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Division of Geological & Geophysical Surveys

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PROJECT REPORT OF A HIGH RESOLUTION AEROMAGNETIC SURVEY OF LOWER YUKON DELTA ALASKA CONTAINING INTERPRETATION MAP

by

Alaska Geological Survey

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LIST OF MAPS

The survey data are presented on a single map sheet at 1:125,000. The stacked profiles are produced with one line per sheet. The map product list is as follows:

Black Line Maps (1 mylar of each)

1) Total Field Magnetics Contours; screened topographic base map plus flight lines annotated with flight and line number plus total field magnetic contours (3 copies).

2) Flight Path; screened topographic base map plus flight lines, flight number, manual fiducials and time (3 copies).

3) Interpretation Maps; showing basement depth contours, structural axes, faults, boundaries of intrusive/volcanic bodies, depth determinations to the basement surface, etc. (2 copies).

4) Stacked Profile Maps; presented on a line by line basis showing total field magnetics (coarse and fine scales), powerline monitor, calculated 4th difference, radar, barometric and GPS altimeters (3 copies).

Colour Maps (4 copies)

1) Total Field Magnetics Colour Contour Maps; with township and section grids and township/range notations and latitude/longitude notations on borders of map.

2) Total Field Magnetics Colour Shadow Map; with township and section grids and township/range notations and latitude/longitude notations on borders of map.

TECHNICAL REPORT
ON A HIGH RESOLUTION AEROMAGNETIC SURVEY

LOWER YUKON DELTA, ALASKA

1. INTRODUCTION

This report describes a fixed wing geophysical survey carried out on behalf of Zonge Engineering and Research Organization for the Department of Natural Resources, Division of the Geological & Geophysical Surveys, of the State of Alaska by Aerodat Inc. The principal geophysical sensor was a stinger mounted high sensitivity cesium vapour magnetometer with automatic digital compensation. Ancillary equipment included a GPS navigation system with a ground station for differential corrections, a colour video tracking camera, a base station magnetometer, an RMS AADC-4 automatic compensator, and an RMS DAS-8 digital acquisition system recording data from radar and barometric altimeters.

The survey area covers some 2,872 square miles. Traverse and tie line spacings were 0.5 and 5 miles respectively. The traverse lines were flown N 60° W. Total coverage within the survey boundary was 6,430 line miles (5,812 miles traverse lines plus 618 miles tie lines). The survey was flown in the period September 29 to November 20, 1995. The Aerodat job number is J95120.

The survey results are presented in a series of black line and colour maps at a scale of 1:125,000, on one map sheet. Map types include total magnetic field and shadowed total field magnetics.

This report described the survey, personnel, instrumentation and methods and the data processing and presentation.

2. SURVEY AREA AND SPECIFICATIONS

The survey area is shown in the location map - see figure 1. The area is defined by the following corners

1: 62° 30' 7.5" N - 165° 21' 9.5 W
2: 62° 10' 1.7" N - 164° 4' 28.5" W
3: 63° 00' 46" N - 164° 57' 45" W
4: 63° 21' 42" N - 164° 19' 25" W

The area is centered over the Kwikluak Pass portion of the Yukon River. Most of the area is relatively flat with elevations of 5 to 50 feet. The Ungulungwak Hill on the southern most corner of the grid has a peak of 370 feet. Maximum dimensions of the survey area are 75 km north - south and 67 km east - west.

The survey area is centered at approximately -164 15° west, 62° 45 north. At this location and for an elevation of 25 feet and a 1995.8 date, the geomagnetic field has the following characteristics.

Nominal total field: 58,980 nT
Inclination: 73.1°
Declination: magnetic north is 15.9° east of geographic north
Latitude gradient: 5.03 nT/mi to the south
Longitude gradient: 3.2 nT/mi to the east

The IGRF change over the survey area is therefore 377 nT - north/south and 219 nT - east/west.

Specifications

Flying

Traverse line spacing	: 0.5 miles
Traverse line direction	: N 60° W
Tie line spacing	: 5 miles
Tie line direction	: N 30° E
Mean sensor clearance	: 300 feet
Nominal aircraft speed	: 100 knots
Sampling interval (magnetics)	: 0.1 second

Calibration

A lag test and figure of merit (FOM) flight was performed. The results of these tests are given in Appendix 1.

Performance

Magnetometer noise levels will be less than 0.1 nT as measured on the fourth difference channel.

Flight path lines will not deviate by more than 500 feet over 0.5 mile.

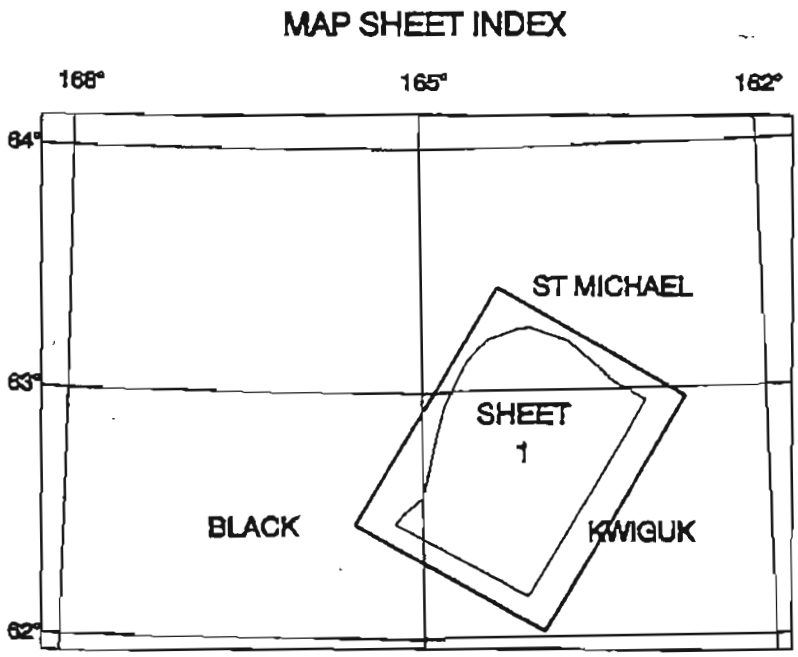


Figure 1: Sheet Index Map

Fixed Wing Aeromagnetic Survey
Lower Yukon Delta, Alaska

J95.120

LOCATION INDEX

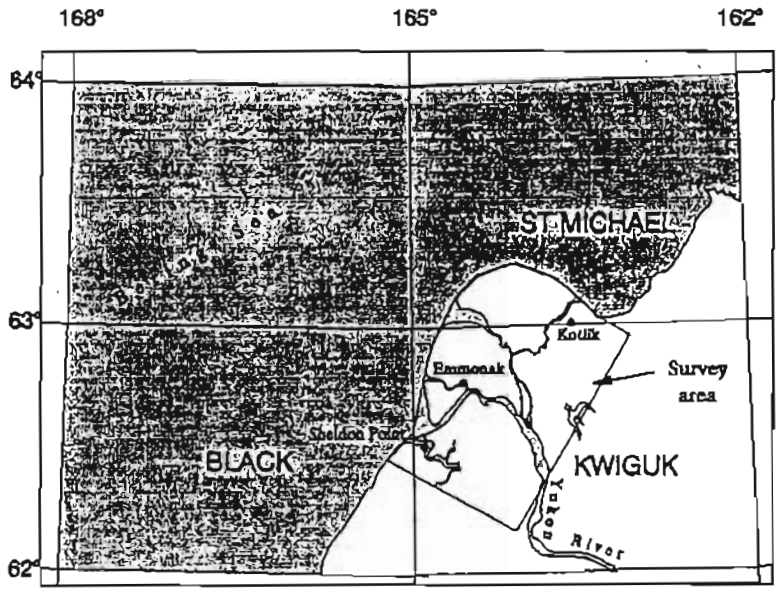


Figure 1: Location Map

Fixed Wing Aeromagnetic Survey
Lower Yukon Delta, Alaska

3. PERSONNEL

The following Aerodat personnel were involved in the project:

Field Personnel:

Operator:	Louis Neilson
Pilot:	Merv Cowan
Pilot:	Michel Roy
Technician:	Jim Bursey
Processing:	Peter Rudin

Office Personnel:

Data Processing:	George McDonald
Data Processing:	Diana Bradley

Interpretation: Timothy Eby

4. SURVEY PROCEDURES

The geophysical equipment, including the tail stinger, was installed by Aerodat personnel. Following installation and system checkout, the aircraft was mobilized to the survey area. Initial flights were used to set up the automatic digital compensator. Magnetic compensation was done using pitch, roll and yaw manoeuvres while flying well outside of ground affects.

The survey was flown during the period September 29 to November 20, 1995. Twenty-one flights were needed to complete the area. The production log is included in Appendix 2.

Navigation was assisted by a GPS system which provided guidance to the pilot over the survey grid. The raw GPS coordinates are fed into the PNAV 2001 navigation system as WGS - 84 latitude and longitude. The PNAV converts position in real time to UTM coordinates of the local geodetic system based on the Clarke 1866 Ellipsoid. Given the area limits and the flight line direction, the PNAV generates steering and start and end of line indicators for the pilot.

4.1 Survey Instrumentation

4.1.1 Aircraft

Twin engine Aero Commander, registration number C-GISS, modified and registered for airborne geophysical survey operations, equipped with a cesium vapour, high sensitivity magnetometer, a GPS navigation system, radar and barometric altimeter installations and a 60 Hz power line monitor.

4.1.2 Magnetometer

Scintrex H8, Cesium vapour split beam high sensitivity magnetometer in a tail stinger installation. The magnetometer in-flight sensitivity is better than 0.005 nT. The static resolution is 0.001 nT. The total system noise (including aircraft) is less than 0.2 nT. The data sample interval was 10 Hz (0.1 second or approximately 16 to 20 feet at average aircraft speeds of 100 to 120 knots). Automatic digital compensation was accomplished through the use of an RMS AADC unit yielding an 18 to 30 term digital signal correction based on the vector field components and their derivatives as measured by a 3-axis fluxgate sensor.

4.1.3 Altimeter (Radar)

The King altimeter has a range of 2,000 - 2,500 feet with a relative accuracy of ± 5% in the range of 100 to 500 feet. Digital resolution is approximately 1.0 feet; digital (5 Hz) and analog recording.

4.1.4 Altimeter (Barometric)

Rosemount 1241M barometric transducer, with an accuracy of ± 7 feet. Digital resolution is approximately 0.6 feet; electronic drift less than 10 feet per hour; digital (5 Hz) and analog recording.

4.1.5 GPS Navigation System

PNAV 2001 real time navigation system and Magnavox 9212 airborne GPS receiver were used for the survey. The receiver is equipped with special navigation software provided by the manufacturer. A Navigational Display Unit (a second PNAV NDU) is included that supplies continuous information to the pilot during the flight and allows multiple way points to be entered. The single point GPS latitude, longitude and altitude positions and UTC time code were logged directly on the primary RMS and the secondary backup recording systems every second. GPS data were also recorded using a Magnavox 9212 receiver at the reference station on the ground at the aircraft's base of operations for differential post-flight processing using Nortech HPM software.

4.1.6 60 Hz Power Line Monitor

The 60 Hz power line monitor unit consists of a horizontal axis antenna coil, a pre-amplifier and a signal processor. The system sensitivity is approximately 10^6 A/m at 60 Hz.

4.1.7 Video Camera

An airborne VHS video recording system was provided to recover topographic points of reference and line crossings where necessary. The video tape is annotated with time fiducials that are related to the other digitally recorded data. The video system included the following:

a. Lightweight, solid state, colour video camera, SONY DXC 101 complete with wide angle lens.

b. Video annotation subsystem within the data acquisition system to combine geophysical timing markings on flight path images.

c. Video monitor / recorder for verification of camera operation by airborne personnel, Panasonic AG2400 recorder and SONY DXF40 monitor.

4.1.8 Airborne Recording System

All airborne sensor data were recorded using an RMS DAS-8 data logging system. This is a PC-based digital logging system with appropriate interfaces for recording output from analog devices. Digital recording included both the raw and compensated total magnetic intensity, 60 Hz power line monitor, radar and barometric altimeters, and the raw GPS positions and time. Data are recorded digitally onto an 8 mm tape cartridge.

4.1.9 Base Station Magnetometer

Scintrex H8 high-sensitivity Cesium vapour magnetometer with digital / analog recording for the monitoring of daily magnetic variations during the survey operations. The base station magnetometer sensor was installed at the aircraft base in a magnetically clean environment away from any source of electromagnetic interferences or excessive magnetic gradients. Time of day is synchronized with the airborne data system to within one (1) second.

4.1.10 Ground Based Processing Equipment

The ground processing system used in the field consisted of a DEC Microvax 3100 computer, a DEC VT220 terminal and a 486 - 66 computer connected via Ethernet

links. A full suite of software necessary for infield processing was included. Other peripherals included a Calcomp 24 inch plotter, two 1 Gbyte disk drives and a 4 mm streamer tape data archive unit.

5. ACQUISITION AND COMPILATION

5.1 Data Acquisition and Compilation Flowchart

The procedures follow those outlined in the Flow Chart attached to this report as Figure 2.

5.2 Criteria for Acceptance / Rejection of Data

The data was assessed on a daily basis during the data acquisition phase of the survey. Reflights were called for when required by applying the criteria listed in the table below:

TYPE OF DATA	REFLIGHTS CALLED FOR IF
All Parameters Recorded	if missing or incorrect
GEOPHYSICS	
Airborne Magnetics	4th difference $\geq$ 0.1 nT
Diurnal Base Station Magnetics	variation > 2 nT over a long chord of length 4.828 km.
FLYING	
GPS	no differential corrections and no doppler
GPS and doppler	visual confirmation > 50 metres away from GPS/Doppler
Line Spacing	0.5 km. > spacing > 2.4 km.

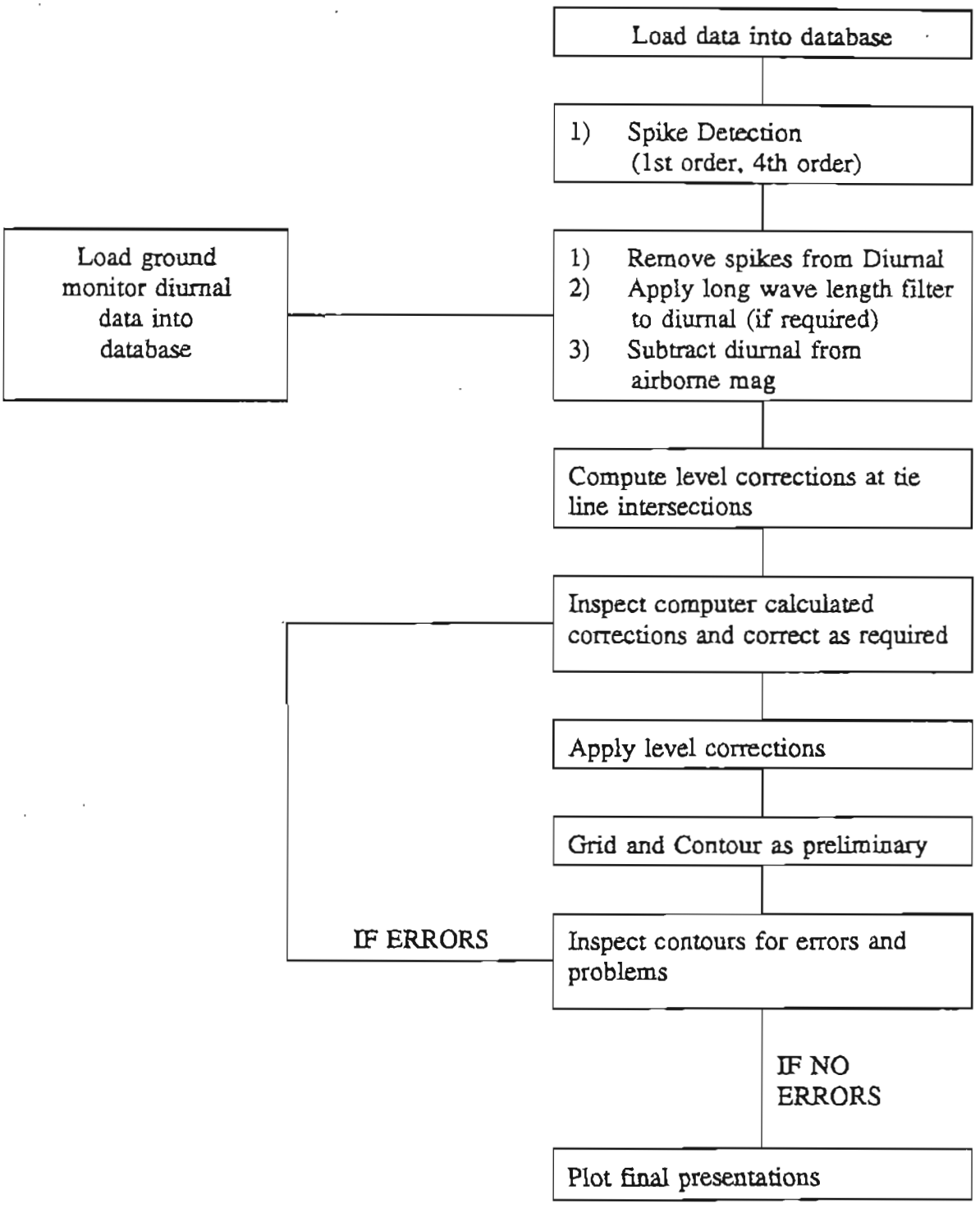


Figure 2: Magnetic Data Processing Chart

5.3 Mathematical Basis of Levelling and Gridding Algorithms

5.3.1 Network Levelling

Two assumptions are made in performing the magnetic levelling, 1) the diurnal variation over a survey area is considered to be constant at any point in time provided the observed variation at magnetic base stations is not large, and 2) the absolute magnetic value at any point in the survey area is considered to be constant.

The measured magnetic value (Ms) at any survey point can be described as

$$Ms = Ma + (Md + Mm) + R$$
$$= Ma + MD + R$$

Ms = Magnetic Survey Value
Ma = Magnetic Absolute Value
Md = Magnetic diurnal Component
Mm = Magnetic Micropulsations
MD = Sum of diurnal and micro pulsation variations
R = Residual Systematic errors (tend to zero once corrected)

The first order variation of the diurnal with time is slow, and hence over a short period of time is assumed to be essentially constant. This leads to a diurnal DC adjustment described as

$$DC = mean\ (MD)$$

The variation of the diurnal over a long time period, such as weeks and months will be random. This implies that the mean of the diurnal values over a long period tends toward zero.

Examining data at the intersection points of traverse and control lines will show a difference described by

$$CTd = Control(Ms) - Traverse(Ms)$$
$$= (Control(Ma)+Control(MD)+Control(R)) - Traverse(Ma)+Traverse(MD)+Traverse(R))$$

Control line and traverse line absolute values are equal, hence

$$CTd = (Control(MD) - Traverse(MD)\ ) + (Control(R)-Traverse(R))$$

The residual errors tend to zero once all systematic corrections are made, hence the mean of the differences along a control line is given by

MCTd = mean(Control(MD)) - mean(Traverse(MD))

The traverse lines will be acquired over a long period of time , whereas the control line measurements were made over a relatively short period. This implies that the second mean tends to zero , and the mean of the differences over a control line is the DC adjustment for that line. The accuracy of the assumption will increase as the number of traverse lines increases, and the period of time of acquisition of control line data decreases.

The first part of the levelling process is to remove the largest part of the diurnal component (DC) from every line. The process starts with a line by line examination of the intersection differences along each control line. The DC shift to be applied to each control line is determined from the mean of the intersection differences to shift the control lines to the traverse lines. The larger number of traverse lines provides a better statistical estimate of this shift than processing the traverse lines first. Once the DC shift has been applied to the control lines, the statistical error in these lines has been reduced, and these lines provide the basis for calculating a shift for each traverse line. This process is iterated 50 times in order to produce the best statistical error for each survey line.

Large errors can occur in areas of high horizontal magnetic gradient, or large altitude misties. These intersections will be disregarded in the calculation of the levelling network. Optionally, the intersections can be weighted in the calculation by observing the horizontal gradient, (or altitude mistie). Intersections with low horizontal gradient (.01 nT/m) and small altitude mistie (5 m - 10 m) will receive more weight in the calculations.

The network levelling adjustment has now minimized the Control line - Traverse line intersection errors. The adjustment is a simple DC shift value for each line. This network is now examined to determine if there are any misclosures that can not be attributed to the non-linear component of the diurnal variation as determined by the survey specifications and the magnetic base station. Any questionable intersections are examined, with attention to positioning, and altitude variation. Corrections to the intersections are made by making a small positional correction, and in appropriate conditions an altitude correction can be made based on the calculated vertical magnetic gradient.

Once all of the network intersection values have been examined , corrected, and approved, the residuals remaining in the network are the non linear corrections to apply to the data set to bring the control line - traverse line intersection differences

to zero. The remaining observed field is the absolute magnetic value at the point of intersection. The total correction applied to each intersection is

Correction = DC + (residual after iteration)

Values between intersection points are linearly interpolated on a time basis.

5.3.2 Gridding Algorithm

Aerodat's gridding is designed to create a uniform two dimensional matrix of grid nodes representing a surface that statistically matches the primary sampled data values to a best approximation. Two rules that are adhered to are as follows:

1) the two dimensional matrix of gridded "Z" values is equally spaced in both directions (i.e. the final grid cell size in X is equal to the final grid cell size in Y)

2) the rows and columns are oriented in a true north-south east-west direction such that the rows are parallel to the X (east) axis and the columns are parallel to the Y (north axis)

Three interpolation options exist to interpolate the data along and across the primary data flight lines as follows:

1) linear interpolation
2) cubic spline interpolation
3) Akima spline interpolation

The actual gridding process can have several stages of data interpolation and this will vary depending on the number of assigned gridding angles and gridding windows that are input. Each "window" of data is individually gridded by itself at the assigned grid angle and each of the resulting gridded datasets is then resampled in the final north-south east-west reference frame prior to performing the last interpolation process. This final interpolation process is performed along each of the final grid rows of the grid.

For example, assume that the traverse line data for an aeromagnetic survey was collected at an azimuth of north 64 degrees east with an average flight line spacing of 1600 metres. The tie or control line data would have been flown at right angles to this (i.e. north 26 degrees west). Also, for this explanation, the following assumptions will exist:

a) assume that both the tie or control line data lines and the traverse lines are used in the gridding process

b) assume that the final grid cell size is 250 metres

c) assume that a grid origin of 327,500 m east and 6,540,000 m north has been selected (this means that the final two dimensional grid matrix will have grid node (1,1) positioned at this location)

d) assume that Akima's spline is used for curve fitting along and across the primary flight lines of data

e) assume a "blend" value of 500 metres is used

The "blending" option provides a method of gradually reducing the differences between Z values on the flight lines as the lines get closer together. If the theoretical flight line spacing is 1600 metres and two flight lines cross, the Z values at the crossing point will be forced to be the same. When the lines are 250 metres apart (1/2 of the blend distance parameter), the Z values will be adjusted towards each other by 25% of the difference between them. At 375 metres (3/4 of the blend distance parameter), the Z values will be adjusted towards each other by 12.5% and at 500 metres there will be 0% adjustment.

f) assume a "span" limit of 3000 metres (This span parameter defines the maximum distance allowed for interpolation across the primary lines of data)

For this example, the following stages of interpolation occur in the gridding process:

1) **Primary Y-row intersection extractions**

The primary dataset of traverse lines and the tie lines has a sampling rate of 10 times per second (approximately 7 metres). These traverse lines and tie lines (in their existing orientation) are read into memory, fitted with the Akima spline function and then sampled at intervals corresponding to the Y-rows of the final grid (i.e. every location where the primary flight lines cross every Y-row of the final grid). Therefore, all intersections of the Y-row location of 6,540,000 with each traverse and tie line is determined and these XYZ values (X position, Y-row location and Z value) are temporarily stored in "bucket 1". Thereafter, all intersections of the Y-row location of 6,540,250 with each flight line is determined (etc. etc.) and these XYZ locations are added to bucket 1. The blending parameter is also considered in this stage of interpolation - especially in regions where the tie and traverse lines cross each other. The accompanying Diagram 1 demonstrates the Y-rows (heavy lines) and the flight line positions (fine

lines) and the intersections of these (dots) represent the XYZ points that are retained and stored in "bucket 1".

2) Secondary traverse line processing

The primary traverse line data (sampled at 10 times per second or about 7 metres) is then rotated counter-clockwise by 64 degrees such that the flight lines are essentially in a north-south direction. Akima's spline is then fit to each traverse line of primary data and from the fitted spline curve, the primary data is resampled at 1/2 the final grid cell density (i.e. 125 metres). All resampled flight line data points (at 125 metre intervals) are then sorted on increasing Y (columns). Once the Akima curve fitting, resampling to 125 metres and sorting is completed for all flight lines, Akima's spline is used to fit a curve across the flight lines (i.e. along rows) and each row of data is again sampled at 1/2 the grid cell density (125 metres). Essentially, the traverse lines by themselves have been rotated such that the flight lines parallel the Y axis and then the data has been interpolated along and across the primary flight lines to create a uniform 125 metre grid in this XY reference frame. This is a temporary grid of information stored in memory.

The final "rows" of this temporary grid are then assigned XY locations from this known rotated XY reference frame and each row is treated as a pseudo-flight line of data (which is orthogonal to the original flight lines). These pseudo-flight lines are 125 metres apart and have along line sampling of 125 metres. The pseudo-flight lines of data are then rotated back to the original XY reference frame (i.e. a clockwise rotation of 64 degrees) and then sampled along the Y-rows corresponding to the Y-rows of the final grid (similar to the sampling described in the preceding Section 1. Therefore, all intersections of the Y-row location of 6,540,000 with each pseudo-traverse is determined and these intersections (X position, Y-row location and Z value) are temporarily stored in "bucket 2". Thereafter, all intersections of the Y-row location of 6,540,250 with each pseudo-traverse is determined (etc. etc.) and these XYZ locations are added to bucket 2.

The accompanying Diagram 2 demonstrates how these pseudo-traverse lines (fine lines) intersect with the final Y-rows of the final grid (heavy lines).

3) Secondary tie line processing

The tie line data is now treated in s similar fashion as described for the traverse lines in the preceding Section 2.

The primary tie line data (sampled at 10 times per second) is rotated clockwise by 26 degrees such that all tie lines are essentially in a north-south direction. Akima's spline is then fit to each tie line of primary data and from this spline curve, the primary data is resampled at 1/2 the final grid cell density (i.e. 125 metres). Once all lines are resampled to 125 metre intervals, Akima's spline is used to fit a curve across the flight lines and each row of data is again sampled at 1/2 the grid cell density (125 metres). Essentially, the tie lines by themselves have been rotated such that the flight lines parallel the Y axis and then the data has been interpolated along and across the primary tie lines to create a uniform 125 metre grid in this XY reference frame.

The final "rows" are then assigned XY locations from this known rotated XY reference frame and each row is treated as a pseudo-tie line of data (which is orthogonal to the original tie lines). These pseudo-tie lines are then rotated back to the original XY reference frame (i.e. a counter-clockwise rotation of 26 degrees) and then sampled along the Y-rows corresponding to the Y-rows of the final grid. Therefore, all intersections of the Y-row location of 6,540,000 with each pseudo-tie is determined and these intersections (X position, Y-row location and Z value) are temporarily stored in "bucket 3". Thereafter, all intersections of the Y-row location of 6,540,250 with each pseudo-tie is determined (etc. etc.) and these XYZ locations are added to bucket 3.

NOTE: <u>For this example</u>, the process of gridding the tie lines by themselves will NOT add any information to bucket 3 simply because the spacing between the tie lines is greater than the span parameter of 3000 metres. Therefore, even though the gridding program performs the operations of trying to grid the tie lines, the resulting grid will be a null grid. This will therefore not add any XYZ data values to "bucket 3". In other surveys where the tie lines are closer or when the survey is conducted as a true bi-directional survey, this stage of the gridding <u>will</u> add XYZ data to "bucket 3".

4) Final Y-row interpolation

At this point, all the information from all "buckets" is retrieved into memory and sorted on the basis of Y-row location. Within each Y-row of data, the XYZ information is also sorted on increasing X positions. Akima's spline is then fit to each Y-row of data and this curve is sampled at the final grid cell density of 250 metres. This final interpolation creates the two-dimensional matrix grid at a grid cell density of 250 metres in both the north-south and the east-west direction.

A considerable benefit of the above gridding process is the capability to introduce biased grid trending in different regions of the dataset based on known geology. To use this option, a window is defined that delineates the region in question where specific grid trending is required and the grid trend angle is also specified. The data within this window is then temporarily gridded at the trend angle and pseudo lines of data are then introduced into stage 4 as above. Multiple windows with multiple grid trend angles can also be input.

The heavy lines represent the positions of the Y-rows as they will exist in the final grid. The fine lines represent the flight line positions of the primary data (tie lines and traverse lines). The dots represent the XYZ points (intersections of the Y-rows and all flight lines) that are retained and stored in "bucket 1".

The heavy lines represent the positions of the Y-rows as they will exist in the final grid. The fine lines represent the positions of the pseudo-traverse lines that have been created by gridding the traverse line data at right angles to the traverse line direction. The XYZ values at the intersection of these two are retained and stored in "bucket 2".

5.4 Levelling Network Intersection File

The levelling network intersection file is given in Appendix 3.

5.5 Compilation Personnel

Data verification, GPS differential processing and preliminary flight path generation were carried out in the field. The remainder of the processing of the data was conducted at Aerodat's Head Office in Mississauga, Ontario. The personnel involved were:

OFFICE	PROCESSOR
Office	D. Bradley / G. McDonald
Field	P. Rudin

5.6 Survey Difficulties and Efficiency

A summary log detailing survey down time and causes is given in Appendix 2. The chart summarizes total survey time, breaking it down into categories of problem type, mobilization time, survey time, test time and time down due to poor weather.

Poor weather was the most significant contributor to survey down time (35% of total survey days). An additional 25% of total survey days was occupied by aircraft problems. The primary difficulty here was damage to the propeller while landing on the soft gravel runway in Nome. It is clear that without these two difficulties alone survey time could have been vastly improved.

6. INTERPRETATION

Aeromagnetic data collected over the lower Yukon Delta area of Alaska by AERODAT was interpreted by T. Eby during February of 1996. Digital magnetic data, presented both as a color total magnetic intensity map, and as a shadow graph, formed the basis of the interpretation. The digital data along all traverse lines was processed using Werner deconvolution as the primary interpretation tool. Selected anomalies on every tenth flight line were examined by applying Vacquier, et al, (1951) slope depth estimation procedure as a control when selecting processing parameters. Basement structural features were delineated from the shadow graph of the total magnetic intensity data. A suite of strike limited theoretical magnetic models was calculated using the parameters of the ambient geomagnetic field in the area. These models were used as a guide in evaluating the accuracy and significance of Werner depth estimates on strike limited magnetic features.

6.1 Area Geology

Geological information for the survey area, available at the time of the interpretation included The Geologic Map of the St. Michael Quadrangle, Alaska and The Geologic Map of the Kwiguk and Black Quadrangles, Western Alaska. Both maps were by J. M. Hoare and W. H. Condon 1971 and 1966 respectively. The latter map covers most of the survey area. Discussions of these maps by their compilers and published by The Department of the Interior, United States Geological Survey was also available. In addition, a paper presented by Patton, William W. Jr. and Hoare, Joseph M. titled The Kaltag Fault, West-Central Alaska aided in understanding the regional setting of the area.

Hoare and Condon describe the country rock in the St Michael quadrangle as: "Rocks exposed in the quadrangle consist of deformed and altered volcanic rocks of probable Jurassic and Early Cretaceous age, a younger group of deformed sedimentary rocks of Cretaceous age, intrusive igneous rocks of Late Cretaceous or early Tertiary age, and a younger group of basalt flows and cones of Quaternary age. The rocks are overlain by a variety of unconsolidated surficial deposits."

These authors have inferred that the Kaltag Fault may intersect the survey area in the extreme north west corner.

The authors describe the Kwiguk and Black Quadrangles in generally similar terms as quoted above. They also point out that: "The major structural feature is a northeast-trending belt of intensely folded Mesozoic sedimentary rock cut by two sets of faults." Within this belt, they have mapped northeast trending, and faulted, Upper Cretaceous age, intrusive rhyodacite and dacite and state that it forms mostly dikes and large sill-like bodies. Similar rocks are mapped near the south central boundary of these quadrangles, in the Kuzilvak Mountains.

We can expect that nearly all of the volcanic rocks within the survey area will have a pronounced magnetic signature. As a result, there will be some ambiguity about the geologic horizon that is mapped as "magnetic basement". In particular, we expect to see strong magnetic response from rocks varying in age from Late Jurassic to Quaternary. It is likely, that the "basement" mapped in this interpretation is associated with a Jurassic age, or younger, horizon suggesting that there may be considerable Triassic and Paleozoic sedimentary section beneath the "basement".

An east-west section across the survey area may bear some similarity to Brown and Fisher (1977) model of submarine fan reservoirs illustrated in their figure 70, B, illustrated here as figure 6.1.1 taken from their 1977 paper of Brazilian "pull-apart basins", or to the section model of figure 47, C, after Emery (1970) and presented here as figure 6.1.2. In either model, the best reservoirs, according to Brown and Fisher, would probably be in on-lap and fault controlled up-lap facies.

6.2 Presentation Scales

The interpretation is presented at the same scale as the total magnetic intensity and shadow graph maps, i.e., 1:125,000. However, during the interpretation process, work maps were produced at 1:250,000 to permit convenient correlation with the published geology.

6.2.1 Discussion of the Total Magnetic Intensity Map

Total magnetic intensity values within the survey area vary from about 54,000 nT in the north west to over 56,500 nT within the magnetically active areas. Intensities of less than 54,900 nT are more typical of most of the area.

The most prominent anomalous trend in the area is north-east, paralleling the trend of the Mesozoic sedimentary formations described by Hoare and Condon in their discussion of the geology immediately east of the survey area. A north by north-east secondary trend is evident near the north west side of the area and a weaker suggestion of this trend may be present in the north east. Several local nearly east-west trends in the central portion of the map appear to be interrupt, and possibly offset, the more prominent north east trending magnetic lineations.

In the north eastern corner of the area, two or perhaps three, nearly circular anomalies suggest a volcanic plug like source. The large one appears to be about five kilometers in diameter and corresponds in size to the suite of theoretical model anomalies illustrated in Appendix 7.

The colored shadow graph suggest that north-west trending lineations may also be present, however, because this direction parallels the flight line direction, this

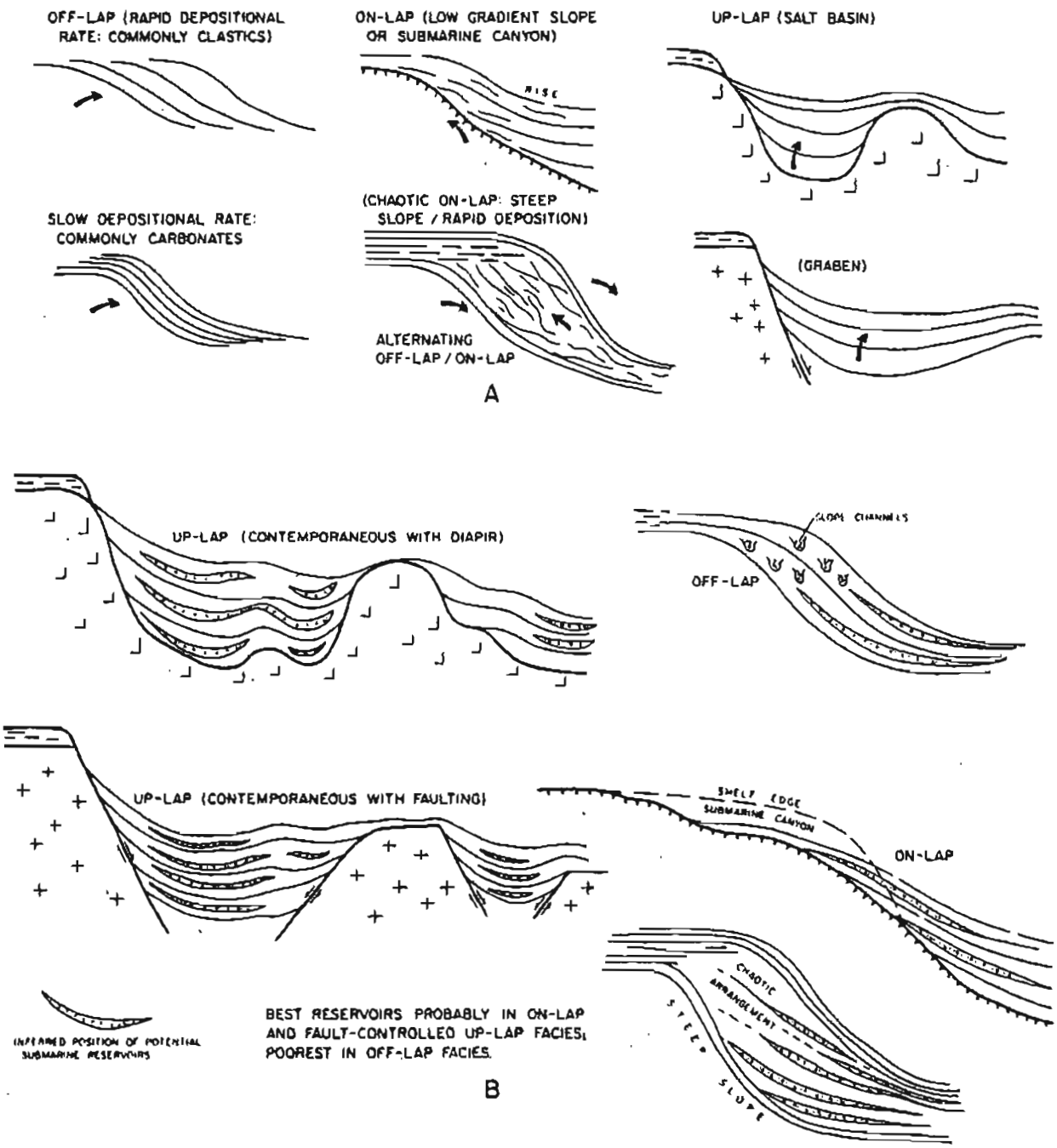


Figure 70. Seismic-stratigraphic slope reflection configurations and inferred distribution of submarine fan reservoirs. (A) Characteristic configurations and (B) inferred sand distribution. From Brown and Fisher (1977).

Figure 6.1.1

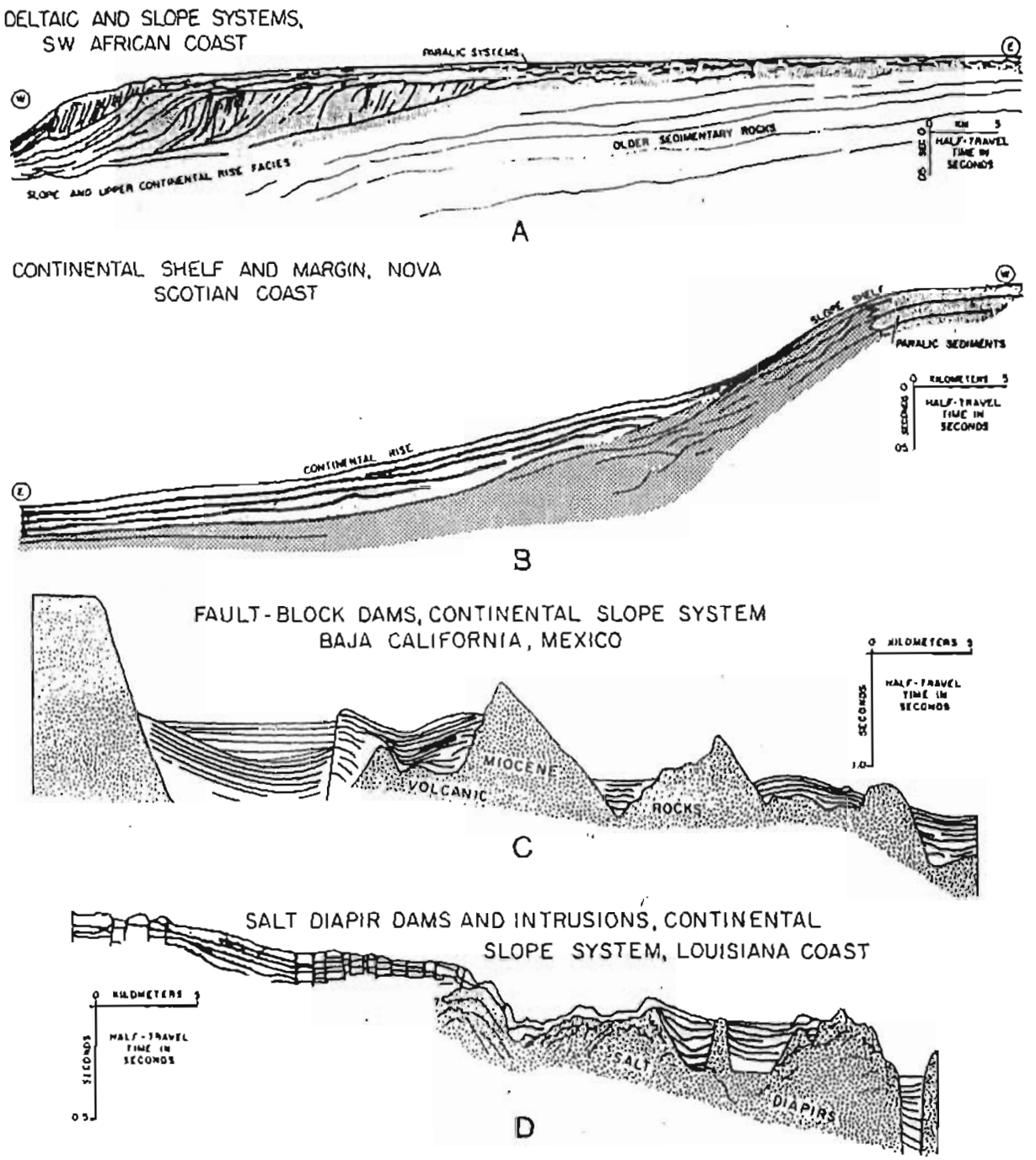


Figure 47. General nature of seismic reflectors that characterize several styles of deposition along some Holocene continental margins. (A) Complex reflector patterns within deltaic and slope systems along the southwestern African coast. After McMaster and others (1970). (B) Continental rise onlap along the Nova Scotian coast. After Uchupi and Emery (1967). (C) Fault basins containing superposed (uplap) slope deposits dammed behind fault blocks, Baja California, Mexico. After Emery (1970). (D) Slope deposits trapped within salt basins and behind salt ridges along the Louisiana coast, Gulf of Mexico. After Uchupi and Emery (1968).

Figure 6.1.2

trend is probably an artifact of a combination of very small residual levelling problems and the illumination angle emphasizing minor datum shifts between lines.

6.3 Interpretation Method

The primary objectives of this interpretation are to estimate the depth to the magnetic basement complex from the aeromagnetic field data and to outline major basement structural and lithologic features reflected in that data.

While depth to basement and basement structure and lithology are intimately inter-related, the interpretation methods used to calculate basement depths are inherently different from those used to glean structural and lithologic information from the data. Thus, for simplicity of discussion, these two components of the interpretation are discussed under separate headings.

In this interpretation, depth to basement calculated using Werner deconvolution was selected as the basis for the quantitative depth information. To insure that the various parameters were correctly tuned to the area, a few selected anomalies were analyzed using Vacqueir et al (1951) depth estimation method. The depth estimator employed for this check, was taken, directly, from a pre-existing suite of two dimensional models, calculated using Talwani et al (1959), illustrated in Appendix 6, for an area having a magnetic inclination of 72.5 degrees, compatible with the 73.1 degree inclination of the survey area. While these estimates were not used directly in the depth analysis, the posted Werner values at their positions were inspected to confirm that they were in approximate agreement with the older, and more subjective, estimation method.

6.3.1 Depth To Basement Interpretation

The primary basement depth estimation technique used in this interpretation was Werner deconvolution. First described by Werner (1953), this technique is an efficient method of calculating the physical properties, i.e., depth, dip and magnetization, associated with the sources of magnetic anomalies when these sources are assumed to be simple models. In particular, Werner assumes that the observed anomalies are caused by thin dikes.

The method also applies when the source is assumed to be an edge, i.e., a fault or lithologic contact, if the horizontal gradient of the magnetic field, in place of the residual field itself, is operated upon. A brief mathematical description of the method is presented in Appendix 7.

In this interpretation, Werner deconvolution was implemented using a computer program that is similar to that described by Jain (1976). The "depth penetration" of the process depends on the distance between the data samples operated upon,

i.e., the operator length. In general, the operator length should be at least of the order of the expected source depth.

Two sets of operators, one to target the low frequency component of the data, the second to target the higher frequencies, were chosen. The high frequency anomalies are expected to be associated with near surface, probably volcanic or glacial, (and erosional), erratic sources: the low frequencies should be associated with magnetic "basement". Four operator lengths were selected for the low frequency analysis, 1350 meters, 1800 meters, 2250 meters. and 2700 meters. Longer lengths were tried but yielded no estimates, indeed, even the 2700 meter operator yielded no valid depth estimates, suggesting a lower limit of less than 2700 meters to the depth to magnetic basement within the area.

The second suite of operators, targeted at the high frequency component of the data, had lengths of 90 meters, 180 meters, 240 meters and 480 meters. The 90 meter operator yielded no estimates of source depth.

The various operators are moved along the digital data and calculations are made at each data point; in this case at an interval of approximately every 15 meters. This procedure implies that, in the ideal case, a number of identical estimates would be made for each source; one estimate for each operator position while the operator is over the anomaly. In practice, the presence of random and coherent noise, superimposed sources, deviations of source characteristics from the model, and finite calculation accuracy results in some variation of the estimates with operator position. However, by grouping estimates that fall within a specified range; in this case 500 meters in horizontal position and +/- 5% in depth below the sensor, the number of estimates within this range can be used as a weighting factor when interpreting the significance of the calculated source parameters. During this interpretation, estimates of source parameters were accepted and written to an ASCII file for all sources having a weighting factor or "group number" of ten or greater for the deep component, and seven or greater for the shallow component. As well as source depth and magnetization, Werner deconvolution yields an estimate of source dip. Nearly horizontal source dips imply a horizontal interface. Such a geologic structure cannot give rise to a magnetic response! In this interpretation sources having dips between 10 degrees and 170 degrees were accepted. A portion of the ASCII file that results from this process is illustrated in Table 6.3.1.

The parameters illustrated for each record under the various column titles are as follows:

Line: The data line number being deconvolved. This number is shown as negative. During later interpretation and editing stages, the sign of the number is toggled to positive if the estimate is accepted.

ID #: An identification number uniquely identifying an estimate within a flight line.

Time: The time of measurement of the data point, in hours, minutes and seconds, associated with the estimates location.

#: The "group number" or weighting factor associated with the estimate.

Depth: The estimated depth, in meters below sensor, of the source.

Dip: The estimated dip, in degrees, of the source.

X: The Easting in meters of the source position.

Y: The Northing in meters of the source position.

Sus: The estimated magnetic susceptibility of the source.

Win: The length of the operator window convolved with the data for this source estimate.

Dist: The distance from the start of the flight line of the source.

Loop: The iteration number; i.e. the operator number.

The # parameter, or group number is displayed as a positive value if the estimate was made using total magnetic intensity data and as a negative value if the estimate is made from the horizontal magnetic gradient calculated from the total intensity data.

The final data sets, files basement.dep and shallow.dep do not contain the loop parameter but do contain X in inches and Y in inches measured at map scale from the U.T.M. point 560,000 meters easting and 6,900,000 meters northing.

It is appropriate here to emphasize that, because we are dealing with the analysis of time series using linear operators, physical considerations such as the Werner theory described in Appendix 7 are necessary but not sufficient. As is the case in seismic processing, we must also take full account of the probabilistic character of the data and rigorously apply statistical theories of time series analysis. The computer program used during this interpretation acknowledges this dual requirement by anti-aliasing the data using a Hanning operator to ensure statistical compatibility with the individual Werner operator coefficient separation before each pass of the operator.

The data set that results from Werner deconvolution requires considerable interpretation and editing. In this interpretation, the first edit pass was a mechanical operation. In the case of the "basement" data set, only estimates having depths greater than 200 meters below flight level were accepted. In addition, in cases where there were multiple estimates at the same location, and of the same type, i.e. total field or gradient, the estimate having the largest group number was accepted. The resulting edited data set was then posted at map scale, using a + symbol for total field estimates; i.e. the dike model, and a square for horizontal gradient (step model) estimates. Both the estimates unique identifier, and the depth to the source, were posted adjacent to the symbol.

Table 6.3.1: A Portion Of A Werner Deconvolution ASCII File

Line	ID#	Time	#	Depth	Dip	X	Y	Sus Win	Dist	Loop
-11110	1	21:29:15	9	173.	30.4	590466.300	6971359.000	.0836	270.	88421. 1
-11110	4	21:17:20	7	210.	170.3	551841.500	6992724.000	.0037	720.	34794. 2
-11110	5	21:18:24	8	218.	24.2	555364.200	6990764.000	.0050	720.	39596. 2
-11110	6	21:23:19	16	284.	104.7	571594.000	6981847.000	.0348	720.	61678. 2
-11110	7	21:25:05	7	277.	92.2	577338.700	6978637.000	.0091	720.	69670. 2
-11110	8	21:27:25	11	268.	170.3	584757.600	6974500.000	.0289	720.	80145. 2
-11110	9	21:28:06	8	287.	170.3	586837.000	6973231.000	.0873	720.	83197. 2
-11110	10	21:28:21	17	336.	170.3	587647.400	6972854.000	.3301	720.	84321. 2
-11110	11	21:28:34	9	249.	37.6	588374.100	6972533.000	.0759	720.	85330. 2
-11110	12	21:28:41	11	308.	170.3	588742.200	6972311.000	.4657	720.	85867. 2
-11110	13	21:29:04	9	221.	170.3	589897.700	6971635.000	.1647	720.	87594. 2
-11110	14	21:29:04	9	275.	170.3	589857.300	6971656.000	.5371	720.	87530. 2
-11110	16	21:14:26	-17	309.	168.7	542268.500	6998087.000	.0015	720.	21744. 2
-11110	17	21:14:57	-9	256.	44.6	543926.800	6997163.000	.0008	720.	24042. 2
-11110	18	21:15:05	-7	218.	39.7	544340.600	6996927.000	.0005	720.	24606. 2
-11110	19	21:16:14	-7	220.	131.7	548148.400	6994809.000	.0009	720.	29779. 2

The posted map was overlain on the total magnetic intensity contour map and each estimate was examined and accepted only if the following criteria were met.

1. An estimate was accepted only if the flight line in the region of the estimate intersected an anomaly where the contour pattern was linear, indicating that the assumption of an infinite third dimension was approximately correct.

2. Gradient solutions, squares, were preferred if the contour pattern suggested that the source had considerable horizontal extent. Total field solutions, crosses, were preferred if the contour pattern suggested that the source closely resembled a thin sheet or dike like body.

3. If an estimate appeared to be acceptable, the ASCII file records associated with that point and nearby points were inspected. Dips estimated from the

gradient and from the total field should be nearly perpendicular. Compliance with this condition upgrades an estimate.

4. Estimates were accepted only if the depth was consistent to within about +/- 10% with depths made on adjacent flight lines over the same source. In cases where adjacent estimates did not agree, the ASCII file was examined and the estimate having the highest group number was accepted.

5. In cases where there was a very large number of consistent depths in a small lateral interval, a representative depth was chosen, usually the estimate having the highest group number, was chosen as the control point for latter gridding and contouring.

Because the Werner method assumes infinite strike length of the source, a simple geometric cosine correction can be validly applied to estimates where flight line contour pattern intersections deviate from 90 degrees. However, in this case the vast majority of intersection deviations were less that 20 degrees, implying a correction factor of about 5%, well within the error bounds of the method in this area, therefore no correction was applied.

Friedberg (1975) points out that the depth for a circular anomaly, plug, is approximately 20% deeper than that calculated for the total field depth from Werner's infinite prism assumption. This correction was, approximately, applied by selected the deepest acceptable depths over circular features, in most cases this choice closely agreed with the 20% suggested by Friedberg.

On the final interpretation map, the location of basement depth control points is indicated by asterisks unaccompanied by actual depth values. The depth values are included in the ASCII data file and are indicated by the basement depth contours.

6.3.2 The Shallow Depth Estimates

A procedure similar to that described above was used to edit the shallow component estimates. In this case, only depth estimates less than 200 meters were accepted. Because it was judged unlikely that these estimates were associated with a continuous, or nearly continuous horizon, no attempt was made to contour the depth to shallow component. However, estimates interpreted as 'good' were posted on the depth to basement map using the + and square symbol described for the 'basement' depths. The widely scattered distribution of these sources suggests that most of them may be remnants of volcanic activity that have been further dispersed by erosional mechanisms.

The final depth data sets are included with this report within the interp.plt and .dxf files both for the magnetic basement component and the shallow component of the data. This data set included, only, the final edited estimates that were used to prepare the depth map included with this report, as a result, all line numbers are positive.

6.3.3 Basement Structure and Lithology

Because of the relatively shallow magnetic basement in this area, of the order of 500 meters or less, it was judged that little would be gained from elaborate filtering of the grid. Structural features are well defined in the shadow graph of the total magnetic intensity. The shadow graph can be thought of as a type of directional horizontal gradient and as such, must be used with some caution. Trends striking at near ninety degrees to the direction of illumination will be enhanced at the expense of trends striking in the direction of illumination. In this case, because the illumination angle was chosen as zero degrees in azimuth, north-south striking trends may be disguised. I note here, that Hoare and Condon have mapped some north-south striking faults to the west of the area.

However, in this interpretation, structural features were mapped based on the shadow graph of the total magnetic intensity, without any modification.

6.3.4 Theoretical Models

A suite of theoretical models based on an algorithm adapted from the Bhattacharya (Geophysics #29, v5,p814) vertical prism derivation, was calculated for octagonal shaped bodies intersected by several faults at burial depths that vary between 100 meters, simulating a plug with top at the surface, and 600 meters is presented in Appendix 8. These models may be useful in evaluating the two plug like intrusives interpreted in the north eastern part of the survey area.

6.4 Discussion Of The Interpretation

Because of the geologic evidence of Jurassic period and later volcanism within the survey area, I wish to emphasize that the horizon mapped in this interpretation as magnetic 'basement', may be associated with volcanic rocks within the sedimentary section, not the Precambrian basement.

Inspection of the interpretation map suggests that the area may be described as consisting of at least four, and perhaps five distinct sub-regions. The most prominent of these regions is the strong linear south-west to north-east trending lineation labelled 'Dike Swarm' on the interpretation map. To the east and south-east of this lineation, the magnetic field and the depths to the marker horizon appear to be relatively featureless, with the exception of two complex strongly

remnant anomalous region associated with the quaternary 'Ungulungwak basalts', expressed at the surface, in the extreme south-western corner of the area. The basement and shallow convergence of the Werner depth estimates over the Ungulungwak basalts suggest that they are very thick and may extend to great depth in a plug like formation. The magnetic inactivity within this area suggests that the sedimentary section here is considerably thicker than would be inferred from the depth to the magnetic basement derived from Werner deconvolution. A few very weakly expressed magnetic lineations parallel the "Dike Swarm" in this area.

The 'Dike Swarm' itself, suggests a major weakness zone that has experienced a number of periods of volcanic activity along it. Note that it is coincident with the possibly Jurassic period volcanics exposed at surface near the north-east corner of the map and the Quaternary basalts labelled the "Igoklik basalts". An extension of the trend to the north-east, suggests that it may also be associated with the large area of Quaternary basalts, mapped at the surface, north of the Nulato Hills. The surface expression of volcanics along this trend strongly suggests that the source of these magnetic lineations may approach the surface in some places along it.

The surface, geologically mapped, Igoklik basalts appear to be substantially different in geometry from the Ungungwak basalts. Both volcanic areas display strong magnetic remnance, being inversely magnetized from what would be expected from induction by the current geomagnetic field. However, as distinct from the Ungulungwak basalts, Werner deconvolution of the magnetic anomalies in the region of the Igoklik basalts results in a number of estimates clustering of the order of 500 metres below sensor level, and a second cluster shallower than 200 metres. Along with their relatively weaker magnetic response, this suggests that these basalts may be a thin, sill like, volcanic flow with it's origin in a stock located along the "Dike Swarm" lineation. Alternatively, it could be an un-eroded remnant from an originally much larger flow associated with the Ungulungwak basalts.

Immediately to the west of the "Dike swarm" a narrow relatively magnetically quiet zone is punctuated by two plug like features in the north east. These features, are labelled the "Pastolic Intrusive" and the "Hamilton Intrusive". The circular, plug like shape of these features attracts speculation that they my be buried equivalents of the Kuzilvak Mountain formation immediately south of the survey area. in summary, the 'Dike Swarm' weakness lineation has obviously been volcanically active, periodically, over a period of about the last sixty million years or so.

I have outlined a roughly trapezoidal area labelled the "Kwikluak Disturbed Area" north west of the Dike Swarm. This area appears to be, magnetically, the most complex area within the survey area. The relatively flat 'basement' depth contours

are probably an illusion within this area. Magnetic lineations suggest a strongly faulted topology, as though the rocks here are being crumpled between the rocks of the 'Dike Swarm' zone and the less complex, and perhaps deeper, area further to the north west.

The less sharply defined nature of the magnetic anomalies in the area north of the disturbed zone suggests that their sources are deeper than those within the disturbed zone itself. Note that the northern boundary of the disturbed zone approximately parallels the extension of the Kaltag Fault inferred by Hoare and Condon. The rather abrupt change in magnetic character across this boundary suggests that, indeed it may be a fault and be related to the Kaltag fault. The fact that the depth to magnetic basement contours do not clearly reflect faulting is probably due to the estimates having sources, related to volcanic remnants, or mineralization within a fault zone, above the true basement.

6.5 Recommendations And Conclusions

The magnetic basement, or marker horizon mapped in this interpretation may not be the precambrian surface. If, for example, the Precambrian surface were located at 4500 metres below sensor, (approx. 15,000 feet), the width of an anomaly with thin sheet like source, would be about 9 kilometres. A width that approaches the volcanically undisturbed windows of this area. Thus basement sources can be expected to have spatial wavelengths that are broad compared with the wavelength of the anomalies due to the trends discussed in this report. In addition, susceptibility contrasts within the basement complex may well be much smaller than the contrasts associated with sedimentary-volcanic interfaces. It is likely, therefore, that the magnetic response of the basement, in this area, is masked by the volcanic activity occurring above it.

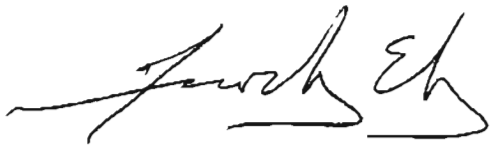
In analogy with Brown and Fisher, or Emery's, suggested sections presented in section 6.1 of this report, I suggest that areas of most interest for hydrocarbon potential include the magnetically quiet area to the south east of the "Dike Swarm", the narrow zone immediately north west of the Dike Swarm and the broad relatively simple area north of the disturbed zone.

Because the widespread volcanism in the area introduces ambigulty into the magnetic interpretation, seismic investigations, accompanied by a rigorous gravity program to aid in resolving density depth relationships and hence, velocity depth ambiguities, seismic investigations are warranted over much of the area, and in particular, in the areas suggested as having hydrocarbon potential.

Magnetotelluric or deep electromagnetic soundings may offer a cost effective way of determining total sedimentary section thickness before committing to more expensive exploration aids. Stratigraphic drill hole tests may be warranted, following additional ground survey studies.

The interpretation of the survey data embodied in this report is a geophysical appraisal of the aeromagnetic data, based on the geologic data available to the interpreter at the time of writing. As additional geophysical and geological data become available, it may be necessary to re-evaluate the significance of some of the features described in this report.

Respectfully submitted to Alaska Division of Geological and Geophysical Surveys by the interpreter



Timothy Eby, M.Sc.

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APPENDIX 1

FOM TEST RESULTS

FIGURE OF MERIT CALCULATION

JOB #: 95.120 AIRCRAFT: C-FPVB SURVEY AREA: YUKON DELTA

DATE FLOWN: September 30, 1995

FLIGHT	LINE #	DIRECTION	ROLLS ± 10 DEG	PITCHES ± 5 DEG	YAWS ± 5 DEG	DIRECTION TOTAL
2		NORTH	< .1	.15	< .1	.35 nT
2		SOUTH	< .1	.20	.15	.45 nT
2		EAST	< .1	.25	< .1	.45 nT
2		WEST	.15	< .1	.15	.40 nT
					SUM (FOM)	1.65 nT

LAG TEST RESULT

FLIGHT	LINE #	ANOMALY TIME	ANOMALY POSITION		CALCULATED LAG
			UTM_E	UTM_N	
11	90113	18:44:38.8	478985.5	7152986.5	.06
11	90114	18:47:17.6	478962.5	7152992.0	

FIGURE OF MERIT CALCULATION

JOB #: 95.120 AIRCRAFT: C-FPVB SURVEY AREA: YUKON DELTA

DATE FLOWN: September 26, 1995

FLIGHT	LINE #	DIRECTION	ROLLS ± 10 DEG	PITCHES ± 5 DEG	YAWS ± 5 DEG	DIRECTION TOTAL
2		NORTH	.1	.2	.15	.45 nT
2		SOUTH	.15	.2	.15	.50 nT
2		EAST	.15	.25	.1	.50 nT
2		WEST	.1	.15	.1	.35 nT
					SUM (FOM)	1.80 nT

APPENDIX 2

PRODUCTION AND SURVEY LOG

Date	System	Job #	Hrs	Kms	Extr exp	Remarks	Refly kms	Operator 1
1-Oct	ISS	95120	6.8	930		sur		Louis N.
2-Oct	ISS	95120	4.8	604		sur		Louis N.
3-Oct	ISS	95120	3	327.5		wx		Louis N.
4-Oct	ISS	95120	0			wx		Louis N.
5-Oct	ISS	95120	5.5	903.5		sur		Louis N.
6-Oct	ISS	95120	0			wx		Louis N.
7-Oct	ISS	95120	0			wx		Louis N.
8-Oct	ISS	95120	0			wx		Louis N.
9-Oct	ISS	95120	0			wx		Louis N.
10-Oct	ISS	95120	0.7			wx		Louis N.
11-Oct	ISS	95120	0			wx		Louis N.
12-Oct	ISS	95120	0			wx		Louis N.
13-Oct	ISS	95120	0			wx		Louis N.
14-Oct	ISS	95120	0			wx		Louis N.
15-Oct	ISS	95120	0			wx		Louis N.
16-Oct	ISS	95120	6.2	1069.5		sur		Louis N.
17-Oct	ISS	95120	0			wx		Louis N.
18-Oct	ISS	95120	4.7	517	fuel sw	sur		Louis N.
19-Oct	ISS	95120	7.2	830		sur	170	Louis N.
20-Oct	ISS	95120	6	895		sur		Louis N.
21-Oct	ISS	95120	0			wx		Louis N.
22-Oct	ISS	95120	5.9	1099		sur		Louis N.
23-Oct	ISS	95120			htr	a/c		Louis N.
24-Oct	ISS	95120	4.5	696		sur		Louis N.
25-Oct	ISS	95120				a/c		Louis N.
26-Oct	ISS	95120				a/c		
27-Oct	ISS	95120				a/c		
28-Oct	ISS	95120				a/c		
29-Oct	ISS	95120				a/c		
30-Oct	ISS	95120				a/c		
31-Oct	ISS	95120				a/c		
1-Nov	ISS	95120				a/c		
2-Nov	ISS	95120				a/c		Michel R.
3-Nov	ISS	95120				a/c		Michel R.
4-Nov	ISS	95120				a/c		Michel R.
5-Nov	ISS	95120				a/c		Michel R.
6-Nov	ISS	95120	0			equ		Michel R.
7-Nov	ISS	95120	0			equ		Michel R.
8-Nov	ISS	95120	0			equ		Michel R.
9-Nov	ISS	95120	0			equ		Michel R.
10-Nov	ISS	95120	0			equ		Michel R.
11-Nov	ISS	95120	1.2			wx		Michel R.
12-Nov	ISS	95120	0.3			wx		Michel R.
13-Nov	ISS	95120	0.8			wx		Michel R.
14-Nov	ISS	95120	4.7	470		sur	140	Michel R.
15-Nov	ISS	95120	1		htr	a/c		Michel R.
16-Nov	ISS	95120	0			wx		Michel R.
17-Nov	ISS	95120	0			wx		Michel R.
18-Nov	ISS	95120	7	1086		sur		Michel R.

19-Nov	ISS	95120	6	886	sur	Michel R.
20-Nov	ISS	95120	2	56.5	wx	Michel R.
21-Nov	ISS	95120	2		tst	Michel R.
22-Nov	ISS	95120	0		mob	Michel R.
23-Nov	ISS	95120	0		mob	Michel R.
24-Nov	ISS	95120	0		mob	
25-Nov	ISS	95120	0		mob	
26-Nov	ISS	95120	15		mob	
			95.3	10370		

[redacted]

	aircraft problems	equipment problems	mobilization	survey	testing	poor weather	Grand Total
Hours Flown:	1	0	15	69.3	2	8	95.3
	1.0%	0.0%	15.7%	72.7%	2.1%	8.4%	100.0%
Km Flown:	0	0	0	9986	0	384	10370
	0.0%	0.0%	0.0%	96.3%	0.0%	3.7%	100.0%
Days:	14	5	5	12	1	20	57
	24.6%	8.8%	8.8%	21.1%	1.8%	35.1%	100.0%

30c

APPENDIX 3

LEVELLING NETWORK INTERSECTION FILE

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80091	10	1929124	54574.8	393.7	0.0	75.6	-36.3	39.1	10010	22	2526024	54613.8	426.5	0.4	0 8	0.0	0.6	489553	6926039
80081	10	1932174	54456.9	410.1	0.3	75.6	-43.7	30 8	10010	22	2528001	54493.7	410.1	1.2	0.8	-4.6	0.2	496599	6922107
80071	10	2026523	54352.5	429.8	0.2	84.5	-32.7	51.6	10010	22	2529537	54410.8	429.8	0.4	0 8	-6.2	-0.2	503675	6918268
80060	2	2319009	54368.7	439.6	0.2	93.0	-95.5	-5.1	10010	22	2531453	54370.8	439.6	0.7	0 8	-4 8	0.3	510666	6914388
80050	2	2322303	54422.1	495.4	0.2	92.5	-97.4	-6.8	10010	22	2533358	54425.0	446.2	0 4	0 8	-6.9	-0.9	517736	6910527
80041	10	2035150	54266.3	446.2	0.1	75.6	-17.3	57.9	10010	22	2535260	54323.0	479.0	0 0	0 8	0.9	0.0	524751	6906579
80030	3	2528383	54494.7	524.9	2.9	86.6	-96.9	-15.3	10010	22	2537180	54476.0	482.3	5.6	0 8	0.6	0.1	531650	6902629
80223	22	2554316	54295.2	639.8	2.5	47.4	-54.7	-3 2	10010	22	2539120	54294.3	626.6	0.8	0 8	-0.3	0.1	538872	6898796
80123	22	2558184	54634.3	787.4	0 7	46.9	-55.2	-8 5	10010	22	2541061	54636.5	876.0	7.6	0 8	-1.3		545933	6894859
80123	22	2558305	54321.5	761.2	5 8	46.8	-55.2	0.1	10020	211	2406191	54250.9	738.2	2.9	-1 9	4.3	0.0	546320	6895544
80223	22	2554223	54271.3	629.9	3 8	47.6	-54.7	-2.8	10020	211	2408057	54249.8	521.7	5.1	-1 9	4.7	0.0	539249	6899429
80030	3	2528505	54378.2	541.3	3 4	86.6	-96.9	-12 4	10020	211	2409517	54362.9	469 2	4.7	-1.9	4.8	0.3	532232	6903339
80041	10	2035269	54269.5	426.5	0 1	75.6	-17.3	57.4	10020	211	2411375	54325.0	452.8	0.1	-1 9	2.7	0.4	525067	6907288
80050	2	2322429	54440.9	488.8	0.2	92.5	-97.4	-5.7	10020	211	2413215	54442.5	449 5	0.6	-1 9	-0.6	0.4	518170	6911183
80060	2	2318501	54368.7	452.8	0.2	92.9	-95.5	-5.1	10020	211	2415077	54370.5	439.6	0.3	-1 9	-4.0	0 0	511064	6915079
80071	10	2026414	54335.1	423.2	0.1	83.6	-32.7	51 2	10020	211	2416533	54390 0	436.4	0.2	-1 9	-3.9	0 0	504054	6918980
80081	10	1932299	54438.8	403.5	0.4	75.6	-43.7	30.2	10020	211	2418365	54469.2	436.4	1.3	-1 9	-3.9		497077	6922808
80091	10	1928497	54616.3	449.5	0.5	75.6	-36.3	39.3	10030	211	2347106	54651.8	436.4	0.6	-6 0	3.6	0.6	490349	6927475
80081	10	1932413	54418.4	413.4	0.2	75.6	-43.7	30.6	10030	211	2349066	54452.3	400.3	1.0	-6 0	-1.7	0.4	497425	6923500
80071	10	2026309	54326.5	423.2	0 0	83.6	-32.7	51 0	10030	211	2351046	54362.4	459.3	0.0	-6 0	-4 8	0.1	504444	6919652
80060	2	2318392	54359.1	459.3	0 1	92.8	-95.5	-5.1	10030	211	2352591	54362.4	462.6	0.3	-6 0	-5.8	0.0	511479	6915763
80050	2	2322540	54449.6	449.5	0.4	92.6	-97.4	-5.5	10030	211	2354513	54450.7	436.4	0.4	-6 0	-5.5	-0.5	518510	6911788
80041	10	2035399	54276.1	429.8	0 1	75.6	-17.3	57.1	10030	211	2356423	54332.2	465.9	0.1	-6 0	-1 1	-0.5	525511	6908008
80030	3	2529027	54287.1	521.7	1.7	86.6	-96.9	-9 7	10030	211	2358347	54273.9	452.8	4.4	-6 0	2.7	-0.1	532622	6904043
80223	22	2554113	54367.5	607.0	1.6	48.0	-54.7	-2.3	10030	211	2400268	54376.2	541.3	5.4	-6 0	3.3	0 0	539716	6900164
80123	22	2558421	54382.2	705.4	5.0	47.1	-55.2	10 4	10030	211	2402166	54437.9	626 6	10.0	-6 0	3.6		546681	6896246
80123	22	2558542	54487.7	666.0	4 6	47.5	-55.2	31.4	10040	211	2330032	54554.6	613 5	2.8	-3 1	-1 0	0.0	547115	6896968
80223	22	2554013	54184.2	597.1	17.1	48.3	-54 7	-5 9	10040	211	2331482	54180.4	502 0	16.7	-3 1	-0.8	0.3	540105	6900853
80030	3	2529145	54404.1	538.1	3.3	86.8	-96.9	-0.5	10040	211	2333341	54403.4	492.1	0.3	-3 1	-3.5	-0.7	533022	6904727
80041	10	2035527	54279.3	475.7	0 1	75.6	-17.3	57.4	10040	211	2335199	54334.6	472 4	0.1	-3 1	2.1	0 6	525940	6908703
80050	2	2323075	54474.7	472.4	0.2	92.8	-97.4	-6 4	10040	211	2337049	54475 9	459.3	0 1	-3 1	-2 5	0.3	518915	6912553
80060	2	2318278	54351.2	459.3	0.0	92.8	-95.5	-5 0	10040	211	2338504	54353.8	446.2	0.2	-3 1	-4.9	-0.1	511911	6916455
80071	10	2026197	54321.2	419.9	0.1	83.6	-32.7	50.7	10040	211	2340363	54376.2	429.8	0 2	-3 1	-3.8	-0 5	504872	6920358
80081	10	1932531	54511.8	410.1	1.6	75.6	-43.7	31 4	10040	211	2342211	54543.7	423.2	0.2	3 1	0.2	-0.7	497706	6924205
80091	10	1928381	54669.8	456.0	0.8	75.6	-36.3	39 3	10040	211	2344035	54702.4	469.2	0.2	3 1	6.1		490752	6928196
80091	10	1928265	54729.9	442.9	0.4	75.6	-36 3	39 3	10050	211	2310246	54766.8	426.5	0 2	-2 7	2.0	0 3	491212	6928901
80081	10	1933053	54563.7	400.3	0.3	75.6	-43.7	31 9	10050	211	2312213	54596.2	436.4	0 6	-2 7	-0 5	0 3	498205	6924928
80071	10	2026084	54320.1	433.1	0.0	83.1	-32 7	50 3	10050	211	2314168	54374.0	410.1	0.4	2 7	-3 4	0 3	505291	6921078
80060	2	2318170	54357.4	446.2	0.2	93 0	-95.5	-4.8	10050	211	2316081	54360.6	446.2	0.1	-2 7	-5 5	0 0	512273	6917134
80050	2	2323194	54493.0	469.2	0.4	92.8	-97.4	-7 4	10050	211	2317592	54404.1	442.9	0 6	-2 7	-5 2	-0.7	519285	6913204
80041	10	2036041	54285.9	465.9	0 2	75.6	-17.3	57.9	10050	211	2319526	54341.1	485 6	0.1	-2 7	0 4	0 4	526345	6909318
80030	3	2529263	54387.3	561.0	0.0	87.0	-96.9	-8 6	10050	211	2321473	54380.7	472.4	1.2	2 7	-2 9	0 0	533388	6905417
80223	22	2553512	54363.4	577.4	3.4	48.2	-54.7	-13 1	10050	211	2323437	54371.6	544 6	0 6	-2 7	-2 7	-0 1	540499	6901550

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80123	22	2559057	54493.1	603.7	3.6	47.6	-55.2	23 7	10050	211	2325345	54507.1	531.5	19.5	-2.7	-2.2		547517	6897665
80123	22	2559176	54359.4	521.7	1.2	47.5	-55.2	6 4	10060	211	2253312	54362.1	465.9	0 4	0 0	-3.9	-0.1	547940	6898421
80223	22	2553406	54515.8	564.3	21.8	47.9	-54.7	-19 0	10060	211	2255170	54462.6	610.2	8 9	0 0	-2.8	-0.2	540935	6902270
80030	3	2529395	54334.3	528.2	2.1	87.2	-96.9	-9 0	10060	211	2257019	54326.3	465 9	6.1	0 0	-1.3	-0.5	533857	6906164
80041	10	2038166	54290.2	472.4	0.1	75.6	-17.3	58 2	10060	211	2258462	54344.9	498.7	0.1	0 0	2.8	0 5	526765	6910013
80050	2	2323334	54537.2	465.9	0 0	92.9	-97.4	-8 3	10060	211	2300299	54534.6	469.2	0.8	0 0	-1.4	0.0	519797	6913931
80060	2	2318040	54361.8	442.9	0.2	93.3	-95.5	-4 4	10060	211	2302145	54361.5	433.1	0.2	0.0	-1.8	0.0	512713	6917946
80071	10	2025577	54320.9	416.7	0.0	82.6	-32.7	49.9	10060	211	2303595	54372.4	439.6	0.2	0.0	-1.4	-0.2	505700	6921762
80081	10	1933177	54529.5	397.0	0.1	75.6	-43.7	31.9	10060	211	2305463	54561.3	413.4	0 3	0.0	-0.1	0.2	498639	6925649
80091	10	1928153	54729.4	433.1	0.6	75.6	-36.3	39 4	10060	211	2307310	54771.1	419.9	0.3	0.0	-1.9		491649	6929581
80091	10	1928042	54669.2	433.1	0.9	75.6	-36.3	39 9	10070	211	2233576	54711.3	442.9	0.4	-1.7	-2 5	-0.3	492051	6930275
80081	10	1933306	54548.2	393.7	0.3	75.6	-43.7	32 4	10070	211	2235562	54579.9	442.9	0.2	-1.7	-0.1	0.3	499074	6926401
80071	10	2025470	54316.6	442.9	0.4	82.1	-32.7	49 4	10070	211	2237511	54369.1	426.5	0.1	-1.7	-2 6	-0 3	506093	6922447
80060	2	2317536	54366 0	456.0	0.3	93.5	-95.5	-4.0	10070	211	2239441	54364.0	436.4	0.3	-1.7	-0.3	0 2	513098	6918585
80050	2	2323461	54543.1	462.6	0 2	93.1	-97.4	-8 6	10070	211	2241390	54541.4	472.4	0.8	-1.7	-1.8	-0.8	520184	6914643
80041	10	2036293	54296.5	462.6	0 0	75.6	-17.3	58.3	10070	211	2243347	54349.9	495.4	0.2	-1 7	4.6	-0.3	527206	6910718
80030	3	2529512	54344.9	508.5	2.3	87.3	-96.9	-8 9	10070	211	2245314	54327.4	495 4	3 6	-1.7	7.2	0.8	534281	6906827
80223	22	2553308	54485.4	551.2	7.2	47.6	-54.7	-18 3	10070	211	2247306	54466 0	538.1	6.7	-1 7	0.3	0 8	541312	6902957
80123	22	2559279	54400.1	469.2	0.4	47.2	-55 2	-3 1	10070	211	2249215	54398 9	452 8	0.0	-1.7	-6.1		548351	6899071
80123	22	2559383	54412.6	475.7	0.1	46.9	-55.2	-6 9	10080	21	2207131	54405.6	472.4	0.0	1.1	-1 2	0.0	548756	6899730
80223	22	2553215	54310.9	541.3	4.4	47.4	-54 7	-13.2	10080	21	2208587	54305 6	521.7	1.7	1 1	-1.6	-0 4	541640	6903625
80030	3	2530024	54344.2	518.4	1.1	87.2	-96.9	-8 7	10080	21	2210417	54335 7	485.6	1.0	1.1	1.9	-0.5	534642	6907490
80041	10	2036416	54302.1	488.8	0 1	75.6	-17.3	58.3	10080	21	2212243	54353.3	521.7	0.1	1.1	6 2	0.7	527557	6911441
80050	2	2323583	54542.1	452.8	0.3	93.1	-97.4	-8 6	10080	21	2214049	54537.8	479.0	0.1	1.1	0.5	0.1	520537	6915339
80060	2	2317423	54378.7	433.1	0.2	93.6	-95.5	-3.7	10080	21	2215478	54377.0	433.1	0.1	1 1	0.0	0.0	513497	6919276
80071	10	2025361	54318.0	436.4	0.0	81.6	-32 7	49 1	10080	21	2217320	54366 5	449.5	0 2	1 1	0 4	-0.2	506471	6923150
80081	10	1933418	54534.1	403.5	0 6	75 6	-43 7	33.5	10080	21	2219156	54564.3	400.3	0.0	1.1	1.7	-0.1	499448	6927048
80091	10	1927520	54619.9	442.9	0.3	75 6	-36 3	41 1	10080	21	2221005	54656 2	442.9	0.5	1 1	2.9		492484	6931039
80091	10	1927431	54620.2	419.8	0.1	75 6	-36 3	41.9	10090	21	2147367	54657.7	446.2	0.7	1.5	7.0	0.2	492794	6931606
80081	10	1933537	54500.3	416.7	0.4	75 6	-43 7	34.7	10090	21	2149331	54531 4	423.2	0 1	1 5	5.4	0 7	499835	6927742
80071	10	2025258	54317.2	423.2	0.1	81.1	-32 7	48.9	10090	21	2151267	54366.1	436.4	0.1	1.5	-0.2	0.4	506808	6923824
80060	2	2317315	54384.8	436.4	0 2	93.7	-95.5	-3.5	10090	21	2153228	54386 8	442.9	0.4	1 5	-3.4	-0.2	513916	6919931
80050	2	2324107	54568.5	456.0	0.5	93.0	-97.4	-8.6	10090	21	2155171	54566 7	449.5	0.7	1.5	-2.0	-0.8	520920	6916037
80041	10	2036531	54308.9	485.6	0.1	75 6	-17.3	58 3	10090	21	2157128	54361.6	475.7	0.1	1 5	5.0	0.1	527918	6912093
80030	3	2530146	54343.6	526.2	0.9	87.1	-96 9	-8.9	10090	21	2159137	54329 7	528.2	0.5	1 5	4.1	0.2	535035	6908203
80223	22	2553112	54416.2	534.8	3.3	47.6	-54 7	-7.1	10090	21	2201106	54415.0	515.1	1.6	1 5	2.4	0 2	542019	6904352
80123	22	2559500	54422.3	465.9	0.4	46.8	-55 2	-8.0	10090	21	2203041	54413 2	452.8	0.0	1.5	0.7		549150	6900500
80123	22	2600001	54429.4	442.9	0.0	47.0	-55 2	-8 0	10100	21	2130546	54422 7	462 6	0.2	-0 2	-1.3	-0.2	549509	6901148
80223	22	2553005	54394.7	515.1	0.8	48.1	-54 7	-5.0	10100	21	2132397	54387 9	449.5	0.7	-0 2	0.2	-0.2	542444	6905095
80030	3	2530275	54371.9	528.2	0.0	87.1	-96 9	-9.4	10100	21	2134222	54360 4	515.1	0 9	-0 2	1.8	-0.3	535495	6908926
80041	10	2037059	54316.4	436.4	0.3	75.6	-17 3	58.3	10100	21	2136035	54370 1	449.5	0.2	-0 2	4.1	0.4	528323	6912842
80050	2	2324233	54657.5	482.3	1.4	93.0	-97 4	-8.6	10100	21	2137428	54652 3	469.2	0.3	-0 2	1.0	0.1	521306	6916735
80060	2	2317200	54392.7	449.5	0.0	93.8	-95 5	-3.3	10100	21	2139231	54390 9	436.4	0.3	-0 2	0 0	0.1	514326	6920646

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80071	10	2025135	54311.3	423.2	0.3	80.6	-32.7	48.4	10100	21	2141076	54362 9	439.6	0.2	-0.2	-0.9	-0.8	507257	6924607
80081	10	1934059	54499.7	416.7	0.4	75.6	-43 7	34.7	10100	21	2142508	54530 8	436.4	0.2	-0.2	5.8	-0.8	500246	6928435
80091	10	1927283	54660.1	403.5	0.5	75.6	-36.3	40.1	10100	21	2144359	54691 0	479.0	0.8	-0 2	12.6		493322	6932549
80091	10	1927211	54687.8	406.8	0.7	75.6	-36.3	37.3	10110	21	2110441	54723 3	433.1	0.6	-2.7	3.3	0.5	493583	6933006
80081	10	1934183	54545.3	413.4	0.7	75.6	-43.7	33.5	10110	21	2112401	54578 5	419.9	0.2	-2.7	-0.9	0.1	500653	6929146
80071	10	2025031	54311.9	426.5	0.5	80.0	-32.7	47.7	10110	21	2114355	54361.2	439.6	0.2	-2.7	-2.0	0.2	507645	6925257
80060	2	2317088	54401.5	446.2	0.1	93.8	-95.5	-3.2	10110	21	2116329	54403.4	452.8	0.2	-2 7	-3.3	-0.2	514724	6921345
80050	2	2324354	54710.9	459.3	0.2	93.1	-97.4	-8.5	10110	21	2118303	54708 5	462.6	0.2	-2.7	-1.6	-0.4	521701	6917401
80041	10	2037180	54334.0	416.7	0.4	75.6	-17.3	58.3	10110	21	2120294	54390.0	439.6	0.5	-2.7	1.9	0.2	528738	6913534
80030	3	2530390	54374.6	554.5	0.2	87.2	-96.9	-9.5	10110	21	2122326	54364 8	492.1	0.0	-2.7	-0.1	0.9	535867	6909589
80223	22	2552506	54455.6	515.1	1.7	48.5	-54.7	-5.5	10110	21	2124331	54456.1	456.0	0.9	-2.7	-7.6	0.0	542850	6905769
80020	4	1924513	54439.9	492.1	2.2	96.1	-93 6	3.6	10110	21	2124336	54453.0	452.8	0.8	-2.7	-7.6	-0.6	542881	6905753
80123	22	2600109	54434.5	442.9	0.1	47.4	-55 2	-7.8	10110	21	2126300	54420 2	459.3	0.1	-2.7	-2.9		549926	6901811
80123	22	2600226	54437.9	449.5	0.0	47.6	-55.2	-7.7	10120	21	2054308	54432.7	475.7	0.1	-2 1	-2.4	0.0	550330	6902550
80223	22	2552403	54400.1	488.8	0.1	48.5	-54.7	-6.2	10120	21	2056157	54396.4	485.6	0.1	-2 1	-2.2	0.0	543328	6906452
80020	4	1924407	54391.6	479.0	0.1	96.1	-93 6	3.1	10120	21	2056162	54396 6	488.8	0.0	-2.1	-2.2	-0.3	543293	6906473
80030	3	2530514	54373.5	524.9	0.2	87.4	-96 9	-9.4	10120	21	2057595	54363.7	488.8	0.0	-2.1	0.4	-0.3	536268	6910301
80041	10	2037300	54360.3	410.1	0.2	75.6	-17.3	58.3	10120	21	2059403	54414 5	446.2	0 6	-2.1	3.2	0.8	529170	6914224
80050	2	2324494	54677.9	446.2	1.4	93.2	-97.4	-8.3	10120	21	2101192	54677.6	482.3	0.8	-2.1	-3.4	0.3	522160	6918181
80060	2	2316570	54404.4	446.2	0.4	93.9	-95.5	-3.0	10120	21	2102579	54408.9	439.6	0.5	-2.1	-5.7	-0.2	515170	6922071
80071	10	2024515	54306.6	416.7	0.2	79.3	-32 7	46.8	10120	21	2104387	54357.7	456.0	0.3	-2.1	-4.3	-0.4	508082	6925985
80081	10	1934313	54588.0	410.1	0.2	75.6	-43.7	32.3	10120	21	2106196	54620 8	426.5	0.1	-2.1	-0.9	-0.2	501074	6929890
80091	10	1927041	54804.0	393.7	1.7	75.6	-36.3	28.2	10120	21	2108040	54829 9	439.6	1.3	-2.1	1.0		494220	6934080
80091	10	1926584	54895.2	406.8	2.7	75.6	-36.3	25.9	10130	21	2034068	54918.2	426.5	0.3	-4.6	-3.2	0.1	494434	6934440
80081	10	1934423	54588.8	406.8	0.0	75.6	-43 7	31.9	10130	21	2036070	54624 2	403.5	0.2	-4 6	-3.7	0.5	501431	6930516
80071	10	2024414	54297.2	416.7	0.2	78.7	-32.7	46 0	10130	21	2038083	54351.6	436.4	0.0	-4.6	-7.7	-0.5	508478	6926613
80060	2	2316470	54403.0	452.8	0.1	94.0	-95.5	-2.9	10130	21	2040108	54404 8	419.9	0 2	-4 6	-3.4	0.0	515534	6922690
80050	2	2325015	54564.7	459.3	2.7	93.3	-97.4	-8.1	10130	21	2042158	54564 2	413 4	2.4	-4 6	-3.1	-0.6	522574	6918855
80041	10	2037425	54360.2	416.7	0.1	75.6	-17.3	58.3	10130	21	2044218	54416 3	452.8	0.3	-4 6	1.7	0.3	529617	6914925
80030	3	2531040	54378.3	557.7	0.1	87.5	-96 9	-9.4	10130	21	2046239	54371 0	485.6	0.3	-4 6	-1.0	0.3	536669	6911034
80223	22	2552310	54394.8	472.4	0.1	48.4	-54.7	-6 4	10130	21	2048248	54392.2	459.3	0.0	-4 6	-3.8	0.0	543723	6907083
80020	4	1924312	54385.3	482.3	0.2	96.1	-93 6	2.7	10130	21	2048241	54392.1	459 3	0 0	-4.6	-3.8	0.1	543680	6907108
80123	22	2600328	54442.2	436.4	0.0	47.5	-55 2	-7 8	10130	21	2050199	54439 2	436.4	0.1	-4 6	-4.5		550698	6903182
80123	22	2600453	54445.2	446.2	0.0	47.0	-55 2	-8 0	10140	21	2018260	54441.4	459.3	0.1	-3.5	-4.3	-0.2	551152	6903948
80223	22	2552206	54395.3	459.3	0.0	48.1	-54.7	2.3	10140	21	2020103	54391 9	452.8	0.0	-3.5	-3.0	0.0	544093	6907846
80020	4	1924205	54386.1	475.7	0.1	96.0	-93 6	-6.5	10140	21	2020103	54391.8	452.8	0 0	-3 5	-3.0	-0.3	544089	6907848
80030	3	2531153	54380.6	541.3	0.1	87.5	-96 9	-9 4	10140	21	2021534	54371 6	502.0	0.0	-3.5	-0.4	0.0	537051	6911678
80041	10	2037558	54358.4	423.2	0.1	75.6	-17.3	58.3	10140	21	2023329	54416.1	446.2	0.1	-3 5	0.0	0.7	530061	6915690
80050	2	2325142	54526.9	465.9	2.1	93.4	-97.4	-8 0	10140	21	2025105	54529.3	436.4	2.6	-3.5	-5.6	-0.1	523011	6919555
80060	2	2316357	54401.7	449.5	0.1	94.1	-95 5	-2 8	10140	21	2026506	54404 6	439.6	0.1	-3.5	-4.5	0 2	515930	6923404
80071	10	2024306	54292.5	419.9	0.1	78 0	-32 7	45.3	10140	21	2026298	54344 6	423.2	0.1	-3.5	-6.2	-0.4	508887	6927291
80081	10	1934550	54581.7	413.4	0.0	75.6	-43.7	31.9	10140	21	2030103	54616.5	426 5	0.2	-3 5	-3.1	0.0	501838	6931246
80091	10	1926337	55654.1	416.7	2.0	75.6	-36.3	27 5	10140	21	2031578	55680 9	439.6	1.2	-3.5	-3.0		495346	6936002

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80081	10	1935064	54593.1	403.5	0.3	75.6	-43.7	31.9	10150	21	1959392	54629.7	429.8	0.2	-5.4	-4.8	0.3	502207	6931894
80071	10	2024203	54288.4	436.4	0.1	77.4	-32.7	44.7	10150	21	2001447	54341.0	433.1	0.1	-5.4	-7.4	-0.3	509250	6927952
80060	2	2316253	54403.8	439.6	0.2	94.1	-95.5	-2.7	10150	21	2003537	54406.6	449.5	0.1	-5.4	-4.5	0.2	516308	6924058
80050	2	2325251	54546.9	449.5	0.9	93.4	-97.4	-7.9	10150	21	2006031	54549.7	433.1	0.1	-5.4	-6.2	-0.6	523371	6920171
80041	10	2038067	54380.3	426.5	0.5	75.6	-17.3	58.3	10150	21	2008114	54439.9	452.8	0.3	-5.4	-1.6	0.2	530420	6916306
80030	3	2531274	54381.3	544.6	0.1	87.4	-96.9	-9.4	10150	21	2010194	54375.1	508.5	0.0	-5.4	-3.2	0.2	537469	6912368
80020	4	1924113	54386.2	465.9	0.2	96.0	-93.6	2.1	10150	21	2012203	54393.0	465.9	0.1	-5.4	-4.7	0.0	544438	6908473
80223	22	2552119	54394.5	469.2	0.1	47.8	-54.7	-6.7	10150	21	2012203	54392.9	465.9	0.1	-5.4	-4.7	0.1	544433	6908476
80123	22	2600560	54449.0	436.4	0.2	48.7	-55.2	-8.2	10150	21	2014156	54446.3	456.0	0.1	-5.4	-5.6		551541	6904588
80123	22	2601073	54451.4	436.4	0.1	46.7	-55.2	-8.2	10160	20	2404506	54444.6	469.2	0.1	-3.0	-1.7	0.0	551913	6905294
80223	22	2552010	54398.4	479.0	0.1	47.7	-54.7	-6.8	10160	20	2406325	54393.7	482.3	0.0	-3.0	-1.8	0.0	544923	6909217
80020	4	1924001	54389.5	469.2	0.1	95.9	-93.6	2.1	10160	20	2406331	54393.6	479.0	0.0	-3.0	-1.8	-0.1	544878	6909242
80030	3	2531403	54383.9	534.8	0.1	87.3	-96.9	-9.5	10160	20	2408143	54375.0	498.7	0.0	-3.0	-0.6	-0.1	537903	6913106
80041	10	2038194	54392.3	446.2	0.1	75.6	-17.3	58.3	10160	20	2409562	54450.1	515.1	0.2	-3.0	0.0	0.5	530820	6917028
80050	2	2325382	54531.0	442.9	0.5	93.4	-97.4	-7.9	10160	20	2411355	54531.4	436.4	0.0	-3.0	-3.8	-0.2	523783	6920921
80060	2	2316130	54408.6	413.4	0.1	94.2	-95.5	-2.6	10160	20	2413156	54409.5	433.1	0.0	-3.0	-2.5	0.3	516764	6924826
80071	10	2024083	54288.0	426.5	0.2	76.7	-32.7	44.0	10160	20	2414569	54337.3	416.7	0.1	-3.0	-4.7	-0.3	509713	6928700
80081	10	1935190	54622.8	413.4	0.3	75.6	-43.7	31.9	10160	20	2416388	54656.3	433.1	0.3	-3.0	-1.8		502591	6932627
80091	10	1926172	55665.1	410.1	0.8	75.6	-36.3	34.9	10170	20	2344486	55711.3	397.0	1.8	-2.6	-8.0	-0.7	495931	6937064
80081	10	1935318	54644.9	400.3	0.3	75.6	-43.7	31.9	10170	20	2346493	54676.1	397.0	0.0	-2.6	-0.1	0.7	503028	6933342
80071	10	2023566	54284.0	436.4	0.3	76.0	-32.7	43.5	10170	20	2348506	54333.8	426.5	0.2	-2.6	-5.7	-0.3	510147	6929427
80060	2	2316023	54411.1	456.0	0.0	94.2	-95.5	-2.5	10170	20	2350494	54412.5	439.6	0.1	-2.6	-2.9	0.0	517136	6925515
80050	2	2325496	54496.9	436.4	0.1	93.4	-97.4	-7.9	10170	20	2352481	54496.7	433.1	0.1	-2.6	-3.3	-0.5	524164	6921554
80041	10	2038315	54401.7	446.2	0.3	75.6	-17.3	58.3	10170	20	2354470	54458.5	459.3	0.3	-2.6	1.1	0.1	531190	6917710
80030	3	2531514	54389.7	538.1	0.0	87.2	-96.9	-9.6	10170	20	2356487	54380.2	475.7	0.0	-2.6	-0.1	0.2	538266	6913739
80020	4	1923505	54393.7	475.7	0.1	95.9	-93.6	2.1	10170	20	2358463	54397.6	449.5	0.1	-2.6	-1.7	0.0	545252	6909894
80223	22	2551516	54403.0	462.6	0.1	47.7	-54.7	-6.8	10170	20	2358471	54398.3	446.2	0.1	-2.6	-1.8	0.0	545304	6909867
80123	22	2601188	54453.7	423.2	0.1	47.0	-55.2	-8.0	10170	20	2400433	54447.5	433.1	0.0	-2.6	-1.9		552299	6905992
80123	22	2601306	54458.9	436.4	0.1	47.4	-55.2	-7.8	10180	20	2329370	54449.9	449.5	0.1	1.0	1.2	0.0	552718	6906696
80223	22	2551415	54402.6	452.8	0.2	48.0	-54.7	2.2	10180	20	2331204	54393.9	472.4	0.0	1.0	1.6	0.0	545691	6910590
80020	4	1923401	54393.0	459.3	0.0	95.8	-93.6	-6.7	10180	20	2331207	54393.9	472.4	0.0	1.8	1.6	0.0	545670	6910601
80030	3	2532042	54389.2	531.5	0.0	87.1	-96.9	-9.7	10180	20	2333031	54378.5	482.3	0.0	1.8	1.3	-0.5	538682	6914477
80041	10	2038445	54414.6	452.8	0.2	75.6	-17.3	57.3	10180	20	2334471	54467.0	485.6	0.1	1.8	5.1	0.5	531547	6918471
80050	2	2326030	54501.4	446.2	0.1	93.5	-97.4	-8.1	10180	20	2336253	54497.1	446.2	0.0	1.8	0.8	0.0	524587	6922297
80060	2	2315507	54412.3	465.9	0.1	94.3	-95.5	-2.4	10180	20	2338051	54410.4	456.0	0.3	1.8	0.6	0.1	517556	6926242
80071	10	2023456	54284.4	423.2	0.4	75.6	-32.7	43.2	10180	20	2339447	54327.4	436.4	0.4	1.8	0.1	-0.2	510540	6930125
80081	10	1935451	54644.6	413.4	0.4	75.6	-43.7	31.9	10180	20	2341254	54674.2	413.4	0.4	1.8	1.8		503498	6934076
80091	10	1925520	55690.3	419.9	1.9	75.6	-36.3	55.2	10190	20	2309305	55731.2	380.6	3.0	0.9	-1.3	0.0	496908	6938631
80081	10	1935557	54618.3	436.4	0.5	75.6	-43.7	31.9	10190	20	2311317	54651.4	413.4	1.0	0.9	-1.0	-0.1	503851	6934659
80071	10	2023341	54327.8	406.8	0.8	75.6	-32.7	43.9	10190	20	2313334	54370.6	397.0	0.8	0.9	0.1	-0.2	510926	6930871
80060	2	2315405	54415.8	442.9	0.2	94.3	-95.5	-2.3	10190	20	2315328	54412.6	436.4	0.2	0.9	1.7	0.3	517899	6926886
80050	2	2326155	54507.4	429.8	2.3	93.5	-97.4	-9.1	10190	20	2317327	54504.5	413.4	0.8	0.9	-0.5	-0.4	524979	6922094
80041	10	2038566	54422.5	439.6	0.3	75.6	-17.3	54.9	10190	20	2319314	54477.9	449.5	0.5	0.9	2.5	0.2	531963	6919143

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80030	3	2532166	54395.2	528.2	0.1	86.9	-96.9	-9.8	10190	20	2321339	54384 7	495.4	0.1	0 9	0.6	0.1	539093	6915193
80020	4	1923298	54394.9	469.2	0.1	95.8	-93.6	2.2	10190	20	2323300	54397.0	416.7	0.0	0 9	0.1	0.0	546081	6911292
80223	22	2551315	54403.6	472.4	0.0	48.2	-54 7	-6.5	10190	20	2323311	54397.1	413.4	0.0	0.9	0.1	-0.1	546153	6911262
80123	22	2601434	54455.5	446.2	0.0	47.6	-55.2	-7.7	10190	20	2325259	54447.2	449.5	0.1	0 9	0.7		553156	6907456
80123	22	2601551	54459.5	462.6	0.1	47.4	-55.2	-7.9	10200	20	2254318	54446.7	452.8	0.2	4 3	3.2	-0.2	553563	6908136
80223	22	2551218	54407.4	462.6	0.1	48.3	-54.7	-6.5	10200	20	2256159	54395 6	462.6	0 1	4 3	5.0	0.0	546548	6911936
80020	4	1923198	54398.2	472.4	0.0	95.8	-93 6	2.3	10200	20	2256167	54395.4	465.9	0 0	4.3	5.0	0.1	546493	6911964
80030	3	2532289	54400.1	528.2	0.1	86.9	-96.9	-9.9	10200	20	2258012	54386 2	469.2	0.1	4 3	3.8	0.3	539510	6915900
80041	10	2039096	54453.2	413.4	0 4	75.6	-17.3	52.8	10200	20	2259447	54497 8	482.3	0.9	4.3	1.5	0.2	532417	6919864
80050	2	2326274	54458.6	465.9	1.5	93.4	-97.4	-10 7	10200	20	2301243	54455 4	397.0	0.8	4 3	-0.1	-0.5	525366	6923636
80060	2	2315290	54417.7	456.0	0.0	94.4	-95 5	-2.1	10200	20	2303059	54412.1	419 9	0.2	4 3	4.4	-0 4	518343	6927613
80071	10	2023232	54385.3	408.8	0.6	75.6	-32.7	45.0	10200	20	2304471	54419 8	429.8	1.2	4.3	8.0	0.1	511320	6931561
80081	10	1936102	54608.8	429.8	0.1	75.6	-43 7	31.9	10200	20	2306260	54633 4	433.1	0.7	4 3	6.9	0.8	504325	6935465
80091	10	1925071	54971.5	436.4	1.2	75.6	-36 3	52.8	10200	20	2308217	55010 9	449.5	1.3	4 3	0 2		498470	6941496
80091	10	1925304	55439.6	426.5	6.7	75.6	-36 3	78 1	10210	20	2234160	55530 4	419.9	3 8	4 6	9.9	0.6	497835	6940020
80081	10	1936226	54628.8	429.8	0.4	75.6	-43.7	31.9	10210	20	2236204	54655 9	406.8	0.4	4.6	5.1	0.0	504707	6936177
80071	10	2023119	54433.3	416.7	0.4	75.6	-32 7	45.4	10210	20	2238245	54480 3	397.0	1.9	4.6	4.9	0.0	511722	6932283
80060	2	2315185	54416.0	459.3	0.1	94.4	-95.5	-1.0	10210	20	2240286	54409 9	442.9	0.2	4 6	5.0	0.0	518735	6928269
80050	2	2326421	54403.8	472.4	1.4	93.5	-97 4	-11.8	10210	20	2242303	54388 8	426.5	0 0	4 6	4.7	0.0	525812	6924438
80041	10	2039220	54488.4	459.3	0.4	75.6	-17.3	53.3	10210	20	2244303	54535 9	485.6	0.5	4 6	4.3	0.0	532642	6920540
80030	3	2532412	54401.5	538.1	0.1	86.8	-96.9	-10.0	10210	20	2246312	54387 4	502.0	0.0	4 6	4.1	-0.1	539900	6916613
80020	4	1923081	54405.1	482.3	0.1	95.8	-93 6	2.3	10210	20	2248288	54402 2	459.3	0.1	4 6	4.6	0.0	546979	6912744
80223	22	2551105	54413.6	475.7	0.2	48.0	-54.7	-6.0	10210	20	2248295	54402 7	456 0	0.1	4.6	4.6	0.0	547022	6912721
80123	22	2602074	54461.0	482.3	0.0	46.9	-55.2	-8.1	10210	20	2250242	54448 0	472.4	0.0	4 6	4.6		553994	6908836
80123	22	2602201	54462.7	472.4	0.1	46.6	-55.2	-8.3	10220	20	2219118	54447.3	505.2	0.1	6.0	6.7	0.1	554444	6909571
80223	22	2551013	54418.6	462.6	0.0	47.7	-54.7	-6.8	10220	20	2220554	54405 7	449.5	0 2	6.0	5.5	0.0	547414	6913339
80020	4	1922588	54406.4	462.6	0 2	95.8	-93 6	2 2	10220	20	2220566	54403 8	446 2	0 3	6 0	5.5	-0.1	547331	6913385
80030	3	2532529	54407.1	515.1	0.0	86.7	-96 9	-10.1	10220	20	2222413	54390 3	475.7	0.0	6 0	6.4	0.1	540279	6917283
80041	10	2039327	54474.4	446.2	0.1	75.6	-17 3	55.3	10220	20	2224249	54526 8	479.0	1.1	6.0	5.5	0.6	533188	6921132
80050	2	2326537	54402.7	465.9	2 2	93.5	-97.4	-11.2	10220	20	2226055	54399 7	436.4	2.6	6 0	0.2	-0.8	526188	6925072
80060	2	2315070	54419.0	456.0	0.0	94.5	-95.5	-0.9	10220	20	2227467	54410 9	459.3	0.1	6 0	7.0	-0.8	519148	6929002
80071	10	2023010	54479.2	416.7	0.5	75.6	-32.7	44.5	10220	20	2229276	54507.8	413.4	2 0	6 0	13.4	0.4	512116	6932962
80081	10	1936336	54662.7	433.1	0.6	75.6	-43.7	31.7	10220	20	2231072	54684 8	423.2	0.6	6.0	10.4	-0.3	505044	6936803
80091	10	1924525	54993.5	446.2	2.6	75.6	-36 3	27.0	10220	20	2232565	55019 7	449.5	2.1	6 0	12.6		498977	6942417
80091	10	1925096	54995.0	426.5	1.4	75.6	-36 3	57.7	10230	20	2158478	55045 7	436.4	2.4	7.0	7.2	0.0	498384	6941337
80081	10	1936462	54692.6	406.8	0.4	75 6	-43 7	31.2	10230	20	2200479	54717 1	400.3	0.3	7 0	7.0	0.7	505473	6937503
80071	10	2022506	54496.1	413.4	0 4	75.6	-32 7	43.3	10230	20	2202501	54538 3	429.8	1.4	7.0	1.5	-0.7	512513	6933610
80060	2	2314561	54419.5	475.7	0.0	94.5	-95 5	0.0	10230	20	2204526	54410 7	439.6	0.1	7.0	7.2	0.3	519552	6929689
80050	2	2327063	54548.1	475.7	1.6	93.6	-97.4	-10.1	10230	20	2206554	54539 7	452.8	0.5	7 0	5.1	-0 5	526585	6925755
80041	10	2039476	54473.1	449.5	0.2	75 6	-17.3	57.1	10230	20	2208581	54521 2	442 9	0.1	7.0	9 6	0.4	533686	6921949
80030	3	2533054	54409.8	515.1	0.0	86 6	-96 9	-10 2	10230	20	2210594	54393 6	482.3	0.0	7.0	6 2	0.0	540745	6917987
80020	4	1922484	54408.2	465.9	0 0	95 8	-93 6	2.2	10230	20	2212556	54403.7	456.0	0 0	7 0	6 5	0.0	547700	6914122
80223	22	2550510	54417.2	449.5	0 0	47.4	-54.7	-6.9	10230	20	2212563	54403 6	456.0	0.0	7.0	6.5	0 0	547740	6914097

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80123	22	2602316	54463.2	465.9	0.0	46.7	-55.2	-8.2	10230	20	2214520	54448.2	456.0	0.0	7.0	6.5		554823	6910252
80123	22	2602421	54465.1	462.6	0.0	47.1	-55.2	-8.1	10240	20	2143150	54449.2	419.9	0.0	8.5	7.7	0.0	555147	6910894
80020	4	1922384	54409.9	475.7	0.0	95.7	-93.6	2.0	10240	20	2144597	54404.4	459.3	0.1	8.5	7.6	0.0	548102	6914795
80223	22	2550412	54418.8	452.8	0.0	47.5	-54.7	-6.8	10240	20	2145000	54404.1	459.3	0.1	8.5	7.6	0.0	548079	6914808
80030	3	2533169	54414.6	511.8	0.0	86.5	-96.9	-10.3	10240	20	2146426	54396.4	479.0	0.0	8.5	7.8	-0.1	541135	6918665
80041	10	2039590	54492.6	436.4	0.5	75.6	-17.3	57.4	10240	20	2148260	54539.4	465.9	0.0	8.5	8.6	-0.2	534051	6922585
80050	2	2327218	54526.8	485.6	0.3	93.7	-97.4	-9.3	10240	20	2150074	54509.9	459.3	1.5	8.5	10.2	-0.2	527072	6926592
80060	2	2314451	54414.2	456.0	0.1	94.5	-95.5	0.4	10240	20	2151478	54405.8	433.1	0.4	8.5	11.8	0.1	519940	6930382
80071	10	2022400	54551.6	416.7	1.3	75.6	-32.7	42.1	10240	20	2153289	54578.4	429.8	1.4	8.5	10.9	0.5	512908	6934269
80081	10	1936589	54723.6	403.5	0.3	75.6	-43.7	30.9	10240	20	2155104	54745.8	429.8	0.1	8.5	7.0	0.0	505864	6938221
80091	10	1924266	55722.6	423.2	2.4	75.6	-36.3	21.7	10240	20	2157066	55740.2	413.4	0.6	8.5	6.9		499986	6944009
80091	10	1924467	55146.5	439.6	4.3	75.6	-36.3	20.9	10250	20	2122366	55133.8	419.9	4.0	6.4	4.1	0.2	499189	6942778
80081	10	1937101	54740.5	410.1	0.2	75.6	-43.7	31.2	10250	20	2124401	54770.4	442.9	0.8	6.4	2.3	-0.3	506243	6938851
80071	10	2022292	54678.8	410.1	1.2	75.6	-32.7	41.8	10250	20	2126437	54723.9	446.2	2.6	6.4	4.6	-0.3	513252	6934971
80060	2	2314337	54410.8	449.5	0.1	94.5	-95.5	0.0	10250	20	2128494	54402.5	423.2	0.5	6.4	7.0	0.2	520375	6931096
80050	2	2327310	54546.7	479.0	0.0	93.6	-97.4	-8.9	10250	20	2130520	54537.7	433.1	0.9	6.4	5.5	-0.2	527364	6927084
80041	10	2040107	54524.4	439.6	0.4	75.6	-17.3	57.5	10250	20	2132541	54575.1	452.8	0.0	6.4	7.3	0.2	534435	6923235
80030	3	2533290	54418.2	528.2	0.0	86.5	-96.9	-10.4	10250	20	2134565	54402.5	482.3	0.0	6.4	5.5	-0.1	541527	6919384
80223	22	2550316	54422.1	452.8	0.0	47.7	-54.7	-6.5	10250	20	2136537	54409.2	462.6	0.1	6.4	6.1	0.0	548474	6915486
80020	4	1922264	54413.5	472.4	0.1	95.6	-93.6	1.9	10250	20	2136545	54409.1	465.9	0.0	6.4	6.1	0.0	548522	6915461
80123	22	2602532	54465.3	465.9	0.1	47.3	-55.2	-8.0	10250	20	2138495	54451.2	442.9	0.2	6.4	6.3		555522	6911554
80123	22	2603061	54466.6	456.0	0.1	47.2	-55.2	-8.1	10260	20	2107171	54454.5	465.9	0.1	4.7	4.2	-0.1	555999	6912307
80020	4	1922174	54417.3	482.3	0.0	95.5	-93.6	1.9	10260	20	2108596	54413.8	459.3	0.0	4.7	5.3	0.0	548961	6916212
80030	3	2533400	54424.0	515.1	0.0	86.3	-96.9	-10.5	10260	20	2110425	54408.7	456.0	0.0	4.7	5.1	-0.5	541906	6920027
80041	10	2040243	54548.8	452.8	0.3	75.6	-17.3	57.1	10260	20	2112256	54597.2	482.3	0.3	4.7	9.3	0.3	534864	6923997
80050	2	2327458	54510.2	479.0	0.0	93.6	-97.4	-8.1	10260	20	2114059	54500.0	433.1	0.1	4.7	6.5	0.2	527821	6927904
80060	2	2314226	54404.8	459.3	0.0	94.6	-95.5	-0.7	10260	20	2115447	54398.0	442.9	0.3	4.7	5.2	-0.2	520764	6931803
80071	10	2022164	54778.6	423.2	0.5	75.6	-32.7	42.5	10260	20	2117233	54801.8	419.9	3.5	4.7	6.8	-0.2	513732	6935771
80081	10	1937239	54762.2	429.8	0.7	75.6	-43.7	31.7	10260	20	2119004	54785.4	406.8	0.5	4.7	8.4	0.3	506704	6939606
80091	10	1924092	55886.7	419.9	0.1	75.6	-36.3	40.9	10260	20	2120505	55920.2	442.9	0.7	4.7	5.9		500592	6945113
80091	10	1924239	55766.5	416.7	2.3	75.6	-36.3	23.9	10270	20	2046542	55784.7	380.6	2.9	4.6	6.0	0.1	500081	6944180
80081	10	1937367	54822.6	410.1	0.6	75.6	-43.7	31.9	10270	20	2048573	54849.7	400.3	0.4	4.6	4.9	-0.1	507142	6940303
80071	10	2022082	54794.7	426.5	0.7	75.6	-32.7	43.5	10270	20	2050596	54842.5	413.4	2.5	4.6	5.8	-0.1	514143	6936385
80060	2	2314122	54397.8	452.8	0.1	94.6	-95.5	-1.3	10270	20	2053021	54390.2	416.7	0.5	4.6	6.5	0.3	521120	6932466
80050	2	2327578	54509.6	482.3	0.0	93.5	-97.4	-7.8	10270	20	2055055	54502.1	419.9	0.1	4.6	3.7	0.2	528175	6928583
80041	10	2040360	54578.0	456.0	0.5	75.6	-17.3	55.7	10270	20	2057091	54634.5	446.2	1.3	4.6	2.0	-0.2	535226	6924657
80030	3	2533525	54428.0	531.5	0.1	86.1	-96.9	-10.6	10270	20	2059121	54413.8	488.8	0.0	4.6	3.4	-0.2	542306	6920762
80020	4	1922075	54424.0	492.1	0.1	95.5	-93.6	1.9	10270	20	2101112	54420.4	498.7	0.2	4.6	5.3	0.1	549359	6916880
80123	22	2603189	54469.3	462.6	0.0	46.8	-55.2	-8.3	10270	20	2103077	54456.9	446.2	0.2	4.6	4.1		556369	6912950
80123	22	2603292	54470.9	459.3	0.1	46.4	-55.2	-8.5	10280	20	2031311	54459.0	452.8	0.1	4.0	3.2	-0.1	556784	6913681
80020	4	1921574	54424.5	475.7	0.0	95.5	-93.6	1.9	10280	20	2033150	54421.9	469.2	0.0	4.0	4.3	0.1	549747	6917578
80030	3	2534047	54433.7	528.2	0.0	86.1	-96.9	-10.7	10280	20	2034565	54419.5	482.3	0.0	4.0	3.5	-0.1	542722	6921471
80041	10	2040487	54633.2	459.3	0.8	75.6	-17.3	54.7	10280	20	2036373	54677.0	492.1	1.7	4.0	4.1	-0.1	535617	6925376

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80050	2	2328111	54513.4	452.8	0.1	93.4	-97 4	-8.0	10280	20	2038155	54504.6	479.0	0.1	4.0	4.6	0.2	528595	6929323
80060	2	2314004	54391.9	472.4	0.6	94.7	-95 5	-1.6	10280	20	2039535	54388 4	436.4	0.1	4 0	3.1	-0.3	521557	6933212
80071	10	2021555	54834.3	442.9	0.4	75.6	-32.7	45.0	10280	20	2041318	54871.6	436.4	0.3	4 0	5.6	-0.3	514528	6937051
80081	10	1937479	54885.1	439.6	0.9	75.6	-43.7	31.9	10280	20	2043094	54908 8	429.8	0.5	4.0	7.9	0 1	507492	6940935
80091	10	1923516	55723.5	429.8	1.9	75.6	-36.3	62.7	10280	20	2044589	55775.4	456.0	1.5	4.0	7.1		501222	6946229
80091	10	1924020	55857.6	416.7	1.0	75.6	-36.3	60.5	10290	20	2010198	55898.0	429.8	0.7	3.3	-0.6	-0.7	500839	6945576
80081	10	1938009	54941.6	410.1	0.8	75.6	-43 7	31.9	10290	20	2012326	54968.0	429.8	0.3	3.3	5.0	0.2	507872	6941677
80071	10	2021446	54853.3	413.4	0.2	75.6	-32.7	46.3	10290	20	2014468	54893.4	436.4	0.4	3 3	3.1	-0.3	514910	6937741
80060	2	2313503	54387.1	475.7	0 0	94.7	-95.5	-2.0	10290	20	2016590	54380 1	446.2	0.5	3.3	5.8	0.3	521925	6933844
80050	2	2326222	54517.8	472.4	0.2	93.3	-97.4	-8.3	10290	20	2018068	54510 8	475.7	0.0	3.3	3.2	-0.2	528973	6929936
80041	10	2041008	54679.1	472.4	0.2	75.6	-17.3	55.3	10290	20	2021120	54732.4	495.4	0.4	3.3	4.7	0.2	536009	6926061
80030	3	2534184	54439.2	508.5	0.1	86.1	-96 9	-10.7	10290	20	2023167	54425.8	502.0	0.0	3 3	2.8	0.0	543126	6922145
80020	4	1921478	54426.5	498.7	0.0	95.5	-93.6	1.9	10290	20	2025156	54425.1	465.9	0.1	3.3	3.2	0 1	550113	6918247
80123	22	2603400	54472.5	459.3	0.1	46.3	-55.2	-8 6	10290	20	2027155	54461 3	462.6	0.1	3 3	2.4		557188	6914305
80091	10	1923515	55722.4	429.8	1.9	75.6	-36 3	62.8	10300	19	2526155	55821.2	383.9	1.6	-10 3	-5.7	0.2	501225	6946233
80081	10	1938138	54981.7	406.8	0.3	75 6	-43.7	31.9	10300	19	2528200	55021.0	413.4	0.5	-10.3	-7.1	-0.2	508278	6942410
80071	10	2021327	54794.1	423.2	0.6	75.6	-32.7	46.3	10300	19	2530222	54853 0	416.7	0.1	-10.3	-5.6	-0.1	515348	6938491
80060	2	2313385	54389.7	469.2	0 2	94.7	-95.5	-3.4	10300	19	2532246	54392.9	423.2	0.3	-10.3	-4.5	0.8	522368	6934590
80050	2	2328353	54524.2	452.8	0.2	93.2	-97.4	-9.2	10300	19	2534243	54532 0	449.5	0.2	-10.3	-11.3	0.0	529387	6930665
80041	10	2041147	54665.4	469.2	0.1	75.7	-17.3	57.1	10300	19	2536250	54733 2	472.4	0 0	-10 3	-11.0	-0.1	536455	6926846
80030	3	2534282	54443.6	485.6	0.1	86.2	-96 9	-10.7	10300	19	2538259	54443 0	465 9	0.0	-10.3	-10.1	0.0	543523	6922828
80020	4	1921368	54429.1	479.0	0.0	95.5	-93.6	1.8	10300	19	2540210	54441 4	452.8	0.1	-10.3	-10.2	-0.1	550551	6918987
80123	22	2603526	54471.4	462.6	0.0	46.6	-55.2	-8.4	10300	19	2542190	54472.1	436.4	0.1	-10.3	-9.3		557604	6915076
80123	22	2604054	54473.0	456.0	0.1	47.0	-55 2	-8.3	10310	19	2510431	54471 4	456.0	0.1	-6 8	-6.6	0.0	557985	6915864
80020	4	1921267	54431.2	459.3	0.0	95.4	-93 6	1.8	10310	19	2512192	54440 0	446.2	0.1	-6 8	-6.8	0.0	550984	6919665
80030	3	2534416	54451.0	479 0	0.1	86.2	-96 9	-10.7	10310	19	2513586	54446.8	479.0	0.0	-6 8	-6.4	0.0	543935	6923625
80041	10	2041275	54682.9	452.8	0.3	75.8	-17.3	59.2	10310	19	2515397	54742.4	462 6	0.5	-6.8	-6.3	0.4	536873	6927564
80050	2	2328501	54529.1	439.6	0.1	93.0	-97.4	-10.9	10310	19	2517171	54531 5	472.4	0 1	-6 8	-10.0	-0.3	529911	6931470
80060	2	2313244	54390.3	459.3	0.0	94.7	-95.5	-7.1	10310	19	2518547	54398 2	426.5	0.3	-6 8	-7.1	0.2	522894	6935464
80071	10	2021210	54752.6	433.1	0.3	75.6	-32.7	45.4	10310	19	2520335	54804 6	410 1	0.0	-6.8	-8.4	-0 6	515798	6939209
80081	10	1936252	54997.9	403.5	0.0	75.6	-43 7	31.9	10310	19	2522119	55032.6	400.3	0.4	-6.8	-3.3	0.1	508667	6943046
80091	10	1923325	55375.8	423.2	2.7	75.6	-36.3	70.1	10310	19	2523519	55450 0	393.7	1.1	-6.8	-3.9	0.1	501943	6947465
80100	1	2035563	54505.4	761.2	1.7	92.3	-95.7	-13.5	10310	19	2524451	54562 2	479.0	4.3	-6 8	-4.6		499922	6950543
80100	1	2036082	54585.3	757.9	0.0	92.3	-95 7	-30.2	10320	19	2449348	54539.1	469.2	6 4	-5.3	-7.2	0.1	499505	6949822
80091	10	1923289	55303.9	426.5	2.6	75.8	-36 3	69.4	10320	19	2450273	55373 3	446.2	0.9	-5.3	-7.7	0.1	502082	6947690
80081	10	1938382	54986.6	423.2	0.5	75.6	-43 7	31.8	10320	19	2452302	55027.6	433.1	0.4	-5.3	-8.6	-0.6	509102	6943768
80071	10	2021105	54746.5	423.2	0.2	75.6	-32 7	44.0	10320	19	2454312	54793 0	423.2	0.3	-5 3	-4.0	0.3	516176	6939867
80060	2	2313160	54411.0	456.0	0.7	94.7	-95 5	-8.1	10320	19	2456314	54410 8	436.4	0.5	-5 3	-6.6	0.4	523188	6936004
80050	2	2329007	54531.2	446.2	0.1	92.9	-97.4	-11.7	10320	19	2458337	54532.5	446.2	0.1	-5 3	-10.1	-0.6	530260	6932063
80041	10	2041392	54685.4	449.5	0 5	75.8	-17 3	61.4	10320	19	2500360	54749 1	475.7	0.9	-5 3	-5.5	0.0	537253	6928237
80030	3	2534533	54458.5	449.5	0.1	86 0	-96 9	-10 8	10320	19	2502381	54453 5	495.4	0.1	-5 3	-5 8	0.1	544322	6924301
80020	4	1921163	54435.8	485.6	0.1	95 3	-93 6	1.7	10320	19	2504369	54443 8	465.9	0.0	-5 3	-6.3	0.2	551391	6920378
80123	22	2604173	54473.7	452.8	0.0	47.1	-55 2	-8.3	10320	19	2506364	54473 6	416.7	0 1	-5 3	-7.8		558414	6916565

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80123	22	2604288	54474.4	472.4	0.0	46.7	-55.2	-8.4	10330	19	2434202	54471.7	482.3	0.1	-5.5	-5.7	0.0	558840	6917216
80020	4	1921059	54437.7	465.9	0.1	95.3	-93.6	1.7	10330	19	2435582	54445.3	446.2	0.2	-5.5	-5.7	-0.1	551783	6921097
80030	3	2535054	54463.0	452.8	0.1	85.7	-96 9	-11.0	10330	19	2437390	54456 4	469.2	0.2	-5 5	-4.8	0.3	544746	6924983
80041	10	2041510	54624.6	442.9	0.9	75.9	-17.3	62.2	10330	19	2439220	54703.8	482.3	1.6	-5 5	-7.5	0.3	537654	6928906
80050	2	2329142	54532.0	469 2	0.1	92.8	-97.4	-11.3	10330	19	2441001	54537.9	456.0	0.5	-5 5	-10 0	-0 3	530678	6932813
80060	2	2313029	54508.3	465.9	0.3	94.7	-95.5	-4.9	10330	19	2442389	54499 0	452.8	1.2	-5.5	-7.6	-0.3	523678	6936821
80071	10	2020585	54767.9	426.5	0.4	75.6	-32 7	43.0	10330	19	2444168	54815.8	423.2	0.9	-5 5	-5.1	0.0	516603	6940630
80081	10	1938523	54958.1	436.4	0.5	75.6	-43 7	31.0	10330	19	2445559	54995 0	413 4	0.1	-5 5	-5.0	0.1	509584	6944542
80091	10	1923177	55139.2	426.5	2.1	75.6	-36 3	65.0	10330	19	2447345	55210.1	446.2	1.4	-5.5	-5.9	0.1	502518	6948382
80100	1	2035285	54409.1	754.6	1.0	92.3	-95.7	9 3	10330	19	2448316	54399.7	561.0	0 5	-5.5	-6.5		500962	6952187
80100	1	2035538	54474.0	764.4	1.8	92.4	-95.7	-11.0	10340	19	2412477	54471.5	502 0	5.7	-5.6	-0.9	0.0	500011	6950692
80091	10	1923062	54954.6	426.5	2.3	75.6	-36.3	60.0	10340	19	2413377	55022.5	406.8	0 8	-5 6	-1.3	0.2	502904	6949070
80081	10	1939042	54933.9	439.6	0.1	75.6	-43.7	29 4	10340	19	2415399	54968 8	416.7	0 4	-5 6	-2.9	0.1	509925	6945231
80071	10	2020479	54774.0	419.9	0.2	75.6	-32.7	42.9	10340	19	2417440	54820.7	446.2	0.6	-5 6	-3.7	0.1	516986	6941296
80060	2	2312540	54486.8	472.4	0.6	94.8	-95.5	0.0	10340	19	2419459	54505.4	426 5	1.3	-5 6	-4 6	0.1	523994	6937383
80050	2	2329269	54533.2	436.4	0.1	92.7	-97.4	-10.2	10340	19	2421495	54534.1	433.1	0.0	-5 6	-5.6	0.2	531053	6933521
80041	10	2042040	54568.8	436.4	0.5	76.0	-17.3	60.9	10340	19	2423531	54632 2	465.9	1.0	-5.6	-7.5	0.0	538094	6929636
80030	3	2535178	54470.0	452.8	0.0	85.5	-96 9	-11.2	10340	19	2425552	54466 5	459.3	0.4	-5 6	-7.7	-0.2	545147	6925708
80020	4	1920557	54445.0	465.9	0.2	95.3	-93 6	1.7	10340	19	2427535	54453 2	452 8	0.0	-5.6	-6 4	-0.2	552196	6921800
80123	22	2604403	54476.4	472.4	0.0	46.3	-55 2	-8.7	10340	19	2429514	54472.6	465.9	0 0	-5.6	-5.1		559231	6917903
80020	4	1920464	54449.3	462.6	0.1	95.2	-93 6	1.8	10350	19	2356087	54452.1	485.6	0 0	-1.2	-1.1	-0.1	552570	6922433
80123	22	2604513	54477.1	472.4	0.1	46.0	-55.2	-8 9	10350	19	2357266	54468 4	518.4	0.0	-1.2	-0.5		559615	6918559
80030	3	2535302	54477.4	462.6	0.1	85.4	-96.9	-11.4	10351	19	2400496	54467 8	465.9	0.1	-3 9	-2.2	0.6	545544	6926422
80041	10	2042157	54548.5	429.8	0.1	76.1	-17.3	59.2	10351	19	2402307	54614 9	479.0	0 6	-3 9	-6.9	-0.2	538504	6930297
80050	2	2329402	54546.7	449.5	0.7	92 6	-97 4	-9.6	10351	19	2404103	54549 6	449.5	0.1	-3.9	-5.5	-0.3	531477	6934254
80060	2	2312415	54458.1	433.1	0.5	94.9	-95 5	8.2	10351	19	2405491	54460.5	446.2	0 6	-3.9	-3.3	0.3	524432	6938178
80071	10	2020364	54768.6	436.4	0.1	75.6	-32.7	42 9	10351	19	2407273	54817.3	423.2	0.3	-3.9	-5.4	-0.1	517385	6942031
80081	10	1939178	54935.1	413.4	0.2	75.6	-43 7	28 6	10351	19	2409065	54960.7	419 9	0.7	-3.9	-4.2		510360	6945997
80100	1	2035284	54409.9	757.9	1.0	92.3	-95 7	9.4	10360	19	2333200	54410 8	502.0	0.7	-2 6	-2.8	-0.7	500966	6952184
80091	10	1922443	54499.2	416.7	2 9	75.6	-36 3	55 0	10360	19	2334086	54533.6	406.8	5.4	-2.6	3 0	0.6	503704	6950449
80081	10	1939276	54949.2	426.5	0.3	75.6	-43.7	29 2	10360	19	2336114	54984.3	419.9	0.9	-2.6	-2.3	-0.4	510701	6946545
80071	10	2020261	54765.6	426.5	0.4	75.6	-32.7	42 9	10360	19	2338167	54807.1	436.4	0.4	-2.6	1.0	0.2	517741	6942680
80060	2	2312322	54358.5	456.0	1.9	95.0	-95 5	7.3	10360	19	2340213	54371.5	449.5	0.3	-2.6	-0.6	0.2	524786	6938766
80050	2	2329520	54537.0	452.8	0.1	92.6	-97.4	-9.6	10360	19	2342261	54535.0	442.9	0.1	-2 6	-2.4	-0.2	531880	6934698
80041	10	2042279	54537.2	449.5	0.0	76.1	-17.3	58.6	10360	19	2344302	54596.7	442.9	0.4	-2 6	-0.9	0.3	538696	6931002
80030	3	2535417	54464.8	469.2	0.1	85.3	-96 9	-11 4	10360	19	2346356	54477.0	472.4	0.2	-2.6	-3.5	-0.1	545928	6927074
80020	4	1920360	54447.1	469.2	0.0	95.2	-93 6	1 6	10360	19	2340341	54451.6	456.0	0.0	-2.6	-2.8	0.0	552971	6923154
80123	22	2605031	54478.2	459.3	0.0	46.1	-55.2	-8 8	10360	19	2350347	54471.7	442.9	0.0	-2.6	-2.5		560015	6919266
80123	22	2605147	54479.2	465.9	0.0	46.5	-55.2	-8 6	10370	18	2503536	54477.0	446.2	0.0	-8.0	-6.4	0.1	560394	6919971
80020	4	1920261	54451.7	469.2	0.0	95.1	-93 6	1.5	10370	18	2505447	54460.4	465.9	0.0	-8.0	-7.1	0.1	553366	6923836
80030	3	2535524	54468.7	475.7	0.0	85.3	-96 9	-11.4	10370	18	2507353	54485.1	459.3	0.1	-8.0	-8.0	0.2	546293	6927678
80041	10	2042387	54530.2	472.4	0.0	76.2	-17.3	58 8	10370	18	2509254	54598 9	469 2	0.2	-8 0	-9.4	-0.2	539239	6931618
80050	2	2330032	54541.5	485.6	0.3	92.5	-97.4	-9.7	10370	18	2511137	54544 0	406.8	0.0	-8.0	-7.5	0.0	532237	6935514

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80060	2	2312210	54320.3	436.4	0.4	95.1	-95.5	5.0	10370	18	2513042	54327.7	423.2	0.4	-8.0	-7.7	0 0	525186	6939474
80071	10	2020148	54768.7	413.4	0.3	75.6	-32.7	42.9	10370	18	2514553	54819.7	416.7	0.1	-8.0	-7.5	-0.7	518163	6943365
80081	10	1939396	54989.9	429.8	0.9	75.6	-43.7	30.4	10370	18	2516462	55023.5	446.2	1.2	-8.0	-2.0	0.0	511061	6947234
80091	10	1922323	54239.1	397.0	2.8	75 6	-36.3	53.4	10370	18	2510348	54321.8	413.4	5.3	-8.0	-1.8	0.0	504183	6951188
80100	1	2035027	54624.4	751.3	0.4	92.7	-95.7	35.1	10370	18	2519252	54637.7	646.3	0.3	-8.0	-1.9		501897	6953724
80100	1	2035080	54618.3	744.8	0.9	92.5	-95.7	33.3	10380	18	2443372	54668.6	387.1	0.6	-7.7	-6.8	-0.1	501692	6953416
80091	10	1922235	54066.2	410.1	2.3	75.6	-36.3	50 5	10380	18	2444244	54110.7	397.0	3.5	-7.7	-5.7	0.5	504482	6951759
80081	10	1939522	55067.1	416.7	0.6	75 6	-43 7	30.8	10380	18	2446194	55099.0	406.8	1.5	-7.7	-9.5	-0.1	511468	6947947
80071	10	2020045	54752.5	423.2	0.4	75.6	-32.7	42 9	10380	18	2448154	54804 2	413.4	0.1	-7.7	-8.6	-0.3	518552	6944021
80060	2	2312105	54341.2	462.6	0.1	95.0	-95 5	1.8	10380	18	2450089	54346.2	413.4	0.2	-7.7	-5.8	0.3	525587	6940126
80050	2	2330158	54542.7	485.6	0.1	92.4	-97.4	-10 0	10380	18	2452021	54546 6	429.8	0.2	-7.7	-8.5	-0.1	532598	6936213
80041	10	2042517	54526.4	459.3	0.1	76.3	-17 3	59.0	10380	18	2453574	54592.8	452.8	0.0	-7.7	-7.5	0.2	539675	6932341
80030	3	2536061	54497.7	472.4	0 0	85.4	-96.9	-11.4	10380	18	2455528	54495 6	449 5	0.2	-7.7	-9.0	-0.3	546729	6928468
80020	4	1920162	54453.8	475.7	0.0	95.1	-93 6	1.5	10380	18	2457488	54462 0	462.6	0.1	-7.7	-6.7	-0.1	553771	6924512
80123	22	2605253	54478.8	469.2	0.0	46.9	-55.2	-8 4	10380	18	2459413	54476.7	446.2	0.0	-7.7	-6.1		560746	6920606
80123	22	2605367	54478.3	442.9	0.0	47.0	-55.2	-8.3	10390	18	2426314	54475 8	436.4	0.0	-6 8	-5.6	0.1	561164	6921295
80020	4	1920053	54456.7	472.4	0.0	95.1	-93.6	1.5	10390	18	2428205	54464.5	439.6	0.0	-6 8	-6.2	0.1	554198	6925261
80030	3	2536175	54506.0	495.4	0.1	85.5	-96 9	-11.3	10390	18	2430118	54503.8	439.6	0.1	-6.8	-7.1	0.1	547113	6929112
80041	10	2043035	54525.7	446.2	0.0	76.4	-17.3	59.0	10390	18	2432035	54593 4	479.0	0.1	-6 8	-8 3	-0.2	540059	6933013
80050	2	2330286	54544.5	442.9	0.1	92.3	-97.4	-10.3	10390	18	2433541	54545.7	426.5	0 2	-6.8	-6.3	-0.1	533034	6936909
80060	2	2311596	54352.8	446.2	0.1	95.0	-95.5	-1.3	10390	18	2435444	54357.5	400.3	0.1	-6 8	-5.3	0.2	525981	6940816
80071	10	2018528	54724.4	406.8	0.5	75.6	-32 7	42.9	10390	18	2437351	54774.1	390.4	0.0	-6.8	-6.6	0.0	519006	6944750
80081	10	1940045	55101.1	426.5	0.5	75.6	-43.7	30 8	10390	18	2439272	55133.3	423.2	1.3	-6.8	-8.4	0.3	511905	6948627
80091	10	1922110	53913.8	429.8	1.2	75.6	-36.3	43.3	10390	18	2441170	53974 6	426.5	2.4	-6.8	-9.0	0.1	504905	6952568
80100	1	2034374	54407.2	721.8	1.6	93.0	-95 7	10.6	10390	18	2442034	54414 8	410.1	1.1	-6.8	-9.7		502946	6955161
80100	1	2034431	54468.2	728.3	1.4	93.0	-95.7	19.2	10400	18	2406119	54494 5	387.1	2.7	-6.9	-2.1	0.1	502702	6954639
80091	10	1922013	53859.2	426.5	0.3	75.6	-36 3	38 5	10400	18	2406562	53887.7	387.5	1.8	-6.9	-3.2	0.3	505246	6953192
80081	10	1940163	55111.4	433.1	0.3	75.6	-43 7	30 9	10400	18	2408524	55154 6	416.7	1.7	-6.9	-6.1	0.2	512303	6949285
80071	10	2019426	54699.8	410.1	0.5	75.6	-32.7	42 8	10400	18	2410475	54750 9	413.4	0.4	-6 9	-7.8	-0.2	519365	6945401
80060	2	2311480	54369.0	442.9	0.0	94.9	-95 5	-5.2	10400	18	2412408	54374.2	416.7	0.1	-6.9	-6.1	0.4	526377	6941575
80050	2	2330413	54544.5	439.6	0.4	92.0	-97.4	-10.7	10400	18	2414351	54548 9	426 5	0.4	-6 9	-9.3	-0 1	533399	6937641
80041	10	2043156	54525.4	436.4	0.1	76.4	-17.3	59.1	10400	18	2416298	54592.9	459.3	0.0	-6 9	-8.4	0 0	540457	6933698
80030	3	2536292	54519.3	479.0	0.0	85.6	-96.9	-11.2	10400	18	2418238	54516 5	462.3	0 2	-6.9	-8.3	-0.2	547492	6929778
80020	4	1919561	54461.1	462.6	0.0	95.1	-93 6	1.5	10400	18	2420168	54469 0	446.2	0.1	-6.9	-6.4	-0 1	554543	6925912
80123	22	2605486	54480.9	452.8	0.0	46.7	-55 2	-8 5	10400	18	2422103	54477 7	459.3	0 0	-6 9	-5.3		561569	6922017
80123	22	2605595	54482.3	449.5	0.0	46.2	-55 2	-8.7	10410	18	2348086	54478.7	446.2	0 1	-6 6	-5 4	0.1	561917	6922689
80020	4	1919463	54461.0	469.2	0.1	95.1	-93.6	1.5	10410	18	2349598	54468 8	436.4	0.0	-6 6	-6.1	0.0	554943	6926588
80030	3	2536431	54522.0	485.6	0.2	85.7	-96 9	-11 1	10410	18	2351533	54516 7	459.3	0.2	-6.6	-6.0	0.3	547849	6930572
80041	10	2043292	54527.6	429.8	0.0	76.5	-17.3	59.2	10410	18	2353471	54595 3	459.3	0 0	-6 6	-8.1	-0.2	540888	6934485
80050	2	2330550	54543.5	439.6	0.1	91.7	-97 4	-11.2	10410	18	2355399	54544 5	439 6	0.3	-6 6	-6 6	-0.2	533831	6938396
80060	2	2311374	54403.9	456.0	0.8	94.8	-95 5	-8.8	10410	18	2357307	54408 2	416.7	0 9	-6 6	-4.9	-0 2	526781	6942240
80071	10	2018311	54682.6	410.1	0.1	75.6	-32 7	42.5	10410	18	2359221	54728 9	426.5	0 5	-6 6	-3.5	0.1	519778	6946137
80081	10	1940296	55089.4	429.8	0.1	75.6	-43 7	31.0	10410	18	2401135	55121.3	429.8	1.0	-6 6	-4.7	-0.3	512748	6950039

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80091	10	1921470	53870.1	433.1	0.8	75.6	-36.3	37.2	10410	18	2403052	53812 3	423.2	0.7	-6 6	-2.1	-0.3	505780	6954081
80100	1	2034277	54297.6	721.8	1.8	93.0	-95.7	-4.6	10410	18	2403458	54293.4	360.9	1.3	-6.6	0.5		503352	6955708
80100	1	2034218	54225.9	711.9	1.7	93.1	-95.7	-12.8	10420	18	2327363	54227 5	416.7	2.9	-6 6	-3.3	-0.3	503592	6956042
80091	10	1921373	53903.6	442.9	0.0	75.6	-36.3	39.2	10420	18	2328178	53942.7	406.8	0.2	-6 6	-0.9	0.6	506136	6954696
80081	10	1940421	55068.8	439.6	0.2	75.6	-43.7	31.0	10420	18	2330141	55107 4	423.2	1.1	-6 6	-6.1	0.0	513144	6950745
80071	10	2018199	54674.4	406.8	0.4	75.6	-32.7	41.9	10420	18	2332102	54723.3	397.0	0.8	-6.6	-6.0	0.1	520218	6946827
80060	2	2311267	54558.8	465.9	2.0	94.7	-95.5	-10.6	10420	18	2334056	54546 8	419.9	3.1	-6.6	-7.0	0.1	527195	6942902
80050	2	2331079	54540.3	446.2	0 0	91.5	-97.4	-11.5	10420	18	2336002	54542.5	416.7	0.2	-6 6	-7.9	-0.1	534280	6939068
80041	10	2043408	54534.5	442.8	0.1	76.6	-17 3	59.3	10420	18	2337547	54601.0	439.6	0.0	-6.6	-7.2	0.1	541291	6935131
80030	3	2536550	54533.4	485.6	0.2	85.8	-96 9	-11.0	10420	18	2339482	54530.3	442.9	0.7	-6.6	-7.7	-0 2	548340	6931252
80020	4	1919354	54464.6	465.9	0.0	95.1	-93.6	1.5	10420	18	2341415	54471.7	446.2	0.0	-6 6	-5.7	0.0	555385	6927342
80123	22	2606125	54478.9	452.8	0.0	46.1	-55.2	-8.8	10420	18	2343335	54475.3	446.2	0.1	-6.6	-5.4		562401	6923449
80123	22	2606247	54484.4	462.6	0.1	46.3	-55.2	-8.7	10430	18	2309205	54479 3	419.9	0.1	-5.4	-3.8	0.1	562861	6924160
80020	4	1919249	54466.6	459.3	0.0	95.1	-93.6	1.5	10430	18	2311140	54472.9	423.2	0 0	-5 4	-4.5	-0.1	555787	6928089
80030	3	2537066	54548.9	479.0	0.3	85.8	-96.9	-11.0	10430	18	2313069	54541.1	433 1	0.5	-5.4	-3.5	0 2	548720	6931917
80041	10	2043531	54543.0	449.5	0.0	76.7	-17.3	59.4	10430	18	2314597	54608 2	456.0	0.0	-5.4	-5.5	0.0	541714	6935808
80050	2	2331210	54541.2	446.2	0.0	91.4	-97.4	-11.8	10430	18	2316532	54540.2	433.1	0.2	-5.4	-5.3	0.4	534689	6939774
80060	2	2311156	54664.5	449.5	0.7	94.6	-95.5	-9.1	10430	18	2318451	54673.4	439.6	2.1	-5 4	-9.0	-0.7	527619	6943600
80071	10	2019099	54677.0	406.8	0.0	75.6	-32.7	41.7	10430	18	2320363	54719.3	410.1	1.2	-5 4	-3.5	-0.6	520582	6947468
80081	10	1940531	55058.4	436.4	0.1	75.6	-43.7	31.5	10430	18	2322279	55085.7	423.2	1.6	-5.4	1.7	0.6	513511	6951364
80091	10	1921273	53865.6	426.5	0.9	75.6	-36.3	41.6	10430	18	2324184	53908 8	406.8	0.2	-5.4	-3.4	0.1	506520	6955314
80100	1	2034094	54177.1	725.1	0.7	93.1	-95.7	-22.2	10430	18	2324590	54149.7	442 9	2.9	-5 4	-3.9		503999	6956814
80123	22	2606348	54485.2	495.4	0.0	46.7	-55.2	-8.5	10440	17	2348481	54481.1	475.7	0.0	-6 1	-4.4	0.2	563208	6924758
80020	4	1919171	54470.4	469.2	0.1	95.1	-93 6	1.5	10440	17	2350492	54477.8	442 9	0.0	-6.1	-5.7	0.0	556103	6928636
80030	3	2537171	54563.3	492.1	0.0	85.8	-96 9	-11.0	10440	17	2352492	54558 0	475 7	0.0	-6 1	-5.9	0.2	549058	6932533
80041	10	2044049	54553.0	413.4	0.1	76.7	-17 3	59.4	10440	17	2354476	54620 5	436.4	0.1	-6 1	-7.8	0.0	542090	6936482
80050	2	2331326	54543.1	403.5	0.1	91.4	-97.4	-11.9	10440	17	2356485	54545 0	442 9	0.3	-6 1	-7.8	0.0	535063	6940409
80060	2	2311047	54569.2	442.9	1.6	94.6	-95.5	-5.9	10440	17	2358481	54576 4	429.8	1.3	-6.1	-7.7	-0 4	528007	6944317
80071	10	2018587	54664.0	406.8	0.4	75.6	-32.7	42.0	10440	17	2400443	54711 1	442.9	0.8	-6.1	-4.3	-0.1	520976	6948184
80081	10	1941059	55099.6	442.9	1.0	75.6	-43.7	31.9	10440	17	2402408	55135 7	452 8	2.2	-6 1	-3.7	-0.6	513915	6952100
80091	10	1921163	53805.8	418.9	0 6	75 6	-36.3	42.6	10440	17	2404324	53855 5	465.9	0.9	-6.1	1.2	-0.3	506950	6955999
80100	1	2033540	54267.5	698.8	1.0	93.3	-95.7	-17.8	10440	17	2405204	54261 6	502.0	1.7	-6.1	3.3		504333	6957835
80100	1	2033484	54314.9	689.0	1.5	93.4	-95 7	-13 9	10450	17	2329480	54311 2	436.4	1.6	-7 5	-0.6	0.7	504448	6956208
80091	10	1921061	53790.1	406.8	0.1	75.6	-30.3	42 0	10450	17	2330330	53830 4	442.9	1.4	-7.5	-6.8	-0.3	507354	6956624
80081	10	1941173	55190.1	416.7	0.9	75.6	-43 7	31.9	10450	17	2332208	55226 0	456.0	2.3	-7.5	-4.3	0.1	514267	6952762
80071	10	2018480	54634.5	400.3	0.5	75.6	-32 7	42.5	10450	17	2334101	54682 6	423 2	1.0	-7 5	-5.1	0 2	521362	6948871
80060	2	2310542	54578.2	446.2	0.1	94.4	-95.5	-3 4	10450	17	2335569	54583 5	446.2	3.2	-7.5	-6.4	0.3	528384	6944997
80050	2	2331450	54546.0	429.8	0.1	91.4	-97.4	-11.9	10450	17	2337431	54548 6	446.2	0.3	-7.5	-8.5	0.1	535425	6941099
80041	10	2044157	54565.2	400.3	0.0	76.8	-17.3	59 5	10450	17	2339272	54634 8	439 6	0.2	-7.5	-9.6	-0.4	542439	6937102
80030	3	2537305	54578.4	472.4	0.3	85.9	-96 9	-10.9	10450	17	2341100	54573 7	488.8	0.9	-7.5	-6.6	0.1	549513	6933311
80020	4	1918061	54473.2	469.2	0.0	95.1	-93 6	1 5	10450	17	2342532	54482 4	449 5	0.2	-7.5	-7.4	-0.1	556567	6929396
80123	22	2606475	54486.2	502.0	0.0	46.9	-55 2	-8.4	10450	17	2344361	54484 1	469.2	0.0	-7.5	-6.2		563617	6925531
80123	22	2606590	54487.8	492.1	0.0	46.7	-55 2	-8.6	10460	17	2310342	54482 9	462.6	0.0	-5 6	-3.6	0.1	563995	6926229

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80020	4	1918563	54478.2	482.3	0.0	95.1	-93.6	1.5	10460	17	2312354	54484.5	446.2	0.1	-5 6	-4.6	0.0	556960	6930081
80030	3	2537418	54582.2	479.0	0.2	86.9	-96 9	-10.8	10460	17	2314372	54575.6	436.4	0.4	-5 6	-4.5	0.3	549911	6933947
80041	10	2044294	54578.8	413.4	0.2	76.9	-17.3	59.6	10460	17	2316400	54645.7	433.1	0.1	-5.6	-6.9	-0.1	542842	6937892
80050	2	2331581	54550.6	433.1	0.0	91.4	-97.4	-11.9	10460	17	2318422	54550.5	449.5	0.3	-5.6	-5.8	-0.2	535841	6941791
80060	2	2310430	54588.1	433.1	0.8	94.2	-95.5	-2.7	10460	17	2320432	54590 6	419.9	1.8	-5.6	-3.8	-0.1	528812	6945720
80071	10	2018370	54575.3	410.1	0.7	75.6	-32.7	42.8	10460	17	2322396	54621.4	456.0	0.5	-5.6	-2.9	-0.4	521790	6949553
80081	10	1941290	55160.8	403.5	1.6	75.6	-43.7	31.9	10460	17	2324355	55191.8	465.9	0.9	-5.6	0.6	0.1	514661	6953434
80091	10	1920554	53824.2	436.4	0.8	75.6	-36.3	40.6	10460	17	2326271	53863.1	442.9	2.0	-5.6	-0.5	0.6	507747	6957295
80100	1	2033368	54469.3	692.3	2.1	93.3	-95.7	-5.5	10460	17	2327175	54473.5	482.3	0.9	-5 6	-5.1		504654	6958992
80100	1	2033234	54628.2	689.0	1.2	93.2	-95.7	2.6	10470	17	2251245	54637.1	518.4	1.4	-5.3	-9.4	-0.8	504846	6959907
80091	10	1920431	53928.3	436.4	1.1	75.6	-36.3	39.4	10470	17	2252148	53968.7	462 6	2.1	-5.3	-2.8	0.1	508102	6958108
80081	10	1941415	55019.0	410.1	1.3	75.6	-43 7	31.9	10470	17	2254044	55055 0	442.9	0.3	-5 3	-3.7	-0.1	515110	6954132
80071	10	2018249	54529.3	393.7	0.1	75.6	-32.7	42.9	10470	17	2255547	54575 1	419.9	0.5	-5 3	-2.9	0.1	522308	6950278
80060	2	2310331	54648.3	456.0	0.3	94.0	-95.5	-2.7	10470	17	2257409	54650.3	442 9	1.3	-5.3	-3.5	0.2	529218	6946335
80050	2	2332107	54555.9	456.0	0.1	91.4	-97.4	-12.0	10470	17	2258282	54555.4	429.8	0.1	-5.3	-5 3	0.0	536254	6942455
80041	10	2044429	54588.8	400.3	0.2	77.0	-17.3	59.7	10470	17	2301117	54654 3	459.3	0.2	-5 3	-5.6	-0.1	543276	6938654
80030	3	2537569	54603.0	495.4	0.2	86.1	-96.9	-10.7	10470	17	2302543	54596 6	452.8	0.2	-5 3	-4.5	0.1	550396	6934829
80020	4	1918453	54478.3	465.9	0.1	95.1	-93.6	1.5	10470	17	2304351	54485.1	472.4	0.0	-5 3	-5.1	0.0	557381	6930864
80123	22	2607103	54488.5	485.6	0.0	46.2	-55.2	-8.9	10470	17	2306162	54484 5	459.3	0.0	-5.3	-4.9		564382	6926902
80123	22	2607233	54491.4	469.2	0.0	45.7	-55.2	-9.2	10480	17	2231337	54483 7	462 6	0.0	-2 8	-1.8	0.0	564911	6927656
80020	4	1918352	54485.4	475.7	0.0	95.2	-93.6	1.6	10480	17	2233406	54489.4	442.9	0.0	-2.8	-2.2	-0.1	557783	6931581
80030	3	2538072	54611.7	488.8	0.4	86.2	-96 9	-10.6	10480	17	2235463	54602.0	433.1	0.4	-2.8	-1.1	0.2	550718	6935424
80041	10	2044544	54594.1	403.5	0.0	77.1	-17.3	59.8	10480	17	2237508	54656 6	446.2	0.4	-2 8	-2.6	0.1	543674	6939302
80050	2	2332256	54561.3	446.2	0.3	91.3	-97.4	-12.0	10480	17	2239538	54559.1	419.9	0.1	-2 8	-3.7	-0.1	536715	6943255
80060	2	2310208	54608.8	452.8	0.4	94.0	-95.5	-3.0	10480	17	2241577	54610.1	426.5	0.1	-2.8	-2.7	-0.1	529669	6947138
80071	10	2018129	54513.8	436.4	0.0	75.6	-32.7	42.9	10480	17	2243580	54558 0	442 9	0.9	-2.8	-1.5	0.3	522738	6951045
80081	10	1941555	54935.2	423.2	0.4	75.6	-43.7	32.8	10480	17	2245579	54971.5	426.5	0 5	-2 8	-3.8	-0.4	515580	6954928
80091	10	1920313	53995.3	423.2	0 6	75.6	-36 3	39.3	10480	17	2247536	54034 1	433.1	2 0	-2.8	-0.1	0.3	508519	6958858
80100	1	2033098	54698.0	666.0	0.4	93.2	-95 7	8.9	10480	17	2248494	54709 9	449.5	0.8	-2 8	-2.5		505073	6960824
80100	1	2032588	54747.1	662.7	0.5	93 2	-95.7	10.3	10490	17	2211322	54758 6	429.8	3.7	-3.6	0 7	0.0	505254	6961568
80091	10	1920209	54043.3	429.8	0.6	75.6	-36.3	39.3	10490	17	2212305	54082.1	429.8	1.9	-3 6	0.8	-0.4	508914	6959497
80081	10	1942078	54926.1	400.3	0.5	75.6	-43 7	34.4	10490	17	2214226	54953 0	436.4	3.7	-3 6	4.3	0 6	515974	6955639
80071	10	2018030	54517.0	406.8	0.1	75.6	-32.7	42.9	10490	17	2216125	54560 8	423.2	0.7	-3.6	-0 5	0.3	522998	6951711
80060	2	2310116	54592.0	482.3	0.3	93.9	-95.5	-3.1	10490	17	2218017	54593 5	456.0	1.0	-3.6	-2.9	0.1	529987	6947737
80050	2	2332378	54569.2	479.0	0.1	91.3	-97.4	-12.0	10490	17	2219482	54566 8	465.9	0.2	-3 6	-3.6	0.0	537081	6943920
80041	10	2045069	54590.6	416.7	0.1	77.1	-17.3	59.8	10490	17	2221324	54654 1	456.0	0.1	-3.6	-3.5	-0.1	544082	6940001
80030	3	2538201	54625.0	472.4	0.1	86.5	-96 9	-10.4	10490	17	2223169	54616 9	442.9	0.7	-3 6	-2.4	0.1	551190	6936149
80020	4	1918262	54489.6	482.3	0.1	95.2	-93 6	1.6	10490	17	2225004	54494.4	469.2	0 0	-3.6	-3.1	0.1	558160	6932209
80123	22	2607343	54492.7	475.7	0.0	45.7	-55.2	-9.2	10490	17	2226453	54487.0	462.6	0.0	-3.6	-3.6		565318	6928309
80123	22	2607452	54494.7	479.0	0.1	46.0	-55 2	-9.0	10500	17	2151225	54485.5	469.2	0.1	-0 4	0.0	0.0	565683	6928984
80020	4	1918159	54490.5	472.4	0.0	95.3	-93.6	1.7	10500	17	2153269	54492 3	452.8	0.0	-0.4	0.0	0.0	558594	6932925
80030	3	2538308	54627.1	479.0	0.1	86.7	-96 9	-10 2	10500	17	2155309	54616 5	449.5	0.4	-0.4	0.2	0.2	551539	6936772
80041	10	2045190	54592.7	433.1	0.0	77.2	-17.3	59 9	10500	17	2157354	54654 3	449.5	0.1	-0.4	-1.6	0.1	544472	6940684

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80050	2	2332497	54573.5	472.4	0.0	91.4	-97.4	-11.9	10500	17	2159396	54570.4	433.1	0.3	-0.4	-2.6	-0.3	537415	6944574
80060	2	2309597	54572.6	469.2	0.2	93.8	-95.5	-3.3	10500	17	2201430	54571.2	442.9	0.3	-0.4	-0.3	-0.1	530388	6948512
80071	10	2017520	54514.1	393.7	0.1	75.6	-32.7	42.9	10500	17	2203449	54556.4	433.1	1.7	-0.4	0.6	-0.1	523349	6952439
80081	10	1942202	54586.9	419.9	6.4	75.6	-43.7	35.1	10500	17	2205425	54627.8	433.1	8.4	-0.4	1.6	-0.1	516380	6956354
80091	10	1920095	54090.0	413.4	0.7	75.6	-36.3	39.3	10500	17	2207375	54126.8	419.9	1.3	-0.4	2.3	0.1	509344	6960204
80100	1	2032440	54763.0	666.0	0.3	93.3	-95.7	9.3	10500	17	2208431	54759.5	439.6	2.4	-0.4	1.2		505479	6962563
80100	1	2032348	54774.5	623.4	1.1	93.3	-95.7	9.3	10510	17	2131297	54766.0	426.5	2.8	-2.6	5.4	0.6	505605	6963203
80091	10	1919595	54131.8	403.5	0.7	75.6	-36.3	39.3	10510	17	2132357	54170.7	416.7	1.5	-2.6	0.7	0.6	509723	6960839
80081	10	1942309	54235.7	406.8	2.9	75.6	-43.7	34.4	10510	17	2134267	54272.4	449.5	6.1	-2.6	-4.0	-0.5	516726	6956972
80071	10	2017420	54481.6	397.0	0.5	75.6	-32.7	42.9	10510	17	2136171	54523.8	436.4	1.8	-2.6	0.2	0.2	523739	6953063
80060	2	2309489	54713.0	462.6	2.8	93.6	-95.5	-3.4	10510	17	2136063	54712.7	426.5	2.9	-2.6	-1.5	0.3	530779	6949207
80050	2	2333028	54583.4	452.8	0.2	91.4	-97.4	-11.9	10510	17	2139548	54581.2	416.7	0.0	-2.6	-3.6	0.1	537840	6945264
80041	10	2045321	54598.5	446.2	0.1	77.3	-17.3	60.0	10510	17	2141410	54662.8	436.4	0.2	-2.6	-4.1	-0.1	544880	6941430
80030	3	2536424	54637.2	459.3	0.1	86.8	-96.9	-10.1	10510	17	2143273	54630.0	462.6	0.5	-2.6	-2.9	-0.1	551897	6937456
80020	4	1918063	54494.6	485.6	0.1	95.3	-93.6	1.7	10510	17	2145138	54498.8	469.2	0.2	-2.6	-2.3	-0.2	558980	6933600
80123	22	2607573	54497.4	482.3	0.2	46.4	-55.2	-8.8	10510	17	2147001	54489.4	456.0	0.0	-2.6	-0.8		566056	6929746
80123	22	2608082	54499.7	485.6	0.1	46.6	-55.2	-8.7	10520	17	2111131	54487.8	469.2	0.1	2.0	3.3	0.1	566402	6930437
80020	4	1917551	54501.9	482.3	0.1	95.3	-93.6	1.7	10520	17	2113153	54501.2	456.0	0.3	2.0	2.7	-0.3	559412	6934396
80030	3	2536568	54656.7	462.6	0.2	86.7	-96.9	-10.1	10520	17	2115167	54640.9	429.8	0.8	2.0	5.1	0.5	552370	6938294
80041	10	2045446	54614.8	442.9	0.2	77.4	-17.3	60.0	10520	17	2117197	54674.2	426.5	0.1	2.0	1.0	0.0	545316	6942120
80050	2	2333163	54602.2	479.0	0.2	91.4	-97.4	-11.8	10520	17	2119228	54594.9	439.6	0.1	2.0	1.3	-0.1	538259	6945998
80060	2	2309370	54800.3	485.6	0.6	93.6	-95.5	-2.9	10520	17	2121254	54796.4	449.5	0.6	2.0	2.2	-0.3	531279	6949932
80071	10	2017301	54453.9	410.1	0.1	75.6	-32.7	42.9	10520	17	2123275	54491.5	439.6	1.4	2.0	5.0	0.2	524212	6953789
80081	10	1942425	54096.9	426.5	1.4	75.6	-43.7	33.0	10520	17	2125271	54125.3	436.4	4.9	2.0	3.7	-0.2	517115	6957631
80091	10	1919483	54180.3	436.4	0.7	75.6	-36.3	39.3	10520	17	2127236	54214.5	442.9	1.2	2.0	5.0	0.0	510138	6961534
80100	1	2032208	54969.8	597.1	1.0	93.3	-95.7	9.7	10520	17	2128381	54984.1	423.2	1.9	2.0	5.4		505743	6964169
80100	1	2032108	54940.8	574.1	0.9	93.3	-95.7	9.7	10530	17	2050480	54941.3	449.5	0.2	2.3	-2.0	-0.8	505883	6964863
80091	10	1919369	54215.9	426.5	0.4	75.6	-36.3	39.3	10530	17	2052029	54249.9	439.6	1.2	2.3	4.7	-0.4	510527	6962260
80081	10	1942568	54018.6	446.2	1.1	75.6	-43.7	33.0	10530	17	2053564	54042.5	436.4	2.6	2.3	7.7	0.3	517573	6958440
80071	10	2017200	54479.5	393.7	0.6	75.6	-32.7	42.9	10530	17	2055479	54516.8	449.5	1.1	2.3	5.5	0.5	524553	6954450
80060	2	2309273	54769.9	475.7	1.1	93.5	-95.5	-1.5	10530	17	2057388	54760.4	423.2	0.5	2.3	1.7	0.1	531641	6950544
80050	2	2333296	54624.7	479.0	0.2	91.5	-97.4	-11.8	10530	17	2059286	54618.4	436.4	0.3	2.3	0.5	-0.1	538664	6946715
80041	10	2045561	54640.1	423.2	0.2	77.4	-17.3	59.3	10530	17	2101181	54699.1	442.9	0.2	2.3	1.2	-0.3	545700	6942769
80030	3	2539070	54669.0	452.8	0.1	86.6	-96.9	-10.1	10530	17	2103064	54654.8	456.0	1.0	2.3	3.6	0.1	552728	6938876
80020	4	1917450	54502.8	479.0	0.1	95.3	-93.6	1.7	10530	17	2104554	54501.9	459.3	0.0	2.3	2.8	-0.1	559824	6935103
80123	22	2608198	54503.7	479.0	0.0	46.5	-55.2	-8.8	10530	17	2106428	54491.3	459.3	0.1	2.3	3.6		566815	6931144
80123	22	2608304	54505.8	472.4	0.0	46.1	-55.2	-9.0	10540	16	2336152	54498.8	482.3	0.0	-3.3	-3.0	0.0	567195	6931794
80020	4	1917370	54506.8	479.0	0.1	95.3	-93.6	1.7	10540	16	2336101	54511.9	449.5	0.1	-3.3	-3.2	-0.1	560160	6935653
80030	3	2539191	54675.8	452.8	0.2	86.7	-96.9	-10.1	10540	16	2340049	54660.0	462.6	0.8	-3.3	-2.4	0.0	553141	6939568
80041	10	2046085	54675.1	413.4	0.9	77.5	-17.3	58.7	10540	16	2341588	54737.6	456.0	0.4	-3.3	-2.4	0.3	546122	6943477
80050	2	2333413	54644.9	446.2	0.1	91.5	-97.4	-11.7	10540	16	2343540	54645.0	419.9	0.8	-3.3	-5.3	-0.6	539026	6947348
80060	2	2309161	54756.0	459.3	0.6	93.5	-95.5	0.5	10540	16	2345485	54754.3	419.9	0.4	-3.3	-0.6	0.1	532014	6951282
80071	10	2017076	54531.3	429.8	0.3	75.6	-32.7	42.9	10540	16	2347432	54575.2	423.2	0.7	-3.3	-1.1	0.4	525007	6955230

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80081	10	1943092	53897.6	459.3	0.8	75.6	-43.7	34 8	10540	16	2349380	53934.6	459.3	0.5	-3.3	-4.6	-0 2	517963	6959139
80091	10	1919253	54258.6	429.8	0.5	75.6	-36.3	39.3	10540	16	2351329	54300 9	429.8	0.9	-3.3	-3.2	0.1	510909	6963009
80100	1	2031579	54938.9	607.0	0.6	93.1	-95.7	10.2	10540	16	2352514	54941.0	469.2	1.1	-3.3	-4.4		506098	6965762
80100	1	2031478	54998.0	587.3	0.7	92.8	-95.7	10.8	10550	16	2316058	55014.1	426.5	1.5	-2 9	-0.2	0.1	506251	6966466
80091	10	1918137	54286.6	416.7	0.3	75.6	-36.3	39.3	10550	16	2317273	54327.1	403.5	0.6	-2.9	-0.9	-0.2	511340	6963736
80081	10	1943206	53917.8	429.8	0.9	75.6	-43.7	35.7	10550	16	2310205	53961 0	429 8	2.6	-2.9	0.4	-0.1	518345	6959789
80071	10	2016575	54557.7	419.9	0.4	75.6	-32.7	42 9	10550	16	2321130	54590 6	442.9	0.2	-2.9	1.6	0.4	525386	6955866
80060	2	2309053	54758.0	446.2	0.3	93.5	-95.5	1 4	10550	16	2323038	54769 0	426.5	2.0	-2 9	-2.1	0.5	532377	6951999
80050	2	2333555	54644.7	456.0	0.2	91.5	-97.4	-11.6	10550	16	2324563	54645.3	429.8	0.9	-2.9	-6.0	-0.1	539490	6948102
80041	10	2046218	54792.4	416.7	2.1	77 6	-17.3	60.3	10550	16	2326473	54845 9	446.2	1.1	-2 9	-5.1	-0.2	546550	6944233
80030	3	2539327	54706.4	479.0	0.2	86.7	-96.9	-10 3	10550	16	2328387	54700.1	465.9	0.7	-2.9	-3.8	-0.1	553574	6940358
80020	4	1917268	54510.8	479.0	0.1	95.3	-93.6	1 7	10550	16	2330311	54515.4	462.6	0 0	-2.9	-2.9	0.0	560586	6936368
80123	22	2608421	54508.9	492.1	0.0	45.7	-55.2	-9.2	10550	16	2332221	54502.2	479.0	0.0	-2.9	-2.7		567627	6932499
80123	22	2608526	54512.3	479.0	0.0	45.7	-55.2	-9 2	10560	15	2159260	54497.8	449.5	0.1	4.3	4.9	0.0	568006	6933134
80020	4	1917163	54514.7	475.7	0.1	95.3	-93.6	1.7	10560	15	2201187	54512.5	452.8	0.0	4.3	4.5	-0.9	561014	6937107
80030	3	2539446	54728.9	492.1	0.5	86.6	-96.9	-11.4	10560	15	2203117	54706.1	439.6	1.3	4 3	11.6	0.4	553954	6941039
80041	10	2046323	54949.2	446.2	2.4	77.7	-17.3	63.1	10560	15	2205042	55016.4	423.2	1.3	4.3	8.1	0.5	546910	6944819
80050	2	2334084	54632.9	465.9	0.2	91.6	-97.4	-11.4	10560	15	2206574	54623.5	429.8	0.7	4.3	4.0	-0.1	539890	6948808
80060	2	2308540	54743.3	475.7	0.5	93.4	-95.5	0.3	10560	15	2208497	54736 1	452.8	0.6	4.3	5.1	-0.2	532829	6952703
80071	10	2016470	54588.9	419.9	0.5	75.6	-32.7	42 9	10560	15	2210406	54824.7	426.5	0.2	4.3	7.0		525796	6956517
80071	10	2016453	54593.9	416.7	0.4	75.6	-32.7	42.9	10561	16	2308142	54632.3	413.4	0.2	-3.5	4.3	0.3	525861	6956617
80081	10	1943334	54001.4	462.6	0.6	75.6	-43.7	34.3	10561	16	2310097	54031.8	456.0	3.2	-3.5	1.7	-0.1	518760	6960521
80091	10	1919030	54325.6	436.4	0.3	75.6	-36.3	39.3	10561	16	2312020	54362.6	426.5	0.7	-3.5	2.2	0.1	511735	6964405
80100	1	2031350	54950.7	616.8	1.4	92.5	-95.7	8.3	10561	16	2313270	54958.0	442.9	0 6	-3.5	1.4		506444	6967359
80100	1	2031252	54886.8	613.5	0.1	92.3	-95.7	3.5	10570	15	2138257	54876.6	436.4	1.0	4.7	7.0	-0.1	506625	6968015
80091	10	1918533	54345.1	442.9	0.3	75.6	-36 3	39.3	10570	15	2139550	54376.0	439.6	0.4	4.7	7.7	0.9	512090	6965012
80081	10	1943446	54028.3	449.5	0.6	75.6	-43.7	32.7	10570	15	2141500	54060.6	429.8	3.3	4.7	0.5	-0.5	519142	6961141
80071	10	2016351	54591.7	406.8	0.1	75.6	-32.7	42.9	10570	15	2143445	54629 2	436.4	1.4	4.7	4.9	0.1	526262	6957249
80060	2	2308436	54761.9	442.9	0.5	93.3	-95.5	-1 8	10570	15	2145364	54755.7	426.5	0.7	4.7	4.0	0.2	533236	6953362
80050	2	2334202	54627.0	449.5	0.1	91.8	-97.4	-11.4	10570	15	2147284	54619 4	426.5	1.0	4.7	2.6	-0.6	540232	6949467
80041	10	2046452	55163.6	413.4	2.9	77.7	-17.3	65.1	10570	15	2149209	55215.5	419.9	3 2	4.7	7.8	0.4	547306	6945546
80030	3	2539548	54765.1	479.0	0.5	86.5	-96.9	-11.7	10570	15	2151118	54750 2	433.1	2.3	4.7	4.8	0.0	554289	6941625
80020	4	1917087	54520.8	465.9	0.3	95.2	-93 6	1.6	10570	15	2153037	54517 6	446.2	0.0	4.7	4.9	0.0	561402	6937787
80123	22	2609050	54514.9	485.6	0.0	46.1	-55 2	-9 0	10570	15	2154558	54501.1	479.0	0.1	4.7	4.7		568453	6933912
80123	22	2609159	54517.0	488.8	0.0	46.5	-55 2	-8 8	10580	15	2110090	54496 3	462 6	0.1	11 9	12.0	0.0	568831	6934587
80020	4	1916575	54521.8	498.7	0.0	95.2	-93 6	1 6	10580	15	2121029	54511.4	446.2	0.0	11.9	11.8	0.1	561776	6938434
80030	3	2540076	54829.1	482.3	0.8	86.6	-96.9	-10 7	10580	15	2122587	54794.5	439.6	3.7	11.9	11.3	0.1	554732	6942340
80041	10	2046575	55207.7	419.9	3.6	77.8	-17.3	64 4	10580	15	2124491	55272.0	410.1	2.4	11.9	10.8	0.0	547726	6946243
80050	2	2334330	54626.0	449.5	0.0	91.9	-97 4	-12.0	10580	15	2126426	54610 2	416.7	0.7	11.9	10.4	0.0	540635	6950167
80060	2	2308322	54734.2	465.9	0.2	93.2	-95.5	-3.7	10580	15	2128347	54720.9	459.3	0.5	11.9	10 8	0.1	533656	6954087
80071	10	2016234	54581.9	397.0	0.4	75.6	-32 7	42 7	10580	15	2130250	54615 4	423.2	0.6	11.9	9.6	-0.2	526706	6957992
80081	10	1943576	54111.4	433.1	1.0	75.6	-43.7	33.5	10580	15	2132170	54125.7	423.2	3.3	11.9	11.1	-0.2	519580	6961876
80091	10	1918413	54358.6	436.4	0.1	75.6	-36.3	39 3	10580	15	2134070	54385.1	429.8	0.6	11.9	12.4	0.3	512520	6965770

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80100	1	2031121	54904.9	593.8	0.2	92.1	-95.7	-1.4	10580	15	2135335	54891.9	439.6	0.8	11.9	9.6		506922	6968882
80100	1	2030598	54966.2	577.4	1.8	92.0	-95.7	2.4	10590	15	2058078	54955.1	413.4	2.1	11.7	7.8	-0.3	507213	6969692
80091	10	1918300	54366.2	429.8	0.2	75.6	-36.3	39.3	10590	15	2059430	54394.8	426.5	0.8	11.7	10.6	-0.3	512915	6966481
80081	10	1944104	54184.1	416.7	0.8	75.6	-43.7	35.8	10590	15	2101395	54217.8	439.6	2.7	11.7	13.5	-0.3	520009	6962616
80071	10	2016156	54585.4	393.7	0.5	75.6	-32.7	42.0	10590	15	2103359	54611.9	429.8	0.4	11.7	15.8	0.6	527002	6958485
80060	2	2308220	54695.8	472.4	0.6	93.1	-95.5	-4.5	10590	15	2105300	54682.8	436.4	0.2	11.7	10.8	0.3	534019	6954747
80050	2	2334454	54634.2	452.8	0.0	91.9	-97.4	-13.2	10590	15	2107239	54620.8	429.8	0.9	11.7	8.1	-0.1	541059	6950828
80041	10	2047102	54973.9	416.7	1.5	77.9	-17.3	63.9	10590	15	2109166	55007.7	439.6	4.9	11.7	8.8	-0.1	548155	6946959
80030	3	2540207	54965.6	488.8	4.1	86.6	-96.9	-9.7	10590	15	2111077	54970.0	419.9	7.3	11.7	9.7	-0.1	555148	6943100
80020	4	1916460	54525.9	488.8	0.0	95.2	-93.6	1.6	10590	15	2113006	54516.9	442.9	0.0	11.7	10.6	-0.1	562243	6939228
80123	22	2609285	54520.1	488.8	0.0	46.6	-55.2	-8.7	10590	15	2114523	54499.7	459.3	0.0	11.7	11.7		569301	6935365
80123	22	2609384	54523.6	479.0	0.1	46.3	-55.2	-8.8	10600	15	2038576	54507.0	446.2	0.0	7.6	7.7	0.0	569662	6935973
80020	4	1916373	54528.4	492.1	0.0	95.2	-93.6	1.6	10600	15	2040524	54522.2	446.2	0.1	7.6	7.8	-0.1	562588	6939851
80030	3	2540325	55157.5	482.3	1.7	86.6	-96.9	-9.6	10600	15	2042479	55112.9	429.8	7.9	7.6	8.4	-0.1	555509	6943788
80041	10	2047220	54864.0	439.6	3.8	78.0	-17.3	62.6	10600	15	2044403	54942.9	413.4	6.3	7.6	8.9	0.0	548535	6947629
80050	2	2334592	54650.7	446.2	0.1	91.9	-97.4	-13.0	10600	15	2046331	54632.0	423.2	1.1	7.6	8.5	-0.3	541498	6951587
80060	2	2308104	54645.5	472.4	0.6	93.0	-95.5	-4.8	10600	15	2048247	54631.8	429.8	0.1	7.6	11.0	-0.1	534425	6955481
80071	10	2016022	54487.6	400.3	0.4	75.6	-32.7	40.3	10600	15	2050149	54516.7	452.8	0.8	7.6	11.8	0.0	527482	6959367
80081	10	1944217	54229.2	403.5	0.3	75.6	-43.7	36.4	10600	15	2052069	54249.3	442.9	1.6	7.6	12.1	-0.3	520386	6963269
80091	10	1918185	54369.5	416.7	0.1	75.6	-36.3	39.3	10600	15	2053561	54393.1	423.2	0.7	7.6	15.0	0.5	513339	6967199
80100	1	2030479	55173.4	577.4	2.7	91.9	-95.7	13.4	10600	15	2055264	55158.8	439.6	3.8	7.6	11.0		507528	6970455
80100	1	2030363	55315.2	564.3	1.6	91.8	-95.7	22.9	10610	15	2018014	55335.1	403.5	1.9	7.1	9.8	0.3	507801	6971061
80091	10	1918085	54372.9	429.8	0.0	75.6	-36.3	39.3	10610	15	2019379	54405.0	406.8	0.2	7.1	7.3	0.2	513720	6967822
80081	10	1944327	54296.6	383.7	0.8	75.6	-43.7	35.3	10610	15	2021331	54328.4	446.2	1.7	7.1	5.7	0.2	520745	6963918
80071	10	2015526	54482.5	423.2	0.4	75.6	-32.7	39.7	10610	15	2023295	54509.9	442.9	1.4	7.1	4.1	0.2	527797	6960001
80060	2	2307582	54519.4	449.5	2.4	92.9	-95.5	-4.9	10610	15	2025243	54514.2	429.8	1.3	7.1	2.8	-0.1	534868	6956256
80050	2	2335114	54636.5	416.7	0.2	91.9	-97.4	-13.1	10610	15	2027184	54627.2	439.6	0.9	7.1	3.8	-0.2	541850	6952290
80041	10	2047349	54570.7	429.8	1.0	78.0	-17.3	60.6	10610	15	2029142	54609.6	426.5	4.5	7.1	5.3	-0.2	548960	6948349
80030	3	2540454	55405.6	488.8	2.2	86.5	-96.9	-12.9	10610	15	2031066	55412.0	436.4	6.7	7.1	6.7	-0.1	555949	6944519
80020	4	1916272	54530.3	492.1	0.0	95.2	-93.6	1.6	10610	15	2032593	54523.8	442.9	0.1	7.1	7.9	0.1	562991	6940557
80123	22	2609499	54524.9	488.8	0.1	45.9	-55.2	-9.1	10610	15	2034521	54508.4	452.8	0.1	7.1	7.3		570083	6936681
80123	22	2610002	54528.3	498.7	0.0	45.7	-55.2	-9.2	10621	15	1958324	54498.7	452.8	0.0	18.0	20.1	0.1	570443	6937338
80020	4	1916174	54533.1	498.7	0.1	95.2	-93.6	1.6	10621	15	2000281	54515.5	465.9	0.1	18.0	19.2	0.1	563384	6941249
80030	3	2540571	55491.6	475.7	1.2	86.6	-96.9	-16.5	10621	15	2002225	55444.8	436.4	5.3	18.0	18.0	0.1	556347	6945176
80041	10	2047471	54512.4	433.1	0.8	78.1	-17.3	59.0	10621	15	2004165	54556.5	439.6	1.8	18.0	17.0	-0.3	549331	6949062
80050	2	2335233	54630.7	423.2	0.2	92.0	-97.4	-11.6	10621	15	2006115	54605.6	452.8	0.7	18.0	19.4	0.1	542255	6952948
80060	2	2307492	54452.7	456.0	0.2	92.9	-95.5	-4.9	10621	15	2008053	54431.7	446.2	0.2	18.0	18.3	0.2	535195	6956827
80071	10	2015417	54503.3	413.4	0.1	75.6	-32.7	39.5	10621	15	2009570	54530.0	446.2	1.9	18.0	16.6	-0.4	528174	6960716
80081	10	1944464	54346.3	400.3	0.5	75.6	-43.7	34.0	10621	15	2011476	54357.9	452.8	1.7	18.0	19.6	0.4	521236	6964687
80091	10	1917566	54376.8	442.9	0.0	75.6	-36.3	39.3	10621	15	2013381	54399.3	439.6	0.5	18.0	16.8	0.3	514142	6968566
80100	1	2030247	55377.1	534.8	0.4	91.7	-95.7	29.4	10621	15	2015122	55377.0	449.5	0.0	18.0	14.3		508200	6971922
80123	22	2610116	54531.2	495.4	0.0	45.8	-55.2	-9.1	10630	15	1917134	54501.1	462.6	0.1	24.8	20.7	-0.1	570840	6938047
80020	4	1916064	54537.0	498.7	0.1	95.2	-93.6	1.8	10630	15	1919102	54517.0	479.0	0.1	24.8	21.7	-0.2	563812	6942026

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80030	3	2541103	55745.8	472.4	1.5	86.5	-96.9	-20.9	10630	15	1921061	55697.7	446.2	4.6	24.8	23.3	-0.2	556776	6945939
80041	10	2047598	54507.6	452.8	0 6	78.2	-17.3	59 7	10630	15	1923018	54543.5	449.5	0.3	24 8	25.1	-0.4	549694	6949825
80050	2	2335346	54626.6	442.9	0.3	92.2	-97.4	-10.4	10630	15	1924570	54592.7	449.5	0.7	24.8	28.4	0.1	542619	6953582
80060	2	2307379	54502.1	442.9	1.0	93.0	-95 5	-4.7	10630	15	1926524	54472.1	406.8	0.2	24.8	27.5	0.0	535614	6957545
80071	10	2015289	54519.3	426.5	0.6	75.6	-32.7	39.5	10630	15	1928456	54535.4	439 6	2.2	24.8	27.3	-0.7	528651	6961533
80081	10	1944583	54420.3	403.5	0.6	75.6	-43.7	34.3	10630	15	1930376	54418.4	426.5	1.8	24.8	33.2	0.1	521650	6965363
80091	10	1917448	54374.0	429.8	0.1	75.6	-36.3	39 3	10630	15	1932298	54380.7	446.2	0.2	24.8	32.6	0.1	514572	6969303
80100	1	2030140	55228.0	511.8	3.8	91.5	-95.7	26.5	10630	15	1934057	55212.5	429.8	1.0	24.8	31.8		508507	6972618
80100	1	2030028	54889.4	505.2	3.6	91.4	-95.7	18 6	10640	15	1855435	54877.2	403.5	1.2	19.3	22.7	0.0	508810	6973350
80091	10	1917337	54376.8	436.4	0.4	75.6	-36.3	39 3	10640	15	1857196	54393.4	429.8	0.1	19.3	22.6	0.1	514973	6969999
80081	10	1945093	54437.5	413.4	0.1	75.6	-43 7	35.1	10640	15	1859153	54455.6	446.2	1.7	19.3	21.5	0.2	521978	6966008
80071	10	2015190	54568.1	410.1	0.4	75.6	-32 7	39.6	10640	15	1901117	54580.5	459.3	2.1	19.3	20.2	0.2	529020	6962176
80060	2	2307271	54571.5	462.6	0.8	93.1	-95.5	-4.3	10640	15	1903071	54550.1	446.2	0.2	19 3	18.9	0.3	536019	6958227
80050	2	2335486	54622.8	469.2	0.0	92.4	-97.4	-8.7	10640	15	1905007	54601.3	429.8	0.5	19.3	16.8	-0.1	543038	6954370
80041	10	2048110	54546.6	429.8	0.4	78.3	-17.3	60 8	10640	15	1906539	54589.3	433.1	0.0	19.3	17.8	0 5	550046	6950473
80030	3	2541214	55900.8	465.9	1 2	86.4	-96.9	-22.8	10640	15	1908476	55877.6	462.6	4.1	19.3	13.4	-0.5	557140	6946580
80020	4	1915573	54541.0	479.0	0.1	95.2	-93.6	1.6	10640	15	1910411	54525.2	462.6	0.1	19.3	17.2	-0.2	564174	6942654
80123	22	2610227	54534.9	498.7	0.1	46.2	-55.2	-8.9	10640	15	1912351	54507.4	449.5	0 0	19.3	18.5		571242	6938735
80123	22	2610336	54535.7	479.0	0.1	46.6	-55.2	-8 7	10650	14	2452064	54543.3	492.1	0.0	-14.5	-16.1	0.0	571633	6939412
80020	4	1915475	54543.0	475.7	0.0	95.2	-93.6	1.7	10650	14	2453502	54560.9	479 0	0.1	-14.5	-16.2	0 0	564581	6943341
80030	3	2541329	55964.8	462.6	1.3	86.4	-96 9	-20.9	10650	14	2455348	55940.0	465.6	3.8	-14.5	-16.6	0.0	557537	6947228
80041	10	2048234	54587.9	410.1	0.4	78.3	-17.3	61.0	10650	14	2457200	54666.0	436.4	0.7	-14.5	-16.6	-0.5	550493	6951178
80050	2	2336021	54625.7	433.1	0.9	92.6	-97 4	-6.6	10650	14	2459053	54632.6	436.4	0.8	-14.5	-12.5	0.7	543449	6955122
80060	2	2307156	54630.0	469.2	0.6	93.4	-95.5	-3.5	10650	14	2500495	54647.1	456.0	0.4	-14.5	-18.6	0.0	536417	6958971
80071	10	2015081	54588.0	439.6	0.2	75.0	-32.7	39 9	10650	14	2502332	54649.5	452.8	1.5	-14.5	-18.5	-0.9	529451	6962866
80081	10	1945223	54448.5	419.9	0.1	75.6	-43.7	35 9	10650	14	2504167	54490.9	429.8	1.1	-14.5	-11.1	0.0	522420	6966743
80091	10	1917231	54384.8	449.5	0.1	75.6	-36.3	39.3	10650	14	2506018	54435.1	433.1	0.3	-14.5	-10.9	0.0	515355	6970663
80100	1	2029517	54654.7	511.8	2.4	91.3	-95.7	9.2	10650	14	2507351	54671.3	433.1	0.1	-14.5	-10.9		509052	6974103
80100	1	2029395	54473.0	511.8	1.9	91.2	-95.7	0 0	10660	14	2429242	54486.0	410.1	0.5	-17.7	-17.5	0.0	509251	6974960
80091	10	1917136	54391.0	456.0	0.2	75.6	-36.3	39.3	10660	14	2431213	54448 4	442.9	0.3	-17.7	-17 8	-0.2	515701	6971252
80081	10	1945331	54480.9	429.8	0.8	75.6	-43.7	36.1	10660	14	2433287	54537.7	397.0	1.2	-17.7	-16.1	-0.2	522802	6967338
80071	10	2014583	54584.6	446.2	0.1	74.5	-32 7	40 6	10660	14	2435331	54640.7	426.5	1.2	-17.7	-14.4	0.2	529815	6963491
80060	2	2307049	54669.6	472.4	0.1	94.1	-95.5	-2.7	10660	14	2437362	54684 5	452.8	0.7	-17.7	-16.0	-0.1	536780	6959653
80050	2	2336135	54644.5	462.6	0.5	92.6	-97.4	-5.6	10660	14	2439413	54661.3	416.7	0.4	-17.7	-14.8	-0.2	543852	6955725
80041	10	2048336	54602.3	419.9	0.0	78.4	-17.3	61.1	10660	14	2441470	54676.8	436.4	0.8	-17.7	-13.4	0.0	550861	6951757
80030	3	2541444	55930.0	475.7	1.1	86.3	-96.9	-20 9	10660	14	2443526	55932.3	459.3	2.0	-17 7	-13.1	0.6	557920	6947882
80020	4	1915365	54546.3	485.6	0.0	95.3	-93.6	1 7	10660	14	2445572	54566.3	449.5	0.1	-17.7	-17.8	-0.1	565023	6944101
80123	22	2610451	54539.9	485.6	0 1	46.7	-55 2	-8 6	10660	14	2448037	54548 6	475.7	0.0	-17.7	-17.1		572058	6940115
80123	22	2610560	54540.8	479.0	0.1	46.5	-55.2	-8.7	10670	14	2410558	54549 6	505.2	0.0	-16.8	-17.4	0.0	572454	6940783
80020	4	1915274	54548.6	465.9	0.0	95.4	-93.6	1.7	10670	14	2412402	54567 8	479.0	0 1	-16.8	-17.4	0.2	565413	6944730
80030	3	2541572	55776.7	475.7	2.8	86.2	-96 9	-24.2	10670	14	2414264	55795.4	465.9	4.1	-16.8	-18.7	0.1	558320	6948622
80041	10	2048476	54585.4	429.8	0.3	78.5	-17 3	61 2	10670	14	2416115	54666.8	456 0	0.7	-16.8	-19 6	-0.5	551348	6952556
80050	2	2336277	54676.2	458.0	0.1	92 6	-97.4	-6.4	10670	14	2417565	54685.8	416.7	1.0	-16.8	-15.2	0.6	544309	6956514

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80060	2	2306522	54668.2	452.8	0.0	94.9	-95.5	-1 7	10670	14	2419422	54689.0	442.9	0.9	-16.8	-20.5	-0.5	537269	6960439
80071	10	2014464	54619.7	433.1	0.3	73.9	-32.7	41.1	10670	14	2421276	54677.5	456.0	0.2	-16 8	-16.5	-0.5	530250	6964261
80081	10	1945473	54564.7	423.2	0.7	75.6	-43.7	36.1	10670	14	2423125	54608.2	429.8	1.4	-16.8	-12.1	0 4	523251	6968155
80091	10	1917009	54399.4	449.5	0.2	75.6	-36.3	39 3	10670	14	2424587	54454.3	426.5	0.1	-16.8	-15.5	0.5	516134	6972065
80100	1	2029282	54391.7	521.7	0.5	91.3	-95.7	-5.3	10670	14	2426381	54407.3	429.8	0.2	-16 8	-19.5		509438	6975737
80100	1	2029165	54357.3	505.2	0.1	91.5	-95.7	-7 6	10680	14	2348067	54369.3	436.4	0.0	-15.4	-15.9	-0.4	509647	6976543
80091	10	1916503	54401.8	436.4	0 4	75.6	-36.3	39 3	10680	14	2350100	54453.9	433.1	0.1	-15.4	-12.8	-0 2	516482	6972740
80081	10	1945596	54582.6	406.8	0 1	75.6	-43.7	35.4	10680	14	2352180	54635.0	423.2	1.3	-15.4	-11.4	-0.1	523662	6968852
80071	10	2014360	54657.0	416.7	0.1	73.4	-32.7	40.7	10680	14	2354221	54708.0	439.6	0.3	-15.4	-10.3	0 2	530626	6964937
80060	2	2306423	54665.3	462.6	0.3	95.2	-95.5	-1 2	10680	14	2356283	54676.4	442.9	0 6	-15.4	-11.7	0.7	537655	6961056
80050	2	2336392	54664.9	442.9	0.2	92.6	-97.4	-8.0	10680	14	2358315	54678.8	462 6	0 3	-15.4	-17.9	-0.4	544673	6957161
80041	10	2048597	54561.6	393.7	0.3	78.6	-17.3	61.3	10680	14	2400367	54637.6	406.8	0.1	-15.4	-14.9	0.1	551774	6953233
80030	3	2542100	55439.1	465.9	6.1	86.1	-96.9	-24.1	10680	14	2402417	55372.5	449.5	13.6	-15.4	-15.8	0.1	558734	6949355
80020	4	1915172	54551.0	492.1	0.0	95.4	-93.6	1.8	10680	14	2404476	54569.9	462.6	0.0	-15 4	-17.0	0.2	565838	6945433
80123	22	2611079	54543.5	472.4	0.0	46.1	-55.2	-8.9	10680	14	2406535	54553.1	459.3	0.0	-15.4	-18.5		572852	6941536
80123	22	2611187	54547.4	446.2	0.0	45.8	-55.2	-9.1	10690	14	2328545	54550.8	469.2	0.0	-12.5	-12.6	-0.1	573226	6942213
80020	4	1915070	54554.2	479.0	0.0	95.4	-93 6	1.8	10690	14	2330395	54567.4	469.2	0.1	-12.5	-11.5	0.1	566236	6946146
80030	3	2542226	55070.8	488.8	1.5	86.1	-96.9	-18 9	10690	14	2332261	55118.3	465.9	10.7	-12 5	-12.3	0.1	559151	6950072
80041	10	2049112	54546.2	400.3	0.1	78 6	-17.3	61.3	10690	14	2334119	54620.9	419 9	0.1	-12 5	-13.1	-0.2	552138	6953916
80050	2	2336519	54685.3	449.5	0.3	92.7	-97.4	-9 0	10690	14	2335593	54692.2	456.0	0.2	-12.5	-11.8	0.2	545122	6957848
80060	2	2306307	54652.8	459.3	0.1	95.1	-95.5	-0.9	10690	14	2337461	54666.3	413.4	0.4	-12.5	-13.4	-0.3	538076	6961787
80071	10	2014251	54668.2	403.5	0.7	72.9	-32.7	40.2	10690	14	2339331	54718 9	426.5	0.4	-12.5	-10.7	0.1	531001	6965672
80081	10	1946113	54560.9	419.9	1.1	75 6	-43.7	34.1	10690	14	2341185	54604 0	436.4	1 0	-12.5	-11.2	0.2	524039	6969524
80091	10	1916389	54406.9	436.4	0.1	75.6	-36.3	39.3	10690	14	2343063	54459 5	416.7	0.3	-12 5	-13.2	0.3	516886	6973457
80100	1	2029046	54358.7	485.6	0.2	91.7	-95.7	-8 0	10690	14	2344508	54370 3	436.4	0.2	-12.5	-15.4		509961	6977327
80100	1	2028534	54367.3	492.1	0.2	91.7	-95 7	-7 9	10700	13	2201090	54366.9	446.2	0.2	-2 6	-3.4	-0.2	510364	6978022
80091	10	1916276	54421.2	433.1	0.1	75.6	-36.3	39.3	10700	13	2203075	54462.1	419.9	0.2	-2 6	-2.0	0.6	517349	6974144
80081	10	1946242	54537.6	406.8	0.4	75.6	-43.7	32.6	10700	13	2205072	54577 0	406.8	0.9	-2 6	-6.7	-0.5	524437	6970271
80071	10	2014148	54714.3	429.8	0.6	72.3	-32.7	39 7	10700	13	2207068	54756.0	426.5	1.4	-2.6	-2.4	0.1	531383	6966337
80060	2	2306209	54656.4	446.2	0.2	95.0	-95 5	-0 8	10700	13	2209071	54659 5	442.9	0.2	-2 6	-3 5	0.3	538427	6962409
80050	2	2337045	54694.2	446.2	0.4	92.8	-97.4	-9 1	10700	13	2211074	54695.4	459.3	0.4	-2.6	-5.7	0 3	545537	6958549
80041	10	2048223	54531.1	374.0	0.1	78.7	-17.3	61 4	10700	13	2213059	54601.1	439.6	0.1	-2.6	-8.3		552514	6954579
80050	2	2337072	54687.2	446.2	0.4	92.8	-97 4	-9 0	10701	14	2316332	54696 0	403.5	0.3	-11.4	-13.3	0.1	545623	6958699
80041	10	2049233	54530.0	380.6	0.2	78.7	-17 3	61.4	10701	14	2318469	54605.7	436 4	0 1	-11 4	-14.1	-0.2	552550	6954637
80030	3	2542344	54935.9	456.0	2.3	86.1	-96 9	-12 2	10701	14	2320571	54915.0	436.4	4 1	-11.4	-12 6	-0.2	559603	6950711
80020	4	1914574	54558.2	469.2	0.1	95.4	-93 6	1.8	10701	14	2323066	54571 0	472.4	0.1	-11.4	-11.1	0.1	566616	6946825
80123	22	2611301	54548.8	472.4	0.1	45.9	-55.2	-9.0	10701	14	2325138	54551 3	482.3	0.1	-11.4	-11.7		573654	6942910
80123	22	2611418	54553.8	459.3	0.0	46.4	-55 2	-8.7	10710	13	2142023	54537.5	459.3	0.1	2.8	7.0	0.5	574072	6943620
80020	4	1914466	54559.9	472.4	0.1	95.3	-93 6	1.7	10710	13	2143456	54558.7	449.5	0.1	2 8	3.1	0.2	567053	6947587
80030	3	2542479	54831.3	452.8	0.6	86.1	-96 9	-10.6	10710	13	2145304	54828 2	465.9	2.2	2.8	1.1	0.2	560052	6951493
80041	10	2049363	54547.3	400.3	0.2	78 6	-17.3	61.6	10710	13	2147140	54609 4	433.1	1.0	2.8	-0.2	-0.3	553019	6955374
80050	2	2337169	54665.3	449.5	0.2	92.9	-97.4	-8.9	10710	13	2148593	54659.0	452.8	0.3	2 8	2.1	-0 6	545915	6959247
80060	2	2306100	54690.1	442.9	0.4	95.0	-95.5	-0.8	10710	13	2150457	54661.7	446.2	0.3	2 8	7.0	0.6	538811	6963116

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80071	10	2014038	54712.0	423.2	0.7	71.8	-32.7	39.4	10710	13	2152304	54749.2	439.6	0.0	2.8	1.9	0.7	531821	6967027
80081	10	1946353	54563.2	406.8	0.8	75.6	-43.7	32.0	10710	13	2154152	54599.6	452.8	0.3	2.8	-3.7	-0.3	524787	6970908
80091	10	1916166	54425.2	456.0	0.2	75.6	-36.3	39.3	10710	13	2155587	54465.2	433.1	0.2	2.8	-1.1	0.3	517775	6974808
80100	1	2028423	54374.8	498.7	0.2	91.7	-95.7	-7.7	10710	13	2157432	54375.1	439.6	0.2	2.8	-3.9		510775	6978694
80100	1	2028320	54388.7	492.1	0.2	91.7	-95.7	-7.4	10720	13	2116500	54383.6	456.0	0.2	0.0	1.2	-0.2	511126	6979336
80091	10	1916059	54438.1	446.2	0.1	75.6	-36.3	39 3	10720	13	2118520	54474.6	410.1	0.1	0.0	2.5	0.4	518162	6975480
80081	10	1946478	54592.6	406.8	0.1	75.6	-43.7	31.9	10720	13	2120523	54625.6	439.8	0.2	0.0	-0.6	-0.3	525205	6971613
80071	10	2013539	54684.1	426.5	0.0	72.0	-32.7	39.0	10720	13	2122524	54721 6	436 4	0.3	0.0	1.5	0.1	532194	6967667
80060	2	2305583	54720.9	429.8	0.1	95.1	-95.5	-0.8	10720	13	2124525	54720.2	419.9	0.2	0.0	0.3	0.3	539242	6963876
80050	2	2337293	54635.5	475.7	0.6	93.0	-97.4	-8.7	10720	13	2126530	54633.0	429.8	0.6	0.0	-2.1	0.6	546282	6959941
80041	10	2049470	54587.6	390.4	1.6	78.9	-17.3	62.3	10720	13	2128551	54657.6	433.1	0.8	0.0	-7.0	-1.4	553387	6955993
80030	3	2542580	54787.6	456.0	0.5	86.0	-96.9	-10 7	10720	13	2130553	54770.5	419.9	1.2	0.0	4.8	0.7	560379	6952086
80020	4	1914383	54564.3	469.2	0.1	95.3	-93.6	1.7	10720	13	2132573	54567.4	449.5	0.1	0.0	-0.7	-0.1	567389	6948166
80123	22	2611520	54554.9	446.2	0.1	46.9	-55.2	-8.4	10720	13	2134572	54546.2	456.0	0.1	0.0	0.4		574410	6944262
80123	22	2612056	54558.8	456.0	0.0	47.1	-55.2	-8 2	10730	13	2057224	54538.4	469.2	0.0	9.7	12.4	0.0	574923	6945081
80020	4	1914276	54568.6	462.6	0.3	95.3	-93.6	1.7	10730	13	2059066	54558.2	475.7	0.2	9.7	12.1	0.1	567815	6948926
80030	3	2543108	54748.1	459.3	0.3	85.9	-96.9	-10 2	10730	13	2100508	54725.5	446.2	0.5	9.7	11.3	0.5	560823	6952807
80041	10	2048597	54631.5	449.5	1.2	78.9	-17.3	63.9	10730	13	2102358	54686.9	436.4	0.5	9.7	6.9	-0.5	553776	6956745
80050	2	2337434	54601.3	479.0	0.3	93.1	-97.4	-8.5	10730	13	2104211	54585.8	452.8	0.2	9.7	10.7	0.2	546728	6960712
80060	2	2305482	54719.4	449.5	0.1	95.1	-95.5	-0 9	10730	13	2106060	54709.8	429.8	0.1	9.7	9.1	0.3	539625	6964526
80071	10	2013427	54674.1	419.9	0.1	72.8	-32.7	38 6	10730	13	2107504	54707.8	426.5	0.7	9 7	6.6	0.0	532621	6968391
80081	10	1947004	54634.0	406.8	0.2	75.6	-43.7	31 9	10730	13	2109354	54659 2	436.4	0.2	9.7	6.7	0.0	525631	6972319
80091	10	1915539	54444.8	446.2	0.2	75.6	-36.3	39.3	10730	13	2111217	54476.7	442.9	0.0	9.7	7.0	0.6	518570	6976235
80100	1	2028190	54401.6	492.1	0.2	92.0	-95.7	-6.3	10730	13	2113064	54396.1	419.9	0.1	9.7	2.2		511567	6980143
80100	1	2028084	54403.1	515.1	0.0	92.3	-95.7	-5.1	10740	13	2034544	54373 0	426.5	0.1	19.6	26.9	-0.1	511915	6980802
80091	10	1915429	54449.9	442.9	0.1	75.6	-36.3	39.3	10740	13	2036593	54461.1	423.2	0.1	19.6	27.8	0.4	518947	6976930
80081	10	1947125	54617.3	423.2	0.6	75.6	-43.7	31.9	10740	13	2039047	54625.3	413.4	0.2	19.6	24.1	0.0	526044	6972088
80071	10	2013315	54662.7	416.7	0.2	73.5	-32.7	38.9	10740	13	2041079	54673 1	429.8	1.1	19 6	23.7	0 0	533020	6969134
80060	2	2305369	54703.4	459.3	0.2	94.9	-95.5	-1 2	10740	13	2043122	54679 3	400.3	0.2	19 6	23.4	0.1	540086	6965212
80050	2	2337550	54590.6	479.0	0.0	93.2	-97 4	-8 5	10740	13	2045148	54564.1	446.2	0.3	19 6	22.2	0.3	547097	6961350
80041	10	2050115	54693.0	436.4	1.3	79.0	-17 3	64 7	10740	13	2047167	54744.4	452.8	0.1	19 6	19.6	0.3	554160	6957413
80030	3	2543230	54722.0	456.0	0.0	86.0	-96.9	-10.7	10740	13	2049175	54694.2	446.2	0.1	19 6	17.0	0.1	561195	6953535
80020	4	1914178	54575.1	475.7	0.2	95.3	-93 6	1 7	10740	13	2051185	54561.0	452.8	0.2	19 6	15.9	0.0	568190	6949639
80123	22	2612159	54561.0	449.5	0.1	46.9	-55.2	-8 3	10740	13	2053212	54537.0	436.4	0.1	19 6	15 6		575277	6945713
80123	22	2612277	54564.7	442.9	0.0	46.4	-55.2	-8.5	10750	13	2015277	54513.2	439.6	0.0	38.1	42.8	-0.1	575672	6946445
80020	4	1914075	54587.8	462.6	0.1	95.4	-93 6	1 8	10750	13	2017083	54545.8	462.6	0.4	38.1	43.6	0 1	568608	6950351
80030	3	2543348	54741.7	436.4	0.3	86.1	-96.9	-10.9	10750	13	2018505	54688 2	452.8	0.4	38.1	42 9	-0 1	561592	6954211
80041	10	2050237	54594.0	436.4	1.4	79.1	-17 3	63.9	10750	13	2020345	54611 4	449.5	1.0	38 1	43.9	0 6	554568	6958108
80050	2	2338091	54604.6	456.0	0.1	93.1	-97 4	-8.5	10750	13	2022209	54561 9	433 1	0.5	38 1	38 8	0 1	547529	6962139
80060	2	2305258	54723.1	446.2	0 6	94.7	-95 5	-1.5	10750	13	2024060	54683 9	433.1	0.1	38 1	38.1	0 4	540498	6965921
80071	10	2013216	54658.3	436.4	0.3	74.2	-32 7	39.9	10750	13	2025506	54665 4	439.6	1.0	38 1	34 6	0.1	533402	6969764
80081	10	1947255	54618.0	416.7	0.3	75.6	-43 7	31.9	10750	13	2027346	54616.1	423.2	0.1	38 1	33.8	0 1	526483	6973704
80091	10	1915315	54454.0	429.8	0.2	75.6	-36.3	39.3	10750	13	2029209	54460.7	436.4	0.1	38 1	32.6	0 2	519355	6977654

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80100	1	2027573	54409.6	482.3	0.0	92.5	-95.7	-4.3	10750	13	2031047	54379.8	393.7	0.1	38.1	30.8		512290	6981486
80100	1	2027466	54412.5	465.9	0.2	92.7	-95.7	-4.4	10760	13	1952404	54357.6	429.8	0.1	49.5	52.2	-0.5	512679	6982149
80091	10	1915211	54456.8	449.5	0.2	75.6	-36.3	39.3	10760	13	1954449	54439.3	416.7	0.1	49.5	56.4	0.2	519717	6978306
80081	10	1947373	54629.8	406.8	0.1	75.6	-43.7	31.9	10760	13	1956553	54607.2	426.5	0.4	49.5	54.9	-0.5	526868	6974376
80071	10	2013102	54618.6	433.1	0.3	74.9	-32.7	41.4	10760	13	1958596	54601.3	426.5	0.4	49.5	58.7	0.9	533817	6970508
80060	2	2305142	54727.5	446.2	0.4	94.5	-95.5	-1.7	10760	13	2001045	54675.4	429.8	0.2	49.5	51.5	0.3	540935	6966658
80050	2	2338196	54620.1	456.0	0.2	93.1	-97.4	-8.5	10760	13	2003059	54566.2	462.6	0.1	49.5	49.3	0.8	547887	6962714
80041	10	2050365	54564.5	419.9	0.2	79.2	-17.3	62.2	10760	13	2005109	54583.9	456.0	0.2	49.5	42.9	0.1	554981	6958846
80030	3	2543477	54795.4	452.8	0.7	86.2	-96.9	-11.4	10760	13	2007162	54743.0	446.2	0.8	49.5	41.8	-0.2	562012	6954968
80020	4	1913570	54592.4	459.3	0.0	95.4	-93.6	1.8	10760	13	2009224	54550.8	469.2	0.3	49.5	43.3	0.0	569075	6951077
80123	22	2612384	54566.6	442.9	0.1	46.2	-55.2	-8.7	10760	13	2011296	54514.0	436.4	0.1	49.5	43.6		576042	6947108
80123	22	2612504	54569.0	446.2	0.0	46.3	-55.2	-8.6	10770	12	2517343	54568.9	462.6	0.1	-9.6	-8.7	-0.1	576492	6947830
80020	4	1913477	54604.4	475.7	0.0	95.5	-93.6	1.9	10770	12	2519316	54614.4	469.2	0.4	-9.6	-8.2	0.3	569481	6951729
80030	3	2543598	54858.0	459.3	0.7	86.2	-96.9	-11.6	10770	12	2521277	54854.4	465.9	0.8	-9.6	-10.3	0.6	562443	6955641
80041	10	2050482	54582.8	436.4	0.2	79.2	-17.3	61.4	10770	12	2523241	54658.9	452.8	0.2	-9.6	-15.3	-0.6	555373	6959521
80050	2	2338324	54622.3	465.9	0.1	93.1	-97.4	-8.5	10770	12	2525206	54628.4	469.2	0.2	-9.6	-10.6	-0.2	548322	6963404
80060	2	2305047	54731.2	456.0	0.2	94.4	-95.5	-1.8	10770	12	2527150	54739.5	429.8	0.4	-9.6	-9.1	-0.4	541275	6967273
80071	10	2012589	54585.1	429.8	0.1	75.6	-32.7	41.9	10770	12	2529100	54633.3	442.9	0.3	-9.6	-5.8	0.5	534198	6971264
80081	10	1947501	54649.2	410.1	0.2	75.6	-43.7	31.9	10770	12	2531014	54691.5	426.5	0.3	-9.6	-9.9	0.0	527290	6975087
80091	10	1915089	54457.9	429.8	0.1	75.6	-36.3	39.3	10770	12	2532575	54507.0	413.4	0.2	-9.6	-10.0	0.4	520171	6979061
80100	1	2027344	54424.4	472.4	0.1	92.8	-95.7	-5.1	10770	12	2534519	54435.4	416.7	0.1	-9.6	-13.5		513130	6982894
80100	1	2027236	54433.6	469.2	0.0	92.8	-95.7	-5.6	10780	12	2456333	54441.0	436.4	0.0	-9.0	-9.9	-0.3	513533	6983549
80091	10	1914585	54463.3	419.9	0.1	75.6	-36.3	39.3	10780	12	2458235	54509.4	416.7	0.2	-9.0	-7.1	0.2	520569	6979698
80081	10	1948025	54676.6	410.1	0.2	75.6	-43.7	31.9	10780	12	2500142	54717.5	436.4	0.1	-9.0	-8.4	-0.4	527685	6975821
80071	10	2012474	54573.3	419.9	0.1	75.6	-32.7	40.0	10780	12	2502025	54620.4	436.4	0.3	-9.0	-4.8	0.5	534620	6972011
80060	2	2304539	54736.4	456.0	0.6	94.5	-95.5	-1.0	10780	12	2503546	54744.7	423.2	0.8	-9.0	-8.8	0.1	541668	6967971
80050	2	2338450	54640.9	442.9	0.3	93.1	-97.4	-8.6	10780	12	2505450	54645.8	433.1	0.1	-9.0	-9.4	0.4	548693	6964119
80041	10	2050597	54593.0	416.7	0.1	79.3	-17.3	61.5	10780	12	2507353	54668.8	449.5	0.2	-9.0	-13.1	-0.3	555757	6960180
80030	3	2544105	54897.0	465.9	0.2	86.1	-96.9	-11.5	10780	12	2509257	54896.3	446.2	0.7	-9.0	-10.3	0.0	562833	6956241
80020	4	1913381	54621.5	475.7	0.5	95.5	-93.6	2.0	10780	12	2511136	54633.9	475.7	0.3	-9.0	-10.3	-0.1	569861	6952423
80123	22	2613012	54571.9	446.2	0.0	46.7	-55.2	-8.4	10780	12	2513025	54572.8	446.2	0.0	-9.0	-9.4		576691	6948482
80123	22	2613115	54575.4	429.8	0.0	47.0	-55.2	-8.3	10790	12	2435370	54574.2	439.6	0.1	-6.7	-6.8	-0.1	577256	6949115
80020	4	1913285	54649.6	488.8	0.3	95.7	-93.6	2.1	10790	12	2437355	54657.3	452.8	0.2	-6.7	-5.7	0.2	570239	6953125
80030	3	2544224	54897.1	469.2	0.4	86.0	-96.9	-11.2	10790	12	2439339	54893.7	429.8	0.2	-6.7	-7.5	0.3	563163	6956963
80041	10	2051116	54602.5	419.9	0.1	79.4	-17.3	61.9	10790	12	2441319	54675.4	472.4	0.2	-6.7	-10.3	-0.3	556156	6960889
80050	2	2338573	54655.3	429.8	0.1	93.0	-97.4	-8.7	10790	12	2443297	54658.9	442.9	0.2	-6.7	-8.2	0.1	549061	6964806
80060	2	2304438	54733.2	456.0	0.9	94.5	-95.5	-1.8	10790	12	2445277	54741.9	442.9	0.5	-6.7	-9.4	-0.1	542031	6968627
80071	10	2012376	54573.7	406.8	0.1	75.6	-32.7	40.0	10790	12	2447249	54620.1	423.2	0.2	-6.7	-8.5	0.0	535017	6972636
80081	10	1948141	54684.4	400.3	0.2	75.6	-43.7	31.9	10790	12	2449194	54724.8	426.5	0.0	-6.7	-8.3	-0.2	528076	6976484
80091	10	1914480	54469.1	426.5	0.1	75.6	-36.3	39.3	10790	12	2451177	54514.8	419.9	0.0	-6.7	-6.7	0.4	520956	6980340
80100	1	2027124	54440.7	469.2	0.2	92.7	-95.7	-5.9	10790	12	2453143	54447.7	400.3	0.0	-6.7	-9.7		513917	6984261
80100	1	2027007	54451.4	469.2	0.2	92.6	-95.7	-6.2	10800	12	2414474	54455.1	429.8	0.2	-5.2	-6.6	-0.2	514304	6985003
80091	10	1914368	54479.7	416.7	0.2	75.6	-36.3	39.3	10800	12	2416372	54523.7	439.6	0.3	-5.2	-4.8	0.0	521366	6981040

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80081	10	1948245	54686.1	400.3	0.1	75.6	-43.7	31.9	10800	12	2418257	54723.2	419.9	0.1	-5.2	-5.1	0.1	528418	6977081
80071	10	2012276	54555.5	403.5	0.4	75.6	-32.7	39.7	10800	12	2420141	54597.9	452.8	0.5	-5.2	-5.9	0.1	535426	6973272
80060	2	2304305	54769.9	465.9	0.4	94.6	-95.5	-1.6	10800	12	2422039	54775.8	433.1	0.4	-5.2	-6.5	-0.1	542515	6969477
80050	2	2339109	54640.9	439.6	0.5	92.9	-97.4	-9.0	10800	12	2423527	54641.6	436.4	0.1	-5.2	-5.6	0.6	549475	6965560
80041	10	2051252	54600.1	406.8	0.1	79.5	-17.3	62.8	10800	12	2425446	54673.8	462.6	0.4	-5.2	-10.5	-0.7	556619	6961653
80030	3	2544358	54853.3	472.4	0.4	85.8	-96.9	-11.1	10800	12	2427336	54846.3	436.4	0.5	-5.2	-4.6	0.1	563586	6957747
80020	4	1913191	54673.6	495.4	0.4	95.8	-93.6	2.2	10800	12	2429241	54681.7	459.3	0.5	-5.2	-5.7	0.0	570612	6953808
80123	22	2613243	54577.6	449.5	0.0	47.1	-55.2	-8.2	10800	12	2431139	54575.2	436.4	0.0	-5.2	-5.7		577711	6949897
80123	22	2613347	54578.4	456.0	0.0	46.8	-55.2	-8.4	10810	12	2353403	54574.3	465.9	0.0	-4.3	-3.8	-0.5	578075	6950550
80020	4	1913101	54709.9	482.3	0.7	95.9	-93.6	2.3	10810	12	2355400	54710.7	436.4	0.6	-4.3	0.6	0.9	570971	6954468
80030	3	2544475	54817.2	479.0	0.5	85.6	-96.9	-11.1	10810	12	2357379	54813.5	442.9	0.8	-4.3	-7.0	0.1	563990	6958404
80041	10	2051373	54601.3	410.1	0.2	79.5	-17.3	64.2	10810	12	2359366	54671.7	429.8	0.3	-4.3	-8.0	-0.2	557026	6962349
80050	2	2339232	54625.2	433.1	0.2	92.7	-97.4	-9.2	10810	12	2401360	54627.4	419.9	0.4	-4.3	-6.7	-0.3	549866	6966226
80060	2	2304209	54798.7	469.2	0.3	94.8	-95.5	-1.4	10810	12	2403310	54802.1	446.2	0.4	-4.3	-4.0	-0.4	542880	6970085
80071	10	2012171	54548.0	429.8	0.1	75.6	-32.7	39.7	10810	12	2405269	54591.4	436.4	0.4	-4.3	-0.9	0.5	535840	6973942
80081	10	1948380	54669.2	406.8	0.3	75.6	-43.7	31.9	10810	12	2407236	54706.3	419.9	0.0	-4.3	-4.7	-0.1	528854	6977861
80091	10	1914260	54489.6	426.5	0.1	75.6	-36.3	39.3	10810	12	2409238	54532.4	403.5	0.3	-4.3	-3.7	0.4	521741	6981723
80100	1	2026497	54458.7	485.6	0.1	92.3	-95.7	-6.4	10810	12	2411245	54462.7	423.2	0.1	-4.3	-7.0		514669	6985686
80100	1	2026376	54471.4	479.0	0.1	92.2	-95.7	-6.5	10820	11	2232486	54474.9	410.1	0.1	-5.2	0.0	0.0	515086	6986435
80091	10	1914132	54483.2	429.8	0.2	75.6	-36.3	39.3	10820	11	2234420	54524.4	360.9	0.2	-5.2	0.0	0.0	522174	6982531
80081	10	1948502	54665.1	387.1	0.0	75.6	-43.7	31.9	10820	11	2236358	54702.2	380.6	0.2	-5.2	0.0		529250	6978570
80071	10	2012054	54568.2	410.1	0.5	75.6	-32.7	39.5	10821	12	2338125	54609.8	410.1	0.5	-6.8	-1.8	0.4	536285	6974705
80060	2	2304090	54804.2	462.6	0.0	94.9	-95.5	-1.2	10821	12	2340043	54808.8	452.8	0.3	-6.8	-5.0	0.1	543308	6970839
80050	2	2339367	54633.8	439.6	0.1	92.6	-97.4	-9.5	10821	12	2341560	54635.4	439.6	0.2	-6.8	-6.1	-0.2	550344	6966932
80041	10	2051488	54599.5	419.9	0.1	79.6	-17.3	65.4	10821	12	2343477	54673.4	439.6	0.3	-6.8	-4.7	-0.2	557406	6963020
80030	3	2545002	54755.2	488.8	0.5	85.6	-96.9	-11.2	10821	12	2345369	54747.2	442.9	0.8	-6.8	-3.2	-0.1	564386	6959137
80020	4	1912594	54869.3	518.4	1.4	96.0	-93.6	1.9	10821	12	2347242	54874.1	449.5	2.1	-6.8	-2.5	0.1	571387	6955252
80123	22	2613478	54584.8	452.8	0.1	46.3	-55.2	-8.7	10821	12	2349161	54579.7	452.8	0.1	-6.8	-3.6		578540	6951359
80123	22	2613580	54586.7	452.8	0.1	46.1	-55.2	-8.8	10830	11	2211328	54582.9	413.4	0.1	-12.3	0.0	0.0	578898	6951996
80020	4	1912500	55052.9	518.4	1.9	96.0	-93.6	0.0	10830	11	2213311	55062.0	390.4	0.4	-12.3	0.0	0.0	571804	6955903
80030	3	2545110	54719.7	498.7	0.4	85.6	-96.9	-11.2	10830	11	2215310	54715.8	390.4	0.9	-12.3	0.0	0.0	564761	6959747
80041	10	2052001	54598.7	419.9	0.0	80.2	-17.3	65.5	10830	11	2217311	54673.9	413.4	0.3	-12.3	0.0	0.0	557773	6963681
80050	2	2339487	54651.8	442.9	0.5	92.5	-97.4	-9.7	10830	11	2219288	54654.7	390.4	0.1	-12.3	0.0	0.0	550735	6967571
80060	2	2303580	54790.6	459.3	0.2	94.9	-95.5	-1.2	10830	11	2221268	54794.9	377.3	0.3	-12.3	0.0	0.0	543703	6971534
80071	10	2011555	54590.4	442.9	0.4	75.3	-32.7	39.0	10830	11	2223230	54634.5	387.1	0.7	-12.3	0.0	0.0	536647	6975352
80081	10	1949026	54668.8	423.2	0.0	75.6	-43.7	31.9	10830	11	2225208	54704.7	370.7	0.1	-12.3	0.0	0.0	529666	6979282
80091	10	1914017	54480.2	423.2	0.0	75.6	-36.3	39.3	10830	11	2227196	54522.8	351.0	0.2	-12.3	0.0	0.0	522581	6983244
80100	1	2026257	54476.7	462.6	0.0	92.4	-95.7	-6.4	10830	11	2229173	54479.5	374.0	0.0	-12.3	0.0		515566	6987136
80100	1	2026157	54485.6	446.2	0.0	92.6	-95.7	-6.3	10840	11	2149385	54490.5	374.0	0.0	-10.4	0.0	0.0	515952	6987736
80091	10	1913518	54479.0	419.9	0.2	75.6	-36.3	39.3	10840	11	2151331	54523.1	364.2	0.0	-10.4	0.0	0.0	522948	6983855
80081	10	1949144	54651.8	416.7	0.4	75.6	-43.7	31.9	10840	11	2153279	54689.4	380.6	0.0	-10.4	0.0	0.0	530067	6979948
80071	10	2011451	54612.3	423.2	0.0	74.6	-32.7	38.8	10840	11	2155191	54653.3	406.6	1.0	-10.4	0.0	0.0	536962	6976055
80060	2	2303478	54776.0	429.8	0.1	94.9	-95.5	-1.2	10840	11	2157136	54779.9	380.6	0.1	-10.4	0.0	0.0	544100	6972171

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80050	2	2340014	54665.6	429.8	0.0	92.4	-97 4	-10.0	10840	11	2159049	54667.4	416.7	0.4	-10.4	0.0	0.0	551120	6968275
80041	10	2052123	54603.8	413.4	0.1	80.9	-17.3	64.9	10840	11	2200588	54681 4	410.1	0.3	-10.4	0.0	0.0	558198	6964382
80030	3	2545245	54671.1	515.1	0.6	85.6	-96.9	-11.2	10840	11	2202516	54665.7	387.1	0.8	-10.4	0.0	0 0	565197	6960525
80020	4	1912401	55093.0	518.4	0.4	96.1	-93.6	-3.7	10840	11	2204442	55106 6	436.4	0.0	-10.4	0.0	0.0	572247	6956595
80123	22	2614102	54589.9	492.1	0.1	46.2	-55 2	-8.7	10840	11	2206359	54587.0	403.5	0.0	-10.4	0.0		579329	6952743
80123	22	2614211	54592.7	452.6	0.0	46.6	-55.2	-8.5	10850	11	2127588	54591.0	406 8	0.0	-12.7	0.0	0.0	579711	6953412
80020	4	1912294	55034.0	528.2	2.2	96.1	-93 6	-7.4	10850	11	2129559	55028 6	397.0	5.2	-12.7	0.0	0 0	572706	6957345
80030	3	2545374	54656.8	488.8	0.2	85.6	-96 9	-11.2	10850	11	2131546	54658 0	393.7	2.5	-12.7	0.0	0.0	565629	6961258
80041	10	2052241	54610.6	410.1	0.1	81.6	-17 3	64.6	10850	11	2133534	54687.6	380.6	0.4	-12.7	0 0	0.0	558608	6965073
80050	2	2340139	54629.0	442.9	0.5	92.2	-97.4	-10.2	10850	11	2135531	54629.3	360.9	0.1	-12.7	0.0	0.0	551505	6968953
80060	2	2303370	54771.8	442.9	0.1	94.9	-95.5	-1 2	10850	11	2137518	54778 8	374.0	0.7	-12.7	0.0	0.0	544496	6972855
80071	10	2011332	54610.3	400.3	0.1	73.8	-32.7	39.3	10850	11	2139538	54655.8	354.3	1.3	-12.7	0.0	0.0	537374	6976839
80081	10	1949268	54637.5	429.8	0.3	75.6	-43.7	31 9	10850	11	2141500	54675.4	367.5	0.1	-12.7	0.0	0.0	530438	6980668
80091	10	1913399	54480.3	413.4	0.3	75.6	-36.3	39.3	10850	11	2143482	54525 1	370.7	0.2	-12.7	0.0	0.0	523377	6984587
80100	1	2026039	54494.8	462.6	0.1	92.7	-95 7	-6.3	10850	11	2145459	54500.2	344.5	0.2	-12.7	0.0		516367	6988475
80100	1	2025530	54500.6	472.4	0.2	92.5	-95 7	-6.5	10860	11	2106068	54507.3	364.2	0 1	-7.3	0.0	0.0	516745	6989149
80091	10	1913288	54489.6	413.4	0.0	75.6	-36.3	39.3	10860	11	2108020	54535 6	387.1	0.1	-7.3	0.0	0.0	523775	6985279
80081	10	1949391	54631.4	449.5	0.2	75.6	-43.7	31.9	10860	11	2109569	54672 5	367.5	0.3	-7.3	0 0	0.0	530828	6981372
80071	10	2011221	54605.0	380.6	0.4	73.1	-32.7	39 7	10860	11	2111520	54647.9	357.6	1.3	-7.3	0.0	0.0	537827	6977538
80060	2	2303261	54768.0	423.2	0.2	94.8	-95.5	-1.3	10860	11	2113471	54773 9	387.1	0.7	-7.3	0.0	0.0	544890	6973553
80050	2	2340276	54629.2	439.6	0.4	92.0	-97.4	-10 4	10860	11	2115411	54634.7	397.0	0.0	-7.3	0.0	0 0	551958	6969685
80041	10	2052368	54614.2	416.7	0.1	82.3	-17.3	65.0	10860	11	2117370	54695.6	370.7	0.3	-7.3	0.0	0.0	559050	6965805
80030	3	2545478	54636.8	475.7	1.3	85.6	-96.9	-11.2	10860	11	2119303	54630.0	354.3	1.2	-7.3	0.0	0.0	565980	6961868
80020	4	1912206	54920.9	557.7	1.3	96.1	-93 6	-10.1	10860	11	2121251	54904 4	377.3	4 8	-7.3	0.0	0.0	573055	6957987
80123	22	2614331	54595.9	456.0	0.1	47.0	-55 2	-8 2	10860	11	2123209	54595 6	446.2	0 0	-7.3	0 0		580126	6954158
80123	22	2614428	54598.5	475.7	0.0	47.2	-55.2	-8.1	10870	11	2044431	54599 6	387.1	0.0	-8.8	0.0	0.0	580471	6954751
80020	4	1912103	55045.6	547.9	1.4	96.2	-93 6	-11.3	10870	11	2046414	55068.3	344.5	3.2	-8.8	0.0	0.0	573450	6958723
80030	3	2546006	54568.5	492.1	0.2	85.7	-96 9	-11.1	10870	11	2048389	54568.8	364.2	0 6	-8.8	0.0	0.0	566433	6962595
80041	10	2052482	54612.9	436.4	0.1	83.0	-17.3	65.7	10870	11	2050366	54697 1	324.8	0.3	-8.8	0.0	0.0	559425	6966470
80050	2	2340404	54649.8	439.6	0.2	92.1	-97.4	-10 3	10870	11	2052353	54656.4	400.3	0.1	-8.8	0.0	0.0	552360	6970371
80060	2	2303140	54739.1	423.2	0.4	94.7	-95.5	-1.4	10870	11	2054309	54748 2	364.2	0.7	-8 8	0.0	0.0	545327	6974336
80071	10	2011112	54609.3	374.0	0.0	72.4	-32.7	39 6	10870	11	2056264	54658.2	377.3	1.3	-8.8	0.0	0.0	536292	6978204
80081	10	1949518	54624.6	403.5	0.1	75.6	-43 7	31.9	10870	11	2058214	54665.6	390.4	0.2	-8 8	0.0	0.0	531243	6982091
80091	10	1913180	54494.6	390.4	0.0	75.6	-36 3	39 3	10870	11	2100166	54542.5	360.9	0.3	-8 8	0.0	0.0	524163	6985946
80100	1	2025411	54510.6	436.4	0.1	92.2	-95.7	-6 8	10870	11	2102107	54518.9	370.7	0.0	-8.8	0.0		517215	6989876
80123	22	2614551	54602.7	472.4	0.0	47.0	-55.2	-8.2	10880	9	2413283	54590 6	380.6	0.1	21.7	3.7	0.2	580917	6955499
80020	4	1912006	55344.9	557.7	9.3	96.2	-93 6	-9.7	10880	9	2415230	55304.2	351.0	9.8	21.7	2.1	0.3	573846	6959404
80030	3	2546133	54553.0	475.7	0.1	85.7	-96.9	-11.1	10880	9	2417170	54541 5	360.9	0.3	21.7	0.0	0.7	566832	6963342
80041	10	2053009	54613.5	423.2	0.1	83.7	-17.3	67 0	10880	9	2419077	54686 5	337.9	0 3	21.7	-5 6	-0.6	559842	6967206
80050	2	2340523	54645.9	472.4	0.1	92.3	-97.4	-10.2	10880	9	2421026	54640 8	341.2	0.2	21.7	-0.3	-0.2	552707	6971024
80060	2	2303036	54721.7	423.2	0.1	94.7	-95 5	-1.4	10880	9	2422544	54719.9	318.2	0.5	21.7	1.0	0.0	545709	6974998
80071	10	2011006	54601.5	397.0	0.1	71.6	-32.7	39.0	10880	9	2424460	54638 9	351.0	1.0	21.7	1.4	0.0	538736	6978858
80081	10	1950036	54614.7	452.8	0 2	75.6	-43 7	31 9	10880	9	2426428	54645.7	354.3	0.3	21.7	1.0	0.0	531635	6982768

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80091	10	1913068	54494.8	393.7	0.1	75.6	-36.3	39 3	10860	9	2428401	54532.9	334.6	0.1	21.7	1.0	0.3	524552	6986654
80100	1	2025303	54514.2	531.5	0.1	92.0	-95.7	-7 1	10860	9	2430357	54512.7	337.9	0.2	21.7	-1.9		517602	6990539
80100	1	2025180	54521.6	505.2	0.1	91.9	-95.7	-7.3	10890	9	2352440	54516.3	337.9	0.0	-4.2	1.7	-0.2	517979	6991297
80091	10	1912554	54492.3	390.4	0.2	75.6	-36.3	39.0	10890	9	2354366	54527.8	347.8	0.0	-4 2	3.6	0.1	524961	6987378
80081	10	1950163	54606.8	410.1	0.1	75 6	-43.7	31.9	10890	9	2356258	54635.8	344.5	0.0	-4 2	3.1	-0.2	532048	6983479
80071	10	2010503	54602.4	400.3	0.2	71.0	-32.7	38.3	10890	9	2358156	54635.6	357.6	0 8	-4.2	4.8	0.2	539130	6979510
80060	2	2302521	54726.2	446.2	0.3	94.8	-95.5	-1.3	10890	9	2400039	54722.2	370.7	0.2	-4.2	3.2	0.3	546159	6975716
80050	2	2341060	54678.9	482.3	0.4	92.4	-97.4	-10.1	10890	9	2401534	54673.4	374.0	0.2	-4.2	0.4	0.5	553146	6971732
80041	10	2053116	54613.3	416.7	0.1	84.3	-17.3	68 9	10890	9	2403462	54684.5	393.7	0.3	-4 2	-3.4	-0.5	560148	6967857
80030	3	2546240	54543.0	465.9	0.1	85.7	-96.9	-11.1	10890	9	2405378	54530.2	393.7	0.1	-4.2	1.0	0.2	567163	6963982
80020	4	1911504	55611.9	541.3	3.4	96.2	-93.6	-5.0	10890	9	2407327	55615.7	354 3	2.1	-4 2	-0.7	-0.4	574242	6960136
80123	22	2615064	54605.6	482.3	0.0	46.6	-55.2	-8.5	10890	9	2409276	54594.3	393.7	0.2	-4.2	2.5		581338	6956182
80123	22	2615182	54605.9	482.3	0.0	46.2	-55.2	-8.8	10900	9	2330596	54591.1	367.5	0.0	21.7	5.8	0.0	581748	6956915
80020	4	1911406	55958.3	528.2	0.7	96.2	-93.6	1.6	10900	9	2332543	55955.0	337.9	6.6	21.7	5.8	0.1	574661	6960822
80030	3	2546355	54542.1	475.7	0.1	85.8	-96.9	-11.1	10900	9	2334480	54525 8	377.3	0.1	21.7	5.2	0.0	567547	6964647
80041	10	2053239	54607.6	403.5	0.1	85.0	-17.3	71 5	10900	9	2336427	54676.0	337.9	0.3	21.7	5.2	0.0	560547	6968563
80050	2	2341193	54680.1	452.8	0.2	92.3	-97.4	-10 3	10900	9	2338346	54669.9	380.6	0.1	21.7	5.1	0.0	553554	6972432
80060	2	2302413	54748.0	433.1	0.3	94.8	-95 5	-1.3	10900	9	2340301	54742.6	360.9	0.1	21.7	4.8	-0.1	546562	6976401
80071	10	2010388	54615.8	400.3	0.2	70.2	-32.7	37.5	10900	9	2342269	54647.9	337.9	0.6	21.7	5.3	0.1	539554	6980235
80081	10	1950288	54598.2	410.1	0.1	75.6	-43.7	31.9	10900	9	2344253	54626.1	351.0	0.1	21.7	4.1	0.0	532471	6984174
80091	10	1912433	54501.3	390.4	0.1	75.6	-36.3	38.6	10900	9	2346234	54536.2	347.8	0.1	21.7	4.2	0.2	525405	6988129
80100	1	2025068	54529.9	492.1	0.1	91.9	-95.7	-7.4	10900	9	2348188	54524 0	318.2	0.2	21.7	2.2		518326	6991992
80100	1	2024552	54532.2	442.9	0.4	92.0	-95.7	-7.4	10910	9	2310126	54526.2	318.2	0.1	21.7	2.4	-0.1	518739	6992692
80091	10	1912327	54505.9	387.1	0.3	75.6	-36.3	38.5	10910	9	2312075	54539 0	337.9	0 1	21.7	3 3	-0.2	525738	6988823
80081	10	1950410	54595.7	416.7	0.1	75.6	-43 7	31.9	10910	9	2314013	54622 5	328.1	0.0	21.7	5.2	-0.3	532869	6984863
80071	10	2010274	54603.3	410.1	0.4	69.4	-32 7	36.8	10910	9	2315533	54632.0	344 5	0.6	21 7	7.7	0.2	539949	6980974
80060	2	2302320	54763.4	426.5	0.3	94.9	-95.5	-1.2	10910	9	2317425	54756.5	341.2	0 0	21.7	6.4	0.1	546888	6977007
80050	2	2341331	54666.2	439.6	0.0	92.1	-97.4	-10.6	10910	9	2319322	54655 2	357.6	0.0	21.7	5.7	0.0	553950	6973193
80041	10	2053361	54601.8	416.7	0.1	85.7	-17.3	73.7	10910	9	2321239	54670.6	357.6	0.3	21 7	5.4	0.1	560982	6969243
80030	3	2546479	54545.3	469.2	0.1	85.7	-96.9	-11.0	10910	9	2323179	54529.1	374.0	0.3	21 7	4.8	0.3	567990	6965346
80020	4	1911315	55995.3	541.3	0.7	96.1	-93.6	7.2	10910	9	2325113	55995 8	351.0	2.3	21 7	2.4	-0.4	575048	6961456
80123	22	2615288	54608.2	482.3	0.0	46.0	-55.2	-8.8	10910	9	2327052	54593.2	393.7	0 1	21.7	5.6		582118	6957576
80123	22	2615407	54610.0	469.2	0.1	46.3	-55.2	-8.7	10920	9	2248393	54592.7	364.2	0.1	21.7	8.4	0.1	582538	6958322
80020	4	1911218	55807.9	524.9	10.3	96.0	-93.6	10.2	10920	9	2250326	55834 4	354.3	8.0	21 7	7 8	0.1	575460	6962129
80030	3	2547010	54567.6	469.2	0.3	85.7	-96.9	-10.9	10920	9	2252256	54548.2	377.3	0.4	21 7	7.2	0.1	568439	6966106
80041	10	2053495	54595.0	397.0	0.0	86.5	-17.3	74.5	10920	9	2254170	54663 7	337.9	0.2	21.7	6.4	0.1	561471	6969992
80050	2	2341454	54669.7	439.6	0.1	91.9	-97 4	-11.1	10920	9	2256129	54658 6	347.8	0.2	21.7	5 8	-0.2	554317	6973888
80060	2	2302195	54786.8	446.2	0.2	94.9	-95 5	-1.2	10920	9	2258096	54778 2	337.9	0.2	21 7	7.8	0.1	547365	6977801
80071	10	2010173	54568.2	393.7	0.8	68.8	-32.7	36.2	10920	9	2300071	54597 6	334.6	0.7	21 7	6.6	0.3	540275	6981630
80081	10	1950533	54606.2	383.9	0.8	75.6	-43 7	31.9	10920	9	2302045	54634 2	347.8	0 3	21 7	4.3	-0 2	533264	6985572
80091	10	1912219	54501.3	397.0	0.1	75.6	-36.3	38 6	10920	9	2304018	54533 9	337.9	0.1	21 7	6.3	0 4	526148	6989497
80100	1	2024435	54536.0	449.5	1.3	92.0	-95 7	-7.5	10920	9	2305546	54529 4	321.5	0.1	21.7	3.1		519190	6993396
80100	1	2024325	54545.5	465.9	0.1	91.8	-95.7	-7.6	10930	9	2226525	54533 7	344.5	0.1	21 7	8.0	-0.1	519583	6994068

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80091	10	1912114	54513.0	403.5	0.0	75.6	-36.3	39.0	10930	9	2228489	54543.5	328.1	0.0	21.7	8.6	0.3	526616	6990109
80081	10	1951051	54621.0	387.1	0 5	75.6	-43.7	31.9	10930	9	2230445	54647.0	334.6	0.3	21.7	6.4	-0.4	533636	6986255
80071	10	2010070	54537.4	393.7	0.3	68.1	-32.7	35.7	10930	9	2232357	54562.8	318.2	0.7	21.7	9.7	0.0	540582	6982328
80060	2	2302095	54790.2	446.2	0.4	94.8	-95.5	-1.3	10930	9	2234259	54779.6	347.8	0.4	21.7	9.7	0.4	547698	6978468
80050	2	2341577	54661.5	439.6	0 0	91.7	-97.4	-11.9	10930	9	2236150	54649.4	344 5	0.4	21.7	6.7	0.0	554723	6974559
80041	10	2054001	54593.1	428.8	0.1	87.1	-17.3	73.9	10930	9	2238062	54662.7	311.7	0.3	21.7	6.9	-0.1	561825	6970599
80030	3	2547118	54607.8	475.7	0.6	85.7	-96.9	-10 8	10930	9	2239579	54590.2	374.0	0.6	21.7	7.4	-0.1	568767	6966750
80020	4	1911117	55603.5	515.1	6.8	95.9	-93.6	10.2	10930	9	2241530	55583.7	370.7	0.8	21.7	7.9	-0.1	575867	6962854
80123	22	2615512	54609.9	486.8	0.1	46.7	-55.2	-8 5	10930	9	2243479	54593.0	393.7	0.0	21.7	8.4		582916	6958972
80123	22	2616025	54614.8	488.8	0 0	47.0	-55.2	-8.3	10940	9	2205276	54592 9	383.9	0.1	21.7	13.6	0.2	583338	6959666
80020	4	1911023	55436.1	524.9	3.0	95.8	-93.6	8.2	10940	9	2207219	55447.5	347.8	8.2	21.7	11.6	0.3	576253	6963520
80030	3	2547240	54705.9	472.4	1.2	85.7	-96.9	-10.8	10940	9	2209157	54685.2	377.3	0.1	21.7	9.4	0.4	569188	6967446
80041	10	2054129	54595.6	419.9	0.1	87.8	-17.3	72 6	10940	9	2211087	54660.7	347.8	0.3	21.7	5.9	-0.3	562244	6971339
80050	2	2342119	54656.2	452.8	0.1	91.5	-97.4	-13.4	10940	9	2213065	54641.9	334.6	0.4	21.7	8.4	-0.3	555158	6975342
80060	2	2301575	54791.4	465.9	0.1	94.7	-95.5	-1.4	10940	9	2215046	54779.4	334.6	0.1	21.7	10.8	0.3	548153	6979222
80071	10	2009551	54536.6	400.3	0.1	67.8	-32.7	35.5	10940	9	2217029	54563.3	344.5	0.7	21.7	8.5	0.1	541047	6983061
80081	10	1951180	54632.7	360.9	0.2	75.6	-43.7	31.9	10940	9	2219012	54657.1	344.5	0.5	21 7	7 6	-0.1	534043	6986988
80091	10	1912000	54512.7	413.4	0.1	75.6	-36 3	39.3	10940	9	2220543	54543.3	351.0	0.1	21 7	8 6	0.1	527038	6990833
80100	1	2024216	54549.2	456.0	0.1	91.7	-95.7	-7.8	10940	9	2222469	54537.4	337.9	0.1	21 7	7.9		519957	6994736
80100	1	2024111	54554.5	446.2	0.0	91.7	-95.7	-7.8	10950	9	2144141	54538.8	344.5	0.0	21 7	11.8	0.0	520331	6995382
80091	10	1911494	54517.9	423.2	0.2	75.6	-36 3	39.3	10950	9	2146070	54544 9	351.0	0.0	21.7	11.9	0.5	527394	6991527
80081	10	1951286	54666.3	377.3	0.8	75.6	-43.7	31.9	10950	9	2148009	54691.2	351.0	0 4	21 7	7.7	-0.5	534403	6987584
80071	10	2009443	54545.4	410.1	0.2	68.2	-32.7	35 6	10950	9	2149557	54568.7	351.0	0.3	21 7	11.9	-0.1	541469	6983729
80060	2	2301476	54787.8	465.9	0.2	94.7	-95 5	-1.4	10950	9	2151476	54773.7	341.2	0.5	21 7	13.0	0 3	548523	6979846
80050	2	2342239	54657.2	469.2	0.2	91.4	-97 4	-14.2	10950	9	2153371	54637.2	364.2	0.6	21.7	10 1	0 3	555541	6975980
80041	10	2054245	54599.1	416.7	0.0	88.5	-17 3	71.8	10950	9	2155271	54662 8	360.9	0.2	21.7	7.8	-0.1	562619	6972006
80030	3	2547356	54738.3	482.3	1.4	85.8	-96.9	-11.0	10950	9	2157167	54718.3	377.3	0.7	21 7	8.5	0 4	569591	6968118
80020	4	1910520	55162.6	511.8	6.4	95.7	-93.6	4.8	10950	9	2159112	55160 9	360.9	6 6	21.7	4 8	-1.0	576675	6964266
80123	22	2616137	54615.8	498.7	0.0	47.0	-55 2	-8 3	10950	9	2201063	54593.6	374 0	0.0	21 7	13.3		583745	6960363
80123	22	2616251	54619.5	492.1	0.1	46.7	-55.2	-8 5	10960	9	2122487	54594.9	334.6	0.1	9 0	16.5	-0 5	584146	6961081
80020	4	1910418	54585.2	541.3	4.4	95.7	-93 6	1.6	10960	9	2124392	54565.4	377.3	7 8	9 0	21.0	0.8	577071	6965001
80030	3	2547485	54889.0	495.4	2.1	85.9	-96.9	-12.3	10960	9	2126317	54863.6	357.6	0.8	9 0	14.6	0.6	570022	6968870
80041	10	2054373	54604.5	418.7	0.0	89.2	-17.3	72 0	10960	9	2128238	54667.3	383.9	0.1	9 0	9.8	-0.6	563035	6972756
80050	2	2342361	54652.3	446.2	0.2	91.2	-97 4	-14.0	10960	9	2130193	54631.1	337.9	0.1	9 0	14.7	-0.2	555975	6976608
80060	2	2301371	54787.8	472.4	0.1	94.8	-95 5	-1.4	10960	9	2132181	54770 7	324.8	0.6	9 0	16.1	0.3	548895	6980524
80071	10	2009330	54555.9	403.5	0.1	68.6	-32 7	35.9	10960	9	2134150	54578.2	337.9	0.3	9 0	13.5	0.4	541917	6984418
80081	10	1951418	54703.1	413.4	0 0	75.6	-43 7	31.9	10960	9	2136101	54725 2	318.2	0 6	9 0	10.3	-0.4	534836	6988310
80091	10	1911388	54522.2	449.5	0.0	75.6	-36 3	39.3	10960	9	2138035	54547 5	351.0	0 1	9 0	13.6	0.1	527729	6992221
80100	1	2023582	54559.8	442.9	0.2	91.7	-95.7	-7.8	10960	9	2139560	54543 2	324.8	0.1	9 0	12.7		520799	6996170
80100	1	2023473	54564.3	439.6	0.2	91.8	-95.7	-7.8	10970	9	2057200	54543 9	377.3	0 2	16 1	16.5	0.1	521191	6996836
80091	10	1911287	54529.8	419.9	0.0	75.6	-36.3	39.3	10970	9	2059125	54552.9	400.3	0.1	16 1	16.0	0.3	528161	6992989
80081	10	1951553	54709.2	387.1	0.3	75 6	-43 7	31.9	10970	9	2101103	54728 1	387 1	0 5	16 1	13.4	-0.3	535272	6989056
80071	10	2009214	54576.1	413.4	0 5	60.0	-32 7	36.3	10970	9	2103083	54596 5	370.7	0.2	16 1	15.7	0.0	542373	6985128

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80060	2	2301261	54806.2	442.9	0.3	94.8	-95.5	-1.4	10970	9	2105020	54789.2	370.7	0.9	16.1	16.0	0.4	549298	6981227
80050	2	2342513	54657.7	462.6	0.2	91.1	-97.4	-13.0	10970	9	2106555	54638.8	354.3	0.1	16.1	12.6	0.4	556421	6977439
80041	10	2054495	54610.5	465.9	0.0	89.9	-17.3	72 6	10970	9	2108460	54673.8	341.2	0.1	16.1	9.6	-0.2	563446	6973446
80030	3	2548009	55198.1	482.3	6.7	85.9	-96.9	-15.8	10970	9	2110401	55176.1	397.0	3.3	16.1	11.0	-0.3	570418	6969601
80020	4	1910318	54549.4	524.9	0.8	95.6	-93.6	-0 9	10970	9	2112364	54529.1	403.5	1.0	16 1	13.2	-0.3	577480	6965707
80123	22	2616361	54626.5	488.8	0.1	46.3	-55.2	-8.6	10970	9	2114349	54602.1	413.4	0.0	16 1	15.4		584540	6961773
80123	22	2616447	54634.5	482.3	0.2	46.2	-55.2	-8.7	10980	9	2035370	54605.4	469.2	0.1	16.7	20.2	0.0	584852	6962306
80020	4	1910231	54611.5	511.8	0.7	95.6	-93.6	-1.7	10980	9	2037323	54589.9	442.9	0.9	16.7	19.9	1.0	577848	6966319
80030	3	2548120	55510.2	479.0	6.4	86.0	-96.9	-18.7	10980	9	2039263	55473 7	439.6	4.3	16.7	11.8	-0.2	570804	6970240
80041	10	2055012	54607.4	406.8	0.0	90.6	-17.3	73.3	10980	9	2041223	54667.3	436.4	0.0	16.7	13.5	-0.4	563863	6974102
80050	2	2343020	54665.0	459.3	0.1	91.1	-97.4	-12 6	10980	9	2043234	54641.7	433.1	0.0	16.7	16.9	-0 2	556752	6978027
80060	2	2301145	54816.1	436.4	0.4	94.7	-95.5	-1.5	10980	9	2045224	54796.2	423.2	0.8	16 7	18.9	0.1	549738	6981962
80071	10	2009111	54585.1	403.5	0.1	69.4	-32.7	36.7	10980	9	2047194	54603.2	426.5	0.6	16.7	18.2	0.6	542739	6985777
80081	10	1952078	54726.4	413.4	0.4	75.6	-43.7	31.9	10980	9	2049162	54745 6	403.5	0.6	16.7	13 3	-0.4	535671	6989748
80091	10	1911162	54532.7	413.4	0.0	75.6	-36.3	39.3	10980	9	2051101	54555.1	403.5	0.3	16 7	16.7	-0.1	528575	6993651
80100	1	2023361	54573.0	459.3	0.3	91.8	-95.7	-7.7	10980	9	2053027	54551.6	374.0	0.1	16.7	17.4		521574	6997538
80100	1	2023252	54571.3	426.5	0.2	91.8	-95.7	-7.7	10990	9	2013357	54543.1	436.4	0.0	21.5	24.3	0.1	521935	6998244
80091	10	1911045	54537.2	433.1	0.1	75.6	-36.3	39.3	10990	9	2015320	54552.4	387.1	0.1	21.5	23.8	0.4	529027	6994385
80081	10	1952211	54742.3	413.4	0.0	75.6	-43.7	31.9	10990	9	2017303	54754.4	419.9	0.2	21.5	20.4	-0.5	536113	6990479
80071	10	2008583	54611.8	400.3	0.0	69.9	-32.7	37.2	10990	9	2019279	54624.5	433.1	0.5	21.5	24.2	0.0	543168	6986606
80060	2	2301034	54828.3	436.4	0.0	94.6	-95.5	-1.6	10990	9	2021235	54803.3	433.1	0.9	21.5	24 0	0.2	550150	6982680
80050	2	2343154	54668.0	459.3	0.1	91.1	-97.4	-12.5	10990	9	2023171	54638.9	416.7	0.2	21.5	22.6	0.6	557146	6978764
80041	10	2055142	54597.3	416.7	0.2	91.3	-17.3	74 0	10990	9	2025115	54653.6	433.1	0 2	21.5	17.7	0.5	564281	6974831
80030	3	2548246	55187.7	508.5	1.7	86.0	-96.9	-18.8	10990	9	2027027	55150.1	442.9	0.7	21.5	13.8	-0.8	571277	6970933
80020	4	1910123	54669.3	511.8	0.5	95.4	-93.6	-1.1	10990	9	2028559	54646.2	442.9	0.6	21.5	20.5	-0.2	578301	6967081
80123	22	2616580	54647.7	472.4	0.1	46.4	-55.2	-8 6	10990	9	2030534	54616.6	433.1	0.0	21.5	22.2		585347	6963132
80123	22	2617092	54683.5	475.7	0.2	46.8	-55.2	-8.4	11000	9	1951391	54620 0	433.1	0.1	25 9	26.2	-0.2	585755	6963851
80020	4	1910021	54700.5	498.7	0.3	95.3	-93 6	-0.6	11000	9	1953358	54674.2	462.6	0.6	25 9	27.6	0 4	578718	6967803
80030	3	2548360	55217.1	495.4	0.3	86.1	-96.9	-17.0	11000	9	1955325	55182.3	413.4	2.6	25 9	24.2	0.1	571681	6971582
80041	10	2055253	54585.9	406.8	0.1	91.9	-17.3	74.7	11000	9	1957309	54637.0	452.8	0.3	25 9	23.7	-0 4	564622	6975495
80050	2	2343279	54667.8	446.2	0.2	91.1	-97.4	-12.6	11000	9	1959306	54634.5	446.2	0.0	25 9	26.9	-0.3	557567	6979423
80060	2	2300541	54844.3	449.5	0.3	94.6	-95.5	-1.8	11000	9	2001291	54813 8	410.1	0 6	25 9	29.5	0.0	550497	6983279
80071	10	2008491	54608.7	400.3	0.0	70.2	-32.7	37.5	11000	9	2003271	54616.3	403.5	0 6	25 9	29.5	0.6	543485	6987196
80081	10	1952327	54753.2	426.5	0.0	75.6	-43 7	31.9	11000	9	2005242	54761 0	433.1	0.1	25 9	24.6	-0.3	536501	6991112
80091	10	1910540	54539.3	419 9	0.0	75.6	-36 3	39.3	11000	9	2007209	54551 7	419 9	0.0	25 9	26.7	0.1	529414	6995050
80100	1	2023138	54584.2	442.9	0.0	91.8	-95.7	-7 8	11000	9	2009164	54554.3	439.6	0 2	25 9	26.0		522332	6998960
80100	1	2023017	54589.7	442.9	0.1	91.8	-95.7	-7.9	11010	9	1929286	54551.4	433.1	0.1	30 0	31.5	-0.1	522804	6999684
80091	10	1910434	54548.0	439.6	0.2	75.6	-36 3	39.3	11010	9	1931240	54554.7	426.5	0.2	30.0	32.3	0.3	529792	6995725
80081	10	1952453	54756.1	413.4	0.1	75.6	-43 7	31.9	11010	9	1933225	54758 3	423.2	0.1	30.0	30 1	-0.4	536914	6991812
80071	10	2008371	54599.0	406.8	0.2	70.7	-32 7	38.0	11010	9	1935190	54603 4	439 6	0.4	30 0	33 4	-0 1	543932	6987941
80060	2	2300423	54843.2	459.3	0.3	94.5	-95 5	-1.8	11010	9	1937150	54807.7	488.8	0 6	30 0	34 1	0 5	550954	6984020
80050	2	2343411	54685.9	439.6	0.2	91.0	-97 4	-12 6	11010	9	1939099	54649 7	419.9	0.1	30 0	29 9	0 3	558007	6980113
80041	10	2055383	54586.0	436.4	0.3	92.7	-17.3	75.4	11010	9	1941032	54634 6	449.5	0.2	30 0	27.5	-0 7	565014	6976248

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80030	3	2548491	54953.8	505.2	5.8	86.2	-96.9	-16.5	11010	9	1942569	54909.0	442.9	5.2	30.0	33.3	0.4	572068	6972371
80020	4	1909534	54719.8	502.0	0.2	95.3	-93.6	-0.4	11010	9	1944511	54691.7	456.0	0.7	30.0	29.8	0.5	579078	6968428
80123	22	2617200	54692.3	492.1	0.6	47.0	-55 2	-8.2	11010	9	1946472	54659.1	449.5	0.1	30 0	25.3		586128	6964546
80123	22	2617310	54700.1	479.0	0.1	47.0	-55.2	-7.4	11020	8	2425159	54703.6	423.2	0 4	-17.1	-11.6	0.2	586525	6965250
80020	4	1909438	54738.6	502.0	0.3	95.2	-93.6	-0.3	11020	8	2426557	54746.9	495.4	0.6	-17.1	-13.5	0.2	579468	6969105
80030	3	2549011	54721.9	518.4	1.3	86.3	-96.9	-16.8	11020	8	2428378	54707.4	413.4	1.4	-17 1	-15.4	0.2	572392	6973107
80041	10	2055505	54556.7	433.1	0.1	93.4	-17.3	76.1	11020	8	2430198	54650.2	439 6	0.3	-17.1	-16.9	-0.3	565404	6976935
80050	2	2343541	54690.4	436.4	0.2	91.0	-97.4	-12 6	11020	8	2432017	54698.2	433.1	0.0	-17.1	-14.1	-0.4	558391	6980840
80060	2	2300320	54823.9	439.6	0 2	94.4	-95.5	-1.7	11020	8	2433434	54833.2	433.1	0.4	-17.1	-10.8	0.3	551331	6984681
80071	10	2008265	54592.4	419.9	0.1	71.1	-32.7	38 4	11020	8	2435263	54644.4	413.4	0.6	-17.1	-13.6	0.5	544330	6988602
80081	10	1952587	54768.3	413.4	0.1	75.6	-43.7	31.9	11020	8	2437114	54818.8	429.8	0.0	-17.1	-18.1	-0.1	537337	6992569
80091	10	1910325	54552.5	423.2	0.1	75 6	-36.3	39.3	11020	8	2438576	54609.4	403.5	0.1	-17.1	-17.6	0.0	530176	6996420
80100	1	2022512	54592.1	475.7	0.1	91.7	-95.7	-7.9	11020	8	2440426	54605.7	442.9	0.0	-17.1	-17.5		523211	7000318
80100	1	2022395	54597.7	459.3	0.0	91.6	-95.7	-8.0	11030	8	2402442	54610.9	416.7	0.3	-11 3	-16.9	-0.3	523610	7001050
80091	10	1910211	54559.3	426.5	0.2	75.6	-36.3	39.3	11030	8	2404452	54612.6	393.7	0.0	-11.3	-14.1	-0.1	530606	6997145
80081	10	1953100	54768.8	410.1	0.2	75.6	-43.7	31.9	11030	8	2406481	54814.4	446.2	0.2	-11.3	-13.2	-0.6	537683	6993223
80071	10	2008152	54812.1	413.4	0 3	71.5	-32.7	38 8	11030	8	2408501	54658.0	416.7	0 2	-11.3	-7.8	0.5	544727	6989312
80060	2	2300201	54812.8	442.9	0.0	94.2	-95.5	-0 6	11030	8	2410519	54824.4	393.7	0.6	-11.3	-12.3	-0.2	551738	6985471
80050	2	2344076	54699.1	436.4	0.0	91.1	-97.4	-12 5	11030	8	2412583	54703.0	419.9	0.1	-11.3	-10.5	0.4	558819	6981569
80041	10	2056026	54564.9	439.6	0 0	94.1	-17.3	76 8	11030	8	2415045	54655.7	442.9	0.3	-11.3	-13.5	-0.3	565844	6977581
80030	3	2549127	54659.9	479.0	0 7	86.3	-96.9	-15.3	11030	8	2417085	54659.8	449.5	0.9	-11.3	-10.7	0.1	572766	6973778
80020	4	1909332	54761.5	492.1	0 1	95.1	-93.6	0.0	11030	8	2419146	54775.2	433.1	0.4	-11.3	-11.6	-0.3	579899	6969857
80123	22	2617418	54719.1	472.4	0.1	46.8	-55.2	-2 4	11030	8	2421263	54719.7	442.9	0.6	-11.3	-9.2		586953	6965920
80123	22	2617532	54740.6	465.9	0.4	46.4	-55.2	5 9	11040	8	2340062	54743.2	465.9	0.5	-9.8	-10.7	-0.7	587402	6966627
80020	4	1909234	54774.2	505.2	0.3	95.0	-93.6	0 6	11040	8	2341466	54779.5	475.7	0 6	-9.8	-4.6	0.3	580304	6970553
80030	3	2548247	54622.3	442.9	0 2	86.3	-96.9	-12.3	11040	8	2343278	54619.2	426.5	0.1	-9.8	-7.5	0.5	573264	6974444
80041	10	2058158	54571.7	452.8	0.1	94.8	-17.3	77.6	11040	8	2345111	54661.6	459.3	0.4	-9.8	-11.8	-0.2	566313	6978284
80050	2	2344202	54701.8	423.2	0.0	91.1	-97.4	-12.4	11040	8	2346570	54705.6	410.1	0.1	-9.8	-10 1	-0.2	559232	6982246
80060	2	2300102	54814.2	449.5	0.1	94.1	-95.5	0.4	11040	8	2348420	54821.6	416.7	0.4	-9.8	-8.8	0.0	552121	6986093
80071	10	2008044	54643.1	436.4	0.4	71.9	-32.7	39.1	11040	8	2350280	54691.8	426.5	0.6	-9.8	-9.2	-0.3	545105	6989998
80081	10	1953222	54734.1	419.9	0.7	75.6	-43.7	31 9	11040	8	2352142	54772.8	429.8	0.3	-9.8	-7.0	0.1	538093	6993891
80091	10	1910106	54559.1	429.8	0 2	75.6	-36.3	39.3	11040	8	2354019	54606 5	429.8	0.0	-9.8	-8.2	0.4	530985	6997809
80100	1	2022280	54603.6	446.2	0 1	91.6	-95.7	-8 1	11040	8	2355487	54611.5	439.6	0.2	-9 8	-11.7		523992	7001790
80100	1	2022168	54604.1	472.4	0.0	91.5	-95.7	-8.0	11050	8	2317454	54620.6	429.8	0.2	-13.2	-20.4	-0.3	524396	7002485
80091	10	1909593	54571.1	429.8	0.1	75.6	-36.3	39.3	11050	8	2319483	54628.7	429.8	0.2	-13.2	-18.3	-0.1	531373	6998541
80081	10	1953341	54687.5	416.7	0.5	75.6	-43.7	31 9	11050	8	2321529	54737.7	429.8	0.5	-13 2	-17.7	-0.9	538505	6994554
80071	10	2007537	54656.6	439.6	0.3	72.3	-32.7	38.7	11050	8	2323553	54706.1	423.2	0.8	-13 2	-10.4	0.1	545489	6990660
80060	2	2259594	54798.6	452.8	0.0	94.0	-95.5	1.0	11050	8	2325594	54813 6	413.4	0 5	-13.2	-11.1	0.2	552534	6986771
80050	2	2344320	54705.8	436.4	0.2	91.1	-97.4	-12 4	11050	8	2328027	54711 9	433.1	0.1	-13 2	-12.4	0.3	559594	6982900
80041	10	2056280	54576.8	459.3	0.2	95.5	-17.3	78 9	11050	8	2330077	54670 1	413.4	0.2	-13.2	-14.5	-0.6	566722	6978964
80030	3	2549357	54616.2	449.5	0.1	86.4	-96 9	-10.7	11050	8	2332121	54614.7	449.5	0 2	-13.2	-9.3	0.1	573706	6975046
80020	4	1909148	54776.5	498.7	0.0	95.0	-93 6	1.1	11050	8	2334151	54788.2	442.9	0.5	-13.2	-10.1	0.1	580663	6971153
80123	22	2618046	54993.8	485.6	7.1	46.2	-55 2	11.4	11050	8	2336246	55056.1	446.2	4.1	-13.2	-10.6		587782	6967368

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MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80123	22	2618150	55067.4	462.6	1.2	46.4	-55.2	5.7	11060	8	2258169	55071.9	449.5	3.7	-12.6	-13.0	-0.4	588131	6968046
80020	4	1909039	54771.0	502.0	0.1	94.9	-93.6	1.3	11060	8	2259566	54782.2	469.2	0.6	-12.6	-10.0	0.0	581108	6971924
80030	3	2549485	54626.3	465.9	0.3	86.4	-96.9	-10.4	11060	8	2301362	54625.2	449.5	0.1	-12.6	-9.7	0.4	574137	6975801
80041	10	2056409	54588.0	436.4	0.1	96.3	-17.3	80.8	11060	8	2303189	54681.1	433.1	0.0	-12.6	-13.3	-0.4	567130	6979700
80050	2	2344457	54699.4	436.4	0.4	91.2	-97.4	-12.3	11060	8	2305032	54702 8	423.2	0.3	-12.6	-9.8	0.0	560026	6983633
80060	2	2259479	54788.9	465.9	0.3	94.0	-95.5	0.3	11060	8	2306486	54797.0	410.1	0.3	-12.6	-9.5	0.0	552935	6987518
80071	10	2007418	54651.0	429.8	0.2	72.7	-32.7	37.7	11060	8	2308336	54700.8	413.4	0.5	-12.6	-9.8	0.3	545918	6991399
80081	10	1953463	54670.5	406.8	0.0	75.6	-43.7	31.9	11060	8	2310185	54714.5	426.5	0.5	-12.6	-12.0	0.3	538916	6995233
80091	10	1909478	54572.9	433.1	0.1	75.6	-36.3	39.3	11060	8	2312062	54626.9	416.7	0.1	-12 6	-14.7	0.5	531791	6999274
80100	1	2022059	54610.3	475.7	0.0	91.6	-95.7	-7.9	11060	8	2313525	54625.4	423.2	0.1	-12.6	-18.8		524792	7003164
80100	1	2021547	54614.5	469.2	0.2	91.8	-95.7	-7 6	11070	8	2235202	54626.3	423.2	0.0	-15.2	-15.6	0.1	525193	7003859
80091	10	1909368	54585.3	426.5	0.2	75.6	-36.3	39.2	11070	8	2237242	54641.1	426.5	0.1	-15.2	-16.5	0.3	532222	6999951
80081	10	1953585	54679.7	419.9	0.2	75.6	-43.7	31 9	11070	8	2239319	54730.6	400.3	0.6	-15 2	-18.6	-0.2	539308	6995928
80071	10	2007312	54643.1	426.5	0.1	73.1	-32.7	37.6	11070	8	2241388	54691.2	410.1	0.6	-15 2	-17.0	-0.2	546300	6992049
80060	2	2259376	54786.5	429.8	0.4	94.1	-95.5	-1.0	11070	8	2243447	54800.4	426.5	0.1	-15 2	-15.3	0.0	553291	6988188
80050	2	2344576	54691.5	449.5	0.3	91.3	-97.4	-12.1	11070	8	2245529	54701.3	436.4	0.4	-15.2	-15.7	-0.1	560385	6984266
80041	10	2056510	54616.7	416.7	0.9	96.8	-17.3	81.9	11070	8	2247588	54718.7	419.9	0.4	-15.2	-14.7	-0.1	567403	6980305
80030	3	2550013	54640.3	469.2	0.1	86.3	-96.9	-10.5	11070	8	2250057	54643.4	452.8	0.0	-15.2	-13.8	0.2	574507	6976589
80020	4	1908540	54759.8	492.1	0.2	94.8	-93.6	1.2	11070	8	2252147	54776.9	456.0	0.3	-15.2	-15.6	-0.1	581490	6972628
80123	22	2618254	55165.0	442.9	5.4	46.6	-55.2	-5.1	11070	8	2254289	55202.9	423.2	4.5	-15.2	-14.8		588521	6968712
80123	22	2618367	55668.6	423.2	4.1	46.9	-55.2	3.7	11080	8	2215460	55595.8	419.9	2.0	-7.3	-2.2	0.0	588946	6969437
80020	4	1908442	54749.6	482.3	0.2	94.8	-93 6	1.2	11080	8	2217247	54753.1	475.7	0.3	-7.3	-2.3	0.2	581881	6973319
80030	3	2550112	54653.7	462.6	0.3	86.3	-96.9	-10 5	11080	8	2219046	54647.0	406.8	0.2	-7.3	-4.2	0.7	574818	6977157
80041	10	2057043	54652.9	400.3	0.1	97.6	-17.3	82.9	11080	8	2220473	54744.2	446.2	0.2	-7.3	-10.0	-0.5	567784	6981092
80050	2	2345126	54684.6	456.0	0.1	91.4	-97.4	-11.8	11080	8	2222315	54684.1	419.9	0.2	-7.3	-5.8	0.0	560833	6985053
80060	2	2259258	54792.1	433.1	0.0	94.1	-95.5	-2.1	11080	8	2224183	54796.6	397.0	0.2	-7.3	-5.7	-0.1	553740	6988955
80071	10	2007166	54625.3	403.5	0.4	73.6	-32.7	39.0	11080	8	2226026	54670.7	410.1	0.4	-7.3	-4.9	0.7	546763	6992825
80081	10	1954102	54706.4	419.9	0.4	75.6	-43.7	31.6	11080	8	2227472	54748 1	416.7	0.8	-7.3	-10.4	0.2	539671	6996601
80091	10	1909271	54589.1	416.7	0.1	75.6	-36.3	39.0	11080	8	2229324	54640.6	413.4	0.0	-7.3	-12.2	0.3	532591	7000557
80100	1	2021439	54621.2	446.2	0.0	92.0	-95.7	-7.3	11080	8	2231173	54632.8	400.3	0.1	-7.3	-15.0		525589	7004534
80100	1	2021328	54621.2	479.0	0.1	92.2	-95.7	-7.0	11090	8	2152177	54621.7	429.8	0.1	-1.8	-3.8	-0.1	525994	7005223
80091	10	1909142	54601.2	449.5	0.2	75.6	-36.3	38 6	11090	8	2154248	54642 9	433.1	0.1	-1.8	-2.6	0.2	533071	7001375
80081	10	1954241	54742.5	423.2	0.1	75.6	-43.7	30.8	11090	8	2156337	54779.6	397.0	1.1	-1.8	-4.3	-1.1	540118	6997380
80071	10	2007083	54622.7	413.4	0.1	73.9	-32.7	40.3	11090	8	2158417	54658.3	383.9	0.5	-1.8	4.6	0.6	547124	6993469
80060	2	2259160	54795.3	449.5	0.2	94.2	-95.5	-2.5	11090	8	2200502	54795.1	419.9	0.0	-1.8	-0.7	0.1	554124	6989578
80050	2	2345255	54689.8	462.6	0.0	91.6	-97.4	-11.6	11090	8	2202587	54685.6	423.2	0.1	-1.8	-1.7	0.1	561218	6985722
80041	10	2057174	54638.0	406.8	0.7	98.3	-17.3	84.2	11090	8	2205024	54722 2	442.9	0.8	-1.8	-2.9	-0.2	568219	6981844
80030	3	2550236	54673.4	456.0	0.2	86.3	-96.9	-10.5	11090	8	2207079	54663.7	423.2	0.4	-1.8	-1.0	0.1	575235	6977870
80020	4	1908349	54738.4	479.0	0.1	94.7	-93.6	1.1	11090	8	2209173	54741.9	416.7	0.4	-1.8	-2.2	0.0	582273	6973971
80123	22	2618470	55408.8	433.1	1.1	46.8	-55 2	29.8	11090	8	2211317	55389 2	393.7	19.1	-1.8	-2.3		589343	6970090
80123	22	2618581	55054.3	436.4	15.5	46.5	-55.2	51.1	11100	8	2133083	55275.5	469.2	19.2	-3 2	0.0	0.2	589755	6970704
80020	4	1908252	54734.8	472.4	0 0	94.7	-93 6	1.1	11100	8	2134463	54737.7	416.7	0.3	-3.2	-1.6	0.1	582680	6974644
80030	3	2550366	54692.5	442.9	0.1	86.2	-96.9	-10.6	11100	8	2136261	54684 0	449.5	0 0	-3.2	-2.2	0.2	575691	6978612

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80041	10	2057287	54633.3	413.4	0.6	99.0	-17.3	85.1	11100	8	2138088	54729.0	433.1	0 6	-3 2	-3.6	0.2	568626	6982464
80050	2	2345382	54693.2	449.5	0.2	91.7	-97.4	-11.5	11100	8	2139529	54692.8	442.9	0.1	-3 2	-5.0	-0.2	561571	6986410
80060	2	2259048	54802.1	446.2	0.4	94.2	-95.5	-2.7	11100	8	2141363	54804.9	413.4	0.2	-3 2	-3.5	-0.7	554546	6990307
80071	10	2006557	54617.1	406.8	0.0	74.4	-32.7	40 2	11100	8	2143222	54660.0	403.5	0.6	-3.2	2.6	0.8	547563	6994259
80081	10	1954356	54760.0	423.2	0.1	75.6	-43.7	30 5	11100	8	2145079	54792.5	406.8	1.1	-3.2	-4.3	0.1	540487	6998038
80091	10	1909042	54609.0	426.5	0.1	75.6	-36.3	38 4	11100	8	2146541	54650.4	406.8	0.1	-3.2	-5.0	0.0	533428	7002020
80100	1	2021217	54628.4	469.2	0.2	92.3	-95.7	-6.7	11100	8	2148378	54630.1	419.9	0 4	-3 2	-5.0		526389	7005923
80100	1	2021104	54626.9	456.0	0.0	92.4	-95.7	-6 3	11110	8	2109380	54626.8	403.5	0 2	-1.6	-3.2	0.2	526788	7006650
80091	10	1908529	54634.7	442.9	0.1	75.6	-36.3	38 6	11110	8	2111503	54679.2	436.4	0.6	-1.6	-4.9	-0.1	533820	7002747
80081	10	1954491	54761.4	416.7	0.0	75.6	-43.7	30.8	11110	8	2114022	54797.8	436.4	0.8	-1.6	-4.4	-0.1	540947	6998796
80071	10	2006451	54614.5	400.3	0.1	74.8	-32.7	39 3	11110	8	2116105	54647.8	426.5	0.5	-1.6	-3.5	-0.1	547956	6994918
80060	2	2258546	54816.1	439.6	0.2	94.2	-95.5	-3.1	11110	8	2118170	54817.5	387.1	0.3	-1.6	-2.6	0.0	554930	6990968
80050	2	2345518	54698.8	446.2	0.0	91.8	-97.4	-11 9	11110	8	2120242	54695.5	400.3	0.2	-1.6	-2.5	0.4	561984	6987127
80041	10	2057417	54710.5	413.4	0.4	99.7	-17.3	84.9	11110	8	2122321	54799.1	433.1	0 3	-1.6	-5.6	-0.5	569076	6983192
80030	3	2550486	54710.8	436.4	0.2	86.2	-96.9	-10.7	11110	8	2124432	54701.6	406.8	0.1	-1.6	-1.7	-0.1	576101	6979300
80020	4	1908138	54738.5	472.4	0.1	94.6	-93.6	0.9	11110	8	2126544	54741.1	456.0	0.1	-1.6	-1.2	-0.6	583150	6975449
80123	22	2619092	54917.7	436.4	0.9	46.2	-55.2	48.0	11110	8	2129098	54904.7	482.3	4.2	-1 6	3.6		590150	6971508
80123	22	2619205	54741.5	426.5	0.5	46.0	-55.2	26.0	11120	8	2050478	54747.3	449.5	0.8	-2.8	-1.6	0.0	590558	6972230
80020	4	1908042	54742.5	479.0	0.2	94.6	-93.6	0.7	11120	8	2052249	54745.2	446.2	0.3	-2.8	-1.6	0.0	583545	6976117
80030	3	2551005	54731.7	442.9	0.3	86.1	-96.9	-11.0	11120	8	2054046	54722.4	442.9	0 0	-2.8	-1.7	0.4	576482	6979993
80041	10	2057546	54706.2	410.1	0.0	100.5	-17.3	84.0	11120	8	2055475	54794.5	436.4	0.1	-2.8	-4.7	0.0	569495	6983926
80050	2	2346053	54706.3	442.9	0.2	91.7	-97.4	-12 8	11120	8	2057318	54705.8	406.8	0.1	-2.8	-4.8	-0.5	562417	6987828
80060	2	2258426	54832.0	456.0	0.4	94.2	-95.5	-3.6	11120	8	2059165	54831.8	429.8	0.3	-2.8	-1.0	-0.4	555378	6991739
80071	10	2006352	54616.5	400.3	0.1	75.2	-32 7	39.0	11120	8	2100599	54656 2	419.9	0.5	-2.8	2.2	0.4	548329	6995532
80081	10	1955006	54750.3	419.9	0.1	75.6	-43.7	31.5	11120	8	2102446	54783.6	439.6	0.5	-2.8	-1.0		541325	6999461
80100	1	2021005	54628.7	502.0	0.0	92.5	-95.7	-5.6	11121	11	1921164	54641.8	406.8	0 0	-16.8	0.0	0 0	527129	7007272
80091	10	1908427	54652.5	456.0	0.2	75.6	-36.3	39.0	11121	11	1923088	54708 6	423.2	0 1	-16.8	0.0	0.0	534197	7003391
80081	10	1955006	54750.2	416.7	0.1	75.6	-43.7	31.5	11121	11	1925093	54798.1	400.3	0.6	-16.8	0.0		541324	6999459
80100	1	2020480	54639.4	502.0	0.1	92.6	-95.7	-4.7	11130	8	2028429	54640.5	419.9	0.1	0 0	-4.2	0 3	527562	7008054
80091	10	1908317	54670.0	433.1	0.2	75.6	-36.3	39.2	11130	8	2030442	54716 3	413.4	0.4	0.0	-6.6	-0 2	534614	7004086
80081	10	1955131	54766.2	419.9	0.2	75.6	-43 7	31 8	11130	8	2032458	54803.0	456.0	0 2	0.0	-4.6	-0.5	541698	7000180
80071	10	2006234	54621.2	419.9	0.1	75.6	-32 7	39.4	11130	8	2034471	54659 3	439 6	0.3	0 0	-0 5	0.7	548771	6996274
80060	2	2258325	54849.0	462.6	0.4	94.3	-95 5	-3.8	11130	8	2036459	54851.9	429.8	0.2	0 0	-6.5	-0.1	555769	6992383
80050	2	2346180	54708.6	456.0	0.1	91.5	-97 4	-13.2	11130	8	2038469	54705 6	433.1	0.1	0 0	-5.8	-0.1	562807	6988486
80041	10	2058061	54707.2	403.5	0.0	101.1	-17 3	83.9	11130	8	2040485	54795 8	456.0	0 1	0 0	-4 6	-0 3	569838	6984595
80030	3	2551114	54745.4	436.4	0.2	86.0	-96 9	-11.4	11130	8	2042485	54736.2	449.5	0 1	0 0	-1.8	0.0	576828	6980632
80020	4	1907547	54759.5	479.0	0.2	94.5	-93.6	0.4	11130	8	2044512	54762.2	426.5	0 0	0 0	-1.7	0.0	583914	6976792
80123	22	2619313	55196.8	449.5	9.0	46.1	-55 2	9.6	11130	8	2046596	55215.9	433.1	0 1	0 0	-1.7		590976	6972887
80123	22	2619429	54999.1	442.9	3.3	46.4	-55.2	2.9	11140	7	2327222	54989 2	416.7	3 8	14.1	27.0	0.1	591420	6973610
80020	4	1907456	54767.3	472.4	0.1	94.5	-93 6	0.3	11140	7	2329197	54739 8	423.2	0.3	14.1	26.1	0.1	584267	6977442
80030	3	2551248	54762.8	465.9	0 3	86.0	-96.9	-11.7	11140	7	2331168	54724.1	410.1	0.0	14.1	25.1	0.2	577283	6981392
80041	10	2058184	54706.4	400.3	0.1	101.8	-17.3	84.5	11140	7	2333142	54766 8	400.3	0 2	14.1	23 8	0.6	570226	6985294
80050	2	2346309	54716.7	459.3	0 2	91.6	-97 4	-12.6	11140	7	2335103	54692 3	403 5	0.2	14.1	18 9	0 1	563200	6989159

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80060	2	2258221	54875.1	436.4	0.2	94.3	-95 5	-3 6	11140	7	2337077	54855.9	423.2	0.2	14.1	18.1	0.0	556130	6993076
80071	10	2006130	54639.7	429.8	0.3	75.6	-32.7	39 4	11140	7	2339033	54663.8	439.6	0.3	14.1	18.2	0.9	549122	6996938
80081	10	1955260	54766.5	423.2	0.1	75.6	-43.7	31.4	11140	7	2341034	54787.9	423.2	0.2	14.1	10.6	0.7	542088	7000922
80091	10	1908204	54683.0	433.1	0.0	75.6	-36.3	39.3	11140	7	2343059	54717.9	406.8	0.1	14.1	4.8	0.0	535028	7004800
80100	1	2020373	54643.8	479.0	0.0	92.6	-95.7	-4.4	11140	7	2345083	54640.1	387.1	0.2	14.1	4.4		527948	7008735
80100	1	2020272	54647.2	518.4	0 3	92.5	-95.7	-4 8	11150	7	2306109	54616.4	364.2	0.1	33.7	27.9	-0.5	528321	7009376
80091	10	1908106	54679.2	423.2	0.1	75.6	-36.3	39.3	11150	7	2308014	54686.6	397.0	0.3	33.7	31.9	-0.5	535386	7005427
80081	10	1955370	54757.9	439.6	0.3	75.6	-43.7	30.7	11150	7	2309521	54753.2	459.3	0.2	33.7	36.1	0.2	542435	7001548
80071	10	2006016	54661.4	446.2	0.2	75.6	-32.7	38.9	11150	7	2311453	54663.6	377.3	0.3	33.7	34.2	0.3	549535	6997652
80060	2	2258112	54892.2	472.4	0.3	94.3	-95.5	-3.1	11150	7	2313395	54859.3	377.3	0.2	33.7	31.9	-0.1	556520	6993785
80050	2	2346448	54720.1	442.9	0.0	91.9	-97.4	-11.4	11150	7	2315346	54681.8	416.7	0.0	33.7	32.7	0.0	563595	6989898
80041	10	2058306	54702.6	393.7	0.1	102.5	-17.3	85.2	11150	7	2317287	54755.3	403.5	0.5	33.7	32.5	0.0	570623	6985980
80030	3	2551373	54778.4	462.6	0.2	86.0	-96.9	-11.5	11150	7	2319222	54734.6	416.7	0.2	33.7	32.7	0.3	577711	6982084
80020	4	1907347	54779.5	472.4	0.2	94.6	-93.6	0.5	11150	7	2321136	54750.4	400.3	0.2	33.7	30.2	0.1	584707	6978204
80123	22	2619533	54875.1	439.6	2.6	46.7	-55.2	-3.6	11150	7	2323057	54822.7	397.0	2.8	33 7	29.2		591790	6974271
80123	22	2620044	54874.3	429.8	0.8	46.7	-55.2	-8.7	11160	6	2153010	54841.7	380.6	1.0	0.0	24.4	-1.0	592168	6974982
80020	4	1907249	54796.8	459.3	0.3	94.6	-93.6	0 7	11160	6	2154599	54764.3	331.4	0.0	0.0	32.8	-0.2	585111	6978880
80030	3	2551499	54786.8	465.9	0 2	85.9	-96.9	-11 2	11160	6	2156589	54741.5	337.9	0.0	0.0	34.5	-0.4	578093	6982816
80041	10	2058431	54679.5	380.6	0.3	103.2	-17.3	85 9	11160	6	2158585	54727.5	324.8	0.3	0.0	37.6	0.2	571032	6986682
80050	2	2346584	54721.8	465.9	0.0	92 2	-97.4	-10.6	11160	6	2200588	54680.5	308.4	0.2	0 0	36.2	0.0	564000	6990622
80060	2	2257594	54894.6	459.3	0.1	94.2	-95.5	-2.7	11160	6	2202585	54857.4	315.0	0.2	0.0	35.9	-0.1	556961	6994549
80071	10	2005499	54692.2	436.4	0.4	75.6	-32.7	39 4	11160	6	2204551	54692.4	331.4	0.5	0.0	36.4	-0.1	549969	6998383
80081	10	1955495	54731.2	446.2	0.3	75.6	-43.7	30 3	11160	6	2206541	54721.4	331.4	0.2	0.0	36.9	-0.1	542813	7002274
80091	10	1907589	54661.1	439.6	0.1	75.6	-36.3	39.3	11160	6	2208480	54663.0	324.8	0.0	0.0	37.4	-0.1	535835	7006169
80100	1	2020156	54654.9	498.7	0.1	92.3	-95.7	-5.7	11160	6	2210465	54613.0	301.8	0.0	0.0	38.4		528764	7010106
80100	1	2020047	54855.7	488.8	0.3	92.2	-95.7	-6.4	11170	6	2132012	54626.4	311.7	0.0	0.0	25.8	-0.1	529237	7010769
80091	10	1907474	54640.3	439.6	0.2	75.6	-36.3	39.3	11170	6	2133544	54653.3	305.1	0.2	0.0	26.4	-0.3	536248	7006915
80081	10	1956023	54708.3	423.2	0.1	75.6	-43.7	30 7	11170	6	2135470	54711.3	357.6	0.1	0.0	29.2	-0.7	543281	7002984
80071	10	2005389	54718.7	449.5	0.3	75.6	-32.7	40.7	11170	6	2137404	54725.6	301.8	0.3	0.0	35.1	0.6	550365	6999068
80060	2	2257489	54882.5	459.3	0.2	94.1	-95.5	-2 8	11170	6	2139312	54851.4	321.5	0.2	0 0	30.0	0.3	557356	6995230
80050	2	2347109	54725.7	452.8	0.3	92.3	-97.4	-10.3	11170	6	2141223	54693.3	318.2	0.1	0.0	27.5	0.0	564390	6991278
80041	10	2058555	54874.4	429.8	0.2	103.9	-17.3	86.6	11170	6	2143118	54733 8	360.9	0.0	0.0	27.3	-0.1	571456	6987360
80030	3	2552020	54791.4	449.5	0.2	85.7	-96.9	-11.1	11170	6	2145007	54751.7	344.5	0.0	0.0	28.3	0.2	578493	6983498
80020	4	1907148	54805.9	446.2	0.1	94.6	-93.6	0.9	11170	6	2146501	54779.7	364.2	0.0	0.0	26.5	1.2	585526	6979576
80123	22	2620158	54893.7	429.8	1.0	46.4	-55.2	-9 8	11170	6	2148386	54869.6	331.4	3.2	0.0	16.4		592568	6975713
80123	22	2620266	54879.5	452.8	0.4	46.0	-55.2	-9.1	11180	6	2111230	54861.2	321.5	1.5	0.0	9.9	-1.0	592939	6976396
80020	4	1907047	54817.1	459.3	0.2	94.5	-93.6	0.8	11180	6	2113224	54799.2	321.5	0.0	0.0	18.3	-0.1	585945	6980270
80030	3	2552139	54798.4	459.3	0.0	85.6	-96.9	-11 2	11180	6	2115258	54787.4	308.4	0.0	0.0	19.5	0 2	578869	6984193
80041	10	2059094	54679.7	472.4	0.1	104.7	-17.3	87.4	11180	6	2117279	54750 0	328.1	0.1	0.0	17.5	-0.4	571901	6988103
80050	2	2347250	54734.4	462.6	0.2	92.2	-97.4	-10 3	11180	6	2119319	54708.3	328.1	0.1	0.0	20.8	-0.3	564799	6992032
80060	2	2257391	54876.5	442.9	0.1	93.9	-95.5	-3.0	11180	6	2121333	54851.7	298.6	0.1	0 0	23.7	-1.0	557721	6995866
80071	10	2005274	54723.2	433.1	0.1	75.6	-32.7	42.2	11180	6	2123323	54733 2	318 2	0 4	0 0	32.0	0.5	550754	6999795
80081	10	1956158	54701.9	439.6	0.3	75.6	-43.7	31.6	11180	6	2125321	54706 4	324.8	0.1	0 0	27.6	0 3	543757	7003731

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MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80091	10	1907361	54632.2	459.3	0.2	75.6	-36.3	39.3	11180	6	2127316	54646.6	311.7	0.1	0.0	25.0	0.0	536652	7007642
80100	1	2019484	54661.5	459.3	0.1	92.3	-95.7	-6.6	11180	6	2129295	54633.6	324.8	0.1	0.0	24.6		529909	7011815
80100	1	2019430	54667.5	419.9	0.2	92.5	-95.7	-6.6	11190	6	2050090	54655.1	354.3	0.2	0.0	9.0	0.0	530149	7012157
80091	10	1907259	54627.0	449.5	0.1	75.6	-36.3	39.3	11190	6	2052019	54657.9	298.6	0.0	0.0	8.6	-0.3	537015	7008295
80081	10	1956265	54694.6	426.5	0.1	75.6	-43.7	31.9	11190	6	2053558	54715.5	315.0	0.2	0.0	11.3	-0.8	544106	7004351
80071	10	2005166	54729.0	426.5	0.3	75.6	-32.7	42.8	11190	6	2055484	54753.0	301.8	0.4	0.0	17.9	0.7	551127	7000478
80060	2	2257288	54867.0	452.8	0.2	93.7	-95.5	-3.1	11190	6	2057407	54853.7	324.8	0.4	0.0	12.1	-0.1	558118	6996546
80050	2	2347373	54734.7	449.5	0.1	92.2	-97.4	-10.3	11190	6	2059318	54716.0	315.0	0.0	0.0	13.2	0.3	565147	6992701
80041	10	2059217	54685.1	449.5	0.1	105.4	-17.3	88.1	11190	6	2101243	54762.9	360.9	0.1	0.0	10.7	-0.3	572262	6988792
80030	3	2552250	54804.4	472.4	0.0	85.6	-96.9	-11.3	11190	6	2103145	54779.8	321.5	0.1	0.0	13.1	-0.1	579237	6984818
80020	4	1906552	54830.9	472.4	0.4	94.4	-93.6	0.8	11190	6	2105043	54818.2	321.5	0.0	0.0	13.7	-0.2	586317	6980937
80123	22	2620371	54873.0	446.2	0.9	45.8	-55.2	-8.8	11190	6	2106540	54847.7	351.0	4.2	0.0	15.5		593331	6977063
80123	22	2620485	54792.3	492.1	0.9	45.9	-55.2	-8.9	11200	6	2030316	54765.8	360.9	2.8	0.0	16.3	0.8	593770	6977768
80020	4	1906445	54893.1	462.6	0.2	94.3	-93.6	0.7	11200	6	2032259	54885.0	367.5	0.3	0.0	9.3	0.1	586724	6981694
80030	3	2552390	54813.2	462.6	0.1	85.4	-96.9	-11.5	11200	6	2034230	54793.2	360.9	0.0	0.0	8.3	0.3	579736	6985586
80041	10	2059338	54688.2	426.5	0.1	106.1	-17.3	88.8	11200	6	2036227	54772.1	377.3	0.2	0.0	5.4	-0.4	572602	6989490
80050	2	2347501	54737.9	426.5	0.0	92.2	-97.4	-10.2	11200	6	2038226	54723.5	364.2	0.0	0.0	8.8	0.0	565569	6993367
80060	2	2257177	54856.1	456.0	0.1	93.8	-95.5	-3.1	11200	6	2040230	54846.5	357.6	0.1	0.0	8.5	-0.8	558539	6997266
80071	10	2005054	54741.4	419.9	0.1	75.6	-32.7	42.8	11200	6	2042232	54767.9	374.0	0.5	0.0	15.5	0.6	551531	7001170
80081	10	1956396	54696.7	449.5	0.1	75.6	-43.7	31.9	11200	6	2044245	54718.3	321.5	0.2	0.0	10.6	0.3	544475	7005126
80091	10	1907152	54627.6	459.3	0.1	75.6	-36.3	39.3	11200	6	2046245	54658.8	321.5	0.0	0.0	8.2	0.0	537402	7008979
80100	1	2019082	54678.5	511.8	0.1	92.4	-95.7	-6.6	11200	6	2048316	54667.4	367.5	0.1	0.0	7.9		531597	7014483
80091	10	1907036	54631.2	449.5	0.1	75.6	-36.3	39.3	11210	6	2011022	54658.7	318.2	0.2	0.0	12.0	-0.2	537817	7009720
80081	10	1956512	54698.3	423.2	0.3	75.6	-43.7	31.9	11210	6	2012557	54717.1	354.3	0.1	0.0	13.5	-0.7	544866	7005793
80071	10	2004549	54737.6	413.4	0.1	75.6	-32.7	42.6	11210	6	2014477	54760.1	324.8	0.7	0.0	19.3	0.9	551897	7001826
80060	2	2257070	54841.2	472.4	0.2	93.9	-95.5	-3.0	11210	6	2016394	54828.3	311.7	0.3	0.0	11.8	0.2	558939	6997968
80050	2	2348029	54746.3	416.7	0.2	92.3	-97.4	-10.1	11210	6	2018322	54730.9	344.5	0.2	0.0	10.2	0.2	565990	6994050
80041	10	2059465	54683.6	423.2	0.5	106.8	-17.3	89.5	11210	6	2020261	54765.2	452.8	0.3	0.0	8.3	-0.3	572999	6990211
80030	3	2552500	54823.4	465.9	0.1	85.1	-96.9	-11.8	11210	6	2022206	54800.3	357.6	0.1	0.0	11.1	0.0	580085	6986212
80020	4	1906351	54866.0	462.6	0.2	94.2	-93.6	0.7	11210	6	2024126	54855.3	364.2	0.4	0.0	11.0	0.5	587094	6982362
80123	22	2620598	54804.0	469.2	1.2	46.3	-55.2	-3.1	11210	6	2026068	54788.9	387.1	2.2	0.0	6.8		594196	6978459
80091	10	1906532	54634.7	416.7	0.1	75.6	-36.3	39.3	11221	6	1954546	54658.4	360.9	0.1	0.0	15.5	0.1	538209	7010372
80081	10	1957036	54689.3	419.9	0.1	75.6	-43.7	31.9	11221	6	1956490	54707.1	324.8	0.2	0.0	14.8	-1.0	545321	7006484
80071	10	2004431	54737.1	410.1	0.0	75.6	-32.7	41.7	11221	6	1958412	54756.3	321.5	0.9	0.0	23.0		552331	7002564
80123	22	2621109	54856.7	469.2	1.2	46.7	-55.2	0.5	11223	22	2626323	54871.1	462.6	2.4	-12.3	-2.4	0.1	594605	6979152
80020	4	1906235	54874.6	452.8	0.0	94.2	-93.6	0.6	11223	22	2628168	54878.0	446.2	1.2	-12.3	-3.2	0.8	587573	6983167
80030	3	2553041	54839.2	511.8	0.1	84.6	-96.9	-12.1	11223	22	2629594	54836.8	429.8	0.5	-12.3	-9.5	0.3	580557	6986994
80041	10	2059596	54688.4	397.0	0.0	107.6	-17.3	90.0	11223	22	2631448	54791.0	423.2	0.0	-12.3	-11.9	-0.2	573466	6990921
80050	2	2348165	54752.8	429.8	0.6	92.5	-97.4	-9.8	11223	22	2633308	54757.8	426.5	0.2	-12.3	-10.0	0.0	566392	6994801
80060	2	2256554	54821.4	449.5	0.1	94.1	-95.5	-2.7	11223	22	2635159	54830.5	406.8	0.1	-12.3	-10.4		559381	6998720
80091	10	1906417	54642.7	433.1	0.2	75.6	-36.3	39.3	11230	5	2452159	54678.8	426.5	0.4	5.0	3.0	-0.4	538650	7011089
80081	10	1957161	54686.8	400.3	0.1	75.6	-43.7	31.9	11230	5	2454109	54712.8	462.6	0.1	5.0	6.0	-0.4	545760	7007192
80071	10	2004324	54742.1	403.5	0.1	73.4	-32.7	40.0	11230	5	2456038	54772.5	442.9	1.0	5.0	9.7	0.5	552743	7003226

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80060	2	2256454	54815.2	452.8	0.1	94.2	-95.5	-2.5	11230	5	2457547	54808.5	423.2	0.0	5.0	5.9	-0.1	559744	6999377
80050	2	2348280	54754.5	446.2	0.0	92.6	-97.4	-9.6	11230	5	2459454	54742.0	436.4	0.4	5.0	7.1	0.6	566781	6995475
80041	10	2100118	54687.9	423.2	0.3	107.7	-17.3	90.3	11230	5	2501383	54777.0	436.4	0.2	5.0	2.1	-0.5	573894	6991588
80030	3	2553164	54859.0	502.0	0.2	84.3	-96.9	-12.4	11230	5	2503292	54839.5	465.9	0.1	5.0	6.5	0.1	580922	6987700
80020	4	1906145	54864.7	498.7	0.0	94.2	-93.6	0.6	11230	5	2505200	54859.3	469.2	0.5	5.0	5.7	0.5	587949	6983787
80123	22	2621220	54912.2	459.3	1.6	46.8	-55.2	0.4	11230	5	2507106	54902.8	446.2	0.6	5.0	1.3		595006	6979858
80123	22	2621218	54909.2	459.3	1.5	46.8	-55.2	0.5	11231	11	1950101	54925.2	370.7	0.3	-9.3	0.0		594997	6979841
80123	22	2621330	54947.6	452.8	1.0	46.8	-55.2	-8.5	11240	5	2432024	54950.4	488.8	0.3	3.4	5.3	0.2	595386	6980584
80020	4	1906046	54867.6	488.8	0.3	94.1	-93.6	0.6	11240	5	2434017	54864.3	429.8	0.1	3.4	3.9	0.1	588336	6984472
80030	3	2553288	54876.9	465.9	0.2	84.3	-96.9	-12.5	11240	5	2436019	54861.2	423.2	0.0	3.4	2.9	0.4	581356	6988390
80041	10	2100240	54697.3	413.4	0.1	107.7	-17.3	90.4	11240	5	2438021	54788.8	465.9	0.3	3.4	-0.3	-0.7	574295	6992268
80050	2	2348427	54761.3	459.3	0.4	92.7	-97.4	-9.5	11240	5	2440029	54750.6	429.8	0.1	3.4	5.4	0.2	567207	6996192
80060	2	2256344	54811.9	449.5	0.3	94.4	-95.5	-2.2	11240	5	2442017	54807.0	436.4	0.2	3.4	3.9	0.0	560161	7000096
80071	10	2004210	54735.0	413.4	0.1	70.1	-32.7	37.7	11240	5	2443585	54768.6	449.5	0.7	3.4	3.7	0.1	553152	7003937
80081	10	1957275	54684.9	400.3	0.0	75.8	-43.7	31.9	11240	5	2445541	54713.9	423.2	0.0	3.4	2.9	0.2	546125	7007852
80091	10	1906303	54642.5	423.2	0.2	75.6	-36.3	39.3	11240	5	2447507	54680.5	456.0	0.3	3.4	0.9	0.6	539069	7011788
80100	1	2017029	54692.9	1000.7	0.0	91.4	-95.7	-8.4	11240	5	2449155	54693.6	459.3	0.2	3.4	-4.0		536056	7015847
80091	10	1906188	54652.3	410.1	0.1	75.6	-36.3	39.3	11251	5	2412112	54687.0	446.2	0.1	5.0	4.6	0.0	539493	7012495
80081	10	1957398	54684.4	383.9	0.1	75.6	-43.7	31.9	11251	5	2414067	54712.0	442.9	0.0	5.0	4.3	0.0	546494	7008582
80071	10	2004092	54744.8	419.9	0.3	66.7	-32.7	35.5	11251	5	2416028	54774.6	433.1	0.0	5.0	4.3	-0.2	553569	7004673
80060	2	2256242	54808.8	446.2	0.0	94.5	-95.5	-2.0	11251	5	2417568	54802.1	429.8	0.4	5.0	5.6	0.0	560558	7000756
80050	2	2348557	54761.8	462.6	0.2	92.7	-97.4	-9.5	11251	5	2419524	54751.5	436.4	0.1	5.0	5.2	0.5	567630	6996851
80041	10	2100360	54709.3	400.3	0.2	107.8	-17.3	90.5	11251	5	2421459	54799.5	472.4	0.2	5.0	1.0	-0.5	574664	6992963
80030	3	2553403	54896.8	475.7	0.1	84.2	-96.9	-12.6	11251	5	2423398	54879.0	459.3	0.0	5.0	4.8	-0.1	581731	6989041
80020	4	1905553	54909.7	498.7	0.5	94.2	-93.6	0.6	11251	5	2425310	54904.6	436.4	0.1	5.0	5.9	-0.3	588599	6985120
80123	22	2621433	55171.3	459.3	0.5	46.7	-55.2	-22.3	11251	5	2427243	55154.0	449.5	2.9	5.0	8.5		595757	6981251
80050	2	2349084	54763.4	452.8	0.1	92.6	-97.4	-9.6	11260	4	2237055	54756.3	426.5	0.0	1.0	2.2	0.1	568025	6997529
80060	2	2256126	54814.7	429.8	0.3	94.5	-95.5	-1.9	11260	4	2239009	54812.8	423.2	0.7	1.0	1.0	0.0	561002	7001507
80071	10	2003578	54771.5	429.8	0.1	66.6	-32.7	34.3	11260	4	2240561	54804.7	446.2	0.0	1.0	0.7	0.0	553976	7005372
80081	10	1957513	54686.9	413.4	0.1	75.6	-43.7	31.9	11260	4	2242540	54718.5	442.9	0.1	1.0	0.3	0.0	546874	7009242
80091	10	1906087	54652.0	410.1	0.1	75.6	-36.3	39.3	11260	4	2244506	54691.0	462.6	0.1	1.0	0.3		539842	7013143
80123	22	2621548	55309.2	436.4	3.9	46.5	-55.2	-32.3	11261	11	1958297	55247.4	406.8	8.9	-9.3	0.0	0.0	596210	6981955
80020	4	1905438	54927.4	498.7	0.1	94.2	-93.6	0.6	11261	11	2000263	54942.1	341.2	0.4	-9.3	0.0	0.0	589111	6985951
80030	3	2553525	54914.5	449.5	0.3	84.1	-96.9	-12.7	11261	11	2002216	54916.3	337.9	0.1	-9.3	0.0	0.0	582112	6989751
80041	10	2100486	54717.4	397.0	0.1	107.9	-17.3	90.6	11261	11	2004192	54823.4	357.6	0.3	-9.3	0.0	0.0	575093	6993670
80050	2	2349083	54763.5	452.8	0.0	92.6	-97.4	-9.6	11261	11	2006193	54769.6	331.4	0.0	-9.3	0.0		568020	6997520
80091	10	1905576	54657.4	416.7	0.1	75.6	-36.3	39.3	11270	4	2210055	54694.7	498.7	0.1	1.4	2.0	0.0	540224	7013845
80081	10	1958048	54690.8	397.0	0.1	75.6	-43.7	31.9	11270	4	2211573	54720.5	456.0	0.1	1.4	2.1	0.1	547337	7010006
80071	10	2003472	54775.4	403.5	0.1	66.6	-32.7	34.0	11270	4	2213476	54808.1	452.8	0.1	1.4	1.4	-0.1	554346	7006043
80060	2	2256036	54830.6	446.2	0.1	94.6	-95.5	-1.8	11270	4	2215378	54826.9	465.9	0.6	1.4	2.6	0.1	561358	7002093
80050	2	2349221	54763.8	456.0	0.1	92.5	-97.4	-9.8	11270	4	2217289	54757.0	433.1	0.1	1.4	1.9	0.1	568421	6998265
80041	10	2101003	54722.5	380.6	0.3	107.9	-17.3	90.6	11270	4	2219209	54811.7	449.5	0.0	1.4	1.4	0.0	575451	6994360
80030	3	2554048	54937.5	475.7	0.3	83.9	-96.9	-12.9	11270	4	2221134	54923.4	488.8	0.0	1.4	1.3	-0.3	582515	6990452

MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80020	4	1905345	54953.8	508.5	0.8	94.2	-93.6	0.6	11270	4	2223054	54950.5	426.5	0.0	1.4	3.7		589477	6986602
80020	4	1905352	54949.2	505.2	0.9	94.2	-93.6	0.6	11271	11	2015383	54957.8	295.3	0.1	-9.3	0.0	0.0	589450	6986555
80123	22	2622061	55092.0	436.4	8.7	46.6	-55.2	-28.2	11271	11	2017373	55070.3	380.6	1.3	-9.3	0.0		596653	6982658
80020	4	1905248	54996.8	518.4	0.5	94.1	-93.6	0.5	11280	4	2153448	54992.6	397.0	0.2	3.4	4.6	0.1	589851	6987286
80030	3	2554173	54965.2	452.6	0.3	83.7	-96.9	-13.1	11280	4	2155353	54948.5	449.5	0.1	3.4	3.4	0.2	582926	6991154
80041	10	2101113	54722.3	403.5	0.1	108.0	-17.3	90.7	11280	4	2157291	54811.7	449.5	0.3	3.4	1.6	-0.3	575845	6994979
80050	2	2349383	54761.8	459.3	0.1	92.3	-97.4	-10.1	11280	4	2159252	54752.3	413.4	0.2	3.4	4.2	0.0	568821	6999044
80060	2	2255515	54832.9	439.6	0.1	94.6	-95.5	-1.7	11280	4	2201199	54827.8	452.8	0.5	3.4	4.1	0.2	561782	7002892
80071	10	2003349	54764.8	390.4	0.1	66.6	-32.7	33.9	11280	4	2203151	54796.2	426.5	0.1	3.4	2.7	-0.1	554757	7006822
80081	10	1958159	54696.6	393.7	0.1	75.6	-43.7	31.9	11280	4	2205122	54725.0	479.0	0.0	3.4	3.4	0.2	547715	7010642
80091	10	1905457	54657.9	413.4	0.2	75.6	-36.3	39.3	11280	4	2207102	54695.2	479.0	0.2	3.4	2.1		540648	7014598
80123	22	2622160	54979.5	479.0	1.0	46.9	-55.2	-14.3	11281	11	2023165	54987.2	426.5	2.8	-9.3	0.0	0.0	596988	6983286
80020	4	1905248	54996.9	518.4	0.5	94.1	-93.6	0.5	11281	11	2025141	55000.4	298.8	0.1	-9.3	0.0		589852	6987288
80091	10	1905342	54665.2	383.9	0.2	75.6	-36.3	39.3	11290	4	2132172	54700.3	449.5	0.1	5.1	4.3	-0.2	541094	7015313
80081	10	1958283	54699.0	387.1	0.1	75.6	-43.7	31.9	11290	4	2134117	54724.3	459.3	0.1	5.1	6.3	0.1	548151	7011342
80071	10	2003242	54754.8	406.8	0.2	66.6	-32.7	33.9	11290	4	2136027	54783.6	439.6	0.2	5.1	5.2	0.0	555153	7007472
80060	2	2255404	54841.3	449.5	0.4	94.5	-95.5	-1.7	11290	4	2137533	54834.9	446.2	0.1	5.1	5.5	-0.1	562185	7003627
80050	2	2349486	54753.4	465.9	0.2	92.2	-97.4	-10.3	11290	4	2139446	54741.7	462.6	0.1	5.1	6.4	0.1	569225	6999669
80041	10	2101250	54725.6	367.5	0.3	108.1	-17.3	90.8	11290	4	2141384	54810.5	449.5	0.1	5.1	5.8	0.2	576320	6995746
80030	3	2554287	54993.1	439.6	0.4	83.5	-96.9	-13.2	11290	4	2143316	54976.0	436.4	0.1	5.1	4.0	-0.3	583292	6991824
80020	4	1905146	55042.9	534.8	0.6	94.1	-93.6	0.5	11290	4	2145269	55037.0	416.7	0.3	5.1	6.2		590265	6987998
80020	4	1905150	55040.8	531.5	0.7	94.1	-93.6	0.5	11291	11	2031591	55050.8	275.6	0.3	-9.3	0.0	0.0	590247	6987970
80123	22	2622282	55009.8	459.3	2.3	47.2	-55.2	2.8	11291	11	2033561	55031.6	400.3	1.9	-9.3	0.0		597349	6984078
80030	3	2554409	55033.9	446.2	0.4	83.4	-96.9	-13.4	11301	4	2118422	55017.3	459.3	0.1	4.4	3.0	0.2	583687	6992526
80041	10	2101365	54720.6	374.0	0.2	108.1	-17.3	90.8	11301	4	2120319	54810.6	433.1	0.3	4.4	1.2	-0.4	576681	6996420
80050	2	2350019	54742.6	472.4	0.1	92.0	-97.4	-10.6	11301	4	2122260	54732.0	446.2	0.0	4.4	4.9	0.0	569664	7000347
80060	2	2255302	54859.5	446.2	0.0	94.5	-95.5	-1.7	11301	4	2124228	54853.3	429.8	0.1	4.4	5.2	0.1	562595	7004278
80071	10	2003129	54753.2	387.5	0.1	66.6	-32.7	33.9	11301	4	2126188	54782.6	446.2	0.2	4.4	4.5	0.1	555597	7008152
80081	10	1958404	54704.6	393.7	0.3	75.6	-43.7	31.9	11301	4	2128152	54733.3	479.0	0.2	4.4	3.3		548530	7012050
80091	10	1905163	54671.4	410.1	0.3	75.6	-36.3	39.3	11310	4	2100463	54707.9	541.3	0.2	3.9	2.8	0.0	541811	7016417
80081	10	1958527	54704.1	406.8	0.2	75.6	-43.7	31.9	11310	4	2102400	54732.8	442.9	0.0	3.9	3.2	-0.1	548904	7012772
80071	10	2003025	54737.7	370.7	0.1	66.6	-32.7	33.9	11310	4	2104346	54767.6	442.9	0.1	3.9	4.0	0.0	556011	7008779
80060	2	2255188	54855.3	446.2	0.1	94.6	-95.5	-1.5	11310	4	2106247	54850.1	410.1	0.0	3.9	4.3	0.1	562999	7004956
80050	2	2350149	54740.2	442.9	0.1	91.9	-97.4	-10.8	11310	4	2108168	54730.7	433.1	0.0	3.9	3.8	0.3	570031	7001061
80041	10	2101489	54719.8	397.0	0.3	108.2	-17.3	90.9	11310	4	2110110	54809.9	442.9	0.0	3.9	1.3	-0.3	577069	6997146
80030	3	2555202	55101.3	656.2	0.6	83.3	-96.9	-13.5	11310	4	2111535	55083.2	465.9	1.3	3.9	4.2		583425	6994895
80041	10	2102018	54721.2	419.9	0.1	108.3	-17.3	91.1	11320	4	2049524	54815.2	429.8	0.0	-0.8	-2.7	-0.5	577462	6997891
80050	2	2350281	54747.0	439.6	0.1	91.9	-97.4	-10.9	11320	4	2051459	54740.1	439.6	0.0	-0.8	1.2	-0.1	570418	7001777
80060	2	2255088	54833.0	462.6	0.6	94.8	-95.5	-1.2	11320	4	2053401	54829.8	439.6	0.5	-0.8	2.4	0.0	563425	7005667
80071	10	2002495	54742.8	387.1	0.1	66.6	-32.7	33.9	11320	4	2055386	54774.2	446.2	0.2	-0.8	2.4	-0.1	556416	7009607
80081	10	1959051	54708.1	397.0	0.1	75.6	-43.7	31.9	11320	4	2057359	54736.4	442.9	0.0	-0.8	3.5	0.1	549322	7013489
80091	10	1904318	54695.7	400.3	0.1	75.6	-36.3	39.3	11320	4	2059443	54732.7	456.0	0.1	-0.8	2.4		543410	7019249
80081	10	1959164	54712.7	413.4	0.1	75.6	-43.7	31.9	11330	4	2038296	54742.1	462.6	0.1	1.3	2.4	0.0	549723	7014118

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MAGNETIC LEVELLING NETWORK

Tie Line Number	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Diurnal (nt)	Block Adjust	Level Adjust	Traverse Line	Flight	Time hhmmss.s	Raw Magnetic	Barometric Altimeter	Horizontal Gradient	Block Adjust	Level Adjust	Correction Per Km	UTM Easting	UTM Northing
80071	10	2002396	54753.2	397.0	0.1	66.6	-32.7	33.9	11330	4	2040225	54785.1	449.5	0.1	1.3	2.0	0.0	556723	7010254
80060	2	2254583	54763.8	446.2	0.9	95.0	-95.5	-0.9	11330	4	2042164	54761.5	442.9	0.1	1.3	1.8	0.1	563805	7006352
80050	2	2350421	54755.2	469.2	0.0	91.9	-97.4	-10.9	11330	4	2044084	54748.3	452.8	0.0	1.3	1.0	0.6	570856	7002515
80041	10	2102199	54719.6	413.4	0.0	108.4	-17.3	91.7	11330	4	2046055	54815.4	495.4	0.0	1.3	-4.1		578064	6998892
80050	2	2350536	54766.6	433.1	0.2	91.9	-97.4	-11.0	11340	4	2030149	54760.8	452.8	0.0	0.8	0.4	-0.1	571217	7003123
80060	2	2254479	54727.9	439.8	0.0	95.2	-95.5	-0.5	11340	4	2032104	54726.0	446.2	0.0	0.8	1.4	0.1	564139	7007050
80071	10	2002283	54753.1	393.7	0.1	66.6	-32.7	33.9	11340	4	2034063	54786.5	449.5	0.1	0.8	0.6	0.0	557158	7010934
80081	10	1959321	54723.0	419.9	0.0	75.6	-43.7	32.0	11340	4	2036034	54754.3	472.4	0.0	0.8	0.7		550273	7015003
80081	10	2000205	54729.6	465.9	0.1	75.6	-43.7	32.0	11350	4	2019336	54761.4	528.2	0.1	1.2	0.2	-0.1	552813	7016635
80071	10	2002163	54731.8	364.2	0.2	66.6	-32.7	33.8	11350	4	2021342	54764.9	452.8	0.1	1.2	0.8	0.0	557601	7011685
80060	2	2254369	54744.7	426.5	0.2	95.4	-95.5	-0.1	11350	4	2023288	54743.2	449.5	0.1	1.2	1.2	0.2	564570	7007754
80050	2	2351071	54774.7	439.6	0.0	91.8	-97.4	-11.1	11350	4	2025257	54769.6	475.7	0.3	1.2	-0.3		571646	7003835
80041	10	2103185	54727.0	383.9	0.2	108.6	-17.3	97.4	11360	4	2011145	54828.2	508.5	0.0	1.0	-3.2	0.0	581663	6999232
80050	2	2351210	54791.6	472.4	0.4	91.7	-97.4	-11.2	11360	4	2013453	54789.9	416.7	0.4	1.0	-3.5	-0.5	572203	7004460
80060	2	2254241	54753.5	433.1	0.0	95.7	-95.5	0.1	11360	4	2015461	54752.5	423.2	0.1	1.0	0.8		564744	7008652

APPENDIX 4

ALTITUDE TEST

The calibration test of the King radar altimeter was completed over the airport runway on November 21, 1995. The results for each pass are as follows:

Nominal Barometric Altitude	Nominal Terrain Clearance	Radar Altimeter	Difference
200 feet	200 feet	195 feet	5 feet
380 feet	400 feet	400 feet	0 feet
690 feet	600 feet	750 feet	60 feet
980 feet	800 feet	1050 feet	70 feet

The average difference between the nominal terrain clearance and the aircraft flight level based on the radar altimeter is approximately two (2) feet. between 200 and 400 feet. The difference of 60 feet at higher altitudes is attributed to changes in barometric pressure.

APPENDIX 5

ARCHIVE CONTENTS (ON CD-ROM)

State Of Alaska - Archives

The files on the CDROM consist of the following:

1)	README.DOC	this documentation file
2)	BLOCK.HED	Line Archive - Block Header
3)	PROF1.ARC	Line Archive for traverse lines 10010 to 10500
	PROF1.SUM	summary of traverse lines in PROF1.ARC
	PROF2.ARC	Line Archive for traverse lines 10510 to 11360
	PROF2.SUM	summary of traverse lines in PROF2.ARC
	PROF3.ARC	Line Archive for tie lines 80020 to 80223
	PROF3.SUM	summary of tie lines in PROF3.ARC
4)	MAGGRID.GRD	Geosoft grid of final magnetics
	MAGGRID.ASC	ASCII grid of final magnetics
5)	FPATH.HED	Flight Path header file
	FPATH.ARC	Flight Path archive
6)	SECTIONS.PLT	Sections grid in Geosoft vector format
	SECTIONS.DXF	Sections grid in DXF vector format
7)	MAGCONT.PLT	Magnetic contours in Geosoft vector format
	MAGCONT.DXF	Magnetic contours in DXF vector format
8)	INTERP.PLT	Interpretation in Geosoft vector format
	INTERP.DXF	Interpretation in DXF vector format

FORMAT DESCRIPTIONS

1) BLOCK.HED

This contains the Line Archive Block Header which consists of four (4) records (each having eighty (80) bytes) containing the following information:

Record # 1	-	A10	survey block number
	-	I10	number of sheets
	-	A10	State of Alaska Project Number
	-	A10	Aerodat Project Number
	-	40X	
Record # 2	-	A10	map number
	-	70X	
Records # 3&4	-	4E20.10	lat/long of 4 map corners (decimal degrees)

The following is a listing of this file - BLOCK.HED

```
SURVEYBLK1        1  10-96-00    J95120
  MAP # 1
   0.6250209000E+02  -0.1653526500E+03   0.6336174000E+02  -0.1643234900E+03
   0.6301263000E+02  -0.1629623900E+03   0.6216714000E+02  -0.1640745800E+03
```

2) Line Archive

This contains the final line profile archived data. All records contain eighty (80) bytes and each archived line contains the following information:

a) line header record

I10	-	flight number
I10	-	line and segment number
I10	-	line direction code (1=N, 2=E, 3=S, 4=W)
I10	-	line code (traverse = 0, control = 1)
I6	-	year
I2	-	month
I2	-	day
F10.2	-	start time (in seconds of the day)
F10.2	-	end time (in seconds of the day)
I10	-	number of data points for the line

b) **data record # 1**

F10.2 - TIME (in seconds of the day)
F10.5 - LAT - NAD27 decimal degrees
F10.5 - LONG - NAD27 decimal degrees
F10.2 - MAGLEV - levelled total field mag nT
F10.2 - MAGRAW - raw total field mag nT
F10.2 - RALT - radar altimeter feet
F10.2 - BALT - barometric altimeter feet
F10.2 - DIURNAL - edited ground mag base station nT

c) **data record # 2**

F10.2 - GPS ALT - edited GPS altimeter feet
F10.5 - GPS LAT - GPS latitude (WGS84) decimal degrees
F10.5 - GPS LONG - GPS longitude (WGS84) decimal degrees
F10.1 - PRWL - 60 Hz monitor
F10.2 - MAGIGRF - levelled total field mag
(with the IGRF gradient removed and a datum of 54,750 nT
added back to the mag data after the IGRF removal)
F10.3 - manual fiducial counter
F10.1 - UTM EASTING - NAD27 meters
F10.1 - UTM NORTHING - NAD27 meters

3) Line Archive Summary Files

These three (3) files (PROF1.SUM, PROF2.SUM, PROF3.SUM) are summary listings of the contents of the three (3) line archive files.

4) Geosoft Grid

This file (MAGGRID.GRD) is a binary Geosoft grid of the final IGRF corrected total field magnetics.

5) ASCII Grid Archive

This file is an ASCII file of the final IGRF corrected total field magnetics and each record in the file contains eighty (80) bytes. The format of the file is as follows:

a)	record # 1	-	A10	topographic map number
			A10	geophysical map number
			F10.2	grid cell spacing in meters
			I10	number of X grids (columns)
			I10	number of Y grids (rows)
			E20.10	Central Meridian
			10X	
b)	records 2 to 5		4E20.10	latitude, longitude, easting, northing of the 4 map sheet corners (1 record per corner)
c)	records 6 to 9		4E20.10	latitude, longitude, easting, northing of the actual 4 grid corners (1 record per corner)
d)	records 10 to n		8F10.3	grid values, column by column WRITE(,) (GRID(IROW,JCOL),IROW=1,IROWS)

This is a listing of the file ARC1.SUM

LINE #	# RECS	START TIME	END TIME	MAX EASTING	MIN EASTING	MAX NORTHING	MIN NORTHING
10010	8801	5184.0	6064.0	545809.81	490838.50	6925394.50	6894929.00
10020	8721	350.0	1222.0	548076.69	489954.69	6926725.00	6894523.00
10030	9311	85634.0	86565.0	548509.13	490573.41	6927381.00	6895283.00
10040	8621	84576.0	85438.0	548884.69	491110.69	6927962.50	6895954.50
10050	9321	83432.0	84364.0	549345.13	491648.81	6928633.50	6896621.00
10060	8591	82384.0	83243.0	549723.69	492190.50	6929282.50	6897387.00
10070	9401	81250.0	82190.0	550161.63	492764.91	6929869.50	6898051.00
10080	8411	79607.0	80448.0	550541.69	493265.41	6930498.50	6898798.50
10090	9391	78474.0	79413.0	550968.69	493875.59	6931133.00	6899482.50
10100	8311	77427.0	78258.0	551364.69	494315.00	6931671.00	6900150.50
10110	9531	76266.0	77219.0	551736.19	494906.69	6932241.50	6900807.00
10120	8161	75243.0	76059.0	552153.00	495625.50	6932856.00	6901543.00
10130	9721	74077.0	75049.0	552496.31	496201.00	6933413.50	6902213.50
10140	8031	73079.0	73882.0	552966.50	496805.41	6933974.50	6902909.50
10150	9901	71894.0	72884.0	553289.50	497408.81	6934571.00	6903586.50
10160	7861	264.0	1050.0	553708.81	499027.41	6934592.00	6904278.50
10170	9391	85535.0	86474.0	554182.69	498714.69	6935743.00	6905059.00
10180	7941	84550.0	85344.0	554526.38	499326.00	6936347.00	6905651.00
10190	9321	83423.0	84355.0	554923.69	499914.50	6936928.00	6906398.50
10200	7931	82445.0	83238.0	555319.31	500568.59	6937491.00	6907090.50
10210	9341	81319.0	82253.0	555725.69	501190.31	6938077.00	6907787.00
10220	7881	80325.0	81113.0	556136.00	501781.19	6938617.00	6908483.00
10230	9331	79188.0	80121.0	556593.00	501964.19	6939399.00	6909302.50
10240	7951	78168.0	78963.0	556995.81	502169.91	6940191.00	6909950.50
10250	9481	77011.0	77959.0	557330.81	502311.91	6941038.50	6910526.50
10260	7871	76011.0	76798.0	557760.63	502529.00	6941894.50	6911286.50
10270	9581	74859.0	75817.0	558155.19	502658.31	6942798.50	6911970.50
10280	7911	73864.0	74655.0	558574.50	502778.31	6943533.00	6912677.50
10290	10051	72660.0	73665.0	558968.50	502945.91	6944360.00	6913330.50
10300	9611	5209.0	6170.0	559381.69	503173.50	6945303.00	6914089.00
10310	7881	4219.0	5007.0	559766.63	503297.09	6946058.50	6914837.00
10320	9761	3052.0	4028.0	560244.69	503505.81	6946985.00	6915529.50
10330	8021	2037.0	2839.0	560529.50	503637.09	6947798.50	6916197.00
10340	9881	833.0	1821.0	560968.50	503818.31	6948637.50	6916894.50
10350	1691	86222.0	86391.0	561354.00	549652.69	6924105.50	6917609.00
10351	6281	8.0	636.0	548436.88	503974.31	6949527.00	6924731.00
10360	10091	84856.0	85865.0	561794.38	504140.69	6950201.00	6918251.00
10370	9081	3805.0	4713.0	562144.19	504292.59	6951122.50	6918916.00
10380	9461	2664.0	3610.0	562534.19	504458.91	6951771.00	6919661.00
10390	9171	1564.0	2481.0	562961.63	504640.31	6952700.00	6920339.00
10400	9511	408.0	1359.0	563340.38	504757.09	6953481.00	6921033.50
10410	9391	85659.0	86598.0	563801.00	504941.31	6954479.00	6921727.00
10420	9611	84481.0	85442.0	564186.38	505083.00	6955202.50	6922470.50
10430	9451	83333.0	84278.0	564643.63	505234.69	6955939.00	6923239.00
10440	10021	85695.0	86697.0	564950.19	505435.31	6956827.00	6923721.00
10450	8961	84605.0	85501.0	565309.63	505547.00	6957611.00	6924478.50
10460	10161	83404.0	84420.0	565762.19	505762.19	6958485.50	6925251.00
10470	9011	82301.0	83202.0	566193.00	505928.09	6959361.50	6925966.50
10480	10501	81063.0	82113.0	566571.81	506109.50	6960302.50	6926591.00

10490	9221	79908.0	80830.0	566993.50	506249.19	6960990.50	6927346.50
10500	10531	78652.0	79705.0	567436.38	506404.19	6961766.50	6928057.00

This is a listing of the file ARC2.SUM

LINE #	# RECS	START TIME	END TIME	MAX EASTING	MIN EASTING	MAX NORTHING	MIN NORTHING
10510	9411	77505.0	78446.0	567710.19	506549.59	6962609.00	6928641.50
10520	10581	76242.0	77300.0	568194.38	506739.41	6963458.50	6929428.00
10530	9661	75064.0	76030.0	568569.00	506862.19	6964260.00	6930103.00
10540	10101	84945.0	85955.0	569100.13	507095.91	6965199.00	6930924.00
10550	9891	83781.0	84770.0	569411.81	507213.09	6965993.00	6931511.00
10560	7451	79137.0	79882.0	569853.13	523618.59	6958402.50	6932242.50
10561	3121	83280.0	83592.0	526702.69	507354.41	6966802.50	6956092.00
10570	10041	77920.0	78924.0	570208.13	507508.91	6967543.00	6932851.00
10580	10011	76720.0	77721.0	570612.63	507735.31	6968437.00	6933597.00
10590	10191	75501.0	76520.0	570972.69	507975.09	6969193.50	6934285.00
10600	10071	74309.0	75316.0	571422.19	508157.09	6970026.50	6935001.50
10610	10291	73091.0	74120.0	571828.31	508378.31	6970701.00	6935689.00
10621	10221	71884.0	72906.0	572251.69	508589.19	6971700.00	6936505.00
10630	10371	69404.0	70441.0	572664.13	508809.09	6972469.50	6937102.50
10640	10371	68147.0	69184.0	573067.69	509057.59	6973249.00	6937802.50
10650	9511	3101.0	4052.0	573379.50	509266.50	6973989.50	6938464.00
10660	11471	1768.0	2915.0	573826.19	509464.91	6974845.50	6939152.00
10670	9641	631.0	1595.0	574232.00	509637.09	6975598.50	6939946.50
10680	11541	85691.0	86845.0	574589.00	509896.69	6976426.50	6940565.00
10690	9811	84508.0	85489.0	574981.13	510082.41	6977265.00	6941217.50
10700	7701	79268.0	80038.0	555543.88	510306.19	6978053.00	6952860.00
10701	5641	83782.0	84346.0	575440.00	545235.13	6959255.00	6941957.50
10710	9701	78097.0	79067.0	575820.00	510520.59	6978841.00	6942649.00
10720	11261	76602.0	77728.0	576208.69	510695.41	6979607.00	6943293.50
10730	9771	75417.0	76394.0	576581.88	511053.41	6980432.00	6944026.50
10740	11471	74085.0	75232.0	577052.38	511377.91	6981087.00	6944739.00
10750	9711	72902.0	73873.0	577447.88	511724.41	6981793.00	6945438.50
10760	11731	71549.0	72722.0	577782.50	512016.59	6982499.00	6946089.00
10770	10781	4625.0	5703.0	578224.38	512472.19	6983311.00	6946865.00
10780	10281	3381.0	4409.0	578601.69	512778.00	6984031.00	6947520.00
10790	11001	2108.0	3208.0	579027.13	513087.69	6984707.00	6948249.00
10800	10251	875.0	1900.0	579397.13	513512.91	6985441.50	6948931.00
10810	11081	85991.0	87099.0	579816.69	513804.41	6986151.00	6949629.00
10820	3461	81154.0	81500.0	535806.50	514162.91	6986882.50	6974960.00
10821	7951	84988.0	85783.0	580256.00	529772.69	6978167.00	6950310.50
10830	11101	79864.0	80974.0	580620.38	514534.09	6987659.00	6951043.00
10840	10631	78561.0	79624.0	581064.00	514828.81	6988257.50	6951725.00
10850	11151	77250.0	78365.0	581437.13	515260.81	6989173.00	6952436.00
10860	10821	75948.0	77030.0	581830.00	515612.09	6989809.50	6953070.50
10870	10971	74654.0	75751.0	582232.38	515987.41	6990573.00	6953789.00
10880	10771	780.0	1857.0	582680.38	516302.00	6991235.00	6954515.00
10890	10521	85943.0	86995.0	583065.19	516662.50	6991956.00	6955200.00
10900	10881	84632.0	85720.0	583473.19	517061.69	6992763.00	6955982.50
10910	10631	83390.0	84453.0	583846.50	517368.91	6993445.50	6956615.00
10920	10871	82091.0	83178.0	584243.19	517703.19	6994195.00	6957277.50
10930	10681	80788.0	81856.0	584603.81	518080.19	6994892.00	6957937.50
10940	10921	79500.0	80592.0	585060.00	518412.59	6995653.50	6958729.00
10950	10661	78229.0	79295.0	585514.50	518778.69	6996305.00	6959454.50
10960	10801	76943.0	78023.0	585903.38	519165.91	6997131.00	6960146.50
10970	10911	75412.0	76503.0	586244.69	519555.41	6997931.00	6960805.00

10980	11031	74108.0	75211.0	586695.50	519836.00	6998507.00	6961499.00
10990	10941	72787.0	73881.0	587019.31	520207.50	6999313.00	6962162.50
11000	11151	71471.0	72586.0	587494.69	520513.69	6999934.50	6962914.50
11010	10951	70141.0	71236.0	587877.00	521062.19	7000554.50	6963592.00
11020	9741	1491.0	2465.0	588212.81	521784.59	7001243.00	6964251.00
11030	11781	141.0	1319.0	588687.00	522254.59	7001795.00	6964969.50
11040	9831	85183.0	86166.0	589047.31	522796.69	7002354.50	6965664.00
11050	11681	83848.0	85016.0	589459.69	523385.00	7002995.00	6966350.50
11060	9721	82673.0	83645.0	589825.19	523943.31	7003590.50	6967039.00
11070	11931	81308.0	82501.0	590235.69	524498.88	7004227.00	6967727.00
11080	9631	80122.0	81085.0	590700.31	525067.69	7004809.00	6968477.50
11090	11941	78731.0	79925.0	591117.19	525628.19	7005431.00	6969174.50
11100	9571	77564.0	78521.0	591502.00	526174.81	7006054.50	6969813.50
11110	12071	76177.0	77384.0	591907.69	526735.69	7006678.50	6970567.00
11120	7921	75023.0	75815.0	592247.38	537961.63	7001319.00	6971196.00
11121	2501	69678.0	69928.0	542434.69	527236.50	7007205.00	6998875.00
11130	11251	73728.0	74853.0	592716.50	527869.31	7007903.00	6971919.00
11140	10861	84415.0	85501.0	593101.81	528367.00	7008480.00	6972655.00
11150	10321	83180.0	84212.0	593473.69	528923.69	7009062.50	6973368.00
11160	10811	78752.0	79833.0	593882.38	529582.88	7009721.00	6974006.50
11170	10051	77541.0	78546.0	594339.19	530434.19	7010085.00	6974749.00
11180	10841	76254.0	77338.0	594668.69	531511.31	7010473.00	6975409.00
11190	9941	75048.0	76042.0	595084.38	532467.69	7010792.00	6976111.00
11200	10471	73804.0	74851.0	595478.31	533500.00	7011169.00	6976836.00
11210	9861	72609.0	73595.0	595899.88	534560.50	7011537.00	6977481.50
11223	9001	8766.0	9666.0	596329.50	535503.50	7011895.00	6978195.00
11230	8591	3101.0	3960.0	590485.00	536518.31	7012271.00	6982353.50
11231	1481	71382.0	71530.0	596700.13	587618.69	6983705.50	6978904.00
11240	10041	1892.0	2896.0	597113.19	537525.00	7012657.50	6979557.00
11251	9571	715.0	1672.0	597489.13	538511.31	7013002.50	6980312.00
11260	4771	81420.0	81897.0	568362.38	539451.38	7013352.00	6997341.00
11261	5391	71881.0	72420.0	597908.38	565676.50	6998903.00	6980929.50
11270	8301	79810.0	80640.0	592892.63	540506.88	7013699.00	6984768.00
11271	1851	72900.0	73085.0	598266.88	587129.88	6987884.00	6981657.50
11280	8351	78780.0	79615.0	592661.50	541567.81	7014095.00	6985711.00
11281	2001	73368.0	73568.0	598801.00	586586.13	6989059.00	6982513.00
11290	7981	77562.0	78360.0	592296.81	542558.50	7014450.50	6986950.50
11291	1971	73869.0	74066.0	599096.69	587168.00	6989691.00	6983051.00
11301	6401	76735.0	77375.0	582898.19	543701.31	7014700.00	6993029.00
11310	5761	75701.0	76277.0	581103.81	545241.88	7014813.00	6994861.00
11320	5261	74974.0	75500.0	578608.69	546633.69	7014937.00	6997224.00
11330	4491	74283.0	74732.0	575954.38	548105.19	7015051.00	6999609.00
11340	3421	73787.0	74129.0	572989.88	552154.69	7013727.00	7002233.00
11350	2211	73279.0	73500.0	570099.88	556666.38	7012181.00	7004694.50
11360	971	72911.0	73008.0	566899.38	560941.50	7010721.50	7007420.00

This is a listing of the file ARC3.SUM

LINE #	# RECS	START TIME	END TIME	MAX EASTING	MIN EASTING	MAX NORTHING	MIN NORTHING
80020	11861	68714.0	69900.0	590290.19	542543.69	6988037.00	6905161.50
80030	15581	5319.0	6877.0	583563.63	531872.69	6992299.00	6902666.50
80041	16101	74116.0	75726.0	577596.13	524771.38	6998127.00	6906643.00
80050	17111	84150.0	85861.0	571452.00	517727.09	7003516.00	6910513.50
80060	14841	82456.0	83940.0	564770.69	510699.09	7009234.50	6914445.50
80071	14781	72134.0	73612.0	557711.38	503686.09	7011809.00	6918287.00
80081	16241	70339.0	71963.0	549965.69	496661.69	7014481.50	6922195.00
80091	13891	68762.0	70151.0	540074.00	489609.81	7013567.00	6926126.50
80100	4711	73266.0	73737.0	526937.13	510229.50	7006929.00	6977801.50
80123	14491	7099.0	8548.0	597342.19	545955.69	6984064.00	6894893.00
80223	2411	6630.0	6871.0	548522.88	538894.19	6915603.00	6898835.00

APPENDIX 6

TWO DIMENSIONAL THEORETICAL MAGNETIC MODELS

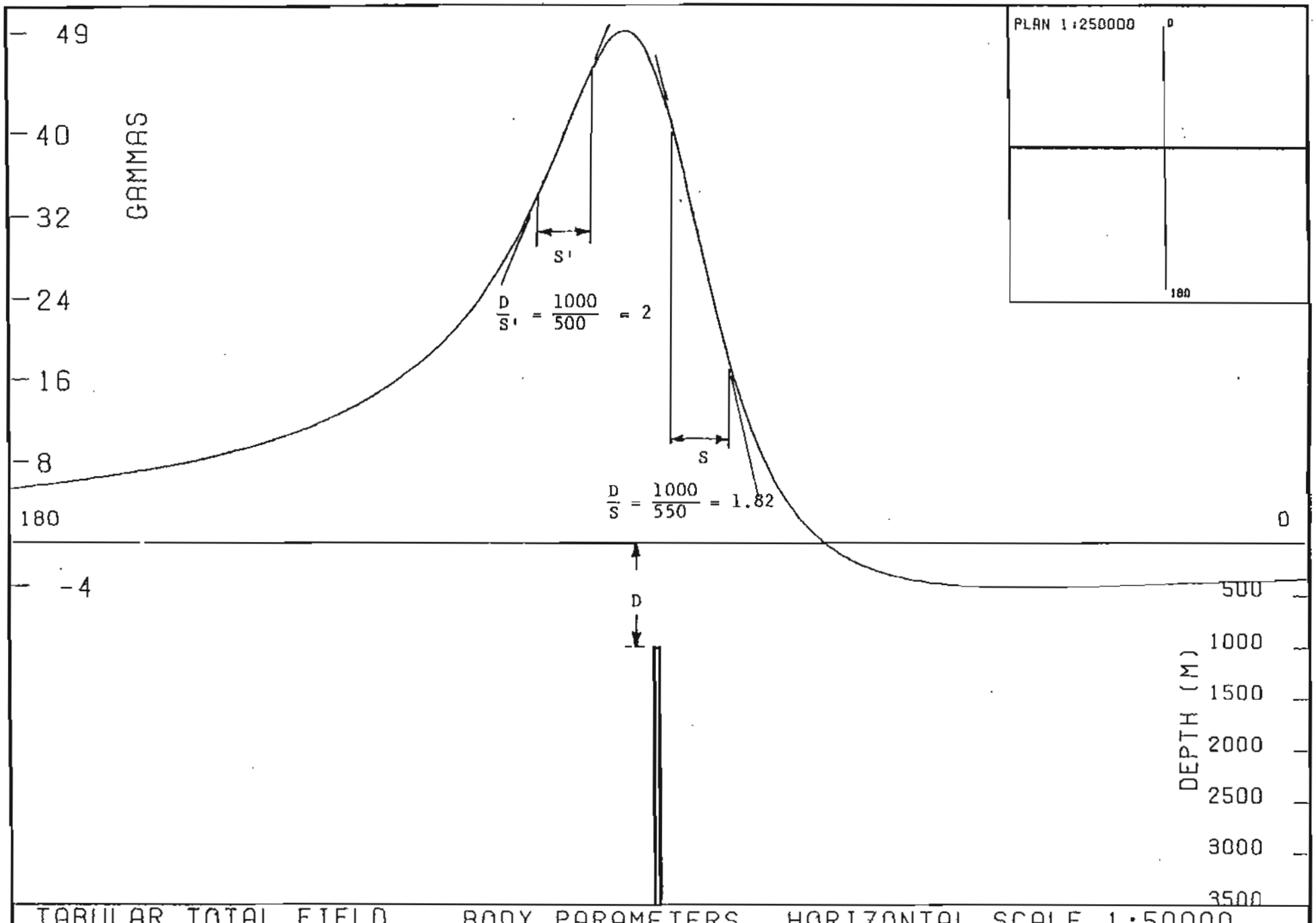

49
40
32
24
16
8
GAMMAS
180
0
-4
PLAN 1:250000
0
180
S'
S
D/S' = 1000/500 = 2
D/S = 1000/550 = 1.82
D
500
1000
1500
2000
2500
3000
3500
DEPTH (M)
TABULAR TOTAL FIELD
FIELD STRENGTH 54942 NT
INCLINATION 72.5
DECLINATION -25.3
BODY PARAMETERS
STRIKE 90.0
DIP 90.0
DEPTH 1000 M
SUS 0.001000 EMU
WIDTH 50 M
HORIZONTAL SCALE 1:50000
TRURO N.S.
TIM EBY

Figure 5.4(a)

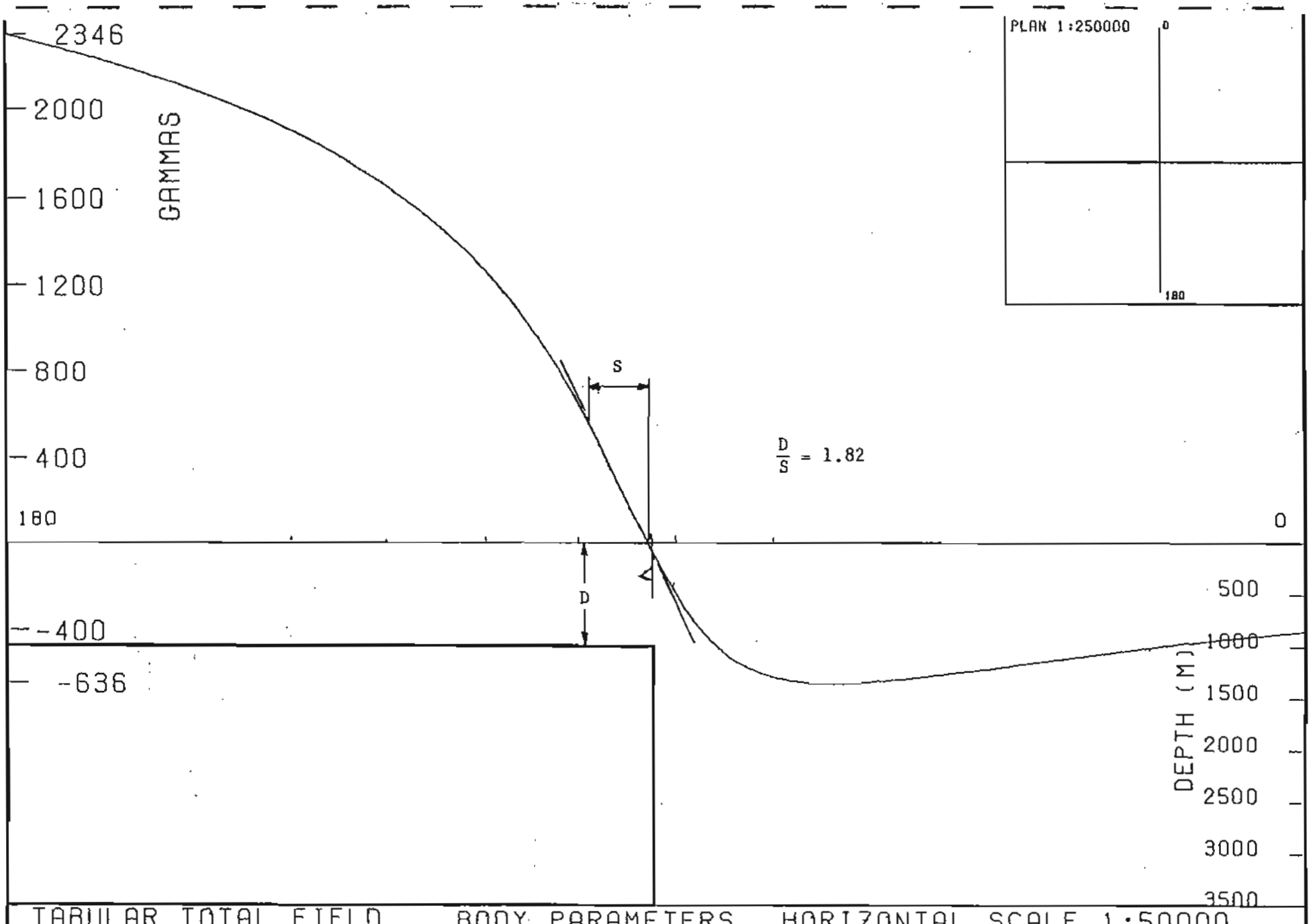

2346
2000
1600
1200
800
400
GAMMAS
180
0
S
D/S = 1.82
D
-400
-636
PLAN 1:250000
0
180
500
1000
1500
2000
2500
3000
3500
DEPTH (M)
TABULAR TOTAL FIELD
FIELD STRENGTH 54942 NT
INCLINATION 72.5
DECLINATION -25.3
BODY PARAMETERS
STRIKE 90.0
DIP 90.0
DEPTH 1000 M
SUS 0.001000 EMU
WIDTH 20000 M
HORIZONTAL SCALE 1:50000
TRURO N.S.
TIM EBY

Figure 5.4(b)

APPENDIX 7

WERNER DECONVOLUTION

WERNER DECONVOLUTION

As described by Hartman, et al (1971), Wenner deconvolution can be briefly explained as follows:

The equation for the total field for a dike with infinite strike length and depth extent can be written in the form:

$$F(x) = \frac{A(x-x_0)+B_Z}{(x-x_0)^2+Z^2} \quad \ldots\ 2.3.1$$

where F = the total magnetic field intensity at x

x = the horizontal distance along a profile

x_0 = the horizontal distance along the profile to the centre point above the dike

z = the depth to the top of the dike

A and B are functions of field strength, susceptibility, and source geometry.

When observations are made in a level plane over level-bounded bodies whose length and depth are infinite and whose strike is perpendicular to the direction of the profile, the dike equation may be written:

$$x^2 F = a_0 + a_1 x + b_0 F + b_1 xF \quad \ldots\ 2.3.2$$

where x and F are described above

$$a_0 = -Ax_0 + B_Z \qquad a_1 = A,$$

$$b_0 = -x_0^2 - Z^2, \text{ and } b_1 = 2x_0 \quad \ldots\ 2.3.3$$

then the depth and horizontal position of the top of the dike are:

$$Z = \pm\tfrac{1}{2}\sqrt{-4a_0 - b_1^2} \quad \ldots\ 2.3.4$$

$$x_0 = \tfrac{1}{2} b_1$$

Admitting the possibility of "noise" or interference which can be represented by a polynomial, the above theory is modified by adding the interference polynomial to equation 2.3.1. Thus:

$$F(x) = \frac{A(x-x_0)+B_z}{(x-x_0)^2+Z^2} + C_0+C_1 x+\ldots+C_n x^n \qquad \ldots. \quad 2.3.5$$

where n is the order of the polynomial and the C's are the coefficients. Now, in place of the four unknowns of equation 2.3.2, we have (n+5) unknown in equation 2.3.5. We require, therefore, (n+5) equations; and (n+5) data points are required to solve for the unknowns. In practice, a second order polynomial is a sufficient approximation for noise, so that 7 data points are adequate for solution. (The actual problem of determining the source parameters from the recorded field is reduced to a deconvolution.)

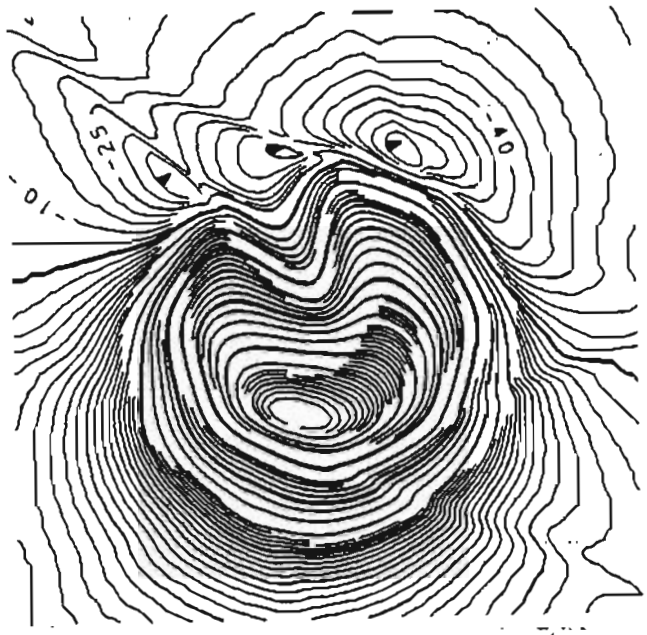
It can be shown that the magnetic anomaly for a thin sheet or dike is precisely the same as the horizontal derivative of an anomaly arising from a similarly positioned interface (lithologic contact on fault edge). Thus, by deconvolving both the total field and the calculated horizontal derivative of the total field, we are able to identify thin sheets (dikes) and individual interfaces (faults, etc.) as well as wide sheets (horst blocks, etc.).

APPENDIX 8

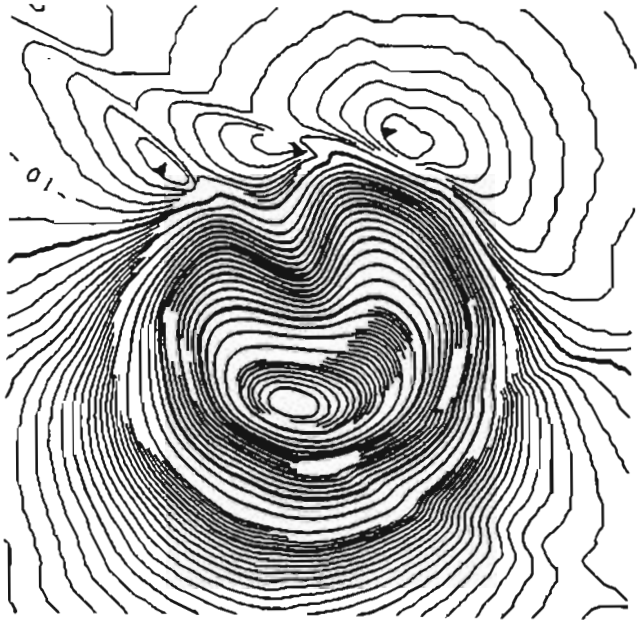
THREE DIMENSIONAL MODELS OF PLUGS

APPENDIX 8

THEORETICAL MODELS OF FAULTED PIPES



400 METRES DEPTH TO TOP



500 METRES DEPTH TO TOP

600 METRES DEPTH TO TOP