



REGOLITH GEOLOGY AND SOIL GEOCHEMISTRY OF THE LITTLE EVA COPPER PROSPECT, QUAMBY DISTRICT, NW QUEENSLAND

Volume 2

I.D.M. Robertson, C. Phang and T.J. Munday

CRC LEME OPEN FILE REPORT 123

April 2002

CRC LEME

(CSIRO Exploration and Mining Report 128R, 1995.
2nd Impression 2002.)

REGOLITH GEOLOGY AND SOIL GEOCHEMISTRY OF THE LITTLE EVA COPPER PROSPECT, QUAMBY DISTRICT, NW QUEENSLAND

Volume 2

I.D.M. Robertson, C. Phang and T.J. Munday

CRC LEME OPEN FILE REPORT 123

April 2002

(CSIRO Exploration and Mining Report 128R, 1995.
2nd Impression 2002.)

© CSIRO 1995

© CSIRO

CSIRO/CRC LEME/AMIRA PROJECT P417

GEOCHEMICAL EXPLORATION IN REGOLITH-DOMINATED TERRAIN, NORTH QUEENSLAND 1994-1997

In 1994, CSIRO commenced a multi-client research project in regolith geology and geochemistry in North Queensland, supported by 11 mining companies, through the Australian Mineral Industries Research Association Limited (AMIRA). This research project, "Geochemical Exploration in Regolith-Dominated Terrain, North Queensland" had the aim of substantially improving geochemical methods of exploring for base metals and gold deposits under cover or obscured by deep weathering in selected areas within (a) the Mt Isa region and (b) the Charters Towers - North Drummond Basin region.

In July 1995, this project was incorporated into the research programs of CRC LEME, which provided an expanded staffing, not only from CSIRO but also from the Australian Geological Survey Organisation, University of Queensland and the Queensland Department of Minerals and Energy. The project, operated from nodes in Perth, Brisbane, Canberra and Sydney, was led by Dr R.R. Anand. It was commenced on 1st April 1994 and concluded in December 1997. The project involved regional mapping (three areas), district scale mapping (seven areas), local scale mapping (six areas), geochemical dispersion studies (fifteen sites) and geochronological studies (eleven sites). It carried the experience gained from the Yilgarn (see CRC LEME Open File Reports 1-75 and 86-112) across the continent and expanded upon it.

Although the confidentiality period of Project P417 expired in mid 2000, the reports have not been released previously. CRC LEME acknowledges the Australian Mineral Industries Research Association and CSIRO Division of Exploration and Mining for authority to publish these reports. It is intended that publication of the reports will be a substantial additional factor in transferring technology to aid the Australian mineral industry.

This report (CRC LEME Open File Report 123) is a second impression (second printing) of CSIRO, Division of Exploration and Mining Restricted Report 128R, first issued in 1995, which formed part of the CSIRO/AMIRA Project P417.

Copies of this publication can be obtained from:

The Publication Officer, c/- CRC LEME, CSIRO Exploration and Mining, P.O. Box 1130, Bentley, WA 6102, Australia.. Information on other publications in this series may be obtained from the above or from <http://leme.anu.edu.au/>

Cataloguing-in-Publication:

Robertson, I.D.M.

Regolith geology and soil geochemistry of the Little Eva Copper prospect, Quamby District, NW Queensland.

ISBN v1. 1 643 06813 9 v2. 0 643 06814 7 set 0 643 06815 5

1. Regolith - North West Queensland 2. Landforms - North West Queensland 3. Geochemistry

I. Phang, C. II. Munday, T.J. III. Title

CRC LEME Open File Report 123.

ISSN 1329-4768

APPENDIX 1	Tabulated geochemistry - 710-2000 µm soil fraction	Vol II
APPENDIX 2	Tabulated geochemistry - <75 µm soil fraction	Vol II
APPENDIX 3	Contoured geochemistry	Vol II
APPENDIX 4	Tabulated soil descriptions	Vol II
APPENDIX 5	Tabulated analyses of standards	Vol II
APPENDIX 6	Spearman rank correlation matrices	Vol II
APPENDIX 7	Transparent regolith overlay for Appendix 3	Vol II
APPENDIX 8	Size fraction and analyses of termitarium material	Vol II
APPENDIX 9	Data Disc.	Vol II

APPENDIX 2

TABULATED GEOCHEMISTRY <75 μm SOIL FRACTION

LITTLE EVA <75 µm SOIL FRACTION

Sample Numbers			Co-ordinates		XRF(f)	XRF(f)	XRF(f)	INAA	XRF(f)	XRF(f)	XRF(f)	XRF(f)	INAA	XRF(f)	XRF(f)	INAA	INAA	INAA		
				Detn	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppb		
Field No	LabSeq	Lib No	East	North	SiO2	Al2O3	Fe2O3	Fe2O3	MnO	MgO	CaO	Na2O	Na2O	K2O	K2O	TiO2	P2O5	Ag	As	Au
LEF 01	LO8-1706	08-1699	11600	26300	53.55	16.63	11.09	11.11	0.126	1.73	1.47	0.99	1.07	2.18	1.98	1.52	0.125	<5	5.64	<5
LEF 02	LO8-1716	08-1700	11855	26355	34.05	8.80	5.86	5.95	0.044	3.23	20.38	1.00	1.10	0.89	1.16	0.54	0.144	<5	2.78	7.8
LEF 03	LO8-1703	08-1701	12000	26200	27.46	7.41	3.17	3.26	0.033	4.14	27.79	0.40	0.44	0.80	0.93	0.20	0.044	<5	1.77	8.3
LEF 04	LO8-1722	08-1702	12100	26300	22.69	6.02	3.00	3.09	0.034	3.40	32.40	0.19	0.26	1.05	1.02	0.21	0.032	<5	1.86	<5
LEF 05	LO8-1720	08-1703	11800	26200	52.30	16.12	11.83	11.84	0.125	2.09	1.79	0.98	1.06	2.14	2.46	1.66	0.130	<5	8.03	<5
LEF 06	LO8-1723	08-1704	11650	26200	52.87	16.06	11.50	11.55	0.133	2.00	1.79	0.96	1.05	2.12	1.35	1.64	0.146	<5	5.31	<5
LEF 07	LO8-1732	08-1705	11400	26200	54.35	15.82	10.85	10.49	0.191	2.07	1.68	1.05	1.07	2.45	3.04	1.51	0.240	<5	5.31	<5
LEF 08	LO8-1705	08-1706	11500	26100	50.73	16.10	10.86	11.07	0.153	2.21	1.99	0.97	1.05	2.05	1.57	1.45	0.177	<5	6.16	<5
LEF 09	LO8-1726	08-1707	11700	26100	49.56	17.88	11.86	11.82	0.136	2.14	1.38	0.70	0.76	2.28	2.36	1.33	0.129	<5	8.67	<5
LEF 10	LO8-1729	08-1708	11800	26100	34.78	9.85	7.19	7.19	0.042	3.96	18.15	0.42	0.44	1.78	1.92	0.44	0.120	<5	1.85	19.6
LEF 11	LO8-1727	08-1709	11900	26100	18.67	4.82	2.25	2.29	0.026	2.10	37.35	0.06	0.13	0.78	0.43	0.18	0.054	<5	1.97	8.5
LEF 12	LO8-1701	08-1710	12100	26100	42.01	11.88	5.03	5.03	0.041	4.24	16.01	1.32	1.42	1.49	1.58	0.38	0.047	<5	1.27	7.3
LEF 13	LO8-1736	08-1711	12000	26000	28.80	8.77	3.80	3.83	0.019	2.16	27.10	0.58	0.64	0.87	0.84	0.27	0.051	<5	1.98	6.1
LEF 14	-	-	11800	26000	30.19	8.41	7.30	7.21	0.036	2.74	22.10	0.81	0.89	0.78	0.82	0.48	0.116	<5	1.86	47.8
LEF 16	LO8-1714	08-1714	11600	25990	51.63	14.66	10.40	10.08	0.069	3.39	3.01	1.62	1.70	1.51	1.08	1.16	0.115	<5	4.90	52.8
LEF 17	-	-	11500	25900	30.11	8.81	6.29	6.11	0.039	4.25	22.03	0.37	0.42	1.21	0.74	0.47	0.093	<5	1.29	10.1
LEF 18	LO8-1700	08-1716	11720	25885	49.26	15.97	13.39	13.38	0.052	2.86	2.59	0.96	1.06	1.07	1.12	1.40	0.066	<5	3.79	115.0
LEF 19	LO8-1725	08-1717	11900	25900	58.13	15.29	7.90	7.92	0.052	2.05	2.26	0.31	0.31	1.24	1.07	1.12	0.042	<5	5.91	12.3
LEF 20	LO8-1733	08-1718	12050	25850	21.99	7.12	2.84	2.82	0.041	2.98	32.47	0.10	0.14	1.24	1.11	0.21	0.036	<5	5.35	11.9
LEF 21	LO8-1702	08-1719	12000	25800	22.48	7.11	3.13	3.12	0.031	2.58	32.59	0.28	0.33	0.70	0.53	0.22	0.044	<5	3.51	11.3
LEF 22	LO8-1715	08-1720	11800	25800	37.33	8.07	4.88	5.00	0.042	1.91	20.84	0.20	0.26	1.11	0.96	0.57	0.066	<5	2.17	13.1
LEF 23	-	-	11650	25830	51.74	17.51	12.84	11.97	0.066	1.45	0.88	0.83	0.84	1.38	1.3	1.38	0.050	<5	4.04	53.3
LEF 24	LO8-1719	08-1722	11400	25800	54.99	14.34	9.09	9.16	0.089	2.97	2.35	0.95	1.02	2.37	2.28	1.30	0.148	<5	5.17	<5
LEF 25	LO8-1728	08-1723	11600	25700	56.61	17.26	10.28	10.27	0.112	0.75	0.49	0.37	0.41	2.25	2.75	1.36	0.080	<5	4.73	22.8
LEF 26	LO8-1734	08-1724	11800	25700	59.99	14.59	8.00	8.28	0.098	1.17	1.30	0.65	0.70	1.85	1.17	1.12	0.053	<5	4.97	16.4
LEF 27	LO8-1704	08-1725	12000	25700	45.17	12.41	7.29	7.28	0.079	2.27	10.42	0.36	0.39	1.46	1.36	0.87	0.046	<5	4.99	19.1
LEF 28	LO8-1711	08-1726	12050	25380	57.29	15.18	8.74	8.75	0.123	1.67	1.61	0.56	0.64	2.28	2.31	1.03	0.032	<5	3.21	<5
LEF 29	LO8-1718	08-1727	11900	25400	58.63	15.28	9.16	9.41	0.092	1.73	1.60	0.58	0.67	1.84	1.55	1.16	0.043	<5	3.32	22.6
LEF 30	LO8-1707	08-1728	11700	25400	51.80	16.84	10.24	10.32	0.104	2.17	1.54	0.35	0.38	1.97	2.01	1.10	0.051	<5	5.61	25.4
LEF 31	LO8-1710	08-1729	11500	25400	54.11	15.64	8.33	8.25	0.203	4.29	2.34	0.26	0.28	3.18	2.40	0.94	0.078	<5	4.64	<5
LEF 32	-	-	11700	25600	62.77	12.44	6.76	4.67	0.078	1.78	1.54	0.69	0.75	1.57	1.7	1.04	0.027	<5	2.81	23.9
LEF 33	LO8-1709	08-1731	11500	25600	53.51	14.55	8.81	8.78	0.090	1.75	4.02	0.56	0.62	1.92	1.61	1.09	0.085	<5	4.76	11.8
LEF 34	LO8-1712	08-1732	11900	25600	60.26	13.88	7.28	7.26	0.099	2.20	1.75	0.64	0.67	1.66	1.31	1.05	0.027	<5	3.44	7.2
LEF 35	LO8-1724	08-1733	12100	25600	30.11	9.18	4.31	4.47	0.037	1.59	25.32	0.13	0.19	0.81	0.70	0.34	0.039	<5	4.02	12.5

LITTLE EVA <75 µm SOIL FRACTION

Detn	XRF(f)	INAA	XRF(f)	INAA	XRF(f)	XRF(f)	INAA	XRF(f)	INAA	INAA	XRF(f)	INAA	XRF(f)	INAA	INAA	XRF(f)	INAA	INAA	INAA	XRF(f)	XRF(f)
Lib No	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm
	30	2.0	20	2.0	20	10	1	10	5	1.00	10	0.50	3	0.50	20	10	0.5	0.20	5	4	10
	Ba	Br	Ce	Ce	Cl	Co	Co	Cr	Cr	Cs	Cu	Eu	Ga	Hf	Ir	La	La	Lu	Mo	Nb	Ni
08-1699	354	6.0	93	119.0	920	17	26	80	88	5.44	59	2.01	24	16.90	<20	60	67.0	0.97	<5	18	39
08-1700	158	18.6	54	53.4	710	21	24	74	37	3.01	241	0.94	11	7.45	<20	24	25.4	0.33	<5	4	32
08-1701	66	18.8	33	30.1	1490	11	12	36	33	1.42	<6	<0.5	10	2.72	<20	15	14.2	<0.2	<5	0	5
08-1702	122	12.1	45	34.3	230	11	11	31	34	1.97	4	<0.5	7	3.23	<20	15	17.6	<0.2	<5	<1	5
08-1703	383	7.3	107	129.0	1090	19	26	78	92	5.65	76	2.30	22	20.60	<20	80	77.5	1.08	<5	24	41
08-1704	387	6.9	112	139.0	1040	17	26	78	90	5.23	65	2.59	24	22.20	<20	71	76.0	1.07	<5	20	42
08-1705	433	6.0	108	123.0	1070	25	31	78	86	6.09	66	2.23	25	14.40	<20	67	62.3	0.91	<5	16	47
08-1706	353	12.5	127	154.0	2130	23	31	85	88	5.11	46	2.42	22	16.60	<20	85	82.0	0.98	<5	15	42
08-1707	384	18.6	83	118.0	1040	21	32	85	92	6.90	297	2.48	27	11.00	<20	83	80.0	0.89	<5	18	46
08-1708	124	15.5	56	51.9	520	18	17	40	46	4.07	119	1.02	10	5.43	<20	21	28.6	0.32	<5	3	7
08-1709	170	19.7	46	33.7	440	12	8	27	27	1.31	23	<0.5	6	3.67	<20	26	18.0	<0.2	<5	0	3
08-1710	43	20.7	66	57.3	5330	12	14	53	57	2.27	<8	0.63	15	3.57	<20	18	17.4	<0.2	<5	3	22
08-1711	68	21.9	41	25.9	1430	12	10	38	41	1.54	9	<0.5	11	3.84	<20	9	13.1	<0.2	<5	3	<4
-	125	20.2	35	38.6	190	28	28	37	45	<1	464	0.74	10	5.37	<20	19	20.3	0.29	<5	3	39
08-1714	227	8.9	86	99.0	1980	25	32	47	60	4.27	1465	2.08	19	12.50	<20	68	61.5	0.62	<5	12	37
-	140	10.4	103	92.0	510	19	23	39	45	2.42	35	1.53	13	5.65	<20	49	49.2	0.31	<5	4	12
08-1716	165	8.6	59	70.9	1530	35	49	47	52	2.55	5279	1.88	18	8.31	<20	38	41.7	0.57	<5	5	43
08-1717	251	9.8	67	69.8	370	12	17	63	73	2.89	111	1.36	17	13.80	<20	34	36.0	0.56	<5	10	24
08-1718	115	19.2	50	36.9	380	9	13	31	37	2.12	8	0.66	8	2.57	<20	16	18.9	<0.2	<5	2	14
08-1719	38	19.6	57	47.3	300	12	10	28	36	1.72	34	0.53	7	2.81	<20	22	23.7	<0.2	<5	0	5
08-1720	139	16.7	64	56.9	180	17	14	42	48	2.84	38	1.00	11	12.30	<20	27	28.1	0.42	<5	6	1
-	289	7.9	66	65.9	70	23	30	61	66	2.95	1401	1.69	22	9.89	<20	46	42	0.6	<5	7	50
08-1722	352	11.8	88	100.0	990	16	22	68	78	5.24	87	1.88	20	15.40	<20	63	58.8	0.84	<5	16	35
08-1723	423	8.5	79	98.8	290	22	27	79	87	3.80	452	1.68	25	13.50	<20	55	56.5	0.71	<5	13	36
08-1724	392	8.9	69	80.5	330	17	22	59	70	3.82	210	1.73	20	12.00	<20	46	39.1	0.59	<5	7	28
08-1725	356	15.5	59	57.3	330	18	23	211	53	2.88	174	1.09	13	8.12	<20	24	29.6	0.41	<5	4	113
08-1726	376	6.3	87	92.3	200	24	32	58	66	3.96	221	1.53	22	8.58	<20	40	40.7	0.50	<5	6	37
08-1727	398	9.8	62	78.5	310	17	24	58	69	3.01	396	1.81	19	12.00	<20	50	45.6	0.59	<5	6	32
08-1728	310	9.9	83	87.5	360	23	30	67	75	3.96	508	1.69	21	8.69	<20	52	47.4	0.57	<5	4	43
08-1729	478	7.2	144	164.0	830	21	28	75	77	5.08	38	2.30	21	8.84	<20	93	88.6	0.57	<5	8	49
-	488	8.4	68	69.3	160	13	18	51	62	2.76	252	1.27	16	10.7	<20	32	28.6	0.52	<5	8	25
08-1731	319	8.1	262	283.0	510	16	21	67	66	2.48	214	2.19	18	12.40	<20	196	200.0	0.70	<5	3	27
08-1732	473	9.1	71	74.9	180	19	21	53	63	3.59	199	1.28	16	10.00	<20	35	35.1	0.52	<5	5	35
08-1733	123	9.7	41	40.3	410	11	13	35	42	2.07	34	0.63	9	5.36	<20	17	20.2	0.28	<5	1	3

LITTLE EVA <75 µm SOIL FRACTION

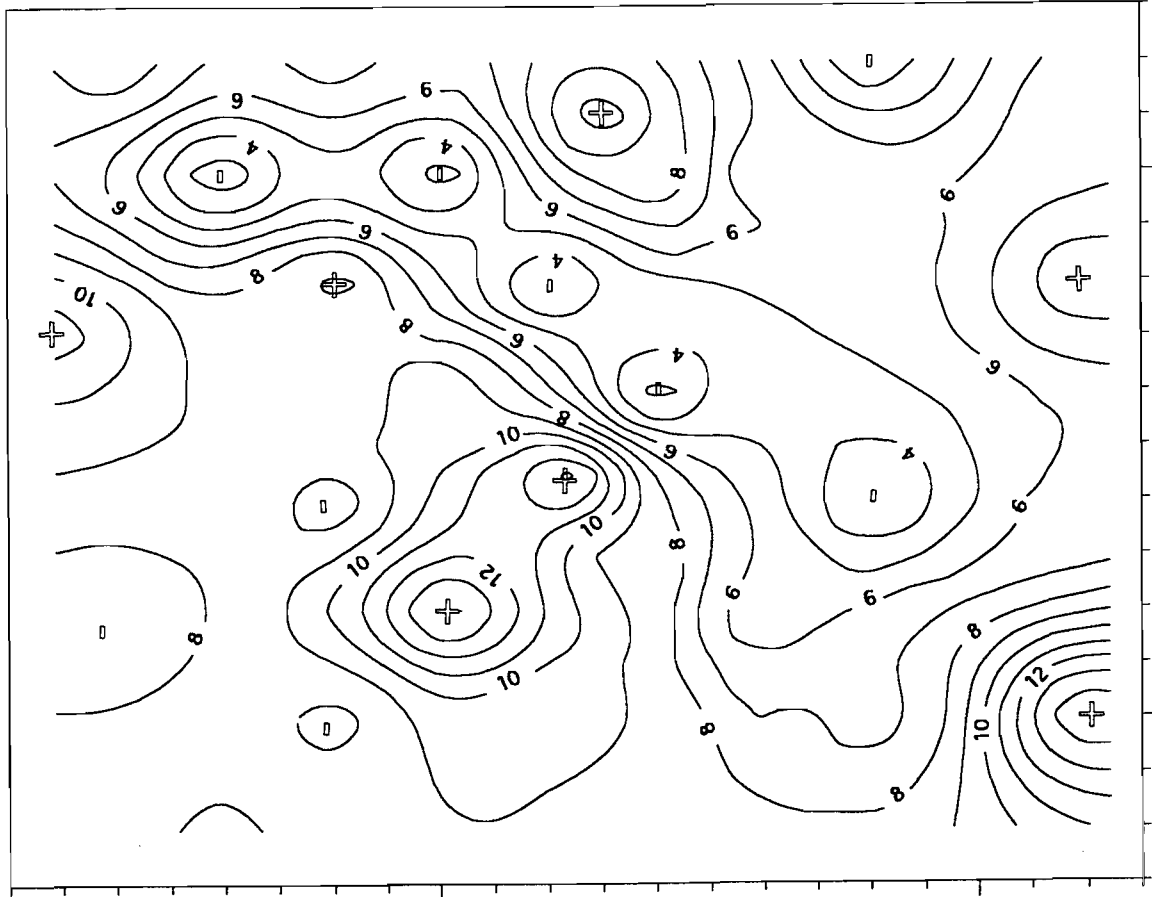
Detn	XRF(f) ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	INAA ppm	INAA ppm	INAA ppm	XRF(f) ppm	INAA ppm	INAA ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm
Lib No	5	5	20	10	0.20	0.1	5	0.20	5	1.00	0.50	2.00	5	2	5	0.50	5	100	5
	Pb	Rb	Rb	S	Sb	Sc	Se	Sm	Sr	Ta	Th	U	V	W	Y	Yb	Zn	Zn	Zr
08-1699	22	162	175	140	0.56	27.1	<5	12.60	60	4.35	28.70	6.51	203	<2	61	7.16	44	<100	613
08-1700	<3	44	56	190	0.25	12.8	<5	4.73	113	<1	10.90	3.23	122	<2	25	2.65	29	<100	295
08-1701	<4	49	53	220	0.92	7.1	<5	2.23	116	1.16	7.88	<2	62	<2	10	1.01	6	<100	100
08-1702	<5	59	54	130	0.67	5.6	<5	2.75	112	<1	10.10	<2	63	<2	16	1.27	11	<100	113
08-1703	15	165	155	130	0.55	27.5	<5	14.20	65	1.89	33.30	6.49	202	<2	71	8.08	51	<100	786
08-1704	21	150	153	150	<0.2	26.4	<5	14.00	65	3.47	34.00	4.89	195	<2	65	8.02	55	<100	830
08-1705	18	169	162	140	0.50	25.5	<5	11.40	65	2.72	29.80	6.97	168	<2	57	6.56	127	153	556
08-1706	22	145	165	170	0.36	27.4	<5	14.40	63	3.39	33.50	9.60	172	<2	65	7.69	63	<100	612
08-1707	17	183	177	150	0.40	30.0	<5	13.90	55	2.83	28.30	3.93	197	<2	59	6.62	56	105	395
08-1708	<3	121	123	160	0.21	11.1	<5	4.65	82	1.38	10.90	<2	103	<2	21	2.34	19	<100	220
08-1709	<4	36	37	170	<0.2	4.6	<5	2.91	96	<1	7.36	<2	56	<2	13	1.34	14	<100	146
08-1710	<4	70	73	240	0.31	14.1	<5	3.03	85	<1	12.30	<2	90	<2	11	0.98	8	<100	131
08-1711	<6	47	52	290	<0.2	7.3	<5	2.21	79	<1	9.64	<2	67	<2	12	1.30	7	<100	143
-	<4	35	<20	220	0.30	14.9	<5	3.65	45	1.06	6.98	<2	122	<2	17	2.1	19	<100	228
08-1714	14	97	89	170	0.36	20.9	<5	8.29	44	4.02	20.80	<2	164	<2	39	4.52	30	<100	474
-	<3	69	71	170	<0.2	15.1	<5	7.65	101	<1	9.56	<2	116	<2	26	2.39	13	<100	211
08-1716	10	48	58	140	<0.2	41.9	<5	6.81	58	<1	9.07	<2	286	<2	37	4.10	21	109	327
08-1717	16	81	78	190	0.46	16.6	<5	6.35	47	1.69	18.30	<2	125	<2	33	4.35	24	<100	492
08-1718	4	69	61	140	0.34	5.4	<5	2.88	58	<1	9.60	<2	60	<2	15	1.26	8	<100	92
08-1719	0	46	50	130	<0.2	7.1	<5	3.68	76	<1	9.11	<2	62	<2	17	1.47	11	<100	117
08-1720	<6	58	61	150	0.20	10.0	<5	4.78	95	1.20	12.20	<2	91	<2	24	2.86	20	<100	489
-	10	74	56	110	0.43	27.1	<5	6.85	56	1.32	11.6	2.09	269	<2	34	4.1	21	<100	385
08-1722	16	140	141	170	<0.2	21.2	<5	10.80	59	2.13	26.20	4.01	146	<2	55	6.18	41	<100	551
08-1723	22	143	149	140	0.59	23.6	<5	9.39	55	2.18	20.50	<2	209	<2	42	5.09	25	<100	506
08-1724	14	113	121	130	0.54	18.6	<5	7.22	74	1.62	15.60	2.32	153	<2	35	4.22	31	<100	419
08-1725	13	80	85	250	0.44	15.5	<5	5.59	83	<1	11.70	2.52	163	<2	26	3.13	28	<100	311
08-1726	13	123	129	100	0.56	18.7	<5	7.00	66	1.03	13.90	<2	134	<2	34	3.83	32	<100	326
08-1727	16	104	105	130	0.31	18.6	<5	7.58	63	1.04	15.40	<2	176	<2	36	4.40	30	<100	446
08-1728	12	119	117	140	0.31	22.9	<5	7.88	52	2.01	14.30	<2	212	<2	34	4.08	29	<100	313
08-1729	12	206	204	120	0.61	16.7	<5	13.00	41	<1	20.30	<2	121	<2	38	4.12	25	<100	334
-	13	87	74	100	0.36	15.4	<5	5.77	90	2.06	13.2	<2	131	<2	30	3.65	26	<100	413
08-1731	12	111	109	150	<0.2	18.8	<5	16.30	44	<1	17.80	<2	151	<2	39	4.32	24	<100	465
08-1732	16	97	103	110	0.30	16.3	<5	6.33	91	2.34	14.30	2.15	133	<2	31	3.66	28	<100	370
08-1733	>6	48	42	150	0.23	9.3	<5	3.44	61	<1	9.49	<2	93	<2	17	1.91	18	<100	201

APPENDIX 3

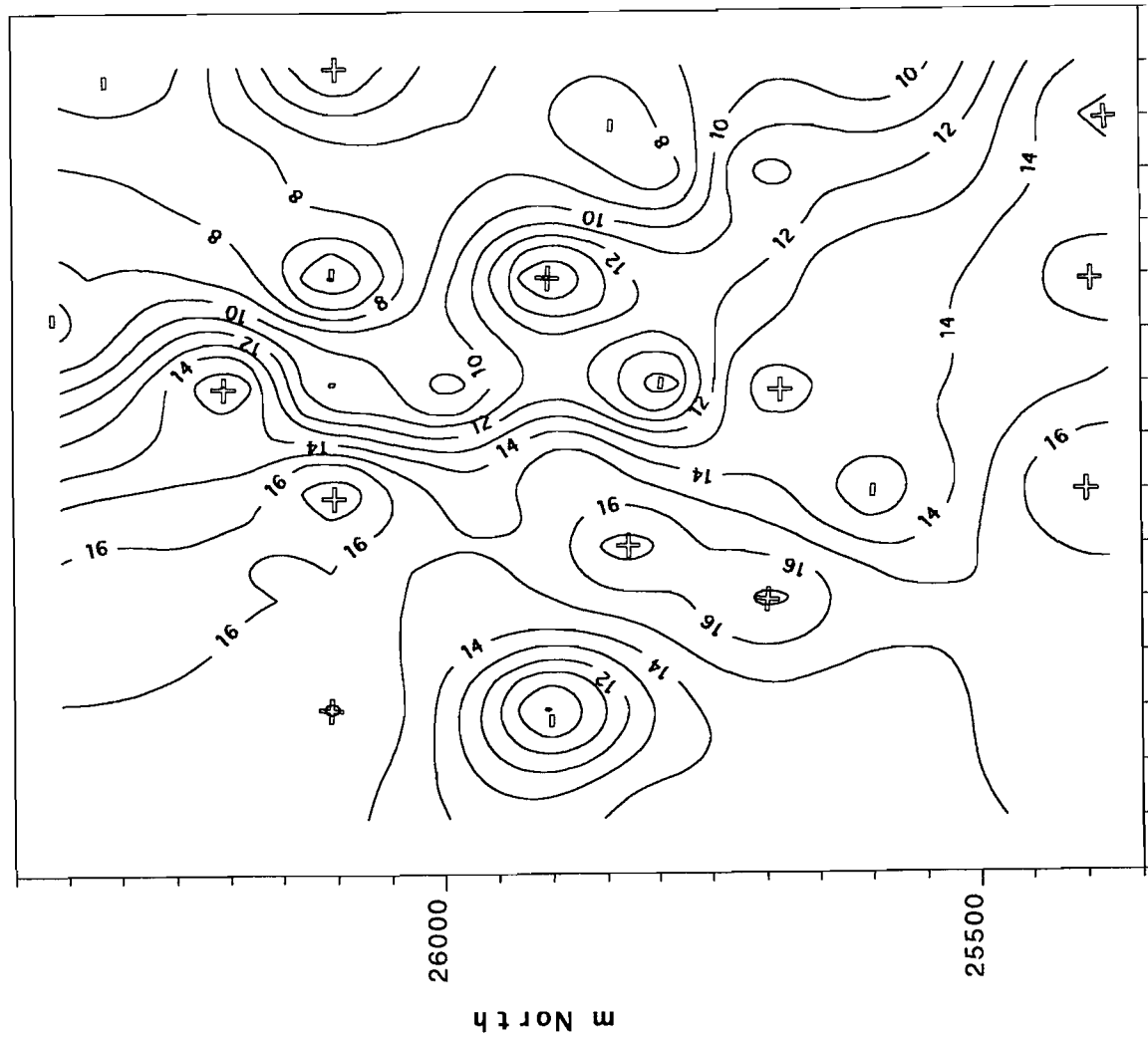
CONTOURED GEOCHEMISTRY

refer to Appendices 1 and 2 for data

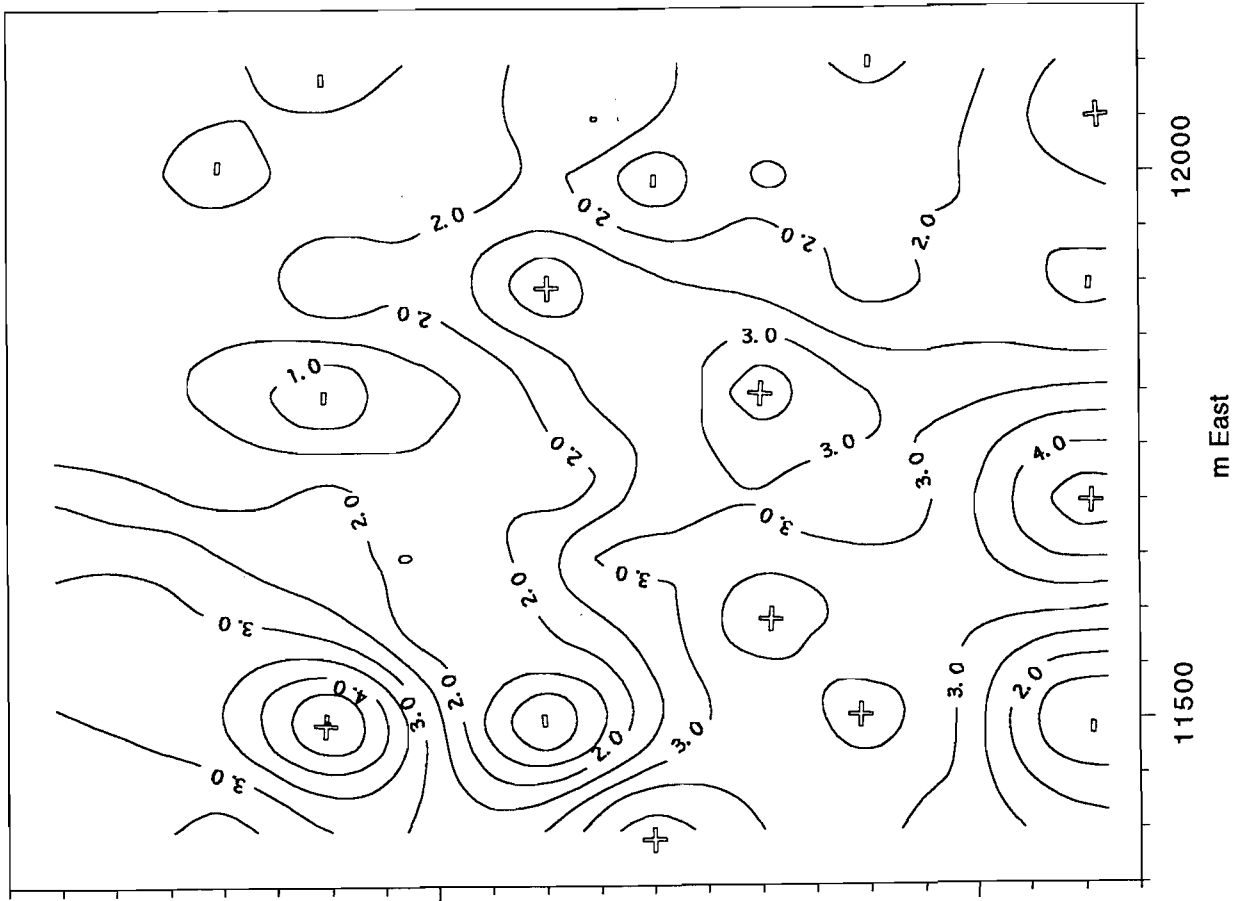
Soil Coarse Fraction - Al₂O₃%



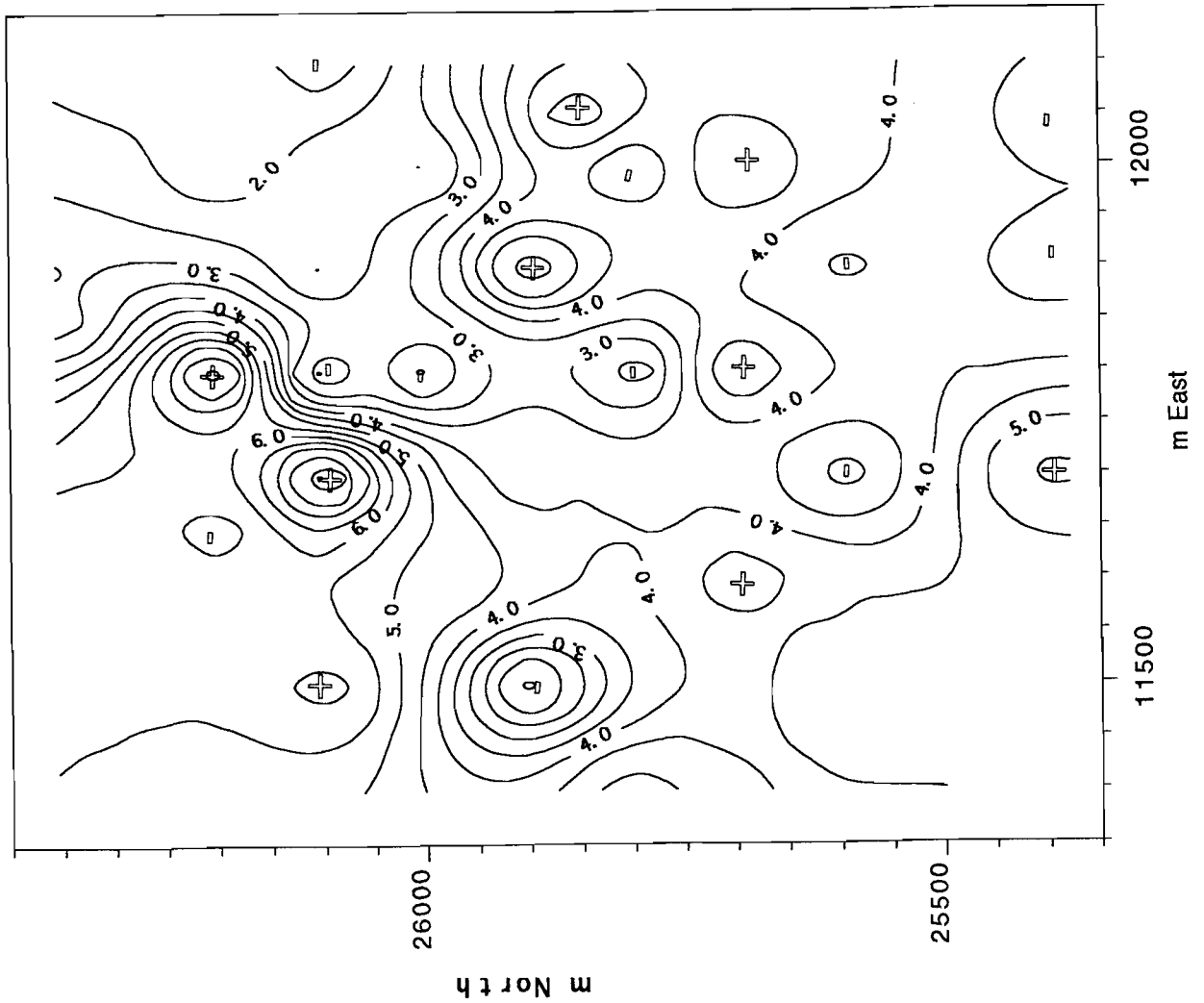
Soil Fine Fraction - Al₂O₃%



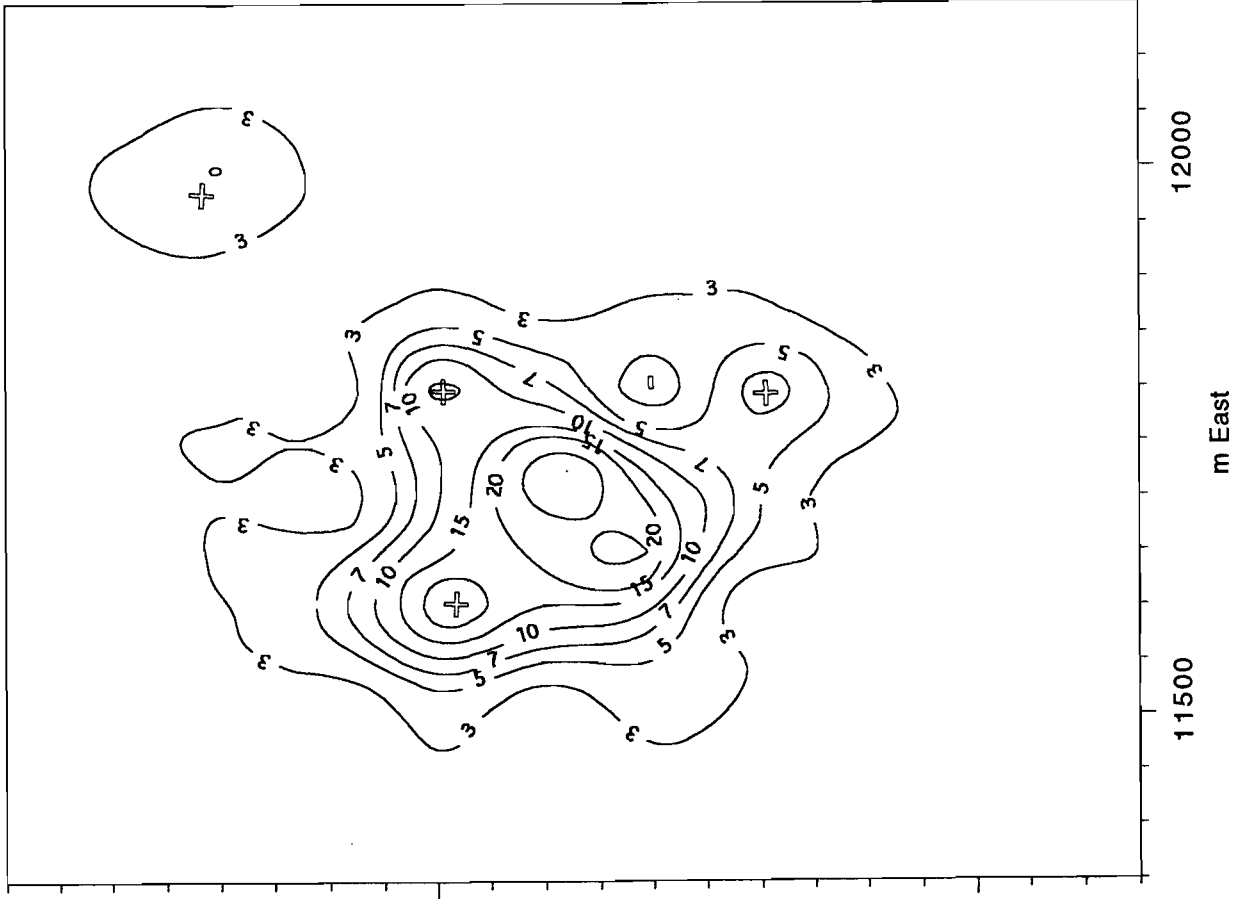
Soil Coarse Fraction - As ppm



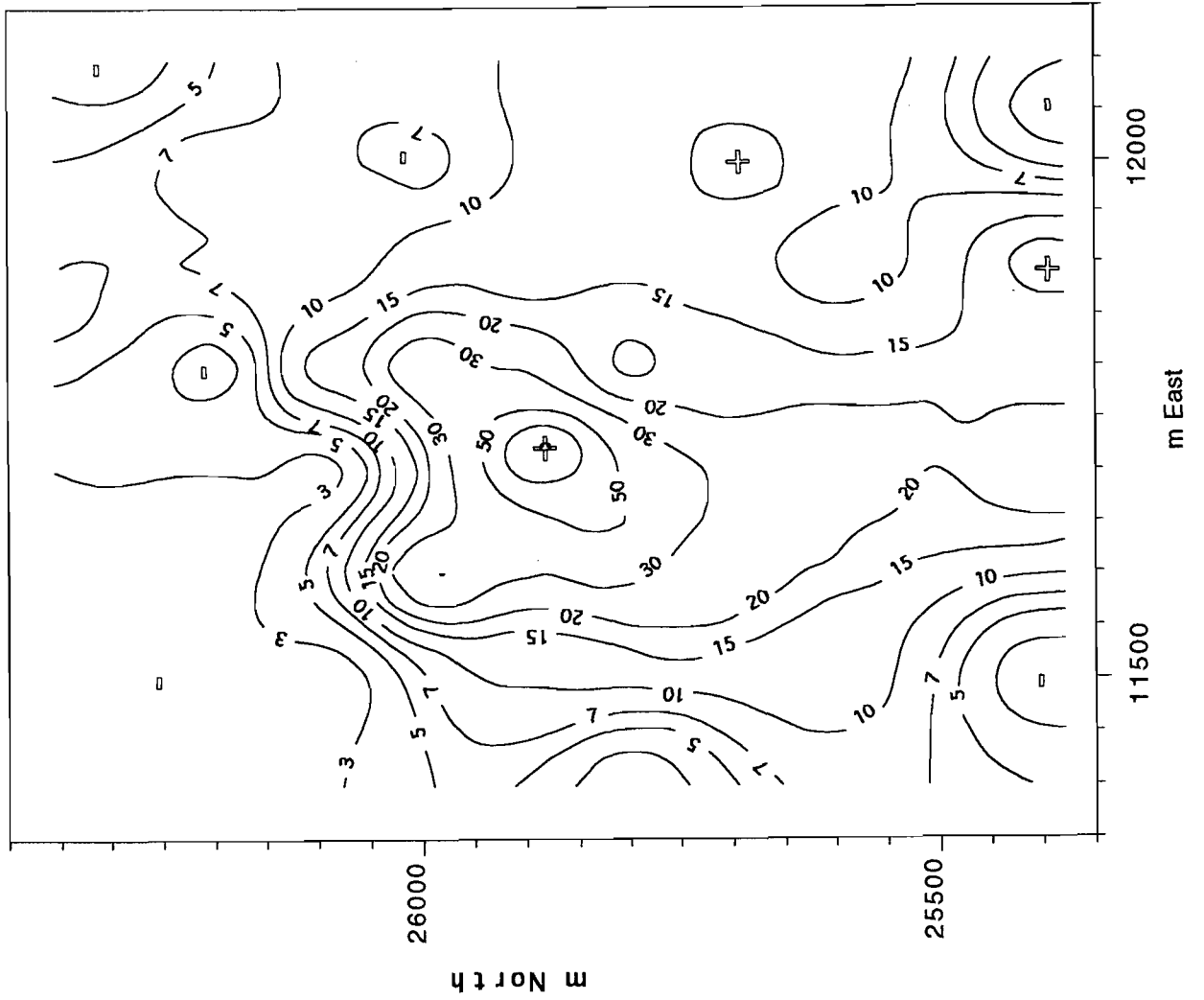
Soil Fine Fraction - As ppm



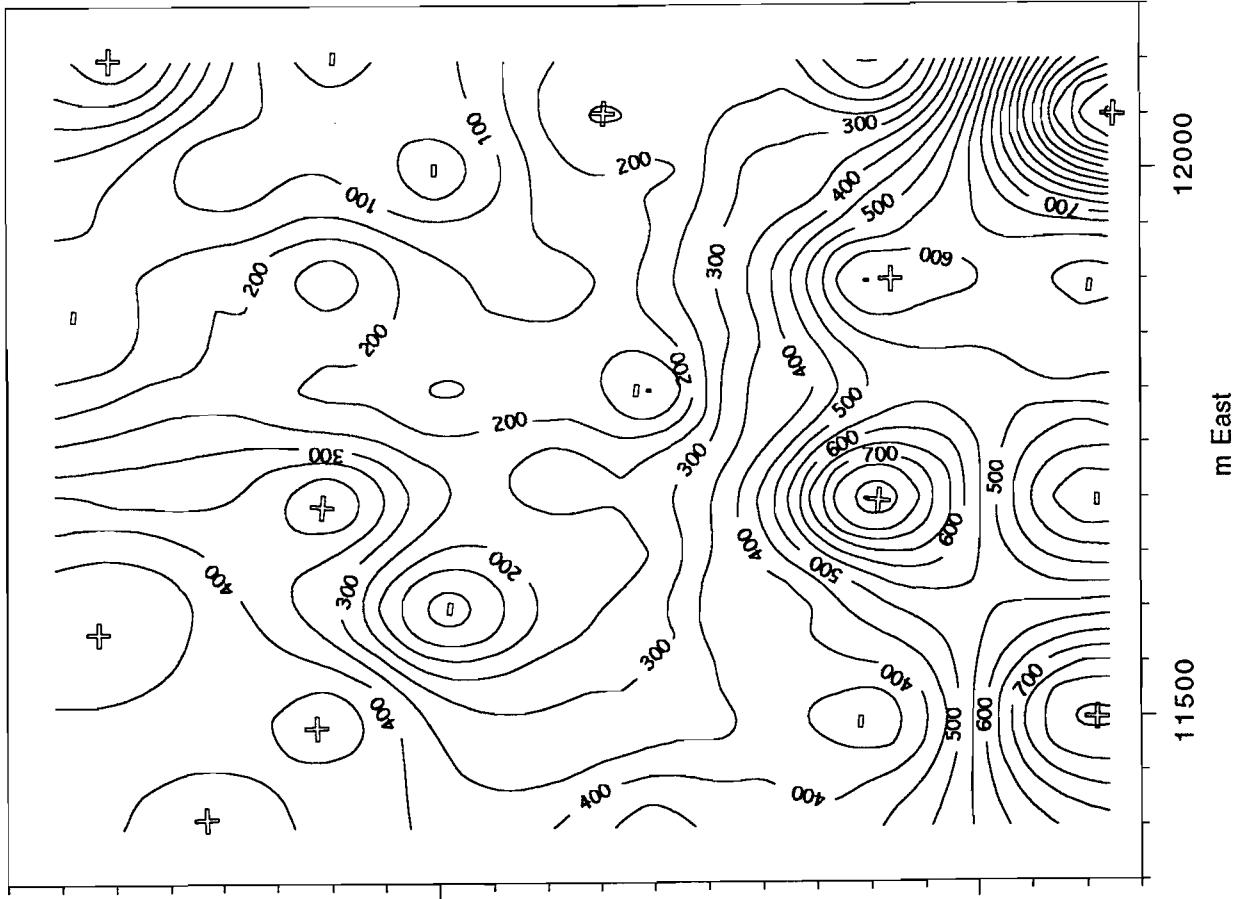
Soil Coarse Fraction - Au ppb



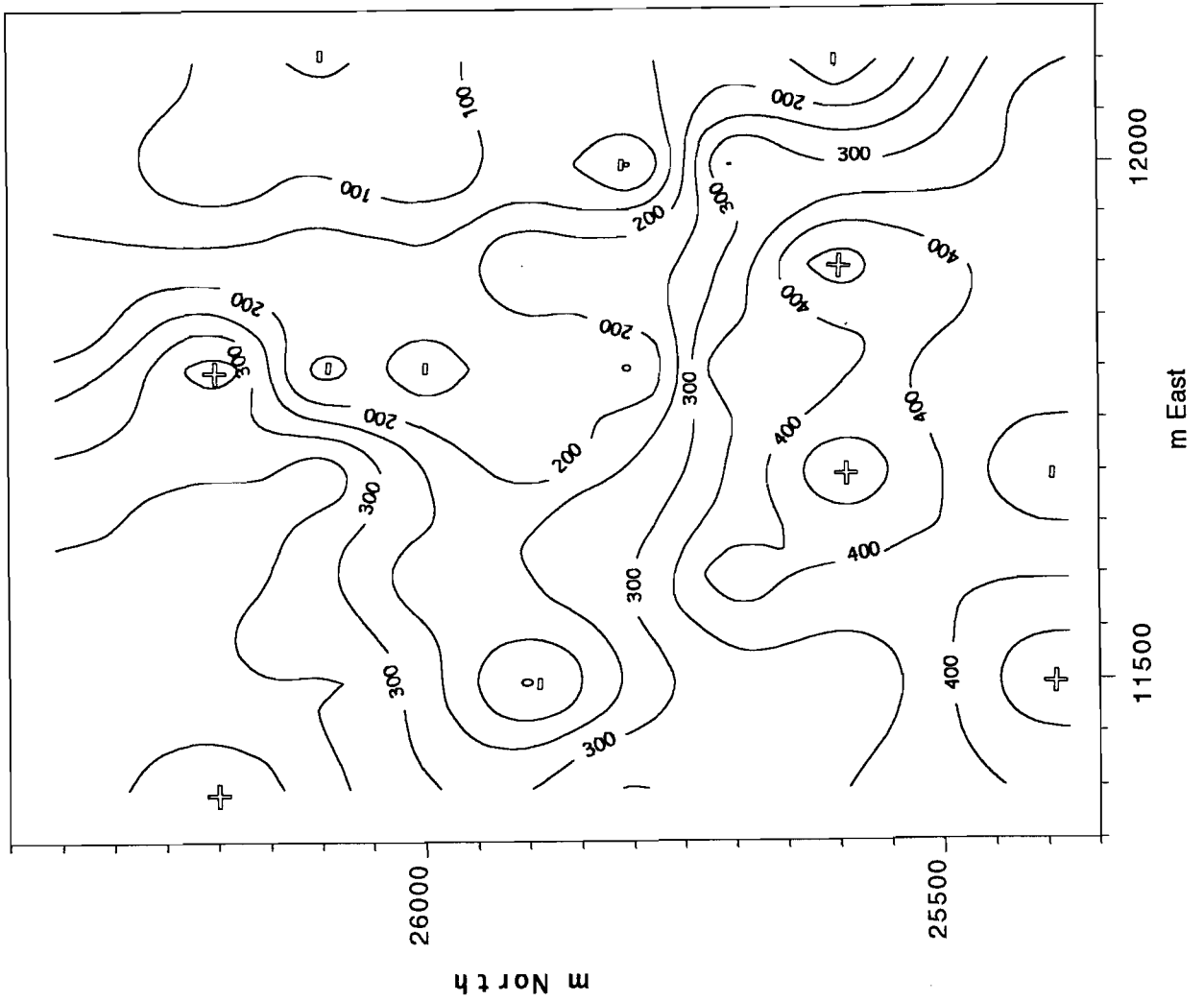
Soil Fine Fraction - Au ppb

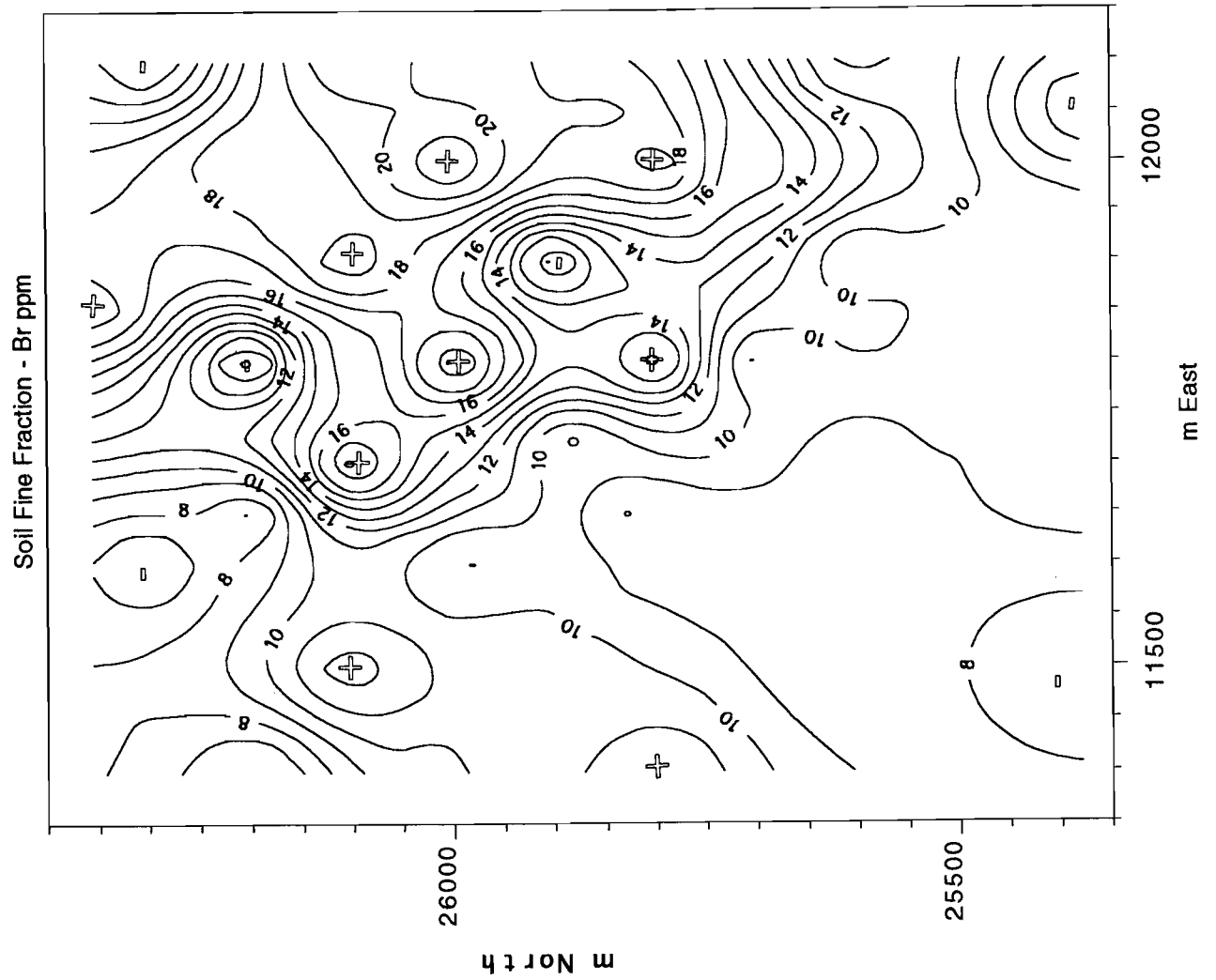
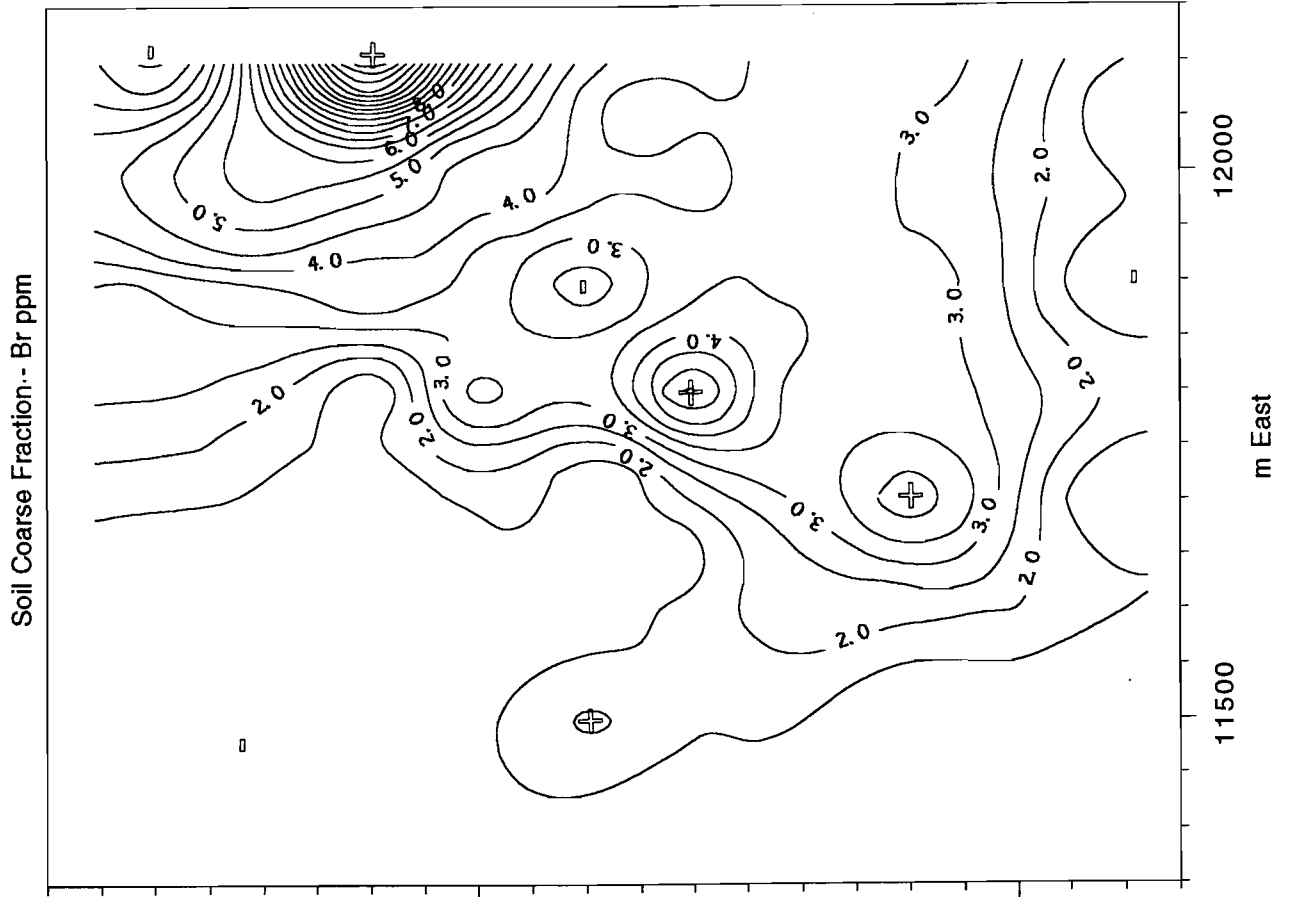


Soil Coarse Fraction - Ba ppm

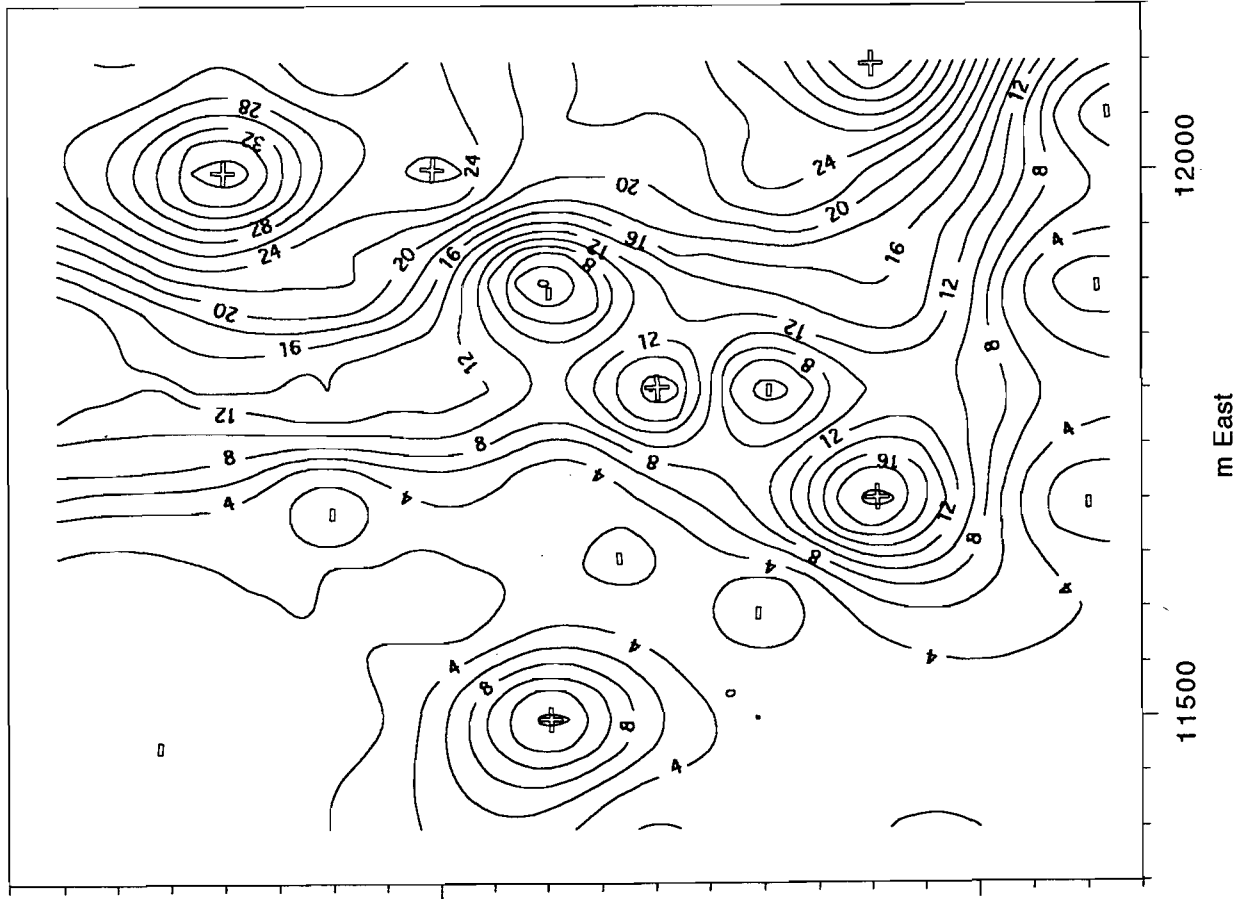


Soil Fine Fraction - Ba ppm

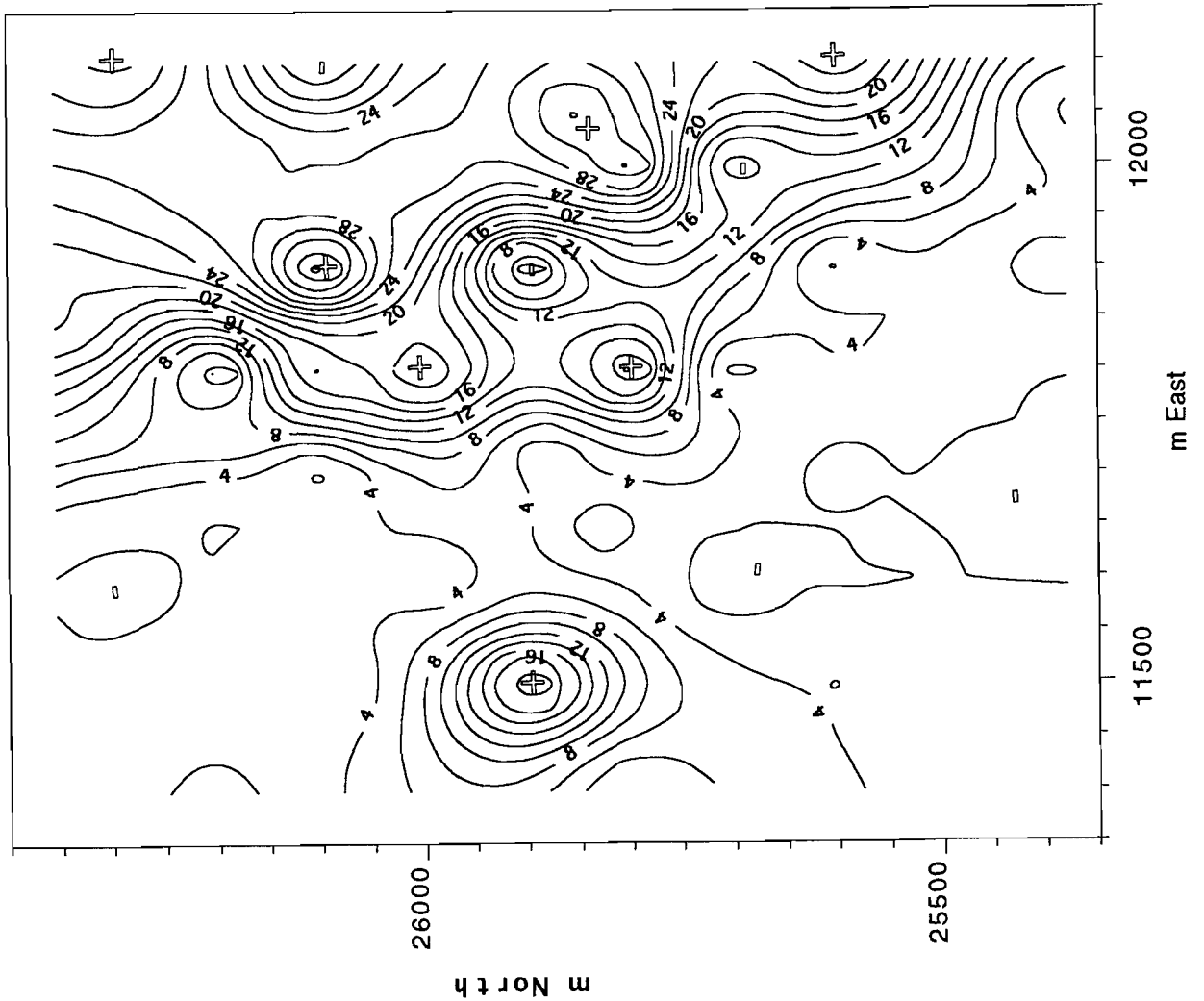


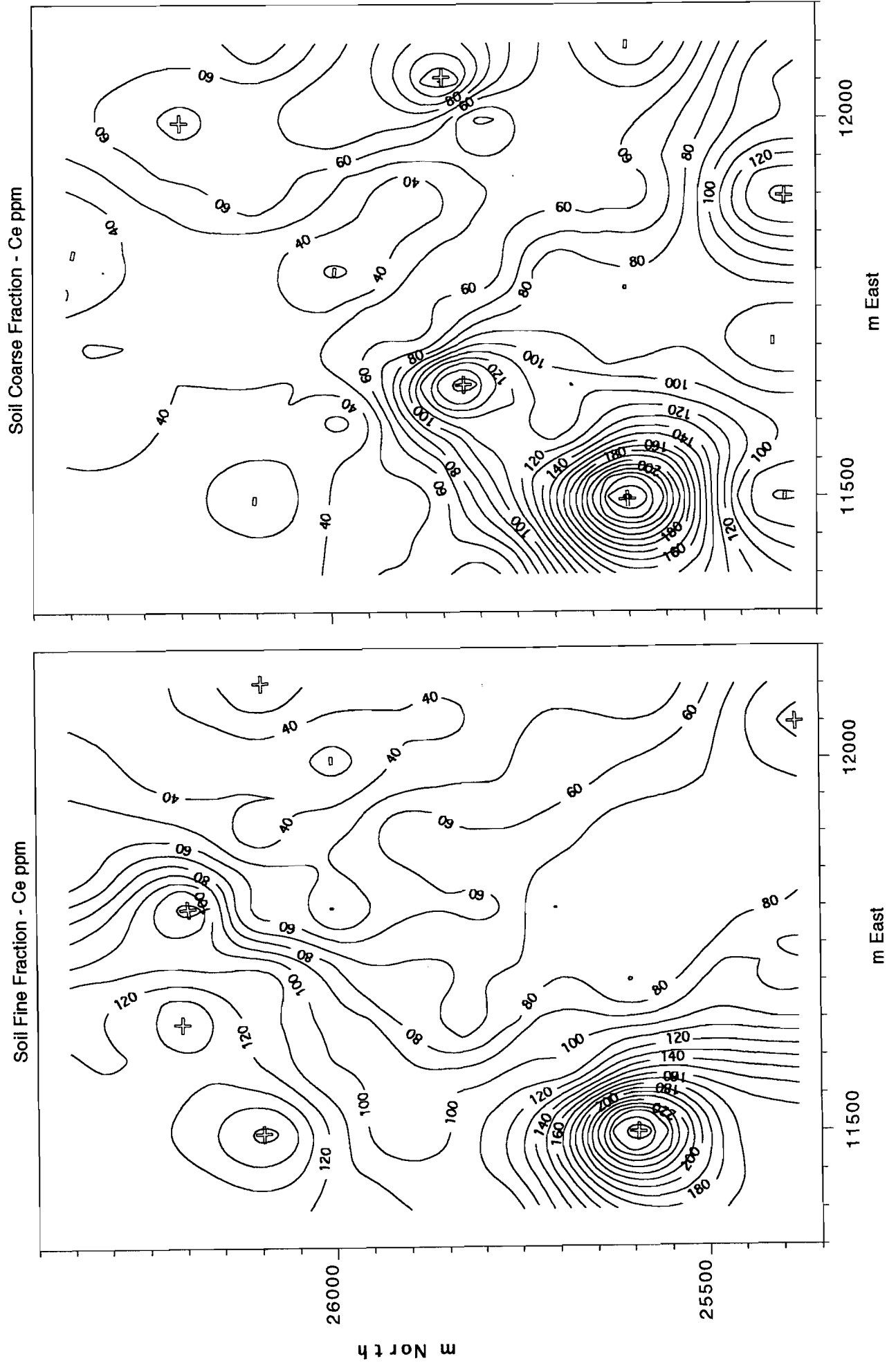


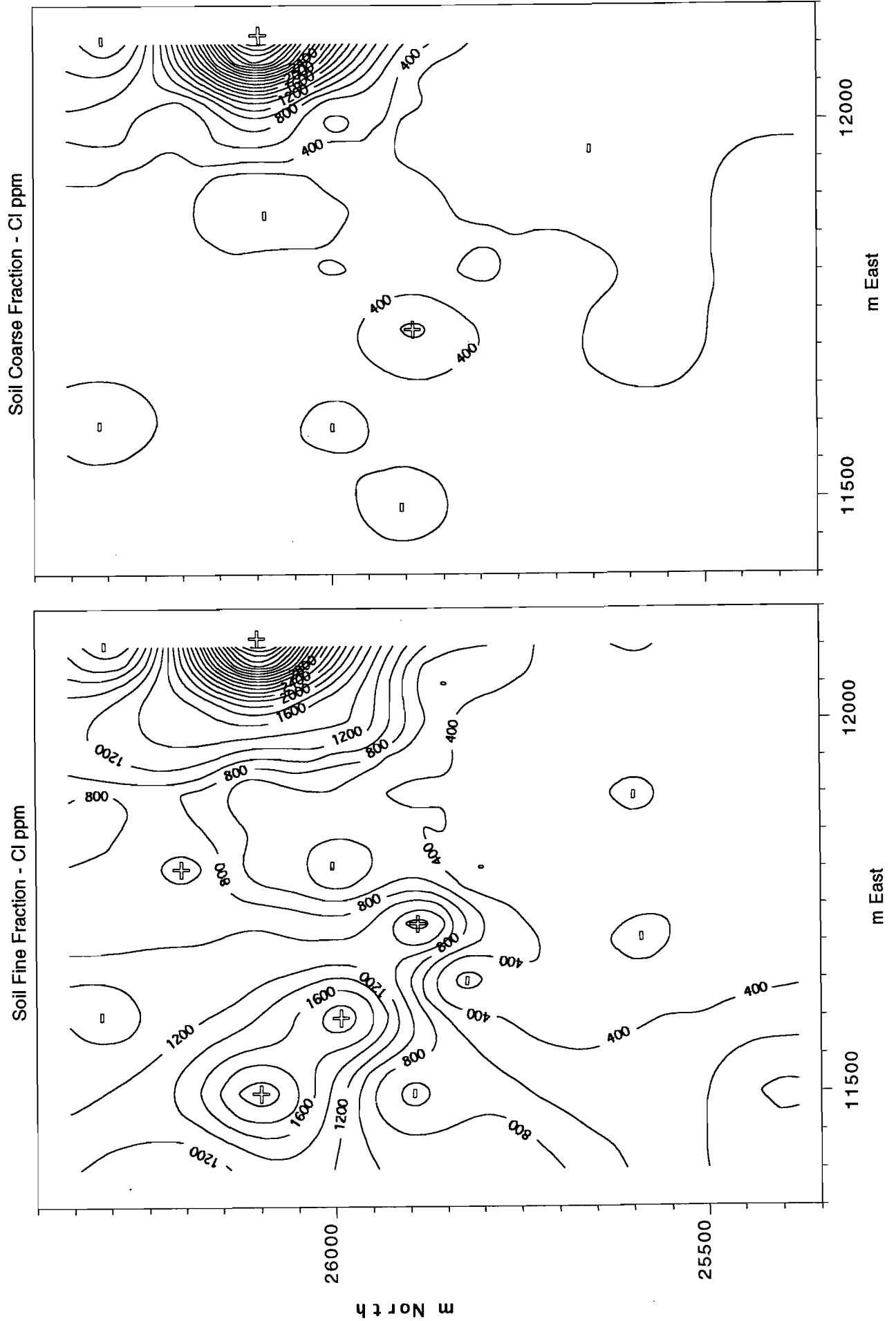
Soil Coarse Fraction - CaO%



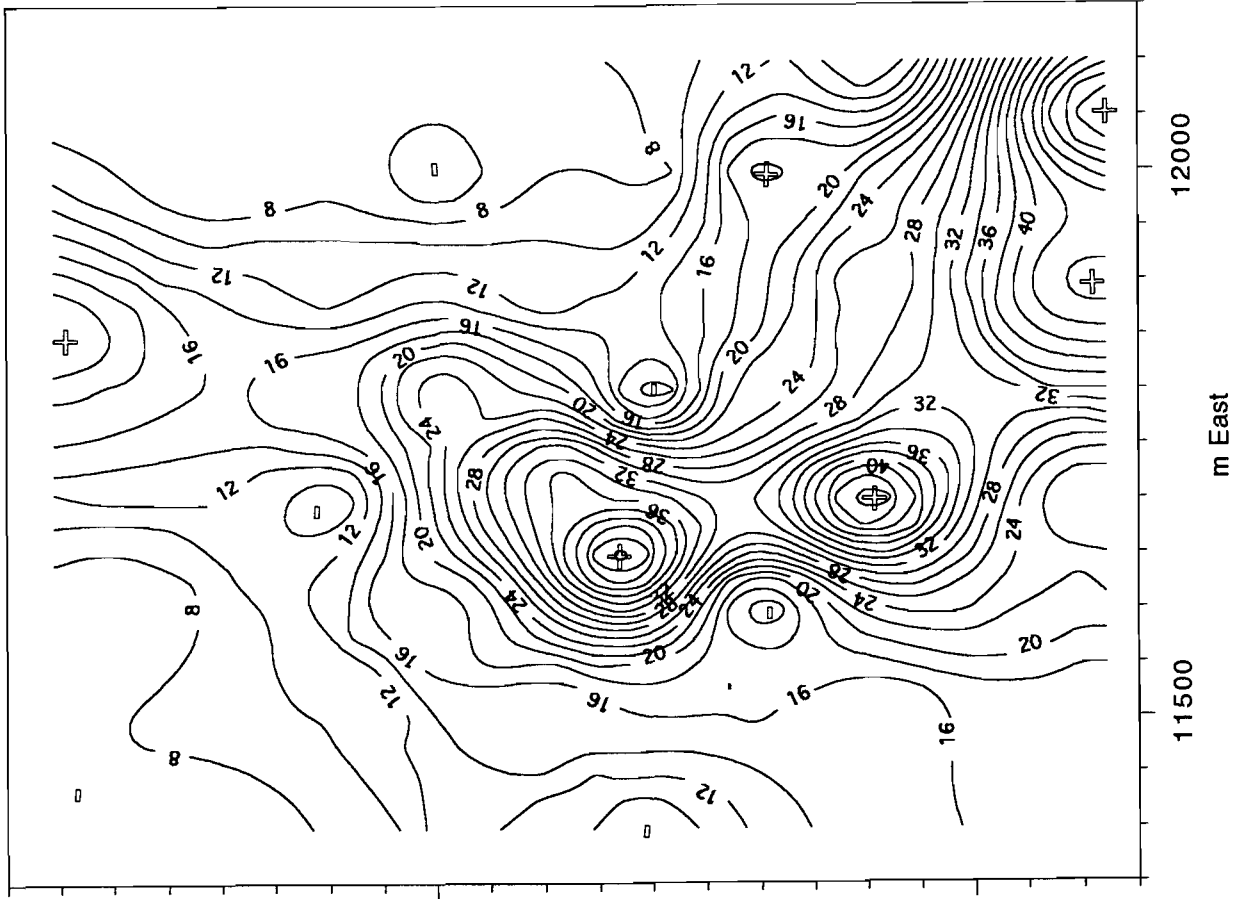
Soil Fine Fraction - CaO%



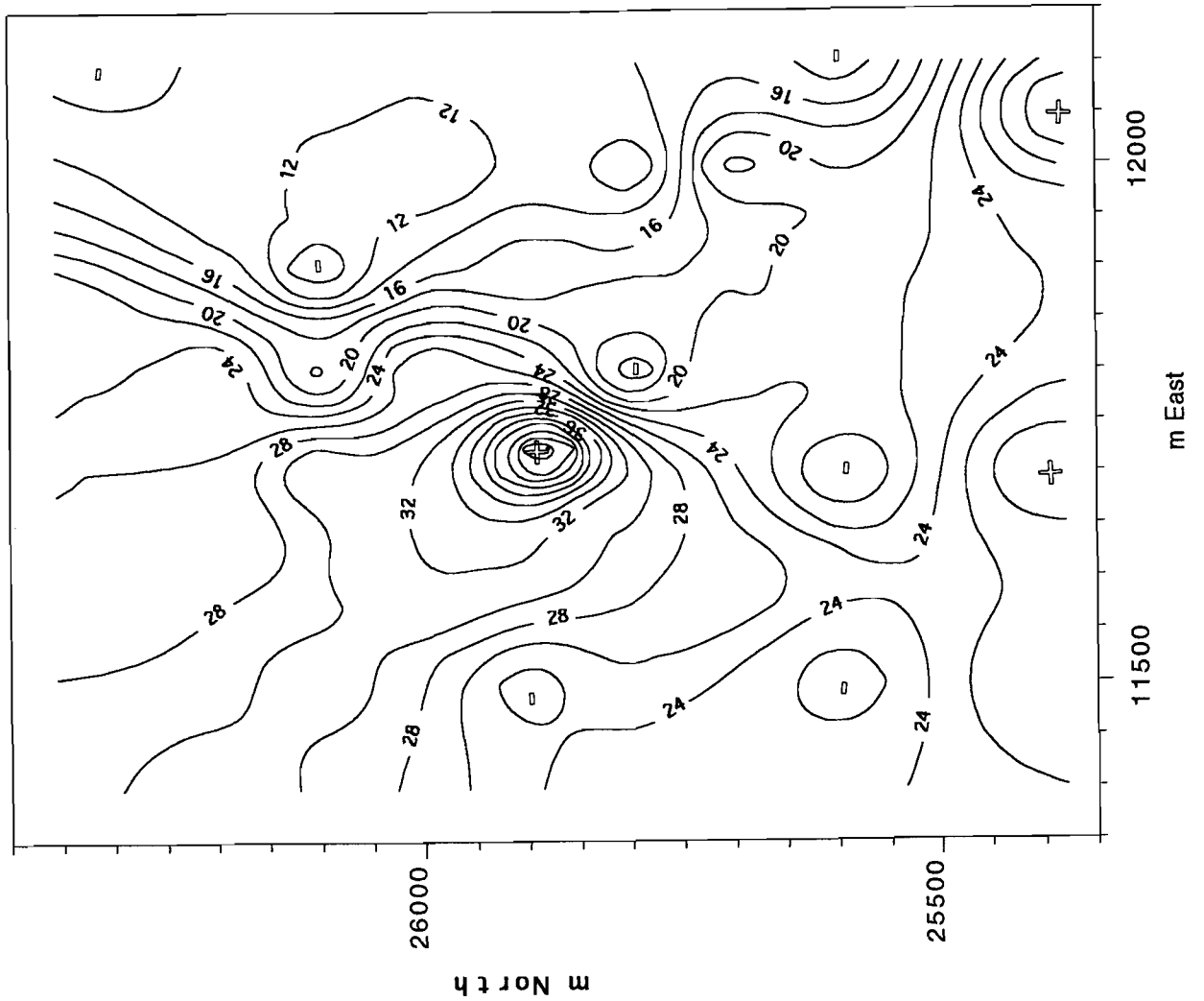


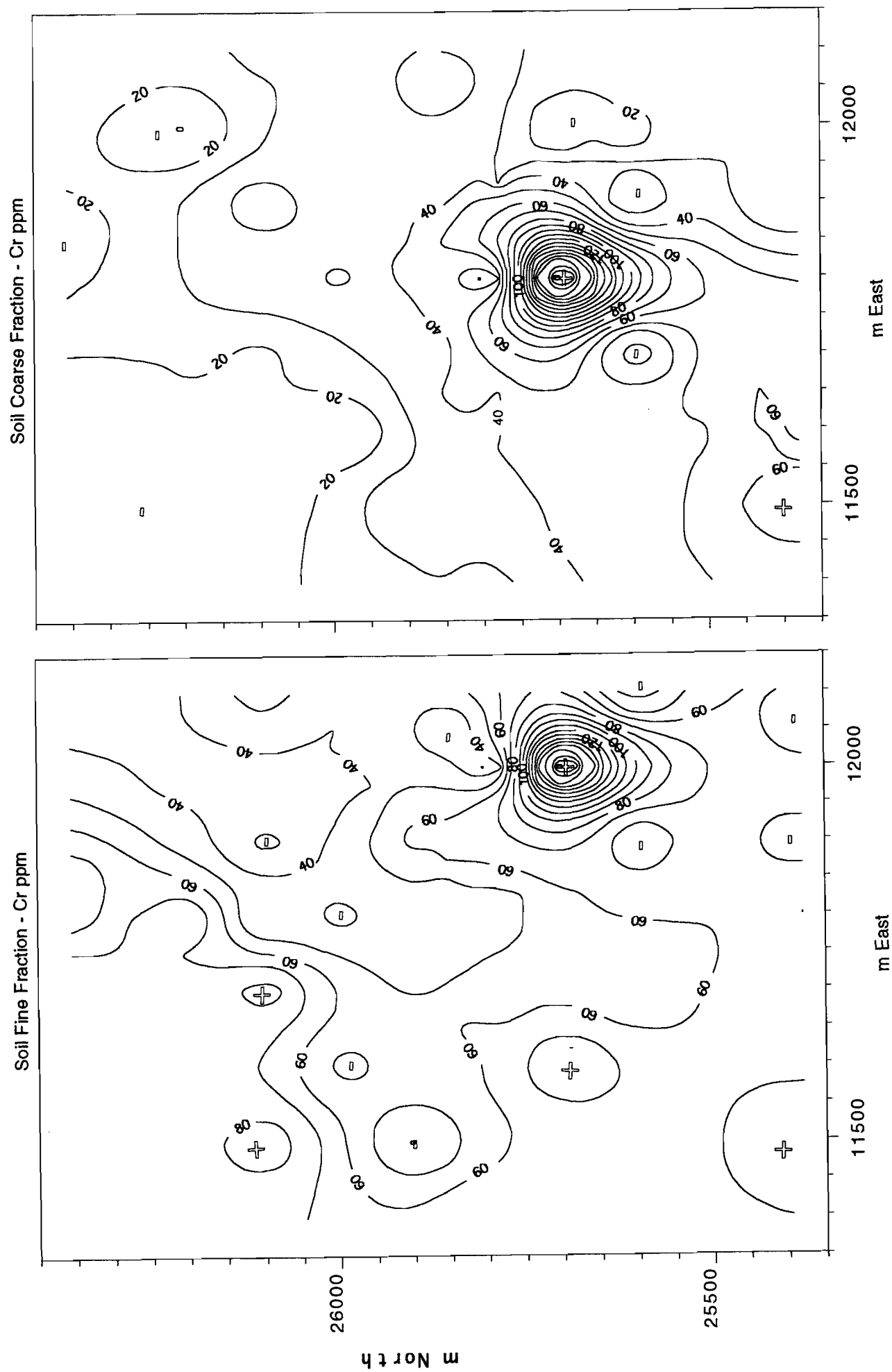


Soil Coarse Fraction - Co ppm

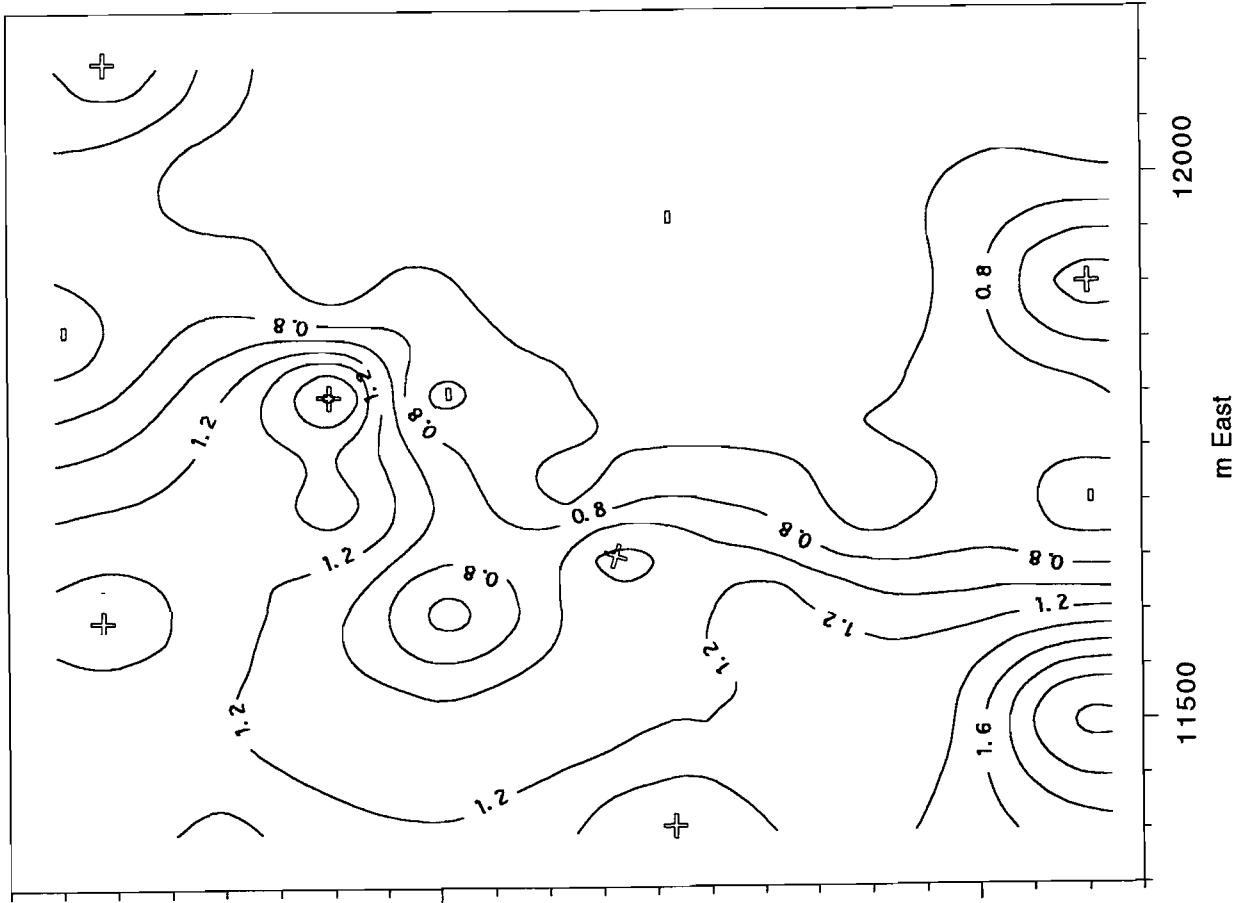


Soil Fine Fraction - Co ppm

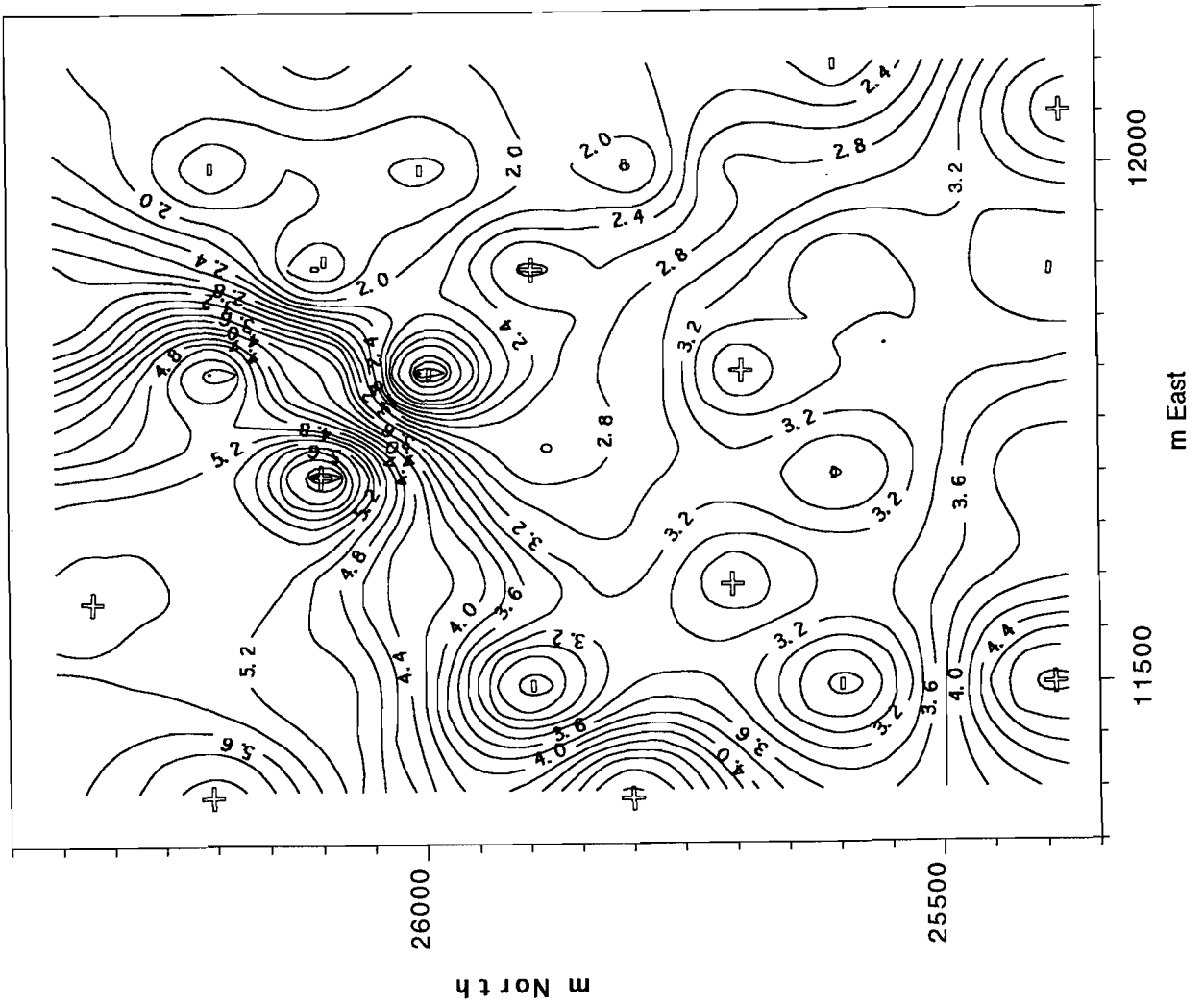




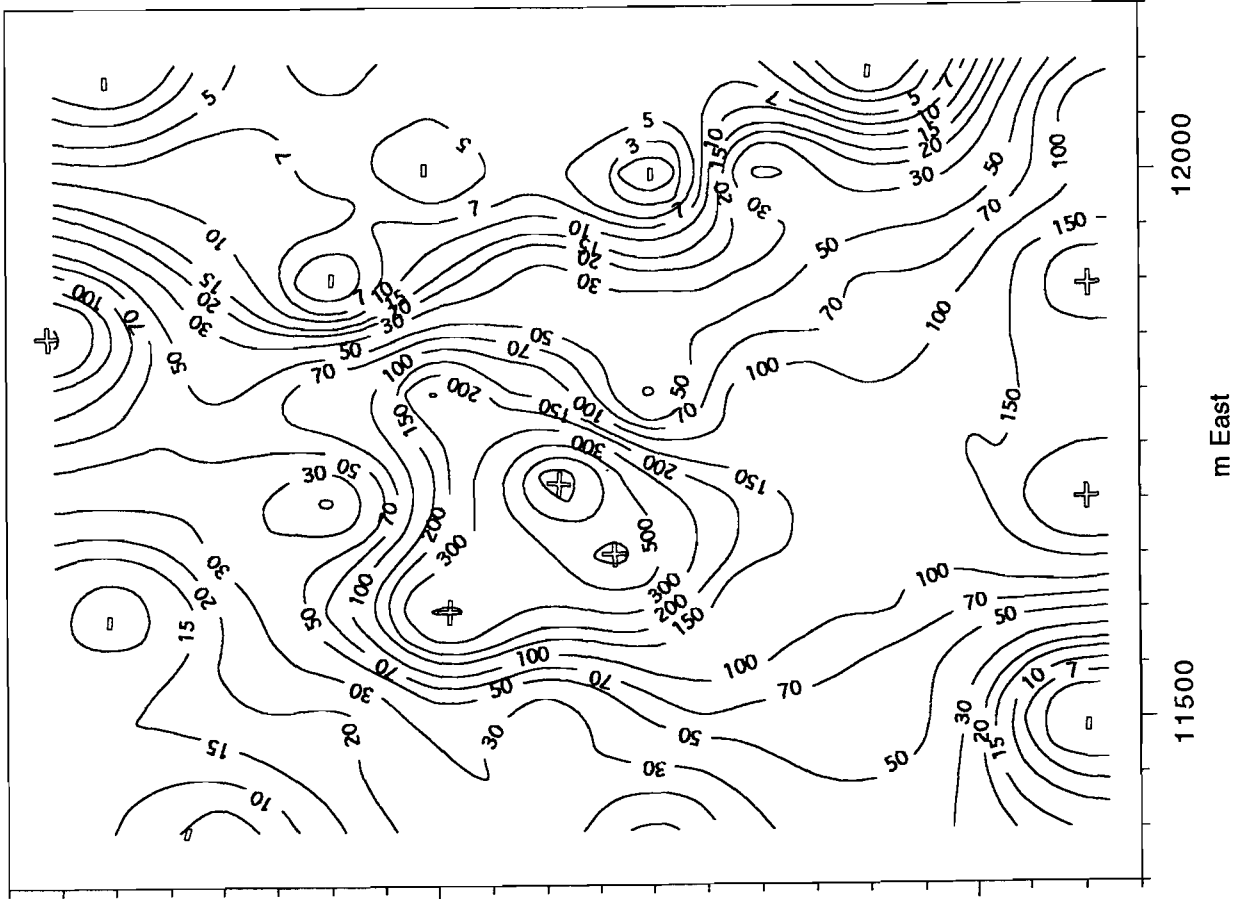
Soil Coarse Fraction - Cs ppm



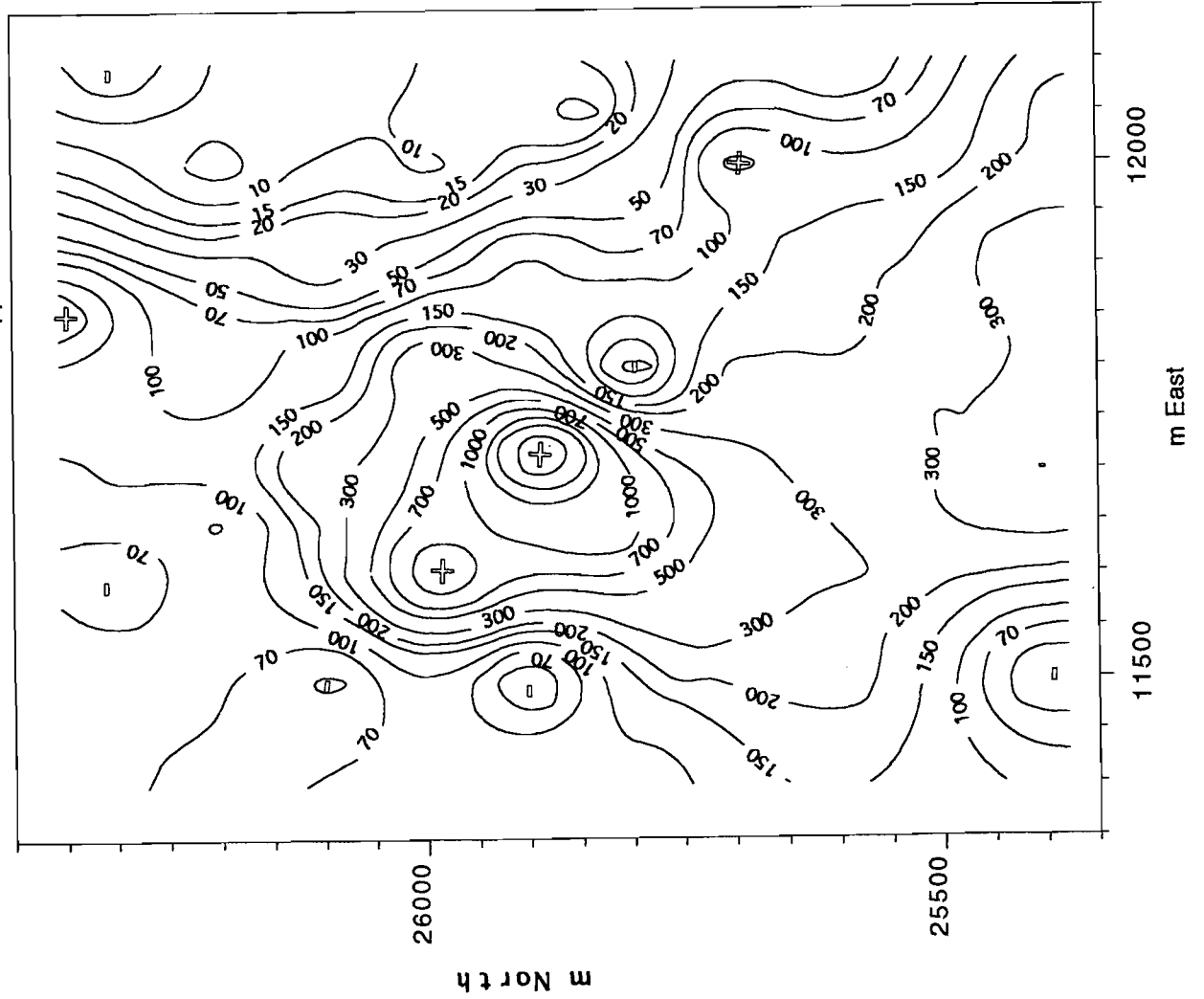
Soil Fine Fraction - Cs ppm



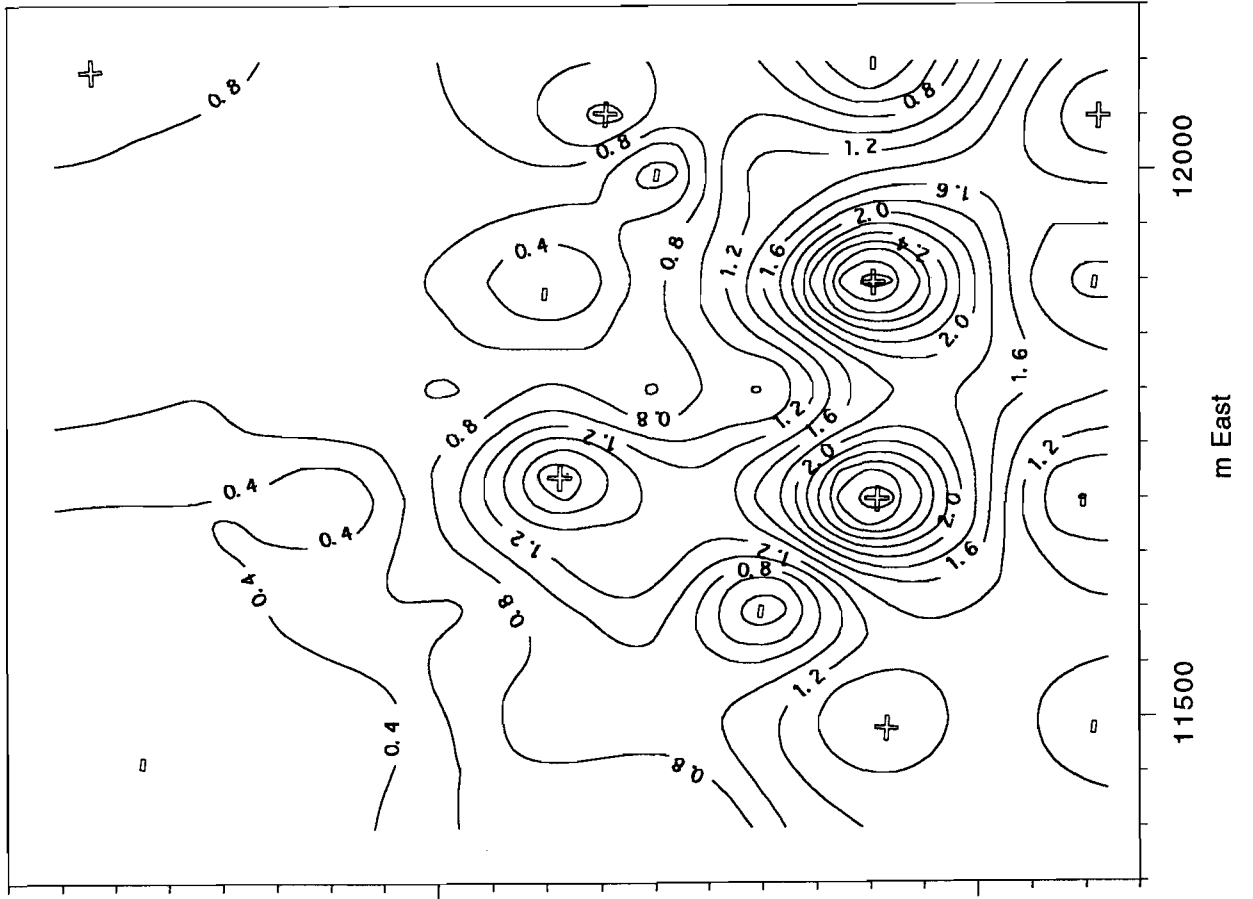
Soil Coarse Fraction - Cu ppm



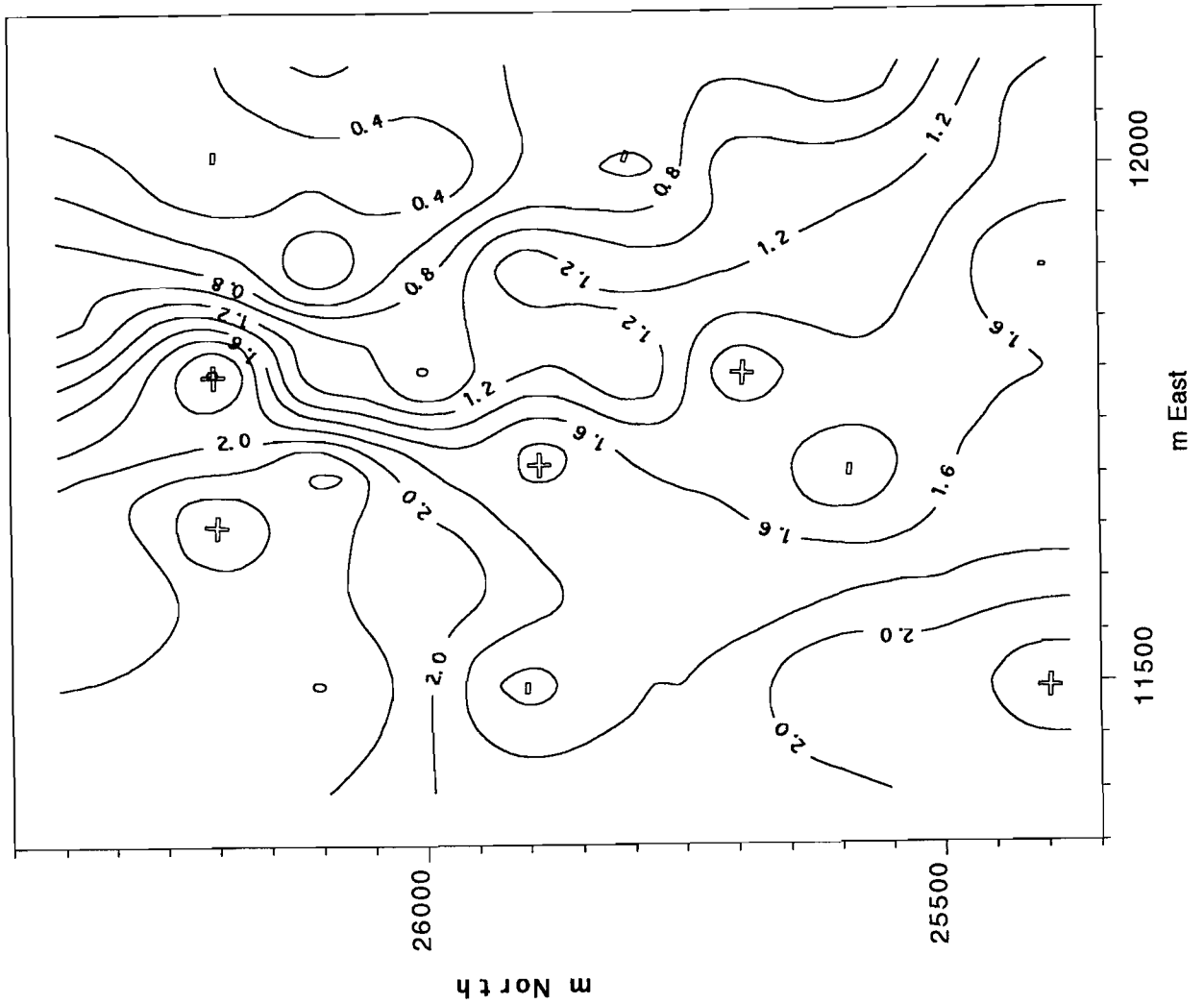
Soil Fine Fraction - Cu ppm



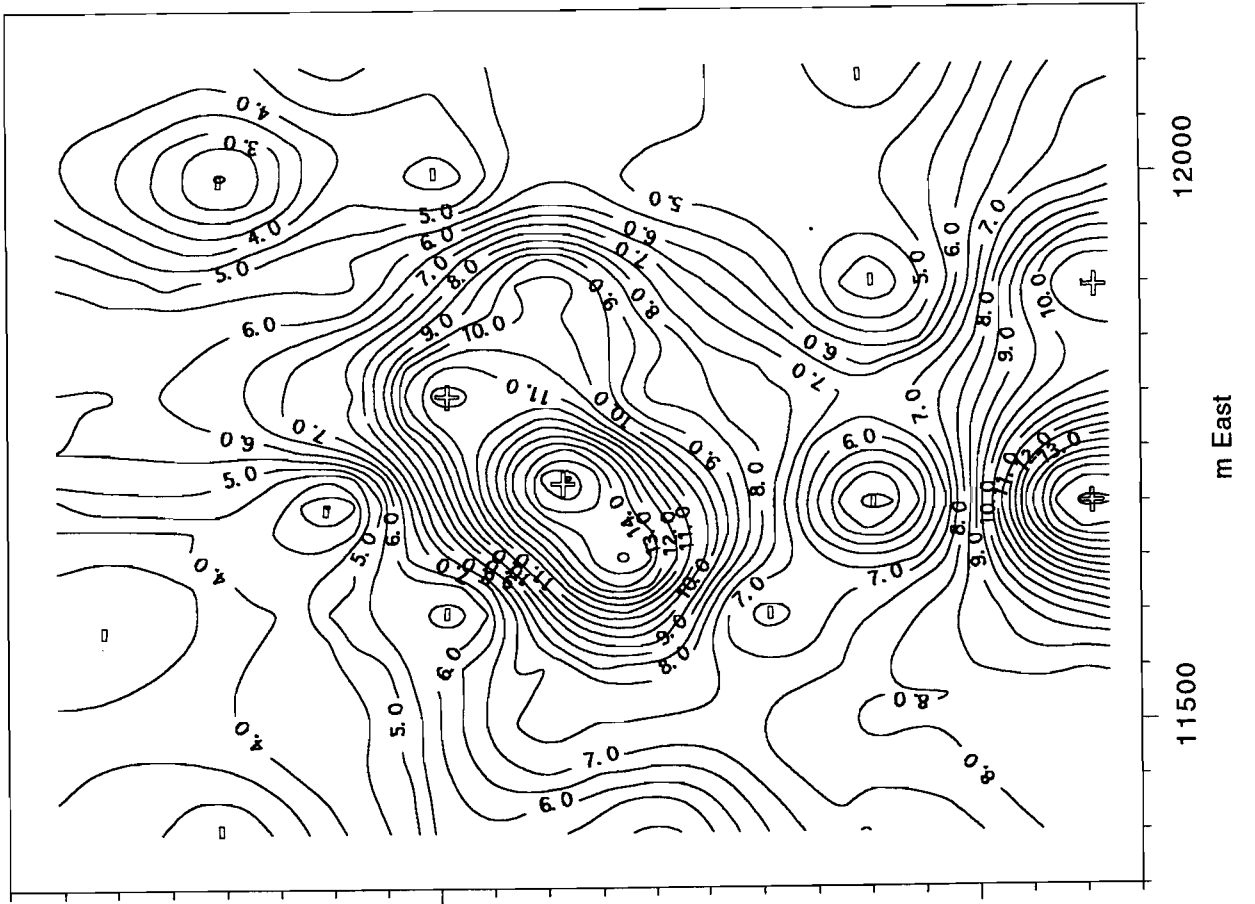
Soil Coarse Fraction - Eu ppm



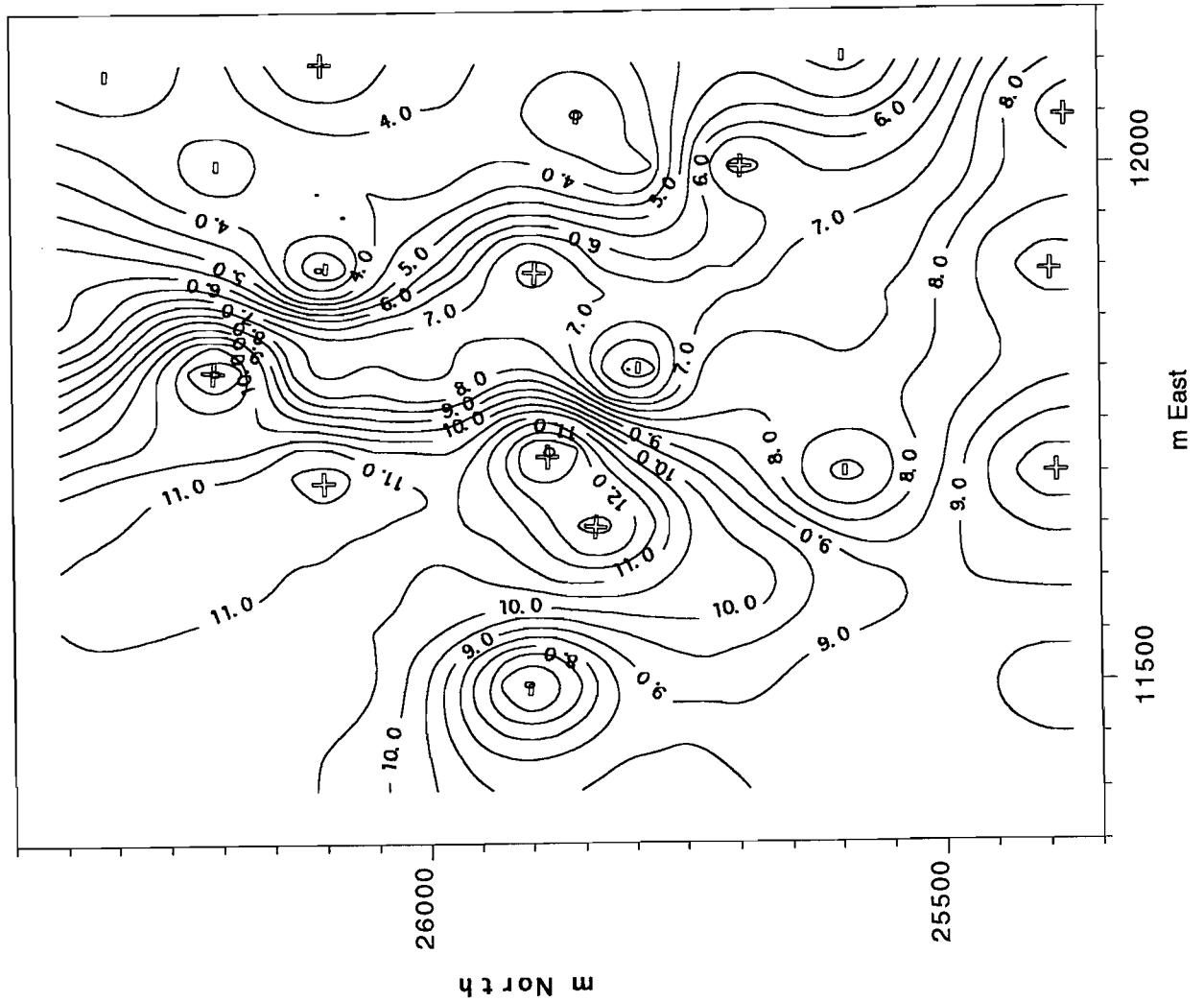
Soil Fine Fraction - Eu ppm



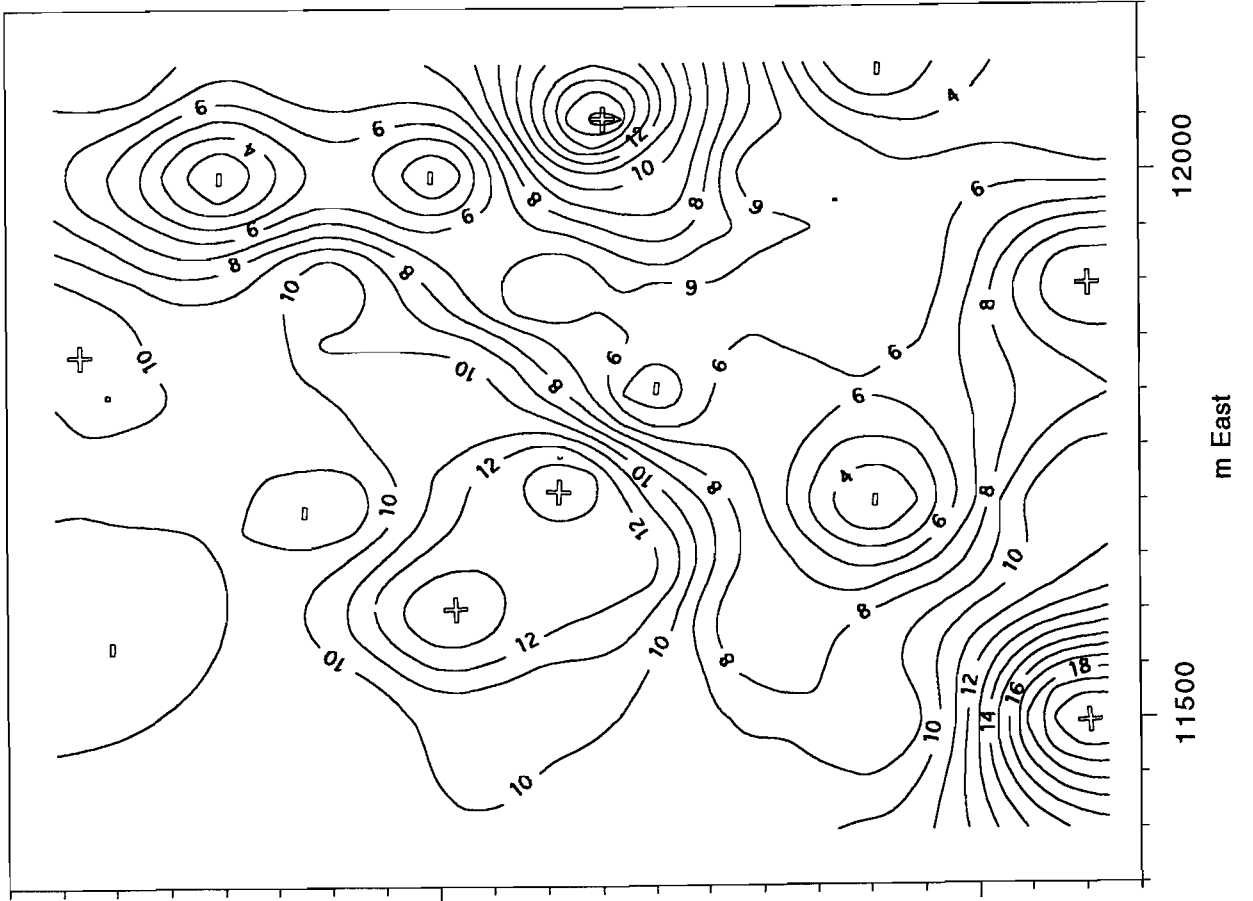
Soil Coarse Fraction - Fe2O3%



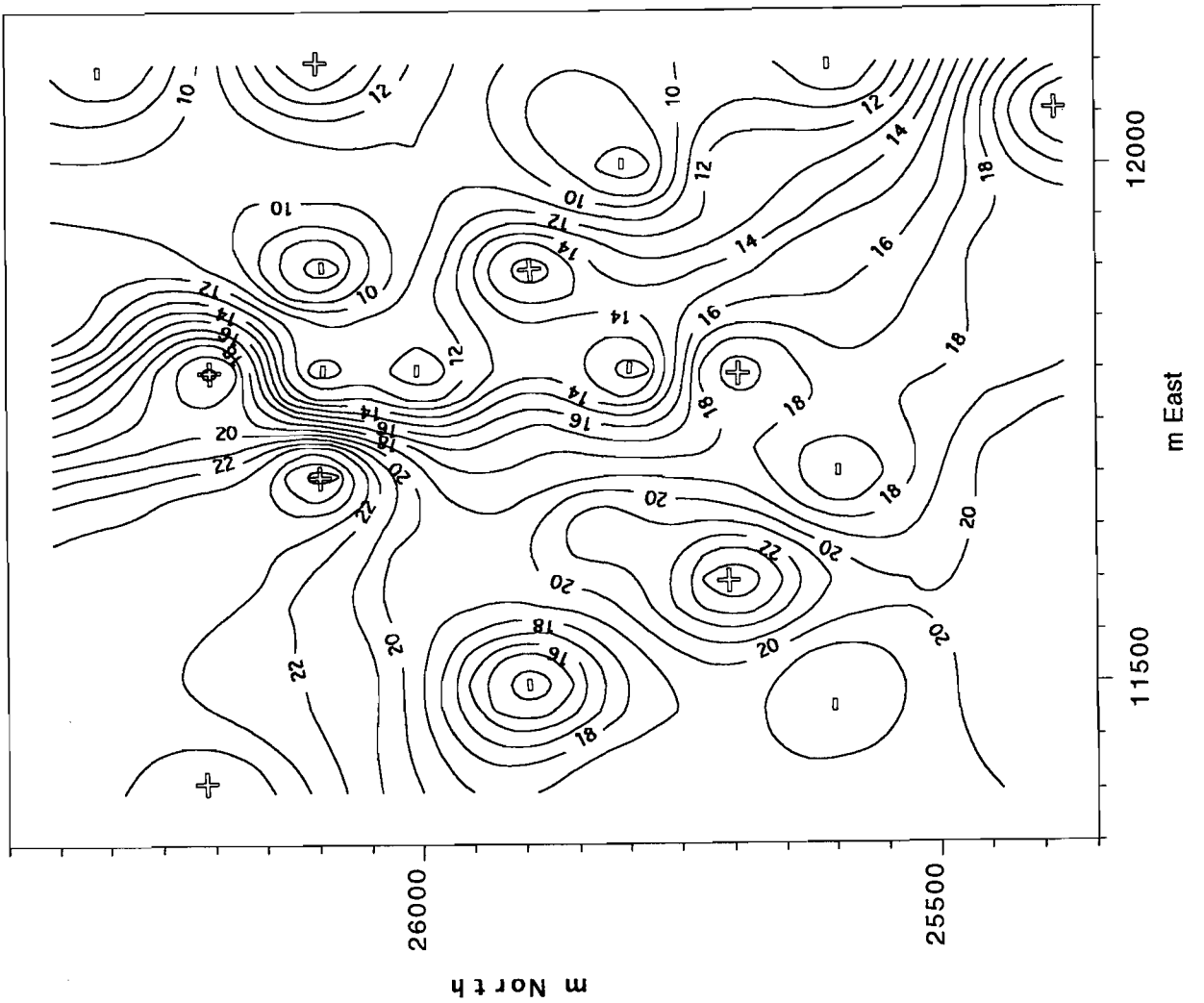
Soil Fine Fraction - Fe2O3%

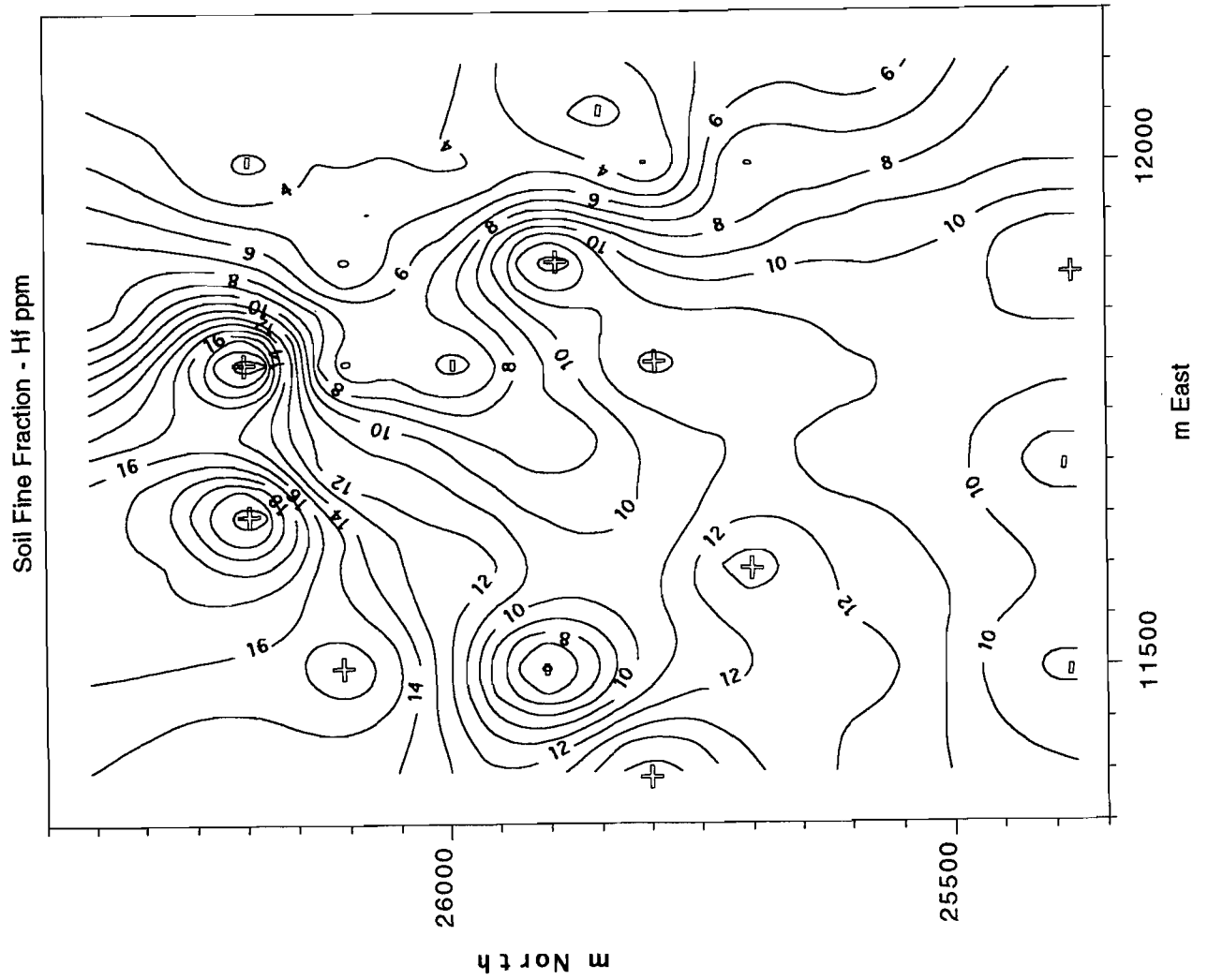
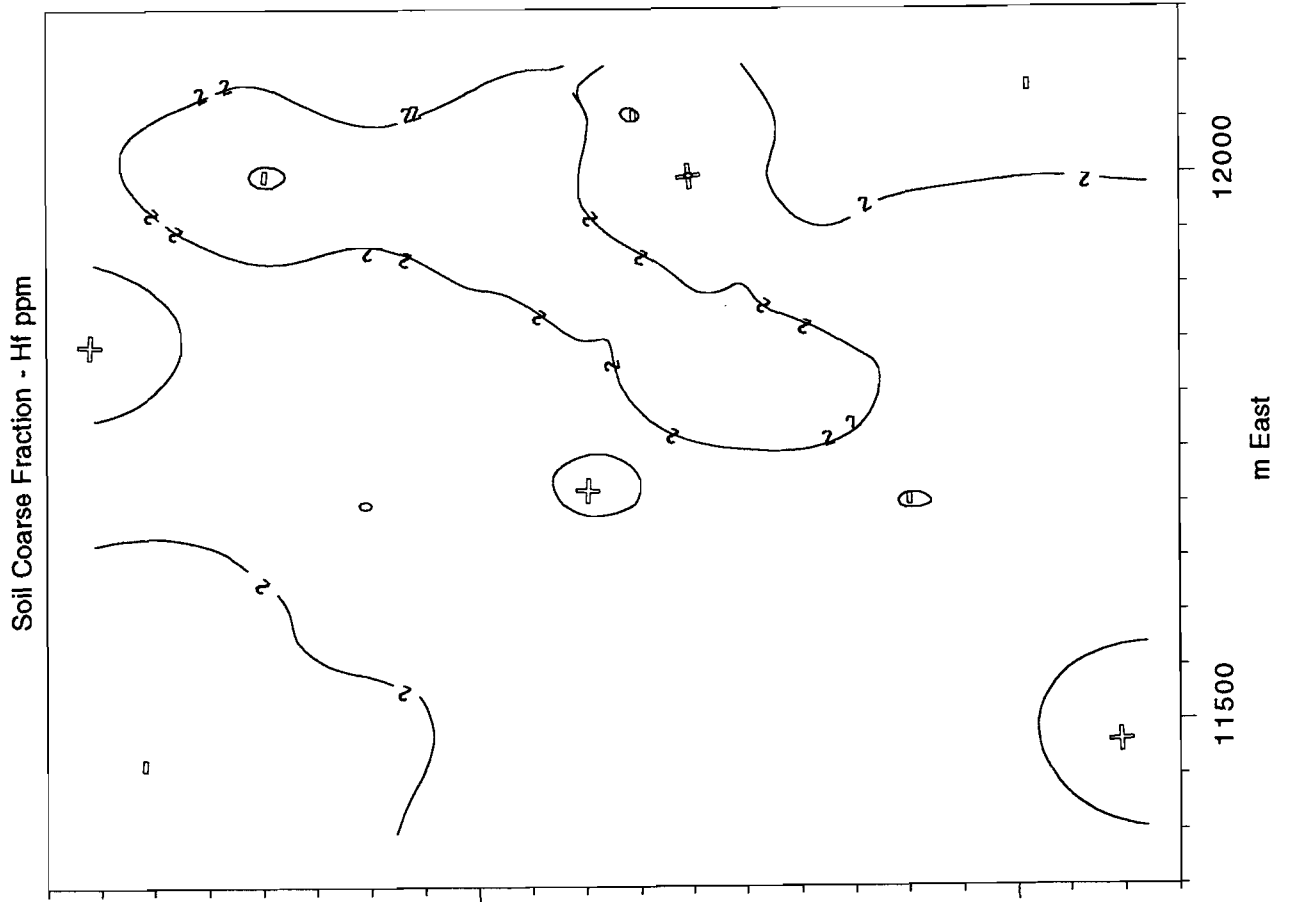


Soil Coarse Fraction - Ga ppm

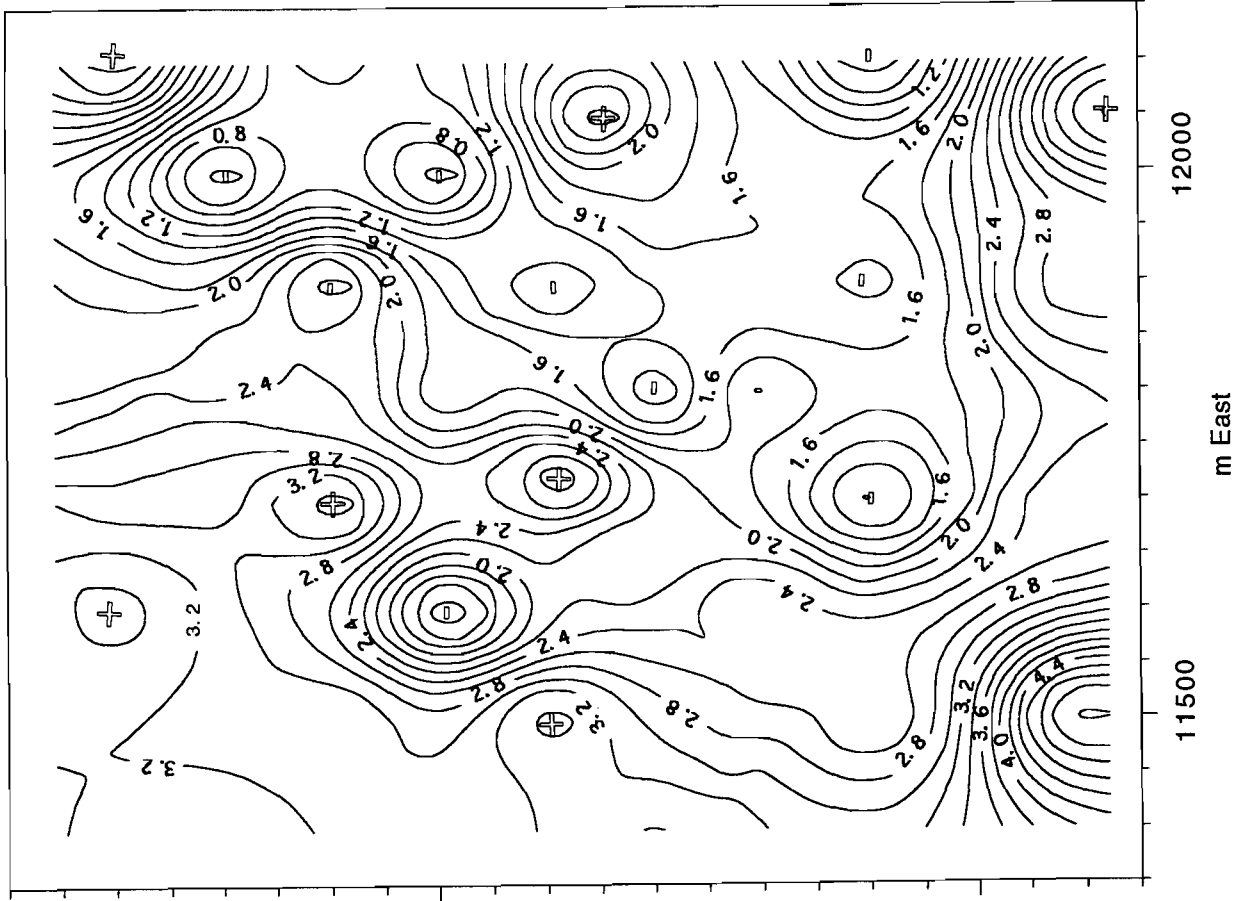


Soil Fine Fraction - Ga ppm

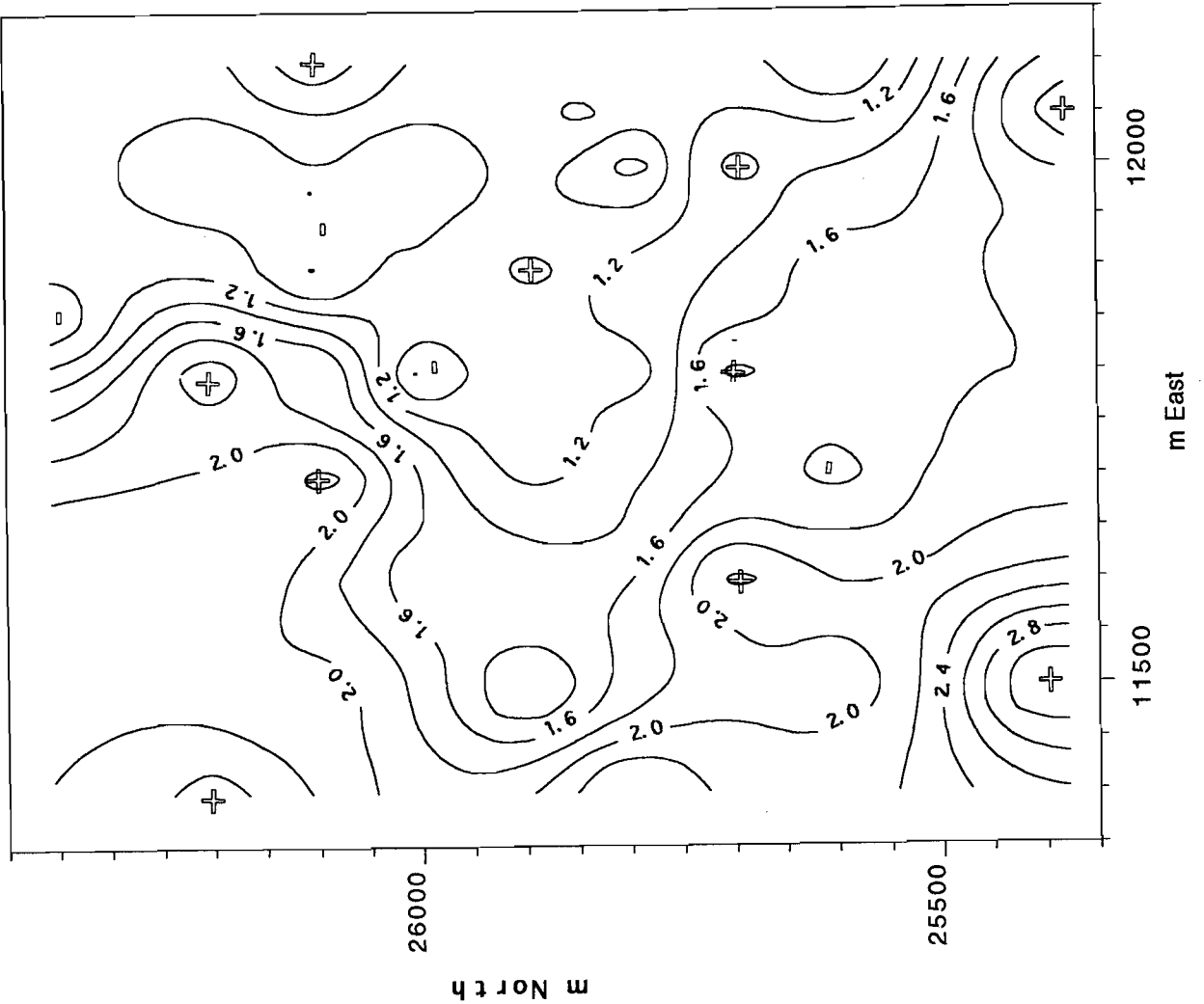




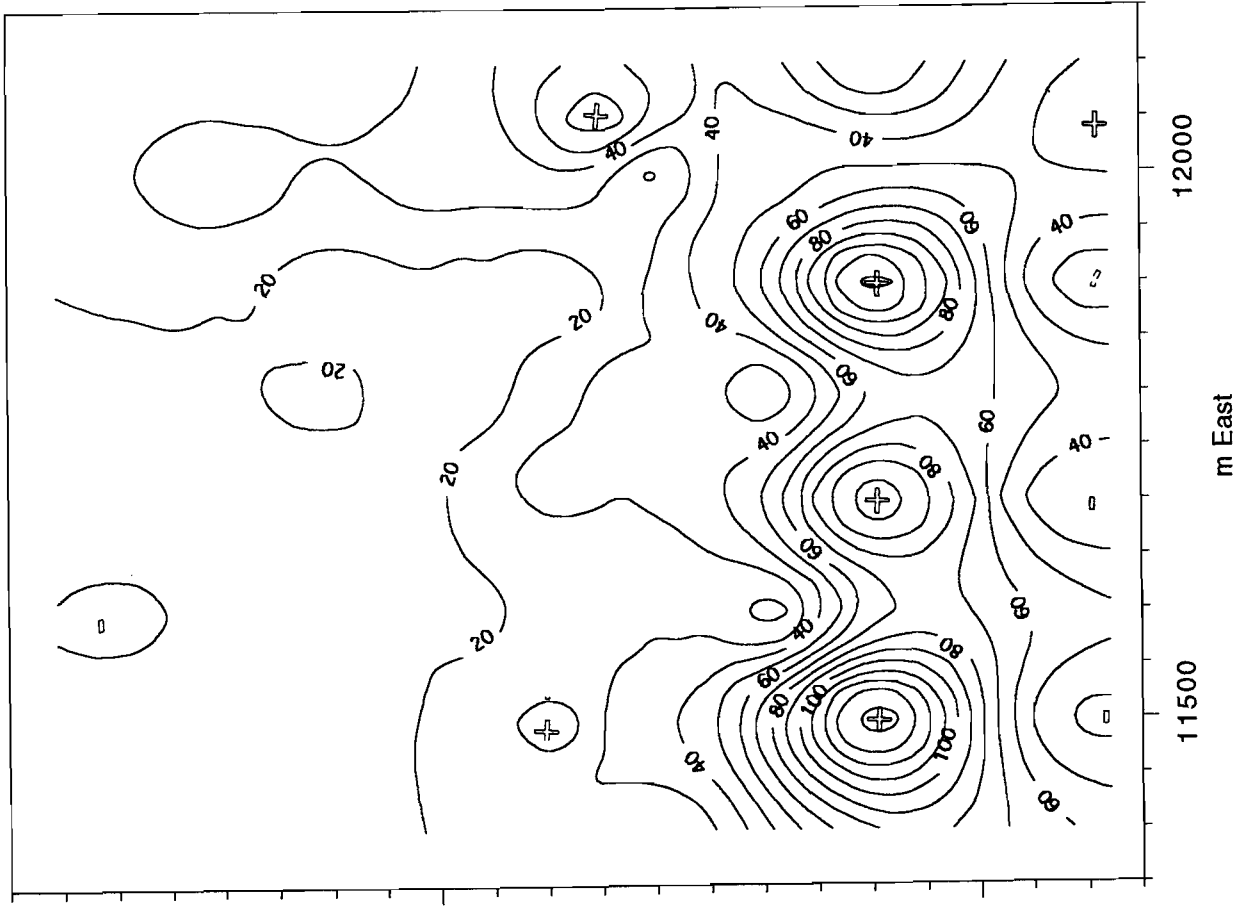
Soil Coarse Fraction - K2O%



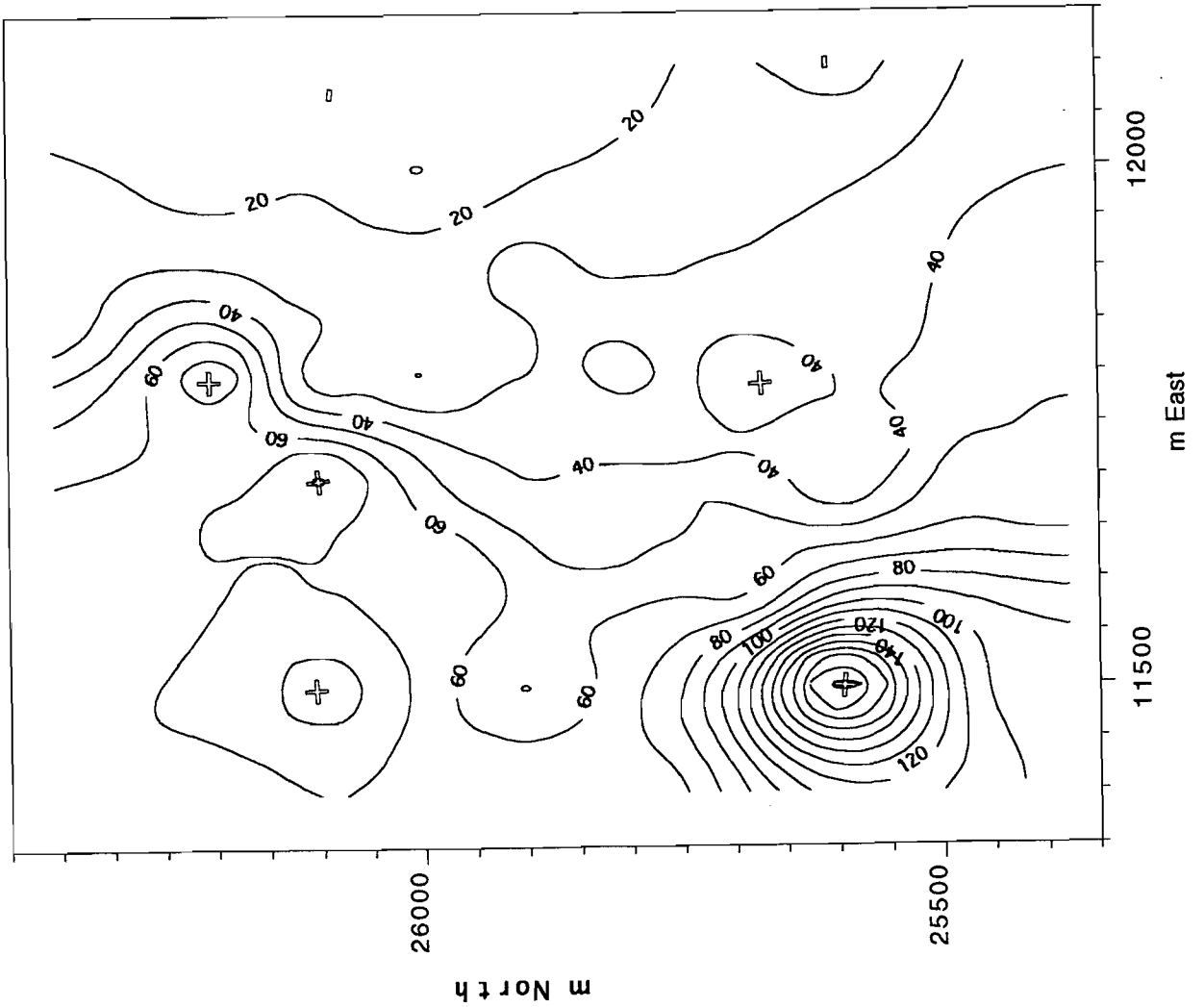
Soil Fine Fraction - K2O%

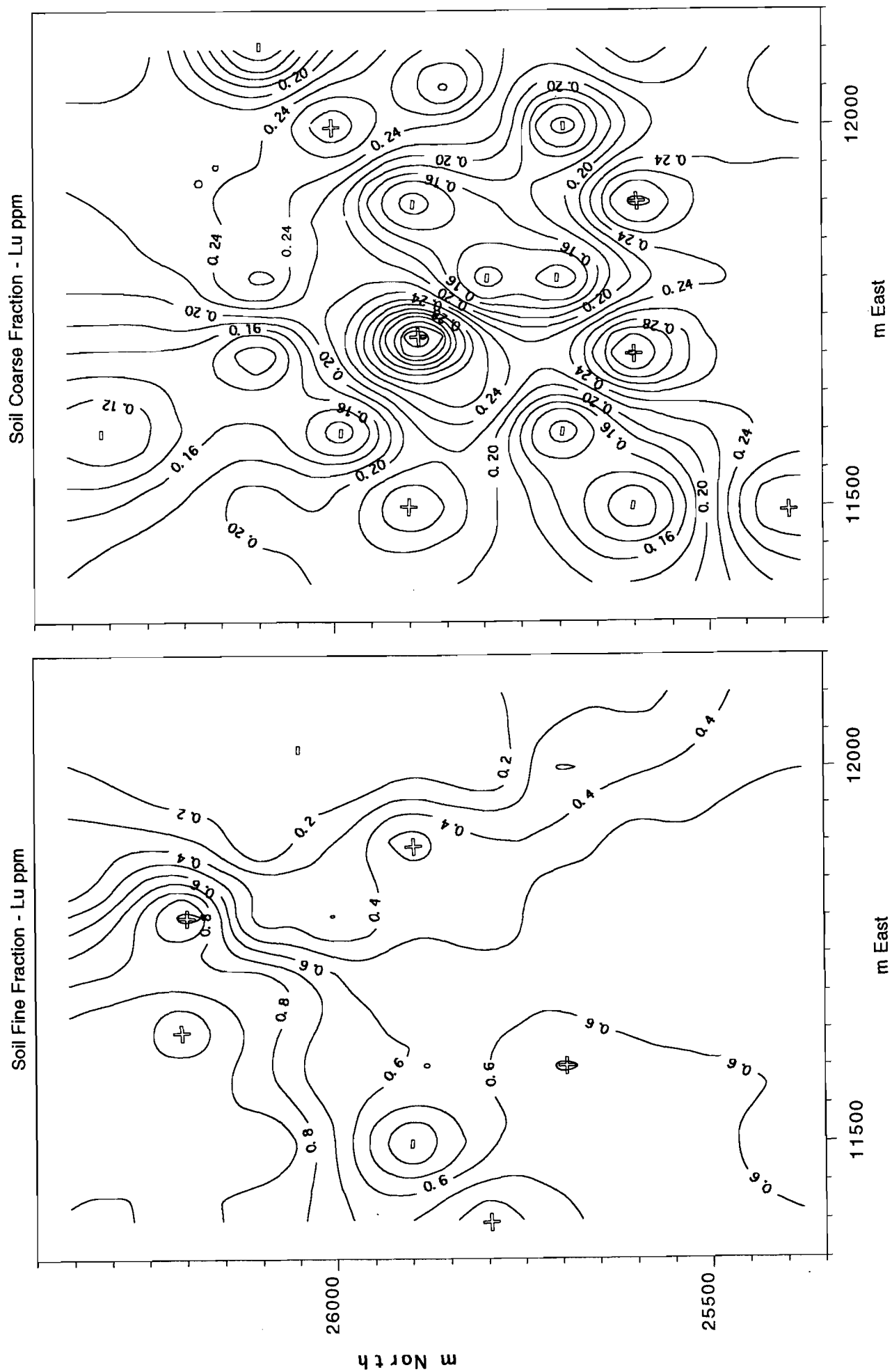


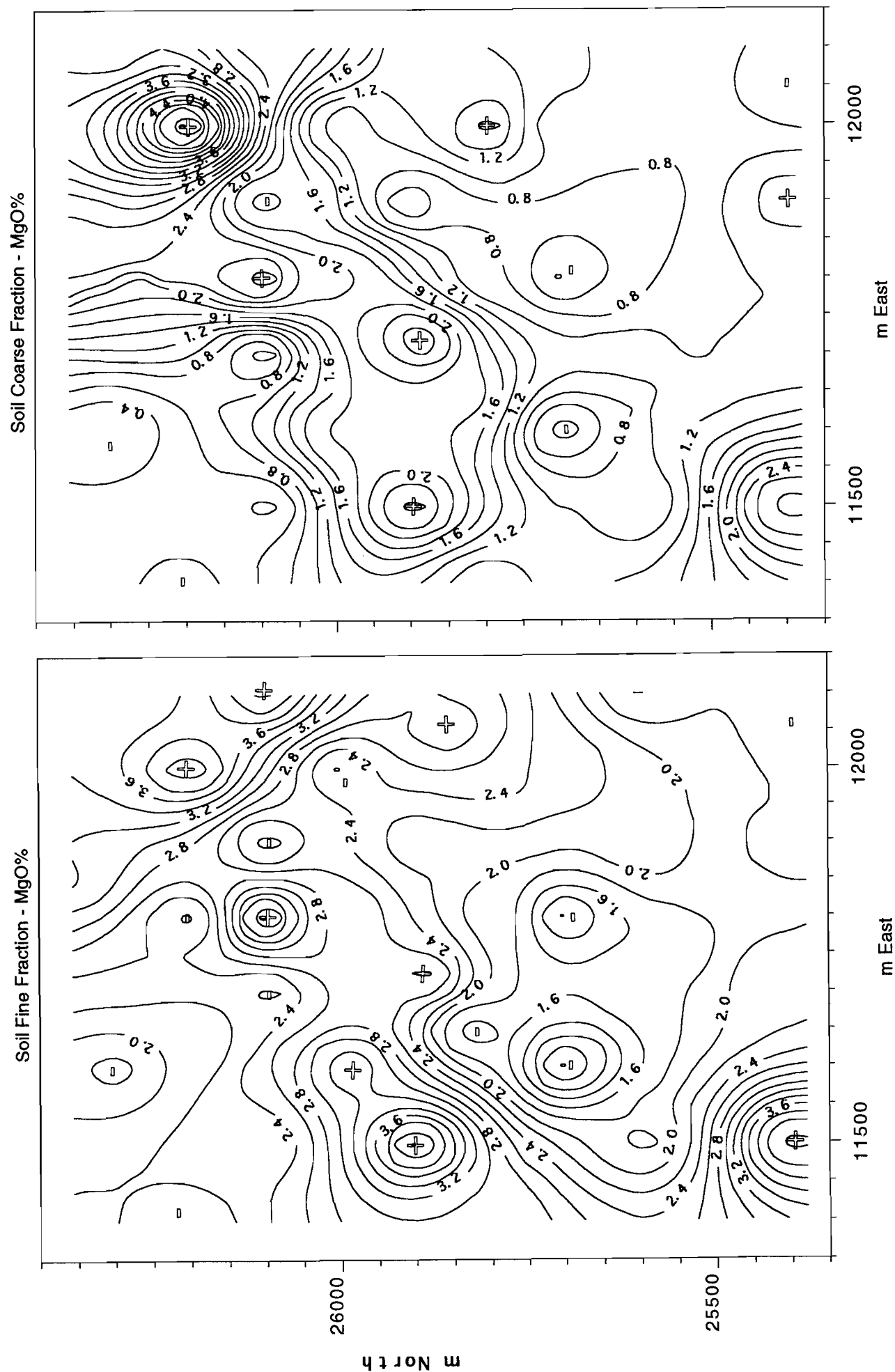
Soil Coarse Fraction - La ppm



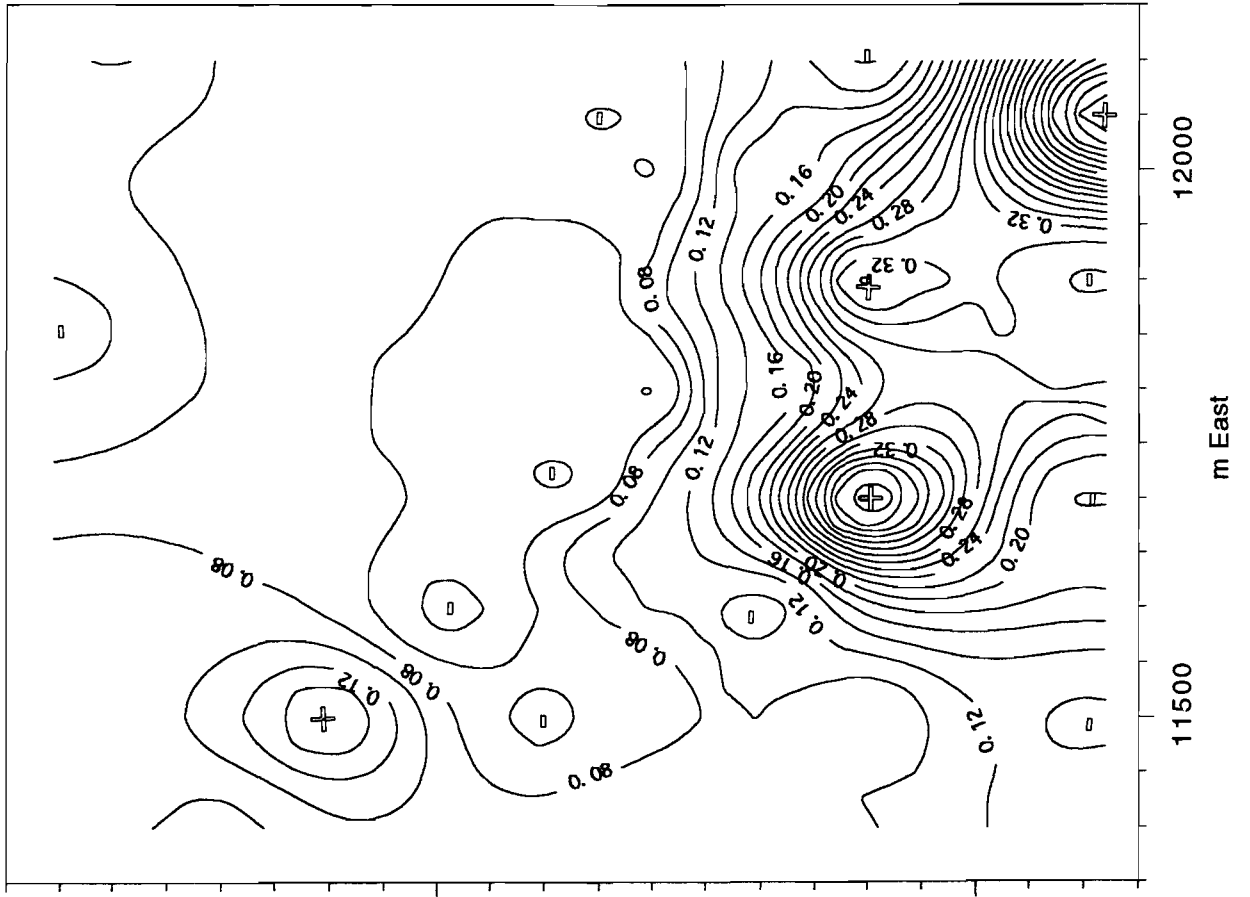
Soil Fine Fraction - La ppm



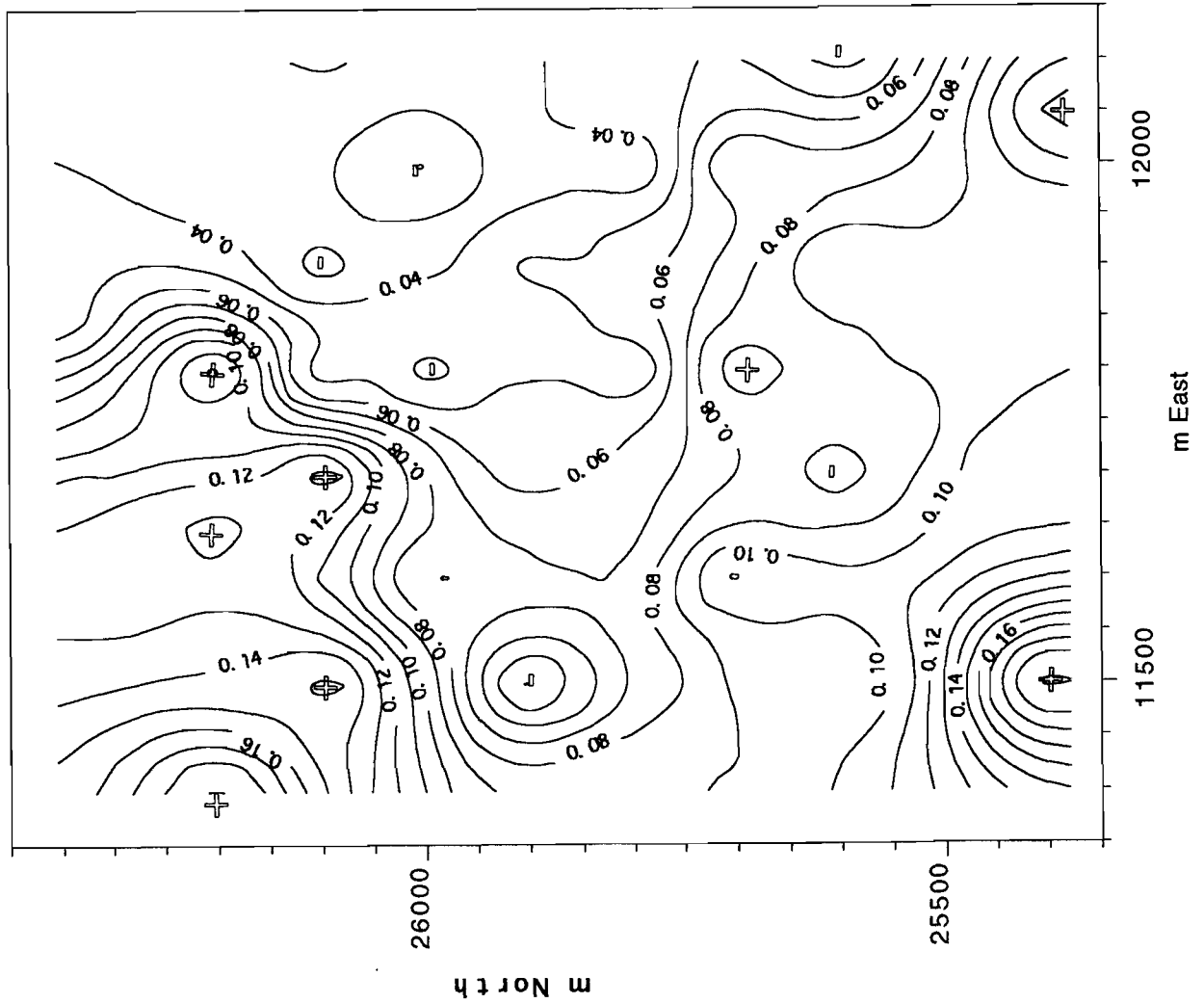




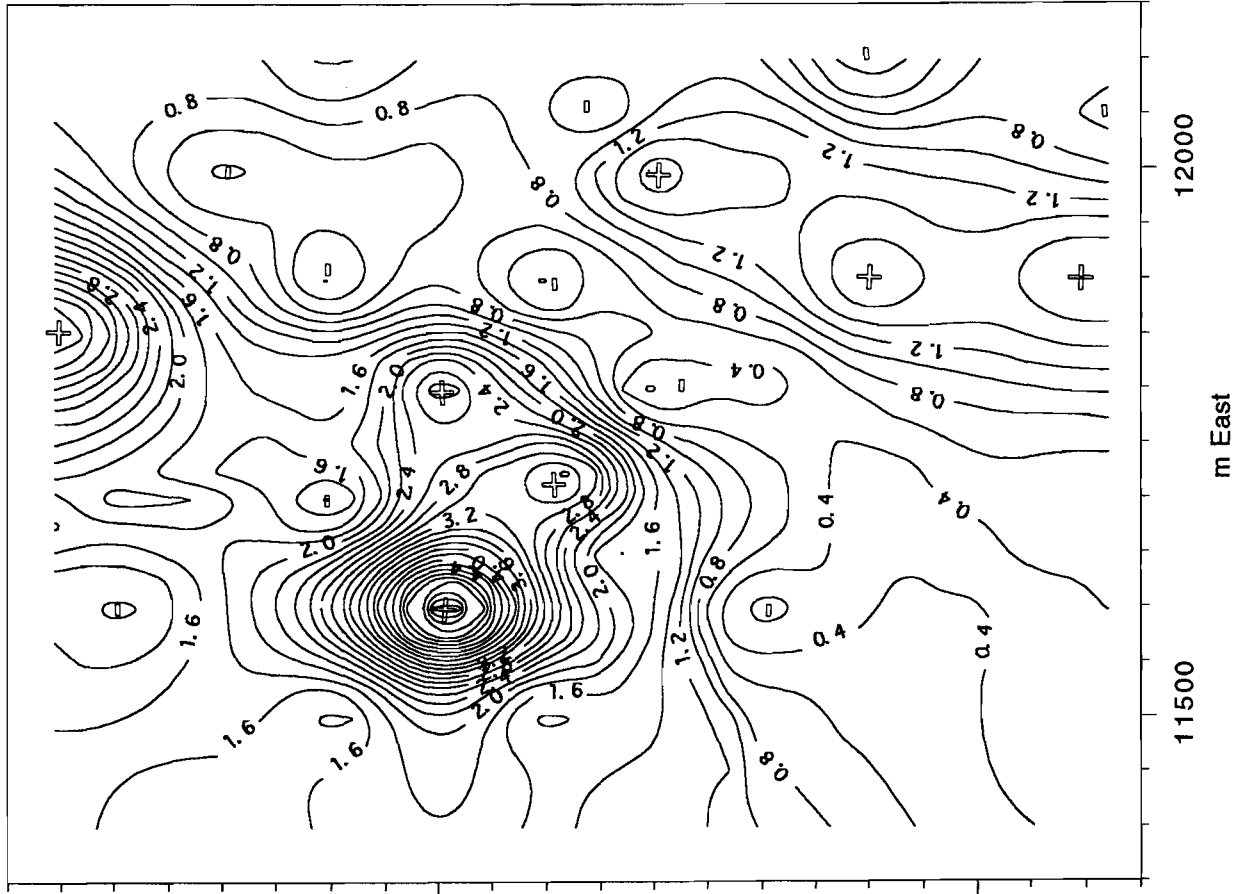
Soil Coarse Fraction - MnO%



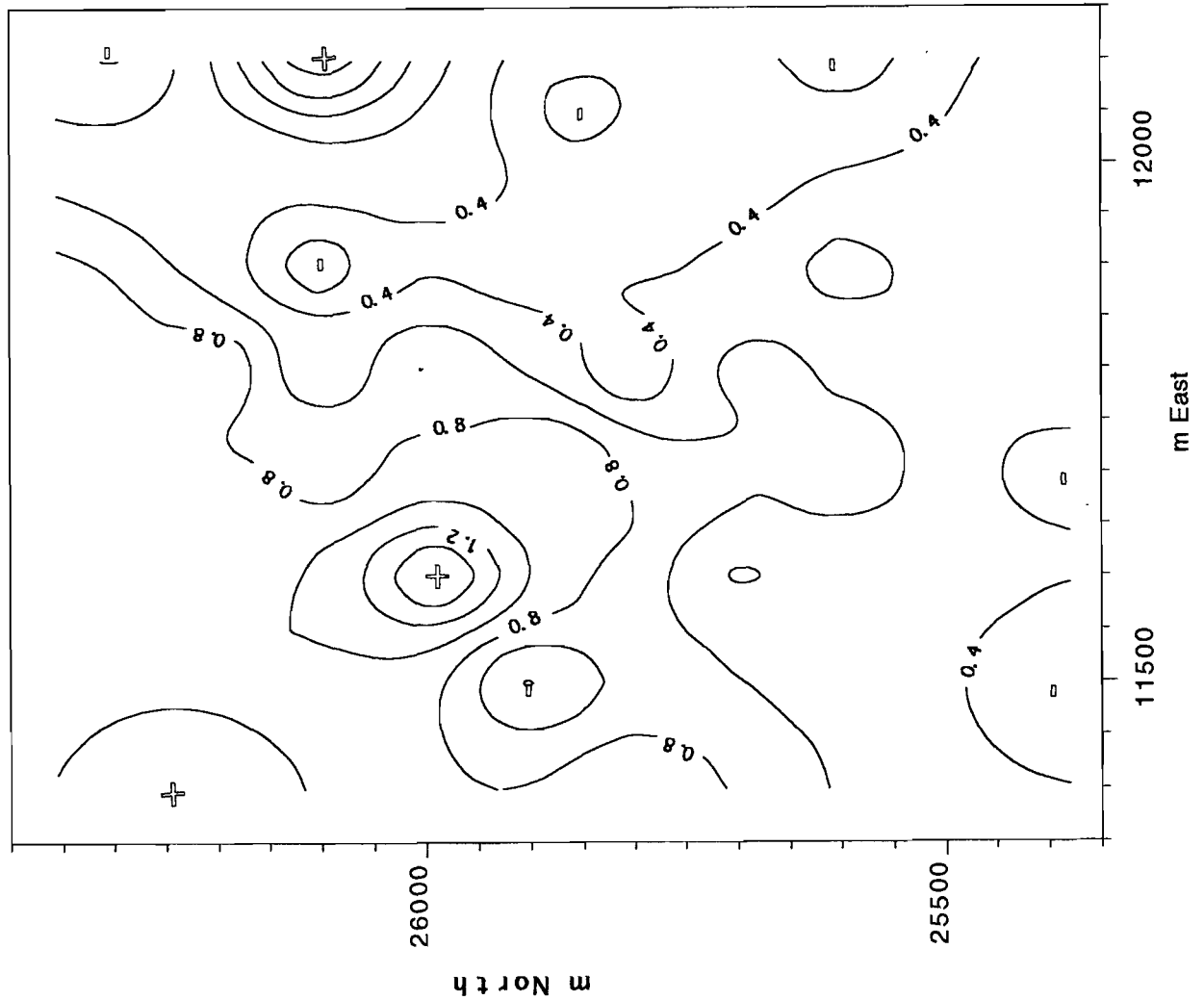
Soil Fine Fraction - MnO%

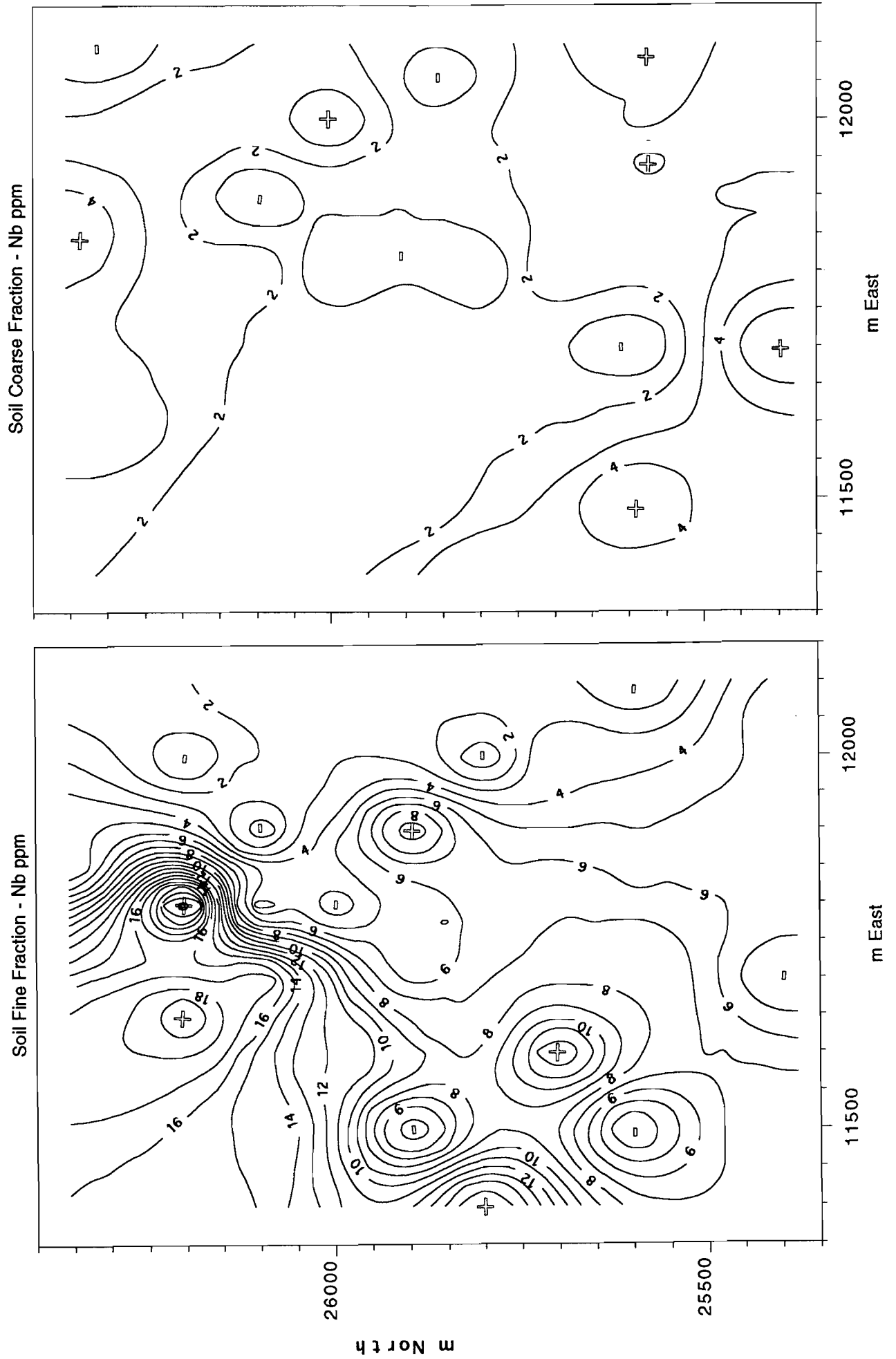


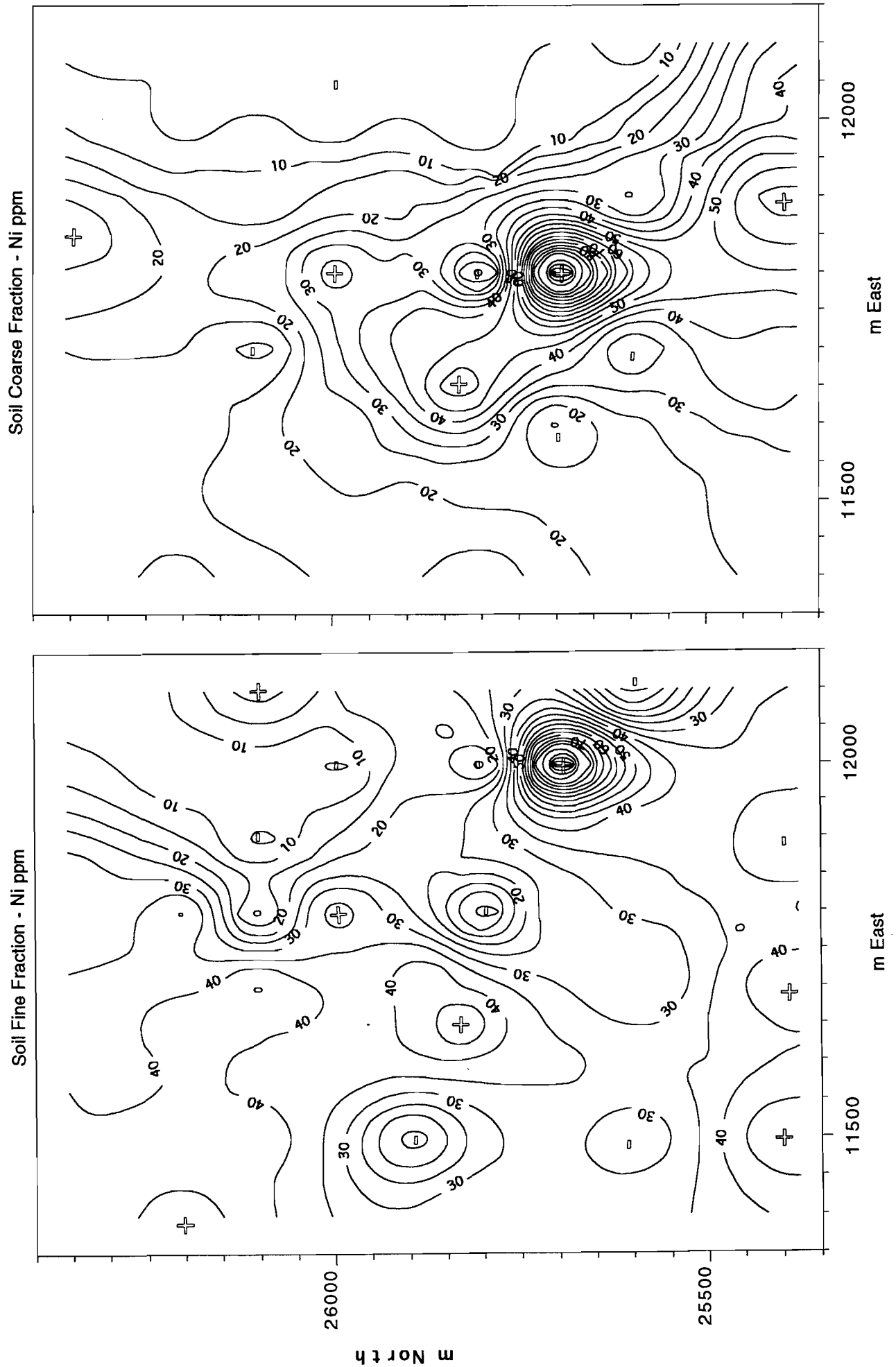
Soil Coarse Fraction - Na₂O%

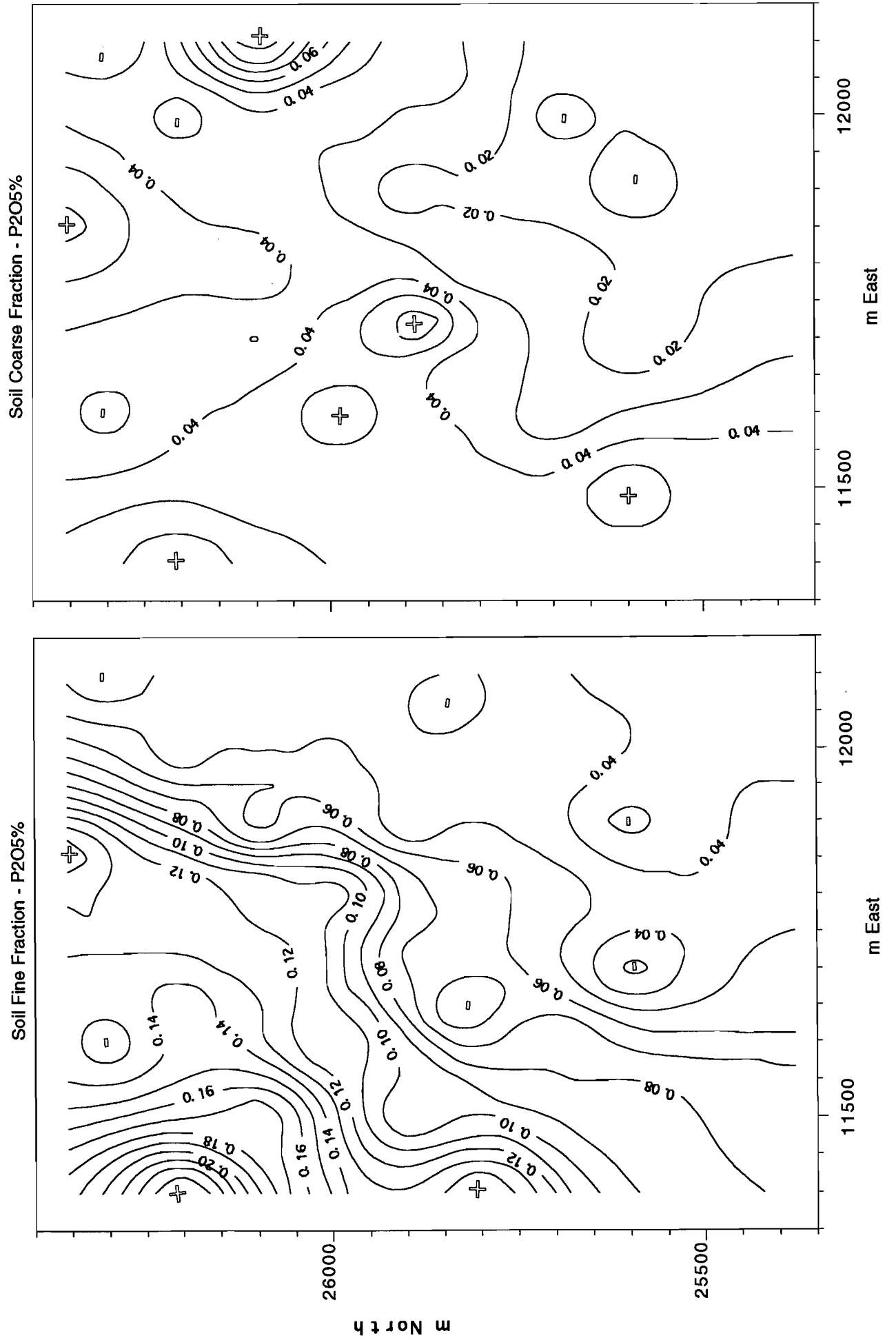


Soil Fine Fraction - Na₂O%

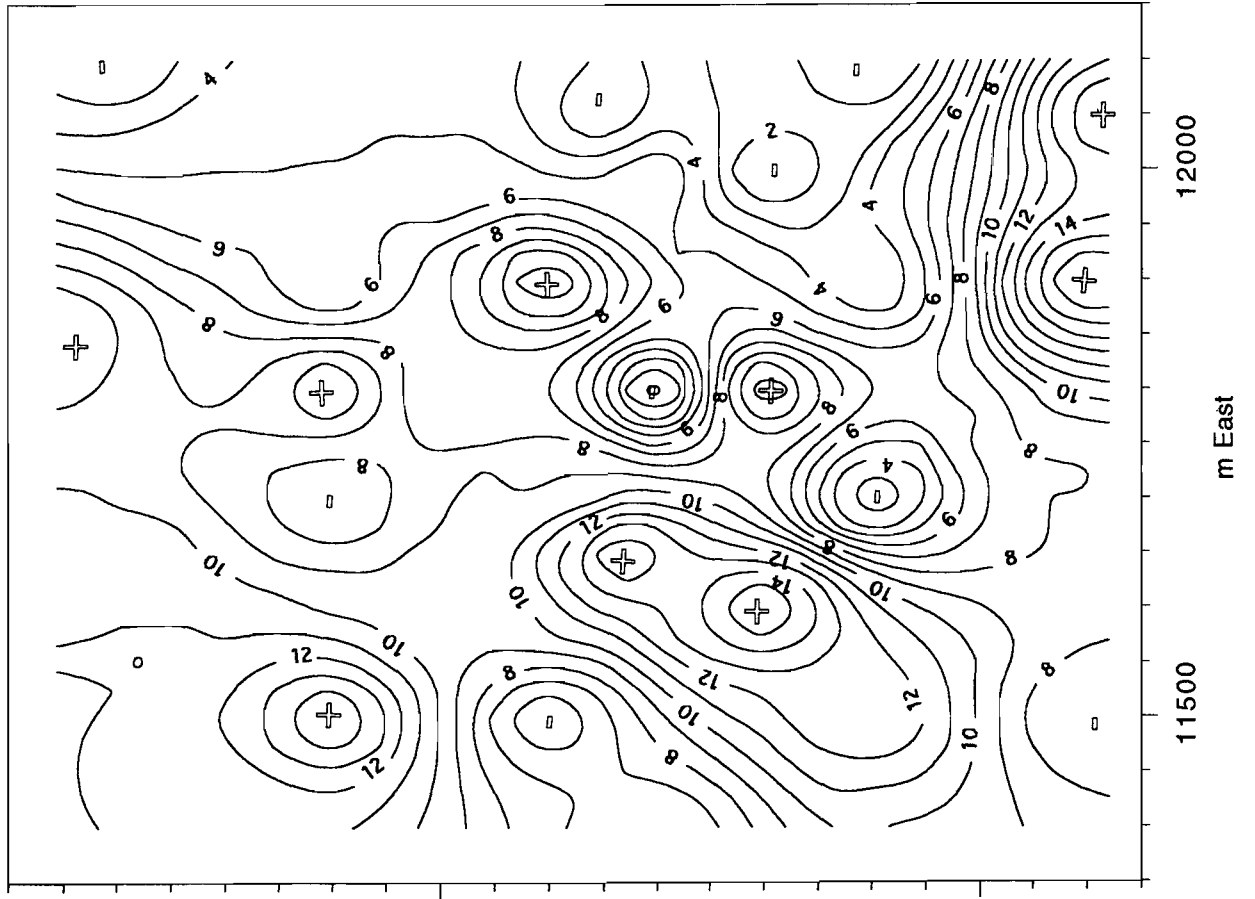




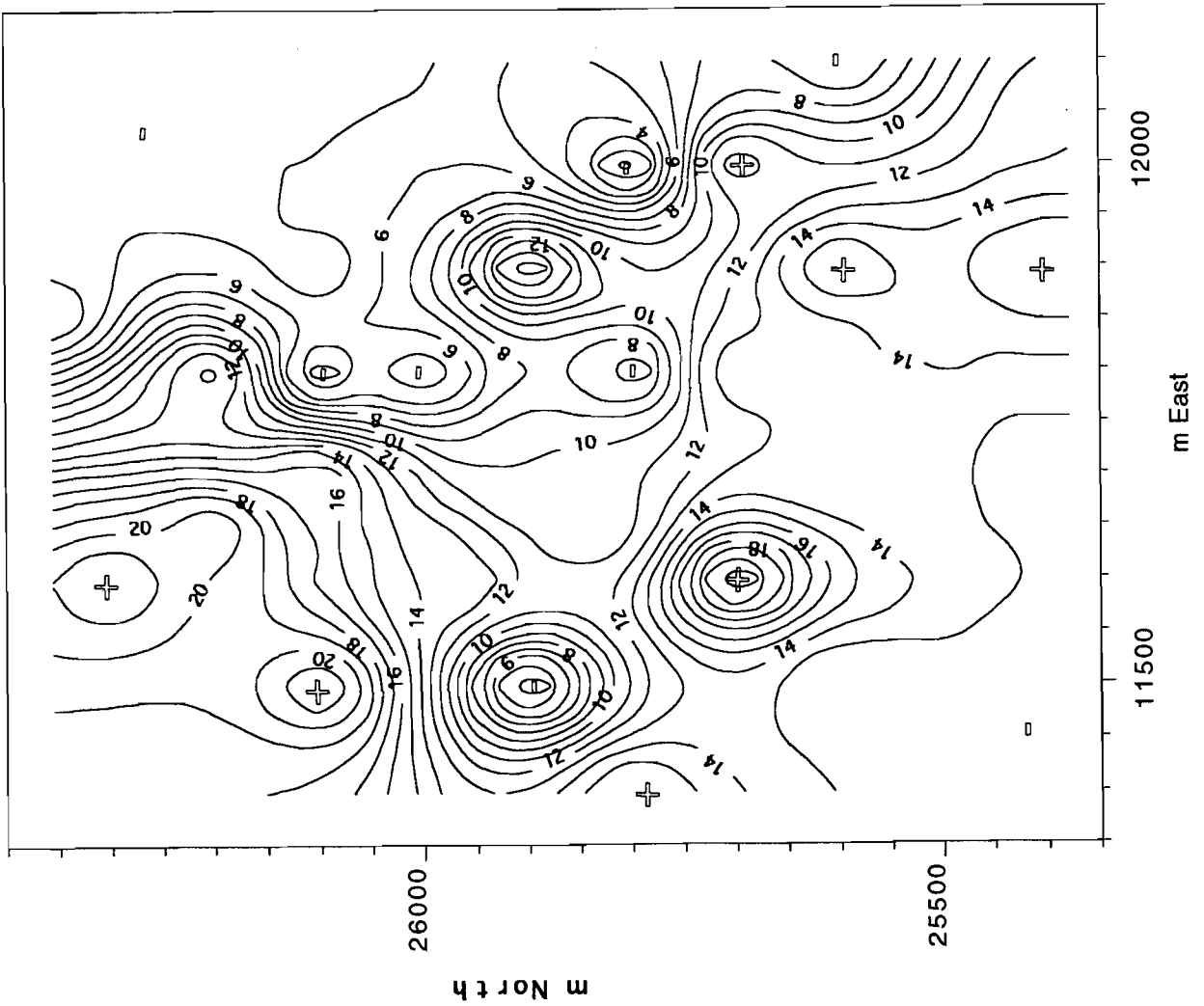




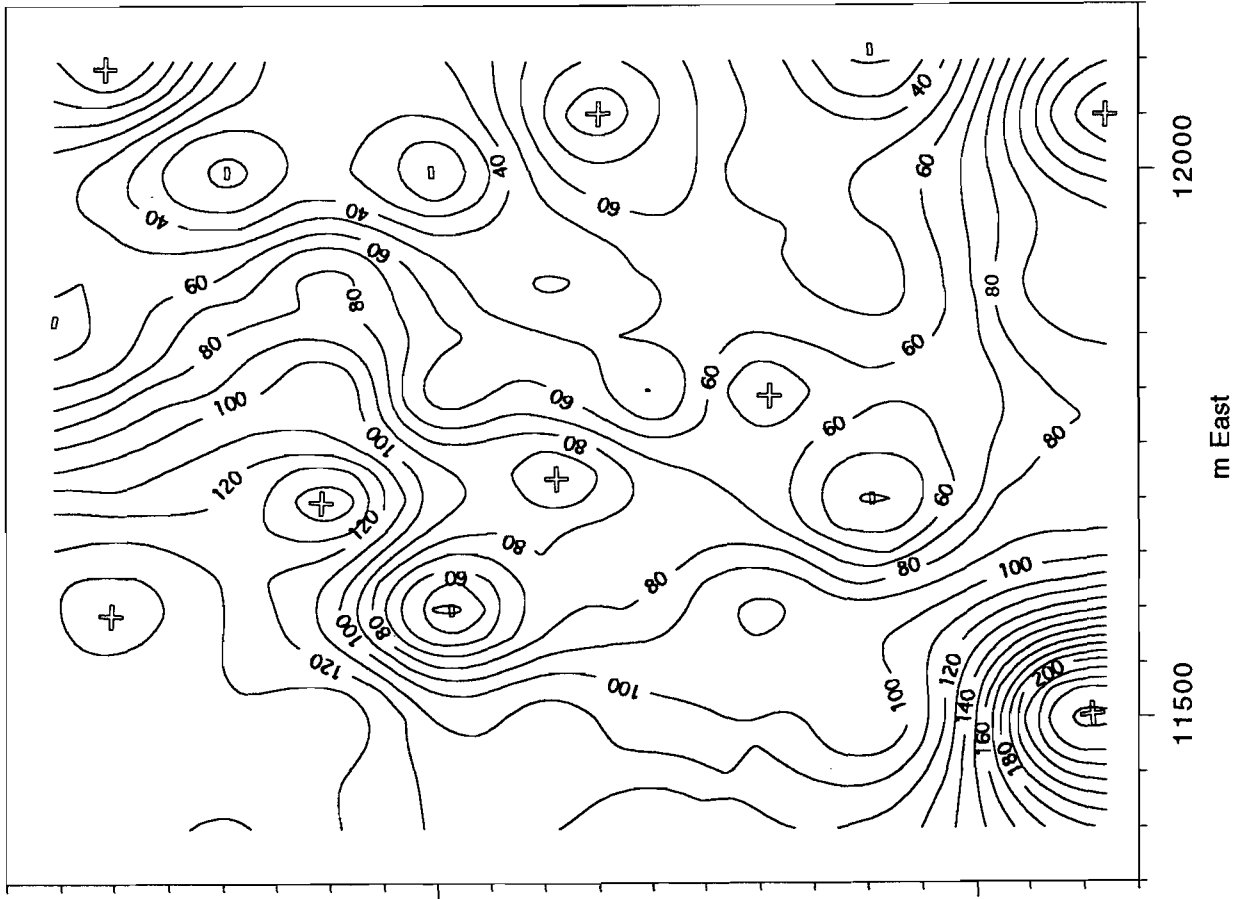
Soil Coarse Fraction - Pb ppm



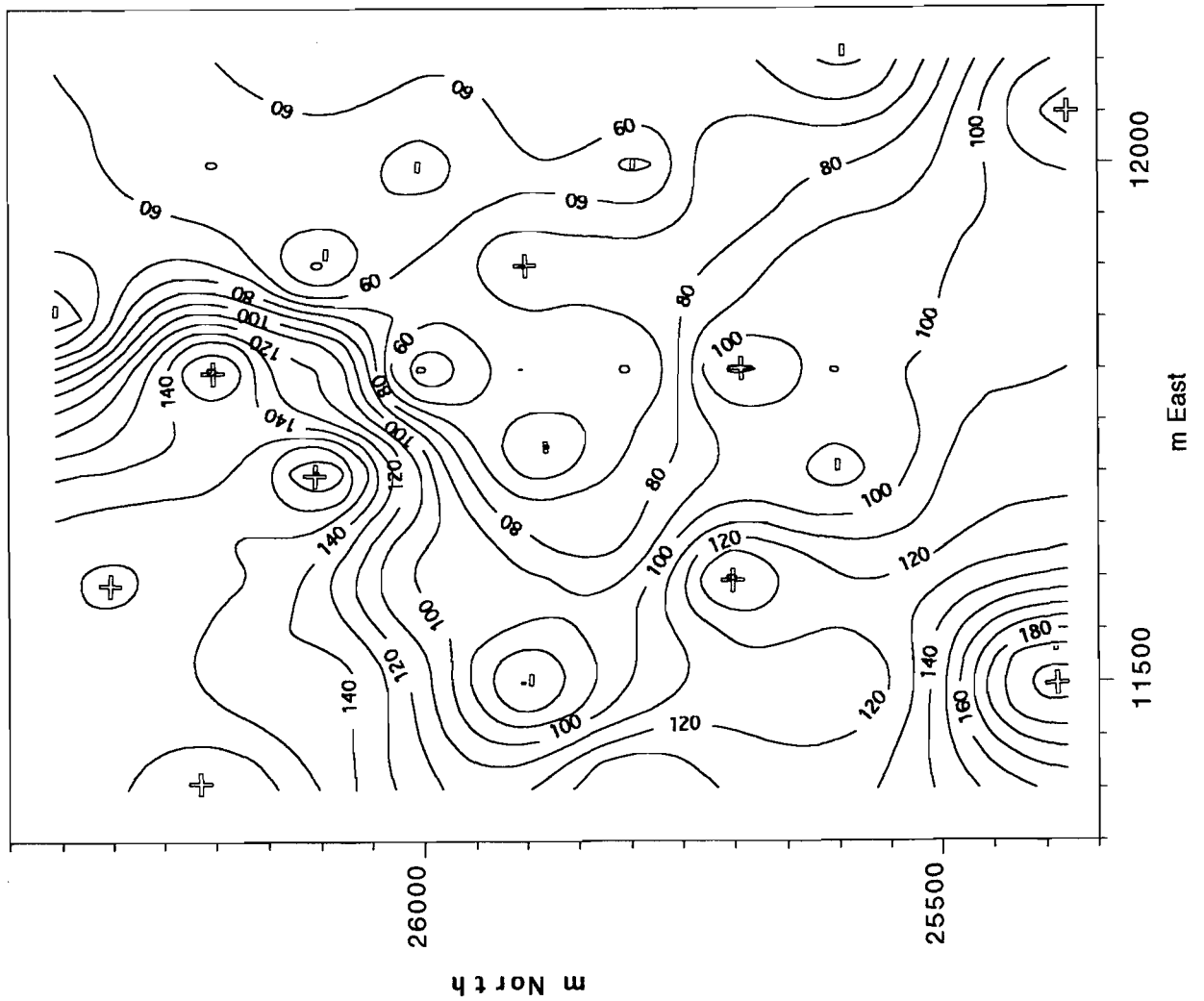
Soil Fine Fraction - Pb ppm

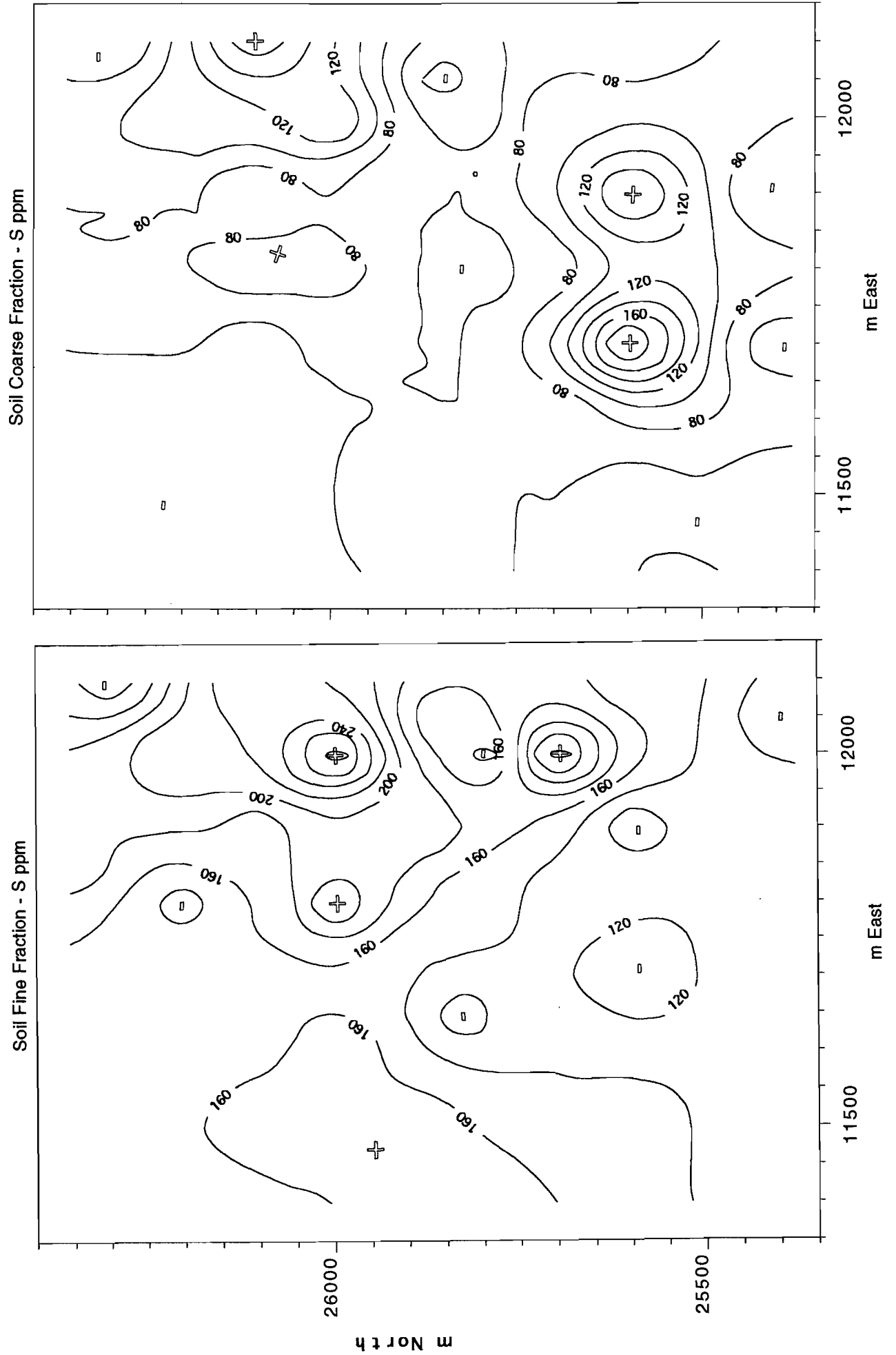


Soil Coarse Fraction - Rb ppm

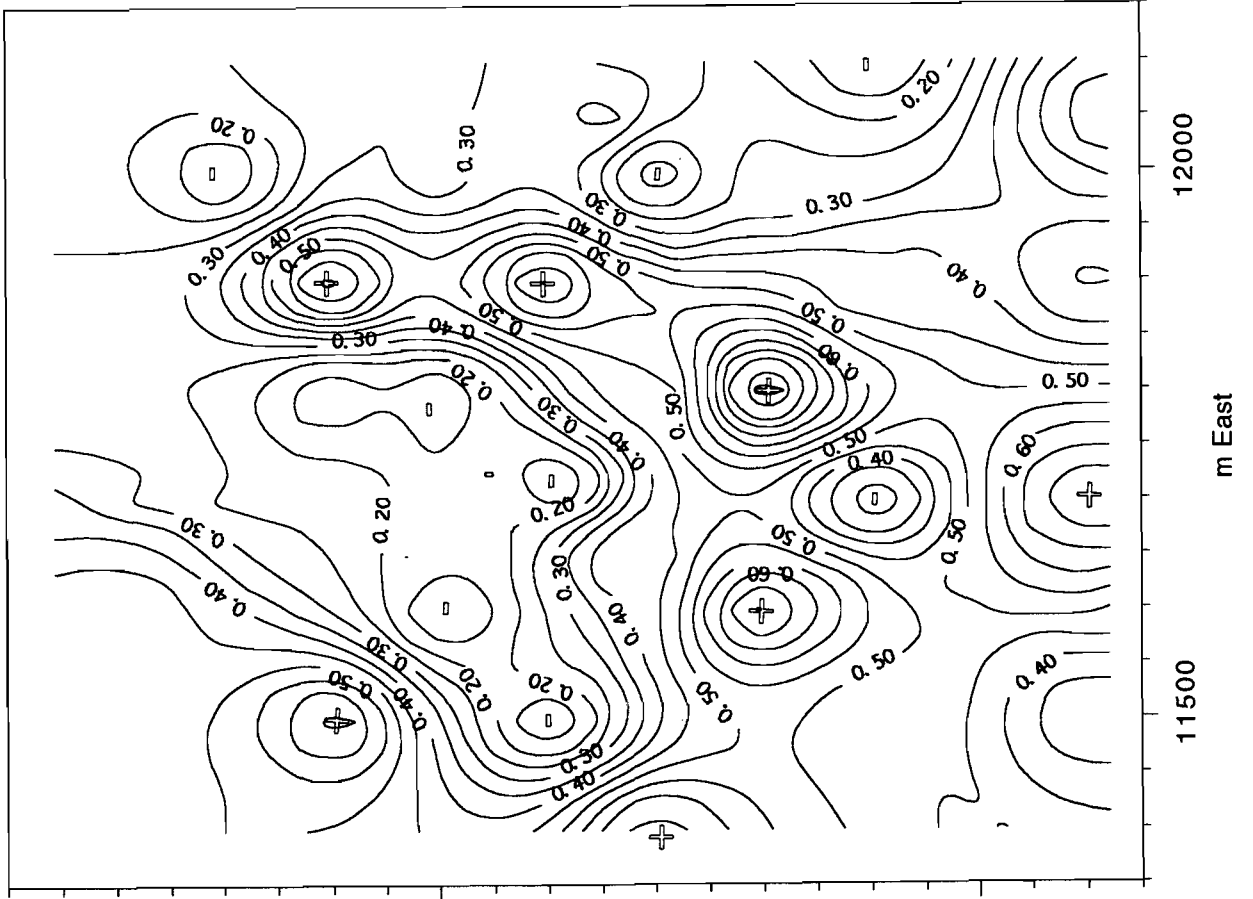


Soil Fine Fraction - Rb ppm

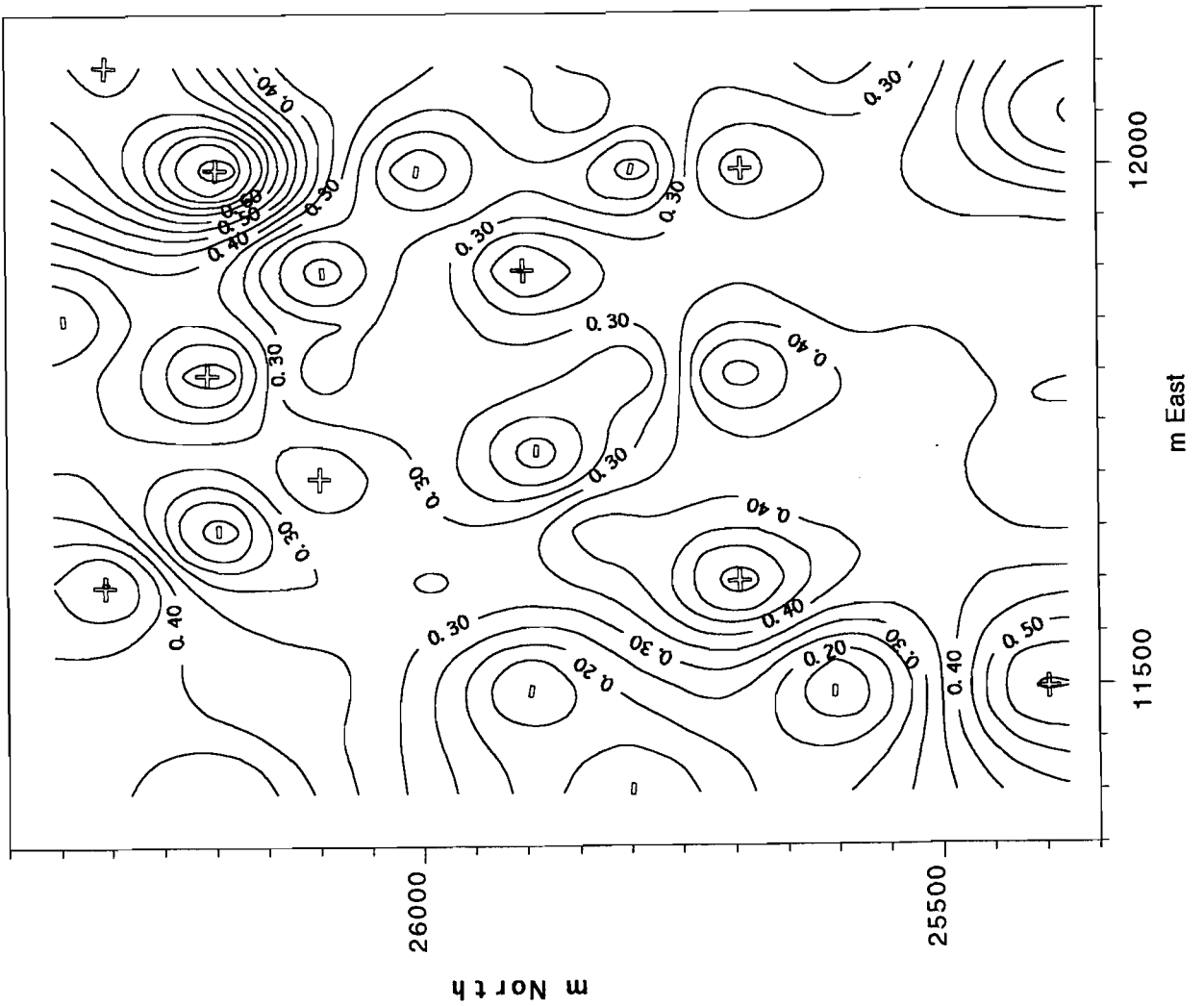




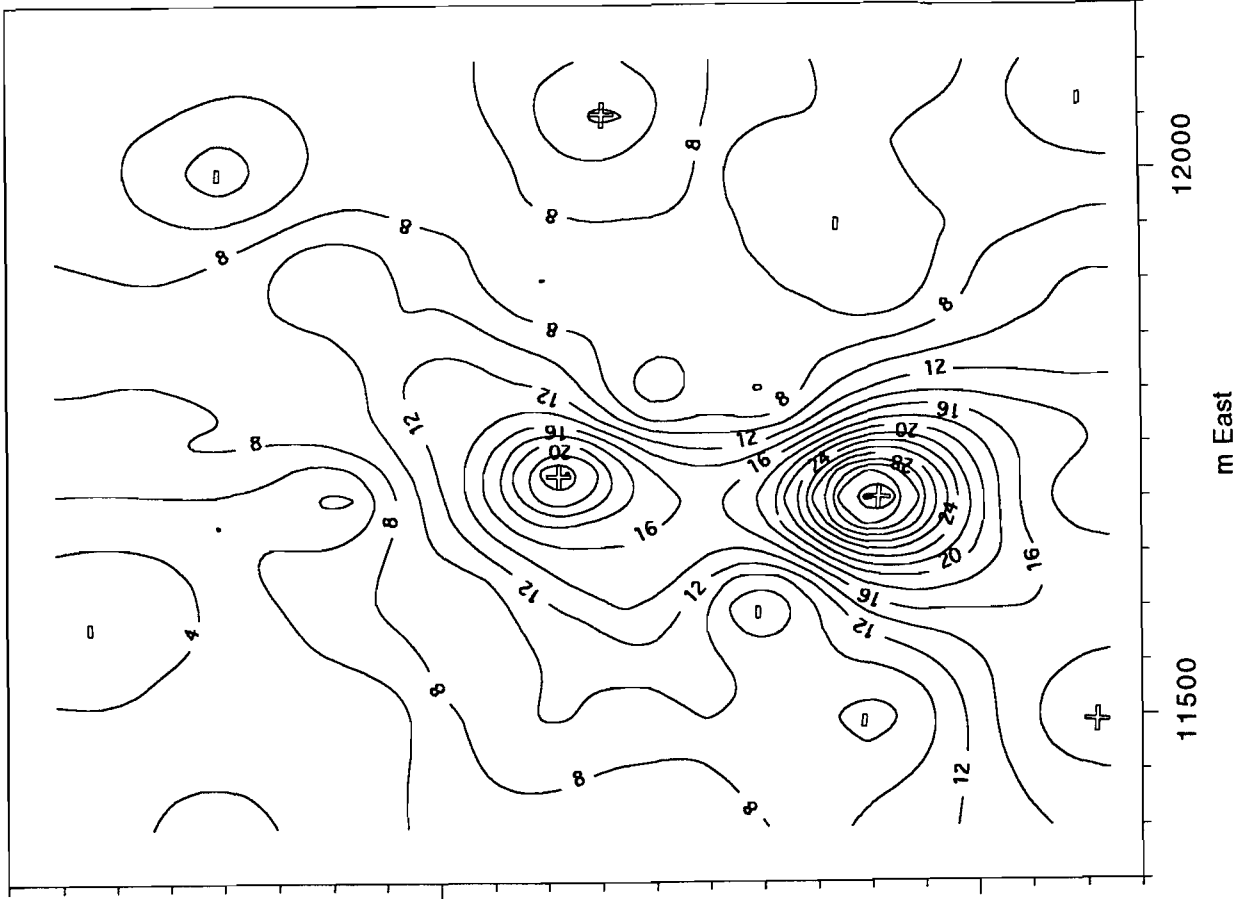
Soil Coarse Fraction - Sb ppm



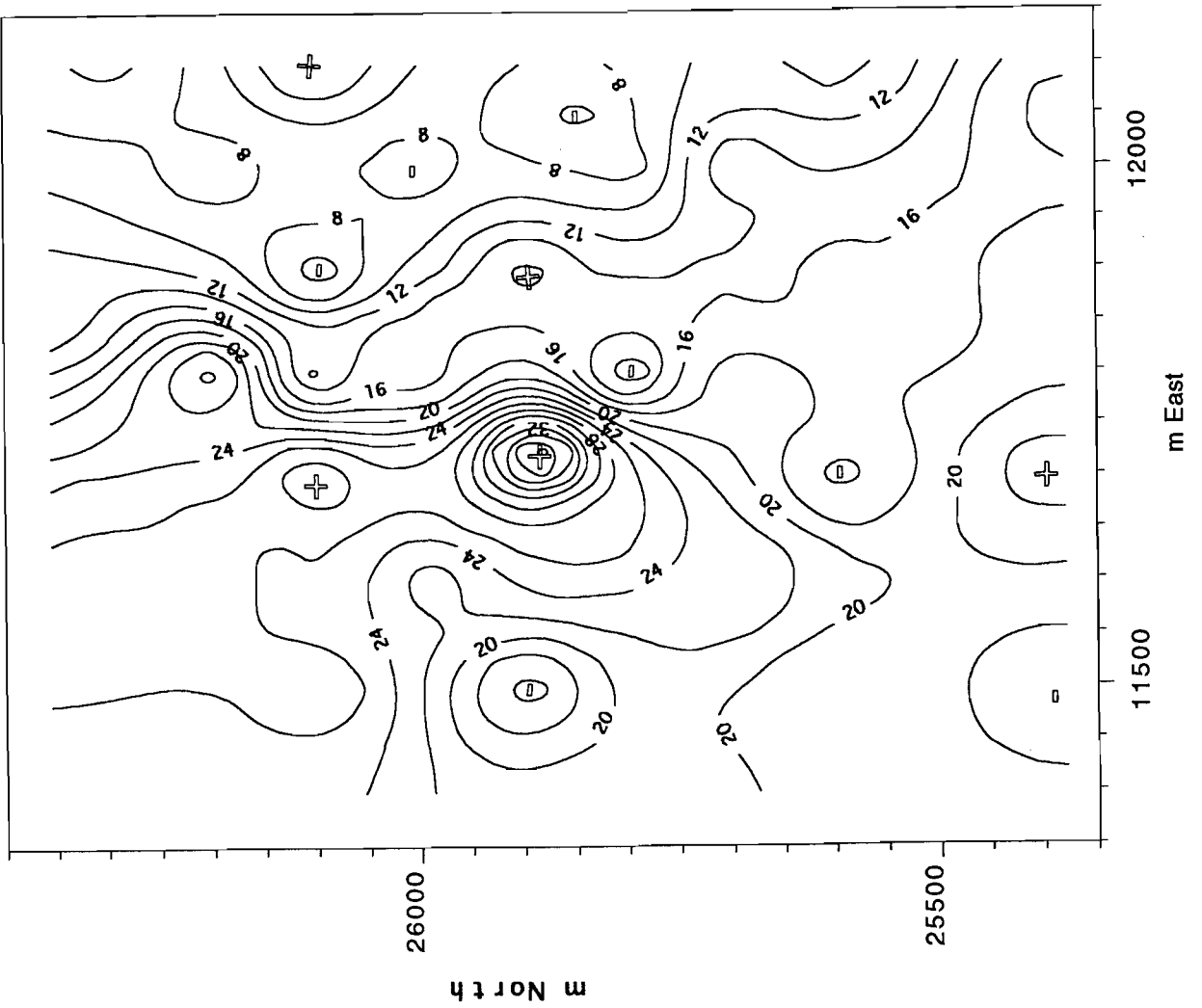
Soil Fine Fraction - Sb ppm



Soil Coarse Fraction - Sc ppm



Soil Fine Fraction - Sc ppm

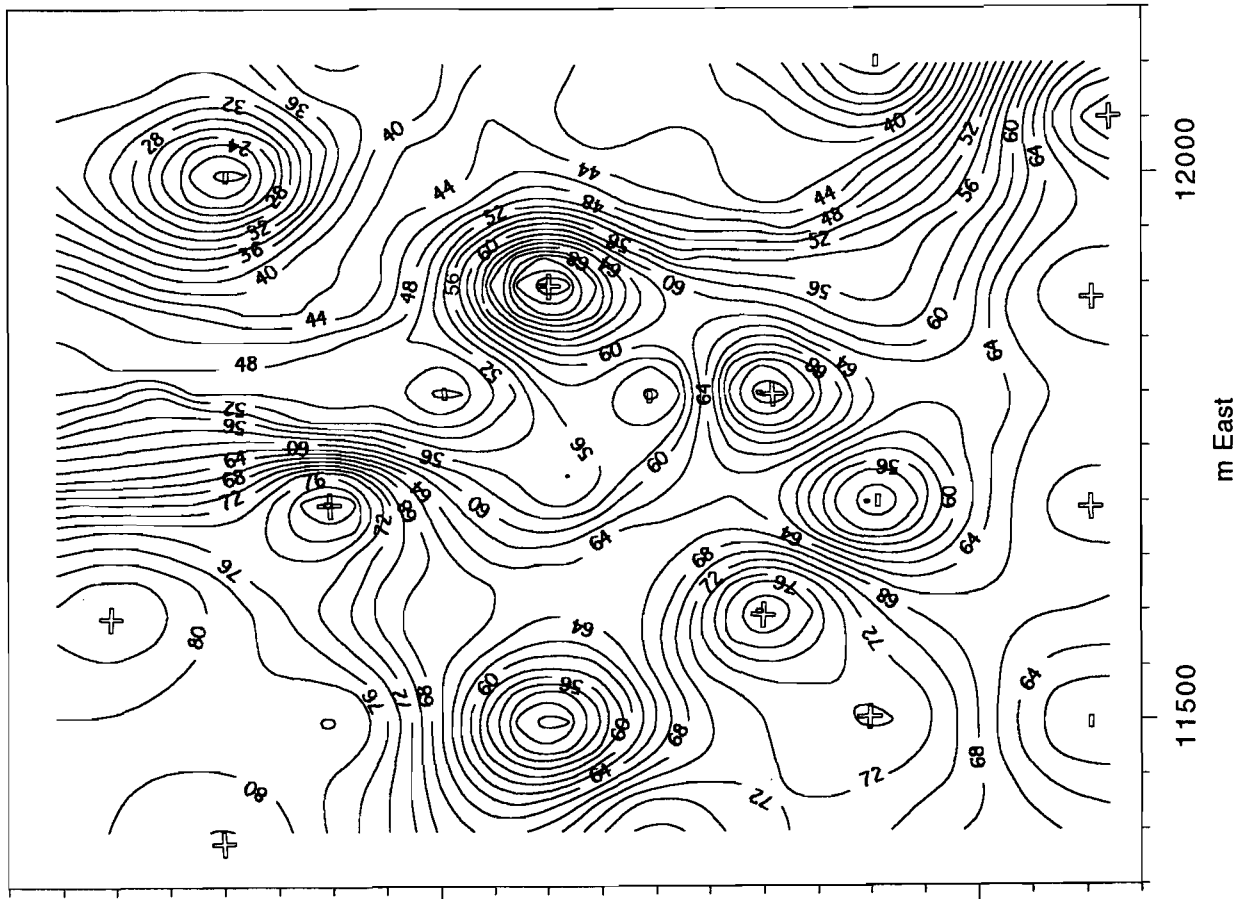


26000

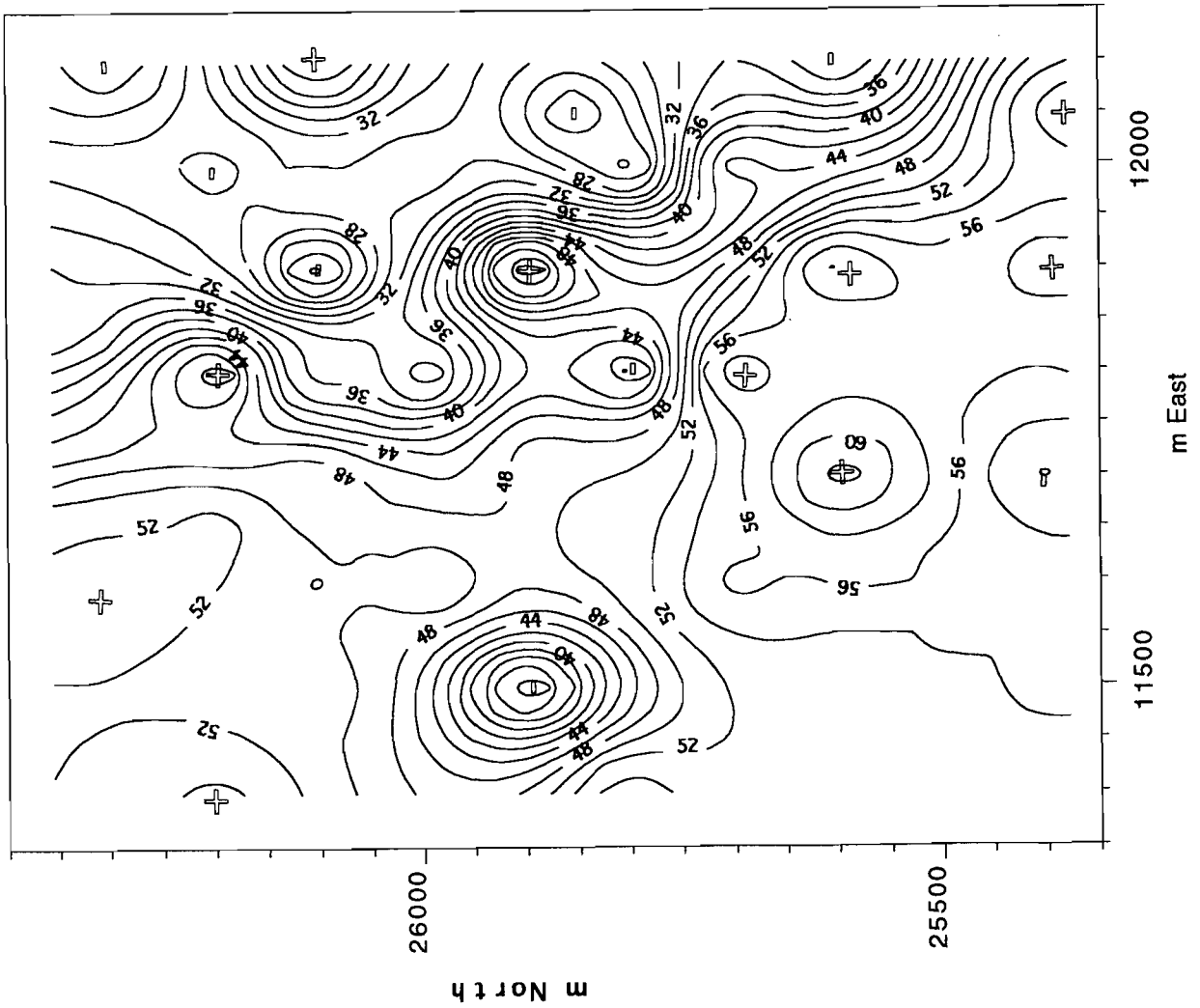
25500

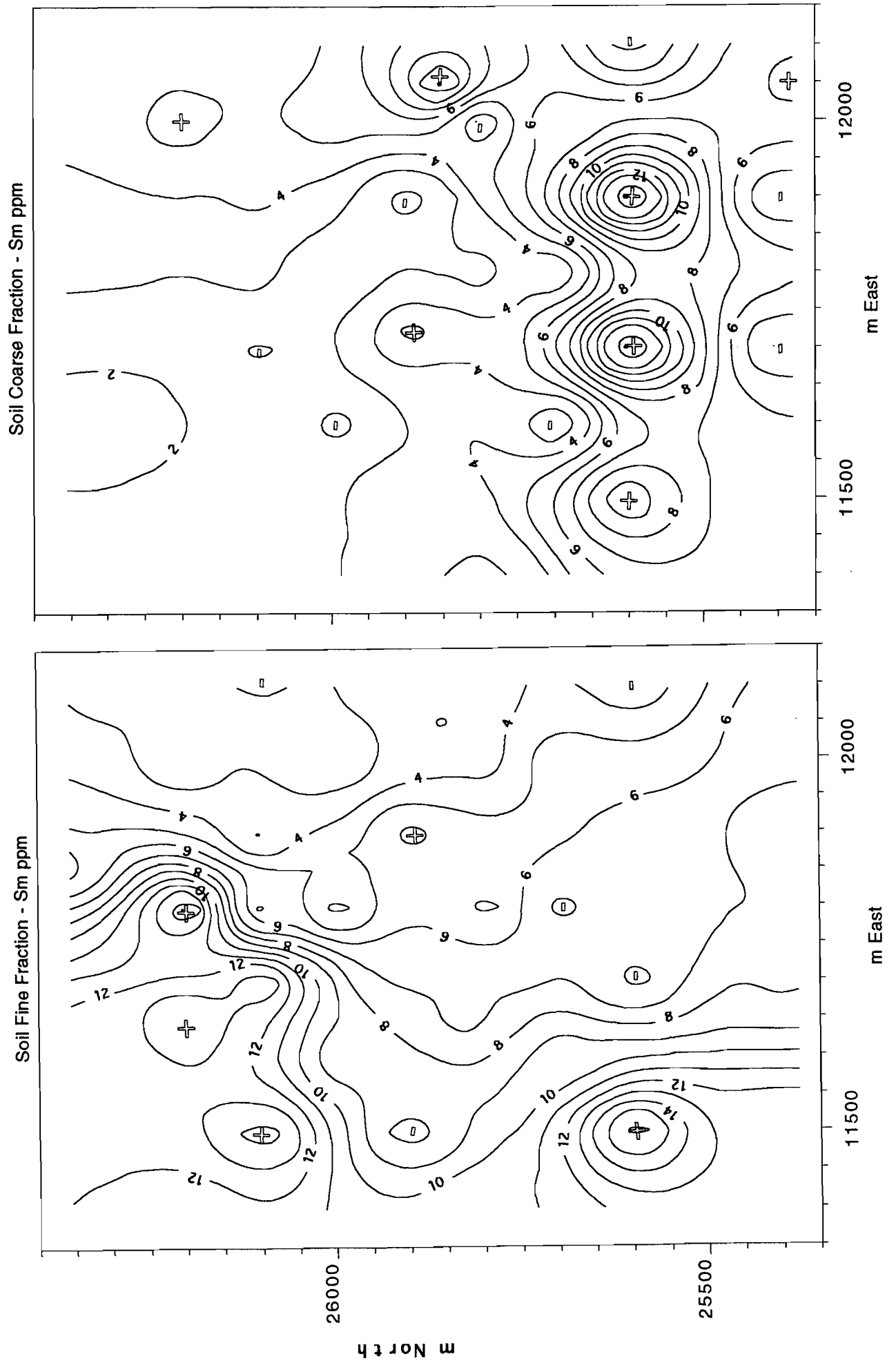
m North

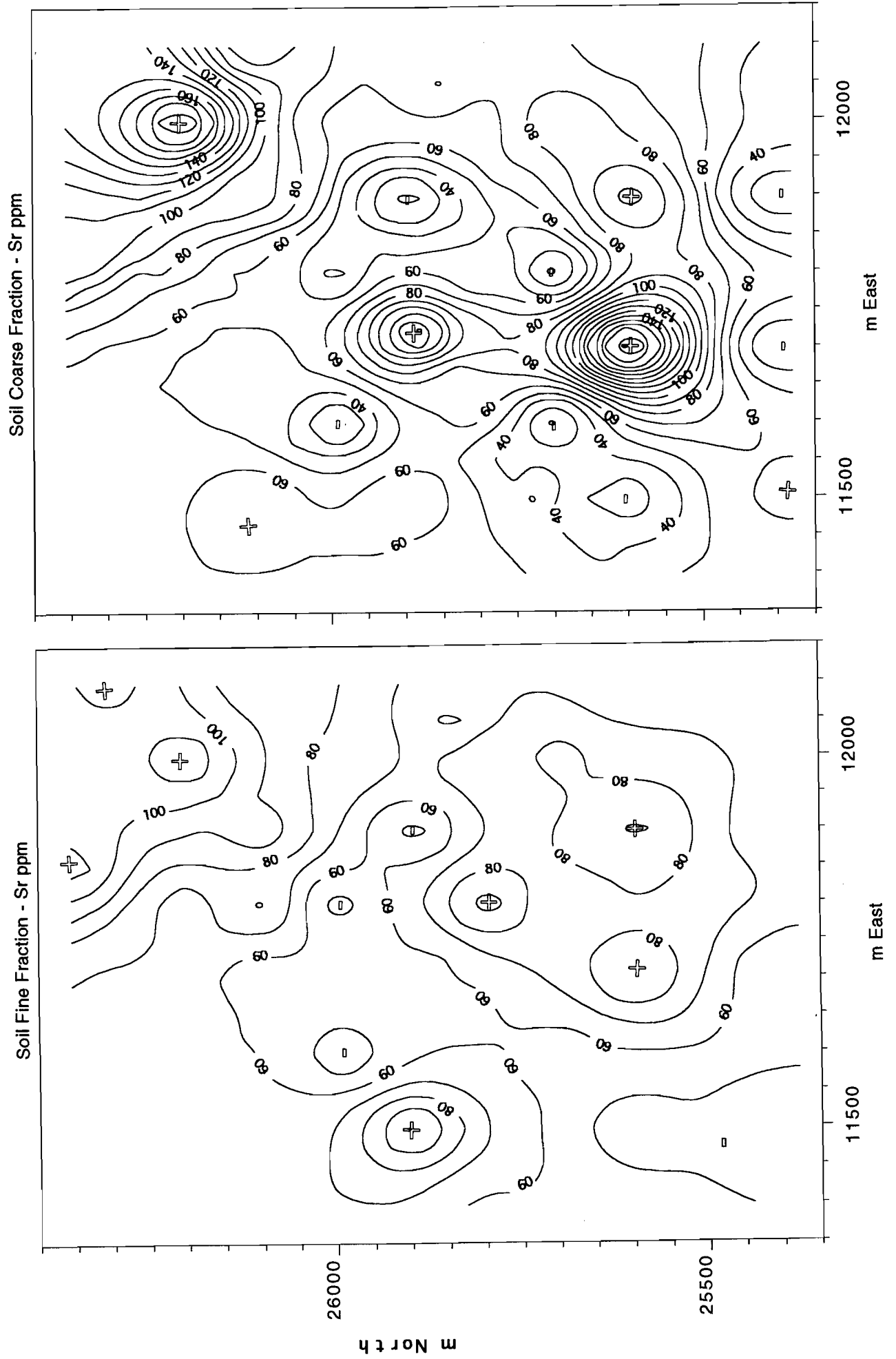
Soil Coarse Fraction - SiO₂%

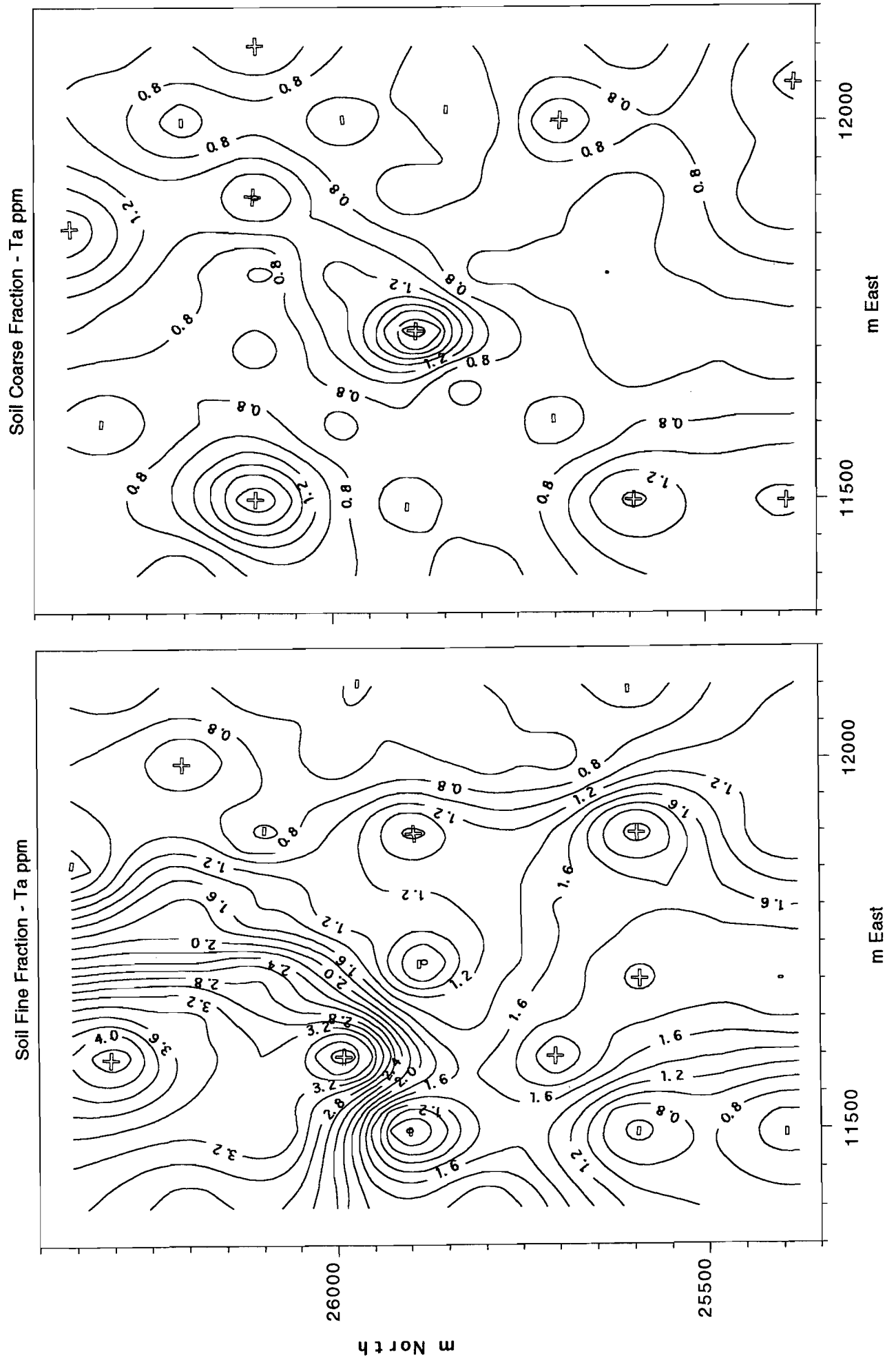


Soil Fine Fraction - SiO₂%

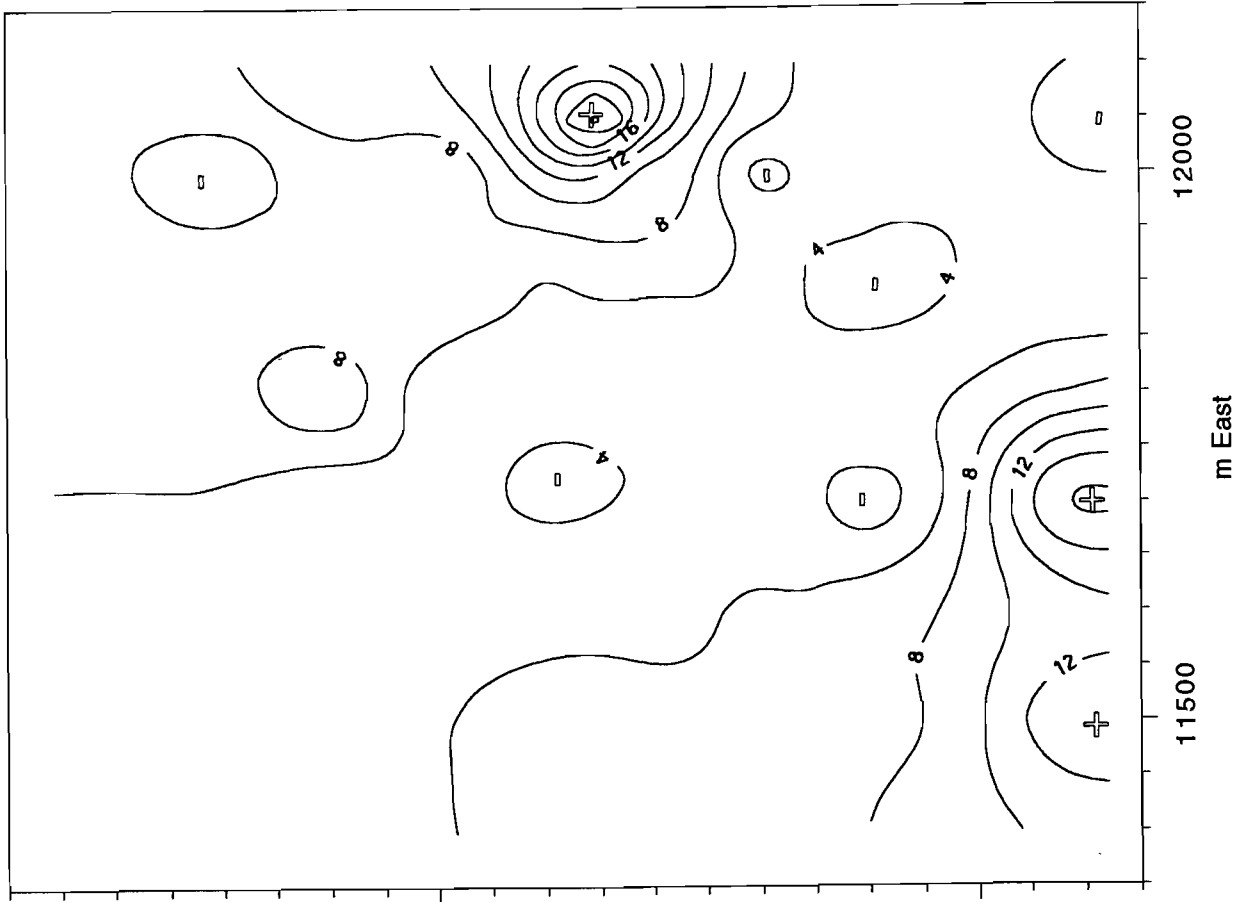




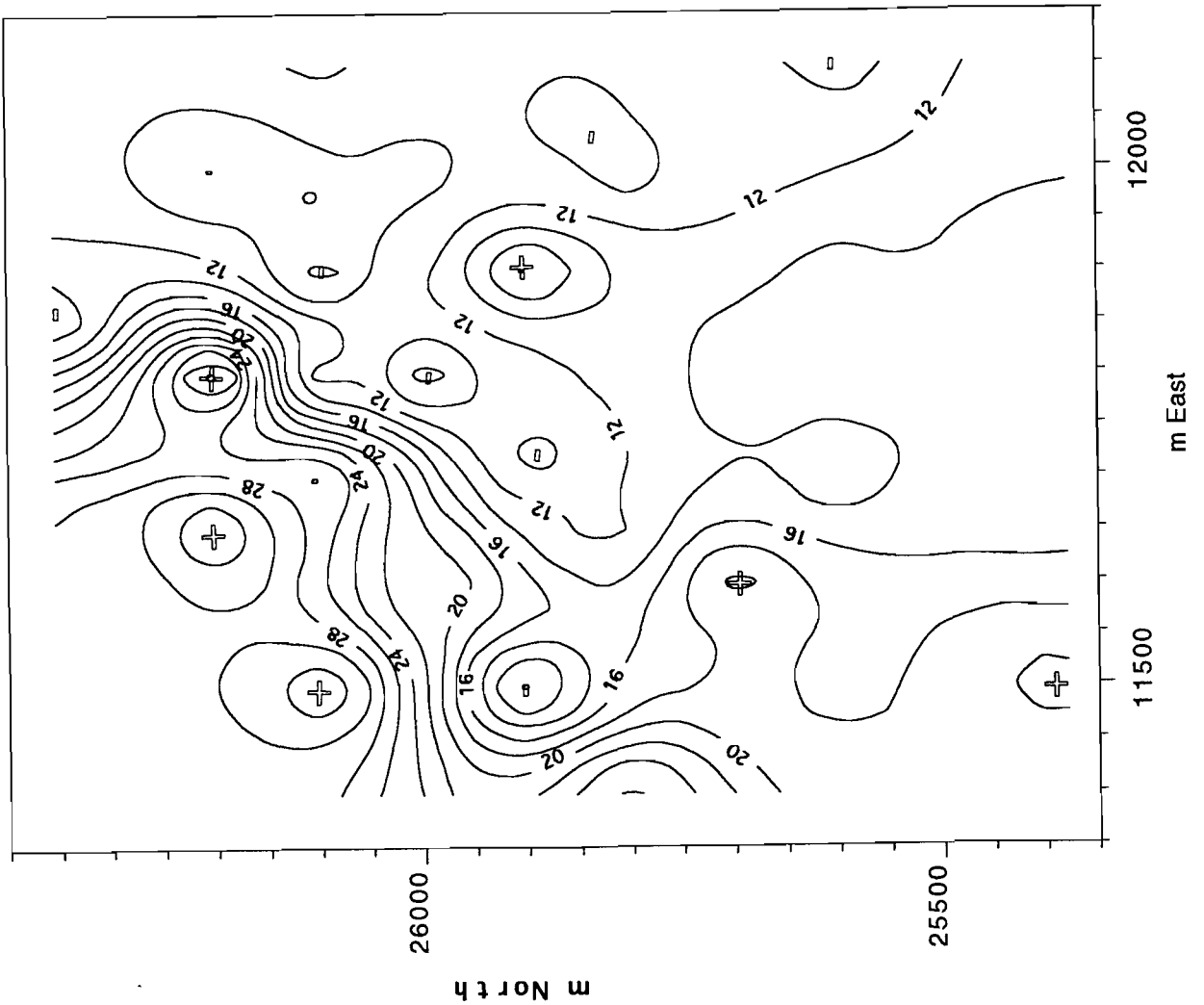




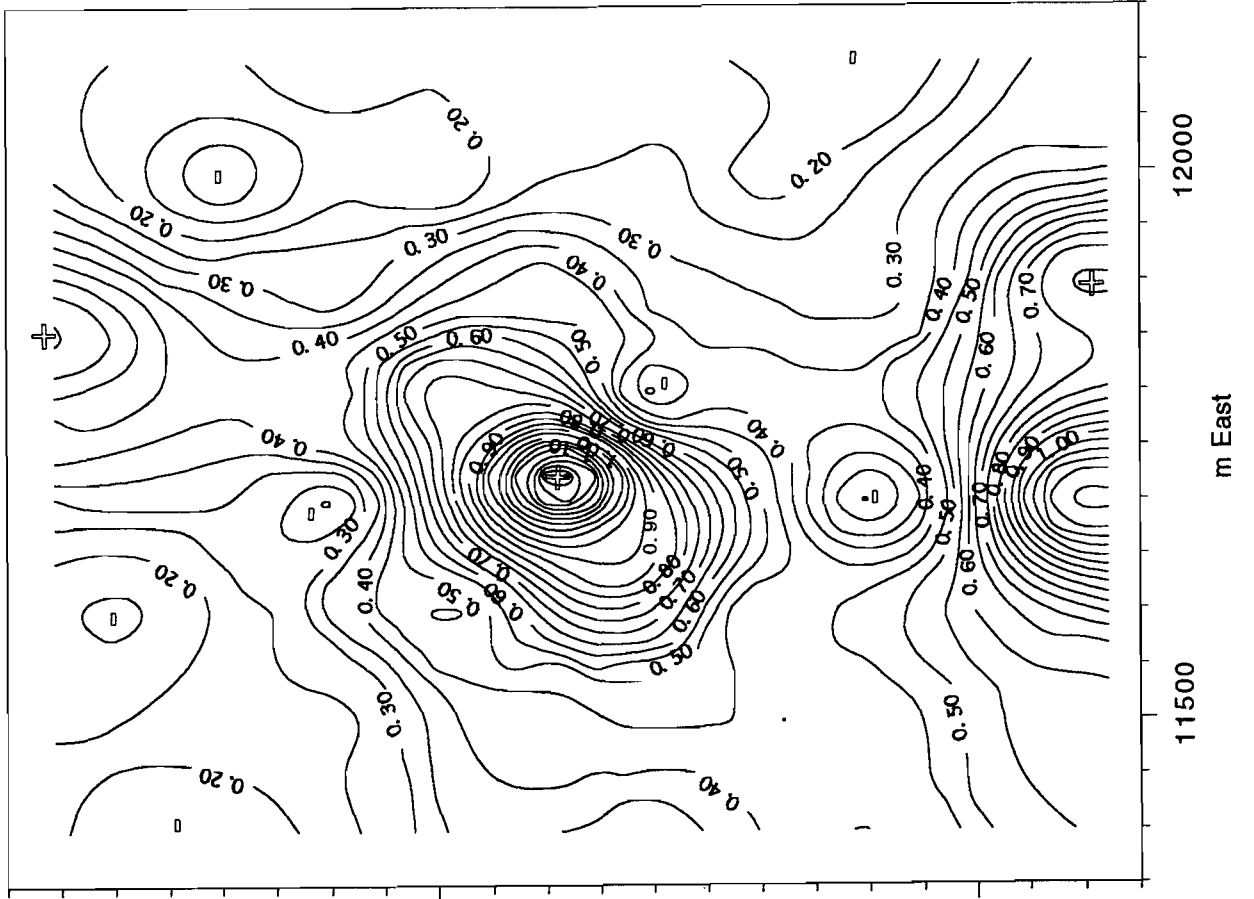
Soil Coarse Fraction - Th ppm



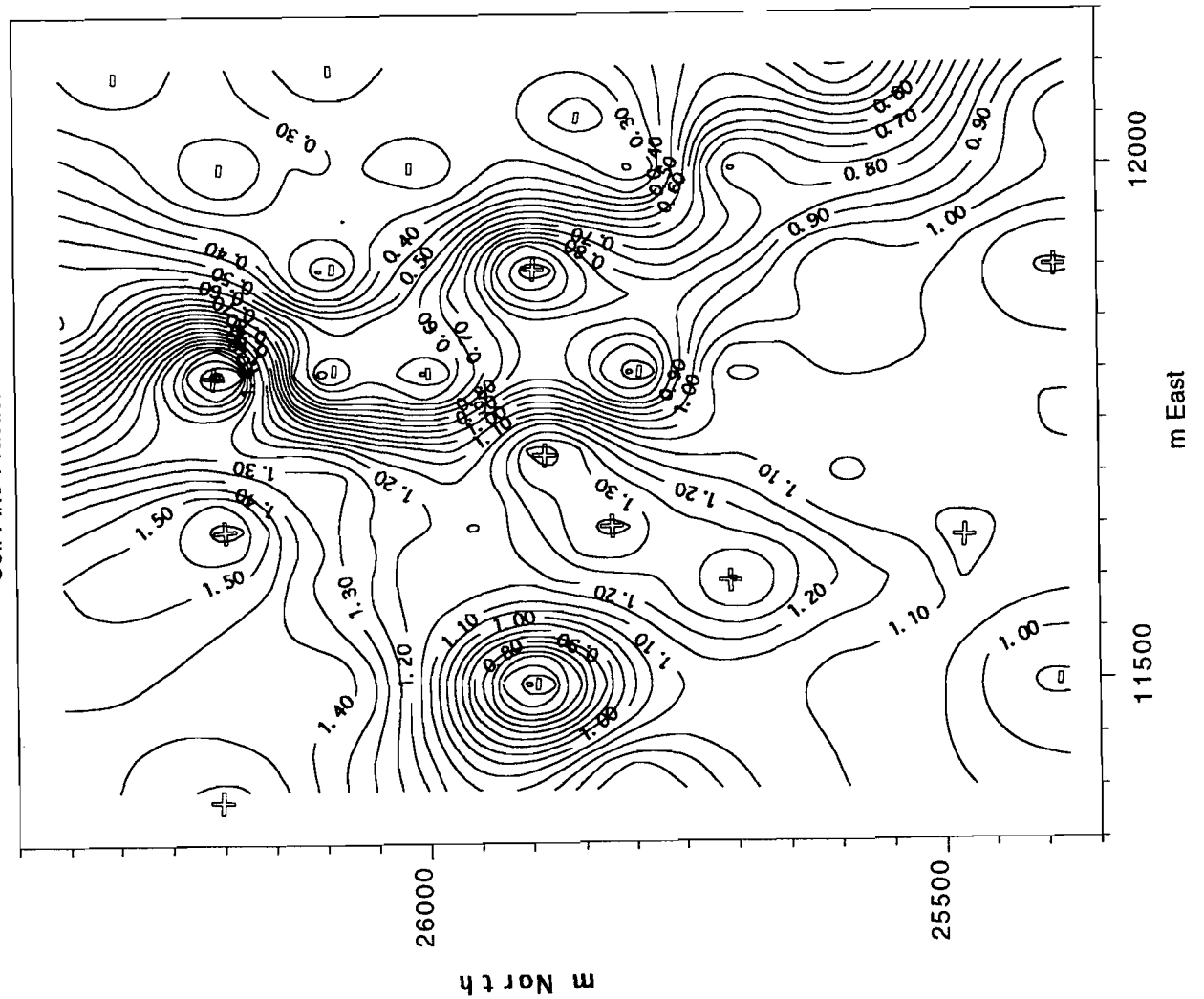
Soil Fine Fraction - Th ppm



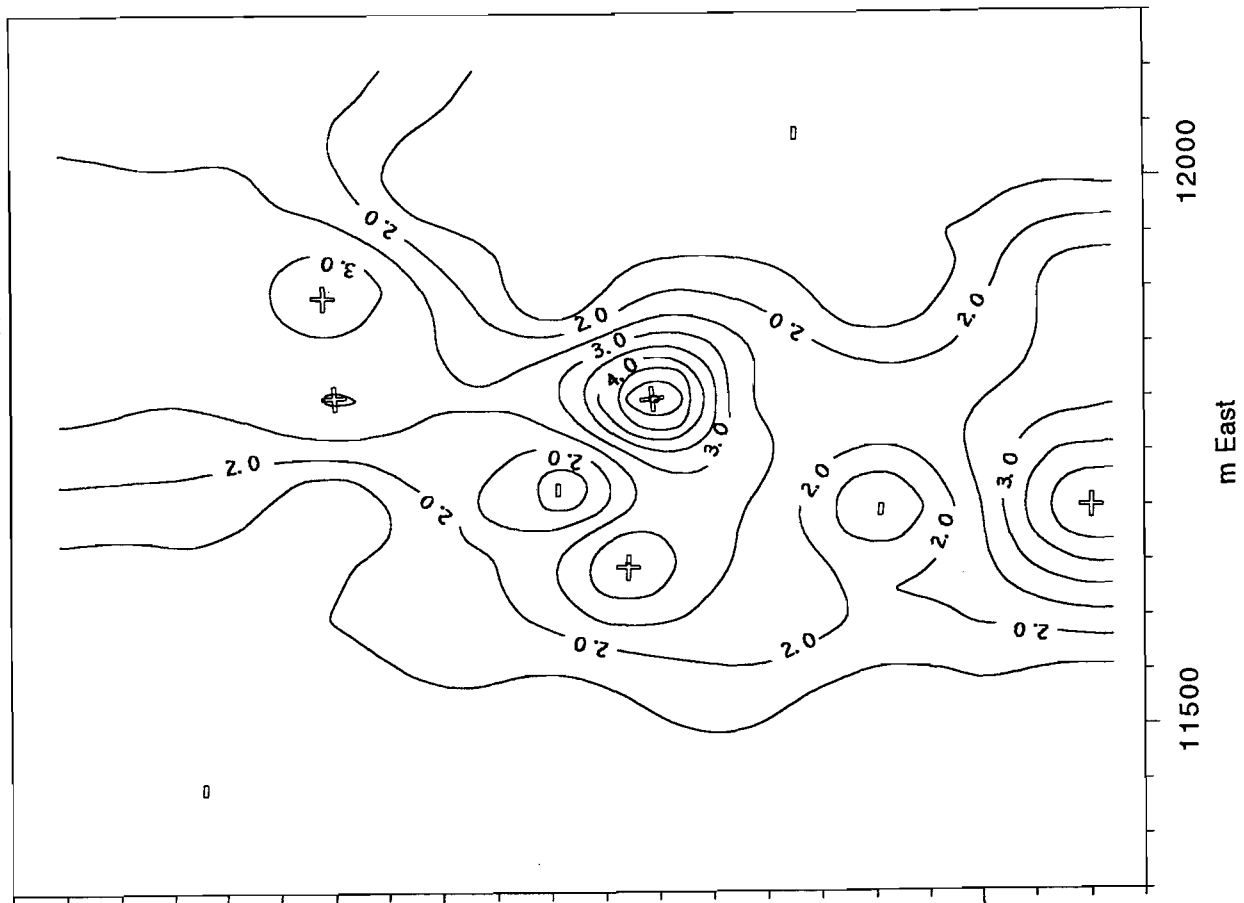
Soil Coarse Fraction - TiO₂%



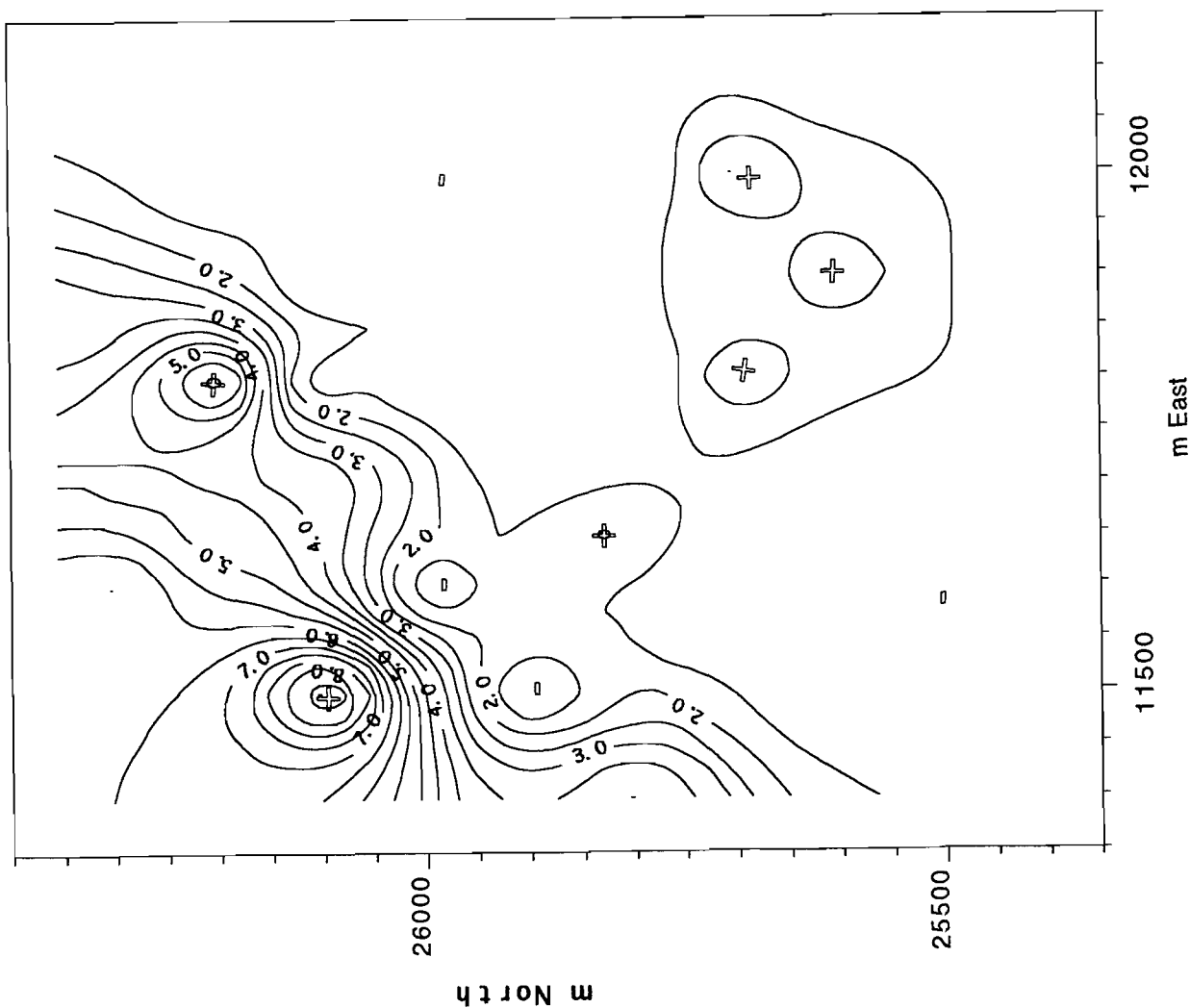
Soil Fine Fraction - TiO₂%

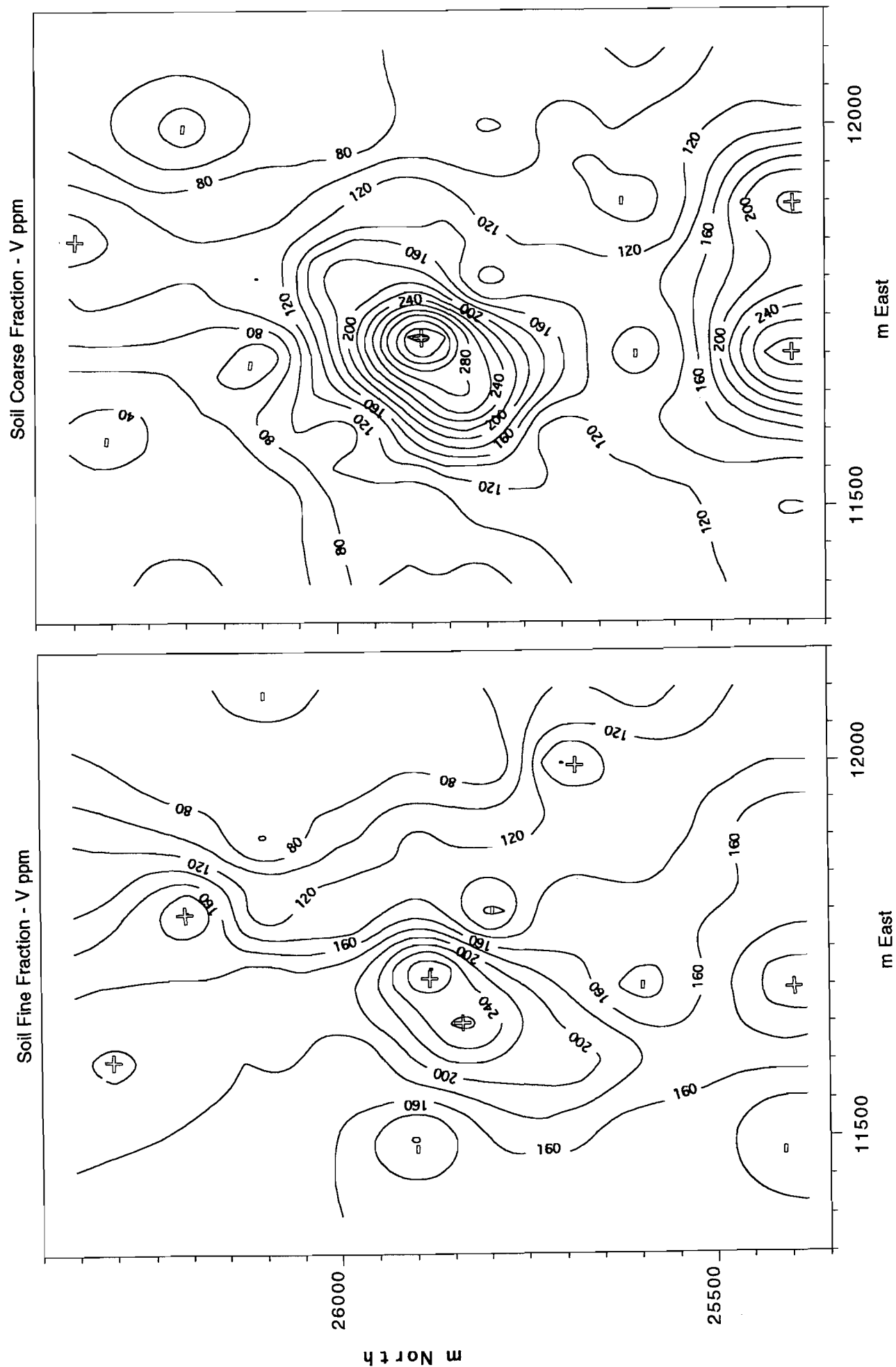


Soil Coarse Fraction - U ppm

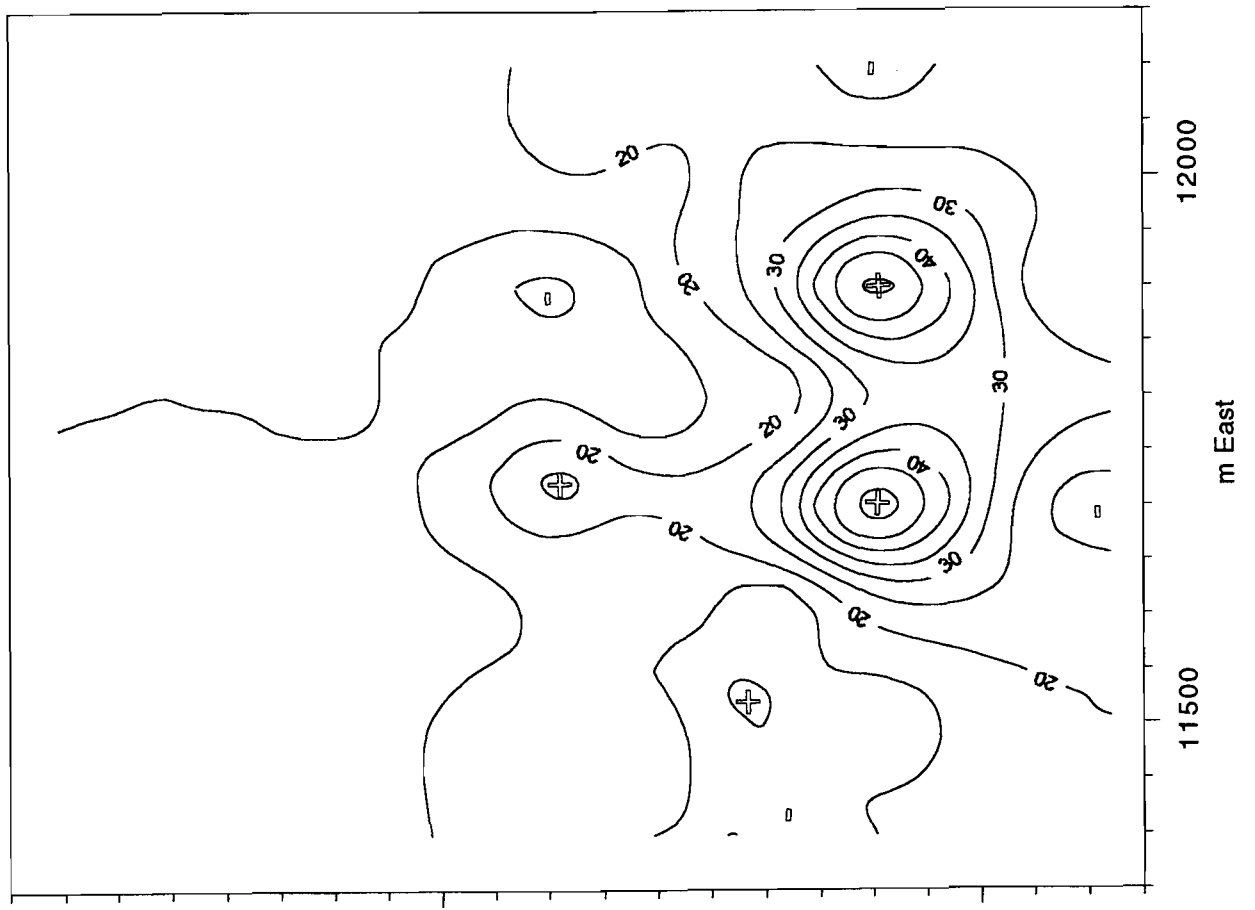


Soil Fine Fraction - U ppm

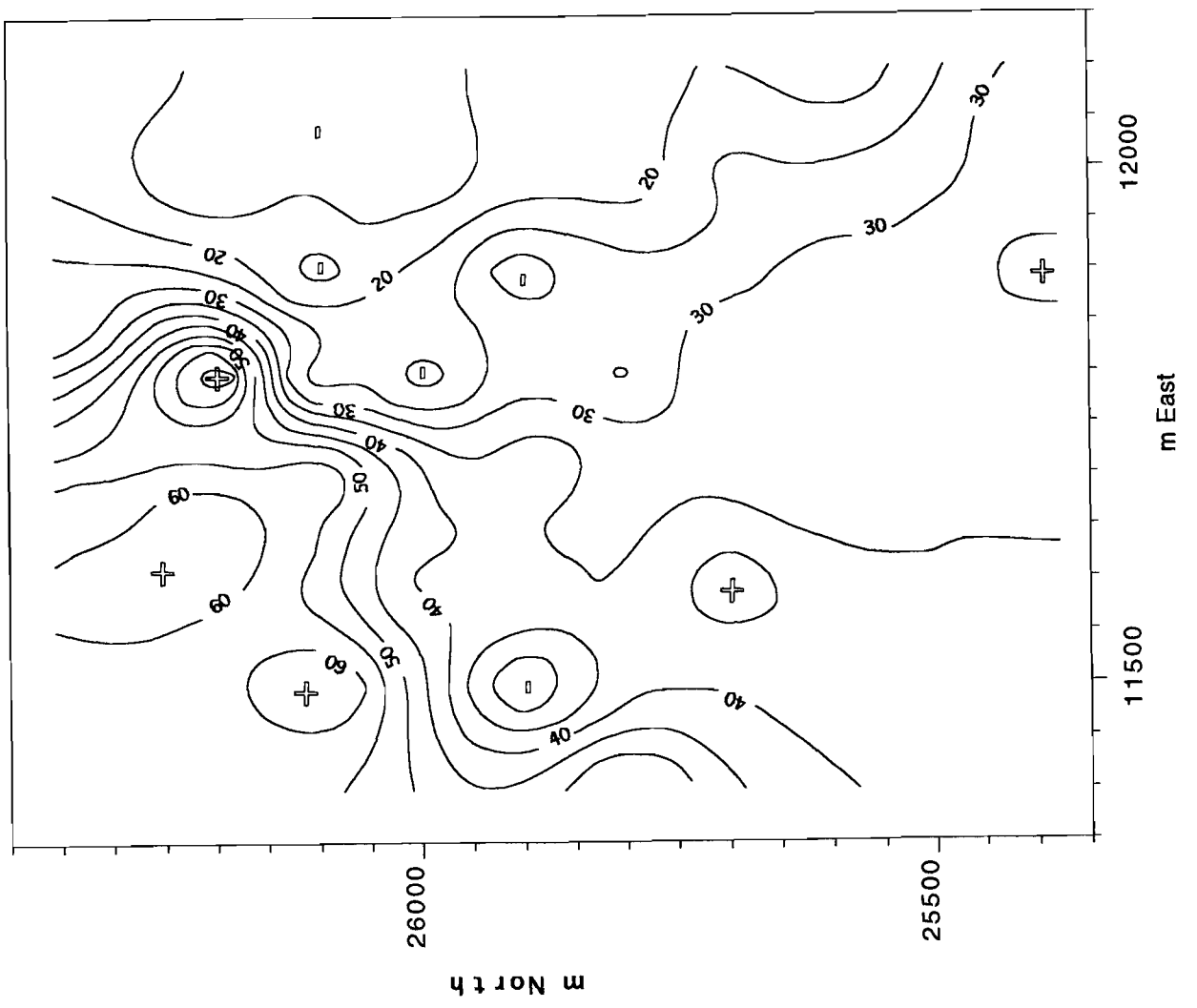


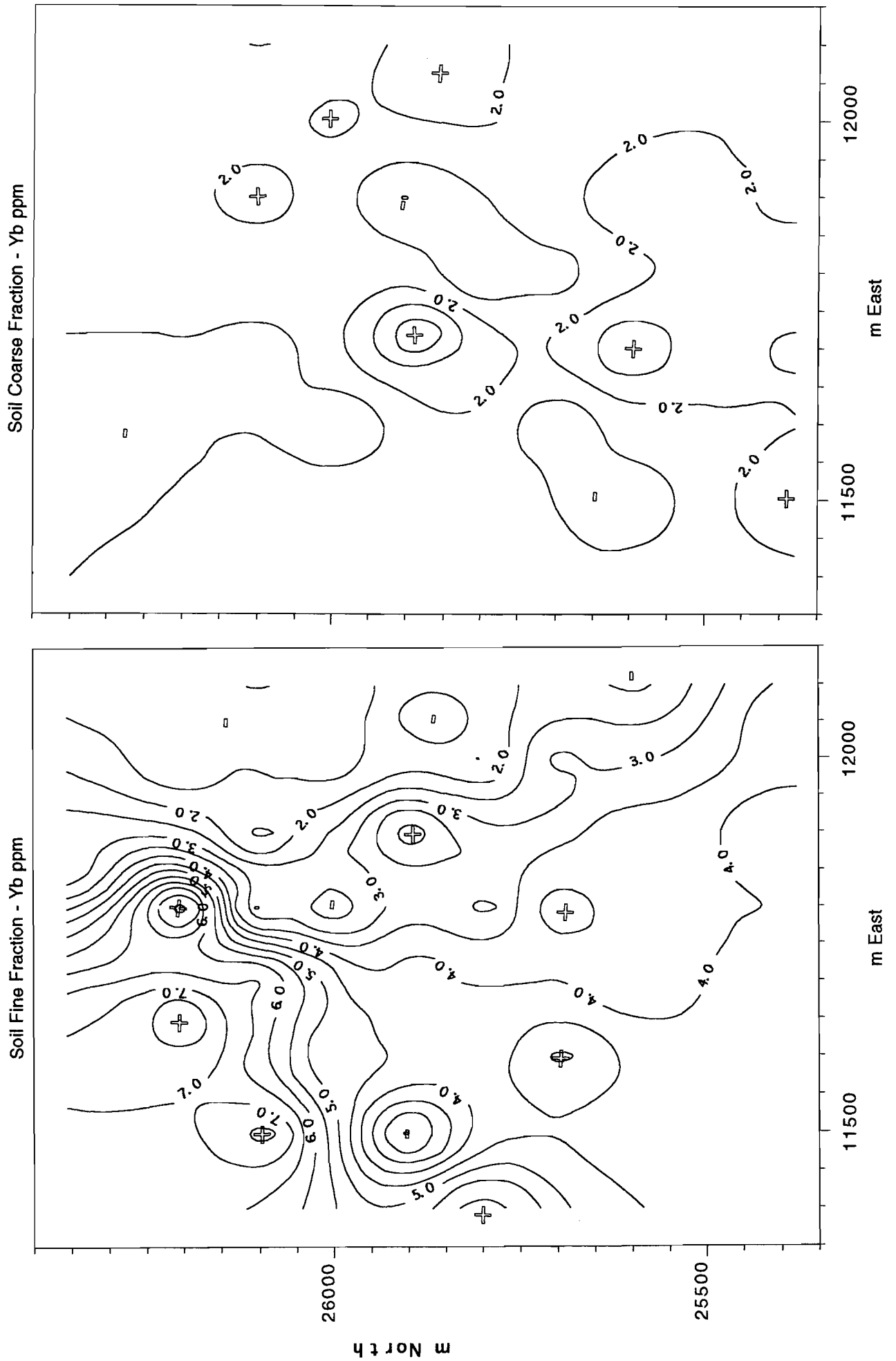


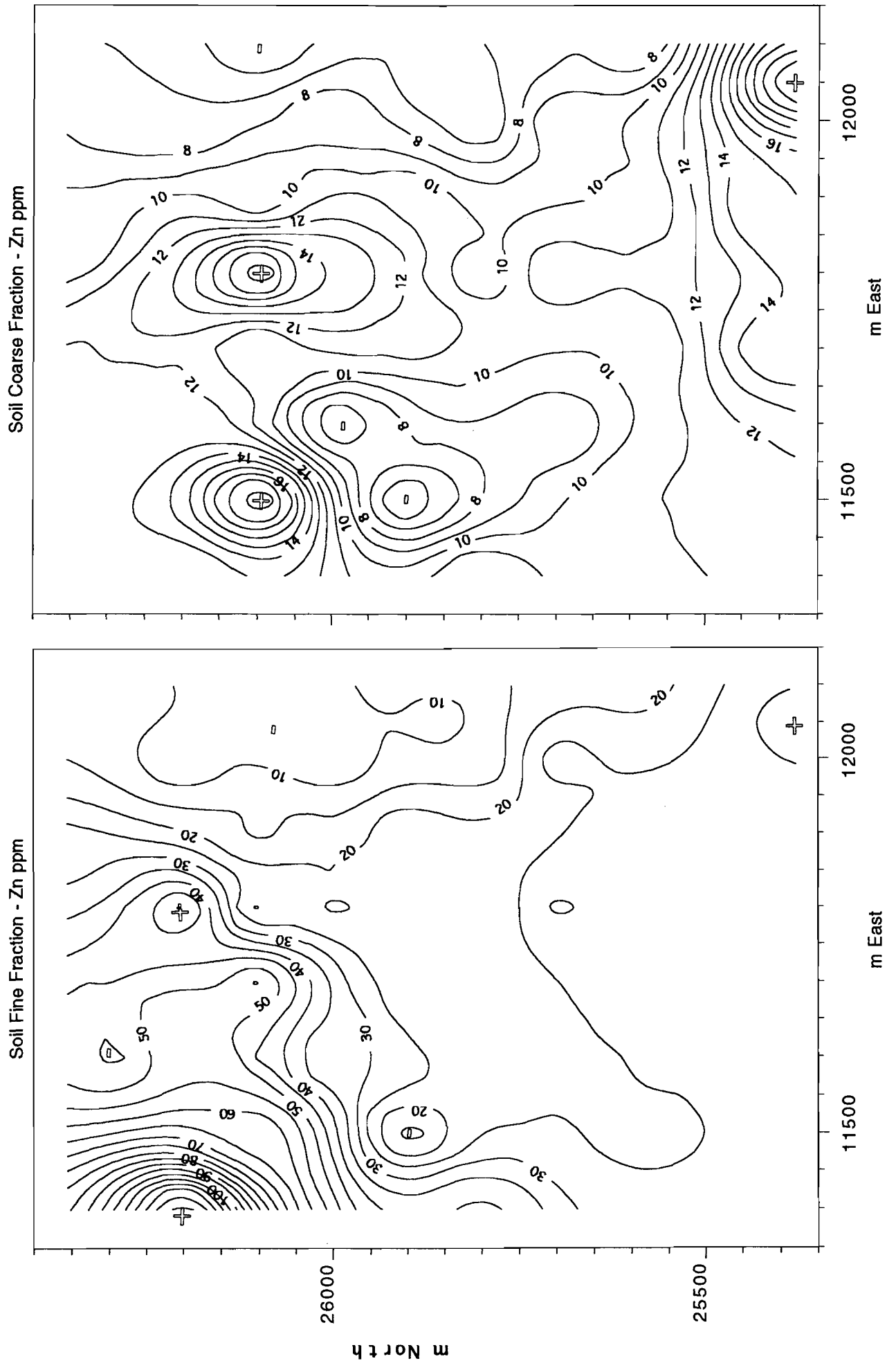
Soil Coarse Fraction - Y ppm

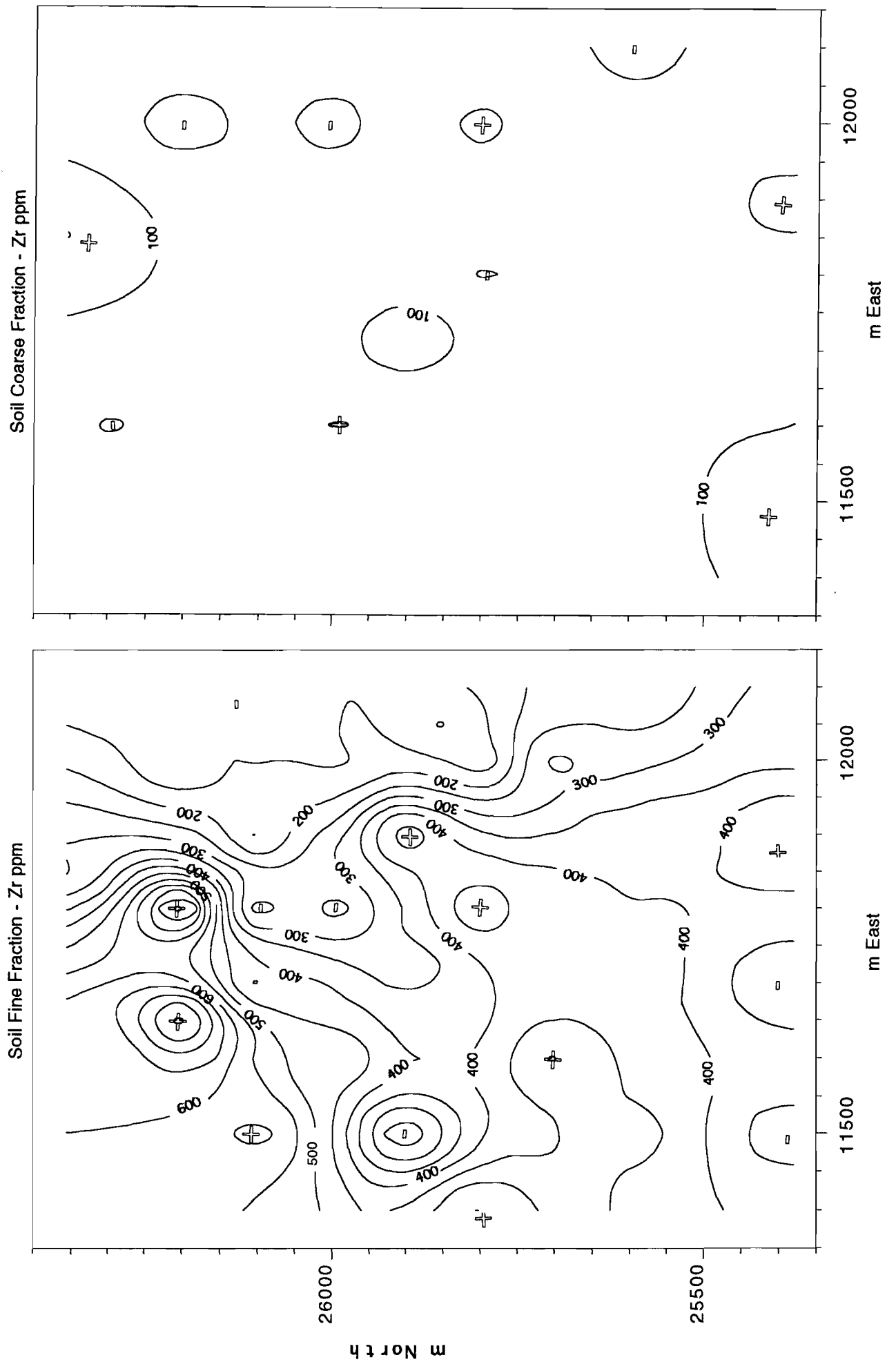


Soil Fine Fraction - Y ppm









APPENDIX 4

TABULATED SOIL DESCRIPTIONS

SOIL DESCRIPTIONS

Sample	East	North	Soil Type	Environment
LE-01	11600	26300	Red	All
LE-02	11855	26355	Grey and lithic	Ers
LE-03	12000	26200	Grey and lithic	Ers
LE-04	12100	26300	Grey and lithic	Ers
LE-05	11800	26200	Red	All
LE-06	11650	26200	Red	All
LE-07	11400	26200	Red and lithic	All
LE-08	11500	26100	Dark-red and lithic	All
LE-09	11700	26100	Red-brown and lithic	All
LE-10	11800	26100	Grey and lithic	Ers
LE-11	11900	26100	Grey and lithic	Ers
LE-12	12100	26100	Grey and lithic	Ers
LE-13	12000	26000	Grey and lithic	Ers
LE-14	11800	26010	Grey and lithic	Ers
LE-15	11770	26010	Ferruginised rock fragments	Ers
LE-16	11600	25990	Yellow-brown and lithic	Ers
LE-17	11500	25900	Grey and lithic	Ers
LE-18	11720	25885	Dark-brown and lithic	Ers
LE-19	11900	25900	Red-brown and lithic	Coll
LE-20	12050	25850	Grey and few lithic	Ers
LE-21	12000	25800	Grey and few lithic	Ers
LE-22	11800	25800	Red-brown and lithic	Coll
LE-23	11660	25835	Red-brown and lithic	Coll
LE-24	11400	25800	Dark-brown and lithic	All
LE-25	11600	25700	Red and lithic	Coll
LE-26	11800	25700	Red-brown and lithic	Coll
LE-27	12000	25700	Red-brown and lithic	Coll-2
LE-28	12050	25380	Brown gilgai	Coll-2
LE-29	11900	25400	Red-brown and lithic	Coll-2
LE-30	11700	25400	Red-brown and lithic	Coll
LE-31	11500	25400	Grey and lithic	Coll
LE-32	11700	25600	Brown and lithic	Coll
LE-33	11500	25600	Red-brown and lithic	Coll
LE-34	11900	25600	Brown gilgai and lithic	Coll-2
LE-35	12100	25600	Brown	Coll-2

All	Alluvial
Ers	Erosional - on basement
Coll	Colluvial 1
Coll-2	Colluvial 2

APPENDIX 5

TABULATED ANALYSES OF STANDARDS

STANDARDS

METHOD	XRF(f)	XRF(f)	XRF(f)	XRF(f)	XRF(f)	XRF(f)	XRF(f)	XRF(f)	XRF(f)	XRF(f)	GS201	INAA	INAA	XRF(f)	GS201	GS201	XRF(f)	INAA	XRF(f)	XRF(f)
UNITS	SiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	Ag	As	Au	Ba	Bi	Cd	Ce	Ce	Cl	Co
DETECTION	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Quartz	99.53	0.05	0.80	0.008	0.01	0.01	0.01	0.00	-0.01	0.000	0.3	-1	-5	8	0.05	0.05	0	-2	190	2
Mill Cont	100.00	-	-	0.003	-	-	-	-	-	-	<.04	<.02	-	<1	<.1	<.01	-	-	-	0.3
STD 00003	65.43	11.39	14.99	0.056	0.29	0.03	0.32	1.49	0.38	0.048	0.2	1490	2210	271	0.4	1	77	21.5	1520	28
AccVal	65.06	11.39	14.06	0.052	0.31	0.05	0.51	1.41	0.45	0.030	0.18	1505	2182	352	0.56	1.18	18	18	-	42.3
STD 00006	72.29	18.14	0.38	0.003	0.29	0.02	0.40	3.62	0.41	0.007	0.4	1.74	87.9	295	0.2	0.1	35	35.5	1750	1
AccVal	72.21	18.23	0.42	0.001	0.34	0.03	0.40	3.54	0.37	0.030	0.45	2	86	330	0.3	>.05	31	31	-	0.7
STD 00008	44.81	21.30	17.59	0.053	1.03	0.28	1.71	4.95	0.48	0.173	0.5	1130	5640	3139	46.2	0.3	149	133	12470	140
AccVal	45.05	21.20	16.52	0.042	1.09	0.28	1.73	4.81	0.53	0.080	0.88	1121	5497	3244	47.24	0.24	119	119	-	174.9
STD 00009	13.38	7.41	69.27	0.235	0.15	0.09	0.05	0.17	0.56	0.181	0.8	454	74.7	295	1.3	0.5	40	23.1	440	24
AccVal	13.78	7.54	65.05	0.199	0.15	0.13	0.04	0.20	0.70	0.05	0.83	438	87	354	1.32	0.48	18	18	-	18.5

METHOD	INAA	XRF(f)	XRF(f)	XRF(f)	XRF(f)	GS201	XRF(f)	XRF(f)	GS201	XRF(f)	XRF(f)	XRF(f)	INAA	INAA	XRF(f)	XRF(f)	INAA	XRF(f)	XRF(f)	XRF(f)
UNITS	Co	Cr	Cu	Ga	La	Mo	Nb	Ni	Pb	Pb	Rb	S	Sb	Se	Sr	V	W	Y	Zn	Zr
DETECTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Quartz	-1	4	-4	1	4	1.1	-6	9	1	6	-6	60	-0.2	-5	2	6	-2	3	2	-1
Mill Cont	0.3	3	4	-	-	1.1	1	3	0.1	0.1	-	-	0.1	-	-	0.2	<.1	-	0.1	-
STD 00003	39.8	2446	140	12	7	5	-6	594	92	99	35	200	9.84	-5	27	211	18.7	17	212	29
AccVal	42.3	2268	172	14	6.4	3	1	516	81	81	45	-	10	3	29	267	17	14	183	31
STD 00006	-1	114	0	23	21	0.2	-3	11	12	15	102	160	13	-5	58	88	-2	8	5	92
AccVal	0.7	120	6	23	21.6	3	4	9	10	10	109	-	12.8	2	68	102	6	7	5	120
STD 00008	173	137	172	26	37	4.9	0	115	23	28	112	2600	7.81	-5	98	99	32.7	16	101	156
AccVal	174.9	138	212	29	47.2	6	6	94	14	14	127	-	7.8	4	100	103	34	16	0.95	158
STD 00009	18.6	479	100	27	2	4.1	-5	34	51	40	4	430	0.66	-5	19	689	12.5	9	345	108
AccVal	18.5	471	141	25	11.7	5	2	30	53	53	6	-	0.60	3	12	932	9.0	13	295	88

STANDARDS

Sample Numbers			Co-ordinates		XRF(f)	XRF(f)	XRF(f)	INAA	XRF(f)	XRF(f)	XRF(f)	XRF(f)	INAA	XRF(f)	XRF(f)	INAA	INAA	INAA
Field No	LabSeq	Lib No	East	North	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppb
				Detn	0.01	0.01	0.01	0.05	0.002	0.01	0.00	0.01	0.01	0.00	0.20	0.00	0.002	5
					SiO2	Al2O3	Fe2O3	Fe2O3	MnO	MgO	Ca0	Na2O	Na2O	K2O	K2O	TiO2	P2O5	Ag
																		As
																		Au
STD 03	LO8-1662	08-1696	-	-	65.28	11.43	14.93	14.44	0.057	0.29	0.04	0.33	0.35	1.49	1.34	0.39	0.049	<5
STD 03	LO8-1680	08-1697	-	-	65.28	11.43	14.87	14.44	0.057	0.29	0.03	0.31	0.34	1.49	1.13	0.39	0.051	<5
STD 03	LO8-1698	08-1698	-	-	65.42	11.42	14.94	14.73	0.057	0.28	0.03	0.33	0.36	1.49	1.37	0.39	0.051	<5
STD 03	LO8-1699	08-1734	-	-	65.36	11.42	14.83	14.87	0.056	0.28	0.03	0.32	0.35	1.49	1.20	0.39	0.050	<5
STD 03	LO8-1717	08-1735	-	-	64.83	11.42	14.83	14.73	0.056	0.28	0.03	0.30	0.35	1.50	0.78	0.39	0.048	<5
STD 03	LO8-1735	08-1736	-	-	65.54	11.44	14.84	14.44	0.057	0.29	0.03	0.33	0.35	1.50	0.93	0.39	0.050	<5
Mean	-	-	-	-	65.29	11.43	14.87	14.61	0.057	0.29	0.03	0.32	0.35	1.49	1.13	0.39	0.050	#DIV/0!
AccVal	-	-	-	-	65.06	11.39	14.06	14.06	0.052	0.31	0.05	0.51	0.51	1.41	1.41	0.45	0.030	0

STANDARDS

Detn Lib No	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	INAA ppb	XRF(f) ppm	INAA ppm	INAA ppm	INAA ppm	XRF(f) ppm	XRF(f) ppm
	30	2.0	20	2.0	20	10	1	10	5	1.00	10	0.50	3	0.50	20	10	0.5	0.20	5	4	10
	Ba	Br	Ce	Ce	Cl	Co	Co	Cr	Cr	Cs	Cu	Eu	Ga	Hf	Ir	La	La	Lu	Mo	Nb	Ni
08-1696	265	10.0	75	18.4	1590	29	42	2418	2390	<1	138	0.95	14	0.78	<20	4	5.8	0.21	<5	<8	589
08-1697	276	11.7	73	21.3	1960	28	41	2432	2400	<1	139	0.96	11	<0.5	<20	7	6.1	0.20	<5	<7	597
08-1698	264	10.7	77	23.4	2010	32	42	2451	2450	<1	143	1.11	14	<0.5	<20	<1	6.2	0.20	<5	<10	593
08-1734	243	10.7	78	20.0	2140	27	42	2422	2490	<1	138	0.82	11	<0.5	<20	4	6.1	0.20	<5	<2	585
08-1735	247	10.5	75	23.1	2020	28	42	2415	2490	<1	142	1.12	14	<0.5	<20	8	6.1	0.20	<5	<7	582
08-1736	279	9.2	74	21.5	1740	28	41	2444	2440	1.98	152	1.06	13	<0.5	<20	5	6.0	0.20	<5	<6	592
-	262	10.5	75	21.3	1910	29	42	2430	2443	1.98	142	1.00	13	0.78	#DIV/0!	6	6.1	0.20	#DIV/0!	#DIV/0!	590
-	352	10.0	18	18.0	<	42	42	2268	2268	0.80	172	1.10	14	0.50	11	6	6.4	0.30	3	1	516

STANDARDS

Detn	XRF(f) ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	INAA ppm	INAA ppm	INAA ppm	XRF(f) ppm	INAA ppm	INAA ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm	INAA ppm	XRF(f) ppm
Lib No	Pb	Rb	Rb	S	Sb	Sc	Se	Sm	Sr	Ta	Th	U	V	W	Y	Yb	Zn	Zn	Zr
08-1696	95	36	41	200	9.30	41.7	<5	2.21	29	<1	<0.5	<2	215	15	14	1.49	208	270	23
08-1697	91	38	49	210	9.25	42.1	<5	2.19	30	<1	0.96	<2	203	23	12	1.74	212	264	27
08-1698	94	36	36	210	9.74	42.8	<5	2.25	28	<1	<0.5	<2	209	17	13	1.45	211	289	27
08-1734	92	38	31	230	9.26	43.1	<5	2.27	28	<1	0.65	<2	211	22	15	1.74	211	291	28
08-1735	91	39	39	210	9.49	43.2	<5	2.21	27	<1	1.03	<2	208	22	15	1.58	210	256	25
08-1736	100	38	33	210	9.90	42.5	<5	2.19	29	<1	<0.5	<2	209	16	13	1.60	208	312	29
-	94	38	38	212	9.49	42.6	#DIV/0!	2.22	29	#DIV/0!	0.88	#DIV/0!	209	19	14	1.60	210	280	27
-	81	45	45	430	10.00	42.7	3	2.30	29	0.30	0.60	1.00	267	17	14	1.30	183	183	31

APPENDIX 6

SPEARMAN RANK CORRELATION MATRICES 710-2000 μm FRACTION <75 μm FRACTION

(Some high correlations produced by closure)

<75 µm SOIL FRACTION SPEARMAN RANK CORRELATIONS

	Si	Al	Fe	Mn	Mg	Ca	Na	K	Ti	P	As	Au	Ba	Br	Ce	Cl	Co	Cr	Cs	Cu	Eu	Ga	Hf	La	Lu	Nb	Ni	Pb	Rb	S	Sb	Sc	Sm	Sr	Ta	Th	U	V	Y	Yb	Zn	Zr							
Si	1.00																																																
Al	0.66	1.00																																															
Fe	0.58	0.93	1.00																																														
Mn	0.74	0.83	0.77	1.00																																													
Mg	-0.50	-0.42	-0.34	-0.33	1.00																																												
Ca	-0.84	-0.88	-0.78	-0.81	0.58	1.00																																											
Na	0.35	0.47	0.61	0.40	0.00	-0.43	1.00																																										
K	0.72	0.75	0.67	0.92	-0.25	-0.75	0.35	1.00																																									
Ti	0.69	0.89	0.94	0.81	-0.44	-0.80	0.63	0.70	1.00																																								
P	0.02	0.37	0.52	0.40	0.11	-0.16	0.55	0.40	0.52	1.00																																							
As	0.41	0.69	0.63	0.69	-0.35	-0.53	0.21	0.59	0.70	0.33	1.00																																						
Au	-0.02	-0.04	0.00	-0.33	-0.14	-0.04	-0.14	-0.40	-0.09	-0.28	-0.20	1.00																																					
Ba	0.85	0.66	0.60	0.85	-0.46	-0.80	0.26	0.76	0.68	0.17	0.49	-0.15	1.00																																				
Br	-0.71	-0.67	-0.65	-0.71	0.48	0.68	-0.28	-0.65	-0.70	-0.14	-0.43	0.10	-0.70	1.00																																			
Ce	0.66	0.77	0.78	0.89	-0.22	-0.66	0.45	0.85	0.80	0.54	0.63	-0.33	0.71	-0.71	1.00																																		
Cl	-0.19	0.18	0.24	0.13	0.42	0.14	0.49	0.18	0.20	0.56	0.20	-0.38	-0.16	0.07	0.28	1.00																																	
Co	0.46	0.78	0.86	0.72	-0.14	-0.66	0.56	0.59	0.75	0.47	0.46	0.05	0.54	-0.54	0.68	0.17	1.00																																
Cr	0.74	0.90	0.83	0.91	-0.41	-0.83	0.46	0.88	0.89	0.46	0.74	-0.29	0.75	-0.63	0.87	0.18	0.64	1.00																															
Cs	0.62	0.77	0.75	0.88	-0.19	-0.72	0.50	0.88	0.79	0.57	0.67	-0.36	0.68	-0.60	0.80	0.27	0.66	0.86	1.00																														
Cu	0.53	0.58	0.66	0.40	-0.33	-0.63	0.39	0.29	0.56	0.15	0.25	0.55	0.47	-0.37	0.35	-0.23	0.71	0.39	0.36	1.00																													
Eu	0.62	0.84	0.89	0.88	-0.24	-0.70	0.51	0.80	0.89	0.59	0.70	-0.21	0.70	-0.68	0.94	0.31	0.77	0.88	0.84	0.46	1.00																												
Ga	0.71	0.94	0.89	0.90	-0.43	-0.88	0.54	0.86	0.89	0.46	0.65	-0.24	0.74	-0.69	0.85	0.20	0.78	0.93	0.83	0.48	0.87	1.00																											
Hf	0.73	0.73	0.76	0.78	-0.48	-0.70	0.49	0.71	0.90	0.53	0.67	-0.19	0.70	-0.66	0.82	0.14	0.53	0.87	0.78	0.40	0.83	0.80	1.00																										
La	0.58	0.80	0.82	0.85	-0.22	-0.64	0.38	0.80	0.82	0.59	0.67	-0.23	0.68	-0.68	0.96	0.24	0.72	0.84	0.79	0.42	0.96	0.83	0.81	1.00																									
Lu	0.68	0.86	0.90	0.87	-0.43	-0.78	0.55	0.79	0.96	0.59	0.74	-0.18	0.73	-0.70	0.88	0.22	0.70	0.92	0.85	0.49	0.94	0.90	0.94	0.91	1.00																								
Nb	0.70	0.80	0.80	0.82	-0.35	-0.77	0.57	0.77	0.90	0.52	0.67	-0.27	0.73	-0.63	0.79	0.20	0.66	0.90	0.86	0.40	0.84	0.88	0.91	0.78	0.90	1.00																							
Ni	0.46	0.78	0.82	0.76	-0.09	-0.65	0.49	0.61	0.73	0.39	0.58	-0.04	0.61	-0.51	0.64	0.13	0.86	0.68	0.65	0.58	0.74	0.75	0.50	0.68	0.69	0.63	1.00																						
Pb	0.76	0.77	0.71	0.82	-0.52	-0.77	0.39	0.75	0.83	0.28	0.72	-0.26	0.78	-0.61	0.72	0.11	0.52	0.87	0.73	0.34	0.74	0.82	0.86	0.69	0.84	0.84	0.56	1.00																					
Rb	0.66	0.76	0.68	0.91	-0.23	-0.72	0.32	0.97	0.71	0.42	0.64	-0.42	0.73	-0.65	0.85	0.22	0.55	0.90	0.90	0.21	0.82	0.84	0.73	0.82	0.80	0.78	0.59	0.76	1.00																				
S	-0.48	-0.32	-0.25	-0.42	0.40	0.49	0.09	-0.37	-0.29	0.32	-0.18	0.01	-0.51	0.62	-0.29	0.49	-0.22	-0.29	-0.28	-0.24	-0.28	-0.32	-0.19	-0.28	-0.28	-0.24	-0.22	-0.25	-0.36	1.00																			
Sb	0.32	0.33	0.19	0.40	-0.12	-0.41	0.03	0.37	0.19	-0.16	0.25	-0.18	0.34	-0.36	0.17	-0.09	0.26	0.31	0.30	0.02	0.15	0.37	0.15	0.14	0.20	0.30	0.33	0.36	0.42	-0.31	1.00																		
Sc	0.61	0.94	0.98	0.81	-0.35	-0.80	0.61	0.71	0.95	0.51	0.67	-0.08	0.63	-0.65	0.82	0.26	0.84	0.87	0.76	0.61	0.90	0.91	0.78	0.84	0.92	0.82	0.80	0.75	0.71	-0.27	0.20	1.00																	
Sm	0.62	0.80	0.82	0.87	-0.29	-0.68	0.43	0.81	0.84	0.59	0.68	-0.25	0.70	-0.68	0.98	0.24	0.70	0.88	0.80	0.42	0.96	0.85	0.85	0.99	0.93	0.80	0.66	0.73	0.82	-0.27	0.14	0.86	1.00																
Sr	-0.33	-0.59	-0.59	-0.43	0.21	0.39	-0.11	-0.41	-0.48	-0.23	-0.59	-0.22	-0.26	0.35	-0.50	-0.08	-0.54	-0.52	-0.33	-0.49	-0.56	-0.48	-0.40	-0.57	-0.50	-0.38	-0.52	-0.41	-0.40	0.12	-0.10	-0.55	-0.53	1.00															
Ta	0.57	0.63	0.62	0.63	-0.32	-0.67	0.50	0.58	0.72	0.41	0.55	-0.13	0.54	-0.43	0.55	0.11	0.48	0.71	0.73	0.36	0.60	0.68	0.76	0.54	0.74	0.77	0.42	0.76	0.65	-0.16	0.27	0.63	0.58	-0.27	1.00														
Th	0.69	0.74	0.69	0.87	-0.31	-0.70	0.48	0.86	0.80	0.48	0.72	-0.42	0.70	-0.59	0.86	0.28	0.50	0.92	0.88	0.23	0.83	0.84	0.89	0.80	0.88	0.88	0.54	0.86	0.89	-0.21	0.32	0.73	0.84	-0.39	0.74	1.00													
U	0.30	0.47	0.53	0.60	-0.18	-0.44	0.58	0.49	0.64	0.58	0.60	-0.50	0.46	-0.31	0.50	0.28	0.38	0.60	0.68	0.07	0.56	0.57	0.60	0.49	0.66	0.65	0.55	0.58	0.52	-0.03	0.16	0.57	0.54	0.02	0.55	0.63	1.00												
V	0.61	0.91	0.95	0.73	-0.45	-0.83	0.54	0.61	0.91	0.38	0.62	0.15	0.63	-0.64	0.68	0.08	0.81	0.78	0.67	0.73	0.79	0.84	0.72	0.74	0.85	0.73	0.80	0.71	0.59	-0.30	0.20	0.94	0.75	-0.51	0.59	0.62	0.50	1.00											
Y	0.65	0.85	0.89	0.88	-0.36	-0.73	0.51	0.80	0.94	0.59	0.75	-0.24	0.73	-0.72	0.92	0.24	0.73	0.90	0.86	0.47	0.96	0.89	0.90	0.94	0.98	0.89	0.70	0.83	0.82	-0.32	0.19	0.91	0.96	-0.52	0.67	0.87	0.63	0.83	1.00										
Yb	0.69	0.84	0.88	0.85	-0.42	-0.75	0.50	0.77	0.95	0.57	0.76	-0.21	0.74	-0.68	0.88	0.22	0.68	0.91	0.85	0.48	0.93	0.88	0.94	0.90	0.98	0.91	0.66	0.87	0.79	-0.25	0.20	0.89	0.92	-0.51	0.73	0.88													

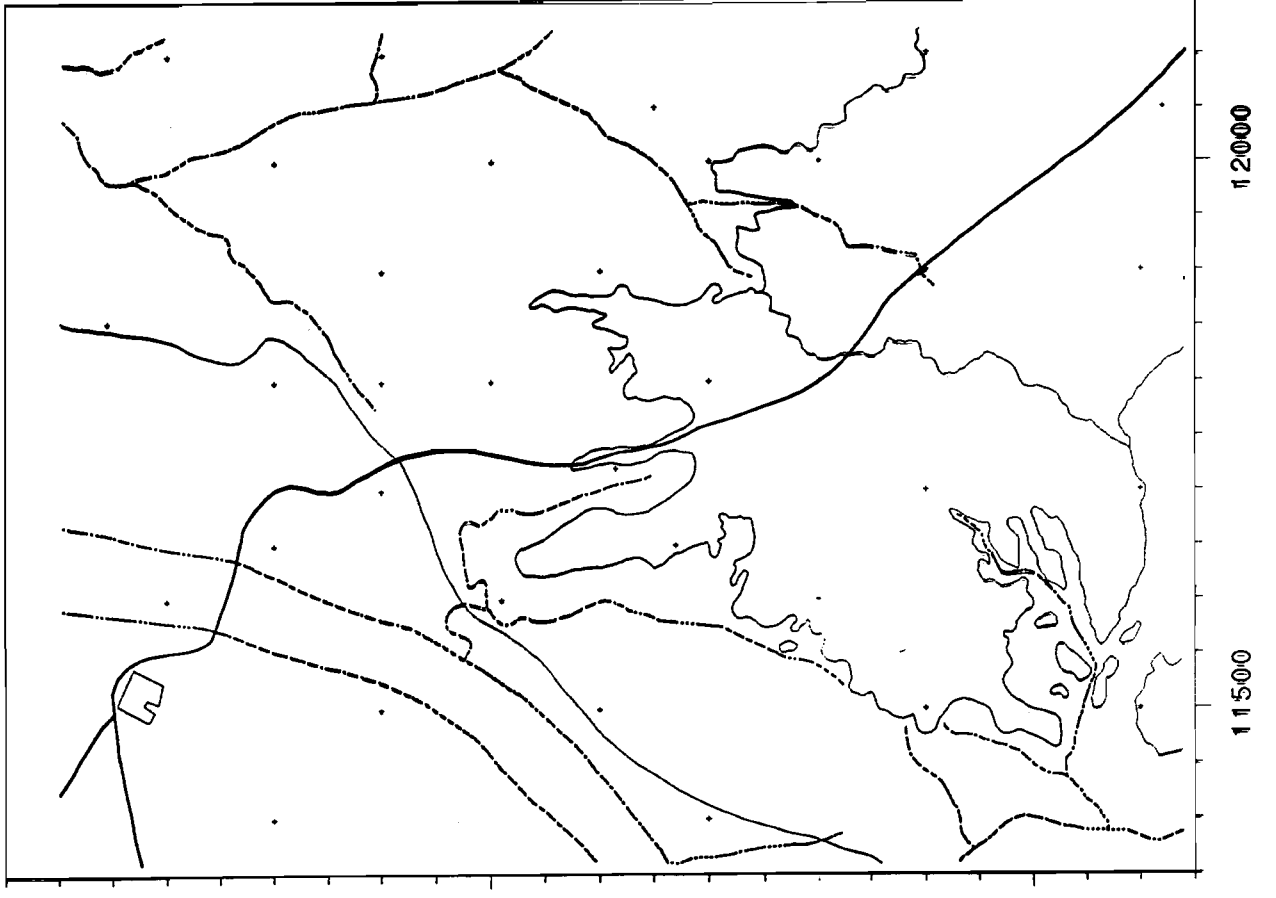
710-2000 µm SOIL FRACTION SPEARMAN RANK CORRELATIONS

	Si	Al	Fe	Mn	Mg	Ca	Na	K	Ti	P	As	Au	Ba	Br	Ce	Cl	Co	Cr	Cs	Cu	Eu	Ga	Hf	La	Lu	Nb	Ni	Pb	Rb	S	Sb	Sc	Sm	Sr	Ta	Th	U	V	W	Y	Yb	Zn	Zr				
Si	1.00																																														
Al	-0.03	1.00																																													
Fe	0.12	0.34	1.00																																												
Mn	0.28	-0.35	-0.08	1.00																																											
Mg	-0.68	0.51	0.27	-0.38	1.00																																										
Ca	-0.92	-0.21	-0.27	-0.13	0.47	1.00																																									
Na	-0.04	0.61	0.05	-0.25	0.31	-0.16	1.00																																								
K	0.49	0.49	0.15	0.16	-0.14	-0.51	0.08	1.00																																							
Ti	0.24	0.51	0.89	-0.10	0.32	-0.43	0.32	0.19	1.00																																						
P	0.10	0.62	0.20	-0.39	0.32	-0.23	0.39	0.26	0.30	1.00																																					
As	0.65	-0.33	0.12	0.42	-0.70	-0.54	-0.32	0.21	0.06	-0.14	1.00																																				
Au	-0.04	0.23	0.29	-0.26	0.32	-0.11	0.33	-0.20	0.35	0.21	-0.08	1.00																																			
Ba	0.53	0.05	-0.10	0.67	-0.37	-0.40	-0.08	0.69	0.00	-0.24	0.40	-0.32	1.00																																		
Br	-0.66	-0.40	-0.25	-0.17	0.16	0.75	-0.29	-0.70	-0.40	-0.33	-0.28	-0.02	-0.48	1.00																																	
Ce	0.01	-0.19	0.22	0.48	-0.03	0.06	-0.35	0.12	0.08	-0.23	0.28	0.00	0.33	-0.01	1.00																																
Cl	0.28	-0.02	0.26	-0.03	0.08	-0.30	0.04	0.01	0.29	0.51	0.07	0.30	-0.19	-0.20	0.15	1.00																															
Co	0.17	0.21	0.56	0.38	0.13	-0.23	0.27	0.08	0.67	-0.13	0.13	0.33	0.32	-0.25	0.28	-0.01	1.00																														
Cr	0.07	0.30	0.71	-0.05	0.19	-0.14	-0.26	0.25	0.58	0.26	0.13	0.01	-0.02	-0.08	0.30	0.22	0.15	1.00																													
Cs	0.50	0.25	-0.03	0.16	-0.11	-0.49	0.05	0.64	0.06	0.29	0.08	-0.22	0.47	-0.65	0.08	0.25	-0.12	0.14	1.00																												
Cu	0.31	0.15	0.55	0.07	0.04	-0.44	0.39	-0.06	0.68	0.06	0.25	0.52	0.03	-0.29	0.13	0.23	0.81	0.04	-0.14	1.00																											
Eu	-0.28	0.14	0.27	0.32	0.37	0.30	0.16	0.03	0.26	-0.03	-0.09	0.11	0.26	-0.02	0.63	-0.03	0.56	0.10	-0.15	0.33	1.00																										
Ga	0.03	0.92	0.51	-0.27	0.46	-0.33	0.51	0.44	0.62	0.61	-0.15	0.27	0.02	-0.45	-0.07	0.08	0.23	0.44	0.25	0.22	0.13	1.00																									
Hf	-0.02	0.72	0.51	-0.14	0.55	-0.21	0.55	0.20	0.72	0.51	-0.31	0.14	0.02	-0.29	0.00	0.24	0.42	0.43	0.20	0.34	0.32	0.74	1.00																								
La	-0.45	-0.17	0.03	0.30	0.27	0.57	-0.17	-0.16	-0.10	-0.19	-0.11	-0.13	0.14	0.28	0.66	-0.13	0.18	0.01	-0.28	-0.06	0.82	-0.17	0.00	1.00																							
Lu	-0.46	0.23	0.06	0.11	0.50	0.39	0.09	0.01	0.09	-0.02	-0.36	0.05	0.09	0.04	0.24	-0.10	0.21	0.13	-0.08	-0.05	0.54	0.24	0.23	0.43	1.00																						
Nb	0.16	-0.25	-0.07	0.30	-0.11	-0.12	0.02	-0.01	0.01	0.07	0.06	-0.18	0.05	-0.25	0.09	0.38	-0.01	-0.13	0.18	0.02	0.02	-0.16	0.06	0.02	-0.08	1.00																					
Ni	0.42	0.27	0.62	0.32	0.08	-0.49	0.25	0.25	0.76	0.09	0.25	0.42	0.37	-0.44	0.25	0.26	0.88	0.26	0.08	0.81	0.43	0.35	0.45	0.01	0.10	0.10	1.00																				
Pb	0.72	0.19	0.38	0.18	-0.26	-0.76	0.18	0.38	0.50	0.27	0.40	0.19	0.27	-0.64	0.10	0.54	0.35	0.26	0.39	0.48	-0.13	0.26	0.27	-0.40	-0.29	0.20	0.60	1.00																			
Rb	0.57	0.42	0.09	0.20	-0.22	-0.58	0.07	0.97	0.14	0.28	0.23	-0.23	0.70	-0.73	0.07	0.06	0.03	0.24	0.76	-0.07	-0.06	0.38	0.19	-0.23	-0.05	0.03	0.22	0.45	1.00																		
S	-0.42	-0.27	-0.19	0.15	0.28	0.49	0.12	-0.51	-0.11	-0.22	-0.38	0.15	-0.19	0.46	-0.01	0.01	0.30	-0.28	-0.36	0.22	0.34	-0.41	-0.06	0.24	0.20	0.10	0.14	-0.21	-0.52	1.00																	
Sb	0.60	-0.29	0.16	0.47	-0.65	-0.45	-0.47	0.26	0.06	-0.09	0.84	-0.26	0.41	-0.18	0.31	0.11	0.03	0.31	0.13	0.02	-0.11	-0.11	-0.24	-0.05	-0.37	0.09	0.20	0.39	0.28	-0.34	1.00																
Sc	-0.29	0.57	0.61	-0.11	0.62	0.09	0.19	0.03	0.63	0.28	-0.24	0.23	-0.09	-0.03	0.23	0.00	0.45	0.60	-0.08	0.29	0.47	0.65	0.68	0.21	0.57	-0.24	0.40	-0.01	-0.05	0.02	-0.25	1.00															
Sm	-0.47	-0.02	0.02	0.34	0.36	0.54	-0.02	-0.06	-0.03	-0.11	-0.17	-0.10	0.20	0.20	0.63	-0.07	0.29	0.03	-0.26	0.01	0.89	-0.04	0.15	0.94	0.57	0.09	0.11	-0.32	-0.15	0.34	-0.13	0.33	1.00														
Sr	-0.68	0.07	-0.41	-0.10	0.47	0.69	0.14	-0.17	-0.38	0.02	-0.39	-0.04	-0.08	0.44	-0.01	-0.18	-0.13	-0.29	-0.29	-0.28	0.38	-0.06	0.01	0.44	0.57	-0.16	-0.31	-0.61	-0.24	0.35	-0.42	0.13	0.56	1.00													
Ta	-0.11	0.38	0.29	0.01	0.26	0.07	0.24	0.25	0.29	0.30	-0.04	0.05	0.12	-0.11	-0.02	0.18	0.31	0.15	-0.10	0.17	0.29	0.30	0.35	0.15	0.01	-0.03	0.31	0.21	0.18	0.04	-0.03	0.22	0.28	0.20	1.00												
Th	-0.16	0.33	0.36	-0.20	0.33	0.07	-0.12	0.10	0.29	0.42	-0.12	-0.33	-0.24	0.02	0.10	0.15	-0.24	0.69	0.19	-0.26	-0.04	0.45	0.44	0.02	0.06	0.07	-0.15	0.04	0.10	-0.29	0.13	0.43	0.03	-0.11	0.00	1.00											
U	-0.17	0.07	0.40	-0.16	0.35	-0.01	0.00	-0.23	0.35	0.05	-0.01	0.26	-0.32	0.17	0.11	0.14	0.17	0.23	-0.08	0.33	-0.04	0.23	0.25	-0.08	-0.06	-0.11	0.23	0.11	-0.22	0.05	0.06	0.23	-0.14	-0.10	0.02	0.31	1.00										
V	0.11	0.19	0.86	0.13	0.20	-0.22	0.09	-0.01	0.83	-0.03	0.18	0.32	0.06	-0.15	0.32	0.16	0.82	0.49	-0.20	0.73	0.46	0.33	0.49	0.16	0.13	0.00	0.79	0.34	-0.07	0.08	0.16	0.60	0.21	-0.27	0.32	0.07	0.34	1.00									
W	0.26	-0.11	0.20	0.28	-0.20	-0.28	-0.08	0.10	0.18	0.20	0.47	-0.15	0.14	-0.33	0.06	0.21	0.04	0.23	0.04	0.13	0.02	0.08	0.08	0.05	-0.11	0.27	0.16	0.28	0.16	-0.36	0.33	0.01	0.05	-0.20	0.26	0.22	0.02	0.11	1.00								
Y	-0.50	0.11	0.00	0.36	0.40	0.48	0.11	0.04	0.01	-0.26	-0.29	-0.03	0.28	0.11	0.42	-0.27	0.38	-0.07	-0.27	0.02	0.76	0.08	0.16	0.68	0.77	0.01	0.16	-0.36	-0.08	0.36	-0.29	0.42	0.81	0.59	0.16	-0.12	-0.18	0.21	-0.14	1.00							
Yb	-0.44	0.25	0.06	0.27	0.45	0.39	0.10	0.03	0.09	-0.04	-0.27	0.04	0.16	0.08	0.36	-0.10	0.28	0.16	-0.18																												

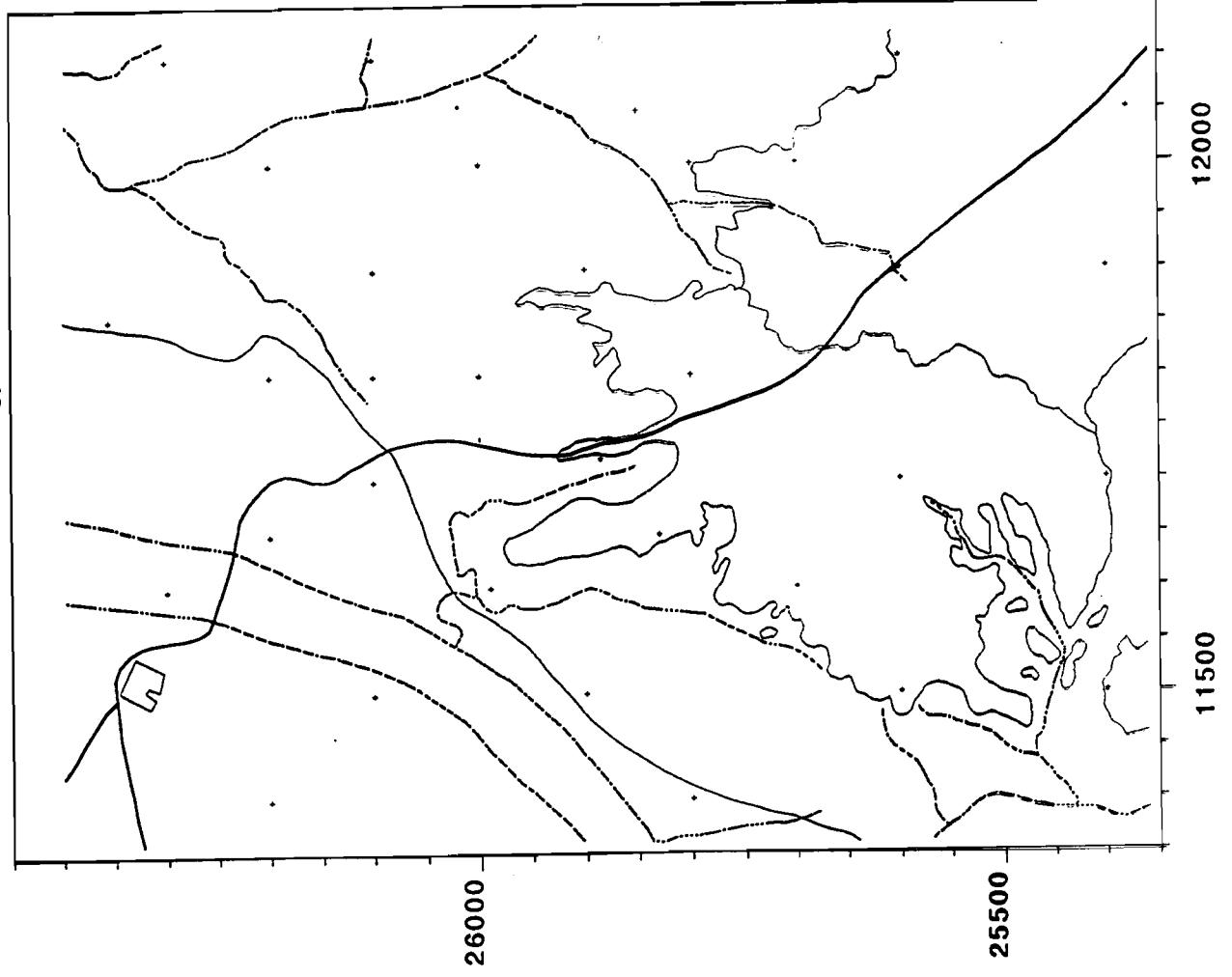
APPENDIX 7

TRANSPARENT REGOLITH OVERLAY FOR APPENDIX 3

Geology



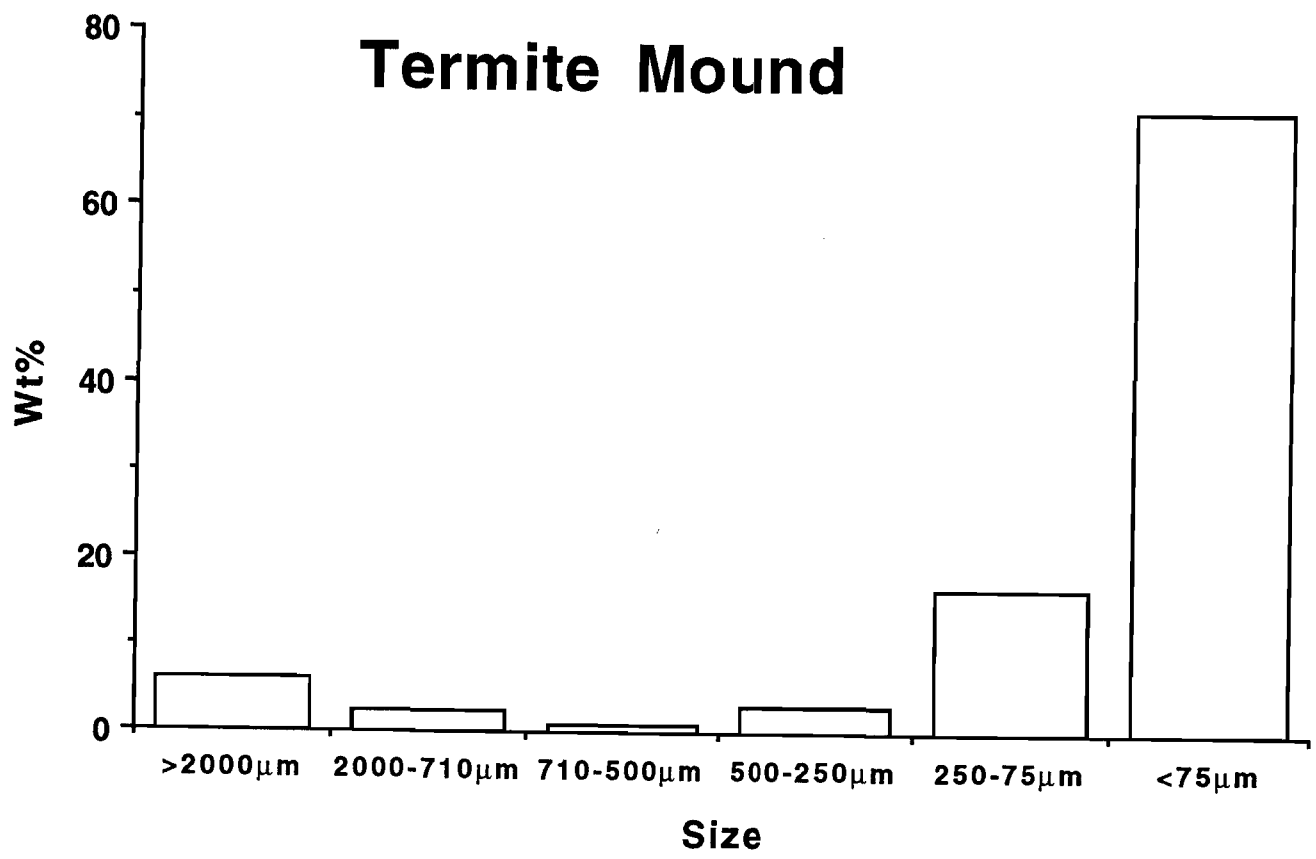
Geology



APPENDIX 8

SIZE FRACTION ANALYSIS AND CHEMICAL ANALYSES OF TERMITARIUM MATERIAL

Location approximately 11800E, 25800N



GEOCHEMISTRY OF TERMITE MOUND MATERIALS

METHOD FieldNo UNITS DETECTION	Fract	XRF(f) SiO2 %	XRF(f) Al2O3 %	XRF(f) Fe2O3 %	XRF(f) MnO %	XRF(f) MgO %	XRF(f) CaO %	XRF(f) Na2O %	XRF(f) K2O %	XRF(f) TiO2 %	XRF(f) P2O5 %	GS201 Ag ppm	INAA As ppm	INAA Au ppb	XRF(f) Ba ppm	GS201 Bi ppm	GS201 Cd ppm	INAA Ce ppm	XRF(f) Cl ppm	INAA Co ppm
LE36A	>2000µm	75.32	5.91	10.55	0.050	0.97	1.48	0.97	1.47	0.45	0.039	0.3			144	0.05	0.1		220	
LE36B	710-2000µm	75.51	5.78	12.01	0.090	0.73	0.27	0.85	1.79	0.65	0.031	0.4	4.62	-5	193	0.1	0.2	93.1	230	29.2
LE36D	250-500µm	84.17	4.74	6.01	0.038	0.29	0.48	0.43	2.05	0.57	0.016	0.4	1.92	-5	296	0.1	0.1	46.1	130	8.74
LE36F	<75µm	60.96	13.30	9.76	0.108	0.66	0.63	0.64	1.85	1.29	0.078	0.5	4.09	12.2	392	0.1	0.2	74.3	190	24.8

METHOD FieldNo UNITS DETECTION	XRF(f) Cr ppm	XRF(f) Cu ppm	XRF(f) Ga ppm	XRF(f) La ppm	GS201 Mo ppm	XRF(f) Nb ppm	XRF(f) Ni ppm	GS201 Pb ppm	XRF(f) Pb ppm	XRF(f) Rb ppm	XRF(f) S ppm	INAA Sb ppm	INAA Se ppm	XRF(f) Sr ppm	XRF(f) V ppm	INAA W ppm	XRF(f) Y ppm	XRF(f) Zn ppm	XRF(f) Zr ppm
	10	10	3	10	0.1	4	10	1	5	5	10	0.2	5	5	5	2	5	5	5
LE36A	43	315	10	14	2.7	-3	36	3	6	63	60			19	149		10	10	80
LE36B	34	374	9	7	2.2	-3	34	5	12	84	60	0.57	-5	18	188	-2	14	9	78
LE36D	29	117	4	21	1.5	-3	14	4	17	76	80	0.4	-5	22	100	-2	10	6	68
LE36F	54	425	15	36	0.9	10	28	10	11	99	150	0.58	-5	49	176	-2	37	22	545

APPENDIX 9

DATA DISC

Type README.DOC for contents and format