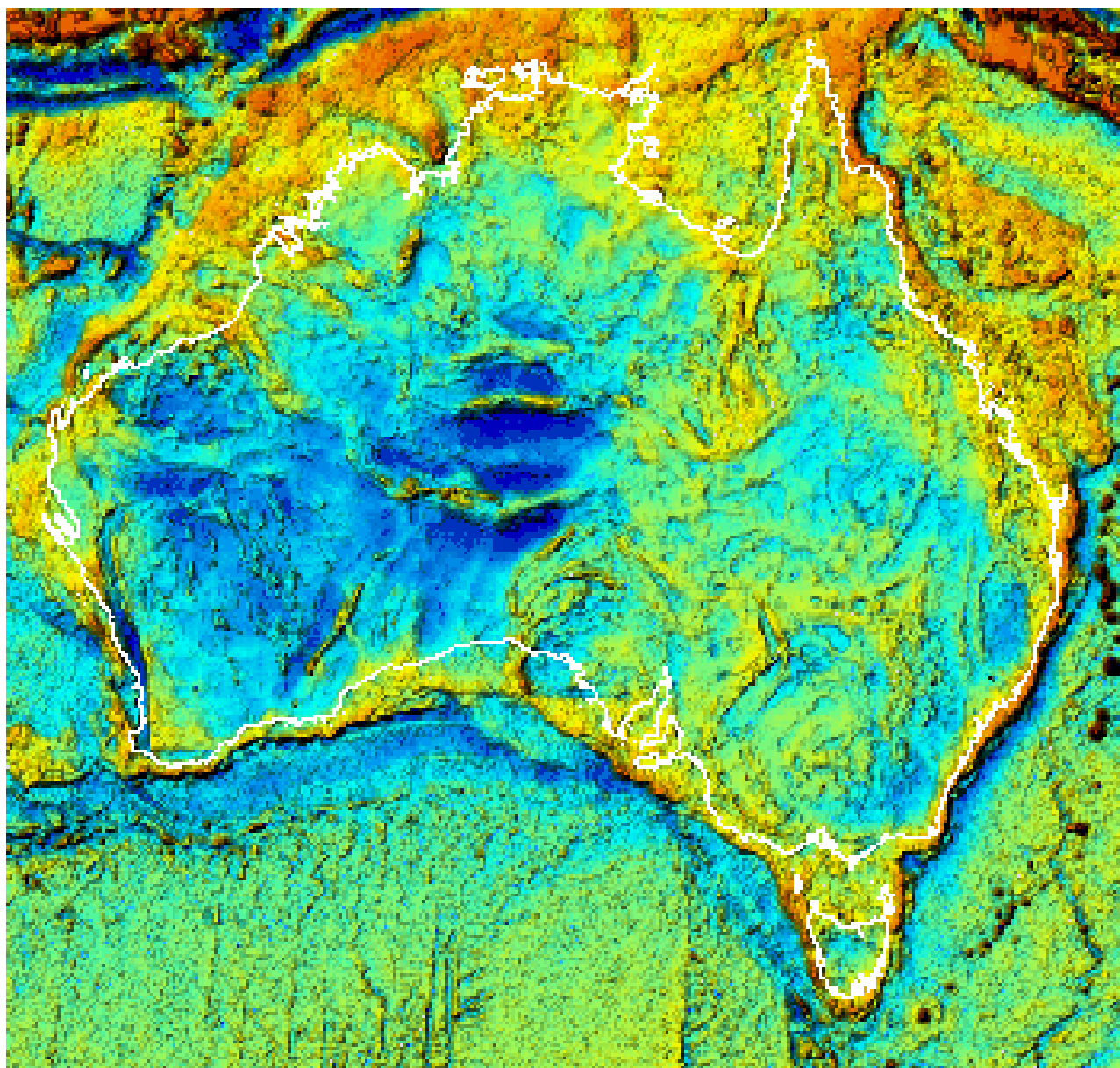


AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

1992, 1993, 1994

SYDNEY ISOGAL STATION RECONSTRUCTION NSW AUSTRALIA

OPERATIONS REPORT



AUSTRALIAN GEOLOGICAL SURVEY ORGANISATION

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**SYDNEY ISOGAL STATION RECONSTRUCTION
NSW AUSTRALIA**

OPERATIONS REPORT

by
John W Williams

AUSTRALIAN GEOLOGICAL SURVEY ORGANISATION

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November 1997

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SUMMARY

This report describes gravity surveys conducted over a period of 3 years (1992-1994), to re-establish new gravity control stations in the Sydney area of New South Wales.

Survey 9292 re-established the Lane Cove calibration line, as well as five new stations located in the Sydney area and at Sydney (Kingsford Smith) Airport to replace gravity control stations that had been lost. Four LaCoste and Romberg (LCR) gravity meters, (G20, G101, G132, and G252) were used to measure the gravity intervals during the survey that was conducted over four days in March 1992. Control stations used for this survey were station **7999.0105** (Absolute gravity station), **8090.0105** Old Air Ambulance Hangar Sydney Airport, and **8291.0205** at Lane Cove park.

Survey 9390 coincided with the visit to Australia in 1993 of the Japanese NOAM absolute gravity meter. A new station was established using two (LCR) gravity meters (G20 and G101) at No.10 Darling harbour (**9390.0105**). Two stations were also read within the National Measurement Laboratory (NML) Sydney establishing new ex-centres where gradient measurements were also taken (**9390.9105**, **9390.9205**).

Survey 9491 was conducted to test and evaluate modifications to two electronic meters (G460 and G518) while testing all AGSO LCR gravity meters between Sydney, Hobart and Canberra in 1994. Two new stations were established at the Bankstown airport (**9491.0205**, **9491.9005**).

The following table summarises the new station values. Station locations have not been surveyed and are only approximate. The new control stations have been marked with inscribed blue identifier plugs set into concrete at the observation sites.

NEW STATIONS ESTABLISHED DURING THESE SURVEYS

Station ID	Latitude	Longitude	Location	Gravity (μms^{-2})	Ties
7999.010502	33° 52'	151° 12'	Absolute Gradient Top.	9796373.18	5
9292.9105	33° 52'	151° 12'	NML Absolute ex-centre.	9796373.28	5
9292.0105	33° 56'	151° 11'	Syd A/p Telecom Offices	9796863.80	6
9292.0205	33° 56'	151° 11'	Syd A/p Ansett Terminal	9796851.16	4
9292.0305	33° 56'	151° 11'	Syd A/p Int-Term Fac Bldg	9796825.02	6
9292.0405	33° 43'	151° 7'	Wahroonga Archdale Park	9795926.66	3
9390.9105	33° 52'	151° 12'	NML room H201.	9796374.42	5
9390.9205	33° 52'	151° 12'	NML room B1.	9796387.36	5
9390.9305	33° 52'	151° 12'	NML room C269.	9796378.47	5
9390.930502	33° 52'	151° 12'	Room C269 Gradient Top.	9796375.53	5
9491.0205	33° 55.2'	150° 59.5'	Bankstown Airport Term#1.	9796555.44	3
9491.9005	33° 55.2'	150° 59.5'	Bankstown Airport Term#2.	9796554.58	3

INTRODUCTION

The Australian Geological Survey Organisation (AGSO) has the responsibility of maintaining the Australian Fundamental Gravity Network (AFGN), previously known as the Isogal Network. This network provides a consistent gravity datum to control all gravity surveys carried out in and around Australia.

AGSO is currently putting additional effort into a project to refurbish the AFGN since the last systematic survey of the network in 1980. A large number of base stations have been destroyed by redevelopment of roads and buildings etc. During each annual survey program while progressively restoring and augmenting the AFGN, new control stations are installed in areas needed by Government departments and the mineral exploration industry where there is only a sparse distribution of control stations.

The aim of Survey 9292 was to re-establish the Sydney Calibration range between Lane Cove Park and the top stations at Wahroonga, and to re-establish stations lost at the Sydney Domestic and International Airport.

Between the 3rd and 6th of March 1992, the Gravimetry Section of AGSO performed a gravity survey in the Sydney area re-establishing the Sydney Calibration range and new stations at the Sydney Airport. The airport stations were tied to the old Air Ambulance station **8090.0105** and the Flight Facilities station **6891.0305** at the Sydney Airport and later to the absolute station at the National Measurement Laboratory (NML).

The new calibration stations were tied to the existing bottom station at Lane Cove Park **8291.0205**.

All stations will be tied to the Sydney Absolute station in 1993 during Survey 9390.

Two operators read four LaCoste and Romberg gravity meters over a period of four days.

In 1993 the National Astronomical Observatory Mizusawa (NAOM) accepted an invitation to make absolute gravity measurements at the NML Sydney, during a stopover in March 1993, of the Japanese Navy's icebreaker "Shirase" returning from the Antarctic base Syowa. These measurements were conducted over a period of 6 days at NML. This afforded the opportunity to tie a new station to berth number 10 at Darling harbour alongside the "Shirase" and to two rooms within NML where gradient measurements were made. Ties from the 1982/92 survey observations at Lane Cove Park **8291.0205**, Sydney Airport **6891.0305**, and **9292.0305**, were made to the new 1992 ex-centre at NML.

In 1994 gravity ties were arranged to re-commission and test two recently upgraded electronic LaCoste and Romberg (LCR) gravity meters, and test all AGSO's LCR meters along a calibration line between Sydney, Canberra and Hobart (survey 9491). The survey highlighted severe electronic problems with the two modified meters and with two smaller meters due to temperature effects. However a new station established at the Bankstown airport was tied successfully to the absolute site **7499.0205** at the National Measurement Laboratory (NML) and to a station at the Canberra airport using 5 of the meters, read optically.

SURVEY METHOD AND OPERATIONS

The Survey 9292 field party consisted of two Technical Officers, John Williams and Harry Reith, with a Toyota 4WD station wagon, and four LCR gravity meters, G20, G101, G132 and G252.

On the 3rd of March 1992 three new stations were installed at the Sydney Domestic and International airport at Mascot. The stations were located at the Telecom Aviation Services building, the Ansett terminal and at the Facilities building at the International Terminal. They were tied (4:3) to the existing control stations, **8090.0105** (old Air Ambulance hangar) and **6891.0305** (Flight Facilities).

On the 4th of March a (5:4) tie was made between the absolute station in the National Measurement Laboratory, Lindfield, to a new ex-centre station at the NML front gate.

To finish the day's work a single tie was made between an existing control station at the Lane Cove Park (**8291.0205**) (Calibration range (CR) bottom station), to the CR top station at the Wahroonga water tower (**6091.0305**). Because of a potential problem with the gravity station next to a changing water level, and as the other station at Wahroonga was on a metal manhole cover, a new station was installed (**9292.0405**) in the Wahroonga Archdale Park several hundred metres away from the water tower.

On 5th March, two stations at Sydney airport (**9292.0105** and **9292.0305**) were tied (3:2) to the Absolute station at NML (**7999.0105**).

Before returning to Canberra on 6th March a 4:3 tie was made to strengthen the CR tie from Lane Cove (**8291.0205**) to the Wahroonga water tower (**6091.0305**).

Survey 9390 was a joint program between AUSLIG and AGSO after an invitation to the Japanese National Astronomical Observatory was accepted by them to take absolute gravity measurements at the National Measurement Laboratory at Lindfield in Sydney.

During this survey J W Williams and B Murphy used four AGSO LaCoste and Romberg gravity meters G20, G132, G252 and G101 for ancillary gravity ties.

The Japanese Navy icebreaker "Shirase" arrived at berth No.10 Darling Harbour on 21st March 1993. The crew started unloading almost immediately with the help of Brian Murphy of AUSLIG and John Williams from AGSO.

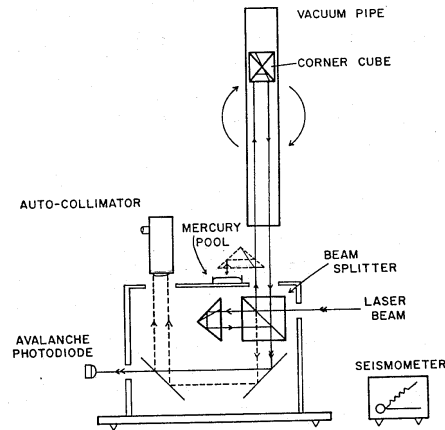
Due to unforeseen circumstances only one of the NAOM representatives, H. Hanada (who assisted in the design and building of the apparatus) was available to set up and operate the absolute meter. H. Hanada worked tirelessly to obtain satisfactory results however he was disappointed with them due to microscopic amounts of contamination within the apparatus that had not been apparent during its successful operation in the Antarctic. As time was limited for the ship to be in port, the equipment had to be eventually reloaded on Sunday 28 March 1993 for its return to Japan.

As problems with the meter became apparent, the opportunity was taken to survey in a new station (**9390.0105**) alongside the ship berthed at No.10 Darling Harbour with a 3:2 tie. This station was also tied to the Sydney airport at Flight Facilities (**6891.0305**), the International Terminal area (**9292.0305**) and the Sydney calibration range bottom station at Lane Cove (**8291.0205**).

New stations were established with ties (5:4) within the NML in room H201 Force Machine upper station, (**9390.9105**), Force Machine lower station, room B1 (**9390.9205**), and the Barometry room C269 (**9390.9305**). These stations were also part of gradient measurements, the top or upper station for room C269 being read using a tripod 0.969m above the new station (**9390.9305**). Gradient observations were also read above the absolute site (**7999.0105**). The primary station for the ties within NML was at the NML front gate (absolute ex-centre **9292.9105**) while the absolute meter occupied the absolute site.



H. Hanada and the NOAM Absolute gravity meter
National Measurement Laboratory Sydney 1993.



NOAM Absolute Gravity meter schematic.

While the results of the Absolute measurements were disappointing they are presented here for reference and as acknowledgment to the tireless work performed by H. Hanada.

Arithmetic mean	= 979637.2533 mGal
Standard Deviation	= .0886 mGal
Standard Error	= .0267 mGal
Height Correction	= .2614 mGal
Light Velocity Correction	= .0080 mGal
Final Value	= 979637.5227 mGal

Survey 9491 was designed to recommission and test LCR meters G460 and G518 after extensive modifications had been made to their electronic circuitry in the USA to enable more precise gravity measurements.

This survey was conducted over the southern end of the Australian calibration line between Sydney, Canberra and Hobart.

AGSO has six meters, four are only read optically (G20, G101, G132 and G252), and two, either optically and or electronically (G460 and G518). All six meters were read optically as well as the appropriate electronic values being recorded.

The survey highlighted severe electronic problems with each of the recently modified electronic meters. As well, although meter G518 had been to the U.S. for repair on a number of occasions, it was evident that the meter was still faulty; with the beam dragging in places across its scale for the range of the calibration line (approx. $7802\mu\text{ms}^{-2}$). The two small meters G132 and G252 did not transport well in the aircraft nose due to large temperature variations between Canberra and Hobart.

The Sydney end of the line was to be at Bankstown airport, however the station at Bankstown was found to be destroyed so two new stations were established at the Bankstown terminal (**9491.0205, 9491.9005**). These were tied successfully (3:2) to both NML at Lindfield (**9292.9105**) and Canberra airport (**6893.0204**).

Further investigation and modification will be required if G460 and G518 are to be effective electronically. The physically smaller meters (G132 and G252), will need to be re-packaged into more effective thermal cases for carriage in aircraft that do not have reasonable temperature stability.

For all three surveys data was recorded on field sheets which were then entered into the gravity processing system at Canberra.

SURVEY DATA PROCESSING

J. W. Williams did the survey data processing for the three surveys in Canberra on a Sun processor (via an IBM PC).

The field data from the meters was re-formatted to input file formats suitable for calculation of earth tidal gravity correction, drift and gravity interval, using AGSO programs ERTIDE and GRVHTS.

The individual survey readings were arranged to form loops that were then corrected for earth tide. The results are shown for survey 9292 in **Appendix 3B**, survey 9390 in **Appendix 4B**, and for Survey 9491 in **Appendix 5B**.

For Survey 9292 the corrected readings were then input to the network adjusting program which used as free nodes the stations (**6891.0305**, **9192.0105**). The primary control stations were at the absolute station at NML (**7999.0105**), old Air Ambulance Hangar (**8090.0105**) and at the Lane Cove Park Calibration Line bottom station (CSB-1, **8291.0205**). Due to a tare in the readings in meter G20 on March 4, it was necessary to delete the first five readings of that meter for that day for final gravity processing. No other changes to the data were necessary.

For Survey 9390 the free node stations used in the network-adjusting program were **9292.9105** (Absolute ex-centre NML front gate), **9390.9105** (Force machine top station room H201) and **9390.9305** (Barometry room C269). The primary stations were **6891.0305** (Flight Facilities Sydney Airport) and **7999.0105** (Absolute site NML). While conducting the gradient measurements within the NML two apparent changes in gravity drift are highlighted in the processing but have been left as they are just within the reading / drift error range. No data has been deleted from the processing for the Darling Harbour station **9390.0105**.

For Survey 9491 the free node stations used in the network-adjusting program were the two new Bankstown terminal stations (**9491.0205**, **9491.9005**). The primary control was fixed between the absolute site at NML (**7999.0105**) and Canberra airport (**6893.0204**). No other data has been used due to the failure of the electronic meter capability and temperature instability of the two small optical meters during the flight from Hobart to Canberra.

The closed loops defined the drift of each meter. The drift and tide corrected measured gravity intervals between the nodes for each loop and for each meter, were least square adjusted to provide best-fit values for all measured intervals. Final gravity values were then calculated for each station using the control station value and the adjusted intervals.

RESULTS

Survey 9292

Apart from a tare on the second day with meter G20 all meters performed well. Adjustments for and between meters were better than $0.39\mu\text{ms}^{-2}$. The standard deviation of adjustments was $0.14\mu\text{ms}^{-2}$. No readings other than those mentioned have been discarded for the final results as shown in **Appendix 3C**.

Survey 9390

A minor transcription error was corrected in flight 1-2. The first two readings of flight 1-3 were deleted due to excessive drift. All other data has been retained even though an apparent drift is noted on flights 2-5 and 4-3, which are within reading error limits. The standard deviation of adjustments was $0.09\mu\text{ms}^{-2}$, and with a maximum adjustment of $0.27\mu\text{ms}^{-2}$ as shown in **Appendix 4C**.

Survey 9491

Only data from those ties that define the two new stations at Bankstown Airport have been used in the survey processing. That is, a 3:2 tie between Bankstown and the absolute ex-centre at NML and to Canberra airport using 5 meters, G20, G101, G132, G252 and G460 (read optically). The standard deviation for the adjustments was $0.24\mu\text{ms}^{-2}$ with a maximum adjustment of $0.49\mu\text{ms}^{-2}$ as shown in **Appendix 5C**.

APPENDIX 1 Field Party and Equipment

Survey 9292

Personnel;	John Williams (Senior Officer (Technical) Grade C) Harry Reith (Technical Officer Gr2).
Gravity Meters	LaCoste and Romberg meters G20, G101, G132 and G252.
Vehicle	Toyota Landcruiser station wagon, registration number ZJE250
Other Equipment	Compac portable PC, base plates, camera, cement, station markers, and battery powered masonry drill.

Survey 9390

Personnel;	AUSLIG : Brian Murphy AGSO : John Williams (Senior Officer (Technical) Grade C)
Gravity Meters	LaCoste and Romberg meters G20, G101, G132 and G252.
Vehicle	Toyota Landcruiser station wagon, registration number ZJE250
Other Equipment	Base plates, camera, cement, station markers, and battery powered masonry drill.

Survey 9491

Personnel;	John Williams (Senior Officer (Technical) Grade C) Harry Reith (Technical Officer Gr2).
Gravity Meters	LaCoste and Romberg meters G20, G101, G132, G252, G460 and G518.
Vehicle	Aircraft from Canberra airport and taxis.
Other Equipment	Base plates, camera, cement, station markers, and battery powered masonry drill.

APPENDIX 2

Gravity Base Station Location Diagrams.

The following diagrams describe the locations of all current Fundamental Gravity Network stations in the Sydney area covered by these surveys. The descriptions and gravity values shown are accurate at the time of installation (1992 - 1994) but these may change to some degree as the environment around each station is modified in the future and by subsequent reprocessing incorporating additional measurements.

Control Information.

The reference values used to control the gravity datum are for:

Survey 9292

7999.0105	9796376.29 μms^{-2}	Absolute gravity station National Measurement Laboratory Sydney
8090.0105	9796858.76 μms^{-2}	Old Air Ambulance Hangar, Sydney Airport
8291.0205	9796376.3 μms^{-2}	Located on a rock in the Lane Cove Park (Bottom station of the Sydney calibration line)

Survey 9390

7999.0105	9796376.29 μms^{-2}	Absolute gravity station National Measurement Laboratory Sydney
6891.0305	9796856.8 μms^{-2}	Flight Facilities, Sydney Airport

Survey 9491

7999.0105	9796376.29 μms^{-2}	Absolute gravity station National Measurement Laboratory Sydney
6893.0204	9796066.45 μms^{-2}	Canberra Airport

APPENDIX 3

A. FIELD OBSERVATIONS SURVEY 9292

SYDNEY ISOGAL

GRAVITY

Station	Time	Reading
TRAVERSE1	1030392	20L
68910305	0832	3125463
80900105	0843	3125610
92920105	0902	3126155
92920205	0923	3124825
92920305	0949	3122340
68910305	1002	3125373
80900105	1014	3125545
92920105	1029	3126005
92920205	1040	3124815
92920305	1058	3122310
68910305	1117	3125365
80900105	1127	3125535
92920105	1145	3126005
92920205	1157	3124802
92920305	1213	3122315
68910305	1232	3125372
80900105	1241	3125560
92920105	1253	3126045
92920205	1305	3124850
92920305	1320	3122355
68910305	1340	3125426

ENDFLGHT

TRAVERSE2	1030392	101L
68910305	0836	3167722
80900105	0847	3167875
92920105	0905	3168340
92920205	0926	3167125
92920305	0952	3164627
68910305	1009	3167642
80900105	1017	3167808
92920105	1032	3168292
92920205	1043	3167072
92920305	1101	3164585
68910305	1121	3167627
80900105	1131	3167788
92920105	1148	3168278
92920205	1200	3167078
92920305	1217	3164575
68910305	1236	3167642
80900105	1243	3167798
92920105	1257	3168294
92920205	1308	3167090
92920305	1325	3164613
68910305	1343	3167662

ENDFLGHT

Station	Time	Reading
TRAVERSE3	1030392	132L
68910305	0824	3205869
80900105	0842	3206012
92920105	0858	3206472
92920205	0921	3205266
92920305	0944	3202792
68910305	1005	3205778
80900105	1013	3205967
92920105	1027	3206417
92920205	1039	3205226
92920305	1055	3202752
68910305	1114	3205758
80900105	1125	3205921
92920105	1143	3206407
92920205	1155	3205205
92920305	1210	3202755
68910305	1229	3205755
80900105	1239	3205943
92920105	1251	3206400
92920205	1303	3205232
92920305	1317	3202780
68910305	1337	3205792

ENDFLGHT

TRAVERSE4	1030392	252L
68910305	0828	3271515
80900105	0846	3271673
92920105	0903	3272132
92920205	0925	3270911
92920305	0949	3268398
68910305	1008	3271418
Station	Time	Reading
80900105	1017	3271594
92920105	1031	3272075
92920205	1044	3270871
92920305	1059	3268379
68910305	1118	3271398
80900105	1129	3271590
92920105	1147	3272063
92920205	1159	3270872
92920305	1213	3268388
68910305	1233	3271422
80900105	1242	3271588
92920105	1254	3272089
92920205	1306	3270897
92920305	1320	3268398
68910305	1340	3271458

ENDFLGHT

Station	Time	Reading
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TRAVERSE1	2040392	20L
79990105	0916	3079702
92929105	0936	3079402
79990105	0948	3079679
92929105	1006	3079395
79990105	1015	3079658
79990105	1017	3079648
92929105	1042	3079338
79990105	1052	3079629
92929105	1102	3079341
79990105	1111	3079639
92929105	1125	3079348
79990105	1135	3079629

ENDFLGHT

TRAVERSE2	2040392	101L
79990105	0920	3121845
92929105	0941	3121555
79990105	0953	3121850
92929105	1008	3121540
79990105	1019	3121812
92929105	1045	3121492
79990105	1055	3121793
92929105	1105	3121503
79990105	1115	3121798
92929105	1128	3121505
79990105	1138	3121790

ENDFLGHT

TRAVERSE3	2040392	132L
79990105	0911	3160327
92929105	0933	3160035
79990105	0947	3160308
92929105	0959	3160027
79990105	1014	3160295
92929105	1029	3160005
79990105	1040	3160278
92929105	1048	3159983
79990105	1058	3160268
92929105	1116	3159963
79990105	1127	3160262

ENDFLGHT

TRAVERSE4	2040392	252L
79990105	0915	3225782
92929105	0936	3225511
79990105	0951	3225774
92929105	1002	3225494
79990105	1017	3225762
92929105	1034	3225461
79990105	1042	3225755
92929105	1052	3225457
79990105	1100	3225730
92929105	1121	3225432
79990105	1130	3225726

ENDFLGHT

Station	Time	Reading
TRAVERSE1	3040392	20L
82910205	1323	3093555
60910305	1456	3035467
92920405	1507	3037012
82910205	1600	3093680
TRAVERSE2	3040392	101L
82910205	1328	3135756
60910305	1500	3077525
92920405	1510	3079080
82910205	1603	3135870
TRAVERSE3	3040392	132L
82910205	1322	3174049
60910305	1453	3116393
92920405	1506	3117922
82910205	1601	3174174
Station	Time	Reading

ENDFLGHT

ENDFLGHT

ENDFLGHT

TRAVERSE4	3040392	252L
82910205	1326	3239659
60910305	1457	3181590
92920405	1508	3183124
82910205	1605	3239777

ENDFLGHT

TRAVERSE1	4050392	20L
92920105	0813	3126145
92920305	0828	3122440
79990105	0948	3079697
92920105	1042	3126055
92920305	1057	3122350
79990105	1157	3079606
92920105	1439	3126065

ENDFLGHT

TRAVERSE2	4050392	101L
92920105	0816	3168361
92920305	0831	3164668
79990105	0951	3121850
92920105	1045	3168261
92920305	1101	3164575
79990105	1202	3121768
92920105	1444	3168320

ENDFLGHT

TRAVERSE3	4050392	132L
92920105	0812	3206272
92920305	0827	3202607
79990105	0945	3160190
92920105	1042	3206145
92920305	1056	3202489
79990105	1156	3160107
92920105	1438	3206148

ENDFLGHT

Station	Time	Reading
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TRAVERSE4	4050392	252L
92920105	0815	3272203
92920305	0830	3268498
79990105	0947	3225789
92920105	1046	3272097
92920305	1100	3268380
79990105	1201	3225722
92920105	1442	3272118

ENDFLIGHT

TRAVERSE1	5060392	20L
82910205	0826	3093670
92920405	0908	3036995
82910205	0936	3093662
92920405	1008	3036959
82910205	1034	3093625
92920405	1102	3036923
82910205	1127	3093602

ENDFLIGHT

TRAVERSE2	5060392	101L
82910205	0829	3135845
92920405	0912	3079065
82910205	0940	3135825
92920405	1012	3079038
82910205	1038	3135782
92920405	1105	3079015
82910205	1132	3135755

ENDFLIGHT

TRAVERSE3	5060392	132L
82910205	0830	3173920
92920405	0908	3117691
82910205	0935	3173887
92920405	1006	3117647
82910205	1033	3173846
92920405	1101	3117617
82910205	1125	3173802

ENDFLIGHT

TRAVERSE4	5060392	252L
82910205	0835	3239740
92920405	0912	3183124
82910205	0940	3239709
92920405	1010	3183089
82910205	1037	3239674
92920405	1104	3183061
82910205	1130	3239655

 ENDFLIGHT
 ENDGRAVS

APPENDIX 3

B. TIDAL GRAVITY CORRECTIONS

Survey 9292

SYDNEY ISOGAL

GRAVITY

1000hrs 33° 56' 151° 11'

Station.	Day	Hrs	Min	Corr.rdg.	Lat(deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE1 1	3/	3/92		20L 1.05000		GMT+ 10H 0M	
68910305		8	32	3125.606	0 0.0000 S	0 0.0000 E	0.150
80900105		8	43	3125.758	0 0.0000 S	0 0.0000 E	0.155
92920105		9	2	3126.308	0 0.0000 S	0 0.0000 E	0.161
92920205		9	23	3124.981	0 0.0000 S	0 0.0000 E	0.164
92920305		9	49	3122.494	0 0.0000 S	0 0.0000 E	0.162
68910305		10	2	3125.524	0 0.0000 S	0 0.0000 E	0.158
80900105		10	14	3125.692	0 0.0000 S	0 0.0000 E	0.154
92920105		10	29	3126.145	0 0.0000 S	0 0.0000 E	0.147
92920205		10	40	3124.949	0 0.0000 S	0 0.0000 E	0.141
92920305		10	58	3122.432	0 0.0000 S	0 0.0000 E	0.128
68910305		11	17	3125.473	0 0.0000 S	0 0.0000 E	0.113
80900105		11	27	3125.635	0 0.0000 S	0 0.0000 E	0.105
92920105		11	45	3126.089	0 0.0000 S	0 0.0000 E	0.088
92920205		11	57	3124.874	0 0.0000 S	0 0.0000 E	0.076
92920305		12	13	3122.371	0 0.0000 S	0 0.0000 E	0.059
68910305		12	32	3125.409	0 0.0000 S	0 0.0000 E	0.039
80900105		12	41	3125.588	0 0.0000 S	0 0.0000 E	0.029
92920105		12	53	3126.061	0 0.0000 S	0 0.0000 E	0.017
92920205		13	5	3124.854	0 0.0000 S	0 0.0000 E	0.004
92920305		13	20	3122.344	0 0.0000 S	0 0.0000 E	-0.011
68910305		13	40	3125.397	0 0.0000 S	0 0.0000 E	-0.029
TRAVERSE2 1	3/	3/92		101L 1.05000		GMT+ 10H 0M	
68910305		8	36	3167.867	0 0.0000 S	0 0.0000 E	0.152
80900105		8	47	3168.024	0 0.0000 S	0 0.0000 E	0.157
92920105		9	5	3168.494	0 0.0000 S	0 0.0000 E	0.161
92920205		9	26	3167.281	0 0.0000 S	0 0.0000 E	0.164
92920305		9	52	3164.780	0 0.0000 S	0 0.0000 E	0.161
68910305		10	9	3167.790	0 0.0000 S	0 0.0000 E	0.156
80900105		10	17	3167.953	0 0.0000 S	0 0.0000 E	0.153
92920105		10	32	3168.430	0 0.0000 S	0 0.0000 E	0.145
92920205		10	43	3167.204	0 0.0000 S	0 0.0000 E	0.139
92920305		11	1	3164.705	0 0.0000 S	0 0.0000 E	0.126
68910305		11	21	3167.732	0 0.0000 S	0 0.0000 E	0.110
80900105		11	31	3167.884	0 0.0000 S	0 0.0000 E	0.101
92920105		11	48	3168.359	0 0.0000 S	0 0.0000 E	0.085
92920205		12	0	3167.147	0 0.0000 S	0 0.0000 E	0.073
92920305		12	17	3164.627	0 0.0000 S	0 0.0000 E	0.055
68910305		12	36	3167.675	0 0.0000 S	0 0.0000 E	0.035
80900105		12	43	3167.824	0 0.0000 S	0 0.0000 E	0.027
92920105		12	57	3168.306	0 0.0000 S	0 0.0000 E	0.013
92920205		13	8	3167.091	0 0.0000 S	0 0.0000 E	0.001
92920305		13	25	3164.597	0 0.0000 S	0 0.0000 E	-0.016
68910305		13	43	3167.630	0 0.0000 S	0 0.0000 E	-0.032

Station.	Day	Hrs	Min	Corr.rdg.	Lat(deg.min)		Long(deg.min)	Correction(mGal)
TRAVERSE3 1	3/	3/92		132L	1.05000		GMT+ 10H 0M	
68910305		8	24	3206.008	0	0.0000 S	0 0.0000 E	0.146
80900105		8	42	3206.159	0	0.0000 S	0 0.0000 E	0.155
92920105		8	58	3206.624	0	0.0000 S	0 0.0000 E	0.160
92920205		9	21	3205.422	0	0.0000 S	0 0.0000 E	0.163
92920305		9	44	3202.947	0	0.0000 S	0 0.0000 E	0.162
68910305		10	5	3205.928	0	0.0000 S	0 0.0000 E	0.157
80900105		10	13	3206.114	0	0.0000 S	0 0.0000 E	0.154
92920105		10	27	3206.558	0	0.0000 S	0 0.0000 E	0.148
92920205		10	39	3205.361	0	0.0000 S	0 0.0000 E	0.141
92920305		10	55	3202.876	0	0.0000 S	0 0.0000 E	0.131
68910305		11	14	3205.868	0	0.0000 S	0 0.0000 E	0.116
80900105		11	25	3206.022	0	0.0000 S	0 0.0000 E	0.106
92920105		11	43	3206.492	0	0.0000 S	0 0.0000 E	0.090
92920205		11	55	3205.279	0	0.0000 S	0 0.0000 E	0.078
92920305		12	10	3202.814	0	0.0000 S	0 0.0000 E	0.062
68910305		12	29	3205.795	0	0.0000 S	0 0.0000 E	0.042
80900105		12	39	3205.973	0	0.0000 S	0 0.0000 E	0.032
92920105		12	51	3206.418	0	0.0000 S	0 0.0000 E	0.019
92920205		13	3	3205.238	0	0.0000 S	0 0.0000 E	0.006
92920305		13	17	3202.772	0	0.0000 S	0 0.0000 E	-0.008
68910305		13	37	3205.766	0	0.0000 S	0 0.0000 E	-0.027
TRAVERSE4 1	3/	3/92		252L	1.05000		GMT+ 10H 0M	
68910305		8	28	3271.656	0	0.0000 S	0 0.0000 E	0.149
80900105		8	46	3271.822	0	0.0000 S	0 0.0000 E	0.156
92920105		9	3	3272.285	0	0.0000 S	0 0.0000 E	0.161
92920205		9	25	3271.067	0	0.0000 S	0 0.0000 E	0.164
92920305		9	49	3268.552	0	0.0000 S	0 0.0000 E	0.162
68910305		10	8	3271.567	0	0.0000 S	0 0.0000 E	0.156
80900105		10	17	3271.739	0	0.0000 S	0 0.0000 E	0.153
92920105		10	31	3272.214	0	0.0000 S	0 0.0000 E	0.146
92920205		10	44	3271.003	0	0.0000 S	0 0.0000 E	0.138
92920305		10	59	3268.501	0	0.0000 S	0 0.0000 E	0.128
68910305		11	18	3271.505	0	0.0000 S	0 0.0000 E	0.113
80900105		11	29	3271.688	0	0.0000 S	0 0.0000 E	0.103
92920105		11	47	3272.145	0	0.0000 S	0 0.0000 E	0.086
92920205		11	59	3270.942	0	0.0000 S	0 0.0000 E	0.074
92920305		12	13	3268.444	0	0.0000 S	0 0.0000 E	0.059
68910305		12	33	3271.458	0	0.0000 S	0 0.0000 E	0.038
80900105		12	42	3271.615	0	0.0000 S	0 0.0000 E	0.028
92920105		12	54	3272.104	0	0.0000 S	0 0.0000 E	0.016
92920205		13	6	3270.900	0	0.0000 S	0 0.0000 E	0.003
92920305		13	20	3268.387	0	0.0000 S	0 0.0000 E	-0.011
68910305		13	40	3271.429	0	0.0000 S	0 0.0000 E	-0.029
TRAVERSE1 2	4/	3/92		20L	1.05000		GMT+ 10H 0M	
79990105		9	16	3079.861	0	0.0000 S	0 0.0000 E	0.167
92929105		9	36	3079.566	0	0.0000 S	0 0.0000 E	0.172
79990105		9	48	3079.844	0	0.0000 S	0 0.0000 E	0.174
92929105		10	6	3079.560	0	0.0000 S	0 0.0000 E	0.173
79990105		10	15	3079.821	0	0.0000 S	0 0.0000 E	0.171
79990105		10	17	3079.811	0	0.0000 S	0 0.0000 E	0.171
92929105		10	42	3079.493	0	0.0000 S	0 0.0000 E	0.162
79990105		10	52	3079.779	0	0.0000 S	0 0.0000 E	0.158
92929105		11	2	3079.486	0	0.0000 S	0 0.0000 E	0.152
79990105		11	11	3079.778	0	0.0000 S	0 0.0000 E	0.146
92929105		11	25	3079.477	0	0.0000 S	0 0.0000 E	0.135
79990105		11	35	3079.750	0	0.0000 S	0 0.0000 E	0.127

Station.	Day	Hrs	Min	Corr.rdg.	Lat(deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE2 2	4/	3/92		101L 1.05000		GMT+ 10H 0M	
79990105		9 20		3122.006	0 0.0000 S	0 0.0000 E	0.169
92929105		9 41		3121.720	0 0.0000 S	0 0.0000 E	0.173
79990105		9 53		3122.016	0 0.0000 S	0 0.0000 E	0.174
92929105		10 8		3121.704	0 0.0000 S	0 0.0000 E	0.173
79990105		10 19		3121.974	0 0.0000 S	0 0.0000 E	0.171
92929105		10 45		3121.645	0 0.0000 S	0 0.0000 E	0.161
79990105		10 55		3121.941	0 0.0000 S	0 0.0000 E	0.156
92929105		11 5		3121.646	0 0.0000 S	0 0.0000 E	0.150
79990105		11 15		3121.934	0 0.0000 S	0 0.0000 E	0.143
92929105		11 28		3121.632	0 0.0000 S	0 0.0000 E	0.133
79990105		11 38		3121.909	0 0.0000 S	0 0.0000 E	0.125
TRAVERSE3 2	4/	3/92		132L 1.05000		GMT+ 10H 0M	
79990105		9 11		3160.485	0 0.0000 S	0 0.0000 E	0.166
92929105		9 33		3160.199	0 0.0000 S	0 0.0000 E	0.172
79990105		9 47		3160.473	0 0.0000 S	0 0.0000 E	0.174
92929105		9 59		3160.192	0 0.0000 S	0 0.0000 E	0.174
79990105		10 14		3160.458	0 0.0000 S	0 0.0000 E	0.172
92929105		10 29		3160.165	0 0.0000 S	0 0.0000 E	0.168
79990105		10 40		3160.434	0 0.0000 S	0 0.0000 E	0.163
92929105		10 48		3160.135	0 0.0000 S	0 0.0000 E	0.160
79990105		10 58		3160.415	0 0.0000 S	0 0.0000 E	0.154
92929105		11 16		3160.099	0 0.0000 S	0 0.0000 E	0.142
79990105		11 27		3160.390	0 0.0000 S	0 0.0000 E	0.134
TRAVERSE4 2	4/	3/92		252L 1.05000		GMT+ 10H 0M	
79990105		9 15		3225.941	0 0.0000 S	0 0.0000 E	0.167
92929105		9 36		3225.675	0 0.0000 S	0 0.0000 E	0.172
79990105		9 51		3225.939	0 0.0000 S	0 0.0000 E	0.174
92929105		10 2		3225.659	0 0.0000 S	0 0.0000 E	0.173
79990105		10 17		3225.925	0 0.0000 S	0 0.0000 E	0.171
92929105		10 34		3225.619	0 0.0000 S	0 0.0000 E	0.166
79990105		10 42		3225.910	0 0.0000 S	0 0.0000 E	0.162
92929105		10 52		3225.607	0 0.0000 S	0 0.0000 E	0.158
79990105		11 0		3225.876	0 0.0000 S	0 0.0000 E	0.153
92929105		11 21		3225.564	0 0.0000 S	0 0.0000 E	0.139
79990105		11 30		3225.851	0 0.0000 S	0 0.0000 E	0.131
TRAVERSE1 3	4/	3/92		20L 1.05000		GMT+ 10H 0M	
82910205		13 23		3093.568	0 0.0000 S	0 0.0000 E	0.014
60910305		14 56		3035.399	0 0.0000 S	0 0.0000 E	-0.070
92920405		15 7		3036.939	0 0.0000 S	0 0.0000 E	-0.076
82910205		16 0		3093.593	0 0.0000 S	0 0.0000 E	-0.090
TRAVERSE2 3	4/	3/92		101L 1.05000		GMT+ 10H 0M	
82910205		13 28		3135.764	0 0.0000 S	0 0.0000 E	0.008
60910305		15 0		3077.455	0 0.0000 S	0 0.0000 E	-0.072
92920405		15 10		3079.005	0 0.0000 S	0 0.0000 E	-0.078
82910205		16 3		3135.783	0 0.0000 S	0 0.0000 E	-0.090
TRAVERSE3 3	4/	3/92		132L 1.05000		GMT+ 10H 0M	
82910205		13 22		3174.063	0 0.0000 S	0 0.0000 E	0.015
60910305		14 53		3116.327	0 0.0000 S	0 0.0000 E	-0.068
92920405		15 6		3117.849	0 0.0000 S	0 0.0000 E	-0.076
82910205		16 1		3174.087	0 0.0000 S	0 0.0000 E	-0.090
TRAVERSE4 3	4/	3/92		252L 1.05000		GMT+ 10H 0M	
82910205		13 26		3239.669	0 0.0000 S	0 0.0000 E	0.010
60910305		14 57		3181.522	0 0.0000 S	0 0.0000 E	-0.071
92920405		15 8		3183.050	0 0.0000 S	0 0.0000 E	-0.077
82910205		16 5		3239.690	0 0.0000 S	0 0.0000 E	-0.090

Station.	Day	Hrs	Min	Corr.rdg.	Lat(deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE1 4	5/	3/92		20L 1.05000		GMT+ 10H 0M	
92920105		8	13	3126.248	0 0.0000 S	0 0.0000 E	0.109
92920305		8	28	3122.557	0 0.0000 S	0 0.0000 E	0.123
79990105		9	48	3079.862	0 0.0000 S	0 0.0000 E	0.174
92920105		10	42	3126.222	0 0.0000 S	0 0.0000 E	0.176
92920305		10	57	3122.513	0 0.0000 S	0 0.0000 E	0.171
79990105		11	57	3079.734	0 0.0000 S	0 0.0000 E	0.134
92920105		14	39	3126.029	0 0.0000 S	0 0.0000 E	-0.037
TRAVERSE2 4	5/	3/92		101L 1.05000		GMT+ 10H 0M	
92920105		8	16	3168.467	0 0.0000 S	0 0.0000 E	0.112
92920305		8	31	3164.788	0 0.0000 S	0 0.0000 E	0.126
79990105		9	51	3122.016	0 0.0000 S	0 0.0000 E	0.175
92920105		10	45	3168.428	0 0.0000 S	0 0.0000 E	0.175
92920305		11	1	3164.737	0 0.0000 S	0 0.0000 E	0.170
79990105		12	2	3121.892	0 0.0000 S	0 0.0000 E	0.130
92920105		14	44	3168.280	0 0.0000 S	0 0.0000 E	-0.041
TRAVERSE3 4	5/	3/92		132L 1.05000		GMT+ 10H 0M	
92920105		8	12	3206.374	0 0.0000 S	0 0.0000 E	0.108
92920305		8	27	3202.723	0 0.0000 S	0 0.0000 E	0.122
79990105		9	45	3160.355	0 0.0000 S	0 0.0000 E	0.173
92920105		10	42	3206.312	0 0.0000 S	0 0.0000 E	0.176
92920305		10	56	3202.652	0 0.0000 S	0 0.0000 E	0.172
79990105		11	56	3160.236	0 0.0000 S	0 0.0000 E	0.135
92920105		14	38	3206.113	0 0.0000 S	0 0.0000 E	-0.036
TRAVERSE4 4	5/	3/92		252L 1.05000		GMT+ 10H 0M	
92920105		8	15	3272.308	0 0.0000 S	0 0.0000 E	0.111
92920305		8	30	3268.617	0 0.0000 S	0 0.0000 E	0.125
79990105		9	47	3225.954	0 0.0000 S	0 0.0000 E	0.173
92920105		10	46	3272.263	0 0.0000 S	0 0.0000 E	0.175
92920305		11	0	3268.542	0 0.0000 S	0 0.0000 E	0.170
79990105		12	1	3225.847	0 0.0000 S	0 0.0000 E	0.131
92920105		14	42	3272.079	0 0.0000 S	0 0.0000 E	-0.039
TRAVERSE1 5	6/	3/92		20L 1.05000		GMT+ 10H 0M	
82910205		8	26	3093.759	0 0.0000 S	0 0.0000 E	0.093
92920405		9	8	3037.122	0 0.0000 S	0 0.0000 E	0.133
82910205		9	36	3093.809	0 0.0000 S	0 0.0000 E	0.154
92920405		10	8	3037.121	0 0.0000 S	0 0.0000 E	0.170
82910205		10	34	3093.792	0 0.0000 S	0 0.0000 E	0.176
92920405		11	2	3037.090	0 0.0000 S	0 0.0000 E	0.175
82910205		11	27	3093.762	0 0.0000 S	0 0.0000 E	0.168
TRAVERSE2 5	6/	3/92		101L 1.05000		GMT+ 10H 0M	
82910205		8	29	3135.937	0 0.0000 S	0 0.0000 E	0.096
92920405		9	12	3079.195	0 0.0000 S	0 0.0000 E	0.137
82910205		9	40	3135.974	0 0.0000 S	0 0.0000 E	0.156
92920405		10	12	3079.201	0 0.0000 S	0 0.0000 E	0.171
82910205		10	38	3135.950	0 0.0000 S	0 0.0000 E	0.176
92920405		11	5	3079.181	0 0.0000 S	0 0.0000 E	0.175
82910205		11	32	3135.913	0 0.0000 S	0 0.0000 E	0.166
TRAVERSE3 5	6/	3/92		132L 1.05000		GMT+ 10H 0M	
82910205		8	30	3174.013	0 0.0000 S	0 0.0000 E	0.097
92920405		9	8	3117.818	0 0.0000 S	0 0.0000 E	0.133
82910205		9	35	3174.033	0 0.0000 S	0 0.0000 E	0.153
92920405		10	6	3117.808	0 0.0000 S	0 0.0000 E	0.169
82910205		10	33	3174.013	0 0.0000 S	0 0.0000 E	0.176
92920405		11	1	3117.784	0 0.0000 S	0 0.0000 E	0.175
82910205		11	25	3173.963	0 0.0000 S	0 0.0000 E	0.169

Station.	Day	Hrs	Min	Corr.rdg.	Lat(deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE4 5	6/	3/92		252L 1.05000		GMT+ 10H 0M	
82910205		8 35		3239.838	0 0.0000 S	0 0.0000 E	0.103
92920405		9 12		3183.254	0 0.0000 S	0 0.0000 E	0.137
82910205		9 40		3239.858	0 0.0000 S	0 0.0000 E	0.156
92920405		10 10		3183.251	0 0.0000 S	0 0.0000 E	0.170
82910205		10 37		3239.842	0 0.0000 S	0 0.0000 E	0.176
92920405		11 4		3183.227	0 0.0000 S	0 0.0000 E	0.175
82910205		11 30		3239.814	0 0.0000 S	0 0.0000 E	0.167
Coordinate averaging has been done							
*** End Ertide. ***							

APPENDIX 3

C. INITIAL PROCESSING SUMMARY AND STATISTICS.

Survey 9292

GRVHTS Version 6 of November 1992 - Phase one sub-program
Computed on 1997/02/05 at 12:53:52

Gravity meter data reduction

Use new scale correction for LaCoste meters

Latitude-Longitude data is not saved

*SYDNEY ISOGAL

GRAVITY *

TRAVERSE	Flight 1 1	3/ 3/92	Meter	20L	Scale factor	1.05000
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Scale correction factor is 1.0003520000000

Station	Time	Gravity	Drift	Diff	Reading
6891.0305	832	0.000	0.000	-0.008	3125.606
8090.0105	843	0.181	-0.011	-0.020	3125.758
9292.0105	902	0.701	-0.027	0.055	3126.308
9292.0205	923	-0.587	-0.053	-0.026	3124.981
9292.0305	949	-3.205	-0.080	0.005	3122.494
6891.0305	1002	0.000	-0.093	-0.002	3125.524
8090.0105	1014	0.181	-0.104	0.005	3125.692
9292.0105	1029	0.701	-0.119	-0.024	3126.145
9292.0205	1040	-0.587	-0.127	0.015	3124.949
9292.0305	1058	-3.205	-0.142	0.002	3122.432
6891.0305	1117	0.000	-0.158	0.010	3125.473
8090.0105	1127	0.181	-0.167	0.008	3125.635
9292.0105	1145	0.701	-0.182	-0.020	3126.089
9292.0205	1157	-0.587	-0.192	0.000	3124.874
9292.0305	1213	-3.205	-0.202	-0.002	3122.371
6891.0305	1232	0.000	-0.212	-0.003	3125.409
8090.0105	1241	0.181	-0.216	0.007	3125.588
9292.0105	1253	0.701	-0.220	-0.012	3126.061
9292.0205	1305	-0.587	-0.224	0.011	3124.854
9292.0305	1320	-3.205	-0.228	-0.005	3122.344
6891.0305	1340	0.000	-0.232	0.004	3125.397

TRAVERSE	Flight 2 1	3/ 3/92	Meter	101L	Scale factor	1.05000
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Scale correction factor is 1.0029320000000

Station	Time	Gravity	Drift	Diff	Reading
6891.0305	836	0.000	0.000	-0.006	3167.867
8090.0105	847	0.170	-0.010	-0.001	3168.024
9292.0105	905	0.683	-0.025	-0.006	3168.494
9292.0205	926	-0.582	-0.042	0.003	3167.281
9292.0305	952	-3.192	-0.065	0.013	3164.780
6891.0305	1009	0.000	-0.081	-0.006	3167.790
8090.0105	1017	0.170	-0.088	0.003	3167.953
9292.0105	1032	0.683	-0.103	0.004	3168.430
9292.0205	1043	-0.582	-0.114	-0.006	3167.204
9292.0305	1101	-3.192	-0.131	-0.001	3164.705
6891.0305	1121	0.000	-0.149	0.002	3167.732
8090.0105	1131	0.170	-0.158	0.001	3167.884
9292.0105	1148	0.683	-0.174	0.001	3168.359
9292.0205	1200	-0.582	-0.184	0.005	3167.147
9292.0305	1217	-3.192	-0.199	-0.014	3164.627
6891.0305	1236	0.000	-0.214	0.006	3167.675
8090.0105	1243	0.170	-0.219	-0.002	3167.824
9292.0105	1257	0.683	-0.229	0.001	3168.306
9292.0205	1308	-0.582	-0.236	-0.002	3167.091
9292.0305	1325	-3.192	-0.246	0.002	3164.597
6891.0305	1343	0.000	-0.259	0.004	3167.630

TRAVERSE Flight 3 1 3/ 3/92 Meter 132L Scale factor 1.05000

Scale correction factor is 1.0002140000000

Station	Time	Gravity	Drift	Diff	Reading
6891.0305	824	0.000	0.000	0.004	3206.008
8090.0105	842	0.186	-0.015	-0.007	3206.159
9292.0105	858	0.682	-0.026	0.001	3206.624
9292.0205	921	-0.575	-0.042	0.001	3205.422
9292.0305	944	-3.180	-0.060	0.002	3202.947
6891.0305	1005	0.000	-0.077	-0.004	3205.928
8090.0105	1013	0.186	-0.083	0.013	3206.114
9292.0105	1027	0.682	-0.097	0.002	3206.558
9292.0205	1039	-0.575	-0.109	0.003	3205.361
9292.0305	1055	-3.180	-0.126	-0.006	3202.876
6891.0305	1114	0.000	-0.146	0.002	3205.868
8090.0105	1125	0.186	-0.158	-0.009	3206.022
9292.0105	1143	0.682	-0.175	0.010	3206.492
9292.0205	1155	-0.575	-0.187	-0.006	3205.279
9292.0305	1210	-3.180	-0.200	0.001	3202.814
6891.0305	1229	0.000	-0.216	-0.006	3205.795
8090.0105	1239	0.186	-0.223	0.004	3205.973
9292.0105	1251	0.682	-0.232	-0.012	3206.418
9292.0205	1303	-0.575	-0.239	0.002	3205.238
9292.0305	1317	-3.180	-0.246	0.003	3202.772
6891.0305	1337	0.000	-0.255	0.003	3205.766

TRAVERSE Flight 4 1 3/ 3/92 Meter 252L Scale factor 1.05000

Scale correction factor is 1.0007160000000

Station	Time	Gravity	Drift	Diff	Reading
6891.0305	828	0.000	0.000	-0.001	3271.656
8090.0105	846	0.185	-0.017	0.005	3271.822
9292.0105	903	0.694	-0.033	0.000	3272.285
9292.0205	925	-0.566	-0.053	-0.002	3271.067
9292.0305	949	-3.190	-0.075	-0.002	3268.552
6891.0305	1008	0.000	-0.091	-0.004	3271.567
8090.0105	1017	0.185	-0.099	0.000	3271.739
9292.0105	1031	0.694	-0.111	0.003	3272.214
9292.0205	1044	-0.566	-0.122	0.000	3271.003
9292.0305	1059	-3.190	-0.135	0.004	3268.501
6891.0305	1118	0.000	-0.151	-0.009	3271.505
8090.0105	1129	0.185	-0.160	0.007	3271.688
9292.0105	1147	0.694	-0.175	-0.005	3272.145
9292.0205	1159	-0.566	-0.185	-0.001	3270.942
9292.0305	1213	-3.190	-0.196	0.005	3268.444
6891.0305	1233	0.000	-0.211	0.002	3271.458
8090.0105	1242	0.185	-0.218	-0.012	3271.615
9292.0105	1254	0.694	-0.226	0.002	3272.104
9292.0205	1306	-0.566	-0.234	0.003	3270.900
9292.0305	1320	-3.190	-0.243	-0.007	3268.387
6891.0305	1340	0.000	-0.253	0.012	3271.429

TRAVERSE Flight 1 2 4/ 3/92 Meter 20L Scale factor 1.05000

Scale correction factor is 1.0003520000000

Station	Time	Gravity	Drift	Diff	Reading
7999.0105	1017	0.000	0.000	0.002	3079.811
9292.9105	1042	-0.306	-0.024	-0.002	3079.493
7999.0105	1052	0.000	-0.031	-0.001	3079.779
9292.9105	1102	-0.306	-0.033	-0.001	3079.486
7999.0105	1111	0.000	-0.035	0.002	3079.778
9292.9105	1125	-0.306	-0.046	0.003	3079.477
7999.0105	1135	0.000	-0.059	-0.003	3079.750

TRAVERSE Flight 2 2 4/ 3/92 Meter 101L Scale factor 1.05000

Scale correction factor is		1.0029320000000			
Station	Time	Gravity	Drift	Diff	Reading
7999.0105	920	0.000	0.000	-0.001	3122.006
9292.9105	941	-0.308	0.007	0.000	3121.720
7999.0105	953	0.000	0.005	0.005	3122.016
9292.9105	1008	-0.308	-0.013	0.003	3121.704
7999.0105	1019	0.000	-0.031	-0.003	3121.974
9292.9105	1045	-0.308	-0.065	-0.006	3121.645
7999.0105	1055	0.000	-0.070	0.001	3121.941
9292.9105	1105	-0.308	-0.071	0.001	3121.646
7999.0105	1115	0.000	-0.076	0.000	3121.934
9292.9105	1128	-0.308	-0.088	0.003	3121.632
7999.0105	1138	0.000	-0.099	-0.003	3121.909

TRAVERSE Flight 3 2 4/ 3/92 Meter 132L Scale factor 1.05000

Scale correction factor is		1.0002140000000			
Station	Time	Gravity	Drift	Diff	Reading
7999.0105	911	0.000	0.000	-0.004	3160.485
9292.9105	933	-0.302	-0.008	0.003	3160.199
7999.0105	947	0.000	-0.012	-0.004	3160.473
9292.9105	959	-0.302	-0.017	0.005	3160.192
7999.0105	1014	0.000	-0.029	-0.003	3160.458
9292.9105	1029	-0.302	-0.044	0.003	3160.165
7999.0105	1040	0.000	-0.058	0.000	3160.434
9292.9105	1048	-0.302	-0.069	-0.003	3160.135
7999.0105	1058	0.000	-0.082	0.004	3160.415
9292.9105	1116	-0.302	-0.102	-0.008	3160.099
7999.0105	1127	0.000	-0.112	0.008	3160.390

TRAVERSE Flight 4 2 4/ 3/92 Meter 252L Scale factor 1.05000

Scale correction factor is		1.0007160000000			
Station	Time	Gravity	Drift	Diff	Reading
7999.0105	915	0.000	0.000	-0.009	3225.941
9292.9105	936	-0.297	-0.001	0.009	3225.675
7999.0105	951	0.000	-0.007	-0.005	3225.939
9292.9105	1002	-0.297	-0.013	0.005	3225.659
7999.0105	1017	0.000	-0.027	0.001	3225.925
9292.9105	1034	-0.297	-0.044	-0.007	3225.619
7999.0105	1042	0.000	-0.049	0.007	3225.910
9292.9105	1052	-0.297	-0.063	-0.001	3225.607
7999.0105	1100	0.000	-0.077	-0.001	3225.876
9292.9105	1121	-0.297	-0.102	-0.006	3225.564
7999.0105	1130	0.000	-0.110	0.006	3225.851

TRAVERSE Flight 1 3 4/ 3/92 Meter 20L Scale factor 1.05000

Scale correction factor is		1.0003520000000			
Station	Time	Gravity	Drift	Diff	Reading
8291.0205	1323	0.000	0.000	0.000	3093.568
6091.0305	1456	-61.156	0.016	0.000	3035.399
9292.0405	1507	-59.540	0.017	0.000	3036.939
8291.0205	1600	0.000	0.026	0.000	3093.593

TRAVERSE Flight 2 3 4/ 3/92 Meter 101L Scale factor 1.05000

Scale correction factor is		1.0029320000000			
Station	Time	Gravity	Drift	Diff	Reading
8291.0205	1328	0.000	0.000	0.000	3135.764
6091.0305	1500	-61.174	0.012	0.000	3077.455
9292.0405	1510	-59.549	0.013	0.000	3079.005
8291.0205	1603	0.000	0.020	0.000	3135.783

TRAVERSE Flight 3 3 4/ 3/92 Meter 132L Scale factor 1.05000

Scale correction factor is 1.0002140000000

Station	Time	Gravity	Drift	Diff	Reading
8291.0205	1322	0.000	0.000	0.000	3174.063
6091.0305	1453	-61.156	0.015	0.000	3116.327
9292.0405	1506	-59.546	0.017	0.000	3117.849
8291.0205	1601	0.000	0.025	0.000	3174.087

TRAVERSE Flight 4 3 4/ 3/92 Meter 252L Scale factor 1.05000

Scale correction factor is 1.0007160000000

Station	Time	Gravity	Drift	Diff	Reading
8291.0205	1326	0.000	0.000	0.000	3239.669
6091.0305	1457	-61.188	0.013	0.000	3181.522
9292.0405	1508	-59.582	0.014	0.000	3183.050
8291.0205	1605	0.000	0.022	0.000	3239.690

TRAVERSE Flight 1 4 5/ 3/92 Meter 20L Scale factor 1.05000

Scale correction factor is 1.0003520000000

Station	Time	Gravity	Drift	Diff	Reading
9292.0105	813	0.000	0.000	-0.016	3126.248
9292.0305	828	-3.888	-0.003	-0.006	3122.557
7999.0105	948	-48.774	-0.023	0.019	3079.862
9292.0105	1042	0.000	-0.050	0.006	3126.222
9292.0305	1057	-3.888	-0.061	0.006	3122.513
7999.0105	1157	-48.774	-0.118	-0.019	3079.734
9292.0105	1439	0.000	-0.257	0.010	3126.029

TRAVERSE Flight 2 4 5/ 3/92 Meter 101L Scale factor 1.05000

Scale correction factor is 1.0029320000000

Station	Time	Gravity	Drift	Diff	Reading
9292.0105	816	0.000	0.000	-0.015	3168.467
9292.0305	831	-3.865	-0.004	-0.006	3164.788
7999.0105	951	-48.732	-0.029	0.020	3122.016
9292.0105	1045	0.000	-0.059	0.002	3168.428
9292.0305	1101	-3.865	-0.069	0.006	3164.737
7999.0105	1202	-48.732	-0.119	-0.020	3121.892
9292.0105	1444	0.000	-0.225	0.013	3168.280

TRAVERSE Flight 3 4 5/ 3/92 Meter 132L Scale factor 1.05000

Scale correction factor is 1.0002140000000

Station	Time	Gravity	Drift	Diff	Reading
9292.0105	812	0.000	0.000	-0.009	3206.374
9292.0305	827	-3.866	-0.007	-0.004	3202.723
7999.0105	945	-48.712	-0.043	0.012	3160.355
9292.0105	1042	0.000	-0.080	0.004	3206.312
9292.0305	1056	-3.866	-0.091	0.004	3202.652
7999.0105	1156	-48.712	-0.146	-0.012	3160.236
9292.0105	1438	0.000	-0.291	0.005	3206.113

TRAVERSE Flight 4 4 5/ 3/92 Meter 252L Scale factor 1.05000

Scale correction factor is 1.0007160000000

Station	Time	Gravity	Drift	Diff	Reading
9292.0105	815	0.000	0.000	-0.015	3272.308
9292.0305	830	-3.895	-0.005	0.002	3268.617
7999.0105	947	-48.754	-0.037	0.009	3225.954
9292.0105	1046	0.000	-0.070	0.008	3272.263
9292.0305	1100	-3.895	-0.080	-0.002	3268.542
7999.0105	1201	-48.754	-0.131	-0.009	3225.847
9292.0105	1442	0.000	-0.263	0.007	3272.079

TRAVERSE Flight 1 5 6/ 3/92 Meter 20L Scale factor 1.05000

Scale correction factor is		1.0003520000000			
Station	Time	Gravity	Drift	Diff	Reading
8291.0205	826	0.000	0.000	-0.008	3093.759
9292.0405	908	-59.575	0.032	0.005	3037.122
8291.0205	936	0.000	0.042	0.003	3093.809
9292.0405	1008	-59.575	0.037	-0.001	3037.121
8291.0205	1034	0.000	0.025	0.002	3093.792
9292.0405	1102	-59.575	0.008	-0.005	3037.090
8291.0205	1127	0.000	-0.007	0.002	3093.762

TRAVERSE Flight 2 5 6/ 3/92 Meter 101L Scale factor 1.05000

Scale correction factor is		1.0029320000000			
Station	Time	Gravity	Drift	Diff	Reading
8291.0205	829	0.000	0.000	0.001	3135.937
9292.0405	912	-59.538	0.024	-0.003	3079.195
8291.0205	940	0.000	0.033	0.007	3135.974
9292.0405	1012	-59.538	0.027	-0.001	3079.201
8291.0205	1038	0.000	0.017	-0.002	3135.950
9292.0405	1105	-59.538	0.002	0.004	3079.181
8291.0205	1132	0.000	-0.018	-0.006	3135.913

TRAVERSE Flight 3 5 6/ 3/92 Meter 132L Scale factor 1.05000

Scale correction factor is		1.0002140000000			
Station	Time	Gravity	Drift	Diff	Reading
8291.0205	830	0.000	0.000	-0.002	3174.013
9292.0405	908	-59.525	0.012	0.001	3117.818
8291.0205	935	0.000	0.014	0.004	3174.033
9292.0405	1006	-59.525	0.006	-0.004	3117.808
8291.0205	1033	0.000	-0.005	0.003	3174.013
9292.0405	1101	-59.525	-0.026	0.003	3117.784
8291.0205	1125	0.000	-0.051	-0.005	3173.963

TRAVERSE Flight 4 5 6/ 3/92 Meter 252L Scale factor 1.05000

Scale correction factor is		1.0007160000000			
Station	Time	Gravity	Drift	Diff	Reading
8291.0205	835	0.000	0.000	-0.003	3239.838
9292.0405	912	-59.548	0.012	0.001	3183.254
8291.0205	940	0.000	0.016	0.002	3239.858
9292.0405	1010	-59.548	0.011	0.000	3183.251
8291.0205	1037	0.000	0.000	0.001	3239.842
9292.0405	1104	-59.548	-0.014	-0.001	3183.227
8291.0205	1130	0.000	-0.028	0.000	3239.814

MNSLOPE completed at 1.4 seconds.
12:53:54

***** Scratch file closed *****

GRVHTS Version 6 of November 1992 - Phase two sub-program
Computed on 1997/02/05 at 12:53:54

Least squares adjustment phase - commenced 1.4 sec

Number of segments to adjust together 1

*SYDNEY ISOGAL

GRAVITY *

Free nodes

6891.0305
9292.0105

Fixed nodes Values

7999.0105 9796376.290
8090.0105 9796858.760
8291.0205 9796522.100

Free and fixed node lists compared

Number of free nodes deleted is 0

Final number of free nodes is 2
Final number of fixed nodes is 3

Total number of nodes in list is 5

Maximum adjustment expected - Height 5.00 metres
Gravity 1.00 mums-
Magnetic 10.00 gammas

Data search commenced 1.4 sec

Segment identification

*SYDNEY ISOGAL

GRAVITY *

TRAVERSE	1 1	3/ 3/92				
TRAVERSE	2 1	3/ 3/92				
TRAVERSE	3 1	3/ 3/92				
TRAVERSE	4 1	3/ 3/92				
TRAVERSE	1 2	4/ 3/92				
*****	Internal loop	- tied to node 7999.0105	from reading	1 to reading	3	
*****	Internal loop	- tied to node 7999.0105	from reading	3 to reading	5	
*****	Internal loop	- tied to node 7999.0105	from reading	5 to reading	7	
TRAVERSE	2 2	4/ 3/92				
*****	Internal loop	- tied to node 7999.0105	from reading	1 to reading	3	
*****	Internal loop	- tied to node 7999.0105	from reading	3 to reading	5	
*****	Internal loop	- tied to node 7999.0105	from reading	5 to reading	7	
*****	Internal loop	- tied to node 7999.0105	from reading	7 to reading	9	
*****	Internal loop	- tied to node 7999.0105	from reading	9 to reading	11	
TRAVERSE	3 2	4/ 3/92				
*****	Internal loop	- tied to node 7999.0105	from reading	1 to reading	3	
*****	Internal loop	- tied to node 7999.0105	from reading	3 to reading	5	
*****	Internal loop	- tied to node 7999.0105	from reading	5 to reading	7	
*****	Internal loop	- tied to node 7999.0105	from reading	7 to reading	9	
*****	Internal loop	- tied to node 7999.0105	from reading	9 to reading	11	
TRAVERSE	4 2	4/ 3/92				
*****	Internal loop	- tied to node 7999.0105	from reading	1 to reading	3	
*****	Internal loop	- tied to node 7999.0105	from reading	3 to reading	5	
*****	Internal loop	- tied to node 7999.0105	from reading	5 to reading	7	
*****	Internal loop	- tied to node 7999.0105	from reading	7 to reading	9	
*****	Internal loop	- tied to node 7999.0105	from reading	9 to reading	11	
TRAVERSE	1 3	4/ 3/92				

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*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  4
      TRAVERSE      2 3      4/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  4
      TRAVERSE      3 3      4/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  4
      TRAVERSE      4 3      4/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  4
      TRAVERSE      1 4      5/ 3/92
      TRAVERSE      2 4      5/ 3/92
      TRAVERSE      3 4      5/ 3/92
      TRAVERSE      4 4      5/ 3/92
      TRAVERSE      1 5      6/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  3
*****      Internal loop - tied to node 8291.0205   from reading  3 to reading  5
*****      Internal loop - tied to node 8291.0205   from reading  5 to reading  7
      TRAVERSE      2 5      6/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  3
*****      Internal loop - tied to node 8291.0205   from reading  3 to reading  5
*****      Internal loop - tied to node 8291.0205   from reading  5 to reading  7
      TRAVERSE      3 5      6/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  3
*****      Internal loop - tied to node 8291.0205   from reading  3 to reading  5
*****      Internal loop - tied to node 8291.0205   from reading  5 to reading  7
      TRAVERSE      4 5      6/ 3/92
*****      Internal loop - tied to node 8291.0205   from reading  1 to reading  3
*****      Internal loop - tied to node 8291.0205   from reading  3 to reading  5
*****      Internal loop - tied to node 8291.0205   from reading  5 to reading  7

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Linkage search commenced 1.5 sec

Matrix inversion commenced 1.5 sec

Matrix inversion completed 1.5 sec

Least squares values for free nodes

NODE	VALUE
6891.0305	9796856.926
9292.0105	9796863.799

Standard deviation of adjustments	0.14
Mean of adjustments	0.00
Maximum adjustment	0.39

GRAVITY *

Australian Geological Survey Organisation

*SYDNEY ISOGAL

GRAVITY *

6091.0305	9795910.362	4/ 3/922 3	0.144	Multiple
6091.0305	9795910.218	4/ 3/924 3	-0.326	Multiple
6091.0305	9795910.544	4/ 3/923 3	0.008	Multiple
6091.0305	9795910.536	4/ 3/921 3		
6891.0305	9796856.926	NODE		
7999.0105	9796376.290	NODE		
8090.0105	9796858.760	NODE		
8291.0205	9796522.100	NODE		
9292.0105	9796863.799	NODE		
9292.0205	9796851.211	3/ 3/923 1	0.245	Multiple
9292.0205	9796850.966	3/ 3/921 1	0.000	Multiple
9292.0205	9796850.966	3/ 3/921 1	0.000	Multiple
9292.0205	9796850.966	3/ 3/921 1	-0.256	Multiple
9292.0205	9796851.223	3/ 3/924 1	0.256	Multiple
9292.0205	9796850.966	3/ 3/921 1	-0.256	Multiple
9292.0205	9796851.223	3/ 3/924 1	0.085	Multiple
9292.0205	9796851.138	3/ 3/922 1	-0.085	Multiple
9292.0205	9796851.223	3/ 3/924 1	0.085	Multiple
9292.0205	9796851.138	3/ 3/922 1	-0.085	Multiple
9292.0205	9796851.223	3/ 3/924 1	0.012	Multiple
9292.0205	9796851.211	3/ 3/923 1	0.073	Multiple
9292.0205	9796851.138	3/ 3/922 1	-0.073	Multiple
9292.0205	9796851.211	3/ 3/923 1	0.000	Multiple
9292.0205	9796851.211	3/ 3/923 1	0.073	Multiple
9292.0205	9796851.138	3/ 3/922 1		
9292.0305	9796825.024	3/ 3/922 1	0.000	Multiple
9292.0305	9796825.024	3/ 3/922 1	0.195	Multiple
9292.0305	9796824.829	3/ 3/921 1	-0.312	Multiple
9292.0305	9796825.141	3/ 3/923 1	0.000	Multiple
9292.0305	9796825.141	3/ 3/923 1	0.136	Multiple
9292.0305	9796825.005	3/ 3/924 1	0.176	Multiple
9292.0305	9796824.829	3/ 3/921 1	-0.176	Multiple
9292.0305	9796825.005	3/ 3/924 1	0.176	Multiple
9292.0305	9796824.829	3/ 3/921 1	0.000	Multiple
9292.0305	9796824.829	3/ 3/921 1	-0.195	Multiple
9292.0305	9796825.024	3/ 3/922 1	0.000	Multiple
9292.0305	9796825.024	3/ 3/922 1	0.075	Multiple
9292.0305	9796824.949	5/ 3/923 4	-0.192	Multiple
9292.0305	9796825.141	3/ 3/923 1	0.277	Multiple
9292.0305	9796824.865	5/ 3/924 4	-0.277	Multiple
9292.0305	9796825.141	3/ 3/923 1	0.192	Multiple
9292.0305	9796824.949	5/ 3/923 4	-0.056	Multiple
9292.0305	9796825.005	3/ 3/924 1	0.141	Multiple
9292.0305	9796824.865	5/ 3/924 4	-0.171	Multiple
9292.0305	9796825.036	5/ 3/921 4	0.030	Multiple
9292.0305	9796825.005	3/ 3/924 1	-0.051	Multiple
9292.0305	9796825.057	5/ 3/922 4	0.000	Multiple
9292.0305	9796825.057	5/ 3/922 4	0.021	Multiple
9292.0305	9796825.036	5/ 3/921 4		
9292.0405	9795926.641	4/ 3/923 3	0.034	Multiple
9292.0405	9795926.607	4/ 3/922 3	0.259	Multiple
9292.0405	9795926.348	6/ 3/921 5	0.000	Multiple
9292.0405	9795926.348	6/ 3/921 5	-0.376	Multiple
9292.0405	9795926.724	6/ 3/922 5	0.000	Multiple
9292.0405	9795926.724	6/ 3/922 5	0.376	Multiple
9292.0405	9795926.348	6/ 3/921 5	-0.356	Multiple
9292.0405	9795926.704	4/ 3/921 3	0.425	Multiple
9292.0405	9795926.280	4/ 3/924 3	-0.575	Multiple
9292.0405	9795926.855	6/ 3/923 5	0.230	Multiple
9292.0405	9795926.625	6/ 3/924 5	0.000	Multiple
9292.0405	9795926.625	6/ 3/924 5	0.000	Multiple
9292.0405	9795926.625	6/ 3/924 5	-0.230	Multiple
9292.0405	9795926.855	6/ 3/923 5	0.000	Multiple
9292.0405	9795926.855	6/ 3/923 5	0.131	Multiple
9292.0405	9795926.724	6/ 3/922 5		
9292.9105	9796373.269	4/ 3/923 2	0.000	Multiple
9292.9105	9796373.269	4/ 3/923 2	0.000	Multiple
9292.9105	9796373.269	4/ 3/923 2	0.000	Multiple
9292.9105	9796373.269	4/ 3/923 2	-0.049	Multiple
9292.9105	9796373.318	4/ 3/924 2	0.000	Multiple
9292.9105	9796373.318	4/ 3/924 2	0.000	Multiple
9292.9105	9796373.318	4/ 3/924 2	0.000	Multiple
9292.9105	9796373.318	4/ 3/924 2	0.000	Multiple
9292.9105	9796373.318	4/ 3/924 2	0.086	Multiple
9292.9105	9796373.231	4/ 3/921 2	0.000	Multiple
9292.9105	9796373.231	4/ 3/921 2	0.000	Multiple
9292.9105	9796373.231	4/ 3/921 2	0.017	Multiple
9292.9105	9796373.215	4/ 3/922 2	0.000	Multiple
9292.9105	9796373.215	4/ 3/922 2	0.000	Multiple

9292.9105	9796373.215	4/ 3/922 2	0.000	Multiple
9292.9105	9796373.215	4/ 3/922 2	0.000	Multiple
9292.9105	9796373.215	4/ 3/922 2	-0.054	Multiple
9292.9105	9796373.269	4/ 3/923 2		

Number of stations in sorted list 83

Number of different stations 10

APPENDIX 3

D. OUTPUT OF GRAVITY PROCESSING

Survey 9292

AUSTRALIAN GRAVITY DATA

SYDNEY ISOGAL

Station	Latitude	Longitude	Height	Gravity	Location
60910305	33° 43.3'	151° 6.9'	207.45	9795910.42	Water Reservoir, Wahroonga Sydney.
68910305	33° 56.1'	151° 11.3'	6.37	9796856.93	Flight Facilities, Sydney Airport.
79990105	33° 52.'	151° 12.'		9796376.29	Absolute station, NML, Lane Cove Sydney.
80900105	33° 56.1'	151° 11.2'	6.	9796858.76	Old Air Ambulance Hangar.
82910205	33° 47.7'	151° 9.5'	4.	9796522.10	Lane Cove Park CS1B.
92920105	33° 47.'	151° 9.'		9796863.80	Telecom Aviation Services, Sydney Airport.
92920205	33° 47.'	151° 9.'		9796851.13	Ansett Terminal, Sydney Airport.
92920305	33° 47.'	151° 9.'		9796824.99	Facilities building, International Terminal.
92920405	33° 43.'	151° 6.'		9795926.62	Wahroonga Archdale Park, Wahroonga Sydney.
92929105	33° 52.'	151° 12.'		9796373.26	Ex-centre, NML gate, Lane Cove Sydney.

APPENDIX 4

A. FIELD OBSERVATIONS SURVEY 9390

9390 NML GRAVITY		GRAVITY
TRAVERSE1 1230393	20L	
93909105	09053088381	
93909205	09263089600	
92929105	09463088242	
93909305	10193088731	
93909105	10373088335	
93909205	11153089555	
92929105	11363088188	
93909305	12013088694	RM C269
93909105	12253088320	RM H201 (TOP)
93909105	14193088352	RM H201
93909205	14323089605	RM B1
92929105	14533088283	FRONT GATE (NML)
93909305	15163088795	
93909105	15393088424	
93909205	15573089674	
92929105	16183088325	
93909305	16433088845	
93909105	17013088467	
		ENDFLIGHT
TRAVERSE1 2240393	20L	
92929105	13373088237	
82910205	13553102468	LANE COVE CS1B(?)
93900105	14443123730	SHIRASE SIDE WHARF
68910305	15423134300	FLIGHT FAC SYD A/P
92920205	16023131300	INT TERM PWR HOUSE/?
93900105	16403123805	
82910205	17103102531	
92929105	17303088324	
		ENDFLIGHT
TRAVERSE1 3250393	20L	
93909305	09583088830	BAROMETRY RM C269 NML
939093050210013088537		GRADIENT MEASUREMENTS
93909305	10043088805	
939093050210073088527		
93909305	10093088810	
939093050210143088531		
93909305	10173088811	
939093050210193088528		
93909305	10223088812	
		ENDFLIGHT
TRAVERSE1 4260393	20L	
93909105	10283088433	
79990105	11153088605	
93909105	11333088412	
79990105	11473088591	
93909105	12003088412	
79990105	12123088578	
93909105	12173088390	
		ENDFLIGHT

TRAVERSE1 5260393 20L
 79990105 12323088553
 799901050212353088256
 79990105 12383088558
 799901050212413088272
 79990105 12433088584
 799901050212473088275
 79990105 12503088585

GRADIENT MEAS

ENDFLIGHT

TRAVERSE2 1230393 101L
 93909105 09093121993
 93909205 09293123208
 92929105 09503121857
 93909305 10213122333
 93909105 10423121945
 93909205 11183123160
 92929105 11393121807
 93909305 12053122305
 93909105 12223121932
 93909105 14213121989
 93909205 14353123233
 92929105 14583121900
 93909305 15203122411
 93909105 15433122045
 93909205 16013123278
 92920105 16213121950
 93909305 16463122460
 93909105 17053122070

ENDFLIGHT

TRAVERSE2 2240393 101L
 92929105 13403121847
 82910205 13583136072
 93900105 14483157400
 68910305 15463168010
 92920305 16053164990
 93900105 16423157461
 82910205 17143136175
 92929105 17323121951

ENDFLIGHT

TRAVERSE2 3250393 101L
 93909305 10253122370
 939093050210293122089
 93909305 10323122371
 939093050210343122090
 93909305 10373122369
 939093050210383122085
 93909305 10413122370
 939093050210433122084
 93909305 10453122368

ENDFLIGHT

TRAVERSE2 4260393 101L
 93909105 10303122026
 79990105 11183122185
 93909105 11363121998
 79990105 11493122170
 93909105 12023122000
 79990105 12143122169
 93909105 12233121988

ENDFLIGHT

TRAVERSE2 5260393 101L
 79990105 12533122153
 799901050212573121860
 79990105 13023122160
 799901050213063121869
 79990105 13083122170
 799901050213113121868
 79990105 13143122165

ENDFLGHT

TRAVERSE3 1230393 132L
 93909105 09143160542
 93909205 09323161748
 92929105 09553160431
 93909305 10263160865
 93909105 10463160465
 93909205 11233161680
 92929105 11453160339
 93909305 12103160828
 93909105 12303160467
 93909105 14243160502
 93909205 14393161748
 92929105 15013160420
 93909305 15233160915
 93909105 15473160554
 93909205 16053161780
 92920105 16243160448
 93909305 16503160958
 93909105 17093160590

ENDFLGHT

TRAVERSE3 2240393 132L
 92929105 13433160233
 82910205 14033174303
 93900105 14543195440
 92920305 16083202922
 93900105 16443195478
 82910205 17163174364
 92929105 17363160317

ENDFLGHT

TRAVERSE3 3250393 132L
 93909305 12043160568
 939093050212073160305
 93909305 12093160575
 939093050212113160285
 93909305 12143160585
 939093050212173160300
 93909305 12213160587
 939093050212223160302
 93909305 12253160592

ENDFLGHT

TRAVERSE3 4260393 132L
 93909105 10343160122
 79990105 11263160275
 93909105 11403160098
 79990105 11523160250
 93909105 12053160083

ENDFLGHT

TRAVERSE4 1230393 252L
 93909105 09183225848
 93909205 09363227050
 92929105 10013225700
 93909305 10293226193
 93909105 10513225782
 93909205 11283227008
 92929105 11493225675
 93909305 12143226160
 93909105 12353225781
 93909105 14283225841
 93909205 14443227075
 92929105 15053225732
 93909305 15263226263
 93909105 15513225890
 93909205 16083227127
 92920105 16283225798
 93909305 16523226307
 93909105 17123225923

ENDFLIGHT

TRAVERSE4 2240393 252L
 92929105 13403225668
 82910205 14013239841
 93900105 14493261109
 68910305 15443271658
 92920305 16043268659
 93900105 16423261161
 82910205 17123239936
 92929105 17403225740

ENDFLIGHT

TRAVERSE4 3250393 252L
 93909305 12293226200
 939093050212323225925
 93909305 13313226212
 939093050213343225930
 93909305 13373226210
 939093050213393225931
 93909305 13413226204
 939093050213443225935
 93909305 13483226215

ENDFLIGHT

TRAVERSE4 4260393 252L
 93909105 10373225842
 79990105 11293226031
 93909105 11423225826
 79990105 11543226015
 93909105 12073225820

ENDFLIGHT

ENDGRAVS_

APPENDIX 4

B. TIDAL GRAVITY CORRECTIONS

Survey 9390

Station.	Hrs	Min	Corr.rdg.	Lat (deg.min)	Long (deg.min)	Correction (mGal)
TRAVERSE1 1	23/	3/93	20L 1.05000		GMT+ 10H 0M	
93909105	9	5	3088.386	33 53.0000* S	151 12.0000* E	.006
93909205	9	26	3089.620	33 53.0000* S	151 12.0000* E	.021
92929105	9	46	3088.275	33 53.0000* S	151 12.0000* E	.034
93909305	10	19	3088.782	33 53.0000* S	151 12.0000* E	.054
93909105	10	37	3088.395	33 53.0000* S	151 12.0000* E	.063
93909205	11	15	3089.627	33 53.0000* S	151 12.0000* E	.075
92929105	11	36	3088.263	33 53.0000* S	151 12.0000* E	.079
93909305	12	1	3088.769	33 53.0000* S	151 12.0000* E	.079
93909105	12	25	3088.392	33 53.0000* S	151 12.0000* E	.075
93909105	14	19	3088.368	33 53.0000* S	151 12.0000* E	.017
93909205	14	32	3089.612	33 53.0000* S	151 12.0000* E	.007
92929105	14	53	3088.275	33 53.0000* S	151 12.0000* E	-.008
93909305	15	16	3088.771	33 53.0000* S	151 12.0000* E	-.025
93909105	15	39	3088.385	33 53.0000* S	151 12.0000* E	-.041
93909205	15	57	3089.624	33 53.0000* S	151 12.0000* E	-.052
92929105	16	18	3088.264	33 53.0000* S	151 12.0000* E	-.064
93909305	16	43	3088.773	33 53.0000* S	151 12.0000* E	-.076
93909105	17	1	3088.389	33 53.0000* S	151 12.0000* E	-.082
TRAVERSE1 2	24/	3/93	20L 1.05000		GMT+ 10H 0M	
92929105	13	37	3088.280	33 53.0000* S	151 12.0000* E	.045
82910205	13	55	3102.503	33 53.0000* S	151 12.0000* E	.036
93900105	14	44	3123.736	33 53.0000* S	151 12.0000* E	.006
68910305	15	42	3134.268	33 53.0000* S	151 12.0000* E	-.034
92920305	16	2	3131.256	33 53.0000* S	151 12.0000* E	-.046
93900105	16	40	3123.741	33 53.0000* S	151 12.0000* E	-.068
82910205	17	10	3102.455	33 53.0000* S	151 12.0000* E	-.080
92929105	17	30	3088.243	33 53.0000* S	151 12.0000* E	-.085
TRAVERSE1 3	25/	3/93	20L 1.05000		GMT+ 10H 0M	
93909305	9	58	3088.818	33 53.0000* S	151 12.0000* E	-.013
9390930502	10	1	3088.526	33 53.0000* S	151 12.0000* E	-.011
93909305	10	4	3088.796	33 53.0000* S	151 12.0000* E	-.009
9390930502	10	7	3088.520	33 53.0000* S	151 12.0000* E	-.008
93909305	10	9	3088.804	33 53.0000* S	151 12.0000* E	-.006
9390930502	10	14	3088.528	33 53.0000* S	151 12.0000* E	-.003
93909305	10	17	3088.809	33 53.0000* S	151 12.0000* E	-.002
9390930502	10	19	3088.528	33 53.0000* S	151 12.0000* E	.000
93909305	10	22	3088.813	33 53.0000* S	151 12.0000* E	.001
TRAVERSE1 4	26/	3/93	20L 1.05000		GMT+ 10H 0M	
93909105	10	28	3088.415	33 53.0000* S	151 12.0000* E	-.019
79990105	11	15	3088.609	33 53.0000* S	151 12.0000* E	.004
93909105	11	33	3088.423	33 53.0000* S	151 12.0000* E	.012
79990105	11	47	3088.607	33 53.0000* S	151 12.0000* E	.017
93909105	12	0	3088.432	33 53.0000* S	151 12.0000* E	.021
79990105	12	12	3088.601	33 53.0000* S	151 12.0000* E	.025
93909105	12	17	3088.415	33 53.0000* S	151 12.0000* E	.026

Station.	Hrs	Min	Corr.rdg.	Lat (deg.min)	Long (deg.min)	Correction (mGal)
TRAVERSE1 5	26/	3/93	20L 1.05000		GMT+ 10H 0M	
79990105	12	32	3088.580	33 53.0000* S	151 12.0000* E	.029
7999010502	12	35	3088.284	33 53.0000* S	151 12.0000* E	.029
79990105	12	38	3088.586	33 53.0000* S	151 12.0000* E	.030
7999010502	12	41	3088.301	33 53.0000* S	151 12.0000* E	.030
79990105	12	43	3088.613	33 53.0000* S	151 12.0000* E	.030
7999010502	12	47	3088.304	33 53.0000* S	151 12.0000* E	.031
79990105	12	50	3088.615	33 53.0000* S	151 12.0000* E	.031
TRAVERSE2 1	23/	3/93	101L 1.05000		GMT+ 10H 0M	
93909105	9	9	3122.001	33 53.0000* S	151 12.0000* E	.008
93909205	9	29	3123.230	33 53.0000* S	151 12.0000* E	.023
92929105	9	50	3121.892	33 53.0000* S	151 12.0000* E	.037
93909305	10	21	3122.385	33 53.0000* S	151 12.0000* E	.055
93909105	10	42	3122.007	33 53.0000* S	151 12.0000* E	.065
93909205	11	18	3123.232	33 53.0000* S	151 12.0000* E	.076
92929105	11	39	3121.882	33 53.0000* S	151 12.0000* E	.079
93909305	12	5	3122.380	33 53.0000* S	151 12.0000* E	.079
93909105	12	22	3122.004	33 53.0000* S	151 12.0000* E	.076
93909105	14	21	3122.003	33 53.0000* S	151 12.0000* E	.015
93909205	14	35	3123.238	33 53.0000* S	151 12.0000* E	.005
92929105	14	58	3121.889	33 53.0000* S	151 12.0000* E	-.012
93909305	15	20	3122.384	33 53.0000* S	151 12.0000* E	-.028
93909105	15	43	3122.003	33 53.0000* S	151 12.0000* E	-.044
93909205	16	1	3123.226	33 53.0000* S	151 12.0000* E	-.055
92929105	16	21	3121.887	33 53.0000* S	151 12.0000* E	-.066
93909305	16	46	3122.387	33 53.0000* S	151 12.0000* E	-.077
93909105	17	5	3121.991	33 53.0000* S	151 12.0000* E	-.083
TRAVERSE2 2	24/	3/93	101L 1.05000		GMT+ 10H 0M	
92929105	13	40	3121.889	33 53.0000* S	151 12.0000* E	.044
82910205	13	58	3136.105	33 53.0000* S	151 12.0000* E	.035
93900105	14	48	3157.403	33 53.0000* S	151 12.0000* E	.004
68910305	15	46	3167.976	33 53.0000* S	151 12.0000* E	-.036
92920305	16	5	3164.944	33 53.0000* S	151 12.0000* E	-.048
93900105	16	42	3157.396	33 53.0000* S	151 12.0000* E	-.069
82910205	17	14	3136.098	33 53.0000* S	151 12.0000* E	-.081
92929105	17	32	3121.869	33 53.0000* S	151 12.0000* E	-.086
TRAVERSE2 3	25/	3/93	101L 1.05000		GMT+ 10H 0M	
93909305	10	25	3122.373	33 53.0000* S	151 12.0000* E	.003
9390930502	10	29	3122.094	33 53.0000* S	151 12.0000* E	.005
93909305	10	32	3122.378	33 53.0000* S	151 12.0000* E	.007
9390930502	10	34	3122.098	33 53.0000* S	151 12.0000* E	.008
93909305	10	37	3122.378	33 53.0000* S	151 12.0000* E	.010
9390930502	10	38	3122.095	33 53.0000* S	151 12.0000* E	.011
93909305	10	41	3122.382	33 53.0000* S	151 12.0000* E	.012
9390930502	10	43	3122.097	33 53.0000* S	151 12.0000* E	.013
93909305	10	45	3122.382	33 53.0000* S	151 12.0000* E	.014
TRAVERSE2 4	26/	3/93	101L 1.05000		GMT+ 10H 0M	
93909105	10	30	3122.009	33 53.0000* S	151 12.0000* E	-.018
79990105	11	18	3122.190	33 53.0000* S	151 12.0000* E	.005
93909105	11	36	3122.010	33 53.0000* S	151 12.0000* E	.013
79990105	11	49	3122.187	33 53.0000* S	151 12.0000* E	.018
93909105	12	2	3122.021	33 53.0000* S	151 12.0000* E	.022
79990105	12	14	3122.193	33 53.0000* S	151 12.0000* E	.025
93909105	12	23	3122.014	33 53.0000* S	151 12.0000* E	.027

Station.	Hrs	Min	Corr.rdg.	Lat (deg.min)	Long (deg.min)	Correction (mGal)
TRAVERSE2 5	26/	3/93	101L	1.05000	GMT+ 10H	0M
79990105	12	53	3122.183	33 53.0000* S	151 12.0000* E	.031
7999010502	12	57	3121.890	33 53.0000* S	151 12.0000* E	.032
79990105	13	2	3122.190	33 53.0000* S	151 12.0000* E	.032
7999010502	13	6	3121.899	33 53.0000* S	151 12.0000* E	.032
79990105	13	8	3122.200	33 53.0000* S	151 12.0000* E	.032
7999010502	13	11	3121.898	33 53.0000* S	151 12.0000* E	.032
79990105	13	14	3122.195	33 53.0000* S	151 12.0000* E	.032
TRAVERSE3 1	23/	3/93	132L	1.05000	GMT+ 10H	0M
93909105	9	14	3160.554	33 53.0000* S	151 12.0000* E	.012
93909205	9	32	3161.772	33 53.0000* S	151 12.0000* E	.025
92929105	9	55	3160.469	33 53.0000* S	151 12.0000* E	.040
93909305	10	26	3160.920	33 53.0000* S	151 12.0000* E	.058
93909105	10	46	3160.528	33 53.0000* S	151 12.0000* E	.066
93909205	11	23	3161.753	33 53.0000* S	151 12.0000* E	.077
92929105	11	45	3160.414	33 53.0000* S	151 12.0000* E	.079
93909305	12	10	3160.902	33 53.0000* S	151 12.0000* E	.078
93909105	12	30	3160.538	33 53.0000* S	151 12.0000* E	.074
93909105	14	24	3160.514	33 53.0000* S	151 12.0000* E	.013
93909205	14	39	3161.750	33 53.0000* S	151 12.0000* E	.002
92929105	15	1	3160.406	33 53.0000* S	151 12.0000* E	-.014
93909305	15	23	3160.886	33 53.0000* S	151 12.0000* E	-.030
93909105	15	47	3160.510	33 53.0000* S	151 12.0000* E	-.046
93909205	16	5	3161.726	33 53.0000* S	151 12.0000* E	-.057
92929105	16	24	3160.384	33 53.0000* S	151 12.0000* E	-.067
93909305	16	50	3160.884	33 53.0000* S	151 12.0000* E	-.078
93909105	17	9	3160.510	33 53.0000* S	151 12.0000* E	-.084
TRAVERSE3 2	24/	3/93	132L	1.05000	GMT+ 10H	0M
92929105	13	43	3160.274	33 53.0000* S	151 12.0000* E	.043
82910205	14	3	3174.333	33 53.0000* S	151 12.0000* E	.032
93900105	14	54	3195.439	33 53.0000* S	151 12.0000* E	-.001
92920305	16	8	3202.874	33 53.0000* S	151 12.0000* E	-.050
93900105	16	44	3195.412	33 53.0000* S	151 12.0000* E	-.070
82910205	17	16	3174.286	33 53.0000* S	151 12.0000* E	-.082
92929105	17	36	3160.235	33 53.0000* S	151 12.0000* E	-.086
TRAVERSE3 3	25/	3/93	132L	1.05000	GMT+ 10H	0M
93909305	12	4	3160.611	33 53.0000* S	151 12.0000* E	.045
9390930502	12	7	3160.348	33 53.0000* S	151 12.0000* E	.046
93909305	12	9	3160.619	33 53.0000* S	151 12.0000* E	.046
9390930502	12	11	3160.329	33 53.0000* S	151 12.0000* E	.046
93909305	12	14	3160.630	33 53.0000* S	151 12.0000* E	.047
9390930502	12	17	3160.345	33 53.0000* S	151 12.0000* E	.047
93909305	12	21	3160.633	33 53.0000* S	151 12.0000* E	.048
9390930502	12	22	3160.348	33 53.0000* S	151 12.0000* E	.048
93909305	12	25	3160.638	33 53.0000* S	151 12.0000* E	.048
TRAVERSE3 4	26/	3/93	132L	1.05000	GMT+ 10H	0M
93909105	10	34	3160.107	33 53.0000* S	151 12.0000* E	-.016
79990105	11	26	3160.283	33 53.0000* S	151 12.0000* E	.009
93909105	11	40	3160.112	33 53.0000* S	151 12.0000* E	.014
79990105	11	52	3160.268	33 53.0000* S	151 12.0000* E	.019
93909105	12	5	3160.105	33 53.0000* S	151 12.0000* E	.023

Station.	Hrs	Min	Corr.rdg.	Lat (deg.min)	Long (deg.min)	Correction (mGal)
TRAVERSE4 1	23/	3/93	252L	1.05000	GMT+ 10H 0M	
93909105	9	18	3225.862	33 53.0000* S	151 12.0000* E	.015
93909205	9	36	3227.076	33 53.0000* S	151 12.0000* E	.028
92929105	10	1	3225.742	33 53.0000* S	151 12.0000* E	.044
93909305	10	29	3226.249	33 53.0000* S	151 12.0000* E	.059
93909105	10	51	3225.847	33 53.0000* S	151 12.0000* E	.068
93909205	11	28	3227.082	33 53.0000* S	151 12.0000* E	.078
92929105	11	49	3225.751	33 53.0000* S	151 12.0000* E	.079
93909305	12	14	3226.234	33 53.0000* S	151 12.0000* E	.077
93909105	12	35	3225.850	33 53.0000* S	151 12.0000* E	.073
93909105	14	28	3225.851	33 53.0000* S	151 12.0000* E	.010
93909205	14	44	3227.073	33 53.0000* S	151 12.0000* E	-.002
92929105	15	5	3225.716	33 53.0000* S	151 12.0000* E	-.017
93909305	15	26	3226.232	33 53.0000* S	151 12.0000* E	-.032
93909105	15	51	3225.844	33 53.0000* S	151 12.0000* E	-.049
93909205	16	8	3227.071	33 53.0000* S	151 12.0000* E	-.059
92929105	16	28	3225.732	33 53.0000* S	151 12.0000* E	-.069
93909305	16	52	3226.232	33 53.0000* S	151 12.0000* E	-.079
93909105	17	12	3225.843	33 53.0000* S	151 12.0000* E	-.084
TRAVERSE4 2	24/	3/93	252L	1.05000	GMT+ 10H 0M	
92929105	13	40	3225.710	33 53.0000* S	151 12.0000* E	.044
82910205	14	1	3239.873	33 53.0000* S	151 12.0000* E	.033
93900105	14	49	3261.112	33 53.0000* S	151 12.0000* E	.003
68910305	15	44	3271.625	33 53.0000* S	151 12.0000* E	-.035
92920305	16	4	3268.614	33 53.0000* S	151 12.0000* E	-.048
93900105	16	42	3261.096	33 53.0000* S	151 12.0000* E	-.069
82910205	17	12	3239.859	33 53.0000* S	151 12.0000* E	-.080
92929105	17	40	3225.657	33 53.0000* S	151 12.0000* E	-.087
TRAVERSE4 3	25/	3/93	252L	1.05000	GMT+ 10H 0M	
93909305	12	29	3226.246	33 53.0000* S	151 12.0000* E	.049
9390930502	12	32	3225.971	33 53.0000* S	151 12.0000* E	.049
93909305	13	31	3226.252	33 53.0000* S	151 12.0000* E	.042
9390930502	13	34	3225.969	33 53.0000* S	151 12.0000* E	.041
93909305	13	37	3226.248	33 53.0000* S	151 12.0000* E	.040
9390930502	13	39	3225.969	33 53.0000* S	151 12.0000* E	.040
93909305	13	41	3226.241	33 53.0000* S	151 12.0000* E	.039
9390930502	13	44	3225.971	33 53.0000* S	151 12.0000* E	.038
93909305	13	48	3226.250	33 53.0000* S	151 12.0000* E	.037
TRAVERSE4 4	26/	3/93	252L	1.05000	GMT+ 10H 0M	
93909105	10	37	3225.828	33 53.0000* S	151 12.0000* E	-.014
79990105	11	29	3226.041	33 53.0000* S	151 12.0000* E	.010
93909105	11	42	3225.840	33 53.0000* S	151 12.0000* E	.015
79990105	11	54	3226.033	33 53.0000* S	151 12.0000* E	.019
93909105	12	7	3225.842	33 53.0000* S	151 12.0000* E	.023

Coordinate averaging has been done

*** End Ertide. ***

APPENDIX 4

C. INITIAL PROCESSING SUMMARY AND STATISTICS.

Survey 9390

GRVHTS Version 6 of November 1992 - Phase one sub-program
1997/09/16 at 13:25:22

Computed on

Input data for this pass being read from non-standard unit 40

Gravity meter data reduction

Latitude-Longitude data saved

* Segment identification *9390 NML GRAVITY

GRAVITY

TRAVERSE	Flight 1 1	23/ 3/93	Meter	20L	Scale factor	1.04999
Scale correction factor is			1.000406026840210			
Station	Time	Gravity	Drift	Diff	Reading	
9390.9105	905	.000	.000	-.001	3088.386	
9390.9205	926	1.298	.002	-.004	3089.620	
9292.9105	946	-.123	.004	.002	3088.275	
9390.9305	1019	.407	.004	.004	3088.782	
9390.9105	1037	.000	.004	.005	3088.395	
9390.9205	1115	1.298	.002	.004	3089.627	
9292.9105	1136	-.123	.000	-.007	3088.263	
9390.9305	1201	.407	-.001	-.004	3088.769	
9390.9105	1225	.000	-.001	.007	3088.392	
9390.9105	1419	.000	-.008	-.012	3088.368	
9390.9205	1432	1.298	-.007	-.003	3089.612	
9292.9105	1453	-.123	-.004	.010	3088.275	
9390.9305	1516	.407	-.003	.000	3088.771	
9390.9105	1539	.000	-.002	.000	3088.385	
9390.9205	1557	1.298	-.001	.004	3089.624	
9292.9105	1618	-.123	-.002	-.004	3088.264	
9390.9305	1643	.407	-.001	.000	3088.773	
9390.9105	1701	.000	.000	.002	3088.389	

TRAVERSE	Flight 1 2	24/ 3/93	Meter	20L	Scale factor	1.04999
Scale correction factor is			1.000406026840210			
Station	Time	Gravity	Drift	Diff	Reading	
9292.9105	1337	.000	.000	.001	3088.280	
8291.0205	1355	14.945	-.003	.009	3102.503	
9390.0105	1444	37.298	-.013	-.010	3123.736	
6891.0305	1542	48.368	-.021	.000	3134.268	
9292.0305	1602	45.204	-.023	.000	3131.256	
9390.0105	1640	37.298	-.028	.010	3123.741	
8291.0205	1710	14.945	-.035	-.009	3102.455	
9292.9105	1730	.000	-.038	-.001	3088.243	

TRAVERSE	Flight 1 3	25/ 3/93	Meter	20L	Scale factor	1.04999
Scale correction factor is			1.000406026840210			
Station	Time	Gravity	Drift	Diff	Reading	
9390.9305	958	.000	.000	.001	3088.818	
9390.930502	1001	-.295	-.012	.000	3088.526	
9390.9305	1004	.000	-.019	-.004	3088.796	
9390.930502	1007	-.295	-.018	.000	3088.520	
9390.9305	1009	.000	-.015	.001	3088.804	
9390.930502	1014	-.295	-.010	.001	3088.528	
9390.9305	1017	.000	-.009	.001	3088.809	
9390.930502	1019	-.295	-.009	-.001	3088.528	
9390.9305	1022	.000	-.006	.001	3088.813	

TRAVERSE Flight 1 4 26/ 3/93 Meter 20L Scale factor 1.04999

Scale correction factor is 1.000406026840210

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	1028	.000	.000	-.004	3088.415
7999.0105	1115	.191	.006	.003	3088.609
9390.9105	1133	.000	.007	-.002	3088.423
7999.0105	1147	.191	.009	-.002	3088.607
9390.9105	1200	.000	.009	.005	3088.432
7999.0105	1212	.191	.001	-.001	3088.601
9390.9105	1217	.000	-.004	.000	3088.415

TRAVERSE Flight 2 1 23/ 3/93 Meter 101L Scale factor 1.04999

Scale correction factor is 1.002928018569946

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	909	.000	.000	-.001	3122.001
9390.9205	929	1.289	.001	-.002	3123.230
9292.9105	950	-.120	.002	.003	3121.892
9390.9305	1021	.401	.002	-.001	3122.385
9390.9105	1042	.000	.002	.004	3122.007
9390.9205	1118	1.289	.000	.001	3123.232
9292.9105	1139	-.120	.000	-.005	3121.882
9390.9305	1205	.401	.000	-.004	3122.380
9390.9105	1222	.000	.000	.003	3122.004
9390.9105	1421	.000	.002	-.001	3122.003
9390.9205	1435	1.289	.003	.005	3123.238
9292.9105	1458	-.120	.002	.000	3121.889
9390.9305	1520	.401	.001	-.001	3122.384
9390.9105	1543	.000	.000	.001	3122.003
9390.9205	1601	1.289	-.001	-.004	3123.226
9292.9105	1621	-.120	-.002	.002	3121.887
9390.9305	1646	.401	-.003	.006	3122.387
9390.9105	1705	.000	-.006	-.005	3121.991

TRAVERSE Flight 2 2 24/ 3/93 Meter 101L Scale factor 1.04999

Scale correction factor is 1.002928018569946

Station	Time	Gravity	Drift	Diff	Reading
9292.9105	1340	.000	.000	.003	3121.889
8291.0205	1358	14.919	-.002	-.003	3136.105
9390.0105	1448	37.260	-.005	.000	3157.403
6891.0305	1546	48.355	-.009	.000	3167.976
9292.0305	1605	45.175	-.010	.000	3164.944
9390.0105	1642	37.260	-.012	.000	3157.396
8291.0205	1714	14.919	-.014	.003	3136.098
9292.9105	1732	.000	-.016	-.003	3121.869

TRAVERSE Flight 2 3 25/ 3/93 Meter 101L Scale factor 1.04999

Scale correction factor is 1.002928018569946

Station	Time	Gravity	Drift	Diff	Reading
9390.9305	1025	.000	.000	-.001	3122.373
9390.930502	1029	-.297	.003	.000	3122.094
9390.9305	1032	.000	.005	-.001	3122.378
9390.930502	1034	-.297	.006	.001	3122.098
9390.9305	1037	.000	.005	-.001	3122.378
9390.930502	1038	-.297	.005	-.001	3122.095
9390.9305	1041	.000	.007	.001	3122.382
9390.930502	1043	-.297	.008	-.001	3122.097
9390.9305	1045	.000	.008	.001	3122.382

TRAVERSE Flight 2 4 26/ 3/93 Meter 101L Scale factor 1.04999

Scale correction factor is 1.002928018569946

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	1030	.000	.000	-.002	3122.009
7999.0105	1118	.185	.001	.002	3122.190
9390.9105	1136	.000	.000	-.001	3122.010
7999.0105	1149	.185	.002	-.002	3122.187
9390.9105	1202	.000	.007	.004	3122.021
7999.0105	1214	.185	.006	.000	3122.193
9390.9105	1223	.000	.003	.000	3122.014

TRAVERSE Flight 2 5 26/ 3/93 Meter 101L Scale factor 1.04999

Scale correction factor is 1.002928018569946

Station	Time	Gravity	Drift	Diff	Reading
7999.0105	1253	.000	.000	-.001	3122.183
7999.010502	1257	-.312	.003	.001	3121.890
7999.0105	1302	.000	.008	-.002	3122.190
7999.010502	1306	-.312	.014	.000	3121.899
7999.0105	1308	.000	.015	.002	3122.200
7999.010502	1311	-.312	.013	-.001	3121.898
7999.0105	1314	.000	.011	.001	3122.195

TRAVERSE Flight 3 1 23/ 3/93 Meter 132L Scale factor 1.04999

Scale correction factor is 1.000398039817810

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	914	.000	.000	-.011	3160.554
9390.9205	932	1.295	-.005	-.010	3161.772
9292.9105	955	-.112	-.011	.023	3160.469
9390.9305	1026	.400	-.021	-.001	3160.920
9390.9105	1046	.000	-.027	-.011	3160.528
9390.9205	1123	1.295	-.035	-.001	3161.753
9292.9105	1145	-.112	-.038	-.008	3160.414
9390.9305	1210	.400	-.039	-.003	3160.902
9390.9105	1230	.000	-.039	.012	3160.538
9390.9105	1424	.000	-.050	-.003	3160.514
9390.9205	1439	1.295	-.051	.012	3161.750
9292.9105	1501	-.112	-.053	-.002	3160.406
9390.9305	1523	.400	-.057	-.001	3160.886
9390.9105	1547	.000	-.061	.004	3160.510
9390.9205	1605	1.295	-.064	-.001	3161.726
9292.9105	1624	-.112	-.066	-.013	3160.384
9390.9305	1650	.400	-.066	.005	3160.884
9390.9105	1709	.000	-.066	.009	3160.510

TRAVERSE Flight 3 2 24/ 3/93 Meter 132L Scale factor 1.04999

Scale correction factor is 1.000398039817810

Station	Time	Gravity	Drift	Diff	Reading
9292.9105	1343	.000	.000	-.005	3160.274
8291.0205	1403	14.887	-.004	.003	3174.333
9390.0105	1454	37.254	-.015	.002	3195.439
9292.0305	1608	45.148	-.032	.000	3202.874
9390.0105	1644	37.254	-.040	-.002	3195.412
8291.0205	1716	14.887	-.047	-.003	3174.286
9292.9105	1736	.000	-.051	.005	3160.235

TRAVERSE Flight 3 4 26/ 3/93 Meter 132L Scale factor 1.04999

Scale correction factor is 1.000398039817810

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	1034	.000	.000	-.004	3160.107
7999.0105	1126	.175	.004	.003	3160.283
9390.9105	1140	.000	.000	.001	3160.112
7999.0105	1152	.175	-.005	-.003	3160.268
9390.9105	1205	.000	-.009	.003	3160.105

TRAVERSE Flight 4 1 23/ 3/93 Meter 252L Scale factor 1.04999

Scale correction factor is 1.000614047050476

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	918	.000	.000	.002	3225.862
9390.9205	936	1.290	-.003	-.007	3227.076
9292.9105	1001	-.120	-.004	.000	3225.742
9390.9305	1029	.408	-.005	.006	3226.249
9390.9105	1051	.000	-.006	-.008	3225.847
9390.9205	1128	1.290	-.005	.002	3227.082
9292.9105	1149	-.120	-.006	.011	3225.751
9390.9305	1214	.408	-.008	-.007	3226.234
9390.9105	1235	.000	-.009	-.001	3225.850
9390.9105	1428	.000	-.016	.007	3225.851
9390.9205	1444	1.290	-.017	.004	3227.073
9292.9105	1505	-.120	-.019	-.013	3225.716
9390.9305	1526	.408	-.019	.002	3226.232
9390.9105	1551	.000	-.018	.001	3225.844
9390.9205	1608	1.290	-.017	.002	3227.071
9292.9105	1628	-.120	-.016	.001	3225.732
9390.9305	1652	.408	-.016	-.001	3226.232
9390.9105	1712	.000	-.016	-.001	3225.843

TRAVERSE Flight 4 2 24/ 3/93 Meter 252L Scale factor 1.04999

Scale correction factor is 1.000614047050476

Station	Time	Gravity	Drift	Diff	Reading
9292.9105	1340	.000	.000	.008	3225.710
8291.0205	1401	14.918	-.005	-.007	3239.873
9390.0105	1449	37.261	-.012	.000	3261.112
6891.0305	1544	48.328	-.021	.000	3271.625
9292.0305	1604	45.164	-.024	.000	3268.614
9390.0105	1642	37.261	-.030	.000	3261.096
8291.0205	1712	14.918	-.034	.007	3239.859
9292.9105	1740	.000	-.041	-.008	3225.657

TRAVERSE Flight 4 3 25/ 3/93 Meter 252L Scale factor 1.04999

Scale correction factor is 1.000614047050476

Station	Time	Gravity	Drift	Diff	Reading
9390.9305	1229	.000	.000	-.001	3226.246
9390.930502	1232	-.291	.000	.001	3225.971
9390.9305	1331	.000	.002	.003	3226.252
9390.930502	1334	-.291	.001	-.002	3225.969
9390.9305	1337	.000	.000	.001	3226.248
9390.930502	1339	-.291	-.002	.000	3225.969
9390.9305	1341	.000	-.003	-.003	3226.241
9390.930502	1344	-.291	.000	.001	3225.971
9390.9305	1348	.000	.005	-.001	3226.250

TRAVERSE Flight 4 4 26/ 3/93 Meter 252L Scale factor 1.04999

Scale correction factor is 1.000614047050476

Station	Time	Gravity	Drift	Diff	Reading
9390.9105	1037	.000	.000	-.003	3225.828
7999.0105	1129	.208	.010	.003	3226.041
9390.9105	1142	.000	.009	.000	3225.840
7999.0105	1154	.208	.008	-.003	3226.033
9390.9105	1207	.000	.009	.003	3225.842

MNSLOPE completed at .1 seconds.

Position data saved on scratch file

Scratch file closed

GRVHTS Version 6 of November 1992 - Phase two sub-program

Computed on 1997/09/16 at 13:25:22

Least squares adjustment phase - commenced .1 sec

Number of segments to adjust together 1

*9390 NML GRAVITY

GRAVITY *

Free nodes

7999.010502
9292.0305
9292.9105
9390.0105
9390.9105
9390.9205
9390.9305
9390.930502

Fixed nodes Values

6891.0305 9796856.750
7999.0105 9796376.290
8291.0205 9796522.100

Free and fixed node lists compared

Number of free nodes deleted is 0

Final number of free nodes is 8

Final number of fixed nodes is 3

Total number of nodes in list is 11

Maximum adjustment expected - Height 5.00 metres
Gravity 1.00 mums-
Magnetic 10.00 gammas

Data search commenced .1 sec

Australian Geological Survey Organisation

```

Segment identification *9390 NML GRAVITY
*
      TRAVERSE      1 1      23/ 3/93
*****            Internal loop - tied to node 9390.9105   from reading  9 to reading 10
      TRAVERSE      1 2      24/ 3/93
      TRAVERSE      1 3      25/ 3/93
      TRAVERSE      1 4      26/ 3/93
      TRAVERSE      2 1      23/ 3/93
*****            Internal loop - tied to node 9390.9105   from reading  9 to reading 10
      TRAVERSE      2 2      24/ 3/93
      TRAVERSE      2 3      25/ 3/93
      TRAVERSE      2 4      26/ 3/93
      TRAVERSE      2 5      26/ 3/93
      TRAVERSE      3 1      23/ 3/93
*****            Internal loop - tied to node 9390.9105   from reading  9 to reading 10
      TRAVERSE      3 2      24/ 3/93
      TRAVERSE      3 4      26/ 3/93
      TRAVERSE      4 1      23/ 3/93
*****            Internal loop - tied to node 9390.9105   from reading  9 to reading 10
      TRAVERSE      4 2      24/ 3/93
      TRAVERSE      4 3      25/ 3/93
      TRAVERSE      4 4      26/ 3/93

Linkage search commenced      .2 sec

Matrix inversion commenced      .2 sec

Matrix inversion completed      .2 sec

-
Least squares values for free nodes

      node          VALUE

7999.010502      9796373.165
9292.0305        9796824.886
9292.9105        9796373.075
9390.0105        9796745.758
9390.9105        9796374.337
9390.9205        9796387.230
9390.9305        9796378.340
9390.930502      9796375.399

```

Connection table and adjustments

Node	Node		Difference	Adjustment	Flight	
9390.9105	9390.9205		12.980	-.088	TRAVERSE	1 1
9390.9205	9292.9105		-14.211	.056	TRAVERSE	1 1
9292.9105	9390.9305		5.298	-.033	TRAVERSE	1 1
9390.9305	9390.9105		-4.068	.065	TRAVERSE	1 1
9390.9105	9390.9205		12.980	-.088	TRAVERSE	1 1
9390.9205	9292.9105		-14.211	.056	TRAVERSE	1 1
9292.9105	9390.9305		5.298	-.033	TRAVERSE	1 1
9390.9305	9390.9105		-4.068	.065	TRAVERSE	1 1
9390.9105	9390.9205		12.980	-.088	TRAVERSE	1 1
9390.9205	9292.9105		-14.211	.056	TRAVERSE	1 1
9292.9105	9390.9305		5.298	-.033	TRAVERSE	1 1
9390.9305	9390.9105		-4.068	.065	TRAVERSE	1 1
9390.9105	9390.9205		12.980	-.088	TRAVERSE	1 1
9390.9205	9292.9105		-14.211	.056	TRAVERSE	1 1
9292.9105	9390.9305		5.298	-.033	TRAVERSE	1 1
9390.9305	9390.9105		-4.068	.065	TRAVERSE	1 1
9292.9105	8291.0205	FIXED	149.450	-.424	TRAVERSE	1 2
8291.0205	9390.0105		223.527	.131	TRAVERSE	1 2
9390.0105	6891.0305	FIXED	110.699	.293	TRAVERSE	1 2
6891.0305	9292.0305		-31.641	-.224	TRAVERSE	1 2
9292.0305	9390.0105		-79.059	-.069	TRAVERSE	1 2
9390.0105	8291.0205	FIXED	-223.527	-.131	TRAVERSE	1 2
8291.0205	9292.9105		-149.450	.424	TRAVERSE	1 2
9390.9305	9390.930502		-2.947	.006	TRAVERSE	1 3
9390.930502	9390.9305		2.947	-.006	TRAVERSE	1 3
9390.9305	9390.930502		-2.947	.006	TRAVERSE	1 3
9390.930502	9390.9305		2.947	-.006	TRAVERSE	1 3
9390.9305	9390.930502		-2.947	.006	TRAVERSE	1 3
9390.930502	9390.9305		2.947	-.006	TRAVERSE	1 3
9390.9305	9390.930502		-2.947	.006	TRAVERSE	1 3
9390.930502	9390.9305		2.947	-.006	TRAVERSE	1 3
9390.9105	7999.0105	FIXED	1.915	.038	TRAVERSE	1 4
7999.0105	9390.9105		-1.915	-.038	TRAVERSE	1 4
9390.9105	7999.0105	FIXED	1.915	.038	TRAVERSE	1 4
7999.0105	9390.9105		-1.915	-.038	TRAVERSE	1 4
9390.9105	7999.0105	FIXED	1.915	.038	TRAVERSE	1 4
7999.0105	9390.9105		-1.915	-.038	TRAVERSE	1 4
9390.9105	9390.9205		12.891	.002	TRAVERSE	2 1
9390.9205	9292.9105		-14.095	-.060	TRAVERSE	2 1
9292.9105	9390.9305		5.214	.051	TRAVERSE	2 1
9390.9305	9390.9105		-4.010	.007	TRAVERSE	2 1
9390.9105	9390.9205		12.891	.002	TRAVERSE	2 1
9390.9205	9292.9105		-14.095	-.060	TRAVERSE	2 1
9292.9105	9390.9305		5.214	.051	TRAVERSE	2 1
9390.9305	9390.9105		-4.010	.007	TRAVERSE	2 1
9390.9105	9390.9205		12.891	.002	TRAVERSE	2 1
9390.9205	9292.9105		-14.095	-.060	TRAVERSE	2 1
9292.9105	9390.9305		5.214	.051	TRAVERSE	2 1
9390.9305	9390.9105		-4.010	.007	TRAVERSE	2 1
9292.9105	8291.0205	FIXED	149.189	-.164	TRAVERSE	2 2
8291.0205	9390.0105		223.414	.244	TRAVERSE	2 2
9390.0105	6891.0305	FIXED	110.944	.048	TRAVERSE	2 2
6891.0305	9292.0305		-31.792	-.072	TRAVERSE	2 2
9292.0305	9390.0105		-79.152	.024	TRAVERSE	2 2
9390.0105	8291.0205	FIXED	-223.414	-.244	TRAVERSE	2 2
8291.0205	9292.9105		-149.189	.164	TRAVERSE	2 2
9390.9305	9390.930502		-2.969	.027	TRAVERSE	2 3
9390.930502	9390.9305		2.969	-.027	TRAVERSE	2 3
9390.9305	9390.930502		-2.969	.027	TRAVERSE	2 3
9390.930502	9390.9305		2.969	-.027	TRAVERSE	2 3
9390.9305	9390.930502		-2.969	.027	TRAVERSE	2 3
9390.930502	9390.9305		2.969	-.027	TRAVERSE	2 3
9390.9105	7999.0105	FIXED	1.845	.107	TRAVERSE	2 4
7999.0105	9390.9105		-1.845	-.107	TRAVERSE	2 4
9390.9105	7999.0105	FIXED	1.845	.107	TRAVERSE	2 4
7999.0105	9390.9105		-1.845	-.107	TRAVERSE	2 4
9390.9105	7999.0105	FIXED	1.845	.107	TRAVERSE	2 4
7999.0105	9390.9105		-1.845	-.107	TRAVERSE	2 4
7999.0105	7999.010502		-3.125	.000	TRAVERSE	2 5
7999.010502	7999.0105	FIXED	3.125	.000	TRAVERSE	2 5
7999.0105	7999.010502		-3.125	.000	TRAVERSE	2 5
7999.010502	7999.0105	FIXED	3.125	.000	TRAVERSE	2 5
7999.0105	7999.010502		-3.125	.000	TRAVERSE	2 5
7999.010502	7999.0105	FIXED	3.125	.000	TRAVERSE	2 5
9390.9105	9390.9205		12.951	-.058	TRAVERSE	3 1
9390.9205	9292.9105		-14.074	-.081	TRAVERSE	3 1
9292.9105	9390.9305		5.120	.145	TRAVERSE	3 1

Connection table and adjustments
Node Node

Difference Adjustment

Flight

9390.9305	9390.9105	-3.997	-.006	TRAVERSE	3 1
9390.9105	9390.9205	12.951	-.058	TRAVERSE	3 1
9390.9205	9292.9105	-14.074	-.081	TRAVERSE	3 1
9292.9105	9390.9305	5.120	.145	TRAVERSE	3 1
9390.9305	9390.9105	-3.997	-.006	TRAVERSE	3 1
9390.9105	9390.9205	12.951	-.058	TRAVERSE	3 1
9390.9205	9292.9105	-14.074	-.081	TRAVERSE	3 1
9292.9105	9390.9305	5.120	.145	TRAVERSE	3 1
9390.9305	9390.9105	-3.997	-.006	TRAVERSE	3 1
9390.9105	9390.9205	12.951	-.058	TRAVERSE	3 1
9390.9205	9292.9105	-14.074	-.081	TRAVERSE	3 1
9292.9105	9390.9305	5.120	.145	TRAVERSE	3 1
9390.9305	9390.9105	-3.997	-.006	TRAVERSE	3 1
9292.9105	8291.0205	148.867	.159	TRAVERSE	3 2
8291.0205	9390.0105	223.675	-.018	TRAVERSE	3 2
9390.0105	9292.0305	78.942	.186	TRAVERSE	3 2
9292.0305	9390.0105	-78.942	-.186	TRAVERSE	3
9390.0105	8291.0205	-223.675	.018	TRAVERSE	3 2
8291.0205	9292.9105	-148.867	-.159	TRAVERSE	3 2
9390.9105	7999.0105	1.750	.202	TRAVERSE	3 4
7999.0105	9390.9105	-1.750	-.202	TRAVERSE	3 4
9390.9105	7999.0105	1.750	.202	TRAVERSE	3 4
7999.0105	9390.9105	-1.750	-.202	TRAVERSE	3 4
9390.9105	9390.9205	12.896	-.003	TRAVERSE	4 1
9390.9205	9292.9105	-14.093	-.062	TRAVERSE	4 1
9292.9105	9390.9305	5.281	-.016	TRAVERSE	4 1
9390.9305	9390.9105	-4.084	.081	TRAVERSE	4 1
9390.9105	9390.9205	12.896	-.003	TRAVERSE	4 1
9390.9205	9292.9105	-14.093	-.062	TRAVERSE	4 1
9292.9105	9390.9305	5.281	-.016	TRAVERSE	4 1
9390.9305	9390.9105	-4.084	.081	TRAVERSE	4 1
9390.9105	9390.9205	12.896	-.003	TRAVERSE	4 1
9390.9205	9292.9105	-14.093	-.062	TRAVERSE	4 1
9292.9105	9390.9305	5.281	-.016	TRAVERSE	4 1
9390.9305	9390.9105	-4.084	.081	TRAVERSE	4 1
9390.9105	9390.9205	12.896	-.003	TRAVERSE	4 1
9390.9205	9292.9105	-14.093	-.062	TRAVERSE	4 1
9292.9105	9390.9305	5.281	-.016	TRAVERSE	4 1
9390.9305	9390.9105	-4.084	.081	TRAVERSE	4 1
9292.9105	8291.0205	149.184	-.159	TRAVERSE	4 2
8291.0205	9390.0105	223.426	.232	TRAVERSE	4 2
9390.0105	6891.0305	110.673	.319	TRAVERSE	4 2
6891.0305	9292.0305	-31.644	-.221	TRAVERSE	4 2
9292.0305	9390.0105	-79.029	-.099	TRAVERSE	4 2
9390.0105	8291.0205	-223.426	-.232	TRAVERSE	4 2
8291.0205	9292.9105	-149.184	.159	TRAVERSE	4 2
9390.9305	9390.930502	-2.908	-.033	TRAVERSE	4 3
9390.930502	9390.9305	2.908	.033	TRAVERSE	4 3
9390.9305	9390.930502	-2.908	-.033	TRAVERSE	4 3
9390.930502	9390.9305	2.908	.033	TRAVERSE	4 3
9390.9305	9390.930502	-2.908	-.033	TRAVERSE	4 3
9390.930502	9390.9305	2.908	.033	TRAVERSE	4 3
9390.9105	7999.0105	2.078	-.126	TRAVERSE	4 4
7999.0105	9390.9105	-2.078	.126	TRAVERSE	4 4
9390.9105	7999.0105	2.078	-.126	TRAVERSE	4 4
7999.0105	9390.9105	-2.078	.126	TRAVERSE	4 4

Standard deviation of adjustments .11
Mean of adjustments .00
Maximum adjustment .42

Number of lines in network 141

Flight data adjusted - starting .2 sec.

Segment identification *9390 NML GRAVITY

GRAVITY

* Gravity differences scaled by 10.0 for micrometres

Station list sort commenced .2 sec

Final sorted values

*9390 NML GRAVITY			GRAVITY *
6891.0305	9796856.750	NODE	
7999.0105	9796376.290	NODE	
7999.010502	9796373.165	NODE	
8291.0205	9796522.100	NODE	
9292.0305	9796824.886	NODE	
9292.9105	9796373.075	NODE	
9390.0105	9796745.758	NODE	
9390.9105	9796374.337	NODE	
9390.9205	9796387.230	NODE	
9390.9305	9796378.340	NODE	
9390.930502	9796375.399	NODE	

Number of stations in sorted list 11

Number of different stations 11

APPENDIX 4

D. OUTPUT OF GRAVITY PROCESSING

Survey 9390

AUSTRALIAN GRAVITY DATA

SYDNEY ISOGAL

Station	Latitude	Longitude	Height	Gravity	Location
AUSTRALIAN GRAVITY DATA					
68910305	33 ⁰ 56.1'	151 ⁰ 11.3'	6.37	9796856.75	Flight Facilities, Sydney Airport.
79990105	33 ⁰ 52.'	151 ⁰ 12.'		9796376.29	NML Absolute station, Lane Cove Sydney
7999010502				9796373.17	NML Absolute gradient reading @ 0.969m.
82910205	33 ⁰ 47.7'	151 ⁰ 9.5'	4.	9796522.10	Lane Cove Park CS1B.
92920305	33 ⁰ 47.'	151 ⁰ 9.'		9796824.89	Facilities building, International Terminal.
92929105	33 ⁰ 52.'	151 ⁰ 12.'		9796373.07	NML Ex-centre, NML gate, Lane Cove Sydney.
93900105				9796745.76	Sydney wharf No 10 Darling Harbour
93909105				9796374.34	NML room H201 Force Machine upper station.
93909205				9796387.23	NML room B1 Force machine lower station.
93909305				9796378.34	NML room C269 Barometry room .
9390930502				9796375.40	NML room C269 Top gradient reading.

APPENDIX 5

A. FIELD OBSERVATIONS SURVEY 9491

9491 CANBERRA-SYD-HOBART CAL

GRAVITY

TRAVERSE3 1250394 20L 1.050000 1
 68930204 06183050995
 94910205 07563097377 33552000 150595000
 94919005 08073097269 33552000 150595000
 79990105 09313080192 33520000 151120000
 94910205 10523097232
 94919005 10593097170
 68930204 12273050708
 68930204 12423050728
 94910205 13533097260
 94919005 14033097178
 68930204 18033051140

DUMMY

ENDFLGHT

TRAVERSE3 2250394 132L 1.050000 1
 68930204 06223132020
 94910205 08013178119
 94919005 08113178040
 79990105 09363161142
 94910205 10543178092
 94919005 11023177989
 68930204 12313131942
 94910205 13573178135
 94919005 14073178088
 79990105 15173161312
 94910205 16263178263
 94919005 16313178198
 68930204 18033132076

ENDFLGHT

TRAVERSE3 3250394 252L 1.050000 1
 68930204 06273196690
 94910205 08033243127
 94919005 08083243019
 79990105 09383226008
 94910205 10563243058
 94919005 11083242963
 68930204 12373196618
 94910205 14003243173
 94919005 14123243090
 79990105 15233226173
 94910205 16283243246
 94919005 16343243168
 68930204 18063196761

ENDFLGHT

TRAVERSE3 4250394 101L 1.050000 1
 68930204 06323070056
 94910205 08153116636
 79990105 09513099475
 94910205 11183116579
 68930204 12463070023
 94910205 14213116713
 79990105 15363099647
 94910205 16423116791
 68930204 18173070127

ENDFLGHT

TRAVERSE3 5250394 460L 1.050000 1
 68930204 06263211815
 94910205 08093257690
 79990105 09473240792
 94910205 11183257337
 68930204 12393211750
 94910205 14133257775
 79990105 15333240965
 94910205 16393257840
 68930204 18123211851

ENDFLGHT

```

TRAVERSE3 6250394 518L 1.050000 1
68930204 06263138739
94910205 08163186670
79990105 09533168995
94910205 11153186610
68930204 12373138650
94910205 14143186000
79990105 15303168268
94910205 16383186810
68930204 18143138758

```

ENDFLGHT

```

TRAVERSE3 7250394 460L 1.050000 1
68930204 06303211750
94911205 08063257600 33552000 150595000
79991105 09433240700 33520000 151120000
68931204 12333211700 35185000 149113000
94911205 14083257700
79991105 15263240900
94911205 16363257700
68930204 18093211700

```

ENDFLGHT
ENDGRAVS

APPENDIX 5

B. TIDAL GRAVITY CORRECTIONS

Survey 9491

Block name is - 9491 CANBERRA-SYD-HOBART CAL Page No. 1 Computed on 1997/09/12

Station.	Hrs	Min	Corr.rdg.	Lat(deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE1 1	23/	3/94		20L 1.05000	GMT+ 10H	OM
68930204	7	27	3051.375	35 18.5000 S	149 11.3000 E	.079
92900360	11	47	3840.107	42 50.4000 S	147 30.4000 E	.031
74990160	13	23	3822.600	42 54.5000 S	147 19.2000 E	-.024
92900360	14	37	3840.046	42 50.4000 S	147 30.4000 E	-.061
68930204	18	22	3051.291	35 18.5000 S	149 11.3000 E	-.043
TRAVERSE1 2	23/	3/94		132L 1.05000	GMT+ 10H	OM
68930204	7	33	3131.856	35 18.5000 S	149 11.3000 E	.081
92900360	11	56	3913.647	42 50.4000 S	147 30.4000 E	.026
74990160	13	27	3897.273	42 54.5000 S	147 19.2000 E	-.026
92900360	14	43	3914.642	42 50.4000 S	147 30.4000 E	-.063
68930204	18	28	3131.864	35 18.5000 S	149 11.3000 E	-.041
TRAVERSE1 3	23/	3/94		252L 1.05000	GMT+ 10H	OM
68930204	7	37	3196.788	35 18.5000 S	149 11.3000 E	.083
92900360	12	7	3984.972	42 50.4000 S	147 30.4000 E	.020
74990160	13	31	3967.576	42 54.5000 S	147 19.2000 E	-.028
92900360	14	47	3985.051	42 50.4000 S	147 30.4000 E	-.065
68930204	18	32	3196.625	35 18.5000 S	149 11.3000 E	-.039
TRAVERSE1 4	23/	3/94		101L 1.05000	GMT+ 10H	OM
68930204	7	39	3069.982	35 18.5000 S	149 11.3000 E	.084
92900360	12	3	3860.592	42 50.4000 S	147 30.4000 E	.022
74990160	13	42	3843.075	42 54.5000 S	147 19.2000 E	-.034
92900360	15	8	3860.596	42 50.4000 S	147 30.4000 E	-.072
68930204	18	36	3069.985	35 18.5000 S	149 11.3000 E	-.037
TRAVERSE1 5	23/	3/94		460L 1.05000	GMT+ 10H	OM
68930204	7	36	3211.860	35 18.5000 S	149 11.3000 E	.082
92900360	11	56	3990.244	42 50.4000 S	147 30.4000 E	.026
74990160	13	37	3973.008	42 54.5000 S	147 19.2000 E	-.032
92900360	15	3	3990.213	42 50.4000 S	147 30.4000 E	-.071
68930204	18	26	3211.825	35 18.5000 S	149 11.3000 E	-.042
TRAVERSE1 6	23/	3/94		518L 1.05000	GMT+ 10H	OM
68930204	7	32	3138.845	35 18.5000 S	149 11.3000 E	.081
92900360	11	56	3952.770	42 50.4000 S	147 30.4000 E	.026
74990160	13	37	3934.758	42 54.5000 S	147 19.2000 E	-.032
92900360	15	1	3952.763	42 50.4000 S	147 30.4000 E	-.070
68930204	18	32	3138.833	35 18.5000 S	149 11.3000 E	-.039
TRAVERSE1 7	23/	3/94		460L 1.05000	GMT+ 10H	OM
68930204	7	30	3211.826	35 18.5000 S	149 11.3000 E	.080
92901360	11	51	3990.127	42 50.4000 S	147 30.4000 E	.028
74991160	13	34	3972.921	42 54.5000 S	147 19.2000 E	-.030
92901360	14	58	3990.034	42 50.4000 S	147 30.4000 E	-.069
68930204	18	25	3211.710	35 18.5000 S	149 11.3000 E	-.042
TRAVERSE1 8	23/	3/94		518L 1.05000	GMT+ 10H	OM
68930204	7	31	3138.827	35 18.5000 S	149 11.3000 E	.081
92901360	11	54	3952.826	42 50.4000 S	147 30.4000 E	.027
74991160	13	31	3934.673	42 54.5000 S	147 19.2000 E	-.028
92901360	14	59	3952.734	42 50.4000 S	147 30.4000 E	-.069
68930204	18	29	3138.712	35 18.5000 S	149 11.3000 E	-.040
TRAVERSE2 1	24/	3/94		20L 1.05000	GMT+ 10H	OM
68930204	7	18	3051.266	35 18.5000 S	149 11.3000 E	.050
92900360	11	17	3839.995	42 50.4000 S	147 30.4000 E	.063
74990160	12	11	3822.532	42 54.5000 S	147 19.2000 E	.037
92900360	13	28	3839.986	42 50.4000 S	147 30.4000 E	-.011
68930204	17	13	3051.190	35 18.5000 S	149 11.3000 E	-.084

Station.	Hrs	Min	Corr.rdg.	Lat (deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE2 2	24/	3/94		132L 1.05000	GMT+ 10H OM	
68930204	7	25	3131.895	35 18.5000 S	149 11.3000 E	.055
92900360	11	20	3914.662	42 50.4000 S	147 30.4000 E	.062
74990160	12	16	3897.334	42 54.5000 S	147 19.2000 E	.035
92900360	13	32	3914.690	42 50.4000 S	147 30.4000 E	-.014
68930204	17	19	3131.964	35 18.5000 S	149 11.3000 E	-.083
TRAVERSE2 3	24/	3/94		252L 1.05000	GMT+ 10H OM	
68930204	7	33	3196.676	35 18.5000 S	149 11.3000 E	.060
92900360	11	23	3985.212	42 50.4000 S	147 30.4000 E	.061
74990160	12	18	3967.715	42 54.5000 S	147 19.2000 E	.033
92900360	13	34	3985.118	42 50.4000 S	147 30.4000 E	-.015
68930204	17	24	3196.661	35 18.5000 S	149 11.3000 E	-.081
TRAVERSE2 4	24/	3/94		101L 1.05000	GMT+ 10H OM	
68930204	7	31	3070.016	35 18.5000 S	149 11.3000 E	.059
92900360	11	27	3860.670	42 50.4000 S	147 30.4000 E	.059
74990160	12	31	3843.157	42 54.5000 S	147 19.2000 E	.026
92900360	13	39	3860.651	42 50.4000 S	147 30.4000 E	-.018
68930204	17	19	3070.066	35 18.5000 S	149 11.3000 E	-.083
TRAVERSE2 5	24/	3/94		460L 1.05000	GMT+ 10H OM	
68930204	7	25	3211.836	35 18.5000 S	149 11.3000 E	.055
92900360	11	24	3990.195	42 50.4000 S	147 30.4000 E	.060
74990160	12	35	3973.007	42 54.5000 S	147 19.2000 E	.023
92900360	13	35	3990.215	42 50.4000 S	147 30.4000 E	-.016
68930204	17	23	3211.860	35 18.5000 S	149 11.3000 E	-.081
TRAVERSE2 6	24/	3/94		518L 1.05000	GMT+ 10H OM	
68930204	7	23	3138.806	35 18.5000 S	149 11.3000 E	.054
92900360	11	30	3952.656	42 50.4000 S	147 30.4000 E	.058
74990160	12	26	3934.647	42 54.5000 S	147 19.2000 E	.029
92900360	13	34	3952.654	42 50.4000 S	147 30.4000 E	-.015
68930204	20	32	3138.698	35 18.5000 S	149 11.3000 E	.021
TRAVERSE2 7	24/	3/94		460L 1.05000	GMT+ 10H OM	
68930204	7	21	3211.800	35 18.5000 S	149 11.3000 E	.052
92901360	11	21	3990.158	42 50.4000 S	147 30.4000 E	.061
74991160	12	28	3972.926	42 54.5000 S	147 19.2000 E	.028
92901360	13	33	3990.086	42 50.4000 S	147 30.4000 E	-.015
68930204	17	19	3211.721	35 18.5000 S	149 11.3000 E	-.083
TRAVERSE2 8	24/	3/94		518L 1.05000	GMT+ 10H OM	
68930204	7	21	3138.800	35 18.5000 S	149 11.3000 E	.052
92901360	11	26	3952.606	42 50.4000 S	147 30.4000 E	.059
74991160	12	22	3934.630	42 54.5000 S	147 19.2000 E	.031
92901360	13	33	3952.536	42 50.4000 S	147 30.4000 E	-.015
68930204	20	27	3138.767	35 18.5000 S	149 11.3000 E	.018
TRAVERSE3 1	25/	3/94		20L 1.05000	GMT+ 10H OM	
68930204	6	18	3050.964	35 18.5000 S	149 11.3000 E	-.033
94910205	7	56	3097.424	33 55.2000 S	150 59.5000 E	.050
94919005	8	7	3097.324	33 55.2000 S	150 59.5000 E	.058
79990105	9	31	3080.293	33 52.0000 S	151 12.0000 E	.106
94910205	10	52	3097.339	33 55.2000 S	150 59.5000 E	.112
94919005	10	59	3097.276	33 55.2000 S	150 59.5000 E	.111
68930204	12	27	3050.773	35 18.5000 S	149 11.3000 E	.068
68930204	12	42	3050.783	35 18.5000 S	149 11.3000 E	.057
94910205	13	53	3097.256	33 55.2000 S	150 59.5000 E	-.004
94919005	14	3	3097.166	33 55.2000 S	150 59.5000 E	-.012
68930204	18	3	3051.061	35 18.5000 S	149 11.3000 E	-.083

Station.	Hrs	Min	Corr.rdg.	Lat(deg.min)	Long(deg.min)	Correction(mGal)
TRAVERSE3 2	25/	3/94	132L	1.05000	GMT+ 10H	OM
68930204	6	22	3131.991	35 18.5000 S	149 11.3000 E	-.030
94910205	8	1	3178.170	33 55.2000 S	150 59.5000 E	.053
94919005	8	11	3178.098	33 55.2000 S	150 59.5000 E	.061
79990105	9	36	3161.244	33 52.0000 S	151 12.0000 E	.107
94910205	10	54	3178.199	33 55.2000 S	150 59.5000 E	.112
94919005	11	2	3178.094	33 55.2000 S	150 59.5000 E	.110
68930204	12	31	3132.004	35 18.5000 S	149 11.3000 E	.065
94910205	13	57	3178.128	33 55.2000 S	150 59.5000 E	-.007
94919005	14	7	3178.073	33 55.2000 S	150 59.5000 E	-.016
79990105	15	17	3161.247	33 52.0000 S	151 12.0000 E	-.069
94910205	16	26	3178.172	33 55.2000 S	150 59.5000 E	-.095
94919005	16	31	3178.106	33 55.2000 S	150 59.5000 E	-.096
68930204	18	3	3131.997	35 18.5000 S	149 11.3000 E	-.083
TRAVERSE3 3	25/	3/94	252L	1.05000	GMT+ 10H	OM
68930204	6	27	3196.665	35 18.5000 S	149 11.3000 E	-.027
94910205	8	3	3243.179	33 55.2000 S	150 59.5000 E	.055
94919005	8	8	3243.075	33 55.2000 S	150 59.5000 E	.058
79990105	9	38	3226.111	33 52.0000 S	151 12.0000 E	.108
94910205	10	56	3243.164	33 55.2000 S	150 59.5000 E	.112
94919005	11	8	3243.067	33 55.2000 S	150 59.5000 E	.109
68930204	12	37	3196.676	35 18.5000 S	149 11.3000 E	.061
94910205	14	0	3243.164	33 55.2000 S	150 59.5000 E	-.010
94919005	14	12	3243.071	33 55.2000 S	150 59.5000 E	-.020
79990105	15	23	3226.104	33 52.0000 S	151 12.0000 E	-.072
94910205	16	28	3243.155	33 55.2000 S	150 59.5000 E	-.096
94919005	16	34	3243.076	33 55.2000 S	150 59.5000 E	-.097
68930204	18	6	3196.683	35 18.5000 S	149 11.3000 E	-.082
TRAVERSE3 4	25/	3/94	101L	1.05000	GMT+ 10H	OM
68930204	6	32	3070.034	35 18.5000 S	149 11.3000 E	-.023
94910205	8	15	3116.696	33 55.2000 S	150 59.5000 E	.063
79990105	9	51	3099.581	33 52.0000 S	151 12.0000 E	.111
94910205	11	18	3116.679	33 55.2000 S	150 59.5000 E	.105
68930204	12	46	3070.075	35 18.5000 S	149 11.3000 E	.054
94910205	14	21	3116.687	33 55.2000 S	150 59.5000 E	-.027
79990105	15	36	3099.572	33 52.0000 S	151 12.0000 E	-.079
94910205	16	42	3116.698	33 55.2000 S	150 59.5000 E	-.097
68930204	18	17	3070.054	35 18.5000 S	149 11.3000 E	-.077
TRAVERSE3 5	25/	3/94	460L	1.05000	GMT+ 10H	OM
68930204	6	26	3211.789	35 18.5000 S	149 11.3000 E	-.027
94910205	8	9	3257.746	33 55.2000 S	150 59.5000 E	.059
79990105	9	47	3240.897	33 52.0000 S	151 12.0000 E	.110
94910205	11	18	3257.437	33 55.2000 S	150 59.5000 E	.105
68930204	12	39	3211.807	35 18.5000 S	149 11.3000 E	.059
94910205	14	13	3257.755	33 55.2000 S	150 59.5000 E	-.021
79990105	15	33	3240.891	33 52.0000 S	151 12.0000 E	-.077
94910205	16	39	3257.748	33 55.2000 S	150 59.5000 E	-.097
68930204	18	12	3211.776	35 18.5000 S	149 11.3000 E	-.079
TRAVERSE3 6	25/	3/94	518L	1.05000	GMT+ 10H	OM
68930204	6	26	3138.713	35 18.5000 S	149 11.3000 E	-.027
94910205	8	16	3186.731	33 55.2000 S	150 59.5000 E	.064
79990105	9	53	3169.102	33 52.0000 S	151 12.0000 E	.112
94910205	11	15	3186.711	33 55.2000 S	150 59.5000 E	.107
68930204	12	37	3138.708	35 18.5000 S	149 11.3000 E	.061
94910205	14	14	3185.979	33 55.2000 S	150 59.5000 E	-.022
79990105	15	30	3168.196	33 52.0000 S	151 12.0000 E	-.076
94910205	16	38	3186.718	33 55.2000 S	150 59.5000 E	-.097
68930204	18	14	3138.684	35 18.5000 S	149 11.3000 E	-.078
TRAVERSE3 7	25/	3/94	460L	1.05000	GMT+ 10H	OM
68930204	6	30	3211.727	35 18.5000 S	149 11.3000 E	-.025
94911205	8	6	3257.654	33 55.2000 S	150 59.5000 E	.057
79991105	9	43	3240.804	33 52.0000 S	151 12.0000 E	.109
68931204	12	33	3211.761	35 18.5000 S	149 11.3000 E	.064
94911205	14	8	3257.684	33 55.2000 S	150 59.5000 E	-.017
79991105	15	26	3240.830	33 52.0000 S	151 12.0000 E	-.074
94911205	16	36	3257.608	33 55.2000 S	150 59.5000 E	-.097
68930204	18	9	3211.623	35 18.5000 S	149 11.3000 E	-.081

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TRAVERSE3 8      25/ 3/94      518L  1.05000      GMT+ 10H  OM
68930204      6 21  3138.621      35 18.5000 S      149 11.3000 E      -.031
94911205      8  7  3186.655      33 55.2000 S      150 59.5000 E      .058
79991105      9 50  3169.006      33 52.0000 S      151 12.0000 E      .111
94911205     11  9  3186.653      33 55.2000 S      150 59.5000 E      .108
68931204     12 34  3138.710      35 18.5000 S      149 11.3000 E      .063
94911205     14  8  3185.784      33 55.2000 S      150 59.5000 E      -.017
79991105     15 26  3168.030      33 52.0000 S      151 12.0000 E      -.074
94911205     16 36  3186.508      33 55.2000 S      150 59.5000 E      -.097
68930204     18 10  3138.574      35 18.5000 S      149 11.3000 E      -.080
Coordinate averaging has been done
*** End Ertide. ***

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APPENDIX 5

C. INITIAL PROCESSING SUMMARY AND STATISTICS.

Survey 9491

GRVHTS Version 6 of November 1992 - Phase one sub-program
1997/09/01

Computed on

Gravity meter data reduction

Latitude-Longitude data saved

Segment identification *9491 CANBERRA-SYD-HOBART CAL

GRAVITY

*

TRAVERSE Flight 3 1 25/ 3/94 Meter 20L Scale factor 1.05000

Scale correction factor is 1.000406026840210

Station	Time	Gravity	Drift	Diff	Reading
6893.0204	618	.000	.000	-.013	3050.964
9491.0205	756	48.860	-.053	.016	3097.424
9491.9005	807	48.774	-.059	.003	3097.324
7999.0105	931	30.912	-.097	.000	3080.293
9491.0205	1052	48.860	-.133	.006	3097.339
9491.9005	1059	48.774	-.136	.029	3097.276
6893.0204	1227	.000	-.185	-.030	3050.773
6893.0204	1242	.000	-.187	-.017	3050.783
9491.0205	1353	48.860	-.191	-.022	3097.256
9491.9005	1403	48.774	-.190	-.032	3097.166
6893.0204	1803	.000	.028	.060	3051.061

TRAVERSE Flight 3 2 25/ 3/94 Meter 132L Scale factor 1.05000

Scale correction factor is 1.000398039817810

Station	Time	Gravity	Drift	Diff	Reading
6893.0204	622	.000	.000	-.002	3131.991
9491.0205	801	48.901	.004	.005	3178.170
9491.9005	811	48.822	.005	.006	3178.098
7999.0105	936	30.978	.010	-.006	3161.244
9491.0205	1054	48.901	.014	.025	3178.199
9491.9005	1102	48.822	.013	-.006	3178.094
6893.0204	1231	.000	.002	.009	3132.004
9491.0205	1357	48.901	-.009	-.027	3178.128
9491.9005	1407	48.822	-.009	-.006	3178.073
7999.0105	1517	30.978	.001	.006	3161.247
9491.0205	1626	48.901	.013	-.003	3178.172
9491.9005	1631	48.822	.014	.006	3178.106
6893.0204	1803	.000	.011	-.007	3131.997

TRAVERSE Flight 3 3 25/ 3/94 Meter 252L Scale factor 1.05000

Scale correction factor is 1.000614047050476

Station	Time	Gravity	Drift	Diff	Reading
6893.0204	627	.000	.000	-.011	3196.665
9491.0205	803	48.906	.003	.010	3243.179
9491.9005	808	48.808	.003	-.001	3243.075
7999.0105	938	30.963	.000	.003	3226.111
9491.0205	1056	48.906	-.003	.000	3243.164
9491.9005	1108	48.808	-.003	-.004	3243.067
6893.0204	1237	.000	-.002	.003	3196.676
9491.0205	1400	48.906	-.002	-.001	3243.164
9491.9005	1412	48.808	-.002	-.001	3243.071
7999.0105	1523	30.963	-.002	-.003	3226.104
9491.0205	1628	48.906	-.002	-.010	3243.155
9491.9005	1634	48.808	-.002	.005	3243.076
6893.0204	1806	.000	.000	.008	3196.683

TRAVERSE Flight 3 4 25/ 3/94 Meter 101L Scale factor 1.05000

Scale correction factor is 1.002928018569946

Station	Time	Gravity	Drift	Diff	Reading
6893.0204	632	.000	.000	-.013	3070.034
9491.0205	815	48.911	.012	.008	3116.696
7999.0105	951	30.959	.013	.006	3099.581
9491.0205	1118	48.911	.012	-.010	3116.679
6893.0204	1246	.000	.016	.014	3070.075
9491.0205	1421	48.911	.015	-.004	3116.687
7999.0105	1536	30.959	.014	-.006	3099.572
9491.0205	1642	48.911	.015	.007	3116.698
6893.0204	1817	.000	.009	-.001	3070.054

TRAVERSE Flight 3 5 25/ 3/94 Meter 460L Scale factor 1.05000

Scale correction factor is 1.00045597532532

Station	Time	Gravity	Drift	Diff	Reading
6893.0204	626	.000	.000	-.040	3211.789
9491.0205	809	48.883	.005	.031	3257.746
7999.0105	947	31.017	-.078	.030	3240.897
9491.0205	1118	48.883	-.129	-.163	3257.437
6893.0204	1239	.000	-.076	.056	3211.807
9491.0205	1413	48.883	-.019	.065	3257.755
7999.0105	1533	31.017	-.024	-.030	3240.891
9491.0205	1639	48.883	-.029	.067	3257.748
6893.0204	1812	.000	-.038	-.016	3211.776

MNSLOPE completed at .1 seconds.

Scratch file closed

Least squares adjustment phase - commenced .1 sec

Number of segments to adjust together 1

*9491 CANBERRA-SYD-HOBART CAL

GRAVITY *

Free nodes

9491.0205
9491.9005

Fixed nodes Values

6893.0204 9796066.450
7999.0105 9796376.290

Free and fixed node lists compared

Number of free nodes deleted is 0

Final number of free nodes is 2

Final number of fixed nodes is 2

Total number of nodes in list is 4

Maximum adjustment expected - Height 5.00 metres
Gravity 1.00 mums-
Magnetic 10.00 gammas

Segment identification *9491 CANBERRA-SYD-HOBART CAL GRAVITY *

TRAVERSE	3 1	25/ 3/94			
*****		Internal loop - tied to node 6893.0204	from reading	7 to reading	8
TRAVERSE	3 2	25/ 3/94			
TRAVERSE	3 3	25/ 3/94			
TRAVERSE	3 4	25/ 3/94			
TRAVERSE	3 5	25/ 3/94			

Linkage search commenced .1 sec

Matrix inversion commenced .1 sec

Matrix inversion completed .1 sec

Least squares values for free nodes

node	VALUE
9491.0205	9796555.442
9491.9005	9796554.583

Connection table and adjustments

Node		Node		Difference	Adjustment	Flight
6893.0204	FIXED	9491.0205		488.601	.391	TRAVERSE 3 1
9491.0205		9491.9005		-.862	.003	TRAVERSE 3 1
9491.9005		7999.0105	FIXED	-178.616	.323	TRAVERSE 3 1
7999.0105	FIXED	9491.0205		179.477	-.325	TRAVERSE 3 1
9491.0205		9491.9005		-.862	.003	TRAVERSE 3 1
9491.9005		6893.0204	FIXED	-487.739	-.394	TRAVERSE 3 1
6893.0204	FIXED	9491.0205		488.601	.391	TRAVERSE 3 1
9491.0205		9491.9005		-.862	.003	TRAVERSE 3 1
9491.9005		6893.0204	FIXED	-487.739	-.394	TRAVERSE 3 1
6893.0204	FIXED	9491.0205		489.011	-.019	TRAVERSE 3 2
9491.0205		9491.9005		-.792	-.067	TRAVERSE 3 2
9491.9005		7999.0105	FIXED	-178.439	.146	TRAVERSE 3 2
7999.0105	FIXED	9491.0205		179.231	-.079	TRAVERSE 3 2
9491.0205		9491.9005		-.792	-.067	TRAVERSE 3 2
9491.9005		6893.0204	FIXED	-488.219	.086	TRAVERSE 3 2
6893.0204	FIXED	9491.0205		489.011	-.019	TRAVERSE 3 2
9491.0205		9491.9005		-.792	-.067	TRAVERSE 3 2
9491.9005		7999.0105	FIXED	-178.439	.146	TRAVERSE 3 2
7999.0105	FIXED	9491.0205		179.231	-.079	TRAVERSE 3 2
9491.0205		9491.9005		-.792	-.067	TRAVERSE 3 2
9491.9005		6893.0204	FIXED	-488.219	.086	TRAVERSE 3 2
6893.0204	FIXED	9491.0205		489.064	-.071	TRAVERSE 3 3
9491.0205		9491.9005		-.980	.121	TRAVERSE 3 3
9491.9005		7999.0105	FIXED	-178.457	.164	TRAVERSE 3 3
7999.0105	FIXED	9491.0205		179.438	-.285	TRAVERSE 3 3
9491.0205		9491.9005		-.980	.121	TRAVERSE 3 3
9491.9005		6893.0204	FIXED	-488.083	-.050	TRAVERSE 3 3
6893.0204	FIXED	9491.0205		489.064	-.071	TRAVERSE 3 3
9491.0205		9491.9005		-.980	.121	TRAVERSE 3 3
9491.9005		7999.0105	FIXED	-178.457	.164	TRAVERSE 3 3
7999.0105	FIXED	9491.0205		179.438	-.285	TRAVERSE 3 3
9491.0205		9491.9005		-.980	.121	TRAVERSE 3 3
9491.9005		6893.0204	FIXED	-488.083	-.050	TRAVERSE 3 3
6893.0204	FIXED	9491.0205		489.109	-.117	TRAVERSE 3 4
9491.0205		7999.0105	FIXED	-179.515	.363	TRAVERSE 3 4
7999.0105	FIXED	9491.0205		179.515	-.363	TRAVERSE 3 4
9491.0205		6893.0204	FIXED	-489.109	.117	TRAVERSE 3 4
6893.0204	FIXED	9491.0205		489.109	-.117	TRAVERSE 3 4
9491.0205		7999.0105	FIXED	-179.515	.363	TRAVERSE 3 4
7999.0105	FIXED	9491.0205		179.515	-.363	TRAVERSE 3 4
9491.0205		6893.0204	FIXED	-489.109	.117	TRAVERSE 3 4
6893.0204	FIXED	9491.0205		488.834	.158	TRAVERSE 3 5
9491.0205		7999.0105	FIXED	-178.660	-.492	TRAVERSE 3 5
7999.0105	FIXED	9491.0205		178.660	.492	TRAVERSE 3 5
9491.0205		6893.0204	FIXED	-488.834	-.158	TRAVERSE 3 5

Standard deviation of adjustments .24
Mean of adjustments .00
Maximum adjustment .49

Number of lines in network 49

Flight data adjusted - starting .1 sec.

Segment identification *9491 CANBERRA-SYD-HOBART CAL

GRAVITY

*

Gravity differences scaled by 10.0 for micrometres

Station list sort commenced .1 sec

Final sorted values

*9491	CANBERRA-SYD-HOBART CAL		GRAVITY *
6893.0204	9796066.450	NODE	
7999.0105	9796376.290	NODE	
9491.0205	9796555.442	NODE	
9491.9005	9796554.583	NODE	

Number of stations in sorted list 4

Number of different stations 4

Station list sort completed .1 sec

Latitude-longitude insertion phase - Commenced .1 sec

Number of segments to merge 1

*	Segment identification	*9491	CANBERRA-SYD-HOBART CAL	LATLONG
	TRAVERSE	3 1	25/ 3/94	
	TRAVERSE	3 2	25/ 3/94	
	TRAVERSE	3 3	25/ 3/94	
	TRAVERSE	3 4	25/ 3/94	
	TRAVERSE	3 5	25/ 3/94	

Final position list checked

APPENDIX 5**D. OUTPUT OF GRAVITY PROCESSING****Survey 9491**

AUSTRALIAN GRAVITY DATA

SYDNEY ISOGAL 9491 CANBERRA-SYD

Station	Latitude	Longitude	Ht.	Gravity	Location
94910205	33°55.2'	150°59.5'	6.m	9796555.44	Bankstown Airport Terminal (Arrival)
94919005	33°55.2'	150°59.5'	6.m	9796554.58	Bankstown A/P Terminal (side Window)

STATION NAME

Sydney NSW

STATION CODE

LOCATION

Domestic Airport Area

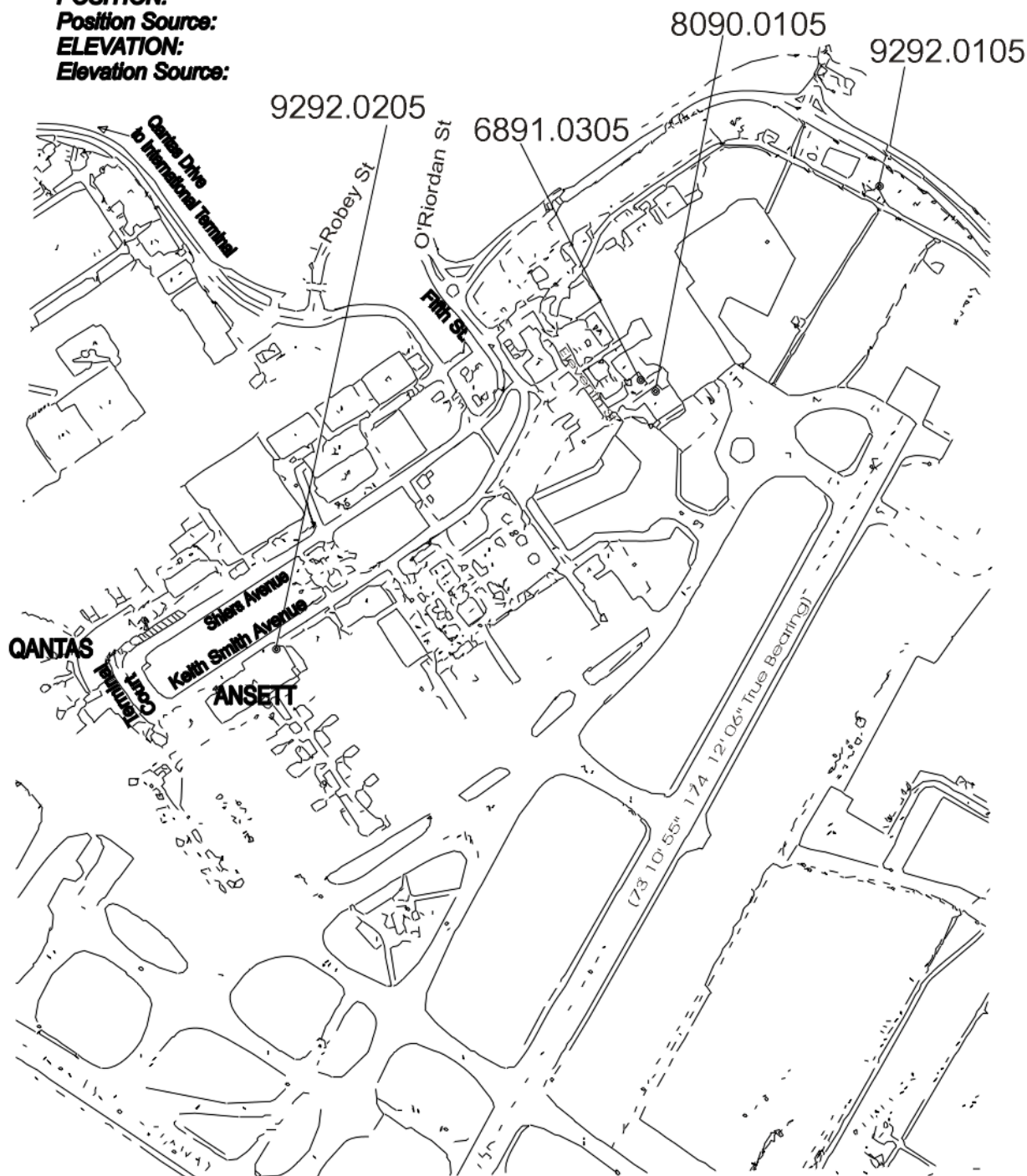
DESCRIBED / RECOVERED BY

J W Williams
*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

See following pages.

EDITION

1994

DESCRIPTION:**Station Class:****STATION TYPE:** Base.**POSITION:****Position Source:****ELEVATION:****Elevation Source:****GRAVITY STATIONS****AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK**

STATION NAME

Sydney NSW

STATION CODE

9292.0205

LOCATION

Sydney Airport
ANSETT Terminal

DESCRIBED / RECOVERED BY

J W Williams - 1992

*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

9796851.16

EDITION

1992

DESCRIPTION:

Station Class:

STATION TYPE:

Base.

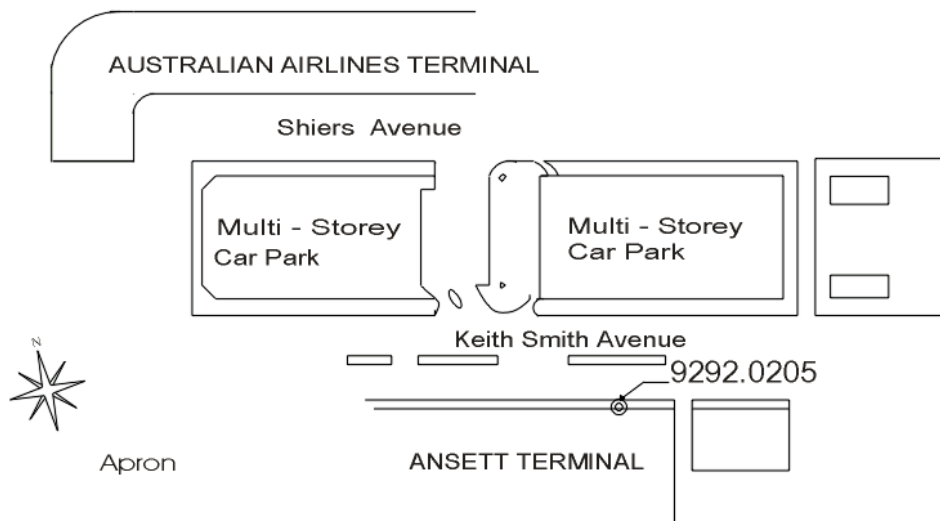
POSITION:

S 33 56' E 151 11'

Position Source:

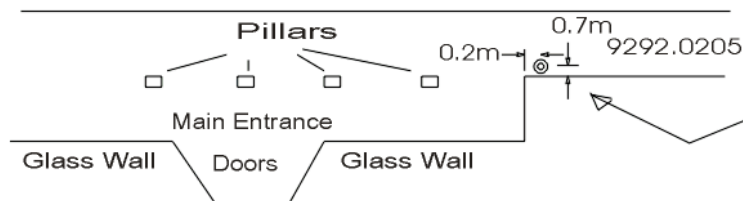
ELEVATION:

Elevation Source:



Keith Smith Avenue

Pedestrian Island



GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

STATION NAME

SYDNEY NSW

STATION CODE

9292.0105

LOCATION **Sydney Airport
Telecom Services**

DESCRIBED / RECOVERED BY

J W Williams - 1992
*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

9796863.80

EDITION

1992

DESCRIPTION:

Station Class:

STATION TYPE:

Base.

POSITION:

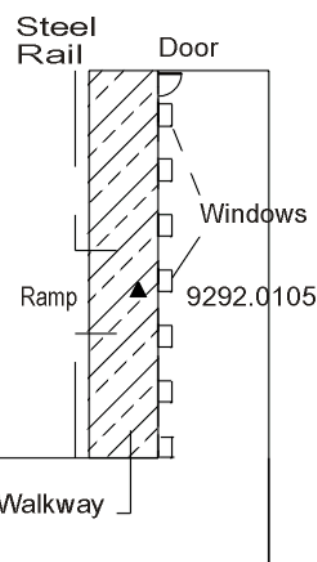
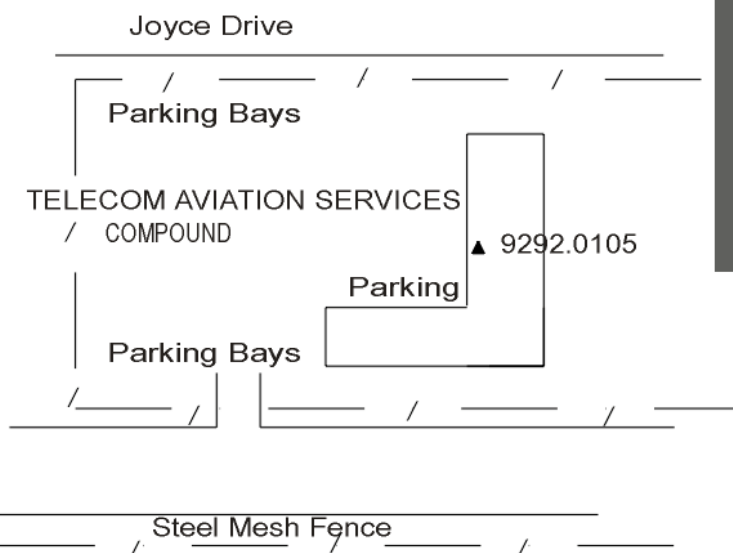
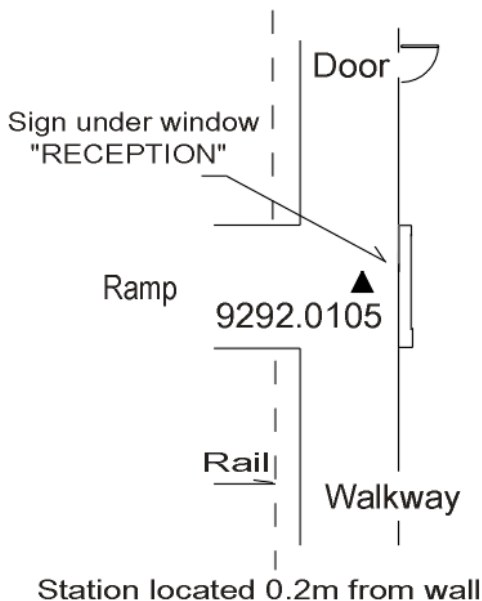
33° 47' 151° 9'

Position Source:

Est. from Report 261

ELEVATION:

Elevation Source:



GRAVITY STATIONS

AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

STATION NAME

SYDNEY NSW

STATION CODE

9292.0305

LOCATION Facilities Building
International Terminal Area

DESCRIBED / RECOVERED BY
J W Williams - 1992
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})
9796824.99

EDITION
1992

DESCRIPTION:

STATION TYPE: Base.

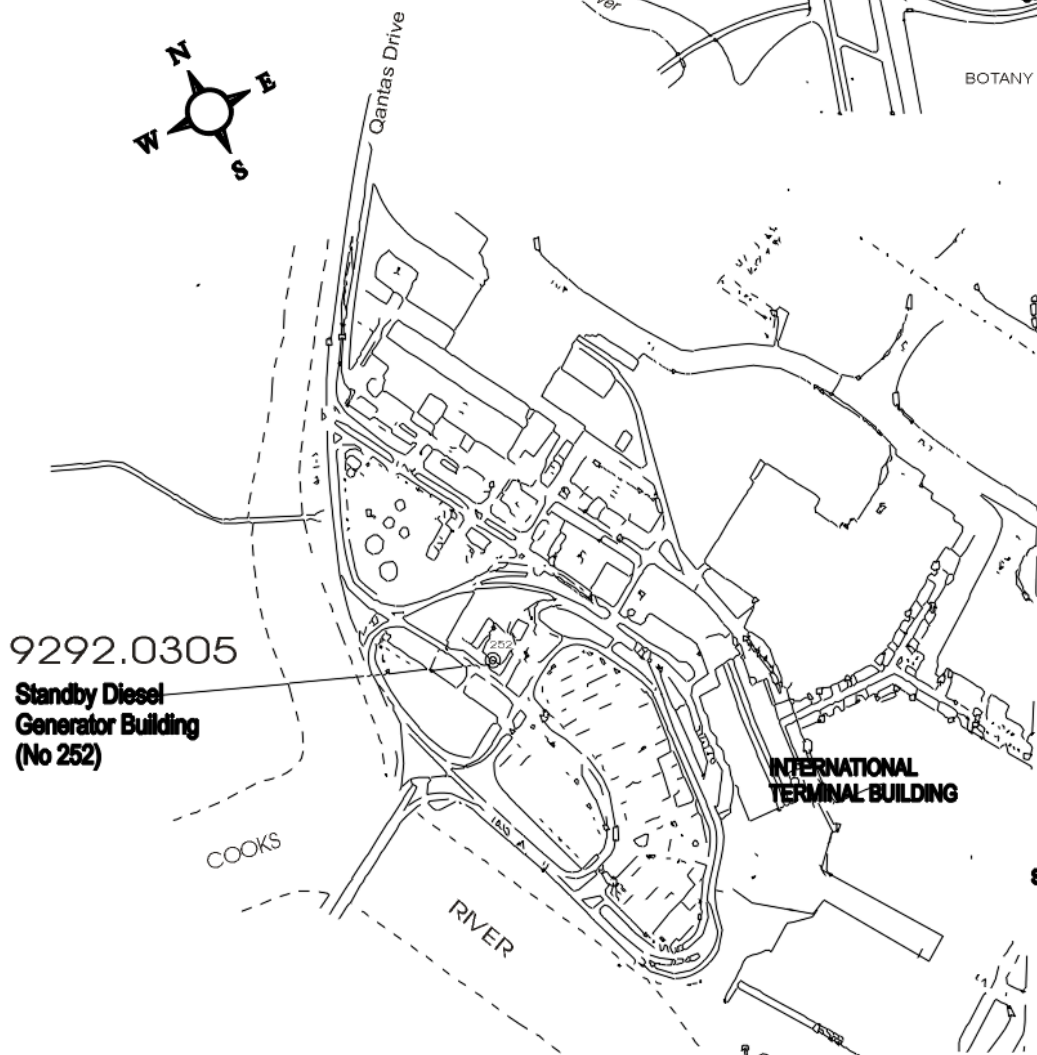
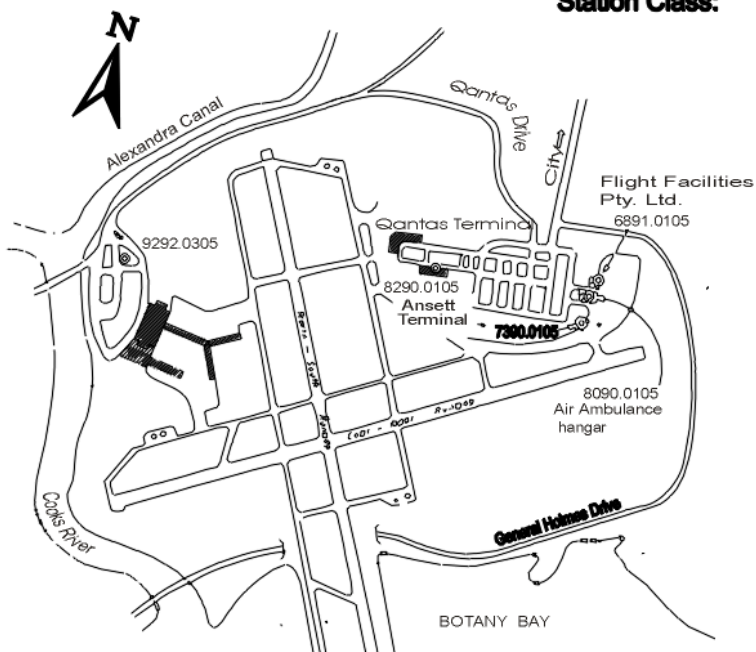
POSITION:

Position Source:

ELEVATION:

Elevation Source:

Station Class:



see sheet 6

GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME

Sydney NSW

STATION CODE

9292.0305

LOCATION

Facilities Building
International Terminal Area

DESCRIBED / RECOVERED BY

J W Williams - 1992
*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

9796824.99

UPDATE

1992

DESCRIPTION:

Station Class:

STATION TYPE:

Base.

POSITION:

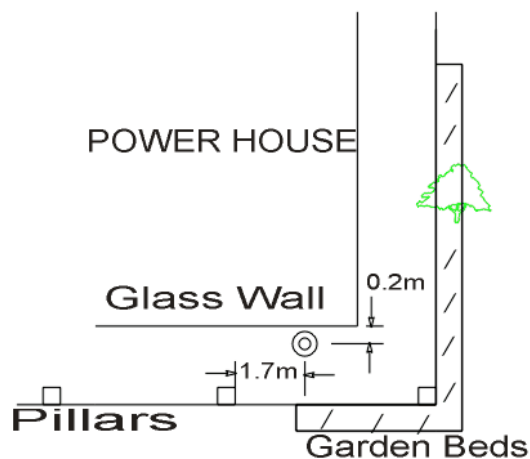
S 33 44.' E 151 9.'

Position Source:

est. from report 261

ELEVATION:

Elevation Source:

STANDBY DIESEL
GENERATOR
BUILDING. (No 252)

9292.0305

Covered Pathway. ⊙



Parking

INTERNATIONAL TERMINAL

GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

STATION NAME
Sydney Airport

STATION CODE
6891.0305

LOCATION
Flight Facilities Building

DESCRIBED / RECOVERED BY
J W Williams - /1980
Drawn by J W Williams

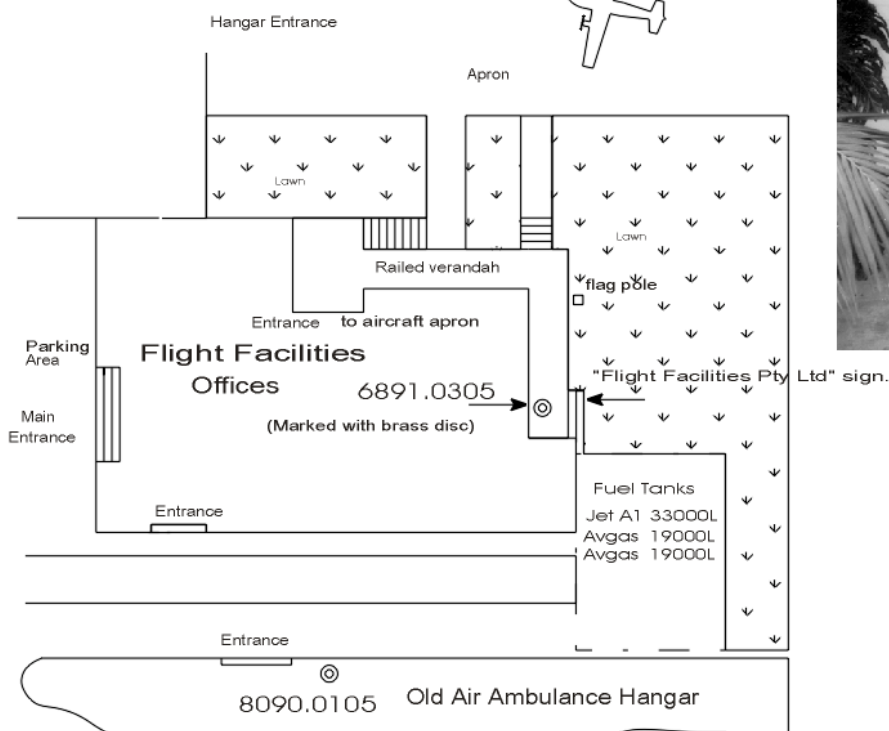
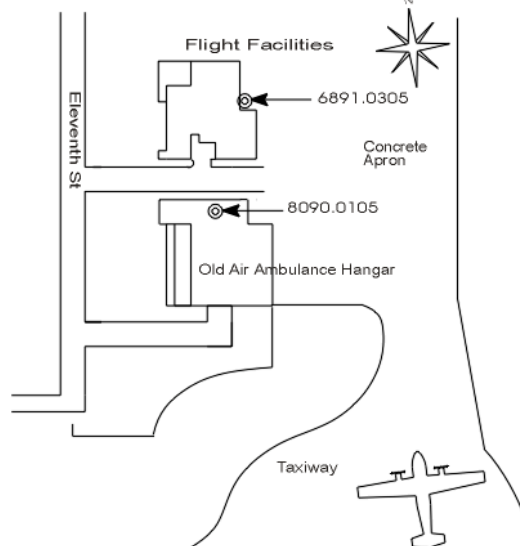
OBSERVED GRAVITY (μms^{-2})
9796856.75

UPDATE
**1968
1992**

DESCRIPTION:

STATION TYPE: Base.
POSITION: 33 56.1'S 151 11.3'E
Position Source: Report 261
ELEVATION: 6.37m
Elevation Source: Report 261

Station Class:



GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME

Sydney Airport

STATION CODE

8090.0105

LOCATION

Old Air
Ambulance Hangar

DESCRIBED / RECOVERED BY

J W Williams - 1980
*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

9796858.76

EDITION

1992

DESCRIPTION:

Station Class:

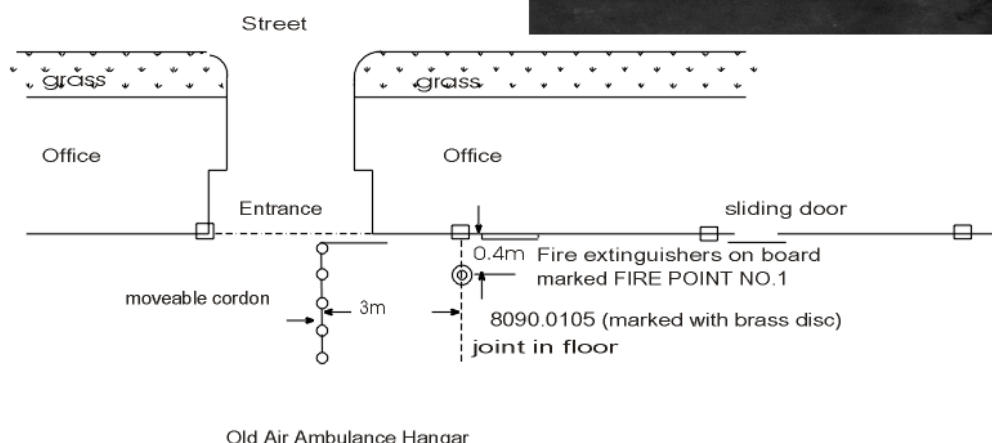
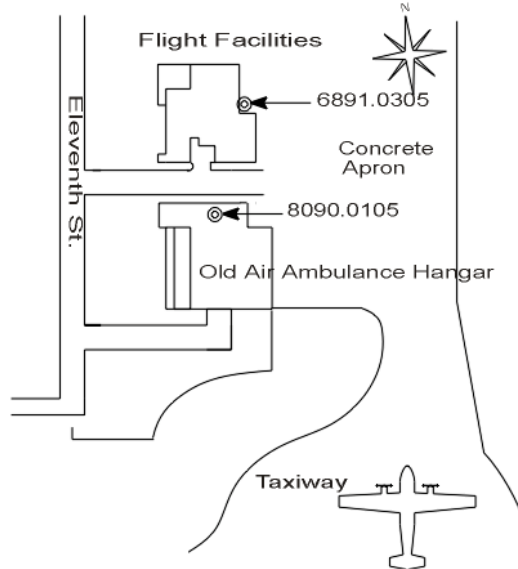
STATION TYPE: Base.

POSITION: 33 6.1'S 151 11.2'E

Position Source: Report 261

ELEVATION: 6. m

Elevation Source: Report 261



GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME **Sydney**
Bankstown Airport NSW

STATION CODE
6491.0205

LOCATION
James Air Charter Building

DESCRIBED / RECOVERED BY
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})
9796552.9

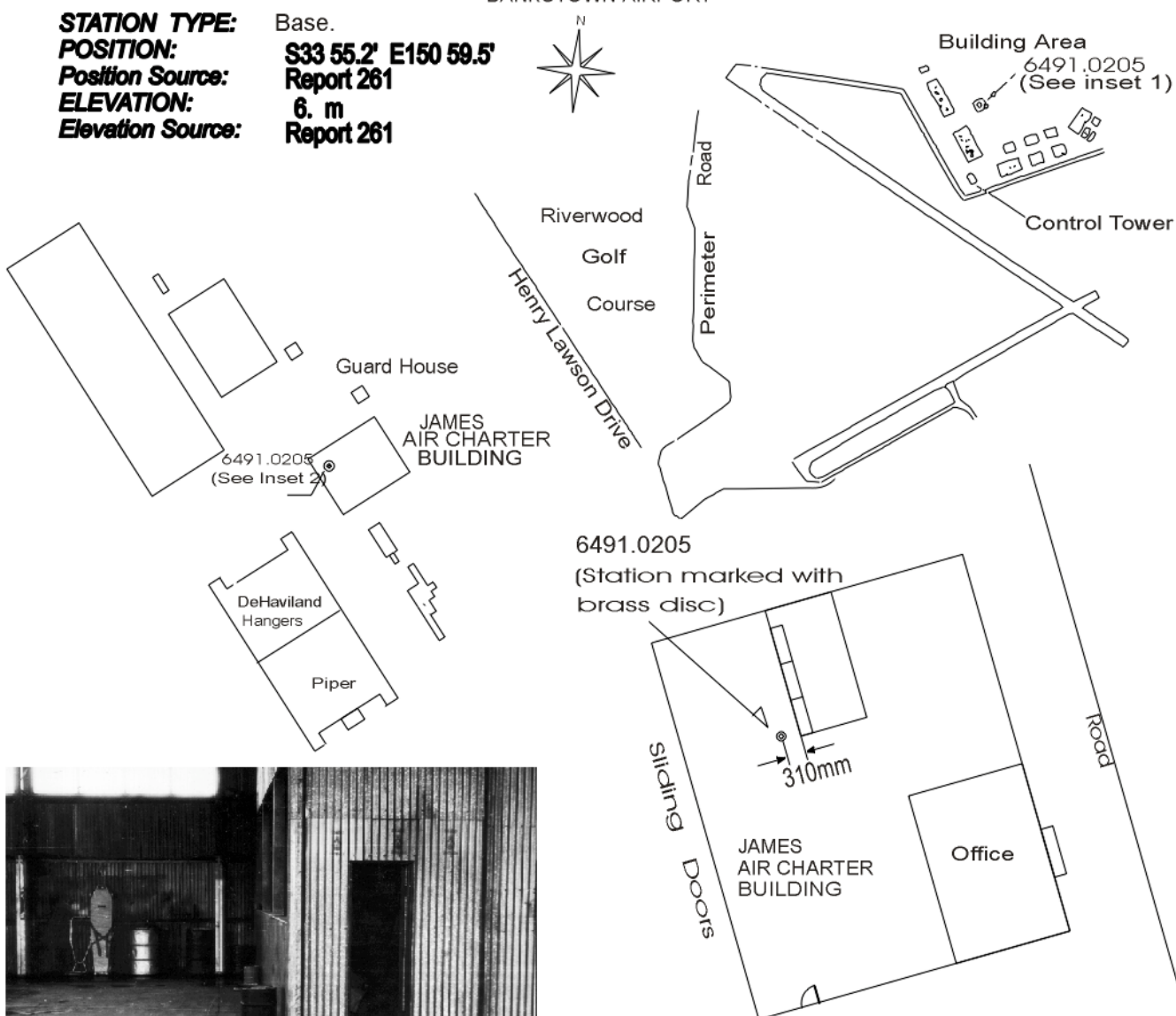
DATE
1964

DESCRIPTION:

Station Class:

STATION TYPE: Base.
POSITION: **S33 55.2' E150 59.5'**
Position Source: Report 261
ELEVATION: 6. m
Elevation Source: Report 261

BANKSTOWN AIRPORT



See also page 23 of 23

GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME Sydney NSW
Calibration Range

STATION CODE

8291.0105

8291.0205

LOCATION Bottom Stations
Lane Cove Park

DESCRIBED / RECOVERED BY
J W Williams - 1982
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})
see following pages

DATE
1992

DESCRIPTION:

STATION TYPE:

POSITION:

Position Source:

ELEVATION:

Elevation Source:

Wahroonga

Stations:

6091.0205

6091.0305

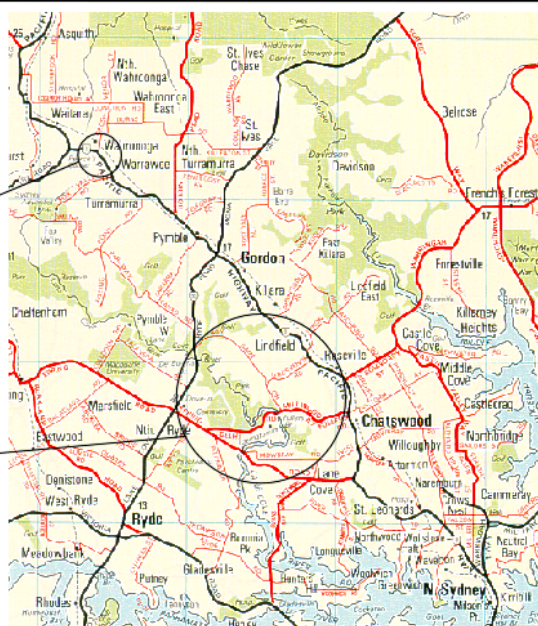
9292.0405

Lane Cove Park

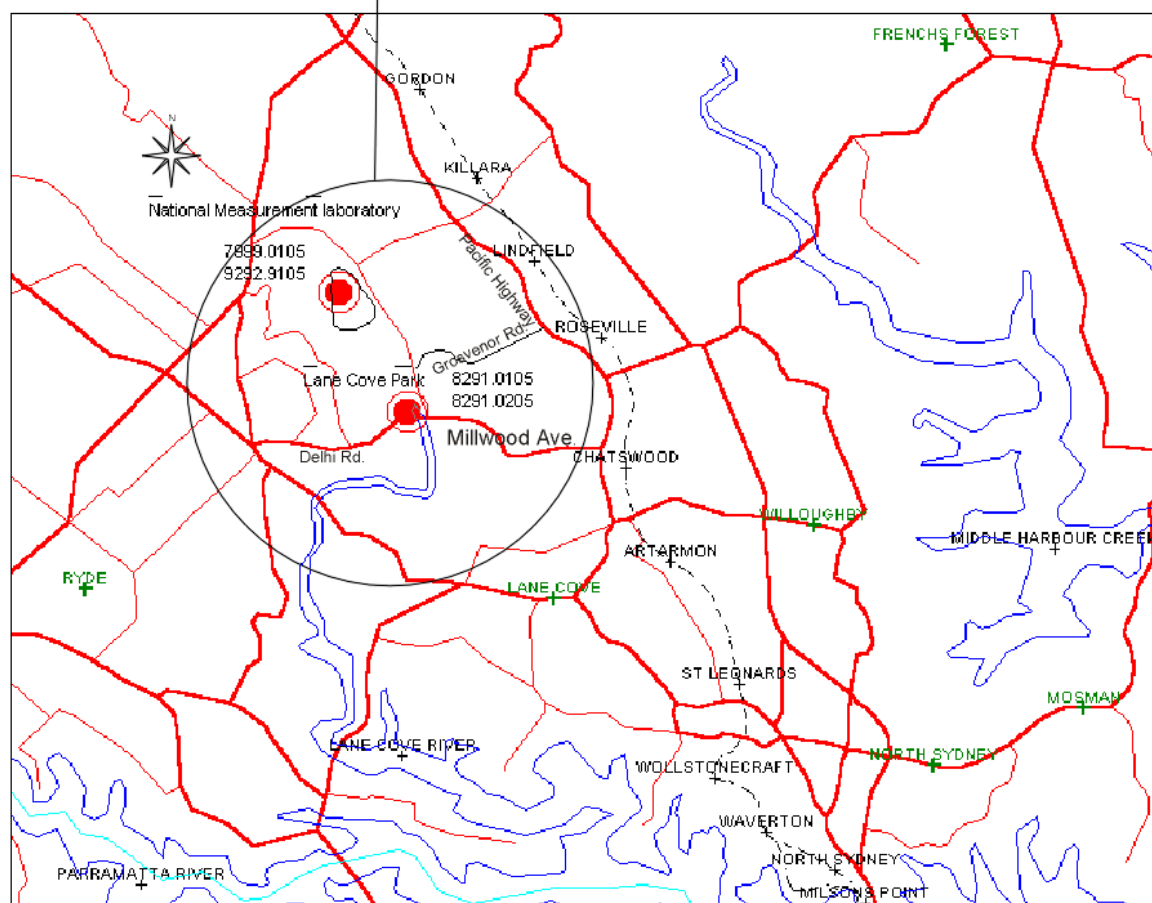
Stations:

8291.0105

8291.0205



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GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME Sydney NSW
Calibration Range

STATION CODE
8291.0105 - 8291.0205

LOCATION Bottom Stations
Lane Cove Park

DESCRIBED / RECOVERED BY
J W Williams -- 1982
Drawn by J W Williams

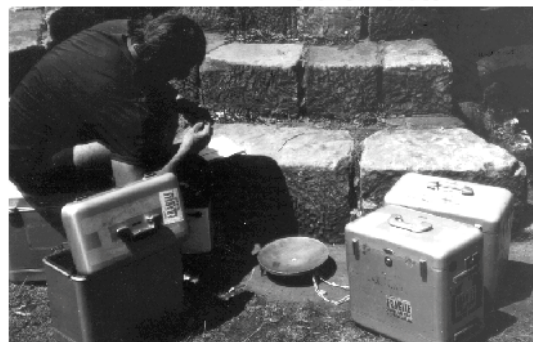
OBSERVED GRAVITY (μms^{-2})
8291.0105 - 9796524.0
8291.0205 - 9796522.1

DATE
1992

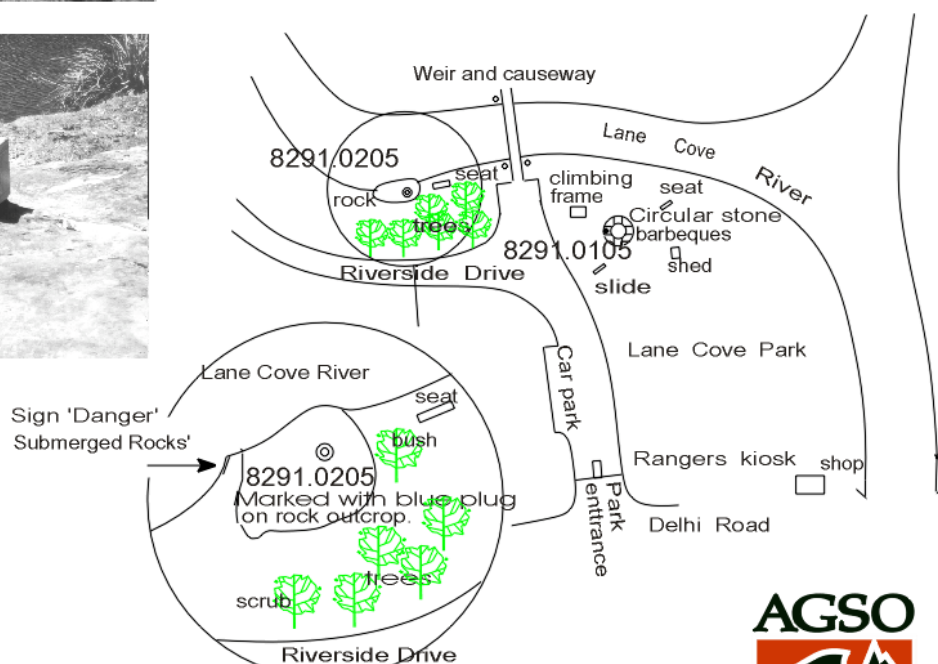
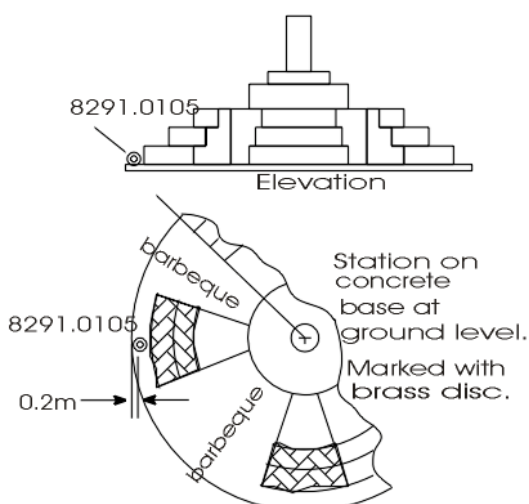
DESCRIPTION:

STATION TYPE: Base.
POSITION: S 33 47.7' E 151 9.5'
Position Source: Report 261
ELEVATION: 4. m
Elevation Source: Report 261

Station Class:



Note:
Bottom Station
8291.0205
Recommended.



GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME SYDNEY NSW
Top Calibration Stations CS2

STATION CODE 6091.0205

LOCATION Manhole Cover
Illoura St. Wahroonga.

DESCRIBED / RECOVERED BY
J W Williams 1992
Drawn by J W Williams

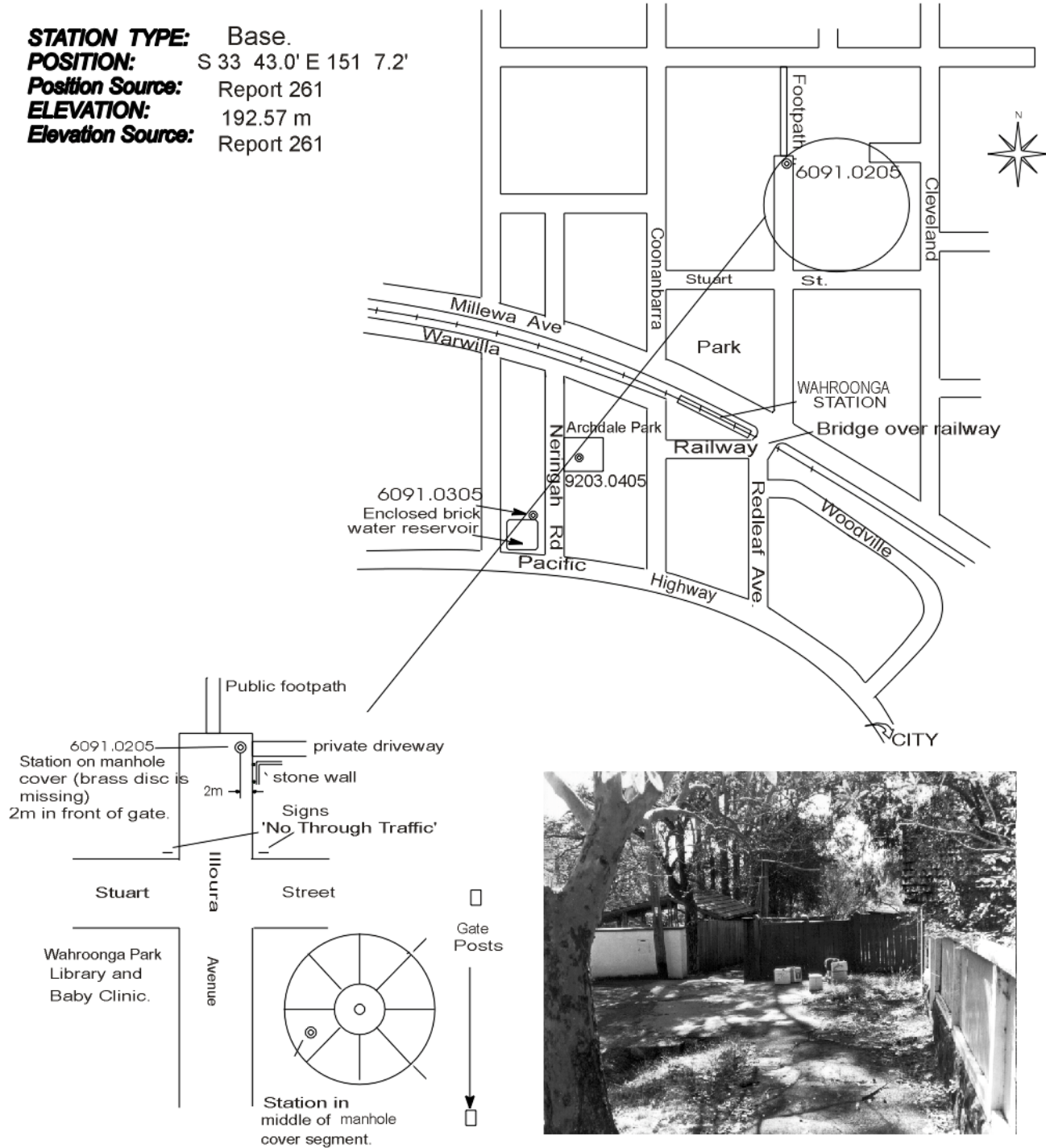
OBSERVED GRAVITY (μms^{-2})
9795940.6

UPDATE
1960
1992

DESCRIPTION:

STATION TYPE: Base.
POSITION: S 33 43.0' E 151 7.2'
Position Source: Report 261
ELEVATION: 192.57 m
Elevation Source: Report 261

Station Class:



NOT RECOMMENDED

GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME Sydney NSW
Calibration Top Stations

STATION CODE 6091.0305

LOCATION
Wahroonga Water Tower

DESCRIBED / RECOVERED BY
J W Williams 1992
Drawn by J W Williams

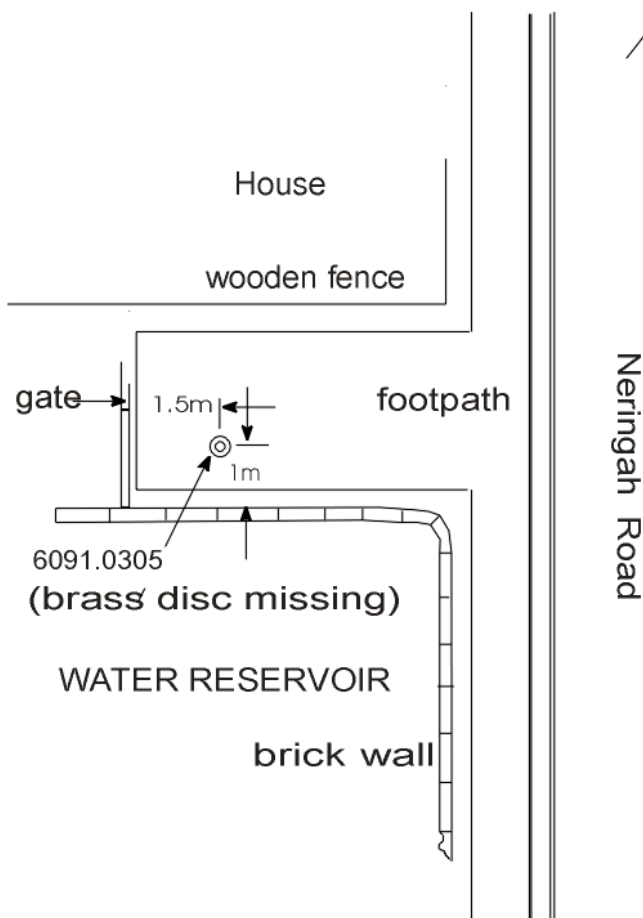
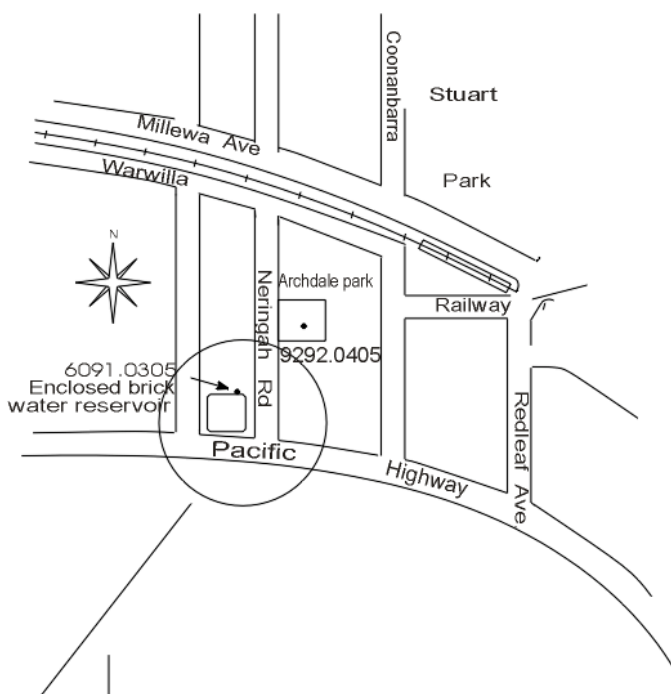
OBSERVED GRAVITY (μms^{-2})
9795910.6

UPDATE
1960
1992

DESCRIPTION:

STATION TYPE: Base.
POSITION: S 33 43.3' E 151 6.9'
Position Source: Report 261
ELEVATION: 207.45m
Elevation Source: Report 261

Station Class:

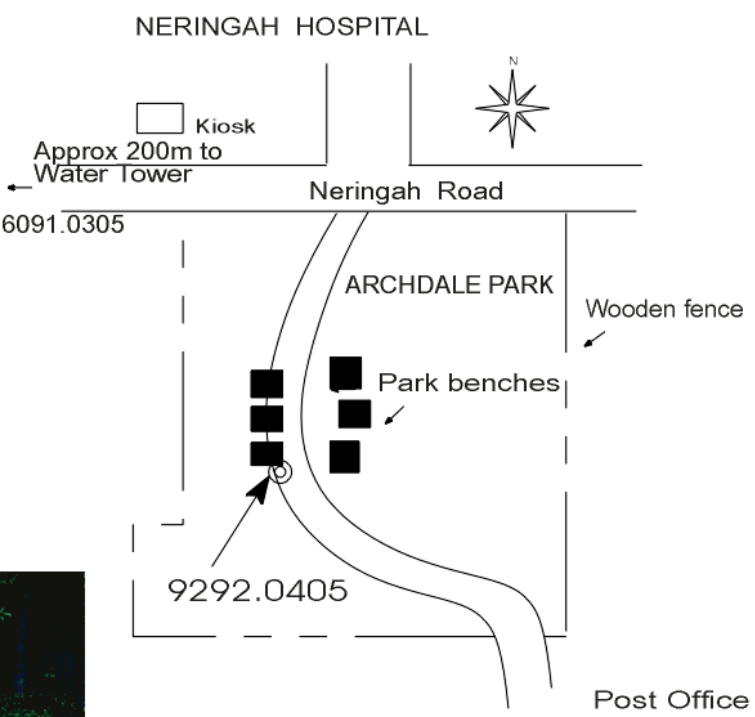
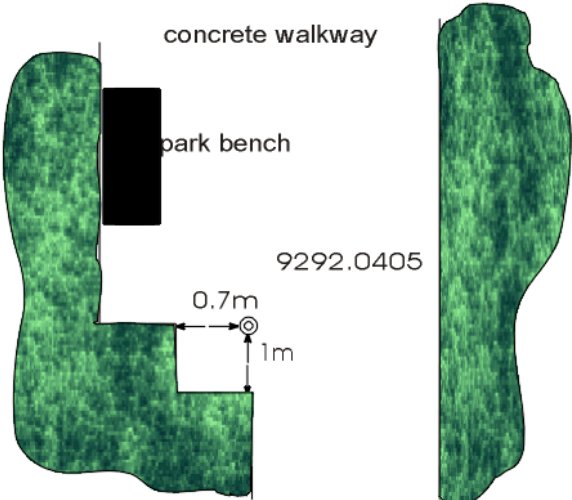


STATION NAME Sydney NSW Top Calibration Stations		STATION CODE 9292.0405	
LOCATION Archdale Park Neringah Rd Wahroonga	DESCRIBED / RECOVERED BY J W Williams 1992 <i>Drawn by J W Williams</i>	OBSERVED GRAVITY (μms^{-2}) 9795926.62	DATE 1992

DESCRIPTION:

Station Class:

STATION TYPE: Base.
POSITION: S 33 43. ' E 151 6. '
Position Source: est. from Report 261
ELEVATION: 200. m
Elevation Source: est. from Report 261



STATION NAME

Sydney NSW

STATION CODE

7999.0105

LOCATION

N.M.L.

Lindfield Sydney Room B245.

DESCRIBED / RECOVERED BY

J W Williams 1993

*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

9796376.3

EDITION

1993

DESCRIPTION:

STATION TYPE: Absolute Gravity station.**POSITION:** S 33 52. E 151 12.**Position Source:** Report 261**ELEVATION:****Elevation Source:**

NATIONAL MEASUREMENT

LABORATORY

LINDFIELD 7999.0105

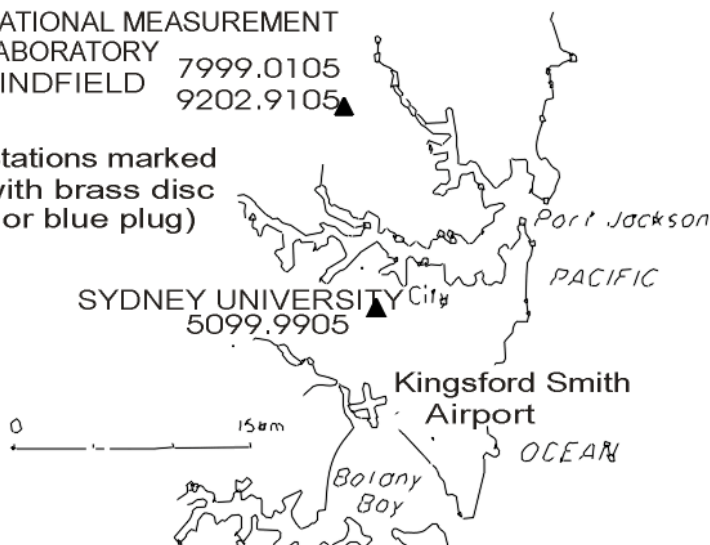
9202.9105

(Stations marked
with brass disc
or blue plug)

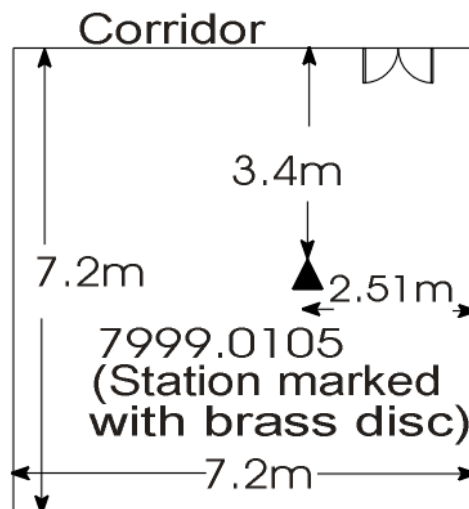
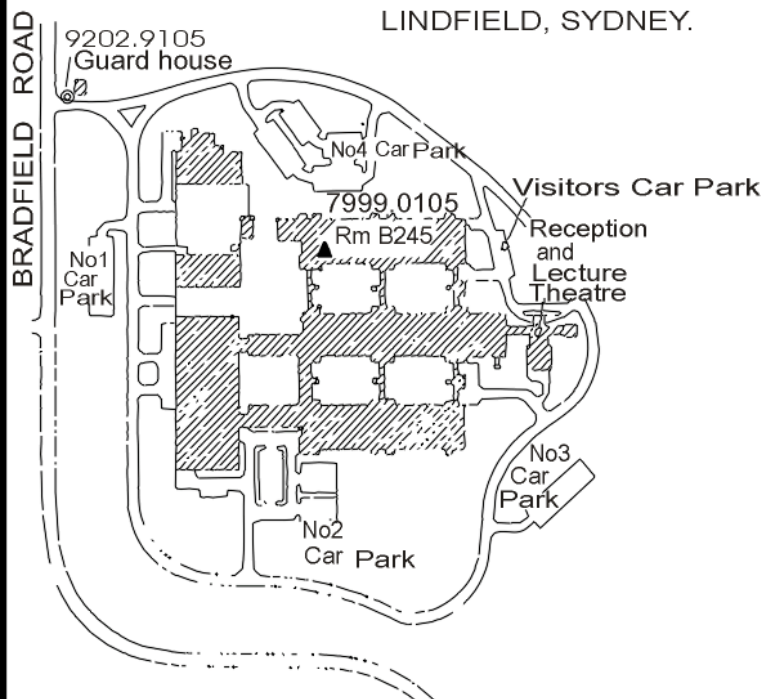
Station Class:



Absolute gravity measurements March 1993
by National Astronomical Observatory Mizusawa Japan.



NATIONAL MEASUREMENT LABORATORY (NML)
LINDFIELD, SYDNEY.



NATIONAL MEASUREMENT
LABORATORY ROOM B 245

GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME

Sydney NSW

STATION CODE

9292.9105

LOCATION

NML front gate
(Absolute excenter)

DESCRIBED / RECOVERED BY

J W Williams 1992
*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})

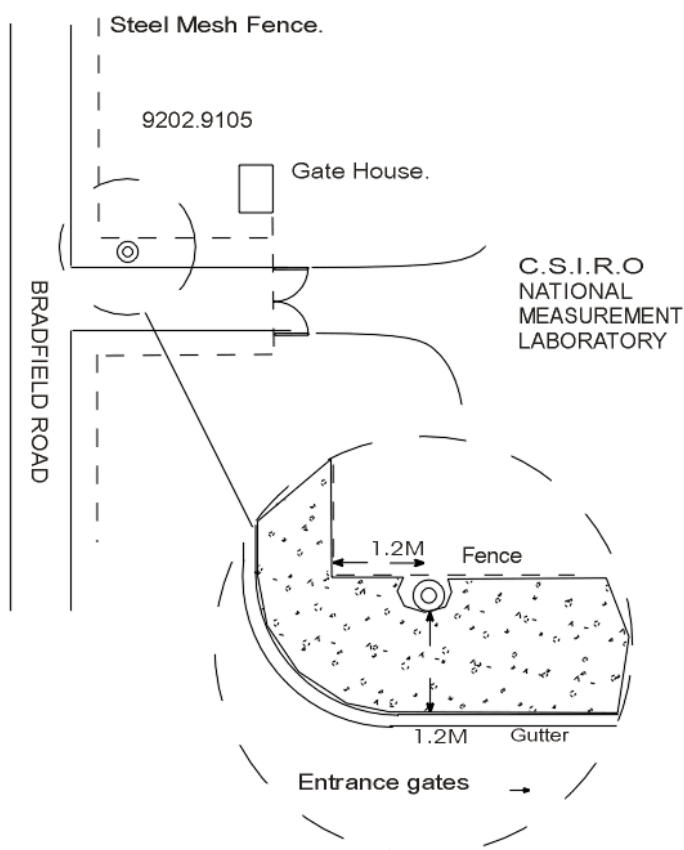
9796373.26

UPDATE

1992

DESCRIPTION:

Station Class:

STATION TYPE: Absolute Excenter.**POSITION:** S 33 52.' E 151 12.'**Position Source:** est. from Report 261**ELEVATION:****Elevation Source:**Bradfield Park
Childrens
Centre.

BRADFIELD ROAD

C.S.I.R.O
NATIONAL
MEASUREMENT
LABORATORY

GRAVITY STATIONS

AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

STATION NAME Sydney National
Measurement Laboratory

STATION CODE

9390.9105

LOCATION

Room H201 NML

DESCRIBED / RECOVERED BY

J W Williams
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})

9796745.95

Edition

1993

DESCRIPTION:

Station Class:

STATION TYPE: Excenter / Gradient (top).

POSITION:

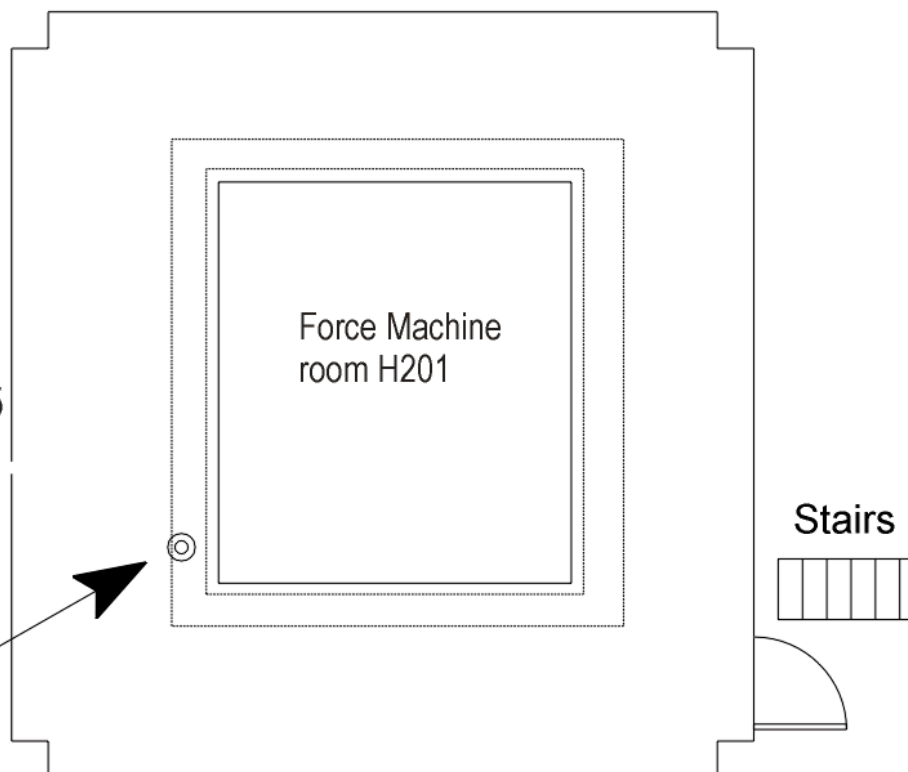
Position Source:

ELEVATION:

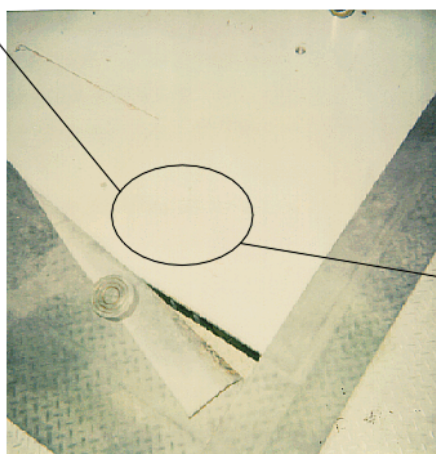
Elevation Source:

Note: Force Machine
weights were down.

Bottom station 9390.9205
6.478m below 9390.9105.
See sheet 19.



Station read at the corner of
Force Machine metal frame.
Station marked with brass disc.



GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



Station No.

Sydney National Measurement Laboratory Rm H201

Sheet 18 of 23

STATION NAME Sydney National
Measurement Laboratory

STATION CODE

9390.9205

LOCATION

Room B1 NML

DESCRIBED / RECOVERED BY

J W Williams

Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})

9796387.36

Edition

1993

DESCRIPTION:

Station Class:

STATION TYPE: Excenter / Gradient (bottom).

POSITION:

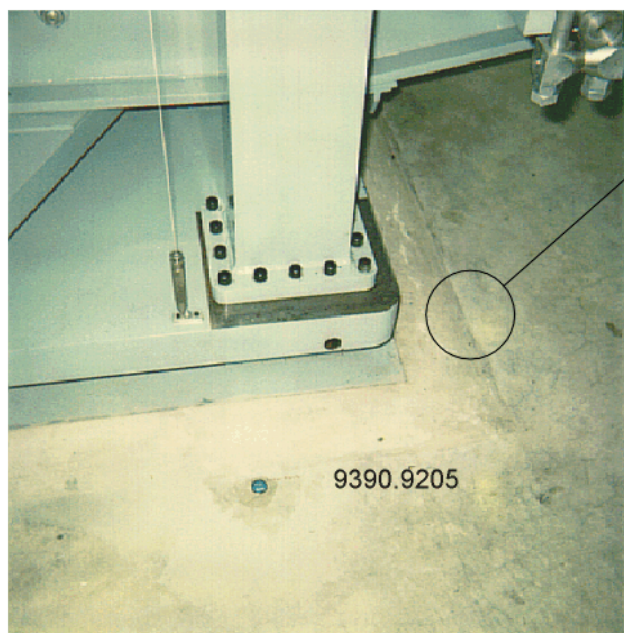
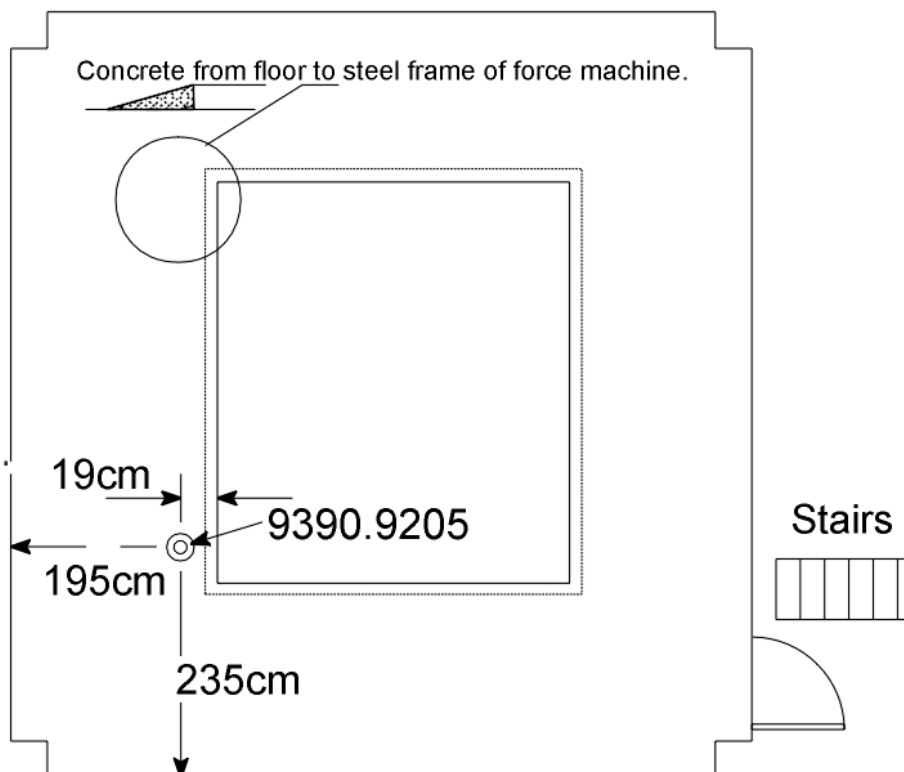
Position Source:

ELEVATION:

Elevation Source:

Note: Force Machine
weights were down.

Top station 9390.9105
6.478m above 9390.9205.
See sheet 18.



Room B1
Lower level
Force Machine

GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK



STATION NAME Sydney NSW		STATION CODE	
LOCATION Sydney Area	DESCRIBED / RECOVERED BY J W Williams 1993 <i>Drawn by J W Williams</i>	OBSERVED GRAVITY (μms^{-2})	EDITION 1997

DESCRIPTION:

Station Class:

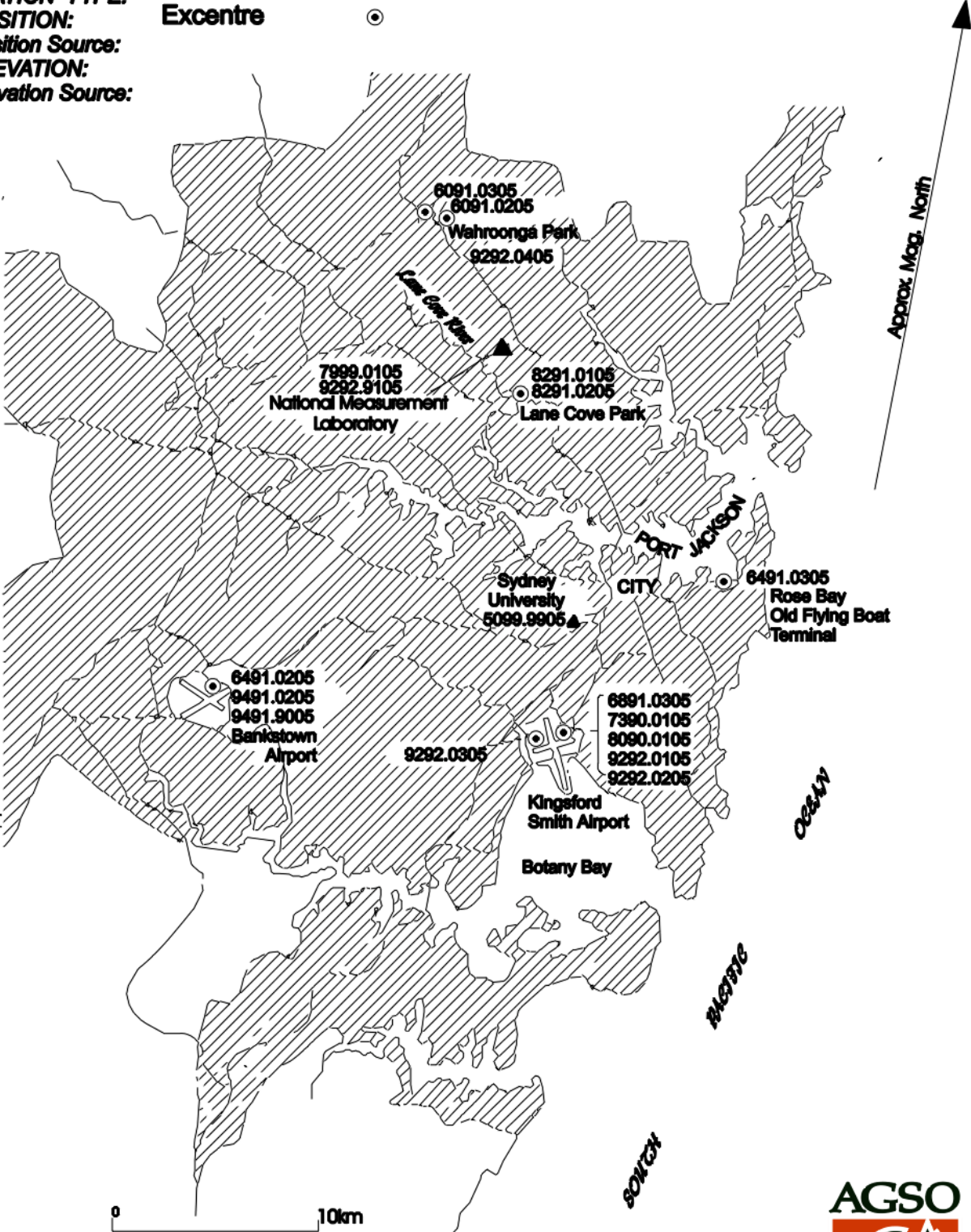
STATION TYPE: Primary Base ▲

POSITION: Excentre ○

Position Source:

ELEVATION:

Elevation Source:



STATION NAME Sydney National
Measurement Laboratory

STATION CODE

9390.9305 (9390.930502)

LOCATION

Room C269 NML

DESCRIBED / RECOVERED BY

J W Williams
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})

9796378.466

Edition

1993

DESCRIPTION:

STATION TYPE: Excenter / Gradient.

POSITION: [Room C269]

Position Source: [S33 52. E 151 12.]

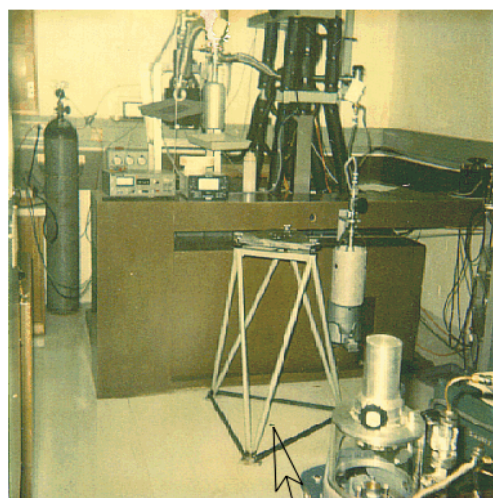
ELEVATION: [As per Report 261.]

Elevation Source:

Mercury Manometer
Primary Pressure Standard

Room C269

Station Class:



163cm

9390.9305

Marked with Blue plug.

56cm To concrete block
supporting manometer.

Timber Frame

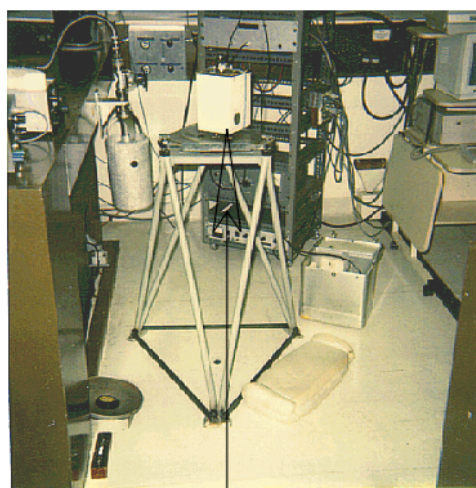
Note:

Gradient measurements
taken on tripod 0.969m in height.

Top station No: 9390.930502.

Observed Gravity.

9796375.53 μms^{-2}



9390.930502



GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

Station No.

Sydney National Measurement Laboratory Rm C269

Sheet 20 of 23

STATION NAME

Sydney University

STATION CODE

5099.9905

LOCATION Sydney University
Computer DepartmentDESCRIBED / RECOVERED BY
J W Williams
*Drawn by J W Williams*OBSERVED GRAVITY (μms^{-2})
9796718.8DATE
1950

DESCRIPTION:

Station Class:

STATION TYPE: Base.

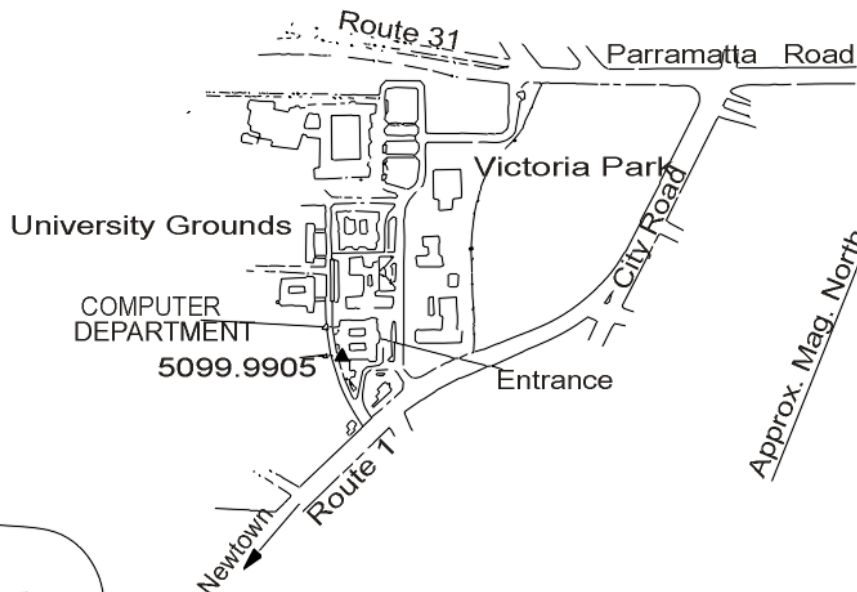
POSITION:

Position Source:

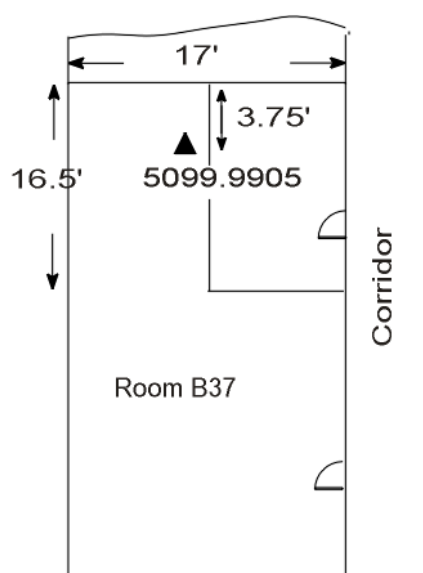
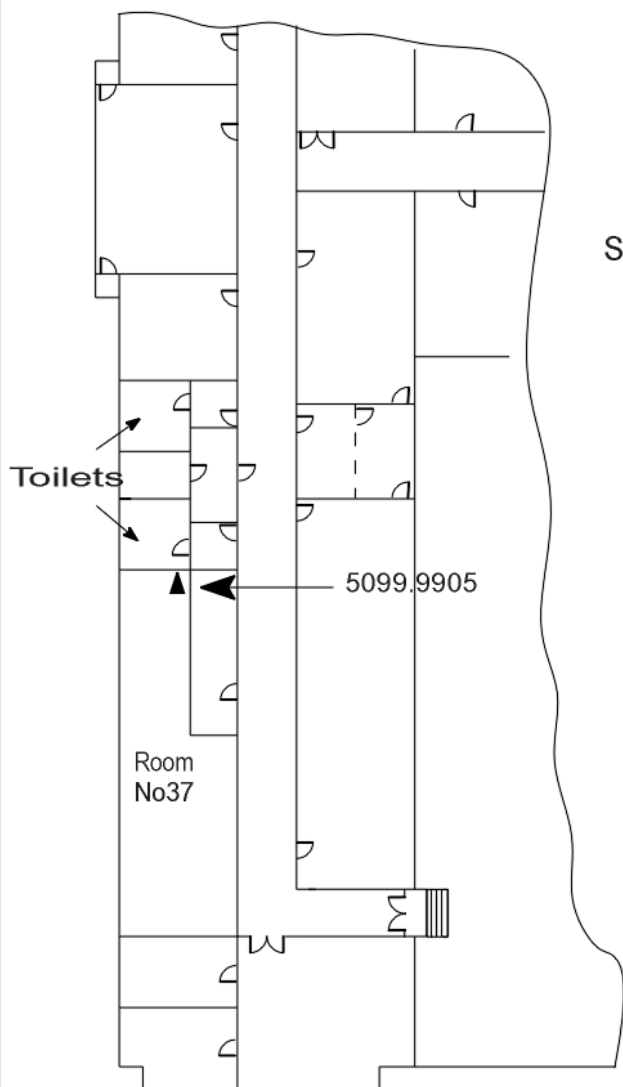
ELEVATION:

Elevation Source:

SYDNEY UNIVERSITY



Station not recommended

Note: To obtain access to site,
make prior arrangements.GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

STATION NAME Sydney NSW

STATION CODE

9390.0105

LOCATION Berth No. 10
Darling Harbour.

DESCRIBED / RECOVERED BY
J W Williams 1993
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})
9796745.95

EDITION
1997

DESCRIPTION:

Station Class:

STATION TYPE: Base.

POSITION:

Position Source:

ELEVATION:

Elevation Source:

TBA



#10 Darling Harbour
@ Bollard #270
Station Marked With Blue Plug
BMR 93900105.

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GRAVITY STATIONS
AUSTRALIAN FUNDAMENTAL GRAVITY NETWORK

STATION NAME Sydney
Bankstown Airport NSW

STATION CODE 9491.0205
9491.9005

LOCATION Departure Terminal
Bankstown Airport NSW

DESCRIBED / RECOVERED BY
J W Williams
Drawn by J W Williams

OBSERVED GRAVITY (μms^{-2})
9796555.442
9796554.583

Edition
1994

DESCRIPTION:

STATION TYPE: Base. BANKSTOWN AIRPORT

POSITION: S 33° 55' 34" E 150° 59' 20" N

Position Source: CAA Supplement

ELEVATION: 9 m

Elevation Source: CAA Enroute Supplement



Station Class:

Marion St.

Building Area
6491.0205 Lost

Control Tower

9491.0205
9491.9005

Riverwood
Golf
Course

Henry Lawson Drive

Perimeter
Road

Hawker

Hawker de Havilland

6491.0205 Lost

Pacific
Aviation

Hanger 14
Piper Aviation