
Appendix H

Magnetic Survey and Soil Sampling at Melba Flats and Tenth Legion South

ZZ Exploration Pty Ltd

MAGNETIC SURVEY AND SOIL SAMPLING AT MELBA FLATS AND TENTH LEGION SOUTH

Introduction:

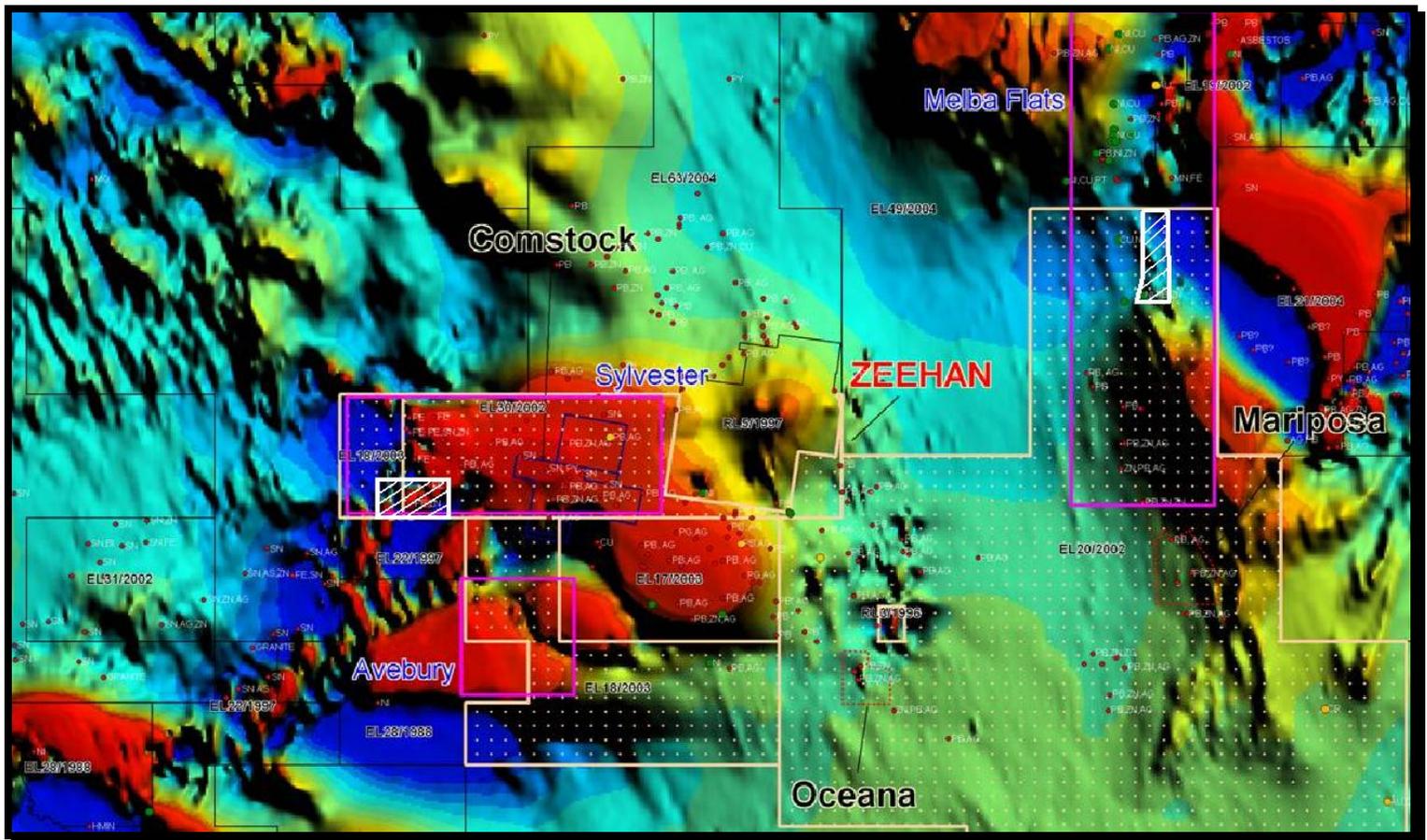
The following is a report on the process and procedure of a magnetic survey and soil sampling program that was undertaken within the Melba Flats and Tenth Legion South areas. This report will go into each area individually as the procedure for both differed greatly. Included in this report will be the results of the magnetic survey in the form of several two dimensional and three dimension magnetic plots showing the magnetic intensities of the two areas.

Aim:

To map two areas within our Exploration Leases with a Magnetometer and take soil samples. This will allow our consultants to target specific locations for drill holes. We are aiming to find nickel.

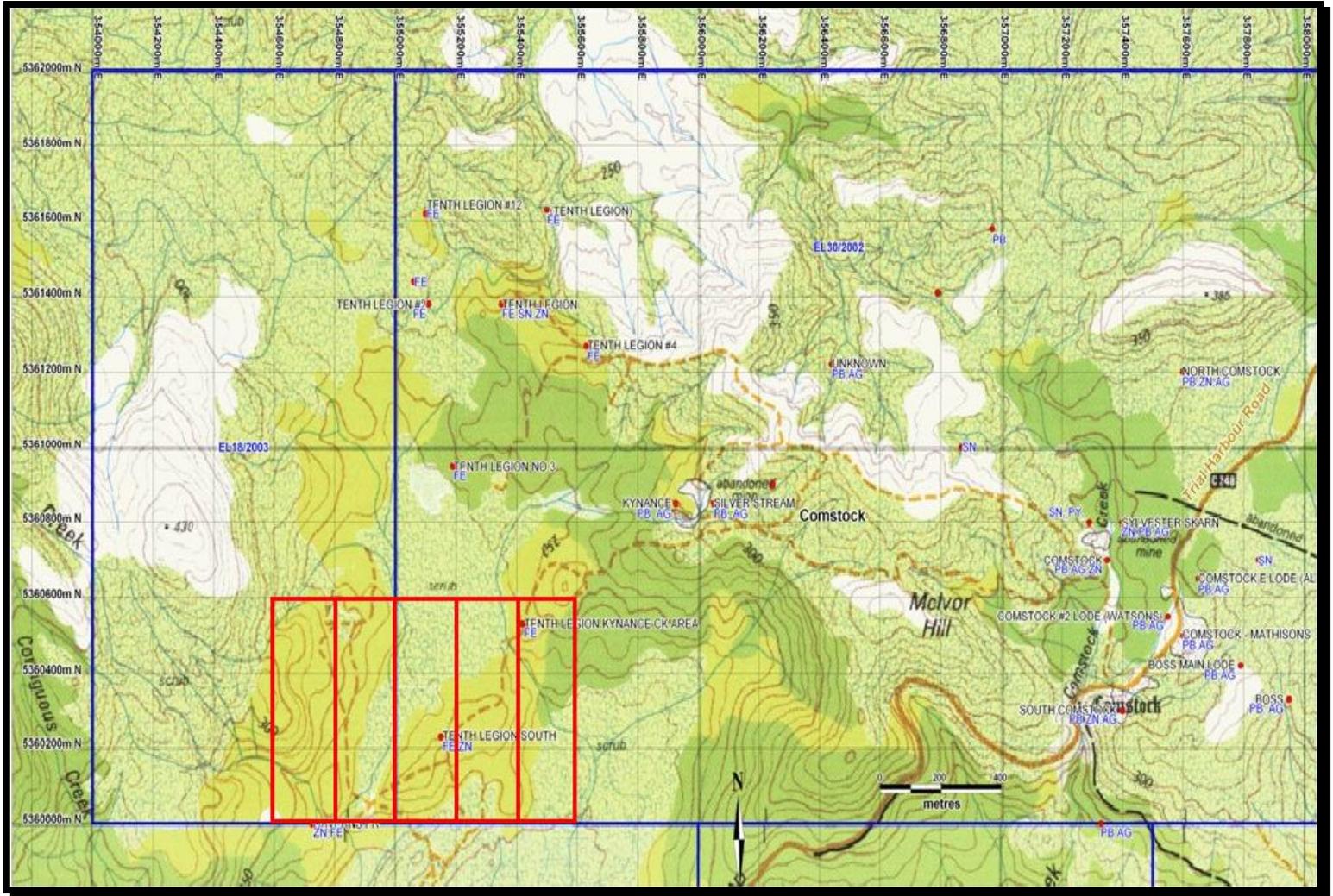
Background:

To be more cost effective and targeted with our exploration it was suggested by our consultant Simon Tear that the Magnetometer grids would help us achieve this goal. Our aim is to reduce the number of drill holes to target our mineral resources.



Map showing aeromagnetic intensities over Zeehan and surrounding areas. Two white shaded areas are where our ground surveys took place.

Tenth Legion South Area:



Map showing the EL 18 and EL 30 leases. Red shading is the location of the Magnetic survey and Soil Sampling.

With the Tenth legion South area grid cutters were brought in to cut a six line grid as the terrain was inaccessible by a ground crew. The grid lines run North/South for 600 meters each with a line spacing of 200 meters. Magnetometer readings and soil samples were then taken every 25 meters. A marker was placed at every 25 meters with the corresponding gps coordinate and a soil sampling number. Therefore for each line there were 25 soil samples taken and 25 magnetometer readings taken.

With the soil samples, a two meter long auger was used with a 75mm head piece. The auger would be wound down as far as possible and the sample was brought to the surface and bagged for later interpretation. Depths the auger would reach were variable due to the solid ironstone ground which is usual for the Tenth Legion areas. There were many occasions where we would have 5 or 6 attempts in that general radius to see if the ground was passable but with no result. Where the ground was too hard to auger, appropriate rock chip samples were taken of the nearby area. Samples are brought back to the RC shed, checked and put aside to be dried before being retagged and shipped for assays.

A Geometrics G856 magnetometer was used for the base station and was set up in the far North/East corner of the grid. This is used to pick up magnetic changes of the area through out the day and helps correct the magnetometer readings for the whole grid. A Geometrics G858 magnetometer was used for the actual survey and every reading was stored in the magnetometer and written down until the end of survey and then both downloaded onto the computer for processing. From this information were able to come up with our magnetic intensity plots.

Magnetometer Results for Tenth Legion South:

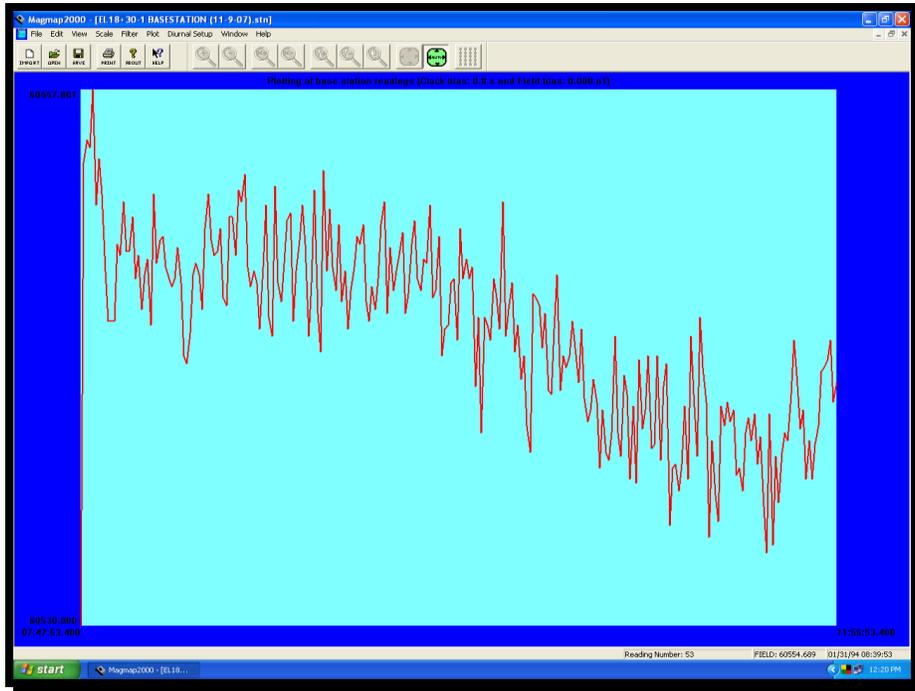


Diagram showing day 1 base station results.

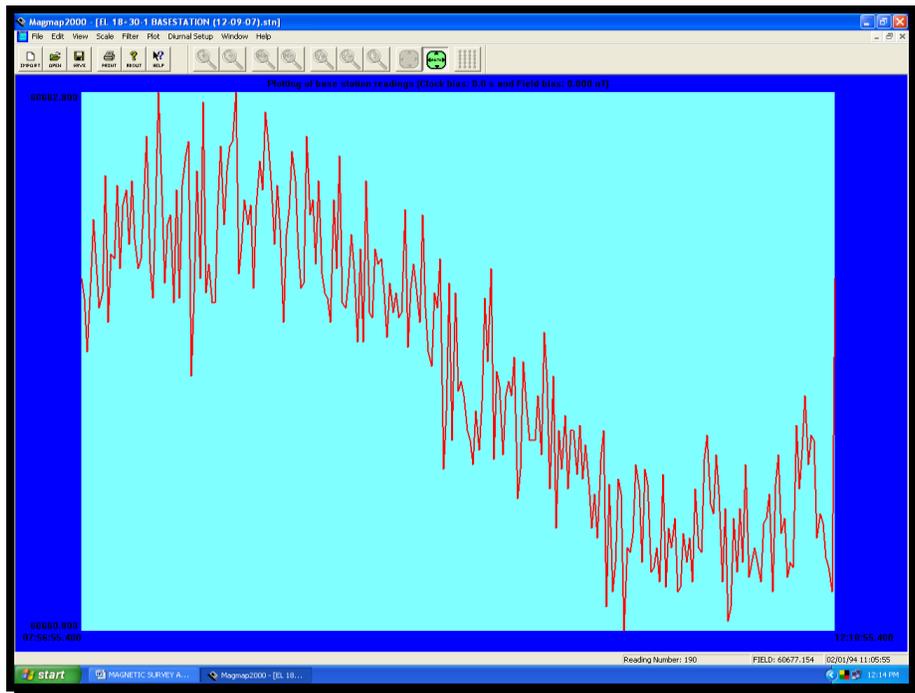
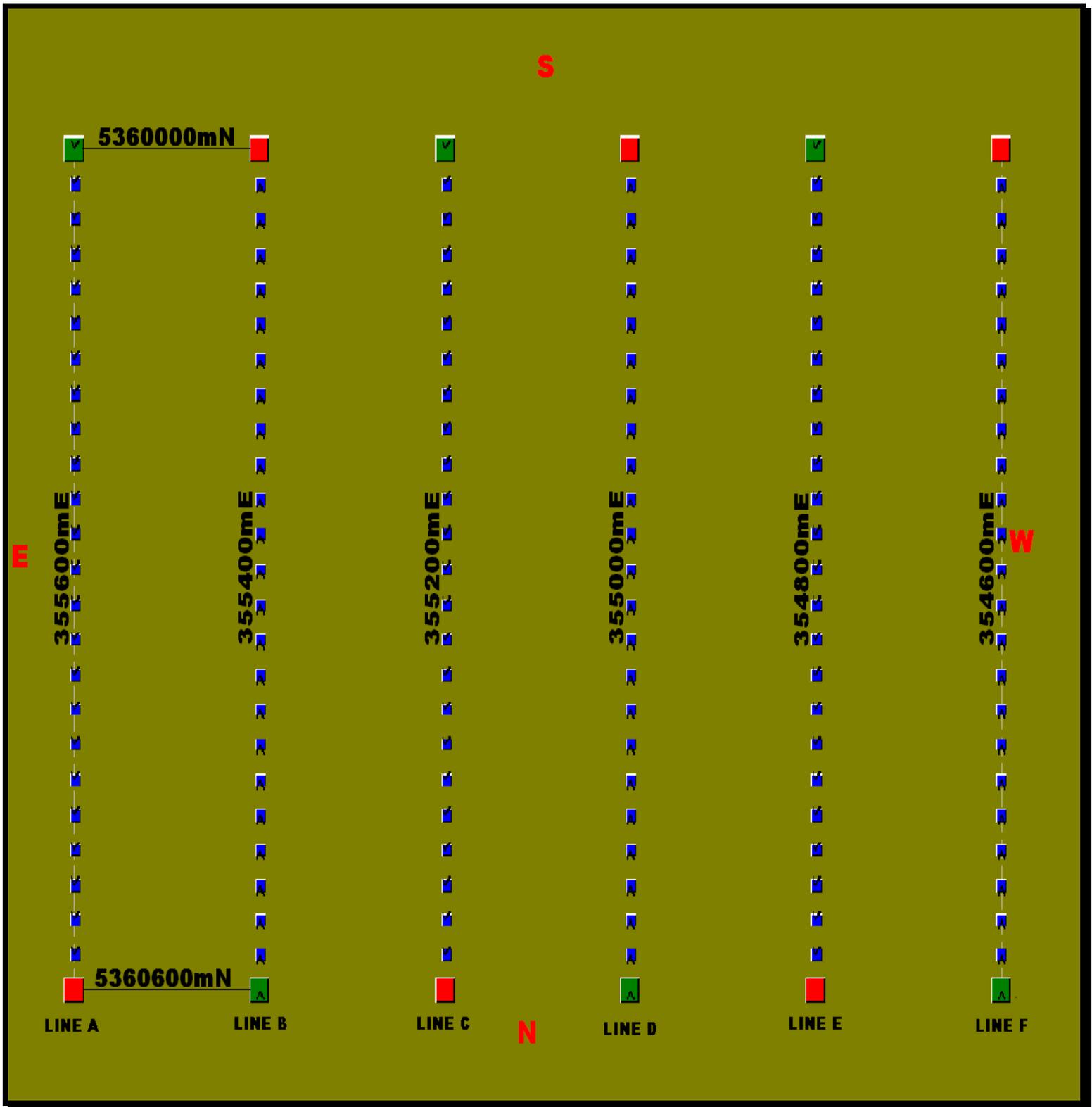


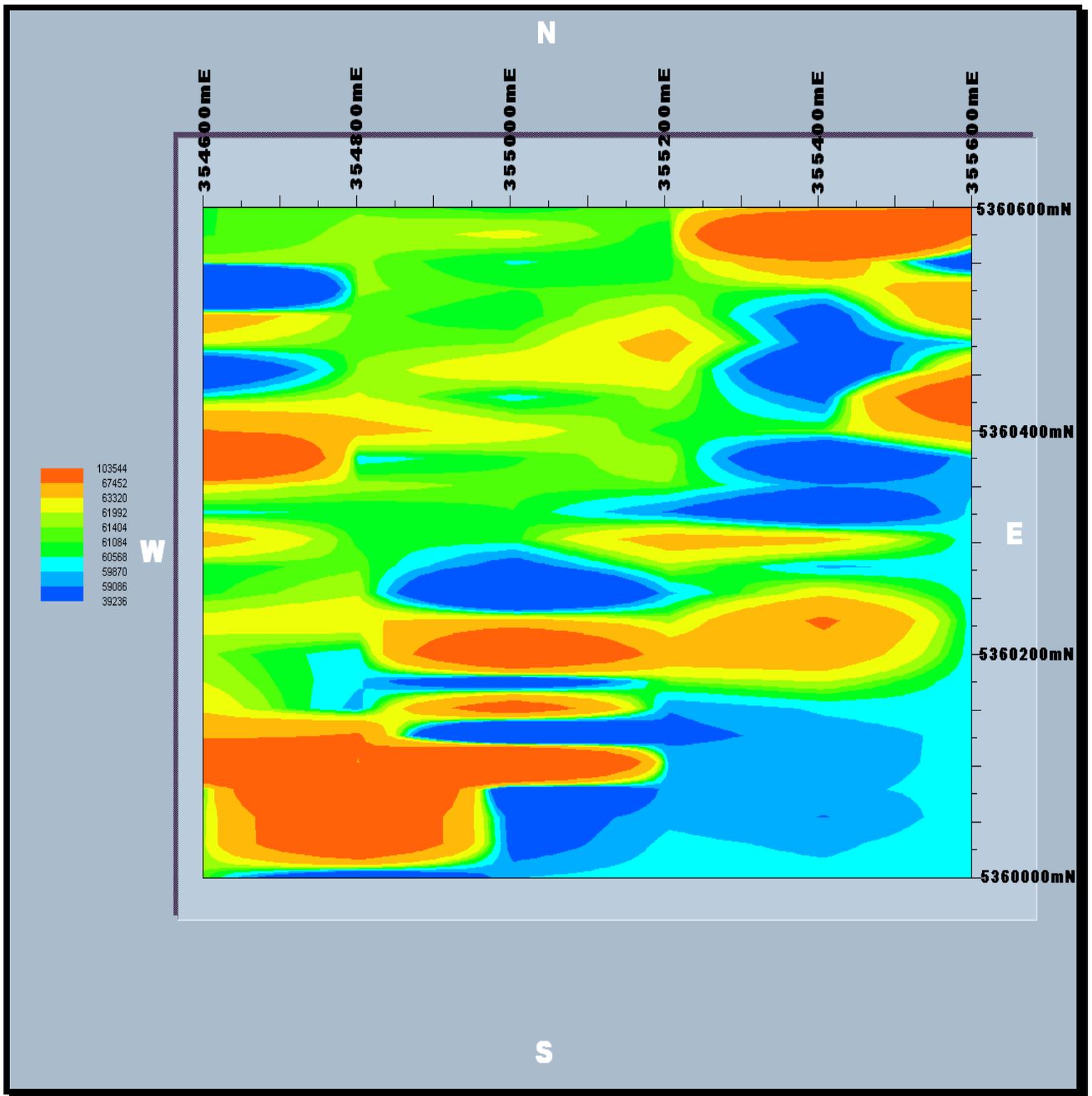
Diagram showing day 2 base station results.

From the above base station results it can be seen that on day one there was little change in the Earth's magnetic field and on day two there was a slight noticeable shift in the Earth's magnetic field but still following the same shift pattern. These readings are then to be overlaid onto the actual magnetic survey readings which will give us the true intensities for each reading. There are two days of base station results due to the fact the mag work ran over two days. All readings were between a minimum and maximum scale of 60530 and 60682 respectively, thus not a big enough change to merit a change in the actual magnetometer readings.



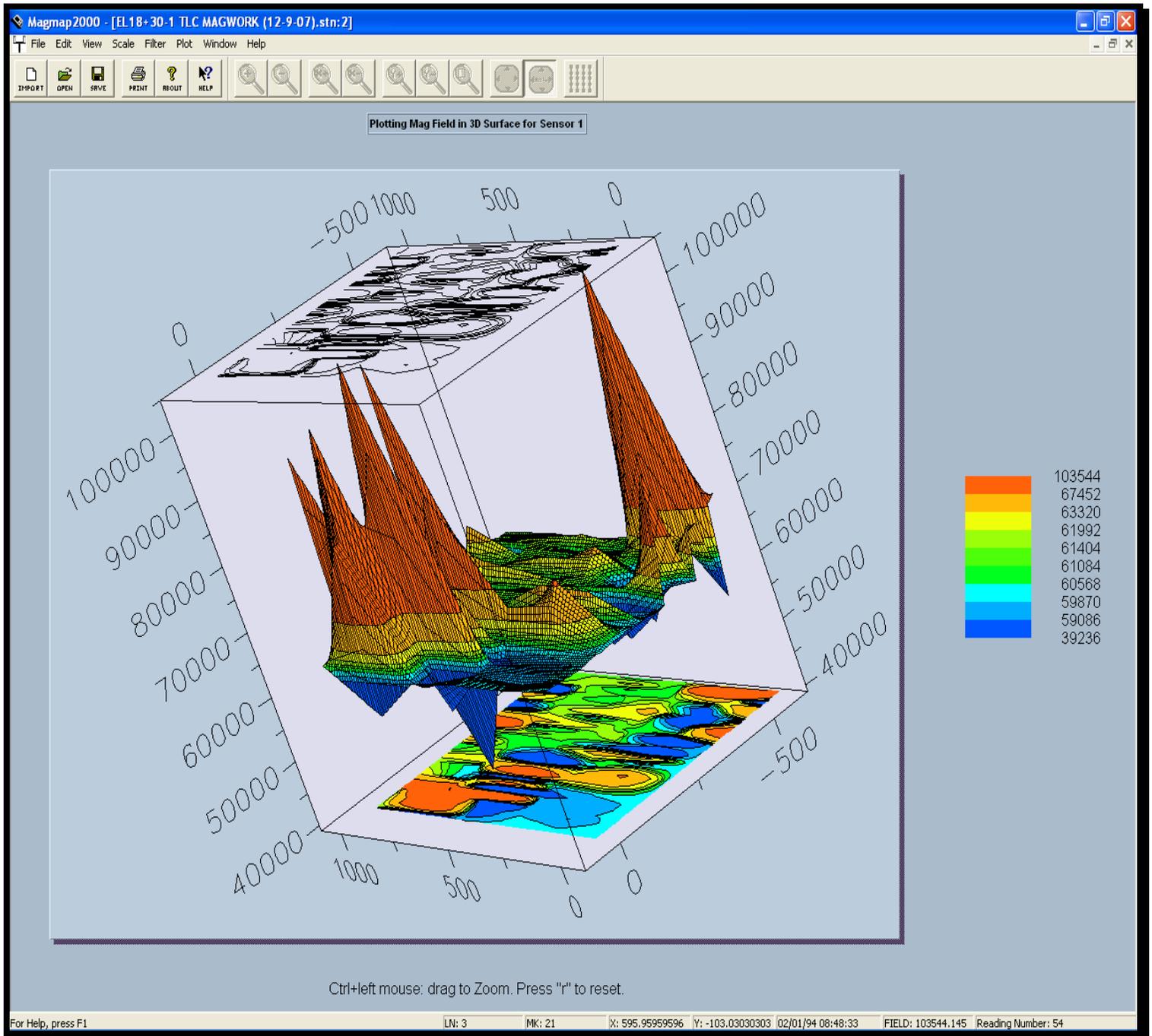
Magnetic survey results showing the grid walked and the position of each reading taken.

The above diagram shows the way in which the grid was started and which direction the lines were followed. The grid was started in the bottom right corner going in an up then down direction and thus finished in the bottom left corner. Green boxes represent the directional start of the line and the red boxes represent the end of the line. The smaller blue boxes represent each position a reading was taken, every 25 meters.



Magnetic intensity results shown in 2 dimensions.

The above diagram shows the results in a two dimensional layout. High intensities are shown as a red/orange colour and low intensities are shown as a blue/dark blue. It can be seen from the results there is some distinct areas and some not so distinct areas. General observation (from walking the grid) show a granite intrusion to middle left of the grid with massive magnetite contact. There is also varying degrees of sulphide mineralization. To the top middle of the grid, and bottom right we have a large swampy area and to the top right we have clearly visible magnetite and iron stone. The bottom left is the location of the Daverns mine.



Magnetic intensities results shown in 3 Dimensions for the Tenth Legion Area.

From the diagram above we have magnetic intensities shown in a 3 dimensional plot with corresponding colour values. It can be seen that there were two magnetic anomalies one that corresponds to the south of EL 18/2003 lease and the other situated in the Tenth Legion Kynance Creek area (scattered with ironstone and magnetite).

Tenth Legion Area magnetic readings:

Line	Reading ID	Reading	Line	Reading ID	Reading
A	1	61052	B	1	61367
A	2	61048	B	2	61518
A	3	61532	B	3	61498
A	4	39235	B	4	61485
A	5	65440	B	5	61230
A	6	62223	B	6	61128
A	7	55265	B	7	61516
A	8	60641	B	8	62108
A	9	67879	B	9	63989
A	10	94536	B	10	60247
A	11	62684	B	11	61647
A	12	60389	B	12	60674
A	13	64542	B	13	60940
A	14	60805	B	14	61312
A	15	60976	B	15	61880
A	16	62335	B	16	63110
A	17	61538	B	17	60074
A	18	61971	B	18	60011
A	19	62907	B	19	59520
A	20	65362	B	20	68231
A	21	89384	B	21	67275
A	22	60961	B	22	94633
A	23	61707	B	23	78764
A	24	61749	B	24	78613
A	25	61330	B	25	54205

Table showing magnetometer readings for line A and B.

Line	Reading ID	Reading	Line	Reading ID	Reading
C	0	60781	D	0	61442
C	1	62281	D	1	60705
C	2	60484	D	2	60890
C	3	61101	D	3	61167
C	4	60743	D	4	62508
C	5	61403	D	5	64249
C	6	63068	D	6	62932
C	7	60267	D	7	61726
C	8	62578	D	8	60871
C	9	61014	D	9	61817
C	10	61255	D	10	61359
C	11	61067	D	11	58997
C	12	60892	D	12	64507
C	13	58171	D	13	61784
C	14	50502	D	14	59699
C	15	64354	D	15	61688
C	16	81125	D	16	64821
C	17	54753	D	17	61388
C	18	72957	D	18	59145
C	19	42256	D	19	58717
C	20	3000	D	20	59645
C	21	52903	D	21	59514
C	22	57904	D	22	59788
C	23	58198	D	23	60074
C	24	59868	D	24	60265

Table showing magnetometer readings for line C and D.

Line	Reading ID	Reading	Line	Reading ID	Reading
E	0	64401	F	1	60538
E	1	1620	F	2	60402
E	2	67157	F	3	60265
E	3	61144	F	4	60075
E	4	57383	F	5	60063
E	5	58054	F	6	60061
E	6	54316	F	7	60264
E	7	58491	F	8	60124
E	8	61276	F	9	60244
E	9	54475	F	10	60258
E	10	59245	F	11	60281
E	11	55376	F	12	60264
E	12	63982	F	13	60157
E	13	59649	F	14	60083
E	14	62775	F	15	59738
E	15	68290	F	16	59879
E	16	65412	F	17	66108
E	17	62016	F	18	77242
E	18	60024	F	19	65013
E	19	59489	F	20	59926
E	20	59512	F	21	67023
E	21	59718	F	22	66603
E	22	59047	F	23	55145
E	23	59680	F	24	67706
E	24	60129	F	25	68532

Table showing magnetometer readings for line E and F.

Soil sample results for Tenth Legion South:

Line	Sample ID	Depth (m)	Comments
A	1	R.C.S.	Solid ground (Ironstone and Magnetite)
A	2	R.C.S.	“
A	3	R.C.S.	“
A	4	R.C.S.	“
A	5	R.C.S.	“
A	6	R.C.S.	“
A	7	0.1 + R.C.S.	“
A	8	R.C.S.	“
A	9	R.C.S.	“
A	10	R.C.S.	“
A	11	R.C.S.	“
A	12	0.2 + R.C.S.	“
A	13	0.2	“
A	14	R.C.S.	“
A	15	R.C.S.	“
A	16	R.C.S.	“
A	17	R.C.S.	“
A	18	R.C.S.	“
A	19	0.2	“
A	20	R.C.S.	“
A	21	R.C.S.	“
A	22	R.C.S.	“
A	23	R.C.S.	“
A	24	R.C.S.	“
A	25	R.C.S.	“

Table showing soil sample results for line A.

Line	Sample ID	Depth (m)	Comments
B	1	1.0	
B	2	1.1	
B	3	1.3	
B	4	1.0	
B	5	1.0	
B	6	0.9	
B	7	1.1	
B	8	1.0	In the presence of a tunnel
B	9	0.2	Water content
B	10	0.1	“
B	11	0.2 + R.C.S.	Solid ground (Ironstone and Magnetite)
B	12	0.2 + R.C.S.	“
B	13	0.3 + R.C.S.	“
B	14	0.4 + R.C.S.	“
B	15	R.C.S.	“
B	16	0.4 + R.C.S.	“
B	17	1.0	
B	18	1.6	
B	19	R.C.S.	Solid ground (Ironstone and Magnetite)
B	20	R.C.S.	“
B	21	0.5	
B	22	0.3 + R.C.S.	Solid ground (Ironstone and Magnetite)
B	23	0.4	Water content
B	24	0.2	Water content
B	25	R.C.S.	Solid ground (Ironstone and Magnetite)

Table showing soil sample results for line B.

Line	Sample ID	Depth (m)	Comments
C	0	1.0	
C	1	1.0	
C	2	1.0	
C	3	1.1	
C	4	1.6	
C	5	1.1	
C	6	1.0	
C	7	1.4	
C	8	1.6	
C	9	1.0	
C	10	1.4	
C	11	1.4	
C	12	1.3	
C	13	1.4	
C	14	1.1	
C	15	1.0	
C	16	1.6	
C	17	0.3	Water content
C	18	R.C.S.	Solid ground (Ironstone and Magnetite)
C	19	R.C.S.	“
C	20	0.6	
C	21	R.C.S.	Solid ground (Ironstone and Magnetite)
C	22	0.5	
C	23	0.6	
C	24	0.3	Water content

Table showing soil sample results for line C.

Line	Sample ID	Depth (m)	Comments
D	0	0.6	
D	1	1.0	
D	2	1.1	
D	3	1.0	
D	4	1.5	
D	5	1.2	
D	6	R.C.S.	Solid ground
D	7	1.0	
D	8	1.6	
D	9	0.3	Solid ground
D	10	R.C.S.	“
D	11	R.C.S.	“
D	12	1.2	
D	13	0.6	
D	14	0.5	
D	15	1.1	
D	16	1.0	
D	17	0.4	Solid ground
D	18	1.0	
D	19	1.1	
D	20	R.C.S.	Solid ground
D	21	R.C.S.	“
D	22	R.C.S.	“
D	23	R.C.S.	“
D	24	R.C.S.	“

Table showing soil sample results for line D.

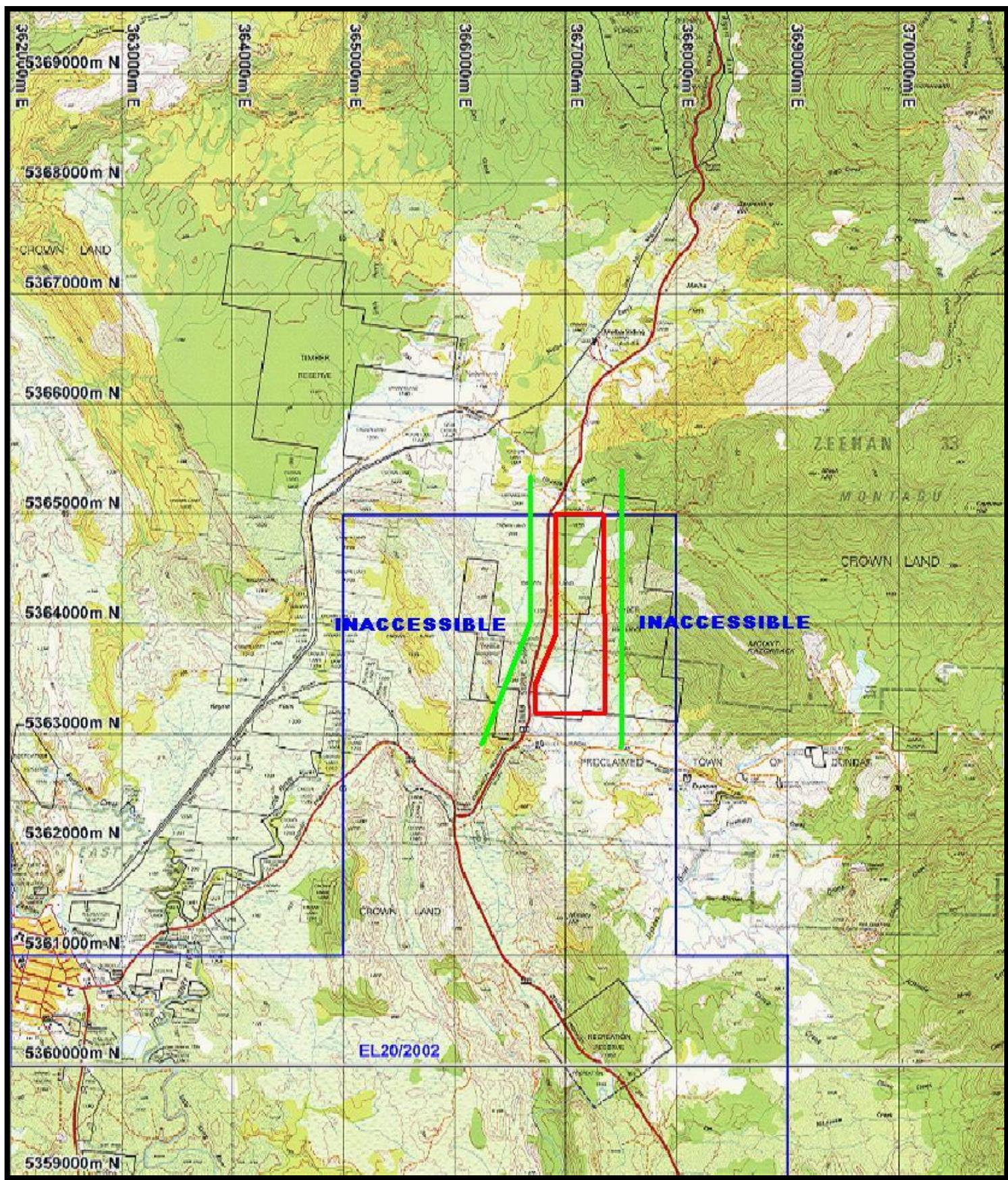
Line	Sample ID	Depth (m)	Comments
E	0	R.C.S.	Solid ground
E	1	0.3	“
E	2	R.C.S.	“
E	3	0.2	“
E	4	R.C.S.	“
E	5	R.C.S.	“
E	6	R.C.S.	“
E	7	0.5	
E	8	1.0	
E	9	1.2	
E	10	0.6	
E	11	R.C.S.	Solid ground
E	12	R.C.S.	“
E	13	R.C.S.	“
E	14	R.C.S. + Dirt	“
E	15	R.C.S.	Taken from tunnel 5m below spot
E	16	0.4	
E	17	0.5	
E	18	R.C.S. + Clay	Solid ground
E	19	R.C.S.	“
E	20	R.C.S. + Clay	“
E	21	R.C.S.	“
E	22	R.C.S.	“
E	23	0.1	“
E	24	R.C.S	“

Table showing soil sample results for line E.

Line	Sample ID	Depth (m)	Comments
F	1	0.4	
F	2	1.0	
F	3	1.1	
F	4	0.6	
F	5	1.0	
F	6	1.1	
F	7	1.0	
F	8	1.0	
F	9	1.1	
F	10	1.6	
F	11	1.2	
F	12	1.4	
F	13	1.4	
F	14	0.7	
F	15	1.4	
F	16	1.5	
F	17	R.C.S.	Solid ground
F	18	R.C.S.	“
F	19	R.C.S.	“
F	20	R.C.S.	“
F	21	R.C.S.	“
F	22	R.C.S.	“
F	23	R.C.S. + Clay	“
F	24	R.C.S.	“
F	25	R.C.S.	“

Table showing soil sample results for line F.

Melba Flats Area:



Map showing the EL 20 lease. Red shading is location of Magnetic survey and Soil Sampling.

With the Melba Flats grid the budget was too tight to have grid cutters come in and cut the grid, so with a crew of 3 and with minimal equipment the grid was designed only on the accessible areas that we could cut and peg thus giving us the shape of the grid above. This type of grid is not particularly good to do a magnetic survey on but the results that it produced can be of some use so we continued to do the magnetometer survey. Again we tried to keep the lines 200m apart, and as long as possible. We managed to put in a total of 10 lines of varying length. Again we took samples and mag readings every 25m.

With the soil samples, a two meter long auger was used with a 75mm head piece. The auger would be wound down as far as possible and the sample was brought to the surface and bagged for later interpretation. Depths the auger would reach were variable due to the solid ground. There were many occasions where we would have 5 or 6 attempts in that general radius to see if the ground was passable but with no result. There were also several areas where the ground water played havoc with trying to retrieve the samples at depth. Where the ground was too hard to auger, appropriate rock chip samples were taken of the nearby area. Samples are brought back to the RC shed, checked and put aside to be dried before being retagged and shipped for assays.

A Geometrics G856 magnetometer was used for the base station and was set up again in the far North/East corner of the grid. This is used to pick up magnetic changes of the area through out the day and helps correct the magnetometer readings for the whole grid. A Geometrics G858 magnetometer was used for the actual survey and every reading was stored in the magnetometer and written down until the end of survey and then both downloaded onto the computer for processing. From this information were able to come up with our magnetic intensity plots.

Magnetometer Results for Melba Flats:

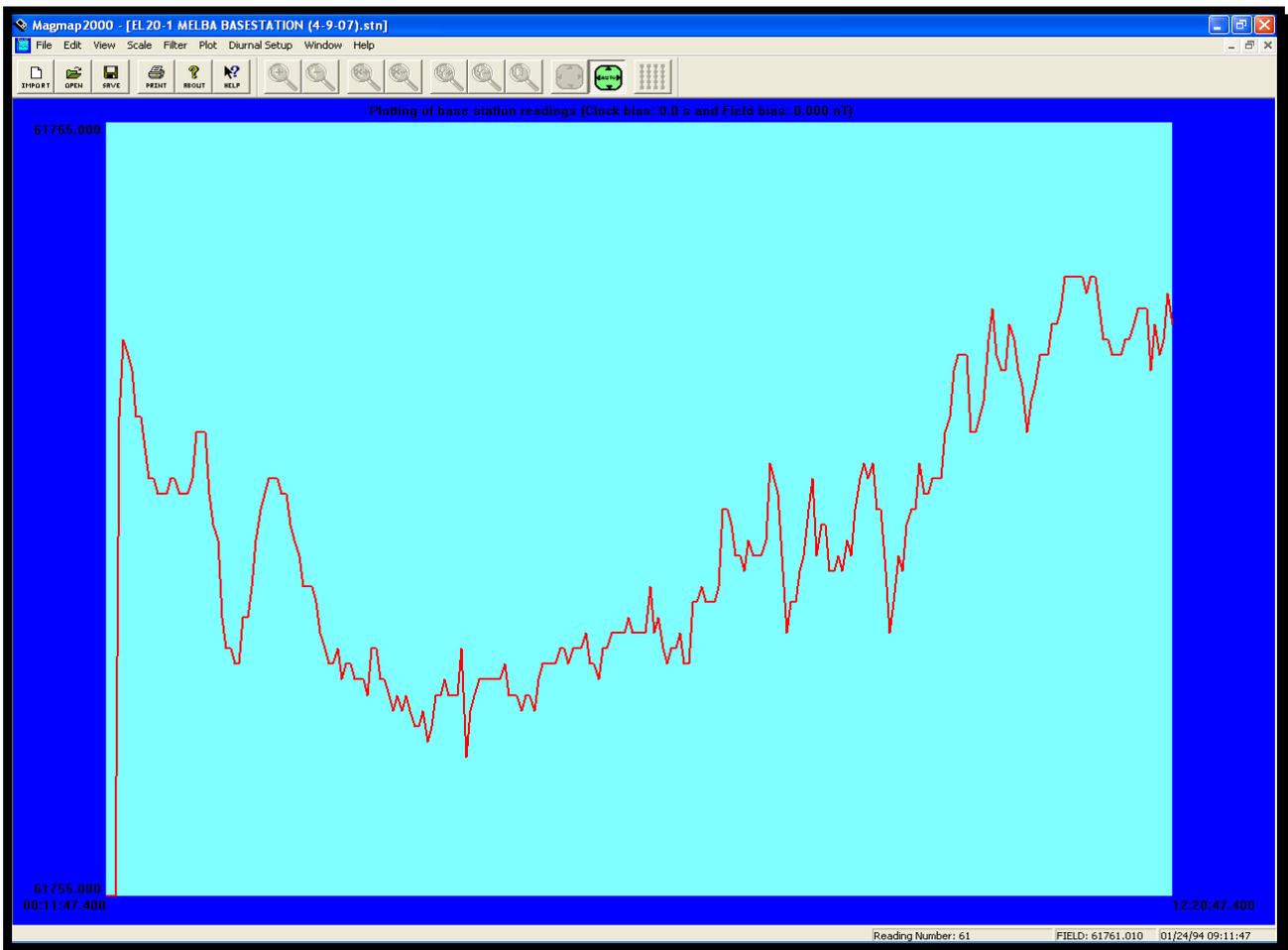


Diagram showing day 1 base station results.

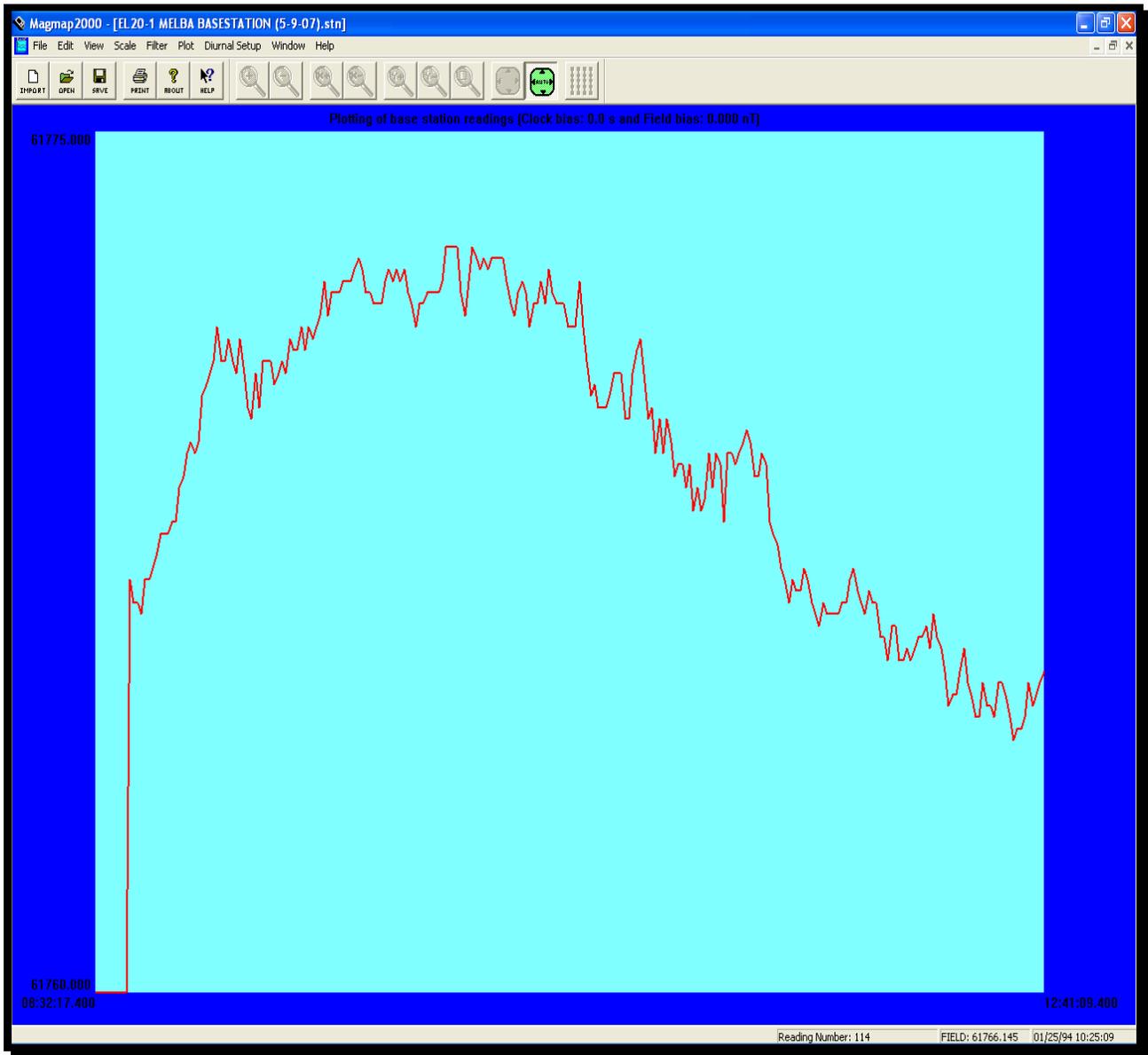
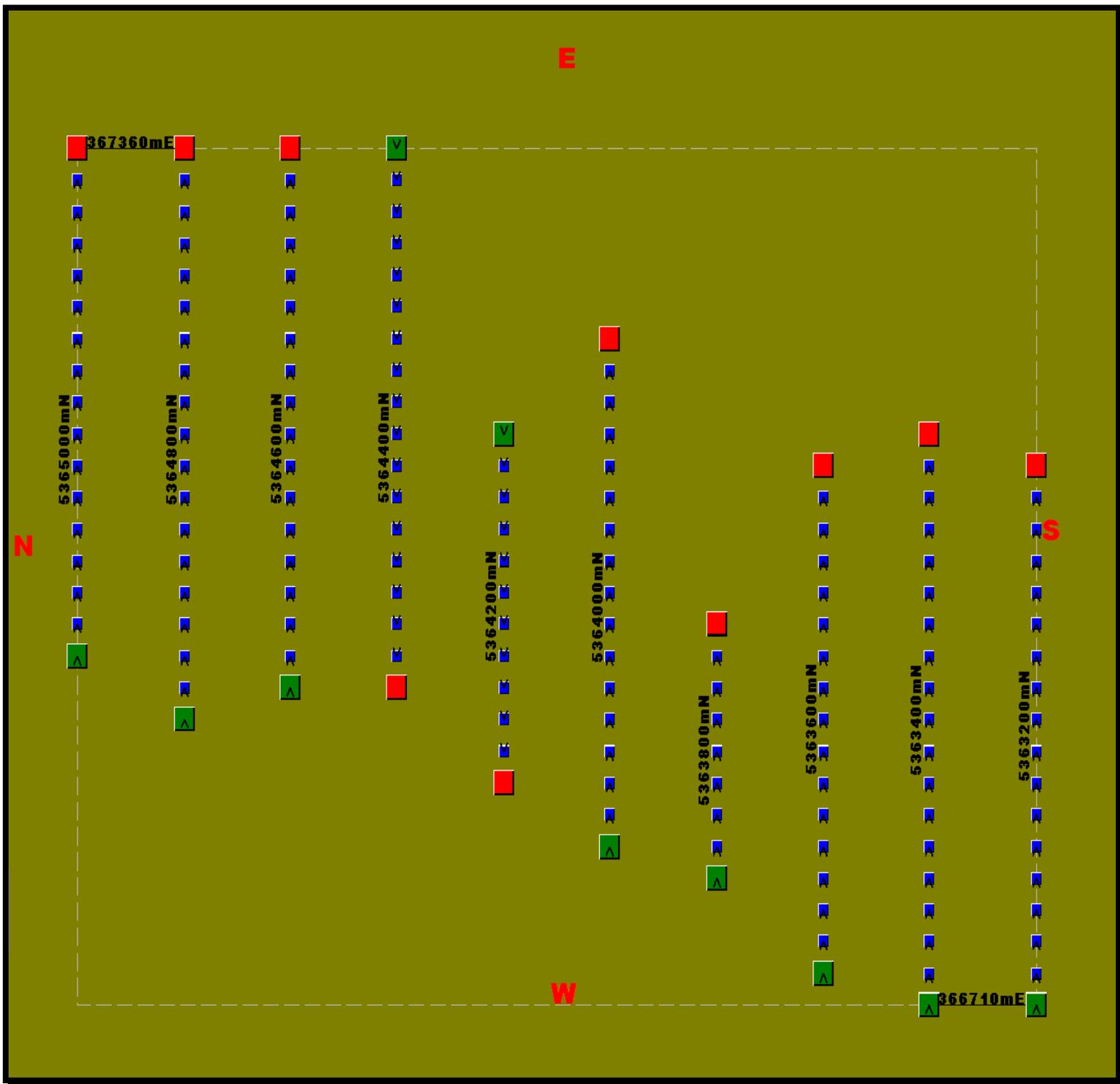


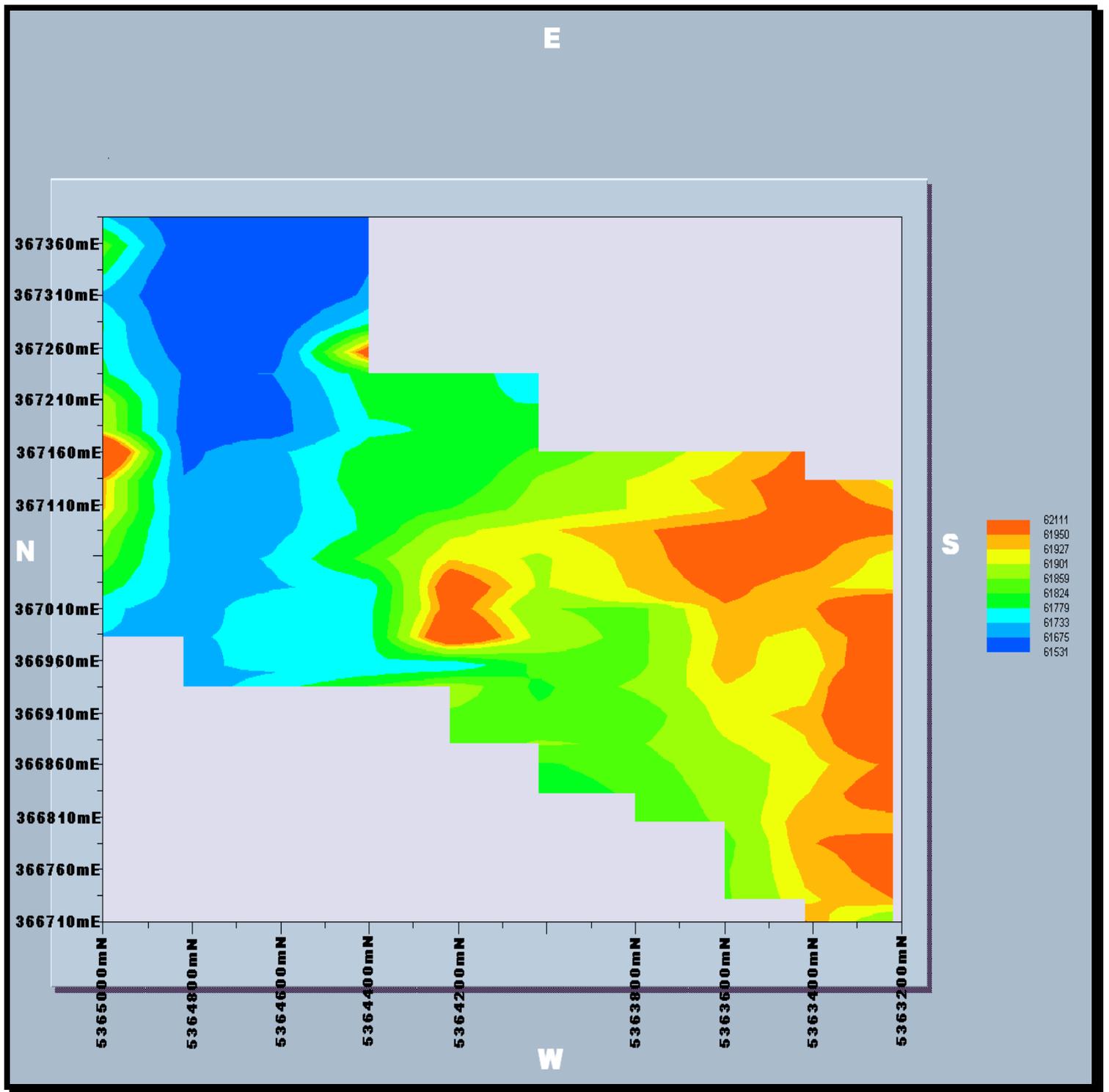
Diagram showing day 2 base station results.

From the above base station results it can be seen that on day one there was little change in the Earth's magnetic field and on day two there was a more noticeable shift in the Earth's magnetic field but still following the same sine wave shift pattern. These readings are then to be overlaid onto the actual magnetic survey readings which will give us the true intensities for each reading. There are two days of base station results due to the fact the mag work ran over two days. All readings were between a minimum and maximum scale of 61718 and 61773 respectively, thus not a big enough change to merit a change in the actual magnetometer readings.



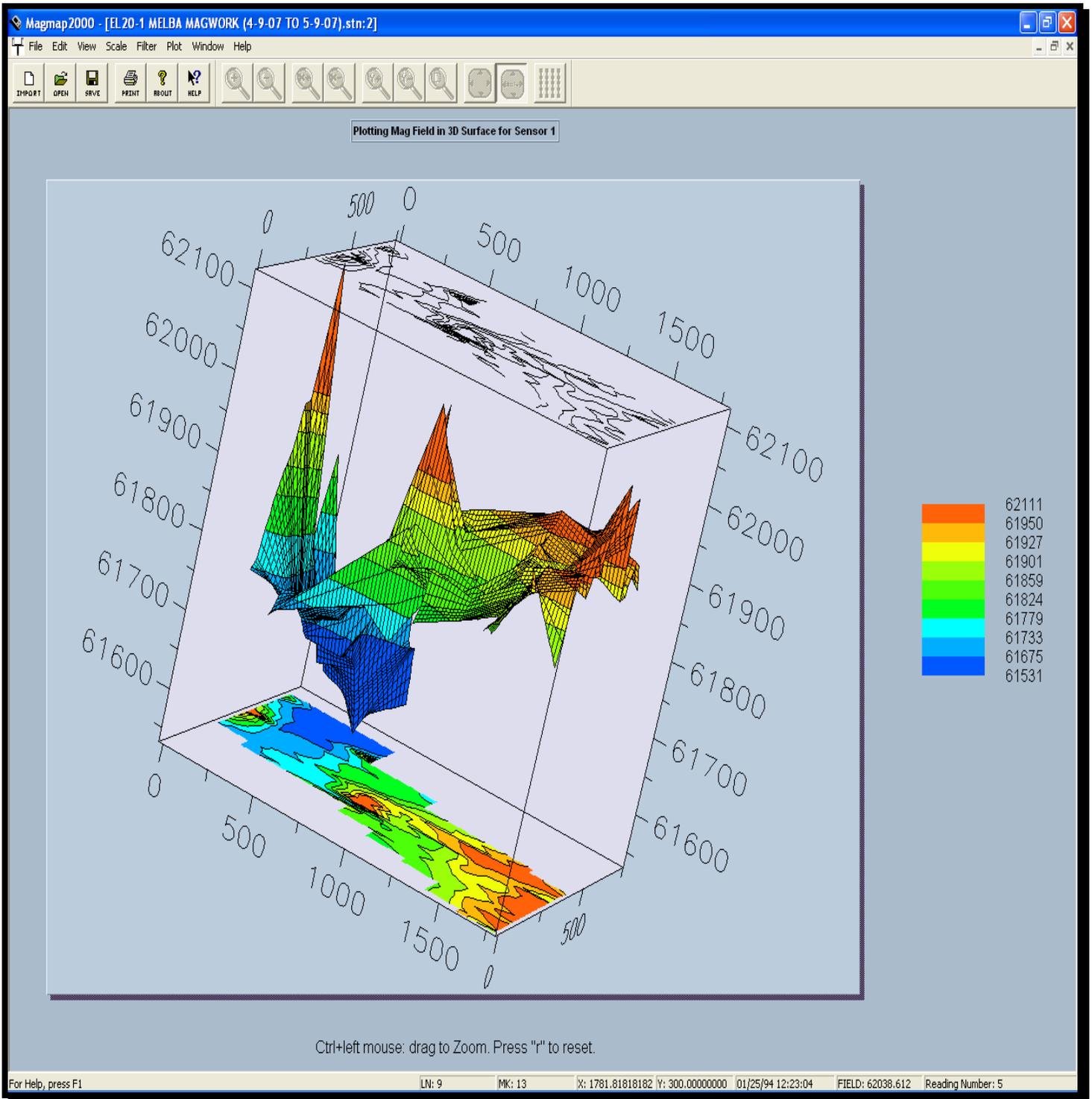
Magnetic survey results showing the grid walked and the position of each reading taken.

The above diagram shows the way in which the grid was started and which direction the lines were followed. The grid was started in the bottom left corner. Green boxes represent the directional start of the line and the red boxes represent the end of the line. The smaller blue boxes represent each position a reading was taken, every 25 meters apart. As can be seen from the above grid, because of the dense terrain and the inaccessible areas, the lines followed no particular direction pattern and made for an irregular rectangle shape which makes interpreting the data a little more challenging.



Magnetic intensity results shown in 2 dimensions.

As can be seen from the above 2D plot of the magnetic survey it is very incomplete due to the design of the grid. There is still a few distinguishable features especially to the bottom right where the only old time nickel occurrences occurred. With hope in the future this survey and grid could be completed and extended further west which might substantiate better results and a clearer picture. It should also be noted that the intensities were not as high or as low as the intensities found at Tenth Legion, but more contained in the 61000 and 62000 range.



Magnetic intensities results shown in 3 Dimensions for Melba Flats.

From the above 3D mag plot there was one major anomaly to the far left and two medium anomalies to the right. From walking the grid it was observed that there was a lot of ironstone and magnetite concentrated to the middle, and a few Owen conglomerate outcrops towards the middle right of the grid. But towards the right of the grid the terrain was open and not much to report (from a fieldys point of view).

Melba Flats magnetic readings:

Line	Reading ID	Reading	Line	Reading ID	Reading
A	1	61731	B	1	61623
A	2	61743	B	2	61591
A	3	61800	B	3	61615
A	4	61840	B	4	61606
A	5	61877	B	5	61643
A	6	61934	B	6	61670
A	7	61939	B	7	61657
A	8	62111	B	8	61648
A	9	61904	B	9	61659
A	10	61897	B	10	61678
A	11	61788	B	11	61690
A	12	61777	B	12	61698
A	13	61781	B	13	61708
A	14	61722	B	14	61709
A	15	61702	B	15	61706
A	16	61852	B	16	61727
A	17	61738	B	17	61707
			B	18	61699

Table showing magnetometer readings for line A and B.

Line	Reading ID	Reading	Line	Reading ID	Reading
C	1	61531	D	1	61594
C	2	61572	D	2	61672
C	3	61589	D	3	61675
C	4	61623	D	4	61688
C	5	61637	D	5	61780
C	6	61675	D	6	61995
C	7	61647	D	7	61806
C	8	61648	D	8	61791
C	9	61720	D	9	61770
C	10	61700	D	10	61798
C	11	61706	D	11	61818
C	12	61716	D	12	61792
C	13	61737	D	13	61787
C	14	61727	D	14	61841
C	15	61763	D	15	61753
C	16	61745	D	16	61768
C	17	61764	D	17	61764

Table showing magnetometer readings for line C and D.

Line	Reading ID	Reading	Line	Reading ID	Reading
E	1		F	1	
E	2		F	2	
E	3		F	3	
E	4		F	4	
E	5		F	5	
E	6		F	6	
E	7		F	7	
E	8		F	8	
E	9		F	9	
E	10		F	10	
E	11		F	11	
			F		