DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

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REPORT OF A GRAVITY SURVEY
OVER THE EASTERN ARROWIE BASIN,
SOUTH AUSTRALIA

OIL, GAS AND COAL DIVISION

by

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GEOPHYSICS

APRIL, 1986

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REPORT OF A GRAVITY SURVEY OVER THE EASTERN ARROWIE BASIN, SOUTH AUSTRALIA

ABSTRACT

Interpretation of gravity data over the Eastern Arrowie Basin indicates the presence of deep basement structure associated with Precambrian sediments. Features within the Tertiary-Cainozoic units are delineated. Further work is recommended to investigate the presence of possible Tertiary channels and faults to upgrade sedimentary uranium exploration within the Wertaloona area.

Relatively shallow basement exists west of the Wertaloona Fault and future base metal exploration may be warranted in this area.

A small number of structures can be correlated to faults within the Middle and Lower Cambrian units. However, further geophysical and drill hole data is necessary to confirm this hypothesis, especially in the area southeast of Arrowie Outstation, where the presence of a basement high is suspected.

INTRODUCTION

The Arrowie Basin is situated east of the Flinders Ranges, within COPLEY, FROME, PARACHILNA and CURNAMONA 1:250 000 map sheet areas in South Australia. This Basin has been surveyed by numerous geophysical methods over the past two decades. The Basin lies within P.E.L. 5 and 6, held jointly by Santos Ltd., and Delhi Petroleum Pty. Ltd. Previous seismic surveys have mapped a large area of the Wirrealpa Limestone, (a Middle Cambrian seismic reflector), consisting of oolitic and fossiliferous carbonates. Outcrops of this unit have been mapped within the vicinities of Moro Gorge and Wirrealpa Station in the eastern Flinders Ranges (Youngs, 1977).

Gravity data covering 203 km of seismic lines surveyed by Delhi Petroleum Pty. Ltd. during 1981 and 1982, comprises a total of 915 stations. The area covered extends from the western shore of Lake Frome to the edge of the Flinders Ranges, (Figures 1 and 11).

GEOLOGY

The Arrowie Basin is defined as a Cambro-Ordovician Basin.

Youngs and Moorcroft (1982), showed that the depositional limits of the Arrowie Basin extend from the Stuart Shelf through to Mt. Arrowsmith in western New South Wales. The northern extremity has been arbitrarily placed to correspond with the Lake Blanche Lineament, whilst the Olary Block forms the southern limit.

Sedimentation occurred during Cambro-Ordovician times and obtained a maximum thickness within the central Adelaide Trough, which can be regarded as being approximately coincident with present outcrops of the Flinders Ranges, (Youngs and Moorcroft, op. cit). Stratigraphic drilling and seismic sections in the current investigation area show the depth of sedimentation increases westward towards the Flinders Ranges.

Middle Cambrian sedimentation, including the Pantapinna Sandstone, Balcooracana Formation, Moodlatana Formation and the Wirrealpa Limestone, stratigraphically overlies the Lower Cambrian Billy Creek Formation. Further geological information can be found in Callen (1976a), Delhi Petroleum Pty. Ltd., (1968), Youngs (1977) and Youngs and Moorcroft (1982).

Lower Cretaceous (Cadna-owie Formation) and Eocene (Etadunna Formation) sediments rest unconformably on the Middle Cambrian succession.

Recent sediments comprising lake and dune material cover the survey area.

Immediately west of the survey area the Wilpena Group (Adelaidean) and the Lake Frome Group of Cambrian age outcrop in the Flinders Ranges. Lake Frome DDH No. 1, 2 and 3 (Fig. 10), south of Lake Frome, penetrated in part all units from Recent through to the Billy Creek Formation. Density data from these holes are given in Figure 10(b). Other stratigraphic holes within the Frome Embayment (that part of the Arrowie Basin east of the Flinders Ranges), have intersected porphyritic rhyolite, (Callen, 1975), which probably relates to the Proterozoic basement of the Curnamona Cratonic Nucleus underlying the Frome Embayment (Thomson, 1974).

PREVIOUS GEOPHYSICAL SURVEYS

Several geophysical surveys, predominantly petroleum - oriented, have been completed within the Frome Embayment. Seismic and regional gravity surveys to the north and northwest of the present survey area, include, the Eromanga-Frome seismic and gravity survey completed in 1966 by United Geophysical Corporation for Delhi Petroleum Pty. Ltd., (Rowan, 1966); the Lake Frome Embayment Survey completed by Geoseismic (Aust.) Ltd. in 1960 for Delhi Petroleum Pty. Ltd. and Santos Ltd., (Denison, 1960); and the Frome Downs seismic and gravity survey completed by United Geophysical in 1970 for Crusader Oil (Proctor and Pfitzner, 1970), which covered part of the present survey area (viz. line 81-CFF).

Delhi Petroleum Pty. Ltd. completed a combined regional gravity and ground magnetic survey that extended from Birdsville to Lake Frome and covered much of the present survey area. The South Australian Department of Mines completed some seismic investigations between 1962 and 1966.

Magnetic basement depths have been computed over the Frome Embayment from existing aeromagnetic data, (Milsom, 1965; Parker, 1973; Tucker and Brown, 1973; and Gerdes, 1982).

GRAVITY REDUCTIONS

All gravity stations were located on seven seismic lines completed by Geophysical Services Incorporated (G.S.I.) for Delhi Petroleum Pty. Ltd., during 1981. These lines were pegged at 75 m intervals and were optically levelled to both trigonometric stations and South Australian Department of Lands' Benchmarks. The station spacing varied from one to four peg intervals (75 m to 300 metres). A summary of stations and relevant spacings is provided in Table 1. Three gravimeters were used during the survey, a Sodin Model 420, LaCoste and Romberg Model 212 and a Sharpe 201. Calibration constants for these meters are included in Appendix 1.

Gravity values were tied to the Australian gravity network via the Wooltana Isogal Station (6491.9103), and the Blinman gravity base station (79I1.0105). Several permanent G.S.I. marked stations were resampled, providing some intermediate base stations for network corrections and to establish bases for future gravity surveys. The permanent marks, elevations and Bouguer gravity values are summarized in Appendix II. The gravity data are stored in the State gravity file, under file name 82A1.

Observed gravity values were adjusted by distribution of loop closure errors around a network system.

All gravity data have been reduced to Bouguer gravity values after correcting for earth tide variations and instrumental drift. An average density of 2.20 g/cm was calculated for near surface sediments based on the method of Nettleton (1939).

The terrain effect produced by the Flinders Ranges and Lake Frome has been calculated for 22 stations within the survey area, using the method described by Hammer, (Hammer, 1939). These terrain corrections are presented in Appendix III. Station 4130 on line 81-CFF has the highest terrain correction of 0.2327 mgals due to topography in the area of Mt. Chambers Gorge.

A contour plot of terrain corrections (Fig. 2), shows the effect over the entire survey area. Terrain corrections of less than 0.005 mgals are less than the expected gravity reading error of 0.01 mgals and a similar error is expected with the optical levelling procedure and with drift and closure adjustments. The total error of the Bouguer gravity calculation is 0.03 mgals, implying that terrain corrections of less than 0.02 mgals over most of the survey area are within the survey errors and can therefore be considered negligible for this study.

The terrain corrections due to the topography of the Mt. Chambers area have not been applied to the Bouguer gravity as the results will not significantly alter the interpreted models. However, application of terrain corrections in future interpretations may allow more accurate modelling, particularly adjacent the ranges.

INTERPRETATION

Contours

Bouguer gravity contours (Fig. 11), calculated for a Bouguer density of 2.20 g/cm indicate several near-surface structural features (Fig. 12).

The most prominent features are large gravity gradients which may be associated with several faults. The north-west gradient near the intersection of lines 81-QLD and 81-QLE coincides with the Wertaloona Fault, as outlined from an aeromagnetic inter-pretation, (Young and Gerdes, 1966), and reflects uplifted Cambrian sediments, which crop out to the southwest of Prism Hill.

Strong gradients on line 81-QLG near Arrowie Homestead, coincide with the Arrowie Fault Zone, a series of faults occurring within Proterozoic sediments.

Three gravity areas apparent from contours, are shown on Figure 11. Area 2 corresponds to the Bouguer gravity low separating areas 1 and 3, and is interpreted as a possible graben structure within Precambrian basement. The western extent of this feature has been disrupted by faulting possibly associated with the uplift of the Flinders Ranges.

An area of shallow Cambrian rocks may extend north of the Wertaloona Fault.

Area 3 contains multiple high frequency anomalies, probably caused from density anomalies within near-surface Cambrian to Recent sediments.

Profiles

Individual Bouguer gravity profiles are accompanied by model studies for each line, (Figs, 3 to 9).

Depth estimates were first obtained on anomalies along each profile using the straight slope method for fault interpretation (Dampney, 1977a,b). Calculated depths and throws were further analysed by computer methods using the curve matching program after Talwani (1959). Resulting models indicate four density horizons which can be correlated with stratigraphic units represented in Lake Frome DDH No. 1, 2, and 3 (Figures 10a and 10b), which are correlated as follows:

HORIZON 1 - Quaternary-Tertiary-Cretaceous sediments.

HORIZON 2 - Cambrian Grindstone Range Sandstone, Pantapinna Sandstone and Balcoracana Formation.

HORIZON 3 - Cambrian Moodlatana Formation, Wirrealpa Limestone and Billy Creek Formation.

HORIZON 4 - Precambrian.

These geological correlations are supplemented by density data from core samples from Lake Frome DDH No. 1, 2 and 3.

The interface between horizons 1 and 2 is correlated with Quaternary-Middle Cambrian unconformity which has a good density contrast between the dense Grindstone Range Sandstone (density unmeasured) and the unconsolidated Cainozoic sediments. The next interface, between horizons 2 and 3, coincides with the contact between the Balcoracana and Moodlatana Formations on the basis of an average density contrast of 0.20 g/cm. The interface between horizons 3 and 4 is tentatively placed at the base of the Billy Creek Formation.

Structures associated with the interpreted horizons are shown on Figure 12. The interpreted basement structures associated with the main Bouguer gravity low are shown as faults F1 and F2. F2 is possibly associated with a third fault (F3) within the basement to form a basement high in area 3 (Fig. 11). Results indicate these faults have a vertical displacement of about 1 000 m.

Structures associated with the interface of horizons 2 and 3 are minimal, confirming previous seismic interpretations, which show the Wirrealpa Limestone is undeformed.

Tertiary structures associated with the contact of horizons 1 and 2 trend north-south and may be associated with movement along the main Flinders Ranges fault and basement fault F3. The structure associated with interpreted faults F4 and F5 has a depth of 400-800 m within the Cambrian sequence and could provide evidence of near-surface channel features within the Tertiary sedimentary section.

It must be stressed that without additional stratigraphic drill holes and additional density data within the area to control the interpretation, these models provide only one solution of many.

Most computed models suggest that densities within the second horizon tend to decrease eastwards, which may correspond to a facies changes within the corresponding lithological units.

Density values for individual units are likely to vary over the survey area due to varying depths of burial, facies changes within the units and other constraints such as leaching and alteration through groundwater percolation. Changes in facies within the Wirrealpa Limestone due to varying depositional zones have been previously discussed in detail (Youngs, 1977). Such changes in density can significantly alter the interpreted throws of each fault. Thus, further density sampling of available core is recommended.

Correlation with Geology

Relatively little is known of basement structure between the current survey area and the Flinders Ranges. Magnetic basement depths have been computed by various workers, Milsom (1965), Parker (1973), Tucker and Brown (1973) and Gerdes (1982).

The interpreted throws on each basement fault (Figs. 3 to 9), are based on approximate density values obtained from stratigraphic holes, Lake Frome 1, 2 and 3, and an assumed density of 2.67 g/cm^3 for Adelaidean sediments within the Adelaide Fold Belt.

Important features of this interpretation are the position and trend of fault F2 and the mapped fault within Proterozoic and Cambrian rocks within the Mt. Chambers area. These features may coincide at depth but further geophysical work is warranted to verify this hypothesis.

The Wertaloona Fault (F6) is relatively shallow and coincides with a decrease in the depth to the Middle Cambrian units. This fault may coincide with the eastern extremity of outcropping Middle Cambrian sediments at Prism Hill and may continue west of line 81-QLH. The increase in Bouguer gravity west of this line shows a gradient similar in character to that observed on line 81-QLE.

The interpreted channel trending north-south between lines 81-QLC and 81-QLG may extend northwards to line 81-QLE. Further work is warranted to establish the extent of this feature and whether any sedimentary uranium deposits are associated with it. Depths to the base of horizon 1, are consistent with the Tertiary-Cretaceous contact interpreted from resistivity data obtained in the region north-east of Wertaloona H.S. These data delineated both channel structures and a fault within the sedimentary pile, (Murdoch, 1974a & b).

CONCLUSIONS

Basement faulting within the Wertaloona-Wyambyana area of the eastern Arrowie Basin is confined to the Adelaidean System, and throws in order of 500 to 1,000 m are postulated.

These faults may form a graben (apparent on lines 81-QLD and 81-QLF), separating shallower basement areas to the north and south.

The Wertaloona Fault possibly extends south to line 81-QLH and forms the eastern edge of the Cambrian outcrop in the Prism Hill area. Cambrian rocks west of this fault are relatively shallow implying the existence of a thin veneer of Recent-Quaternary sediments in the Wertaloona-Balcanoona area.

The gravity method can adequately delineate small scale anomalies corresponding to structures within the Recent-Quaternary sediments and is therefore a useful method to locate fractures and channels within the Cainozoic sediments which may be prospective for sedimentary uranium deposits.

RECOMMENDATIONS

Velocity analysis of recent seismic data, using methods such as that of Drake, (_in_ Grant and West, 1965, p. 200), may provide further information to estimate the density distributions of these sediments. This information, coupled with interpreted depths from seismic sections, and further borehole data is required for more accurate gravity interpretations.

It is recommended that further gravity surveys be undertaken within this area, specifically over the basement high of area 3. Subsequent interpretation should further delineate both basement and Tertiary-Cretaceous structures. New data should be obtained at a sufficient station density for second derivative and downward continuation analysis of the Bouguer gravity.

Results from resistivity surveys to the north, (Murdoch, 1974a & b), shows this method to be useful for the delineation of structures associated within horizons 1 and 2.

A stratigraphic drillhole within area 3 is recommended to provide lithological and petrophysical data for further geophysical interpretations.

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APPENDIX I

GRAVITY STATION STATISTICS

SEISMIC LINE	GRAVITY STATION NUMBERS	SPACING (IN METRES)	NUMBER OF STATIONS	DISTANCE (Km)
81-QLE	1167 - 1197	150	94	24.975
	1197 - 1218	225		
	1218 - 1500	300		
81-QLH	2100 - 2118	150	142	21.300
	2118 - 2140	75		
	2140 - 2182	150		
	2182 - 2230	225		
	2232 - 2238	75		
	2238 - 2264	150		
	2264 - 2267	225		
	2267 - 2276	75		
	2278 - 2312	150		
	2312 - 2348	225		
	2348 - 2357	150		
	2360 - 2384	300		
81-QLG	3113 - 3132	75	106	20.775
	3132 - 3194	150		
	3194 - 3242	225		
	3242 - 3390	300		
81-CFF	4130 - 4540	VARIOUS	109	30.750
81-QLC	5198 - 5586	VARIOUS	128	29.100
81-QLD	6100 - 6723	225	205	46.725
81-QLF	7100 - 7493	225	131	29.475
TOTAL		915		203.100

	Survey I		Survey II	
SODIN 420	6-MAY-82 0.1000(7)	→ 1-JUN-82 0.1000(4)	12-Aug-82 0.1000(8)	→ 6-SEP-82 0.1001(0)
LACOSTE AND ROMBERG 212	19-MAR-82 1.058(4)	→ 1-JUN-82 1.058(2)		
SHARPE 201			12-AUG-82 0.0999(6)	→ 6-SEP-82 0.1000(3)

APPENDIX II

SUMMARY OF PRIMARY GRAVITY BASE STATIONS (refer Fig 11)

LINE	PERMANENT MARK	GRAVITY STATION	ELEVATION (metres)	OBSERVED GRAVITY (979,...)	NOTES
81-QLE	200	1200	85.60	363.17	
81-QLE	256	1256	63.60	364.44	
81-QLH	113	2113	59.39	367.28	QLD X-ING QLH
81-QLG	176	3176	58.49	378.85	QLD X-ING QLG
81-QLG	TBM 258	3258	28.10	387.07	NEAR GAS PIPELINE
81-CFF	195	4195	63.38	390.42	QLD X-ING CFF
81-CFF	375	4375	19.32	396.20	YUNTA-ARKAROOLA RD.
81-QLC	198	5198	57.51	397.64	
81-QLC	212	5212	54.47	398.39	QLD X-ING QLC
81-QLC	339	5339	31.60	402.35	
81-QLC	459	5459	18.55	398.97	YUNTA-ARKAROOLA RD.
81-QLD	721	6721	98.76	365.13	QLD X-ING QLE
81-QLF	113	7113	8.19	391.04	QLF X-ING QLG
81-QLF	300	7300	24.10	371.90	QLF X-ING QLH
81-QLF	480	7480	36.23	366.50	QLF X-ING QLE

SUMMARY OF SECONDARY GRAVITY BASE STATIONS (refer Fig 11)

81-QLE	300	1300	46.71	365.82
81-QLH	100	2100	65.02	367.21
81-QLH	150	2150	48.49	368.87
81-QLH	200	2200	37.70	370.46
81-QLG	113	3113	115.77	380.44
81-QLG	123	3123	105.35	374.78
81-QLG	200	3200	48.55	381.06
81-CFF	130	4130	88.07	387.50
81-CFF	150	4150	79.35	387.27
81-QLC	276	5276	43.33	400.08
81-QLD	131	6131	54.47	398.39
81-QLD	150	6150	55.46	397.11
81-QLD	200	6200	62.59	392.07
81-QLD	393	6393	63.10	374.04
81-QLD	587	6587	69.74	365.15
81-QLD	700	6700	94.05	364.01
81-QLF	100	7100	11.16	391.08
81-QLF	145	7145	9.35	388.86
81-QLF	250	7250	19.06	376.81
81-QLF	326	7326	28.04	369.69
81-QLF	350	7350	30.20	367.99
81-QLF	396	7396	33.28	366.91
81-QLF	450	7450	37.22	366.56

APPENDIX III
TERRAIN CORRECTIONS

GRAVITY STATION NUMBER	ELEVATION (metres)	BOUGUER GRAVITY at 2.20 gm/cm	TERRAIN CORRECTION	CORRECTED BOUGUER
1256	63.60	-9.20	0.00798	-9.19
2113	59.39	-16.85	0.02020	-16.83
2200	37.70	-18.42	0.00469	-
3113	115.77	-1.29	0.10621	-1.18
3176	58.49	-15.35	0.01523	-15.33
3258	28.10	-13.82	0.00248	-
4130	88.07	-7.92	0.23271	-7.69
4195	63.38	-10.16	0.01861	-10.14
4271	39.80	-9.84	0.00342	-
4355	22.90	-12.44	0.00790	-12.43
5212	54.47	-8.79	0.00928	-8.78
5300	40.19	-9.07	0.00524	-9.06
5378	24.10	-10.52	0.01196	-10.51
6256	56.70	-11.45	0.02661	-11.42
6460	59.10	-18.06	0.01315	-18.05
6609	74.83	-12.88	0.04240	-12.84
6721	98.76	-0.86	0.03748	-0.82
7113	8.19	-14.27	0.00458	-
7202	15.28	-17.01	0.00133	-17.01
7300	24.10	-19.99	0.00189	-
7396	33.28	-17.85	0.00250	-
7480	36.23	-13.14	0.00559	-13.13

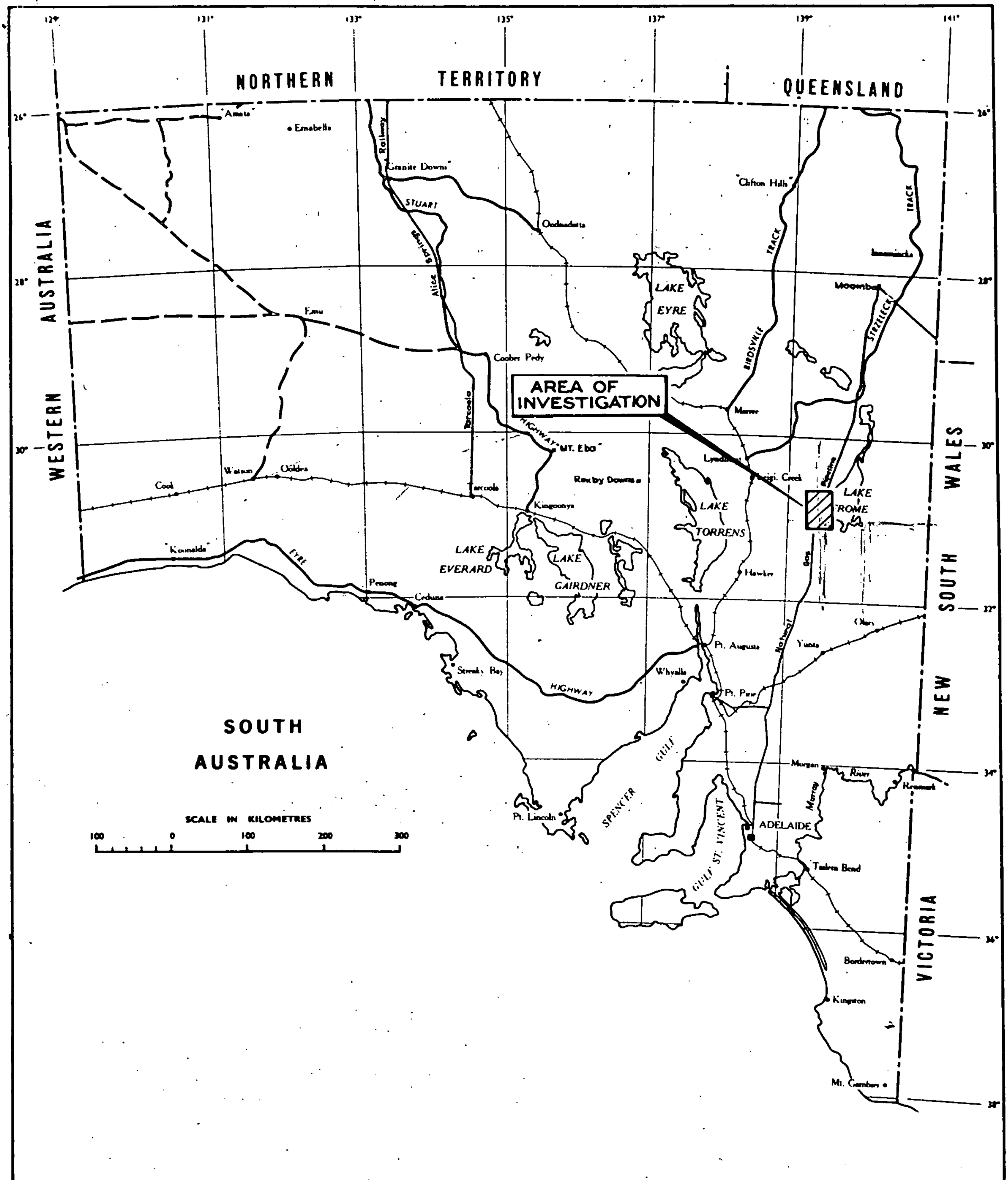

FIG. 1

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Compiled. Gary Reed		EASTERN ARROWIE BASIN GRAVITY SURVEY	Date: June '83
Drn. J.W.	Ckd.	LOCALITY PLAN	Drg. No. S16781
Scale. 1:7,000,000			

3/71

P.F No 55850 994.2

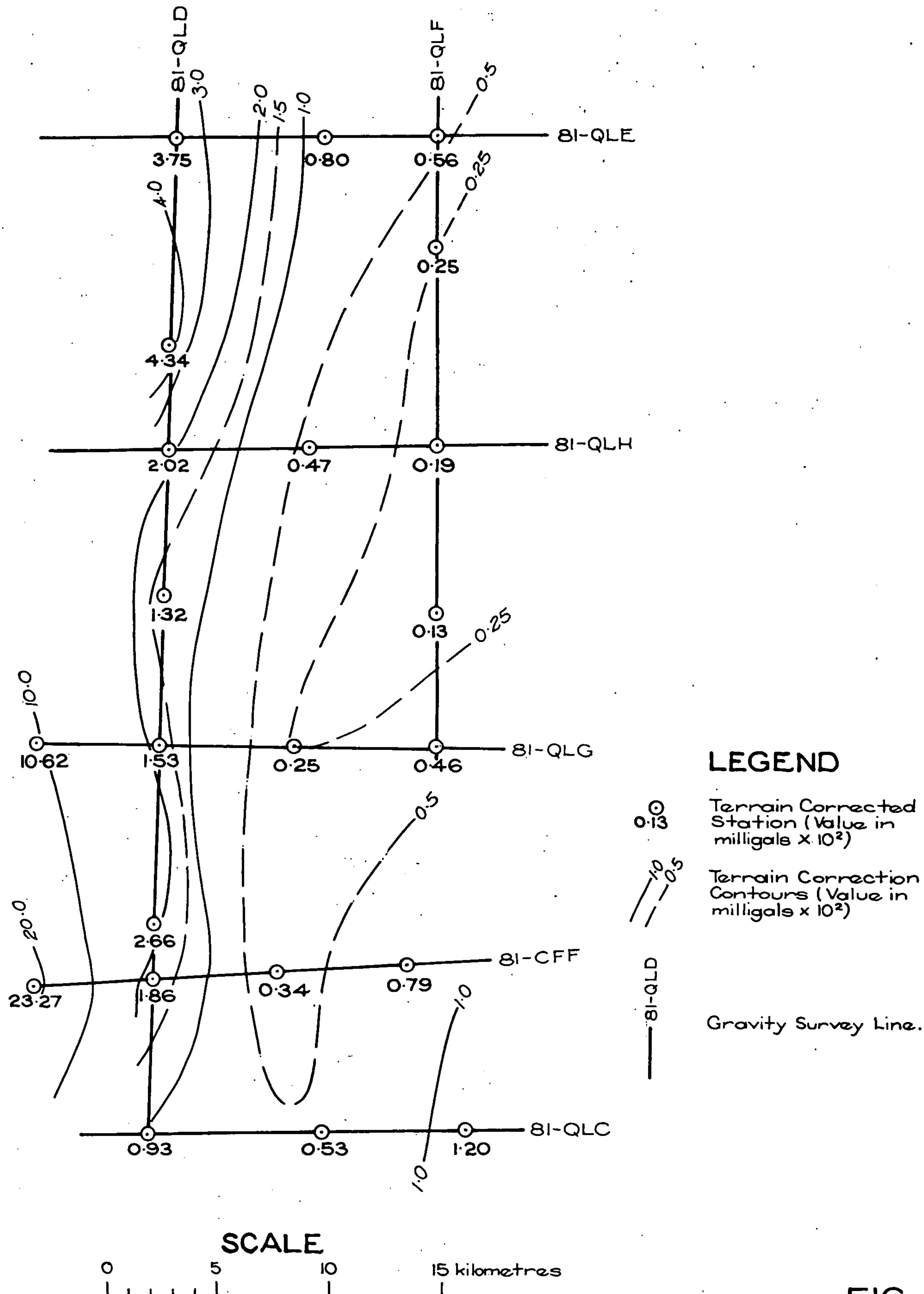

FIG. 2

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EASTERN ARROWIE BASIN GRAVITY SURVEY

TERRAIN CORRECTION CONTOURS

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DRAWN J.W.	SCALE 1 : 250,000
DATE June '83	PLAN NUMBER
CHECKED	S16782

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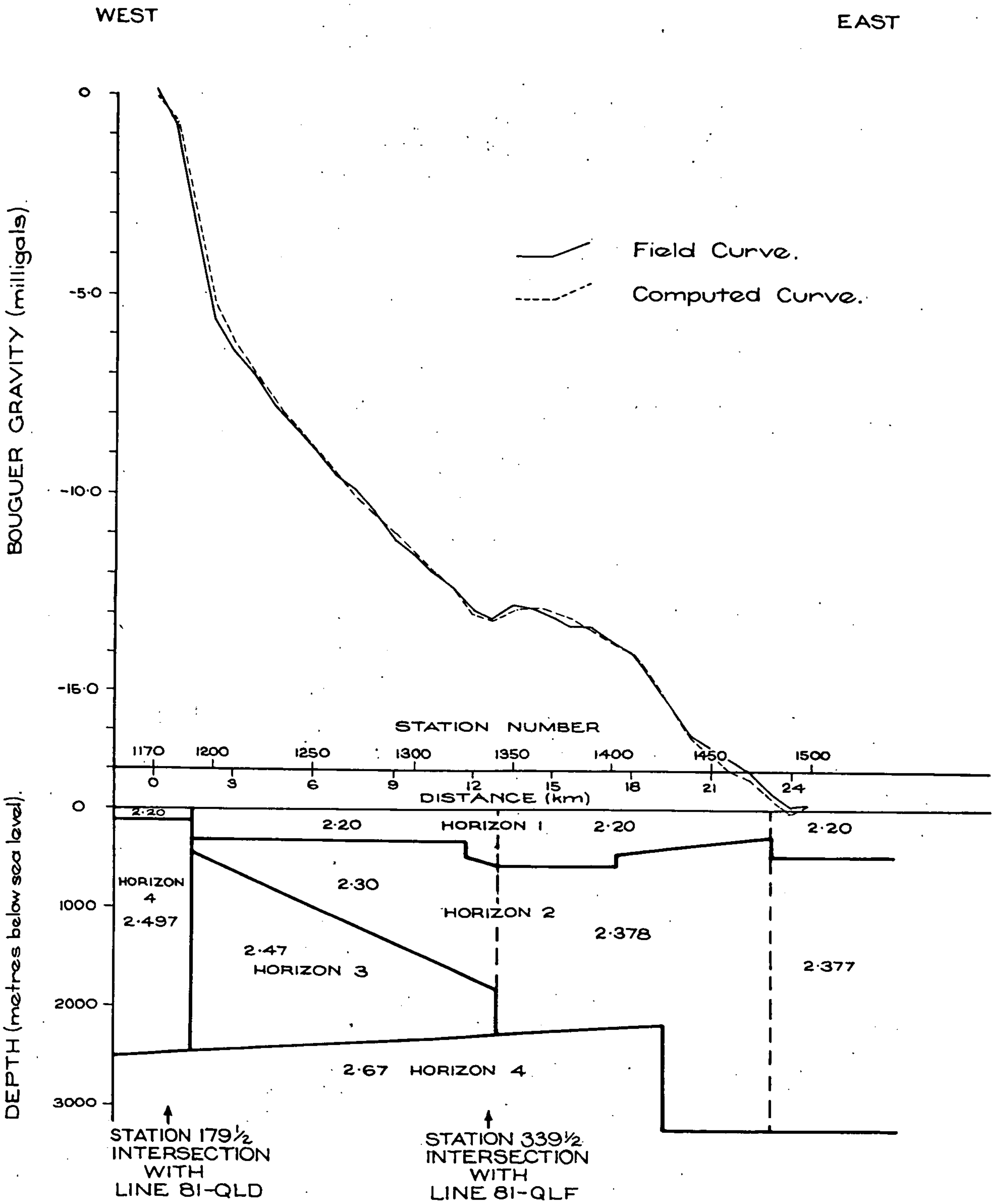

FIG. 3

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EASTERN ARROWIE BASIN GRAVITY SURVEY

GRAVITY PROFILES AND MODEL
LINE 81-QLE

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DRAWN J.W.	SCALE	
DATE June '83	PLAN NUMBER S16783	
CHECKED		

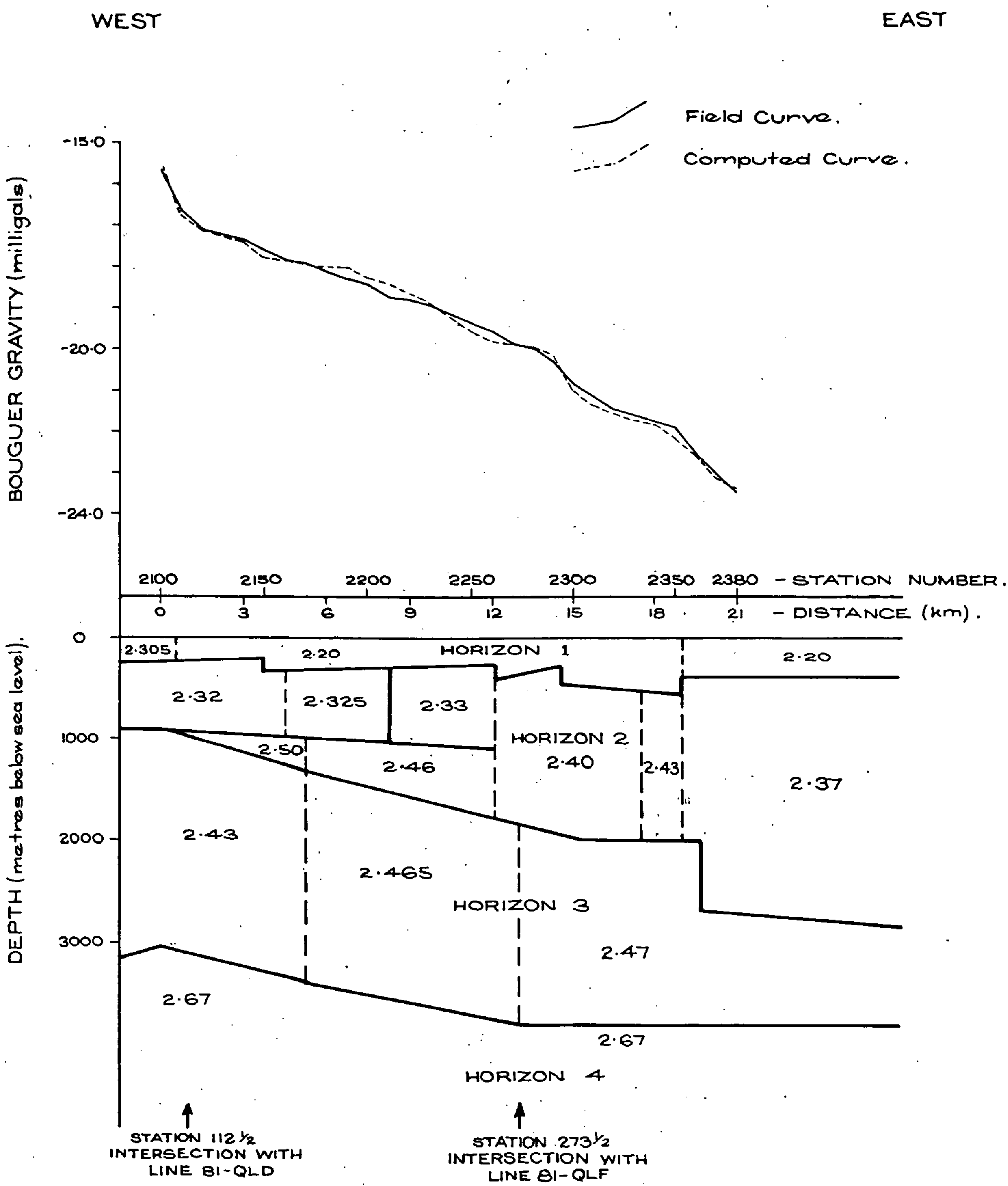

FIG. 4

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EASTERN ARROWIE BASIN GRAVITY SURVEY
GRAVITY PROFILES AND MODEL
LINE 81-QLH

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DRAWN	J.W.	SCALE	
DATE	June '83	PLAN NUMBER	S16784
CHECKED			

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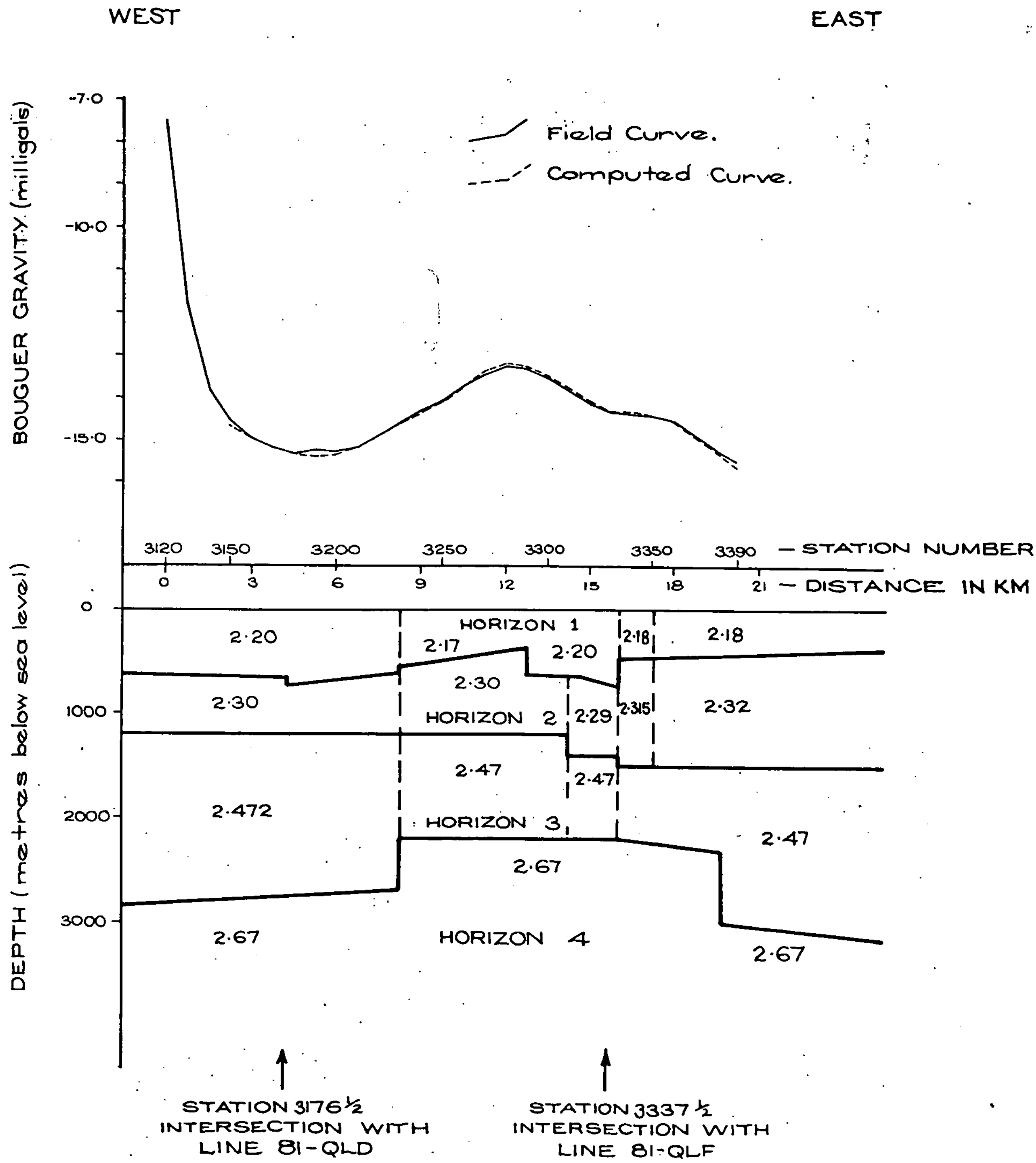


FIG.5

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED G. Reed	CDO 21·4·86 DATE
EASTERN ARROWIE BASIN GRAVITY SURVEY	DRAWN J.W.	SCALE
GRAVITY PROFILES AND MODEL LINE 81-QLG	DATE June '83 / CHECKED	PLAN NUMBER S16785

3/77

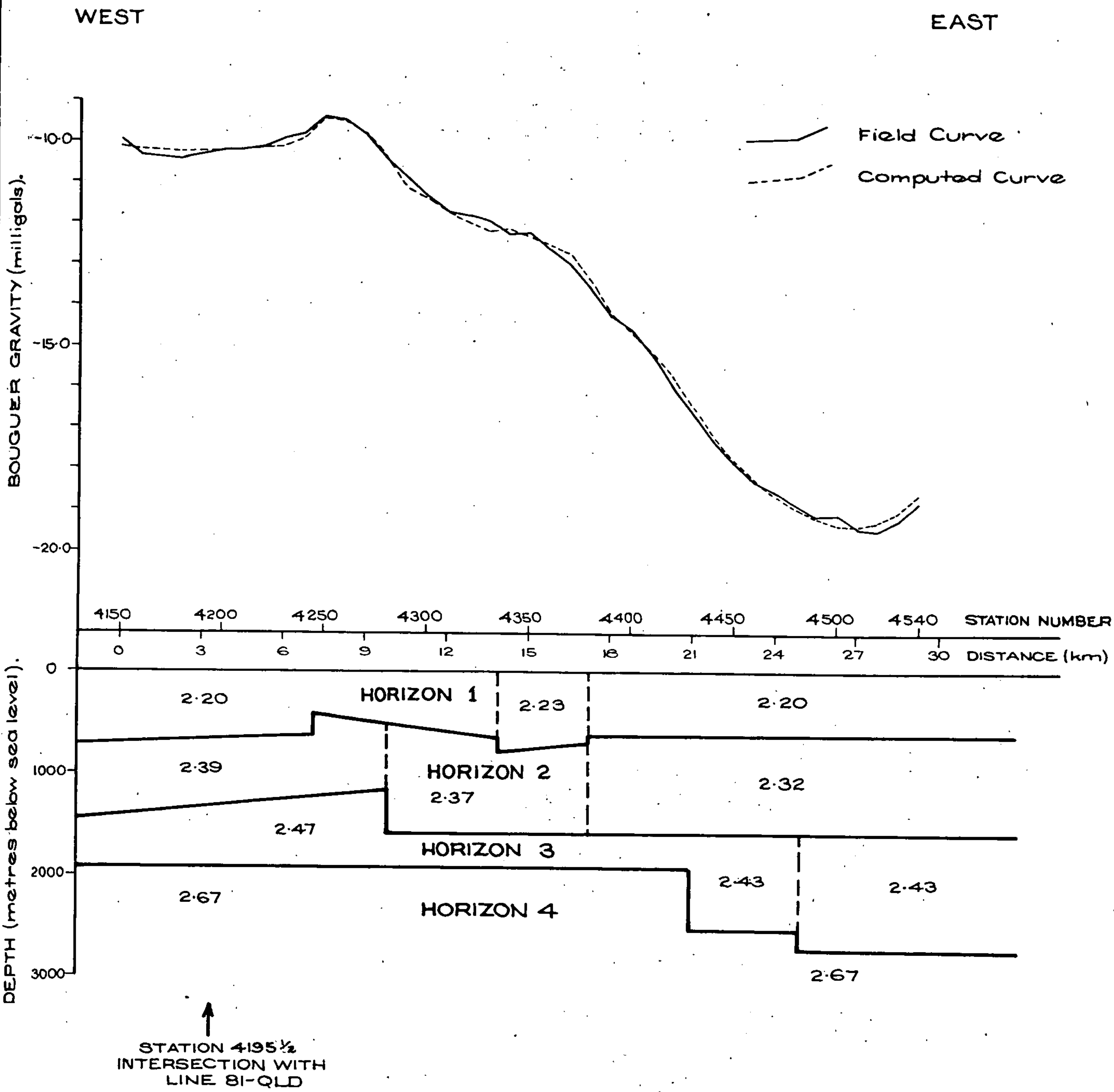


FIG.6

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

EASTERN ARROWIE BASIN GRAVITY SURVEY
GRAVITY PROFILES AND MODEL
LINE 81-CFF

COMPILED G. Reed	C.D.O	DATE 21·4·86
DRAWN J.W.	SCALE	
DATE June '83	PLAN NUMBER S16786	
CHECKED		

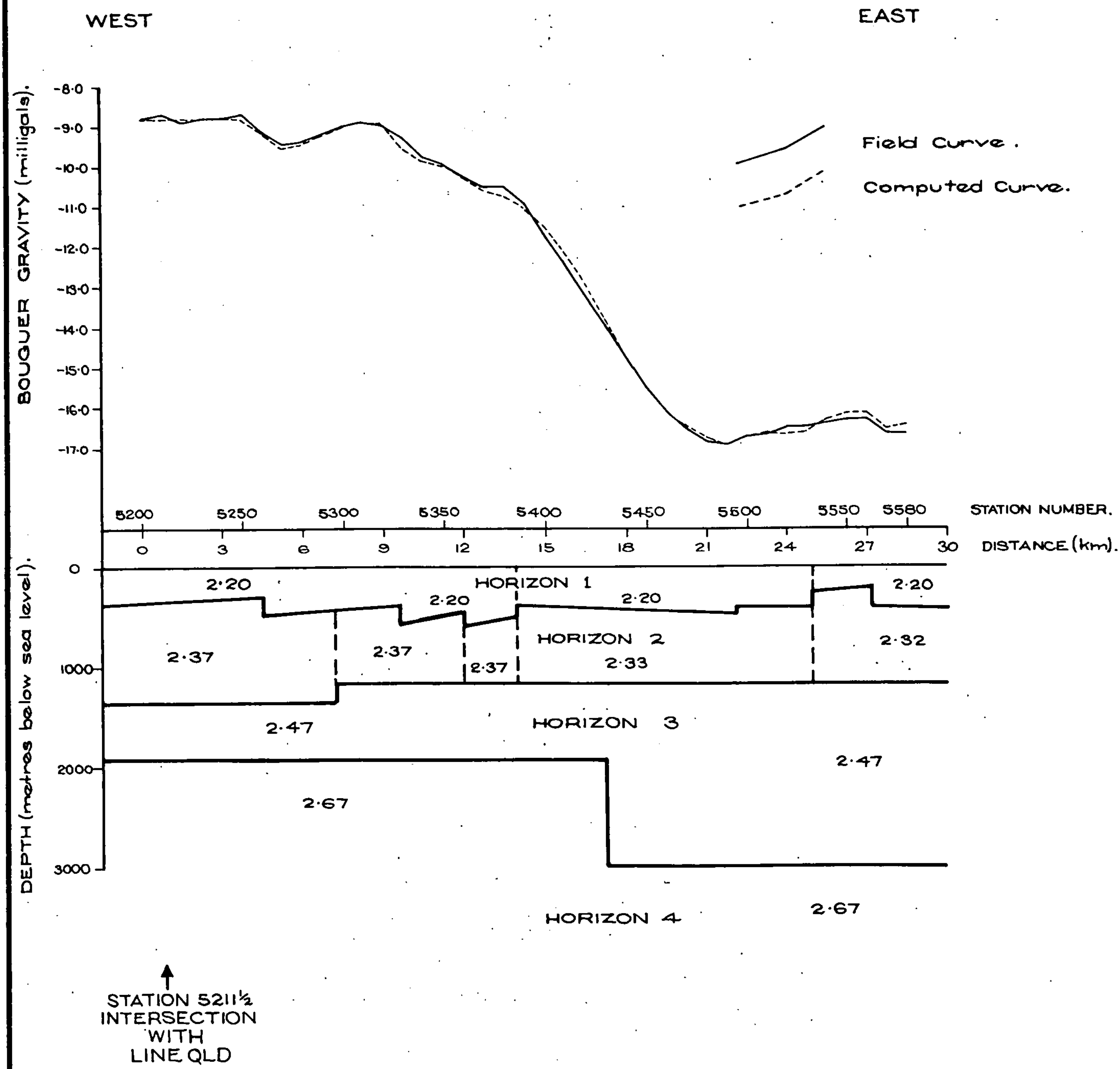


FIG.7

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

EASTERN ARROWIE BASIN GRAVITY SURVEY
GRAVITY PROFILES AND MODEL
LINE 81-QLC

COMPILED: G. Reed	C.D.O. DATE 21·4·86
DRAWN: J.W.	SCALE
DATE: June '84	PLAN NUMBER: S16787
CHECKED	

3/71

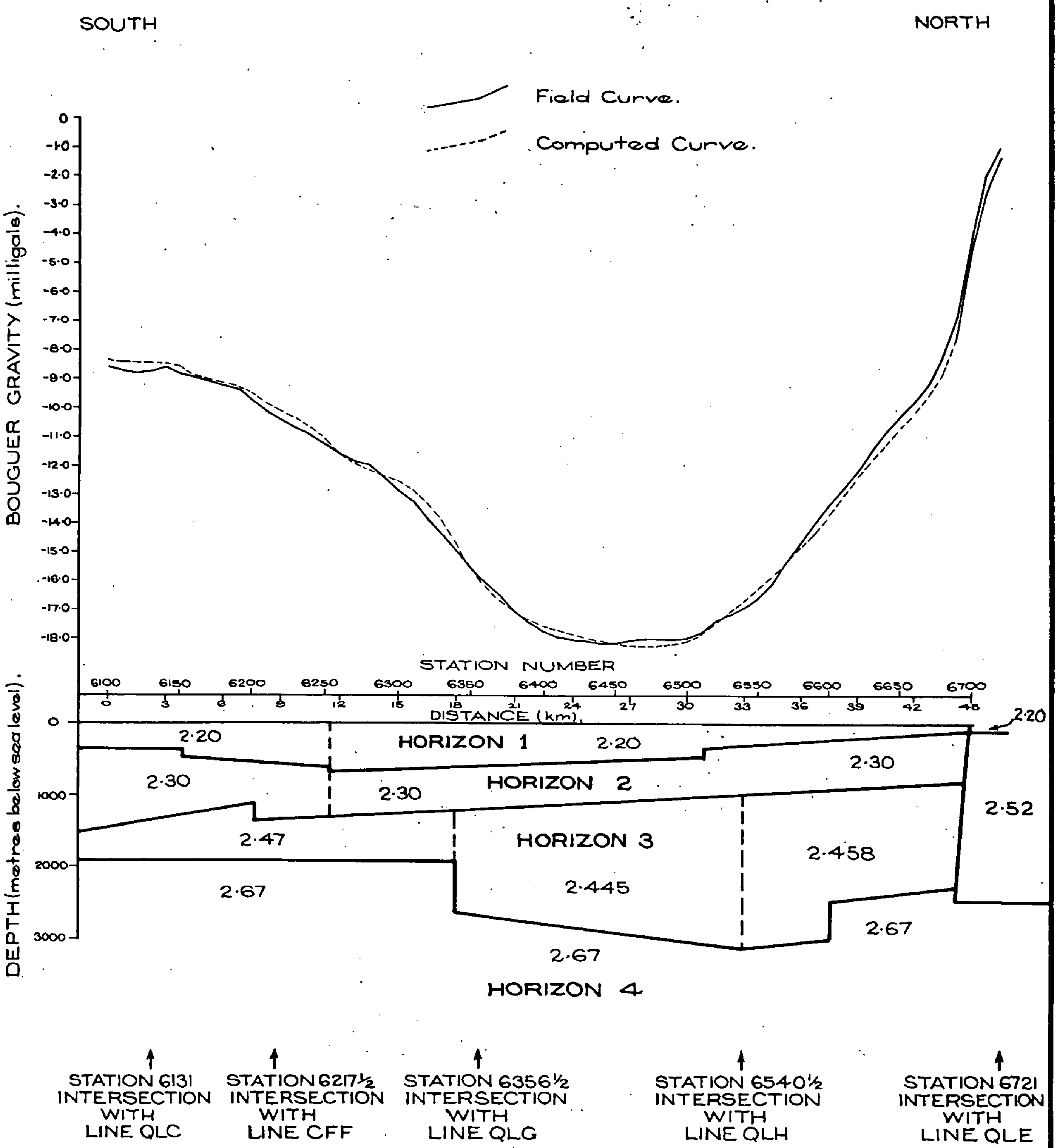


FIG.8

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

EASTERN ARROWIE BASIN GRAVITY SURVEY
GRAVITY PROFILES AND MODEL
LINE 81-QLD

COMPILED: G.Reed

DRAWN: J.W.

DATE: June '83

CHECKED:

C.D.O. [signature] DATE 21·4·86

SCALE

PLAN NUMBER: S16788

3171

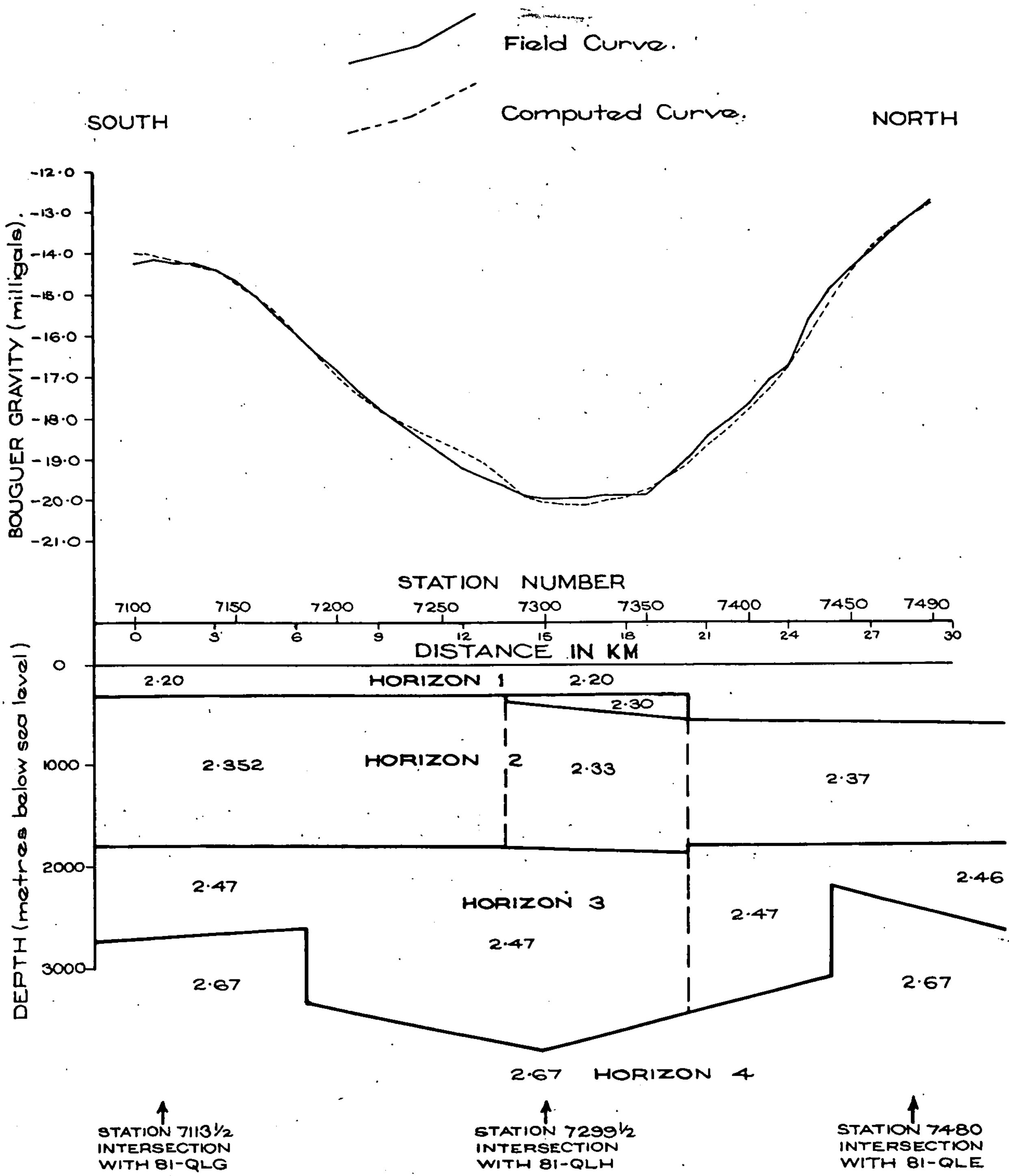


FIG.9

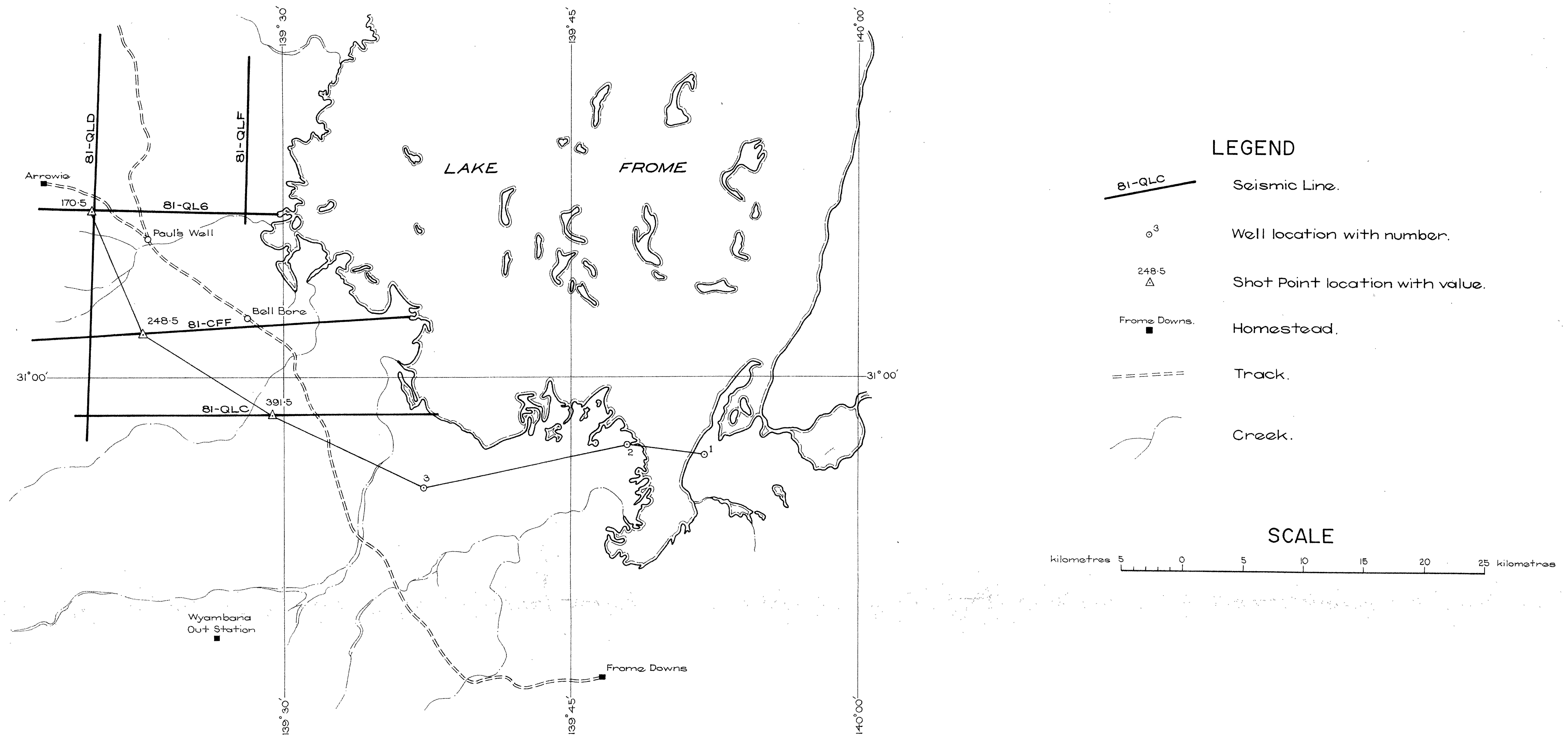
DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

EASTERN ARROWIE BASIN GRAVITY SURVEY
GRAVITY PROFILES AND MODEL
LINE 81-QLF

COMPILED G. Reed	CDO 21·4·86 DATE	
DRAWN J.W.	SCALE	
DATE June '83	PLAN NUMBER	
CHECKED	S16789	

3/71

GEOLOGICAL SUMMARY LOCALITY PLAN



GEOLOGICAL SUMMARY DIAGRAM

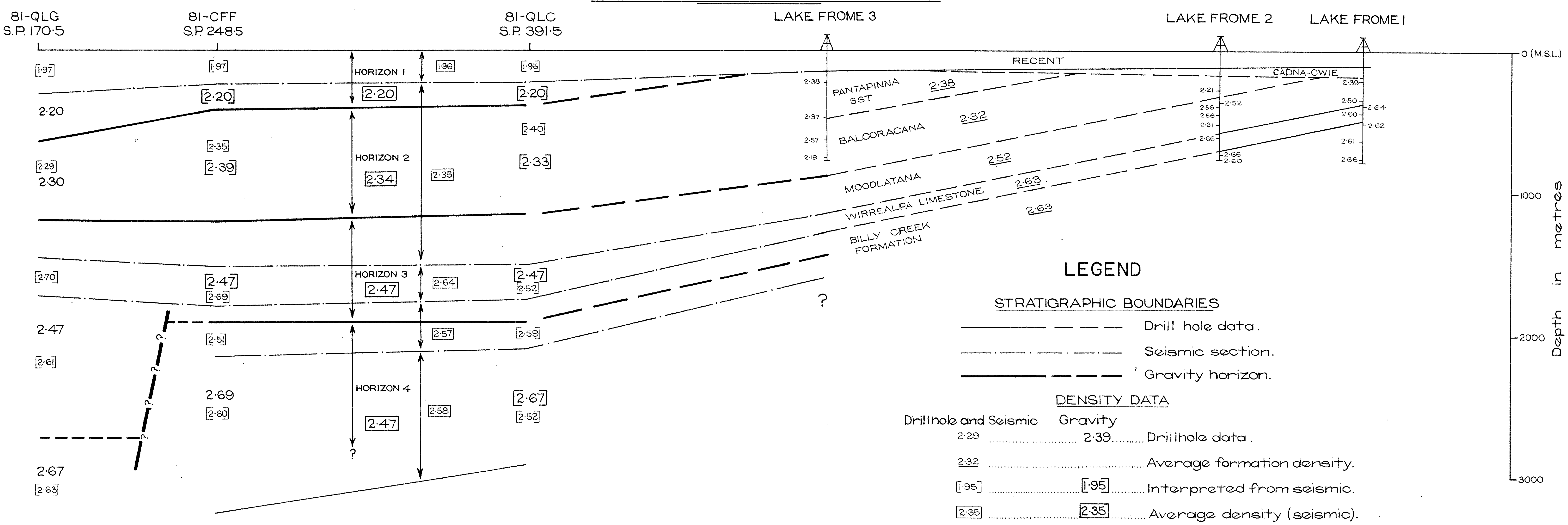
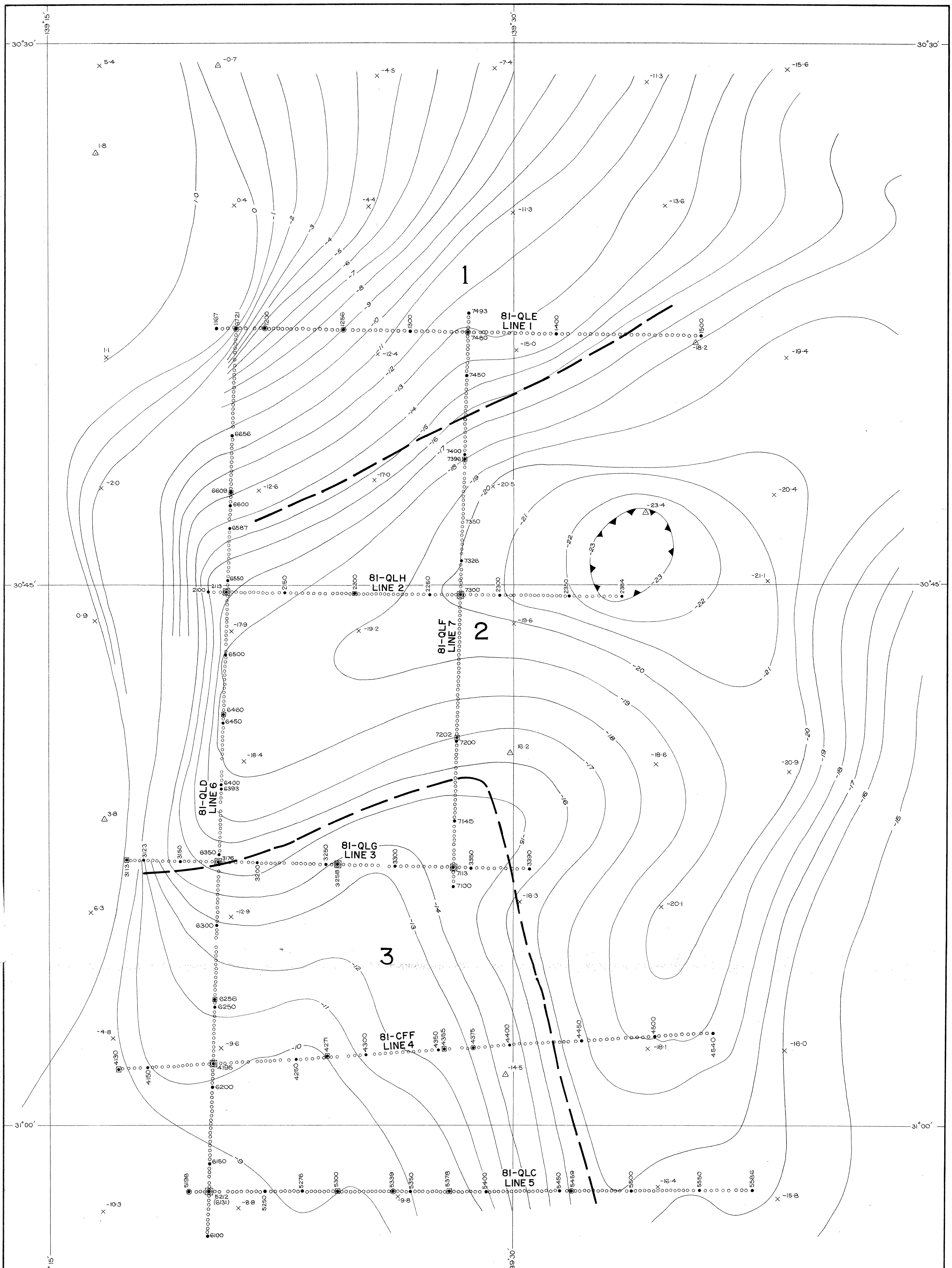


FIG. 10

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED G. Reed	C.D.O. 21·4·86 DATE
EASTERN ARROWIE BASIN GRAVITY SURVEY	DRAWN J.W.	SCALE 1:250,000
GEOLOGICAL SUMMARY DIAGRAM AND LOCALITY PLAN	DATE June '83 CHECKED	PLAN NUMBER 83-267



LEGEND

GRAVITY STATION WITH NUMBER

5198 Primary Stations (82A1).

6200 Secondary Stations (82A1).

-9.6 BMR. Helicopter Regional (7006). (Value in milligals).

-14.5 B.M.R. Helicopter Regional (7007). (Value in milligals).

5212 Terrain Corrected Station Number.

ooooooo Gravity Survey Line.

-15 Bouguer Gravity Contour (Values in milligals).

-23 Bouguer Gravity Low.

1 Bouguer Gravity Area Boundary.

SCALE

kilometres 2 0 2 4 6 8 10 kilometres

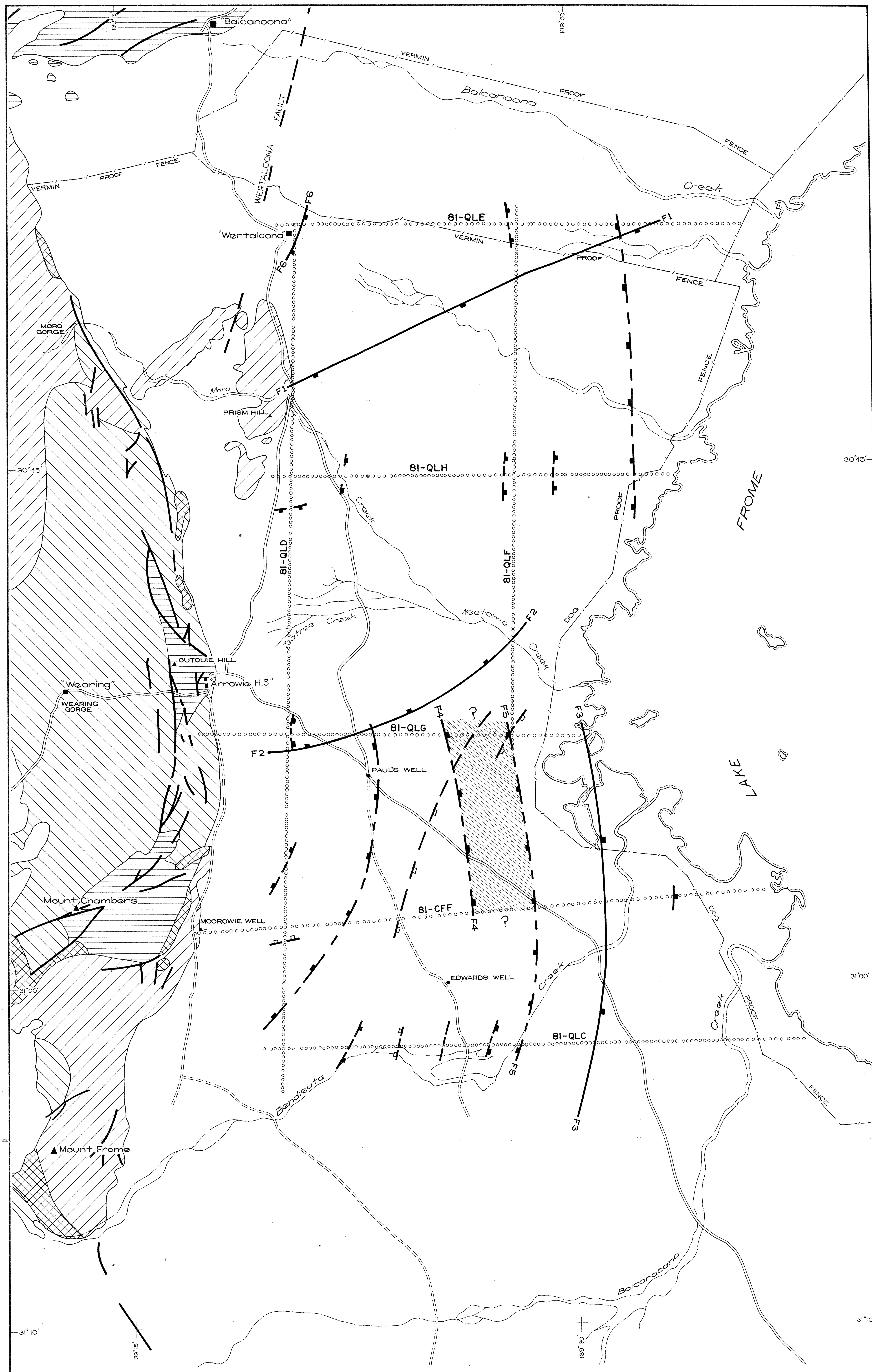
FIG.11.

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

EASTERN ARROWIE BASIN
GRAVITY SURVEY

GRAVITY STATION LOCATIONS
AND BOUGUER GRAVITY CONTOURS

COMPILED	G. Reed
DRAWN	J.W.
DATE	June '83
CHECKED	
C.D.O.	DATE 21.4.86
SCALE	1:100,000
PLAN NUMBER	83-268



LEGEND

GEOLOGY (boundaries approximate).

- Middle - Lower Cambrian.
- Wilpena Group.
- Umberatana Group.
- Diapiric breccia.
- Track.
- Road.
- Fence line.
- Creek.
- 81-QLG Gravity survey line

Fault.

INTERPRETED STRUCTURE

- Basement Fault.
- Fault (Horizon 1-2).
- Fault (Horizon 2-3).
- Possible Channel Structure.

SCALE

kilometres 2 0 2 4 6 8 10 kilometres

FIG. 12

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA

EASTERN ARROWIE BASIN
GRAVITY SURVEY

GEOLOGICAL PLAN AND INTERPRETED STRUCTURE

COMPILED	G. Reed.
DRAWN	J.W.
DATE	May '83
CHECKED	
C.D.O.	21.4.86
SCALE	1:100,000
PLAN NUMBER	83-269