	48	02.7	2.5000	-4.707	1.883	
39	DIR.	81065	81063	000	00	00.0	2.5000	3.885	1.554	
40	DIR.	81065	20016	033	38	52.5	2.5000	.538	.215	
41	DIR.	81065	1483	043	00	11.7	2.5000	-1.369	.548	
42	DIR.	81065	81067	074	28	31.8	2.5000	.885	.354	
43	DIR.	81065	1485	319	54	07.8	2.5000	-3.283	1.313	
44	DIR.	81065	81064	328	32	43.2	2.5000	-.656	.262	
45	DIR.	81066	1485	000	00	00.0	2.5000	-8.310	3.324	***
46	DIR.	81066	81063	024	00	35.0	2.5000	-.730	.292	
47	DIR.	81066	1483	078	06	21.5	2.5000	4.957	1.983	
48	DIR.	81066	81067	091	21	59.2	2.5000	2.946	1.178	
49	DIR.	81066	1486	256	19	31.5	2.5000	2.149	.859	
50	DIR.	81066	81064	352	41	13.5	2.5000	-1.076	.431	
51	DIR.	81066	20016	065	39	54.7	2.5000	.065	.026	
52	DIR.	81067	81063	000	00	00.0	2.5000	-1.702	.681	
53	DIR.	81067	81066	277	53	01.5	2.5000	-2.606	1.043	
54	DIR.	81067	81065	303	57	25.2	2.5000	-4.592	1.837	
55	DIR.	81067	81064	323	26	40.3	2.5000	-4.933	1.973	
56	DIR.	81067	81063	000	00	00.0	2.5000	-1.702	.681	
57	DIR.	81067	1483	081	10	43.8	2.5000	3.103	1.241	
58	DIR.	81067	1486	270	19	43.8	2.5000	.166	.066	
59	DIR.	81067	81066	277	52	56.7	2.5000	2.194	.877	
60	DIR.	81067	81065	303	57	17.5	2.5000	3.108	1.243	
61	DIR.	81067	81064	323	26	32.0	2.5000	3.367	1.347	
62	DIR.	81067	1485	357	12	31.3	2.5000	3.316	1.326	
63	DIR.	81067	81063	000	00	00.0	2.5000	-1.702	.681	
64	DIR.	81067	1483	081	10	42.3	2.5000	4.603	1.841	
65	DIR.	81067	1486	270	19	43.5	2.5000	.466	.186	
66	DIR.	81067	1485	357	12	37.3	2.5000	3.801	1.521	

67	NORTH.	1483	1483	2,943.212	.0010	.000	.376
68	EAST.	1483	1483	5,451.681	.0010	-.001	.530
69	NORTH.	1485	1485	3,261.723	.0010	.000	.454
70	EAST.	1485	1485	3,748.458	.0010	.000	.422
71	NORTH.	1486	1486	1,847.867	.0010	-.001	.830
72	EAST.	1486	1486	4,499.824	.0010	.000	.108
73	DIST.	1485	1486	1,601.115	.0130	-.008	.635
74	DIST.	1485	20016	1,413.804	.0120	.007	.559
75	DIST.	1485	81064	1,219.537	.0110	-.000	.040
76	DIST.	1485	81067	1,548.803	.0130	-.001	.068
77	DIST.	1486	20016	1,149.589	.0110	-.008	.745
78	DIST.	81063	81064	277.222	.0060	.007	1.164
79	DIST.	81063	81065	391.789	.0070	.004	.627
80	DIST.	81063	81066	488.447	.0070	.009	1.241
81	DIST.	81063	81067	455.108	.0070	.002	.280
82	DIST.	81064	20016	861.915	.0090	-.010	1.165
83	DIST.	81065	81064	146.987	.0060	.001	.210
84	DIST.	81065	20016	913.412	.0100	-.002	.163
85	DIST.	81066	1486	252.703	.0060	-.007	1.134
86	DIST.	81066	20016	900.296	.0100	-.001	.063
87	DIST.	81066	81064	306.016	.0060	-.002	.310
88	DIST.	81067	81064	423.699	.0070	-.009	1.230
89	DIST.	81067	81065	359.076	.0070	-.001	.159
90	DIST.	81067	81066	250.469	.0060	-.003	.447
91	DIST.	81067	1486	498.845	.0070	-.011	1.528
92	DIST.	1483	1486	1,451.148	.0120	-.006	.479
93	DIST.	1483	81064	1,213.089	.0110	.003	.277
94	DIST.	1483	81067	956.474	.0100	.011	1.097

UPDATED COORDINATES AND CORRECTIONS: iteration # 2

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	.000	5,451.680	-.000
2	1485	3,261.723	.000	3,748.458	.000
3	1486	1,847.866	-.000	4,499.824	.000
4	20016	2,831.288	.000	5,095.153	-.000
5	81063	2,519.121	-.000	4,552.433	.000
6	81064	2,262.481	-.000	4,447.590	.000
7	81065	2,129.589	-.000	4,510.400	.000
8	81066	2,042.798	-.000	4,660.625	.000
9	81067	2,188.029	-.000	4,864.687	.000

95% C.L. ON S.D.= 1.008 1.419 EXPECTED VALUE = 1.000

S.D.= 1.179 MEAN RES.= -.029 D.F.= 67

ADJUSTED COORDINATES AND STANDARD DEVIATIONS:

NO.	STATION	NORTHING	S.D.	EASTING	S.D.
1	1483	2,943.212	.0012	5,451.680	.0012
2	1485	3,261.723	.0012	3,748.458	.0012
3	1486	1,847.866	.0012	4,499.824	.0012
4	20016	2,831.288	.0069	5,095.153	.0062
5	81063	2,519.121	.0047	4,552.433	.0043
6	81064	2,262.481	.0040	4,447.590	.0039
7	81065	2,129.589	.0041	4,510.400	.0042
8	81066	2,042.798	.0037	4,660.625	.0034
9	81067	2,188.029	.0039	4,864.687	.0036

ERROR ELLIPSE MULIPLIER = 2.504

95% CONFIDENCE ELLIPSES:

NO.	STATION	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS
1	1483	.003	.003	-30.8
2	1485	.003	.003	54.2
3	1486	.003	.003	90.0
4	20016	.018	.015	-24.3
5	81063	.012	.010	29.5
6	81064	.010	.009	42.3
7	81065	.011	.010	53.4
8	81066	.011	.006	40.7
9	81067	.011	.007	39.5

95% RELATIVE CONFIDENCE ELLIPSES:

ELLIPSES OVER ORDER 2 ARE FLAGGED WITH ###
ACC.FACTOR UNDER: 2=FIRST; 5=2ND; 12=3RD; 30=4TH ORDER

LINE STN - STN	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS (deg)	LINE AZIMUTH (deg)	AZIMUTH ACCURACY (sec)	LENGTH ACCURACY	ACCURACY FACTOR
1483 - 1485	.004	.004	8.2	280.6	.5	.004	.214
1483 - 1486	.004	.004	-66.0	221.0	.6	.004	.250
1483 - 20016	.018	.015	-23.8	252.6	9.8	.015	3.084
1483 - 81063	.012	.011	29.3	244.8	2.3	.012	1.025
1483 - 81064	.011	.010	42.2	235.9	1.7	.011	.755
1483 - 81065	.011	.010	55.0	229.2	1.7	.011	.781
1483 - 81066	.011	.007	41.4	221.3	1.1	.011	.799
1483 - 81067	.011	.007	40.4	217.9	1.6	.011	.988
1485 - 1486	.004	.004	74.0	152.0	.5	.004	.229
1485 - 20016	.018	.015	-22.6	107.7	2.4	.016	1.103
1485 - 81063	.012	.011	28.1	132.7	2.3	.011	.946
1485 - 81064	.011	.010	42.2	145.0	1.8	.010	.752
1485 - 81065	.011	.010	53.9	146.1	1.7	.010	.723
1485 - 81066	.011	.007	40.7	143.2	1.5	.007	.653
1485 - 81067	.012	.008	39.2	133.9	1.5	.008	.659
1486 - 20016	.018	.015	-26.4	31.2	3.0	.016	1.308
1486 - 81063	.012	.010	31.3	4.5	3.3	.012	1.371
1486 - 81064	.010	.009	42.6	352.8	4.9	.010	1.680
1486 - 81065	.011	.010	51.8	2.1	7.6	.010	2.275
1486 - 81066	.011	.006	40.2	39.5	4.7	.011	2.390
1486 - 81067	.011	.007	38.9	47.0	2.9	.011	1.592
20016 - 81063	.018	.015	-18.6	240.1	5.8	.015	2.134
20016 - 81064	.018	.014	-33.6	228.7	4.2	.014	1.651
20016 - 81065	.018	.014	-41.0	219.8	4.0	.014	1.605
20016 - 81066	.017	.015	-44.4	208.9	3.8	.015	1.507
20016 - 81067	.016	.015	-43.5	199.7	4.9	.015	1.853
81063 - 81064	.008	.007	18.8	202.2	5.2	.008	1.778
81063 - 81065	.009	.009	-9.4	186.2	4.6	.009	1.597
81063 - 81066	.010	.009	23.2	167.2	4.0	.010	1.418
81063 - 81067	.009	.009	-53.8	136.7	4.0	.009	1.401
81064 - 81065	.008	.004	-25.1	154.7	5.7	.008	2.375
81064 - 81066	.008	.007	-30.4	135.9	4.7	.008	1.580
81064 - 81067	.008	.008	-58.7	100.1	3.7	.008	1.336
81065 - 81066	.008	.007	-40.2	120.0	8.8	.008	2.254
81065 - 81067	.009	.007	-71.7	80.6	4.4	.008	1.553
81066 - 81067	.008	.005	50.8	54.6	4.2	.008	1.808

TIME USED: 0 41 14

TRILATERATION

HOSFORD , IMPEY , WELTER
AND ASSOCIATES LTD.
LEAST SQUARES ADJUSTMENT
OF PLANE COORDINATES

DATE: MARCH 2, 1982
JOB NUMBER: 1713

CLIENT: CYPRUS ANVIL

RE: OPEN PIT CONTROL SURVEY - TRILATERATION ADJUSTMENT

NOTE: COORDINATES MODIFIED TO T minus t PROJECTIONS & SCALE CORRECTIONS
CENTRAL MERIDIAN FACTOR (SCM) = 1.0000
FALSE EASTING (CMX) = 4,500.000

APPROXIMATE COORDINATES:

NO.	STATION	NORTHING	EASTING
1	1483	2,943.212	5,451.681
2	1485	3,261.723	3,748.458
3	1486	1,847.867	4,499.824
4	20016	2,831.236	5,095.143
5	81063	2,519.139	4,552.448
6	81064	2,262.496	4,447.590
7	81065	2,129.600	4,510.402
8	81066	2,042.806	4,660.627
9	81067	2,188.039	4,864.691

NOTE: METRIC UNITS

WARNING: MATRIX DETERMINANT =0

UPDATED COORDINATES AND CORRECTIONS: iteration # 1

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	-.000	5,451.681	-.000
2	1485	3,261.723	-.000	3,748.458	.000
3	1486	1,847.867	.000	4,499.824	.000
4	20016	2,831.301	.065	5,095.151	.008
5	81063	2,519.116	-.023	4,552.430	-.018
6	81064	2,262.481	-.015	4,447.590	-.000
7	81065	2,129.590	-.010	4,510.407	.005
8	81066	2,042.803	-.003	4,660.632	.005
9	81067	2,188.036	-.003	4,864.696	.005

S.D.= 4.551 MEAN RES.= -.499 D.F.= 8

OBSERVATIONS:

NO.	CODE	FROM	TO	OBSERVATION	S.D.	RESIDUAL (adj-obs)	STANDARD RESIDUAL
67	NORTH.	1483	1483	2,943.212	.0010	-.000	.018
68	EAST.	1483	1483	5,451.681	.0010	-.000	.027
69	NORTH.	1485	1485	3,261.723	.0010	-.000	.003
70	EAST.	1485	1485	3,748.458	.0010	.000	.010
71	NORTH.	1486	1486	1,847.867	.0010	.000	.021
72	EAST.	1486	1486	4,499.824	.0010	.000	.016
74	DIST.	1485	20016	1,413.804	.0120	.002	.126
75	DIST.	1485	81064	1,219.537	.0110	-.000	.004
76	DIST.	1485	81067	1,548.803	.0130	.000	.008
77	DIST.	1486	20016	1,149.589	.0110	.001	.062
78	DIST.	81063	81064	277.222	.0060	.002	.288
79	DIST.	81063	81065	391.789	.0070	-.003	.496
80	DIST.	81063	81066	488.447	.0070	.001	.140
81	DIST.	81063	81067	455.108	.0070	.000	.063
82	DIST.	81064	20016	861.915	.0090	-.003	.336
83	DIST.	81065	81064	146.987	.0060	.002	.380
84	DIST.	81065	20016	913.412	.0100	.001	.113
85	DIST.	81066	1486	252.703	.0060	.001	.134
86	DIST.	81066	20016	900.296	.0100	.002	.164
87	DIST.	81066	81064	306.016	.0060	-.001	.120
88	DIST.	81067	81064	423.699	.0070	-.001	.214
89	DIST.	81067	81065	359.076	.0070	.001	.195
90	DIST.	81067	81066	250.469	.0060	-.000	.023
91	DIST.	81067	1486	498.845	.0070	-.000	.007
93	DIST.	1483	81064	1,213.089	.0110	.004	.354
94	DIST.	1483	81067	956.474	.0100	.000	.001

WARNING: ZEROS AT ROW/COLUMN 3 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 6 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 9 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 12 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 15 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 18 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 21 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 24 DEGREES OF FREEDOM F=F+1

WARNING: ZEROS AT ROW/COLUMN 27 DEGREES OF FREEDOM F=F+1

WARNING: MATRIX DETERMINANT =0

UPDATED COORDINATES AND CORRECTIONS: iteration # 2

NO.	STATION	NORTHING	CORR.	EASTING	CORR.

1	1483	2,943.212	-.000	5,451.681	.000
2	1485	3,261.723	-.000	3,748.458	-.000
3	1486	1,847.867	-.000	4,499.824	.000
4	20016	2,831.301	.000	5,095.151	-.000
5	81063	2,519.116	-.000	4,552.430	.000
6	81064	2,262.481	.000	4,447.590	.000
7	81065	2,129.590	.000	4,510.407	.000
8	81066	2,042.803	.000	4,660.632	-.000
9	81067	2,188.036	-.000	4,864.696	-.000

S.D.= .338 MEAN RES.= .024 D.F.= 8

S.D. SET TO 1.000

ADJUSTED COORDINATES AND STANDARD DEVIATIONS:

NO.	STATION	NORTHING	S.D.	EASTING	S.D.
1	1483	2,943.212	.0010	5,451.681	.0010
2	1485	3,261.723	.0010	3,748.458	.0010
3	1486	1,847.867	.0010	4,499.824	.0010
4	20016	2,831.301	.0096	5,095.151	.0102
5	81063	2,519.116	.0087	4,552.430	.0142
6	81064	2,262.481	.0096	4,447.590	.0074
7	81065	2,129.590	.0096	4,510.407	.0090
8	81066	2,042.803	.0074	4,660.632	.0086
9	81067	2,188.036	.0078	4,864.696	.0071

ERROR ELLIPSE MULIPLIER = 2.986

95% CONFIDENCE ELLIPSES:

NO.	STATION	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS
1	1483	.003	.003	-45.4
2	1485	.003	.003	34.3
3	1486	.003	.003	-48.8
4	20016	.037	.020	-48.5
5	81063	.043	.026	82.6
6	81064	.029	.021	-15.0
7	81065	.033	.022	-39.7
8	81066	.031	.014	-51.7
9	81067	.028	.014	-40.6

95% RELATIVE CONFIDENCE ELLIPSES:

ELLIPSES OVER ORDER 2 ARE FLAGGED WITH ***
ACC.FACTOR UNDER: 2=FIRST; 5=2ND; 12=3RD; 30=4TH ORDER

LINE STN - STN	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS (deg)	LINE AZIMUTH (deg)	AZIMUTH ACCURACY (sec)	LENGTH ACCURACY	ACCURACY FACTOR
1483 - 1485	.004	.004	-41.0	280.6	.5	.004	.218
1483 - 1486	.004	.004	-47.2	221.0	.6	.004	.256
1483 - 20016	.037	.020	-48.5	252.6	18.4	.025	6.455 ***
1483 - 81063	.043	.026	82.7	244.8	5.8	.041	3.580
1483 - 81064	.029	.022	-15.4	235.9	4.9	.022	2.079
1483 - 81065	.033	.022	-39.8	229.2	5.4	.022	2.245

1483	- 81066	.031	.014	-51.7	221.3	5.4	.014	2.231
1483	- 81067	.028	.015	-40.6	217.9	6.0	.015	2.448
1485	- 1486	.004	.004	-52.2	152.0	.5	.004	.234
1485	- 20016	.037	.020	-48.3	107.7	3.4	.035	2.281
1485	- 81063	.043	.025	82.2	132.7	6.9	.034	3.303
1485	- 81064	.029	.022	-14.1	145.0	3.8	.028	2.044
1485	- 81065	.032	.022	-39.7	146.1	3.4	.032	2.073
1485	- 81066	.031	.014	-51.9	143.2	2.1	.030	1.796
1485	- 81067	.028	.015	-40.4	133.9	2.0	.028	1.603
1486	- 20016	.037	.020	-48.8	31.2	6.6	.020	2.744
1486	- 81063	.043	.026	82.8	4.5	12.9	.027	4.901
1486	- 81064	.029	.022	-15.4	352.8	10.7	.029	4.730
1486	- 81065	.033	.022	-39.8	2.2	20.0	.028	6.784 ***
1486	- 81066	.031	.013	-51.6	39.5	25.5	.014	6.889 ***
1486	- 81067	.028	.014	-40.7	47.0	11.7	.014	4.053
20016	- 81063	.050	.030	-65.2	240.1	14.5	.037	5.995 ***
20016	- 81064	.045	.020	-43.1	228.7	10.8	.020	4.241
20016	- 81065	.049	.020	-49.5	219.8	11.0	.020	4.384
20016	- 81066	.048	.020	-55.1	208.9	10.9	.020	4.330
20016	- 81067	.045	.023	-44.3	199.7	12.5	.028	5.072 ***
81063	- 81064	.036	.014	-80.7	202.2	26.2	.016	7.541 ***
81063	- 81065	.044	.016	-85.8	186.2	23.0	.016	7.387 ***
81063	- 81066	.047	.016	82.1	167.2	19.8	.016	6.849 ***
81063	- 81067	.042	.019	54.5	136.7	18.8	.019	6.384 ***
81064	- 81065	.023	.015	74.3	154.7	32.6	.015	6.746 ***
81064	- 81066	.026	.016	51.7	135.9	17.2	.016	5.061 ***
81064	- 81067	.034	.016	3.5	100.1	16.5	.016	5.454 ***
81065	- 81066	.024	.021	78.6	120.0	26.5	.023	6.470 ***
81065	- 81067	.034	.018	-12.7	80.6	19.2	.018	5.999 ***
81066	- 81067	.028	.014	-36.8	54.6	23.4	.014	5.311 ***

TIME USED: 0 17 16

UNCONSTRAINED (FREE)
ALL OBSERVATIONS

HOSFORD , IMPEY , WELTER
AND ASSOCIATES LTD.
LEAST SQUARES ADJUSTMENT
OF PLANE COORDINATES

DATE: FEBRUARY 24, 1982
JOB NUMBER: 1713

CLIENT: CYPRUS ANVIL

RE: OPEN PIT CONTROL SURVEY

NOTE: COORDINATES MODIFIED TO T minus t PROJECTIONS & SCALE CORRECTIONS
CENTRAL MERIDIAN FACTOR (SCM) = 1.0000
FALSE EASTING (CMX) = 4,500.000

APPROXIMATE COORDINATES:

NO.	STATION	NORTHING	EASTING
1	1483	2,943.212	5,451.681
2	1485	3,261.723	3,748.458
3	1486	1,847.867	4,499.824
4	20016	2,831.236	5,095.143
5	81063	2,519.139	4,552.448
6	81064	2,262.496	4,447.590
7	81065	2,129.600	4,510.402
8	81066	2,042.806	4,660.627
9	81067	2,188.039	4,864.691

NOTE: METRIC UNITS

UPDATED COORDINATES AND CORRECTIONS: iteration # 1

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	.000	5,451.681	-.000
2	1485	3,261.717	-.006	3,748.488	.030
3	1486	1,847.842	-.025	4,499.846	.022
4	20016	2,831.273	.037	5,095.173	.030
5	81063	2,519.104	-.035	4,552.452	.004
6	81064	2,262.464	-.032	4,447.611	.021
7	81065	2,129.572	-.028	4,510.422	.020
8	81066	2,042.781	-.025	4,660.648	.021
9	81067	2,188.014	-.025	4,864.709	.018

95% C.L. ON S.D.= 2.558 3.629 EXPECTED VALUE = 1.000

S.D.= 3.001 MEAN RES.= -.227 D.F.= 64

OBSERVATIONS:

NO.	CODE	FROM	TO	OBSERVATION	S.D.	RESIDUAL (adj-obs)	STANDARD RESIDUAL
1	DIR.	1483	81067	000 00 00.0	2.5000	-3.987	1.595
2	DIR.	1483	1486	003 07 56.8	2.5000	-.083	.033
3	DIR.	1483	81066	003 26 33.5	2.5000	-.531	.212
4	DIR.	1483	81065	011 18 09.3	2.5000	-.847	.339
5	DIR.	1483	81064	018 00 19.5	2.5000	2.871	1.148
6	DIR.	1483	1485	062 44 04.3	2.5000	2.578	1.031
7	DIR.	1485	1483	000 00 00.0	2.5000	-1.211	.484
8	DIR.	1485	20016	007 08 01.0	2.5000	-2.304	.922
9	DIR.	1485	81066	042 35 56.8	2.5000	-.369	.147
10	DIR.	1485	81067	033 17 43.2	2.5000	-.677	.271
11	DIR.	1485	81065	045 28 00.0	2.5000	.743	.297
12	DIR.	1485	81064	044 25 43.8	2.5000	.739	.296
13	DIR.	1485	1486	051 25 10.7	2.5000	3.079	1.232
14	DIR.	1486	1485	000 00 00.0	2.5000	-.598	.239
15	DIR.	1486	20016	059 10 33.8	2.5000	-1.363	.545
16	DIR.	1486	81066	067 30 19.3	2.5000	.137	.055
17	DIR.	1486	1483	068 58 30.7	2.5000	3.557	1.423
18	DIR.	1486	81067	074 59 34.7	2.5000	-1.732	.693
19	DIR.	20016	81066	000 00 00.0	2.5000	3.108	1.243
20	DIR.	20016	1486	002 19 51.2	2.5000	1.631	.652
21	DIR.	20016	81065	010 56 52.8	2.5000	.038	.015
22	DIR.	20016	81064	019 50 50.8	2.5000	-2.193	.877
23	DIR.	20016	1485	078 52 07.3	2.5000	-2.583	1.033
24	DIR.	81063	81067	000 00 00.0	2.5000	-1.538	.615
25	DIR.	81063	81066	030 31 30.7	2.5000	.529	.212
26	DIR.	81063	81065	049 28 50.5	2.5000	1.787	.715
27	DIR.	81063	81064	065 32 36.0	2.5000	.871	.348
28	DIR.	81063	81067	000 00 00.0	2.5000	-1.538	.615
29	DIR.	81063	81066	030 31 31.7	2.5000	-.471	.188
30	DIR.	81063	81065	049 28 53.8	2.5000	-1.513	.605
31	DIR.	81063	81064	065 32 35.0	2.5000	1.871	.748
32	DIR.	81064	81063	000 00 00.0	2.5000	-1.795	.718
33	DIR.	81064	20016	026 29 00.8	2.5000	-1.388	.555
34	DIR.	81064	1483	033 38 29.0	2.5000	2.109	.844
35	DIR.	81064	81067	077 53 55.8	2.5000	1.380	.552
36	DIR.	81064	81066	113 39 29.7	2.5000	1.554	.622
37	DIR.	81064	81065	132 28 53.0	2.5000	-.522	.209
38	DIR.	81064	1485	302 48 02.7	2.5000	-1.337	.535
39	DIR.	81065	81063	000 00 00.0	2.5000	3.629	1.452
40	DIR.	81065	20016	033 38 52.5	2.5000	1.151	.461
41	DIR.	81065	1483	043 00 11.7	2.5000	-4.500	1.800
42	DIR.	81065	81067	074 28 31.8	2.5000	.660	.264
43	DIR.	81065	1485	319 54 07.8	2.5000	-.226	.090
44	DIR.	81065	81064	328 32 43.2	2.5000	-.715	.286
45	DIR.	81066	1485	000 00 00.0	2.5000	-4.988	1.995
46	DIR.	81066	81063	024 00 35.0	2.5000	-.680	.272
47	DIR.	81066	1483	078 06 21.5	2.5000	1.966	.786
48	DIR.	81066	81067	091 21 59.2	2.5000	2.327	.931
49	DIR.	81066	1486	256 19 31.5	2.5000	.894	.358
50	DIR.	81066	81064	352 41 13.5	2.5000	-.489	.196
51	DIR.	81066	20016	065 39 54.7	2.5000	.971	.388
52	DIR.	81067	81063	000 00 00.0	2.5000	-1.479	.592
53	DIR.	81067	81066	277 53 01.5	2.5000	-3.006	1.202
54	DIR.	81067	81065	303 57 25.2	2.5000	-4.023	1.609
55	DIR.	81067	81064	323 26 40.3	2.5000	-4.395	1.758
56	DIR.	81067	81063	000 00 00.0	2.5000	-1.479	.592
57	DIR.	81067	1483	081 10 43.8	2.5000	-.323	.129
58	DIR.	81067	1486	270 19 43.8	2.5000	-.907	.363
59	DIR.	81067	81066	277 52 56.7	2.5000	1.794	.718
60	DIR.	81067	81065	303 57 17.5	2.5000	3.677	1.471
61	DIR.	81067	81064	323 26 32.0	2.5000	-3.805	1.522

62	DIR.	81067	1485	357 12 31.3	2.5000	6.773	2.709 ***
63	DIR.	81067	81063	000 00 00.0	2.5000	-1.479	.592
64	DIR.	81067	1483	081 10 42.3	2.5000	1.177	.471
65	DIR.	81067	1486	270 19 43.5	2.5000	-.607	.243
66	DIR.	81067	1485	357 12 37.7	2.5000	.373	.149
67	NORTH.	1483	1483	2,943.212	.0010	0.000	0.000
68	EAST.	1483	1483	5,451.681	.0010	0.000	0.000
69	AZI.	1485	1483	100 35 32.0	.1000	0.000	0.000
73	DIST.	1485	1486	1,601.115	.0130	.004	.276
74	DIST.	1485	20016	1,413.804	.0120	-.000	.031
75	DIST.	1485	81064	1,219.537	.0110	.003	.268
76	DIST.	1485	81067	1,548.803	.0130	-.002	.117
77	DIST.	1486	20016	1,149.589	.0110	-.001	.094
78	DIST.	81063	81064	277.222	.0060	.006	1.066
79	DIST.	81063	81065	391.789	.0070	.004	.556
80	DIST.	81063	81066	488.447	.0070	.010	1.358
81	DIST.	81063	81067	455.108	.0070	.002	.274
82	DIST.	81064	20016	861.915	.0090	-.010	1.119
83	DIST.	81065	81064	146.987	.0060	.001	.211
84	DIST.	81065	20016	913.412	.0100	-.002	.168
85	DIST.	81066	1486	252.703	.0060	.000	.031
86	DIST.	81066	20016	900.296	.0100	-.001	.076
87	DIST.	81066	81064	306.016	.0060	-.001	.091
88	DIST.	81067	81064	423.699	.0070	-.008	1.186
89	DIST.	81067	81065	359.076	.0070	-.001	.099
90	DIST.	81067	81066	250.469	.0060	-.002	.378
91	DIST.	81067	1486	498.845	.0070	-.003	.495
92	DIST.	1483	1486	1,451.148	.0120	-.001	.109
93	DIST.	1483	81064	1,213.089	.0110	-.004	.406
94	DIST.	1483	81067	956.474	.0100	.009	.881

UPDATED COORDINATES AND CORRECTIONS: iteration # 2

NO.	STATION	NORTHING	CORR.	EASTING	CORR.
1	1483	2,943.212	.000	5,451.681	.000
2	1485	3,261.717	-.000	3,748.488	.000
3	1486	1,847.842	-.000	4,499.846	.000
4	20016	2,831.273	.000	5,095.173	-.000
5	81063	2,519.104	-.000	4,552.452	.000
6	81064	2,262.464	-.000	4,447.611	.000
7	81065	2,129.572	-.000	4,510.422	.000
8	81066	2,042.781	-.000	4,660.648	.000
9	81067	2,188.014	-.000	4,864.709	.000

95% C.L. ON S.D.= .824 1.170 EXPECTED VALUE = 1.000

S.D.= .967 MEAN RES.= .006 D.F.= 64

ADJUSTED COORDINATES AND STANDARD DEVIATIONS:

NO.	STATION	NORTHING	S.D.	EASTING	S.D.
1	1483	2,943.212	.0010	5,451.681	.0010
2	1485	3,261.717	.0019	3,748.488	.0079
3	1486	1,847.842	.0051	4,499.846	.0084
4	20016	2,831.273	.0068	5,095.173	.0073
5	81063	2,519.104	.0051	4,552.452	.0065
6	81064	2,262.464	.0047	4,447.611	.0070
7	81065	2,129.572	.0048	4,510.422	.0074
8	81066	2,042.781	.0046	4,660.648	.0076
9	81067	2,188.014	.0046	4,864.709	.0071

ERROR ELLIPSE MULIPLIER = 2.506

95% CONFIDENCE ELLIPSES:

NO.	STATION	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS
### WARNING: NEGATIVE SQRT ###				
1	1483	.002	.002	-72.9
2	1485	.020	.003	-79.4
3	1486	.021	.013	-87.3
4	20016	.018	.017	-83.3
5	81063	.016	.013	-85.0
6	81064	.018	.012	-81.0
7	81065	.019	.012	-83.9
8	81066	.019	.012	87.4
9	81067	.018	.011	79.7

95% RELATIVE CONFIDENCE ELLIPSES:

ELLIPSES OVER ORDER 2 ARE FLAGGED WITH ###
ACC.FACTOR UNDER: 2=FIRST; 5=2ND; 12=3RD; 30=4TH ORDER

LINE STN - STN	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS (deg)	LINE AZIMUTH (deg)	AZIMUTH ACCURACY (sec)	LENGTH ACCURACY	ACCURACY FACTOR
1483 - 1485	.020	.002	-79.4	280.6	.2	.020	1.037
1483 - 1486	.021	.012	-87.3	221.0	2.6	.016	1.267
1483 - 20016	.018	.017	-83.3	252.6	9.5	.018	3.184
1483 - 81063	.016	.012	-85.0	244.7	2.8	.015	1.357
1483 - 81064	.017	.011	-81.0	235.9	2.5	.015	1.238
1483 - 81065	.019	.012	-83.9	229.2	2.6	.015	1.284
1483 - 81066	.019	.011	87.4	221.3	2.7	.015	1.355
1483 - 81067	.018	.011	79.7	217.9	3.1	.015	1.536
1485 - 1486	.021	.013	-85.7	152.0	2.5	.016	1.181
1485 - 20016	.017	.017	40.6	107.7	2.5	.017	1.055
1485 - 81063	.017	.013	-80.1	132.7	2.6	.016	1.298
1485 - 81064	.018	.011	-77.7	145.0	2.5	.015	1.250
1485 - 81065	.019	.012	-79.5	146.1	2.4	.016	1.207
1485 - 81066	.019	.012	-88.1	143.2	2.3	.015	1.112
1485 - 81067	.018	.012	86.8	133.9	2.1	.015	1.039
1486 - 20016	.019	.014	-53.5	31.2	3.4	.014	1.402
1486 - 81063	.013	.010	72.1	4.5	3.8	.011	1.449
1486 - 81064	.011	.009	59.5	352.8	5.2	.009	1.772
1486 - 81065	.011	.009	56.4	2.1	7.4	.009	2.239
1486 - 81066	.010	.006	41.8	39.5	4.7	.010	2.201
1486 - 81067	.010	.008	42.0	47.0	3.4	.010	1.486
20016 - 81063	.016	.013	-22.4	240.1	5.2	.013	1.915
20016 - 81064	.017	.011	-35.3	228.7	4.0	.012	1.563
20016 - 81065	.017	.012	-42.9	219.8	3.9	.012	1.538
20016 - 81066	.016	.012	-52.8	208.9	3.8	.012	1.496
20016 - 81067	.015	.013	-55.3	199.7	4.5	.013	1.710
81063 - 81064	.007	.006	17.6	202.2	4.6	.007	1.461
81063 - 81065	.008	.008	-51.4	186.2	4.2	.008	1.358
81063 - 81066	.009	.008	73.2	167.2	3.9	.008	1.336
81063 - 81067	.008	.008	58.8	136.7	3.7	.008	1.267
81064 - 81065	.007	.004	-25.5	154.7	5.0	.007	1.954
81064 - 81066	.007	.004	-35.5	175.8	4.4	.007	1.708

81064	- 81067	.007	.007	-3.6	100.1	3.5	.007	1.162
81065	- 81066	.007	.006	-41.0	120.0	7.6	.007	1.858
81065	- 81067	.007	.007	-52.1	80.6	4.0	.007	1.307
81066	- 81067	.007	.005	51.7	54.6	4.0	.007	1.490

TIME USED: 0 40 56

ELEVATION ADJUSTMENT

HOSFORD, IMPEY, WELTER
AND ASSOCIATES LTD.
LEAST SQUARES ADJUSTMENT
OF ELEVATIONS

DATE: March 2, 1982

JOB NUMBER: 1713

NUMBER OF LINKS = 22
NUMBER OF STATIONS = 9
NUMBER OF FIXED STATIONS = 3

APPROXIMATE STATION ELEVATIONS:

NO.	NAME	ELEVATION
1	20016	1,324.950
2	81063	1,238.200
3	81064	1,224.000
4	81065	1,227.790
5	81066	1,223.860
6	81067	1,223.990
7	1483	1,454.642
8	1485	1,327.812
9	1486	1,223.547

LINK ELEVATION DATA:

NO.	FROM	TO	ELEV DIFF	INV WEIGHT
1	1485	1486	-104.194	.07700
2	1485	20016	-2.854	.00200
3	1485	81064	-103.802	.00100
4	1485	81067	-103.897	.00200
5	1486	20016	101.407	.01300
6	81063	81064	-14.198	.00100
7	81063	81065	-10.400	.00200
8	81063	81066	-14.349	.00200
9	81063	81067	-14.216	.00200
10	81064	20016	100.956	.00800
11	81065	81064	-3.790	.00020
12	81065	20016	97.180	.00800
13	81066	1486	-.305	.00006
14	81066	20016	101.101	.00800
15	81066	81064	.151	.00090
16	81067	81064	.020	.01800
17	81067	81065	3.827	.00100
18	81067	81066	-.129	.00006
19	81067	1486	-.441	.00200
20	1483	1486	-231.320	.06500
21	1483	81064	-230.667	.00200
22	1483	81067	-230.707	.00100

ADJUSTED STATION ELEVATIONS:

NO.	NAME	ELEVATION	S.D.

1	20016	1324.9582	.0186
2	81063	1238.1951	.0129
3	81064	1224.0004	.0092
4	81065	1227.7920	.0104
5	81066	1223.8482	.0041
6	81067	1223.9733	.0054
7	1483	1454.6420	0.0000
8	1485	1327.8120	0.0000
9	1486	1223.5470	0.0000

LINK RESIDUALS AND S.D.:

LINE NO.	FROM	TO	ADJ-EL DIFF	OBS-EL DIFF	RESIDUAL OBS-ADJ	INVERSE WEIGHT	LINK S.D.
1	1485	1486	-104.265	-104.194	.071	.07700	0.0000
2	1485	20016	-2.854	-2.854	-.000	.00200	.0186
3	1485	81064	-103.812	-103.802	.010	.00100	.0092
4	1485	81067	-103.839	-103.897	-.058	.00200	.0054
5	1486	20016	101.411	101.407	-.004	.01300	.0186
6	81063	81064	-14.195	-14.198	-.003	.00100	.0121
7	81063	81065	-10.403	-10.400	.003	.00200	.0129
8	81063	81066	-14.347	-14.349	-.002	.00200	.0126
9	81063	81067	-14.222	-14.216	.006	.00200	.0127
10	81064	20016	100.958	100.956	-.002	.00800	.0197
11	81065	81064	-3.792	-3.790	.002	.00020	.0073
12	81065	20016	97.166	97.180	.014	.00800	.0201
13	81066	1486	-.301	-.305	-.004	.00006	.0041
14	81066	20016	101.110	101.101	-.009	.00800	.0188
15	81066	81064	.152	.151	-.001	.00090	.0090
16	81067	81064	.027	.020	-.007	.01800	.0094
17	81067	81065	3.819	3.827	.008	.00100	.0103
18	81067	81066	-.125	-.129	-.004	.00006	.0041
19	81067	1486	-.426	-.441	-.015	.00200	.0054
20	1483	1486	-231.095	-231.320	-.225	.06500	0.0000
21	1483	81064	-230.642	-230.667	-.025	.00200	.0092
22	1483	81067	-230.669	-230.707	-.038	.00100	.0054

MEAN RESIDUAL = -.00410 STD ERROR = .56922