GHD

Airborne Geophysical Survey Operations Report

Cuprona

Thomson Aviation Job
F14103

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PART 1 - SPECIFICATIONS FOR AIRBORNE GEOPHYSICAL SURVEY

1.1 SURVEY DETAILS

Start Date	10/12/2014
End Date	13/12/2014
Time Base - Magnetics	20 Hz
Time Base - Radiometrics	2 Hz
Base Mag Locations	Wynyard
Ground Cals Locations	Wynyard
Test Line Locations	Wynyard
Block 1	F14103_Cuprona
Total Processed Line Kilometers	1559.2

1.2 LOCATION MAP

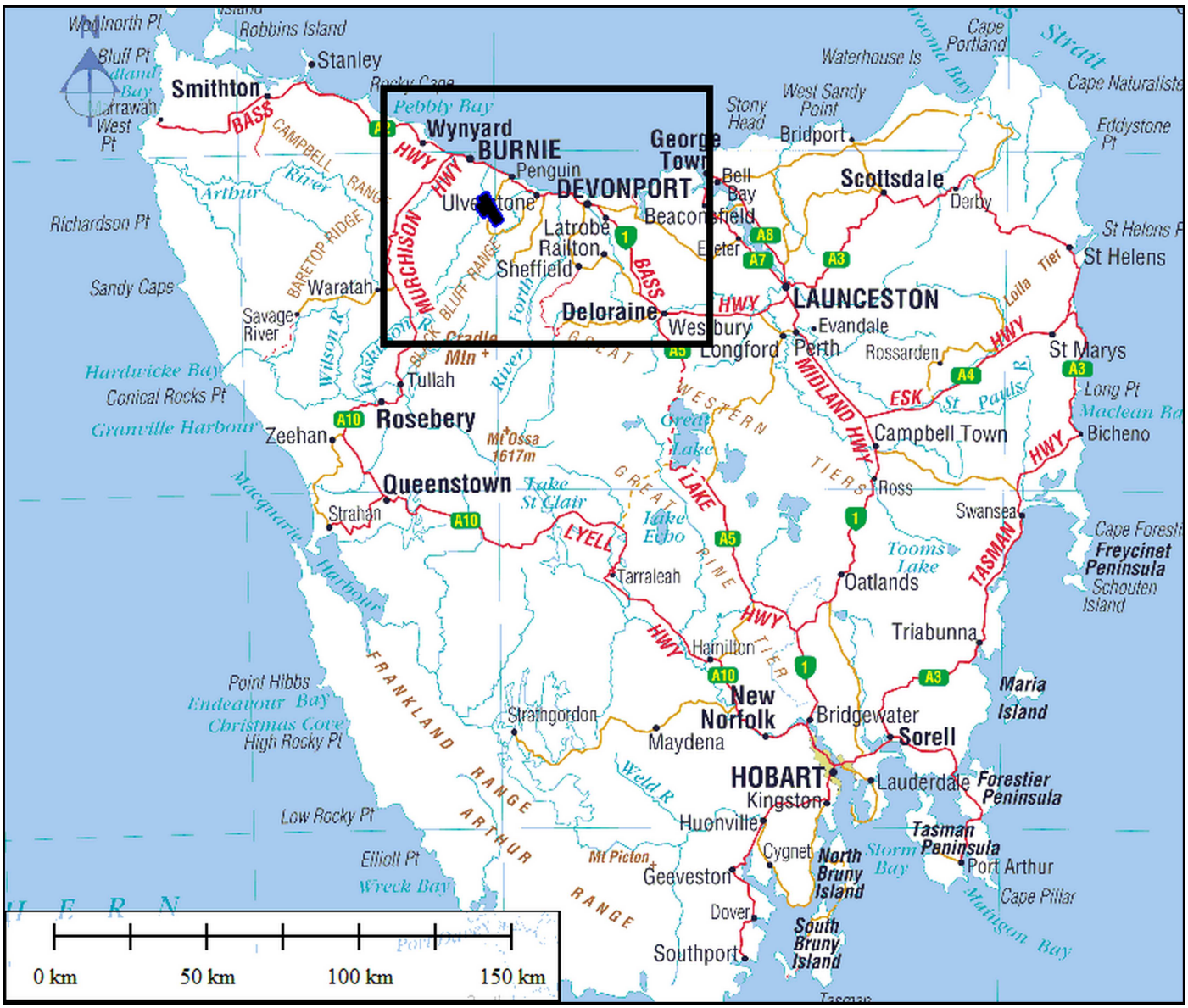


Figure 1 Cuprona

1.3 SURVEY SPECIFICATIONS

F14103_Cuprona	
Traverse line direction	58.4
Traverse line spacing	25 m
Tie line direction	148.4
Tie line spacing	250 m
Block Traverse Kilometers	1,360
Block Tie Kilometers	138
Block Total Kilometers	1,498

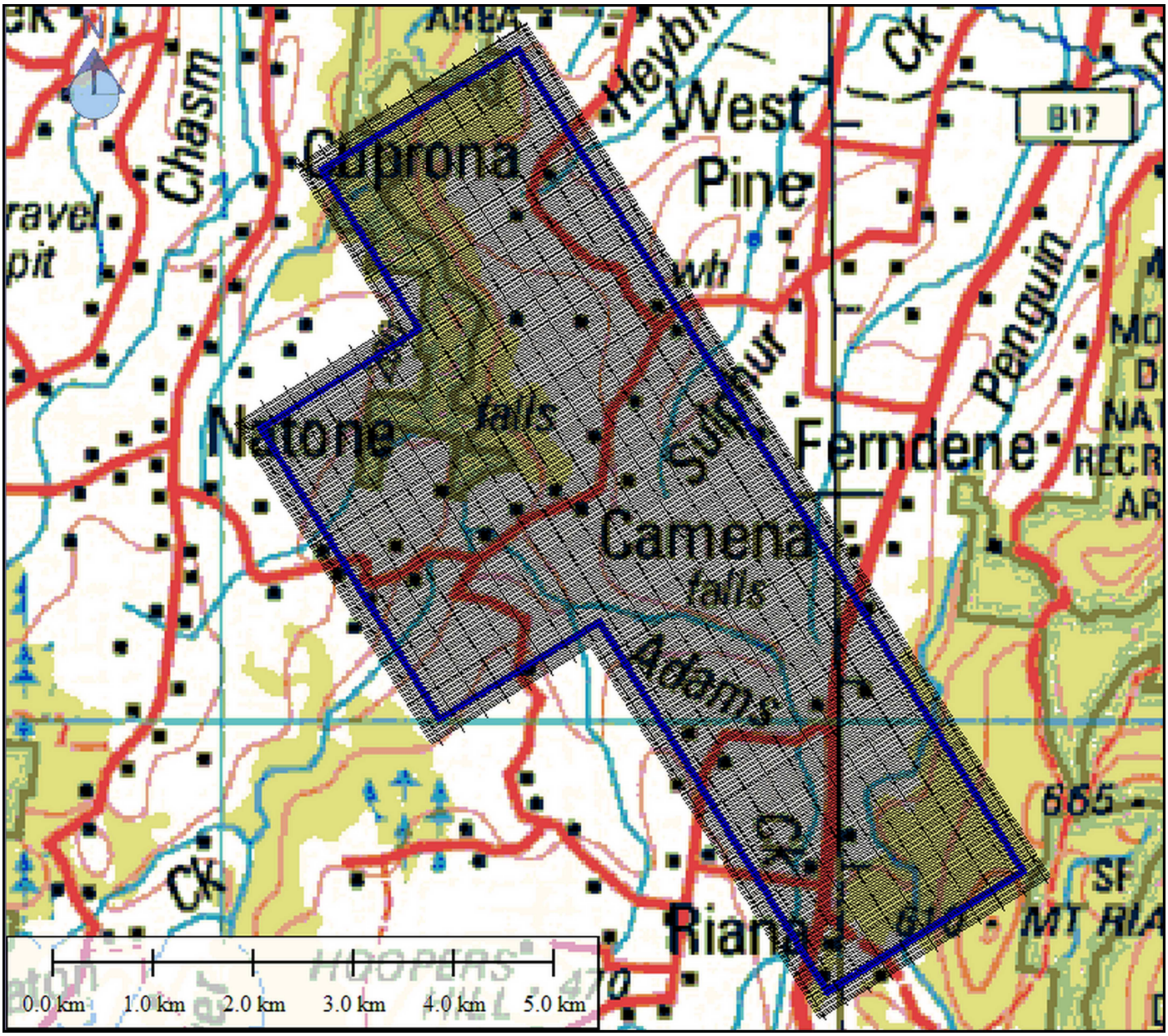


Figure 2 F14103_Cuprona

1.4 CALIBRATION RANGE

The radiometric systems for each aircraft were calibrated using the Geoscience Australia calibration range in Carnamah WA to determine the ground concentration coefficients for the radiometric systems.

Cosmic stacks were flown over water to determine the aircraft and cosmic coefficients.

Height attenuation coefficients were determined from IAEA recommended attenuation coefficients.

1.5 IN FIELD CALIBRATION

a) Spectrometer

The gamma ray spectrometer response was verified by exposing the system to thorium test samples for a time sufficient to accumulate 10,000 counts.

Frequency Before the first flight and after the last flight of each day when survey operations were conducted.

All background corrected counts fell within +/- 3% of the mean over the survey period.

Results of thorium test sample measurements can be found in Appendix B and Appendix C.

b) Test Line

Test lines are flown at the specified survey height to verify magnetometer, spectrometer and barometric altimeter baselines.

Length 10km
Direction Bi-Directional
Frequency Before the first flight and after the last flight of each day when survey operations were conducted.

The test line thorium counts fell within +/- 7% of the mean over the survey period.

Results of test line thorium counts can be found in Appendix B and Appendix C

c) Compensation Flight

The compensation flight was carried out to determine what manoeuvring effects the aircraft will have while collecting magnetic data. These effects are removed during data processing to produce true magnetic data.

Frequency Before the commencement of the survey project and after each scheduled maintenance operation.

1.6 IN FIELD VERIFICATION AND PROCESSING

Thomson Aviation conducts stringent real time data validity checks.

The following products were generated on site from the ChrisDBF database program and Thomson Aviation proprietary software:

- Flight path plots, to demonstrate quality of navigation
- Magnetic stacked profiles, to demonstrate character of magnetic data
- Statistical summary of line data
- Magnetometer base station plots
- Progressive image presentation of magnetic and topographic data
- Daily plots of aircraft parking locations to verify GPS position

1.7 NAVIGATION AND POSITIONING

Navigation was provided using a mobile Novatel OEMV-1 VBS receiver. This equipment provides flight guidance to the pilot as well as flight path information which was recorded for subsequent processing.

Differential GPS data was obtained in real time using static GPS data obtained from the Omnistar wide area GPS service.

Position relative to the survey line was displayed to the pilot by an accurate and effective system proprietary to Thomson Aviation.

Under normal circumstances differential GPS is expected to yield positional accuracies in the order of 5 meters RMS or better.

PART 2 - AIRCRAFT

The aircraft used for survey operations combine good manoeuvrability with a magnetically clean base to provide maximum magnetic sensor performance.

2.1 VH-THS

Aircraft Information	
Engine	Piston
Fuel	AVGAS
Fuel Burn	65 litres per hour
Typical Survey Speed	130 knots
Stall Speed	60 knots

Figure 3 Example Aircraft: Cessna C210

PART 3 - SURVEY INSTRUMENTATION

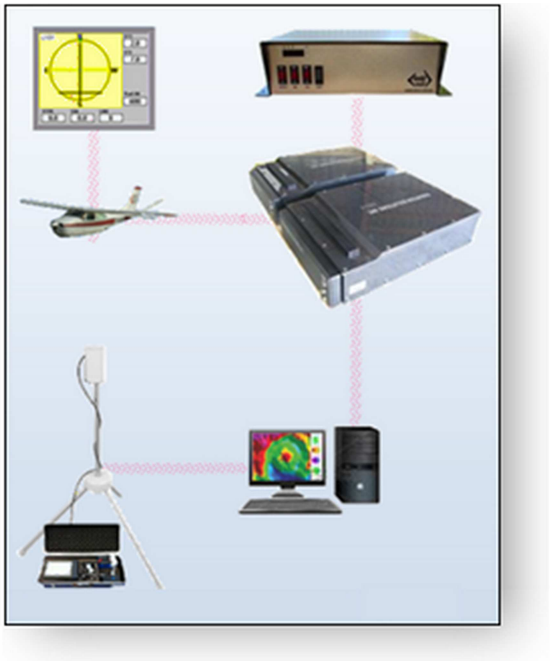


Figure 4 System Outline

3.1 MAGNETOMETER

The Geometrics G822A Magnetometer is a highly sensitive unit incorporating an optically pumped sensor. The constant harmonic frequency from the sensor is proportional to the surrounding scalar magnetic field. This frequency is resolved by the Counter / Processor which provides the magnetic field to a nominal accuracy of 0.01nT with a data capture rate of 20 times per second both in analog and digital formats.

The sensor and pre-amp are mounted in a stinger assembly which may be attached to the front or rear of the survey aircraft.

Figure 5 G822A Magnetomer and Typical Stinger Mounts

3.2 RADAR ALTIMETER

Type: King KR 495B Radar Altimeter

Figure 6 Radar Altimeter

This unit is a high resolution, short pulse ratio altitude system designed for automatic continuous operation over a wide variations of terrain and weather conditions, target reflectivity, and aircraft altitude. It provides an accurate terrain clearance indication ranging from 0 to 650m (0 to 2,000ft).

3.3 BAROMETRIC ALTIMETER

Type: Setra 276 Pressure Transducer

Figure 7 Pressure transducer

This type of pressure transducer over a range of 600 to 1100 mB and has infinite resolution (limited only by system noise). The sensor is referenced to the height given by the GPS.

3.4 DATA ACQUISITION SYSTEM

Type: GeOZ-DAS Digital Data Acquisition System

Figure 8 Zdas System

The GeOZ system manages the data acquisition and saves the data to removable Flash Cards.

It provides guidance and real time error diagnostics for the pilot.

Acquired data is transferred to a field computer on completion of the flight for both verification and archiving prior to being shipped to the processing centre.

3.5 NAVIGATION EQUIPMENT

Type: Novatel OEMV-1VBS GPS Receiver

Figure 9 GPS Receiver

This equipment is a 12 channel parallel tracking receiver capable of providing sub-meter resolution at 5Hz and is integrated with the GeOZ-DAS acquisition unit.

3.6 GAMMA RAY SPECTROMETER SYSTEM

Type: Radiations Solutions Inc. RS 400 Spectrometer

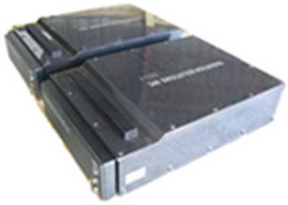


Figure 10 RS 400 Systems

These units deliver high-resolution spectral information from 0.33 MeV to 3.0 MeV including the five primary regions of interest; Total Count, Potassium, Uranium, Thorium and Cosmic.

The Gamma Ray Spectrometer is interfaced to a NaI (Tl) crystal detector pack with a total volume of 33 liters (2048 cubic inches). These detector packs embody the latest techniques whereby the elimination of dead time in the counting process yields up to 30% more counts over other commercial systems.

Superior calibration facilities included the visual real time monitoring of full spectrum data and in flight monitoring of gain drift relative to the selected isotope window maintain long-term data quality.

Enhancement of the spectrometer data is achieved by noise reduction techniques (NASVD or MNF), followed by dead time correction, energy calibration, cosmic/aircraft background correction and atmospheric radon removal all applied to the 256 channel data. Spectral stripping, height correction and conversion to radio-element concentrations are then applied prior to gridding and micro-levelling.

The gamma ray spectrometer response was verified by exposing the system to thorium test samples for a time sufficient to accumulate 10,000 counts.

3.7 BASE STATION MAGNETOMETER

Two units are used in tandem for diurnal monitoring. These units run continuously during the survey periods and record the data in digital format.

Base station magnetometer instruments record data to a sensitivity of 0.1nT every 6 seconds.

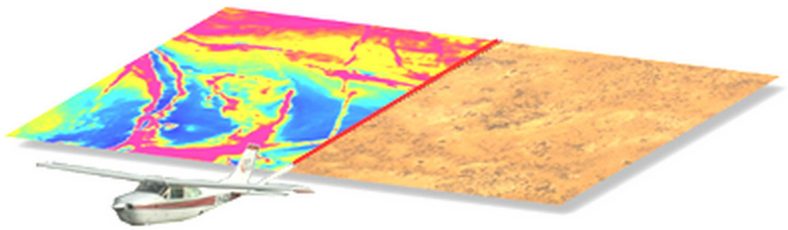
During data acquisition, if the non-linear diurnal variation was greater than 5 nt in 5 minutes, or the deviation from a straight line chord of length 10 minutes exceeded 10 nT, the line was reflown.

Figure 11 Setting up base station magnetometer

Figure 12 Magnetometer and Data Consol

PART 4 - CONTACT INFORMATION

Company Name	Thomson Aviation Pty Ltd
ABN	88 125 552 132
Director	Paul Rogerson
Mobile	0427 681484
Main Office	Hangar 14, Griffith Airport NSW, 2680
Postal Address	PO Box 8133 Griffith East
Phone	02 6960 3800
Fax	02 6962 2992
Email	paul@thomsonaviation.com.au



PART 5 - APPENDICES

APPENDIX A

DAILY REPORTS

Daily Log								
Date	Flt Num	Block(s)	Operator(s)	Aircraft	SBY	MNT	SUS	Comments
10/12/2014	1	F14103_Cuprona	C Dixon	VH-THS				Compbox carried out
11/12/2014	2	F14103_Cuprona	C Dixon	VH-THS				
11/12/2014	3	F14103_Cuprona	C Dixon	VH-THS				
12/12/2014	4	F14103_Cuprona	C Dixon	VH-THS				
12/12/2014		F14103_Cuprona			0.5			Low cloud with showers, High Diurnal activity
13/12/2014		F14103_Cuprona			1.0			Strong winds
14/12/2014	5	F14103_Cuprona	C Dixon	VH-THS				Diurnal activity
14/12/2014		F14103_Cuprona			0.5			Strong winds
15/12/2014	6	F14103_Cuprona	C Dixon	VH-THS				
15/12/2014	7	F14103_Cuprona	C Dixon	VH-THS				All Data Checked and ok***Survey Complete***

APPENDIX B

CALIBRATION AND TEST LINE VARIATION TABLES

Av Normalized Th: 342.4 Min TH: 338.0 Max TH: 347.6 Standard Deviation: 3.3

Ground Cals - VH-THS - Wynyard

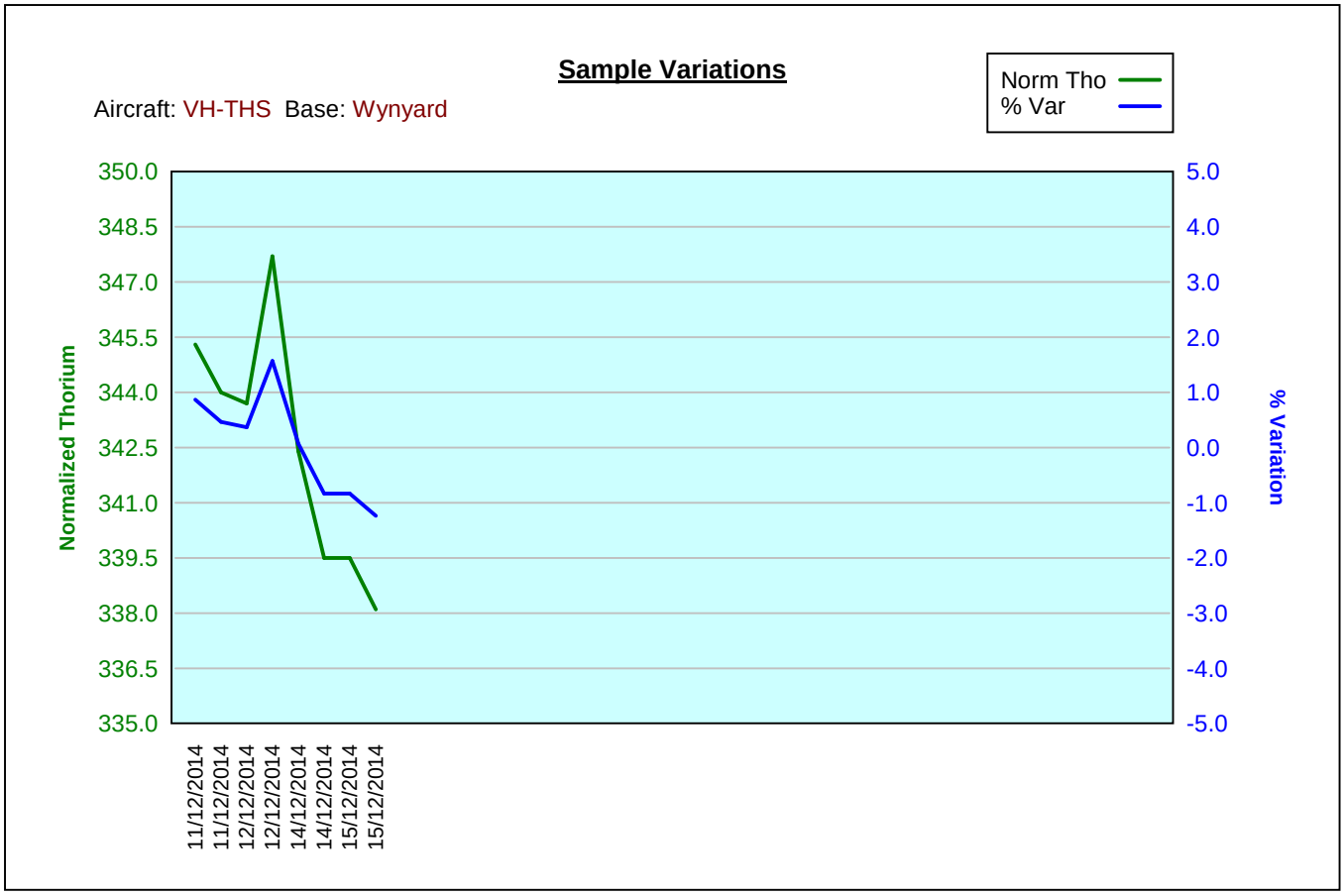
		Position			Hand Sample				Background				Normalized				Th Cal Results		TH Chg	Diff
Date	Flt	East	North	GPS Ht	TC	Pot	Ura	Tho	TC	Pot	Ura	Tho	TC	Pot	Ura	Tho	ThPeak	% FWHM	+/- 3%	5 max
11/12/2014	2	392750.66	5461157.48	19.8	5999.6	278.2	146.4	370.9	967.2	127.2	26.7	25.7	5032.4	151.0	119.7	345.2	217.50	4.43	0.8	0.0
11/12/2014	3	392752.28	5461158.26	18.6	6060.0	289.9	147.6	371.1	1013.3	137.0	27.1	27.2	5046.7	152.9	120.5	343.9	217.76	4.42	0.4	1.8
12/12/2014	4	392752.11	5461158.72	19.2	6011.8	290.5	144.5	369.2	987.1	137.1	25.1	25.6	5024.7	153.4	119.4	343.6	217.67	4.47	0.3	1.9
12/12/2014	4	392752.95	5461159.45	18.1	6019.1	286.1	145.1	372.9	968.5	134.1	24.6	25.3	5050.6	152.0	120.5	347.6	217.67	4.47	1.5	3.0
14/12/2014	5	392752.41	5461159.06	18.7	6035.3	285.5	145.0	368.9	988.4	133.3	25.8	26.6	5046.9	152.2	119.2	342.3	217.34	4.42	0.0	2.4
14/12/2014	5	392752.33	5461157.11	18.0	5945.9	279.3	143.8	365.6	953.9	125.0	26.4	26.2	4992.0	154.3	117.4	339.4	217.34	4.42	-0.9	1.7
15/12/2014	6	392752.33	5461157.11	18.0	5945.9	279.3	143.8	365.6	953.9	125.0	26.4	26.2	4992.0	154.3	117.4	339.4	217.34	4.42	-0.9	1.7
15/12/2014	7	392752.33	5461157.11	18.0	5944.4	279.5	143.6	364.6	953.2	126.0	26.8	26.6	4991.2	153.5	116.8	338.0	217.34	4.44	-1.3	1.7

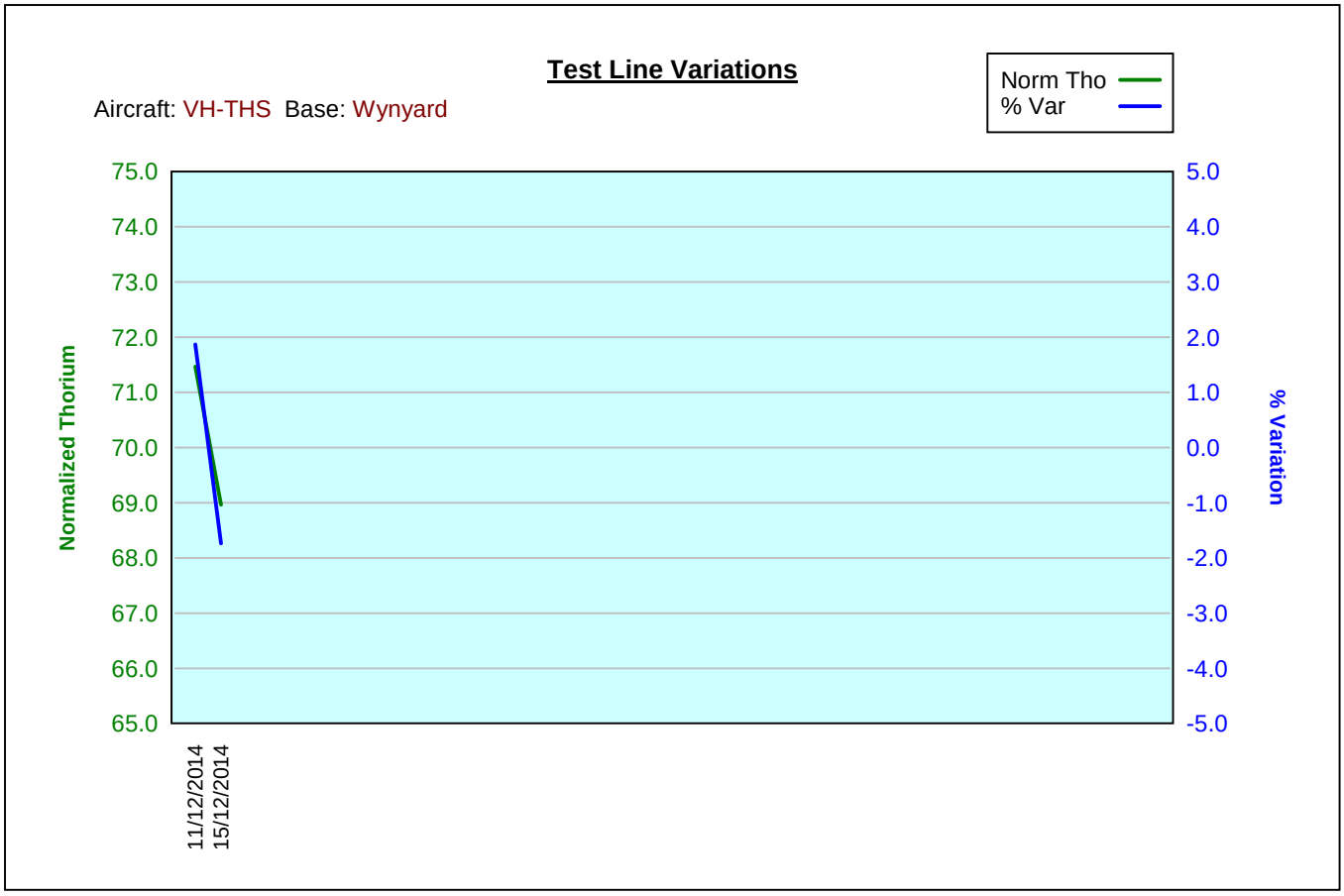
Av Normalized Th: 70.2 Min TH: 68.9 Max TH: 71.4 Standard Deviation: 1.8

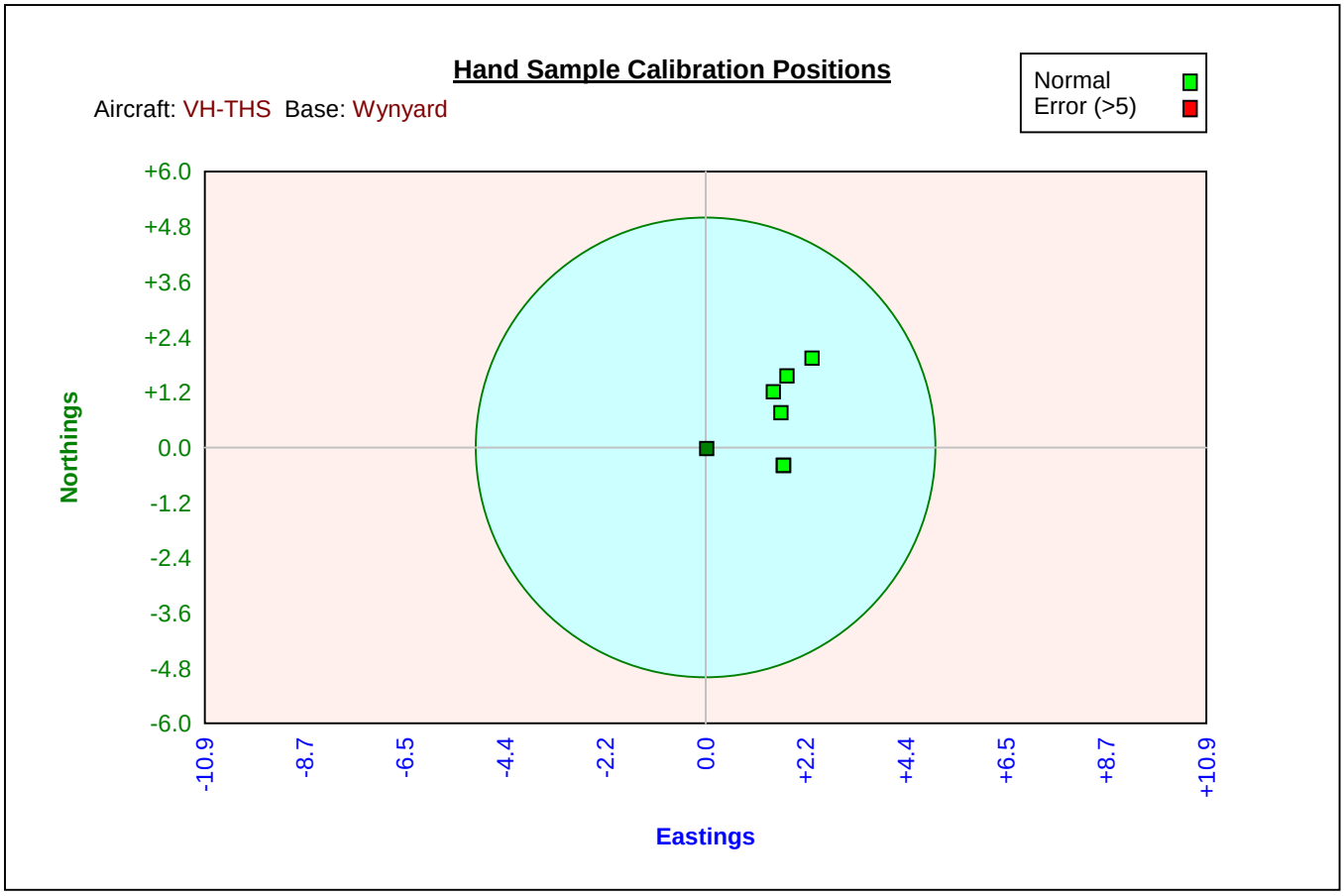
Test Lines - VH-THS - Wynyard															
		801					802				Normalized				TH Chg
Date	Flt	TC	Pot	Ura	Tho	Flt	TC	Pot	Ura	Tho	TC	Pot	Ura	Tho	+/- 7%
11/12/2014	2	1594.1	114.7	51.5	67.9	3	1687.2	120.1	54.9	74.8	-93.1	-5.4	-3.4	71.4	1.8
14/12/2014	5	1682.6	118.5	54.6	72.5										
15/12/2014	6	1657.1	117.8	53.8	72.2	7	1501.1	107.3	47.5	65.6	156.0	10.5	6.3	68.9	-1.8

APPENDIX C

CALIBRATION AND TEST LINE VARIATION CHARTS


Sample Variations
Aircraft: VH-THS Base: Wynyard
Norm Tho
% Var
Normalized Thorium
% Variation
350.0
348.5
347.0
345.5
344.0
342.5
341.0
339.5
338.0
336.5
335.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
11/12/2014
11/12/2014
12/12/2014
12/12/2014
14/12/2014
14/12/2014
15/12/2014
15/12/2014


Test Line Variations
Aircraft: VH-THS Base: Wynyard
Norm Tho
% Var
Normalized Thorium
% Variation
75.0
74.0
73.0
72.0
71.0
70.0
69.0
68.0
67.0
66.0
65.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
11/12/2014
15/12/2014

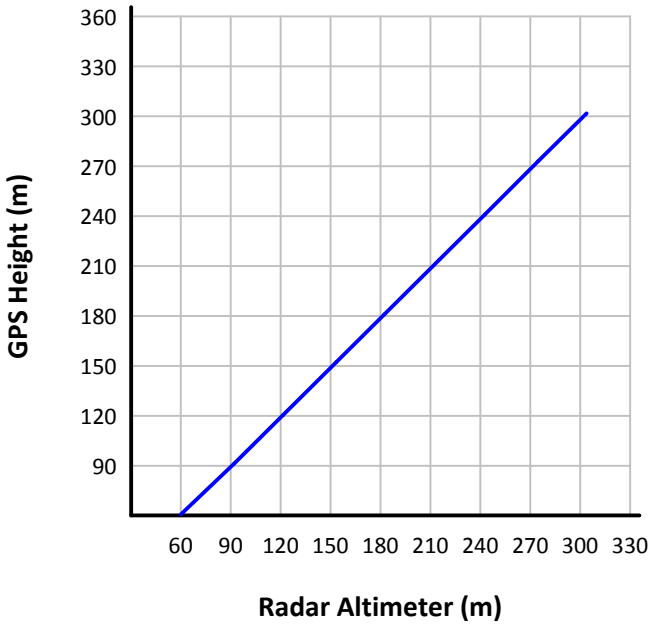

Hand Sample Calibration Positions
Aircraft: VH-THS Base: Wynyard
Normal
Error (>5)
Northings
+6.0
+4.8
+3.6
+2.4
+1.2
0.0
-1.2
-2.4
-3.6
-4.8
-6.0
-10.9
-8.7
-6.5
-4.4
-2.2
0.0
+2.2
+4.4
+6.5
+8.7
+10.9
Eastings

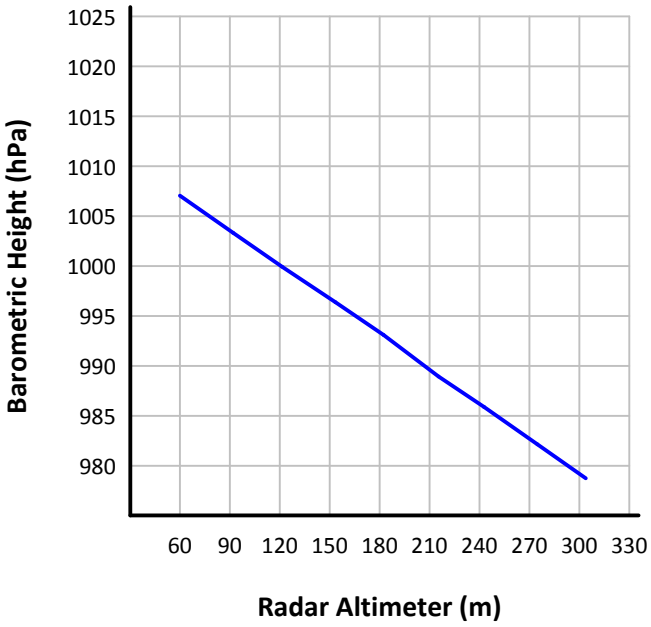
APPENDIX D

RADAR ALTIMETER AND BAROMETRIC ALTIMETER CHECKS

VH-THS

Radar Altimeter (m)	Barometric Height (hPa)	GPS Height (m)
59.97	1007.06	60.63
91.81	1003.35	91.07
121.25	999.92	120.34
153.42	996.38	152.20
182.39	993.11	181.01
215.43	988.95	213.94
242.73	985.88	240.89
274.88	982.13	273.03
303.85	978.73	301.80





Calibration flights for VH-THS were flown on 19/12/2013

APPENDIX E

BOUNDARY COORDINATES

F14103_Cuprona, Datum: GDA 94, Zone: 55

Eastings	Northings
412954.78	5446710.07
417979.66	5438523.23
416022.74	5437322.13
413752.82	5441015.61
412170.62	5440042.74
410388.51	5442941.03
411970.71	5443913.90
410997.86	5445508.96

APPENDIX F

LINE SPECIFICATIONS

F14103_Cuprona

Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
100010	Trav	415951.10	5437056.68	418247.37	5438469.35	58.4	2.7	2.7	0.0
100020	Trav	415938.01	5437077.98	418234.30	5438490.66	58.4	2.7	5.4	0.0
100030	Trav	415924.92	5437099.28	418221.22	5438511.97	58.4	2.7	8.1	0.0
100040	Trav	415911.83	5437120.58	418208.14	5438533.28	58.4	2.7	10.8	0.0
100050	Trav	415898.74	5437141.88	418195.06	5438554.58	58.4	2.7	13.5	0.0
100060	Trav	415885.65	5437163.17	418181.98	5438575.89	58.4	2.7	16.2	0.0
100070	Trav	415872.56	5437184.47	418168.91	5438597.20	58.4	2.7	18.9	0.0
100080	Trav	415859.47	5437205.77	418155.83	5438618.50	58.4	2.7	21.6	0.0
100090	Trav	415846.38	5437227.07	418142.75	5438639.81	58.4	2.7	24.3	0.0
100100	Trav	415833.29	5437248.37	418129.67	5438661.11	58.4	2.7	27.0	0.0
100110	Trav	415820.20	5437269.67	418116.60	5438682.42	58.4	2.7	29.7	0.0
100120	Trav	415807.11	5437290.97	418103.52	5438703.73	58.4	2.7	32.4	0.0
100130	Trav	415794.02	5437312.27	418090.44	5438725.03	58.4	2.7	35.0	0.0
100140	Trav	415780.93	5437333.57	418077.36	5438746.34	58.4	2.7	37.7	0.0
100150	Trav	415767.84	5437354.87	418064.29	5438767.65	58.4	2.7	40.4	0.0
100160	Trav	415754.75	5437376.16	418051.21	5438788.96	58.4	2.7	43.1	0.0
100170	Trav	415741.66	5437397.46	418038.13	5438810.26	58.4	2.7	45.8	0.0
100180	Trav	415728.57	5437418.77	418025.05	5438831.57	58.4	2.7	48.5	0.0
100190	Trav	415715.48	5437440.06	418011.98	5438852.88	58.4	2.7	51.2	0.0
100200	Trav	415702.39	5437461.36	417998.90	5438874.18	58.4	2.7	53.9	0.0
100210	Trav	415689.30	5437482.66	417985.82	5438895.49	58.4	2.7	56.6	0.0
100220	Trav	415676.21	5437503.96	417972.74	5438916.79	58.4	2.7	59.3	0.0
100230	Trav	415663.12	5437525.26	417959.66	5438938.10	58.4	2.7	62.0	0.0
100240	Trav	415650.03	5437546.56	417946.59	5438959.41	58.4	2.7	64.7	0.0
100250	Trav	415636.94	5437567.86	417933.51	5438980.72	58.4	2.7	67.4	0.0
100260	Trav	415623.85	5437589.16	417920.43	5439002.02	58.4	2.7	70.1	0.0
100270	Trav	415610.76	5437610.45	417907.36	5439023.33	58.4	2.7	72.8	0.0
100280	Trav	415597.67	5437631.76	417894.28	5439044.64	58.4	2.7	75.5	0.0
100290	Trav	415584.58	5437653.05	417881.20	5439065.94	58.4	2.7	78.2	0.0
100300	Trav	415571.49	5437674.35	417868.12	5439087.25	58.4	2.7	80.9	0.0
100310	Trav	415558.40	5437695.65	417855.05	5439108.56	58.4	2.7	83.6	0.0
100320	Trav	415545.31	5437716.95	417841.97	5439129.87	58.4	2.7	86.3	0.0
100330	Trav	415532.22	5437738.25	417828.89	5439151.17	58.4	2.7	89.0	0.0
100340	Trav	415519.13	5437759.55	417815.81	5439172.48	58.4	2.7	91.7	0.0
100350	Trav	415506.04	5437780.85	417802.73	5439193.78	58.4	2.7	94.4	0.0
100360	Trav	415492.95	5437802.15	417789.66	5439215.09	58.4	2.7	97.1	0.0
100370	Trav	415479.86	5437823.45	417776.58	5439236.40	58.4	2.7	99.8	0.0
100380	Trav	415466.77	5437844.75	417763.50	5439257.71	58.4	2.7	102.5	0.0
100390	Trav	415453.69	5437866.05	417750.43	5439279.01	58.4	2.7	105.2	0.0
100400	Trav	415440.59	5437887.34	417737.35	5439300.32	58.4	2.7	107.9	0.0
100410	Trav	415427.51	5437908.65	417724.27	5439321.62	58.4	2.7	110.5	0.0
100420	Trav	415414.41	5437929.94	417711.19	5439342.93	58.4	2.7	113.2	0.0
100430	Trav	415401.33	5437951.25	417698.11	5439364.24	58.4	2.7	115.9	0.0
100440	Trav	415388.24	5437972.54	417685.04	5439385.55	58.4	2.7	118.6	0.0
100450	Trav	415375.15	5437993.85	417671.96	5439406.85	58.4	2.7	121.3	0.0
100460	Trav	415362.05	5438015.14	417658.88	5439428.16	58.4	2.7	124.0	0.0
100470	Trav	415348.96	5438036.44	417645.80	5439449.47	58.4	2.7	126.7	0.0
100480	Trav	415335.88	5438057.74	417632.73	5439470.78	58.4	2.7	129.4	0.0
100490	Trav	415322.79	5438079.04	417619.65	5439492.08	58.4	2.7	132.1	0.0
100500	Trav	415309.70	5438100.34	417606.57	5439513.38	58.4	2.7	134.8	0.0
100510	Trav	415296.60	5438121.64	417593.49	5439534.69	58.4	2.7	137.5	0.0
100520	Trav	415283.52	5438142.94	417580.42	5439556.00	58.4	2.7	140.2	0.0
100530	Trav	415270.43	5438164.24	417567.34	5439577.31	58.4	2.7	142.9	0.0
100540	Trav	415257.34	5438185.54	417554.26	5439598.61	58.4	2.7	145.6	0.0
100550	Trav	415244.25	5438206.84	417541.18	5439619.92	58.4	2.7	148.3	0.0
100560	Trav	415231.16	5438228.14	417528.10	5439641.23	58.4	2.7	151.0	0.0
100570	Trav	415218.07	5438249.44	417515.03	5439662.54	58.4	2.7	153.7	0.0
100580	Trav	415204.98	5438270.73	417501.95	5439683.84	58.4	2.7	156.4	0.0
100590	Trav	415191.89	5438292.03	417488.87	5439705.14	58.4	2.7	159.1	0.0
100600	Trav	415178.80	5438313.34	417475.79	5439726.45	58.4	2.7	161.8	0.0
100610	Trav	415165.71	5438334.63	417462.72	5439747.76	58.4	2.7	164.5	0.0
100620	Trav	415152.62	5438355.93	417449.64	5439769.07	58.4	2.7	167.2	0.0
100630	Trav	415139.53	5438377.23	417436.56	5439790.37	58.4	2.7	169.9	0.0
100640	Trav	415126.44	5438398.53	417423.49	5439811.68	58.4	2.7	172.6	0.0
100650	Trav	415113.35	5438419.83	417410.41	5439832.99	58.4	2.7	175.3	0.0

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Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
100660	Trav	415100.26	5438441.13	417397.33	5439854.30	58.4	2.7	178.0	0.0
100670	Trav	415087.17	5438462.42	417384.25	5439875.60	58.4	2.7	180.7	0.0
100680	Trav	415074.08	5438483.73	417371.18	5439896.91	58.4	2.7	183.4	0.0
100690	Trav	415060.99	5438505.02	417358.10	5439918.21	58.4	2.7	186.1	0.0
100700	Trav	415047.90	5438526.33	417345.02	5439939.52	58.4	2.7	188.8	0.0
100710	Trav	415034.81	5438547.62	417331.94	5439960.83	58.4	2.7	191.5	0.0
100720	Trav	415021.72	5438568.92	417318.87	5439982.14	58.4	2.7	194.2	0.0
100730	Trav	415008.63	5438590.22	417305.79	5440003.44	58.4	2.7	196.8	0.0
100740	Trav	414995.54	5438611.52	417292.71	5440024.75	58.4	2.7	199.5	0.0
100750	Trav	414982.45	5438632.82	417279.63	5440046.06	58.4	2.7	202.2	0.0
100760	Trav	414969.36	5438654.12	417266.55	5440067.36	58.4	2.7	204.9	0.0
100770	Trav	414956.27	5438675.41	417253.48	5440088.67	58.4	2.7	207.6	0.0
100780	Trav	414943.18	5438696.72	417240.40	5440109.97	58.4	2.7	210.3	0.0
100790	Trav	414930.09	5438718.02	417227.32	5440131.28	58.4	2.7	213.0	0.0
100800	Trav	414917.00	5438739.32	417214.24	5440152.59	58.4	2.7	215.7	0.0
100810	Trav	414903.91	5438760.61	417201.17	5440173.90	58.4	2.7	218.4	0.0
100820	Trav	414890.82	5438781.91	417188.09	5440195.20	58.4	2.7	221.1	0.0
100830	Trav	414877.73	5438803.21	417175.01	5440216.51	58.4	2.7	223.8	0.0
100840	Trav	414864.64	5438824.51	417161.93	5440237.82	58.4	2.7	226.5	0.0
100850	Trav	414851.55	5438845.81	417148.86	5440259.13	58.4	2.7	229.2	0.0
100860	Trav	414838.46	5438867.11	417135.78	5440280.43	58.4	2.7	231.9	0.0
100870	Trav	414825.37	5438888.41	417122.70	5440301.74	58.4	2.7	234.6	0.0
100880	Trav	414812.28	5438909.71	417109.63	5440323.04	58.4	2.7	237.3	0.0
100890	Trav	414799.19	5438931.01	417096.55	5440344.35	58.4	2.7	240.0	0.0
100900	Trav	414786.10	5438952.31	417083.47	5440365.66	58.4	2.7	242.7	0.0
100910	Trav	414773.01	5438973.60	417070.39	5440386.96	58.4	2.7	245.4	0.0
100920	Trav	414759.92	5438994.90	417057.31	5440408.27	58.4	2.7	248.1	0.0
100930	Trav	414746.83	5439016.21	417044.23	5440429.58	58.4	2.7	250.8	0.0
100940	Trav	414733.74	5439037.50	417031.16	5440450.89	58.4	2.7	253.5	0.0
100950	Trav	414720.65	5439058.80	417018.08	5440472.19	58.4	2.7	256.2	0.0
100960	Trav	414707.56	5439080.10	417005.00	5440493.50	58.4	2.7	258.9	0.0
100970	Trav	414694.47	5439101.40	416991.93	5440514.81	58.4	2.7	261.6	0.0
100980	Trav	414681.38	5439122.70	416978.85	5440536.12	58.4	2.7	264.3	0.0
100990	Trav	414668.29	5439144.00	416965.77	5440557.42	58.4	2.7	267.0	0.0
101000	Trav	414655.20	5439165.29	416952.69	5440578.72	58.4	2.7	269.7	0.0
101010	Trav	414642.11	5439186.60	416939.62	5440600.03	58.4	2.7	272.4	0.0
101020	Trav	414629.02	5439207.89	416926.54	5440621.34	58.4	2.7	275.1	0.0
101030	Trav	414615.93	5439229.20	416913.46	5440642.65	58.4	2.7	277.8	0.0
101040	Trav	414602.84	5439250.49	416900.38	5440663.95	58.4	2.7	280.5	0.0
101050	Trav	414589.75	5439271.79	416887.31	5440685.26	58.4	2.7	283.2	0.0
101060	Trav	414576.66	5439293.09	416874.23	5440706.57	58.4	2.7	285.9	0.0
101070	Trav	414563.57	5439314.39	416861.15	5440727.88	58.4	2.7	288.6	0.0
101080	Trav	414550.48	5439335.69	416848.07	5440749.18	58.4	2.7	291.3	0.0
101090	Trav	414537.39	5439356.99	416835.00	5440770.49	58.4	2.7	294.0	0.0
101100	Trav	414524.30	5439378.29	416821.92	5440791.79	58.4	2.7	296.6	0.0
101110	Trav	414511.21	5439399.59	416808.84	5440813.10	58.4	2.7	299.3	0.0
101120	Trav	414498.12	5439420.89	416795.76	5440834.41	58.4	2.7	302.0	0.0
101130	Trav	414485.03	5439442.19	416782.68	5440855.71	58.4	2.7	304.7	0.0
101140	Trav	414471.95	5439463.49	416769.61	5440877.02	58.4	2.7	307.4	0.0
101150	Trav	414458.85	5439484.78	416756.53	5440898.33	58.4	2.7	310.1	0.0
101160	Trav	414445.77	5439506.09	416743.45	5440919.63	58.4	2.7	312.8	0.0
101170	Trav	414432.67	5439527.38	416730.37	5440940.94	58.4	2.7	315.5	0.0
101180	Trav	414419.59	5439548.69	416717.30	5440962.25	58.4	2.7	318.2	0.0
101190	Trav	414406.50	5439569.98	416704.22	5440983.55	58.4	2.7	320.9	0.0
101200	Trav	414393.41	5439591.29	416691.14	5441004.86	58.4	2.7	323.6	0.0
101210	Trav	414380.31	5439612.58	416678.06	5441026.17	58.4	2.7	326.3	0.0
101220	Trav	414367.23	5439633.88	416664.99	5441047.48	58.4	2.7	329.0	0.0
101230	Trav	414354.14	5439655.18	416651.91	5441068.78	58.4	2.7	331.7	0.0
101240	Trav	414341.05	5439676.48	416638.83	5441090.08	58.4	2.7	334.4	0.0
101250	Trav	414327.96	5439697.78	416625.75	5441111.39	58.4	2.7	337.1	0.0
101260	Trav	414314.87	5439719.08	416612.68	5441132.71	58.4	2.7	339.8	0.0
101270	Trav	414301.78	5439740.38	416599.60	5441154.01	58.4	2.7	342.5	0.0
101280	Trav	414288.69	5439761.68	416586.52	5441175.31	58.4	2.7	345.2	0.0
101290	Trav	414275.60	5439782.98	416573.44	5441196.62	58.4	2.7	347.9	0.0
101300	Trav	414262.51	5439804.28	416560.37	5441217.93	58.4	2.7	350.6	0.0

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Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
101310	Trav	414249.42	5439825.58	416547.29	5441239.24	58.4	2.7	353.3	0.0
101320	Trav	414236.33	5439846.87	416534.21	5441260.54	58.4	2.7	356.0	0.0
101330	Trav	414223.24	5439868.17	416521.13	5441281.84	58.4	2.7	358.7	0.0
101340	Trav	414210.15	5439889.47	416508.06	5441303.16	58.4	2.7	361.4	0.0
101350	Trav	414197.06	5439910.77	416494.98	5441324.46	58.4	2.7	364.1	0.0
101360	Trav	414183.97	5439932.07	416481.90	5441345.77	58.4	2.7	366.8	0.0
101370	Trav	414170.88	5439953.37	416468.82	5441367.07	58.4	2.7	369.5	0.0
101380	Trav	414157.79	5439974.67	416455.75	5441388.38	58.4	2.7	372.2	0.0
101390	Trav	414144.70	5439995.97	416442.67	5441409.69	58.4	2.7	374.9	0.0
101400	Trav	414131.61	5440017.27	416429.59	5441431.00	58.4	2.7	377.6	0.0
101410	Trav	414118.52	5440038.57	416416.51	5441452.30	58.4	2.7	380.3	0.0
101420	Trav	414105.43	5440059.86	416403.44	5441473.61	58.4	2.7	383.0	0.0
101430	Trav	414092.34	5440081.17	416390.36	5441494.92	58.4	2.7	385.7	0.0
101440	Trav	414079.25	5440102.46	416377.28	5441516.22	58.4	2.7	388.4	0.0
101450	Trav	414066.16	5440123.76	416364.20	5441537.53	58.4	2.7	391.1	0.0
101460	Trav	414053.07	5440145.06	416351.13	5441558.84	58.4	2.7	393.8	0.0
101470	Trav	414039.98	5440166.36	416338.05	5441580.14	58.4	2.7	396.5	0.0
101480	Trav	414026.89	5440187.66	416324.97	5441601.45	58.4	2.7	399.2	0.0
101490	Trav	414013.80	5440208.96	416311.89	5441622.75	58.4	2.7	401.9	0.0
101500	Trav	414000.71	5440230.26	416298.81	5441644.06	58.4	2.7	404.6	0.0
101510	Trav	413987.62	5440251.56	416285.74	5441665.37	58.4	2.7	407.3	0.0
101520	Trav	413974.53	5440272.85	416272.66	5441686.67	58.4	2.7	410.0	0.0
101530	Trav	413961.44	5440294.16	416259.58	5441707.98	58.4	2.7	412.7	0.0
101540	Trav	413948.35	5440315.46	416246.50	5441729.29	58.4	2.7	415.4	0.0
101550	Trav	413935.26	5440336.75	416233.43	5441750.60	58.4	2.7	418.1	0.0
101560	Trav	413922.17	5440358.05	416220.35	5441771.90	58.4	2.7	420.8	0.0
101570	Trav	413909.08	5440379.35	416207.27	5441793.21	58.4	2.7	423.5	0.0
101580	Trav	413895.99	5440400.65	416194.20	5441814.52	58.4	2.7	426.2	0.0
101590	Trav	413882.90	5440421.95	416181.12	5441835.83	58.4	2.7	428.8	0.0
101600	Trav	413869.81	5440443.25	416168.04	5441857.13	58.4	2.7	431.5	0.0
101610	Trav	413856.72	5440464.55	416154.96	5441878.43	58.4	2.7	434.2	0.0
101620	Trav	413843.63	5440485.85	416141.88	5441899.74	58.4	2.7	436.9	0.0
101630	Trav	413830.54	5440507.15	416128.81	5441921.05	58.4	2.7	439.6	0.0
101640	Trav	413817.45	5440528.45	416115.73	5441942.36	58.4	2.7	442.3	0.0
101650	Trav	413804.36	5440549.74	416102.65	5441963.66	58.4	2.7	445.0	0.0
101660	Trav	413791.27	5440571.04	416089.58	5441984.97	58.4	2.7	447.7	0.0
101670	Trav	413778.18	5440592.34	416076.50	5442006.28	58.4	2.7	450.4	0.0
101680	Trav	413765.09	5440613.65	416063.42	5442027.59	58.4	2.7	453.1	0.0
101690	Trav	413752.00	5440634.94	416050.34	5442048.89	58.4	2.7	455.8	0.0
101700	Trav	413738.91	5440656.24	416037.26	5442070.19	58.4	2.7	458.5	0.0
101710	Trav	413725.82	5440677.54	416024.19	5442091.51	58.4	2.7	461.2	0.0
101720	Trav	413712.73	5440698.84	416011.11	5442112.81	58.4	2.7	463.9	0.0
101730	Trav	413699.64	5440720.14	415998.03	5442134.12	58.4	2.7	466.6	0.0
101740	Trav	413683.93	5440739.83	415984.95	5442155.42	58.4	2.7	469.3	0.0
101750	Trav	412091.53	5439789.52	415971.88	5442176.73	58.4	4.6	473.9	0.0
101760	Trav	412078.43	5439810.82	415958.80	5442198.04	58.4	4.6	478.4	0.0
101770	Trav	412065.34	5439832.12	415945.72	5442219.34	58.4	4.6	483.0	0.0
101780	Trav	412052.24	5439853.41	415932.64	5442240.65	58.4	4.6	487.6	0.0
101790	Trav	412039.15	5439874.71	415919.57	5442261.96	58.4	4.6	492.1	0.0
101800	Trav	412026.05	5439896.00	415906.49	5442283.26	58.4	4.6	496.7	0.0
101810	Trav	412012.96	5439917.30	415893.41	5442304.57	58.4	4.6	501.2	0.0
101820	Trav	411999.86	5439938.60	415880.33	5442325.88	58.4	4.6	505.8	0.0
101830	Trav	411986.77	5439959.89	415867.26	5442347.19	58.4	4.6	510.3	0.0
101840	Trav	411973.67	5439981.19	415854.18	5442368.49	58.4	4.6	514.9	0.0
101850	Trav	411960.58	5440002.48	415841.10	5442389.80	58.4	4.6	519.4	0.0
101860	Trav	411947.48	5440023.78	415828.02	5442411.10	58.4	4.6	524.0	0.0
101870	Trav	411934.39	5440045.08	415814.94	5442432.41	58.4	4.6	528.6	0.0
101880	Trav	411921.30	5440066.38	415801.87	5442453.72	58.4	4.6	533.1	0.0
101890	Trav	411908.20	5440087.67	415788.79	5442475.02	58.4	4.6	537.7	0.0
101900	Trav	411895.10	5440108.96	415775.71	5442496.33	58.4	4.6	542.2	0.0
101910	Trav	411882.01	5440130.26	415762.64	5442517.64	58.4	4.6	546.8	0.0
101920	Trav	411868.92	5440151.56	415749.56	5442538.95	58.4	4.6	551.3	0.0
101930	Trav	411855.82	5440172.85	415736.48	5442560.25	58.4	4.6	555.9	0.0
101940	Trav	411842.73	5440194.15	415723.40	5442581.56	58.4	4.6	560.4	0.0
101950	Trav	411829.63	5440215.45	415710.32	5442602.86	58.4	4.6	565.0	0.0

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Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
101960	Trav	411816.54	5440236.74	415697.25	5442624.17	58.4	4.6	569.6	0.0
101970	Trav	411803.44	5440258.04	415684.17	5442645.48	58.4	4.6	574.1	0.0
101980	Trav	411790.35	5440279.34	415671.09	5442666.79	58.4	4.6	578.7	0.0
101990	Trav	411777.25	5440300.63	415658.02	5442688.09	58.4	4.6	583.2	0.0
102000	Trav	411764.16	5440321.93	415644.94	5442709.40	58.4	4.6	587.8	0.0
102010	Trav	411751.06	5440343.22	415631.86	5442730.71	58.4	4.6	592.3	0.0
102020	Trav	411737.97	5440364.52	415618.78	5442752.01	58.4	4.6	596.9	0.0
102030	Trav	411724.88	5440385.82	415605.70	5442773.32	58.4	4.6	601.5	0.0
102040	Trav	411711.78	5440407.12	415592.63	5442794.63	58.4	4.6	606.0	0.0
102050	Trav	411698.69	5440428.41	415579.55	5442815.93	58.4	4.6	610.6	0.0
102060	Trav	411685.59	5440449.71	415566.47	5442837.24	58.4	4.6	615.1	0.0
102070	Trav	411672.50	5440471.00	415553.39	5442858.55	58.4	4.6	619.7	0.0
102080	Trav	411659.40	5440492.29	415540.32	5442879.85	58.4	4.6	624.2	0.0
102090	Trav	411646.31	5440513.60	415527.24	5442901.16	58.4	4.6	628.8	0.0
102100	Trav	411633.21	5440534.89	415514.16	5442922.47	58.4	4.6	633.4	0.0
102110	Trav	411620.12	5440556.19	415501.08	5442943.77	58.4	4.6	637.9	0.0
102120	Trav	411607.02	5440577.48	415488.01	5442965.08	58.4	4.6	642.5	0.0
102130	Trav	411593.93	5440598.78	415474.93	5442986.39	58.4	4.6	647.0	0.0
102140	Trav	411580.83	5440620.07	415461.85	5443007.69	58.4	4.6	651.6	0.0
102150	Trav	411567.74	5440641.38	415448.77	5443029.00	58.4	4.6	656.1	0.0
102160	Trav	411554.64	5440662.67	415435.70	5443050.31	58.4	4.6	660.7	0.0
102170	Trav	411541.55	5440683.96	415422.62	5443071.62	58.4	4.6	665.2	0.0
102180	Trav	411528.45	5440705.26	415409.54	5443092.92	58.4	4.6	669.8	0.0
102190	Trav	411515.36	5440726.56	415396.46	5443114.23	58.4	4.6	674.4	0.0
102200	Trav	411502.26	5440747.85	415383.38	5443135.53	58.4	4.6	678.9	0.0
102210	Trav	411489.17	5440769.15	415370.31	5443156.84	58.4	4.6	683.5	0.0
102220	Trav	411476.08	5440790.45	415357.23	5443178.15	58.4	4.6	688.0	0.0
102230	Trav	411462.98	5440811.74	415344.15	5443199.45	58.4	4.6	692.6	0.0
102240	Trav	411449.89	5440833.04	415331.08	5443220.76	58.4	4.6	697.1	0.0
102250	Trav	411436.79	5440854.33	415318.00	5443242.07	58.4	4.6	701.7	0.0
102260	Trav	411423.70	5440875.63	415304.92	5443263.38	58.4	4.6	706.3	0.0
102270	Trav	411410.60	5440896.92	415291.84	5443284.68	58.4	4.6	710.8	0.0
102280	Trav	411397.51	5440918.23	415278.77	5443305.99	58.4	4.6	715.4	0.0
102290	Trav	411384.41	5440939.52	415265.69	5443327.30	58.4	4.6	719.9	0.0
102300	Trav	411371.32	5440960.82	415252.61	5443348.60	58.4	4.6	724.5	0.0
102310	Trav	411358.22	5440982.11	415239.53	5443369.91	58.4	4.6	729.0	0.0
102320	Trav	411345.13	5441003.40	415226.46	5443391.22	58.4	4.6	733.6	0.0
102330	Trav	411332.03	5441024.70	415213.38	5443412.52	58.4	4.6	738.2	0.0
102340	Trav	411318.94	5441046.00	415200.30	5443433.83	58.4	4.6	742.7	0.0
102350	Trav	411305.84	5441067.29	415187.22	5443455.14	58.4	4.6	747.3	0.0
102360	Trav	411292.75	5441088.59	415174.15	5443476.45	58.4	4.6	751.8	0.0
102370	Trav	411279.65	5441109.89	415161.07	5443497.75	58.4	4.6	756.4	0.0
102380	Trav	411266.56	5441131.18	415147.99	5443519.06	58.4	4.6	760.9	0.0
102390	Trav	411253.47	5441152.48	415134.91	5443540.36	58.4	4.6	765.5	0.0
102400	Trav	411240.37	5441173.78	415121.83	5443561.67	58.4	4.6	770.1	0.0
102410	Trav	411227.28	5441195.07	415108.76	5443582.98	58.4	4.6	774.6	0.0
102420	Trav	411214.18	5441216.37	415095.68	5443604.28	58.4	4.6	779.2	0.0
102430	Trav	411201.09	5441237.67	415082.60	5443625.59	58.4	4.6	783.7	0.0
102440	Trav	411187.99	5441258.96	415069.52	5443646.90	58.4	4.6	788.3	0.0
102450	Trav	411174.90	5441280.26	415056.45	5443668.21	58.4	4.6	792.8	0.0
102460	Trav	411161.80	5441301.55	415043.37	5443689.51	58.4	4.6	797.4	0.0
102470	Trav	411148.71	5441322.85	415030.29	5443710.82	58.4	4.6	802.0	0.0
102480	Trav	411135.61	5441344.15	415017.21	5443732.13	58.4	4.6	806.5	0.0
102490	Trav	411122.52	5441365.44	415004.14	5443753.43	58.4	4.6	811.1	0.0
102500	Trav	411109.43	5441386.74	414991.06	5443774.74	58.4	4.6	815.6	0.0
102510	Trav	411096.33	5441408.04	414977.98	5443796.05	58.4	4.6	820.2	0.0
102520	Trav	411083.23	5441429.33	414964.90	5443817.35	58.4	4.6	824.7	0.0
102530	Trav	411070.14	5441450.63	414951.83	5443838.66	58.4	4.6	829.3	0.0
102540	Trav	411057.05	5441471.93	414938.75	5443859.97	58.4	4.6	833.9	0.0
102550	Trav	411043.95	5441493.22	414925.67	5443881.27	58.4	4.6	838.4	0.0
102560	Trav	411030.86	5441514.52	414912.59	5443902.58	58.4	4.6	843.0	0.0
102570	Trav	411017.76	5441535.81	414899.52	5443923.89	58.4	4.6	847.5	0.0
102580	Trav	411004.67	5441557.11	414886.44	5443945.19	58.4	4.6	852.1	0.0
102590	Trav	410991.57	5441578.40	414873.36	5443966.50	58.4	4.6	856.6	0.0
102600	Trav	410978.48	5441599.70	414860.28	5443987.80	58.4	4.6	861.2	0.0

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Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
102610	Trav	410965.38	5441621.00	414847.21	5444009.11	58.4	4.6	865.8	0.0
102620	Trav	410952.29	5441642.30	414834.13	5444030.42	58.4	4.6	870.3	0.0
102630	Trav	410939.19	5441663.59	414821.05	5444051.73	58.4	4.6	874.9	0.0
102640	Trav	410926.10	5441684.89	414807.97	5444073.03	58.4	4.6	879.4	0.0
102650	Trav	410913.00	5441706.18	414794.90	5444094.34	58.4	4.6	884.0	0.0
102660	Trav	410899.91	5441727.48	414781.82	5444115.65	58.4	4.6	888.6	0.0
102670	Trav	410886.81	5441748.77	414768.74	5444136.96	58.4	4.6	893.1	0.0
102680	Trav	410873.72	5441770.07	414755.66	5444158.26	58.4	4.6	897.7	0.0
102690	Trav	410860.63	5441791.37	414742.59	5444179.57	58.4	4.6	902.2	0.0
102700	Trav	410847.53	5441812.67	414729.51	5444200.88	58.4	4.6	906.8	0.0
102710	Trav	410834.44	5441833.96	414716.43	5444222.18	58.4	4.6	911.3	0.0
102720	Trav	410821.34	5441855.26	414703.35	5444243.49	58.4	4.6	915.9	0.0
102730	Trav	410808.25	5441876.55	414690.28	5444264.80	58.4	4.6	920.5	0.0
102740	Trav	410795.15	5441897.84	414677.20	5444286.10	58.4	4.6	925.0	0.0
102750	Trav	410782.06	5441919.15	414664.12	5444307.41	58.4	4.6	929.6	0.0
102760	Trav	410768.96	5441940.44	414651.04	5444328.72	58.4	4.6	934.1	0.0
102770	Trav	410755.87	5441961.74	414637.96	5444350.02	58.4	4.6	938.7	0.0
102780	Trav	410742.77	5441983.03	414624.89	5444371.33	58.4	4.6	943.2	0.0
102790	Trav	410729.68	5442004.33	414611.81	5444392.64	58.4	4.6	947.8	0.0
102800	Trav	410716.58	5442025.62	414598.73	5444413.94	58.4	4.6	952.4	0.0
102810	Trav	410703.49	5442046.92	414585.65	5444435.25	58.4	4.6	956.9	0.0
102820	Trav	410690.39	5442068.22	414572.58	5444456.56	58.4	4.6	961.5	0.0
102830	Trav	410677.30	5442089.51	414559.50	5444477.86	58.4	4.6	966.0	0.0
102840	Trav	410664.20	5442110.81	414546.42	5444499.17	58.4	4.6	970.6	0.0
102850	Trav	410651.11	5442132.11	414533.35	5444520.48	58.4	4.6	975.2	0.0
102860	Trav	410638.01	5442153.40	414520.27	5444541.79	58.4	4.6	979.7	0.0
102870	Trav	410624.92	5442174.70	414507.19	5444563.09	58.4	4.6	984.3	0.0
102880	Trav	410611.83	5442195.99	414494.11	5444584.39	58.4	4.6	988.8	0.0
102890	Trav	410598.73	5442217.29	414481.03	5444605.70	58.4	4.6	993.4	0.0
102900	Trav	410585.64	5442238.59	414467.96	5444627.01	58.4	4.6	997.9	0.0
102910	Trav	410572.54	5442259.88	414454.88	5444648.32	58.4	4.6	1002.5	0.0
102920	Trav	410559.45	5442281.18	414441.80	5444669.62	58.4	4.6	1007.1	0.0
102930	Trav	410546.35	5442302.47	414428.73	5444690.93	58.4	4.6	1011.6	0.0
102940	Trav	410533.26	5442323.78	414415.65	5444712.24	58.4	4.6	1016.2	0.0
102950	Trav	410520.16	5442345.07	414402.57	5444733.55	58.4	4.6	1020.7	0.0
102960	Trav	410507.07	5442366.37	414389.49	5444754.85	58.4	4.6	1025.3	0.0
102970	Trav	410493.97	5442387.66	414376.41	5444776.15	58.4	4.6	1029.9	0.0
102980	Trav	410480.88	5442408.96	414363.34	5444797.47	58.4	4.6	1034.4	0.0
102990	Trav	410467.78	5442430.25	414350.26	5444818.77	58.4	4.6	1039.0	0.0
103000	Trav	410454.69	5442451.55	414337.18	5444840.08	58.4	4.6	1043.5	0.0
103010	Trav	410441.60	5442472.85	414324.10	5444861.38	58.4	4.6	1048.1	0.0
103020	Trav	410428.50	5442494.14	414311.03	5444882.69	58.4	4.6	1052.6	0.0
103030	Trav	410415.40	5442515.44	414297.95	5444904.00	58.4	4.6	1057.2	0.0
103040	Trav	410402.31	5442536.73	414284.87	5444925.30	58.4	4.6	1061.8	0.0
103050	Trav	410389.22	5442558.03	414271.79	5444946.61	58.4	4.6	1066.3	0.0
103060	Trav	410376.12	5442579.32	414258.72	5444967.92	58.4	4.6	1070.9	0.0
103070	Trav	410363.03	5442600.62	414245.64	5444989.22	58.4	4.6	1075.4	0.0
103080	Trav	410349.93	5442621.92	414232.56	5445010.53	58.4	4.6	1080.0	0.0
103090	Trav	410336.84	5442643.22	414219.48	5445031.84	58.4	4.6	1084.6	0.0
103100	Trav	410323.74	5442664.51	414206.41	5445053.15	58.4	4.6	1089.1	0.0
103110	Trav	410310.65	5442685.81	414193.33	5445074.45	58.4	4.6	1093.7	0.0
103120	Trav	410297.55	5442707.11	414180.25	5445095.76	58.4	4.6	1098.2	0.0
103130	Trav	410284.46	5442728.40	414167.17	5445117.06	58.4	4.6	1102.8	0.0
103140	Trav	410271.36	5442749.70	414154.09	5445138.37	58.4	4.6	1107.3	0.0
103150	Trav	410258.27	5442770.99	414141.02	5445159.68	58.4	4.6	1111.9	0.0
103160	Trav	410245.18	5442792.29	414127.94	5445180.98	58.4	4.6	1116.5	0.0
103170	Trav	410232.08	5442813.59	414114.86	5445202.29	58.4	4.6	1121.0	0.0
103180	Trav	410218.98	5442834.88	414101.79	5445223.60	58.4	4.6	1125.6	0.0
103190	Trav	410205.89	5442856.18	414088.71	5445244.91	58.4	4.6	1130.1	0.0
103200	Trav	410192.80	5442877.48	414075.63	5445266.21	58.4	4.6	1134.7	0.0
103210	Trav	410179.70	5442898.77	414062.55	5445287.51	58.4	4.6	1139.3	0.0
103220	Trav	410166.61	5442920.07	414049.47	5445308.82	58.4	4.6	1143.8	0.0
103230	Trav	410153.51	5442941.36	414036.40	5445330.14	58.4	4.6	1148.4	0.0
103240	Trav	410140.42	5442962.66	414023.32	5445351.44	58.4	4.6	1152.9	0.0
103250	Trav	410127.32	5442983.95	414010.24	5445372.74	58.4	4.6	1157.5	0.0

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Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
103260	Trav	411700.07	5443980.87	413997.16	5445394.05	58.4	2.7	1160.2	0.0
103270	Trav	411683.79	5444000.21	413984.09	5445415.36	58.4	2.7	1162.9	0.0
103280	Trav	411670.77	5444021.55	413971.01	5445436.67	58.4	2.7	1165.6	0.0
103290	Trav	411657.76	5444042.90	413957.93	5445457.97	58.4	2.7	1168.3	0.0
103300	Trav	411644.74	5444064.24	413944.86	5445479.28	58.4	2.7	1171.0	0.0
103310	Trav	411631.72	5444085.58	413931.78	5445500.59	58.4	2.7	1173.7	0.0
103320	Trav	411618.70	5444106.92	413918.70	5445521.89	58.4	2.7	1176.4	0.0
103330	Trav	411605.68	5444128.27	413905.62	5445543.20	58.4	2.7	1179.1	0.0
103340	Trav	411592.67	5444149.61	413892.54	5445564.50	58.4	2.7	1181.8	0.0
103350	Trav	411579.65	5444170.95	413879.47	5445585.81	58.4	2.7	1184.5	0.0
103360	Trav	411566.63	5444192.30	413866.39	5445607.12	58.4	2.7	1187.2	0.0
103370	Trav	411553.61	5444213.64	413853.31	5445628.43	58.4	2.7	1189.9	0.0
103380	Trav	411540.60	5444234.99	413840.23	5445649.73	58.4	2.7	1192.6	0.0
103390	Trav	411527.58	5444256.33	413827.16	5445671.04	58.4	2.7	1195.3	0.0
103400	Trav	411514.56	5444277.68	413814.08	5445692.35	58.4	2.7	1198.0	0.0
103410	Trav	411501.54	5444299.02	413801.00	5445713.65	58.4	2.7	1200.7	0.0
103420	Trav	411488.52	5444320.36	413787.92	5445734.96	58.4	2.7	1203.4	0.0
103430	Trav	411475.51	5444341.70	413774.85	5445756.27	58.4	2.7	1206.1	0.0
103440	Trav	411462.49	5444363.04	413761.77	5445777.57	58.4	2.7	1208.8	0.0
103450	Trav	411449.47	5444384.39	413748.69	5445798.88	58.4	2.7	1211.5	0.0
103460	Trav	411436.45	5444405.73	413735.61	5445820.18	58.4	2.7	1214.2	0.0
103470	Trav	411423.44	5444427.08	413722.53	5445841.49	58.4	2.7	1216.9	0.0
103480	Trav	411410.42	5444448.42	413709.46	5445862.80	58.4	2.7	1219.6	0.0
103490	Trav	411397.40	5444469.76	413696.38	5445884.10	58.4	2.7	1222.3	0.0
103500	Trav	411384.38	5444491.11	413683.30	5445905.41	58.4	2.7	1225.0	0.0
103510	Trav	411371.36	5444512.45	413670.22	5445926.72	58.4	2.7	1227.7	0.0
103520	Trav	411358.35	5444533.80	413657.15	5445948.03	58.4	2.7	1230.4	0.0
103530	Trav	411345.33	5444555.14	413644.07	5445969.33	58.4	2.7	1233.1	0.0
103540	Trav	411332.31	5444576.48	413630.99	5445990.64	58.4	2.7	1235.8	0.0
103550	Trav	411319.29	5444597.82	413617.92	5446011.95	58.4	2.7	1238.5	0.0
103560	Trav	411306.28	5444619.17	413604.84	5446033.26	58.4	2.7	1241.2	0.0
103570	Trav	411293.26	5444640.51	413591.76	5446054.56	58.4	2.7	1243.9	0.0
103580	Trav	411280.24	5444661.85	413578.68	5446075.86	58.4	2.7	1246.6	0.0
103590	Trav	411267.22	5444683.20	413565.60	5446097.17	58.4	2.7	1249.3	0.0
103600	Trav	411254.21	5444704.55	413552.53	5446118.48	58.4	2.7	1252.0	0.0
103610	Trav	411241.19	5444725.89	413539.45	5446139.79	58.4	2.7	1254.7	0.0
103620	Trav	411228.17	5444747.23	413526.37	5446161.09	58.4	2.7	1257.4	0.0
103630	Trav	411215.15	5444768.57	413513.30	5446182.40	58.4	2.7	1260.1	0.0
103640	Trav	411202.13	5444789.92	413500.22	5446203.71	58.4	2.7	1262.8	0.0
103650	Trav	411189.12	5444811.26	413487.14	5446225.01	58.4	2.7	1265.5	0.0
103660	Trav	411176.10	5444832.61	413474.06	5446246.32	58.4	2.7	1268.2	0.0
103670	Trav	411163.08	5444853.95	413460.98	5446267.63	58.4	2.7	1270.9	0.0
103680	Trav	411150.06	5444875.29	413447.91	5446288.93	58.4	2.7	1273.6	0.0
103690	Trav	411137.04	5444896.63	413434.83	5446310.24	58.4	2.7	1276.3	0.0
103700	Trav	411124.03	5444917.98	413421.75	5446331.55	58.4	2.7	1279.0	0.0
103710	Trav	411111.01	5444939.32	413408.67	5446352.85	58.4	2.7	1281.7	0.0
103720	Trav	411097.99	5444960.66	413395.60	5446374.16	58.4	2.7	1284.3	0.0
103730	Trav	411084.97	5444982.01	413382.52	5446395.47	58.4	2.7	1287.0	0.0
103740	Trav	411071.96	5445003.36	413369.44	5446416.77	58.4	2.7	1289.7	0.0
103750	Trav	411058.94	5445024.70	413356.36	5446438.08	58.4	2.7	1292.4	0.0
103760	Trav	411045.92	5445046.04	413343.29	5446459.39	58.4	2.7	1295.1	0.0
103770	Trav	411032.90	5445067.38	413330.21	5446480.69	58.4	2.7	1297.8	0.0
103780	Trav	411019.88	5445088.73	413317.13	5446502.00	58.4	2.7	1300.5	0.0
103790	Trav	411006.87	5445110.07	413304.05	5446523.31	58.4	2.7	1303.2	0.0
103800	Trav	410993.85	5445131.42	413290.98	5446544.62	58.4	2.7	1305.9	0.0
103810	Trav	410980.83	5445152.76	413277.90	5446565.92	58.4	2.7	1308.6	0.0
103820	Trav	410967.82	5445174.10	413264.82	5446587.23	58.4	2.7	1311.3	0.0
103830	Trav	410954.80	5445195.45	413251.74	5446608.54	58.4	2.7	1314.0	0.0
103840	Trav	410941.78	5445216.79	413238.66	5446629.84	58.4	2.7	1316.7	0.0
103850	Trav	410928.76	5445238.13	413225.59	5446651.15	58.4	2.7	1319.4	0.0
103860	Trav	410915.74	5445259.47	413212.51	5446672.46	58.4	2.7	1322.1	0.0
103870	Trav	410902.72	5445280.82	413199.43	5446693.76	58.4	2.7	1324.8	0.0
103880	Trav	410889.71	5445302.16	413186.36	5446715.07	58.4	2.7	1327.5	0.0
103890	Trav	410876.69	5445323.51	413173.28	5446736.38	58.4	2.7	1330.2	0.0
103900	Trav	410863.67	5445344.85	413160.20	5446757.68	58.4	2.7	1332.9	0.0

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Line	Type	Easting	Northing	Easting	Northing	Direc	Length	Tv Cumul	Ti Cumul
103910	Trav	410850.65	5445366.19	413147.12	5446778.99	58.4	2.7	1335.6	0.0
103920	Trav	410837.63	5445387.54	413134.04	5446800.30	58.4	2.7	1338.3	0.0
103930	Trav	410824.62	5445408.88	413120.97	5446821.61	58.4	2.7	1341.0	0.0
103940	Trav	410811.60	5445430.22	413107.89	5446842.91	58.4	2.7	1343.7	0.0
103950	Trav	410798.58	5445451.56	413094.81	5446864.22	58.4	2.7	1346.4	0.0
103960	Trav	410785.57	5445472.91	413081.74	5446885.52	58.4	2.7	1349.1	0.0
103970	Trav	410772.55	5445494.26	413068.66	5446906.83	58.4	2.7	1351.8	0.0
103980	Trav	410759.53	5445515.60	413055.58	5446928.14	58.4	2.7	1354.5	0.0
103990	Trav	410746.51	5445536.94	413042.50	5446949.44	58.4	2.7	1357.2	0.0
104000	Trav	410733.49	5445558.28	413029.43	5446970.75	58.4	2.7	1359.9	0.0
190010	Tie	412963.05	5446977.97	418232.63	5438412.41	148.4	10.1	1359.9	10.1
190020	Tie	412741.52	5446841.83	418010.99	5438276.47	148.4	10.1	1359.9	20.1
190030	Tie	412520.03	5446705.71	417789.35	5438140.53	148.4	10.1	1359.9	30.2
190040	Tie	412298.49	5446569.56	417567.72	5438004.60	148.4	10.1	1359.9	40.2
190050	Tie	412077.01	5446433.45	417346.08	5437868.66	148.4	10.1	1359.9	50.3
190060	Tie	411855.47	5446297.30	417124.46	5437732.74	148.4	10.1	1359.9	60.3
190070	Tie	411633.97	5446161.18	416902.81	5437596.80	148.4	10.1	1359.9	70.4
190080	Tie	411412.46	5446025.05	416681.17	5437460.86	148.4	10.1	1359.9	80.4
190090	Tie	411190.94	5445888.91	416459.54	5437324.93	148.4	10.1	1359.9	90.5
190100	Tie	410969.44	5445752.79	416237.91	5437189.00	148.4	10.1	1359.9	100.6
190110	Tie	410747.91	5445616.64	416016.27	5437053.06	148.4	10.1	1359.9	110.6
190120	Tie	411499.79	5443898.29	413523.25	5440609.21	148.4	3.9	1359.9	114.5
190130	Tie	411278.34	5443762.07	413302.14	5440472.42	148.4	3.9	1359.9	118.3
190140	Tie	411056.89	5443625.85	413081.04	5440335.63	148.4	3.9	1359.9	122.2
190150	Tie	410835.43	5443489.62	412859.92	5440198.83	148.4	3.9	1359.9	126.1
190160	Tie	410613.97	5443353.39	412638.82	5440062.04	148.4	3.9	1359.9	129.9
190170	Tie	410387.90	5443206.99	412413.09	5439915.06	148.4	3.9	1359.9	133.8
190180	Tie	410165.43	5443067.95	412190.98	5439775.47	148.4	3.9	1359.9	137.7

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