



COMMERCIAL IN CONFIDENCE

Macquarie Generation – Project Symphony

Bayswater Power Station

Preliminary Environmental Site Assessment

Ref: 0213879RP01_DRAFTRev02

October 2013

COMMERCIAL IN CONFIDENCE

Bayswater Power Station

<i>Approved by:</i>	<u>Joseph Ferring</u>
<i>Position:</i>	<i>Project Manager</i>
<i>Signed:</i>	<u>DRAFT</u>
<i>Date:</i>	18 October 2013
<i>Approved by:</i>	<u>Matthew Klein</u>
<i>Position:</i>	<i>Managing Partner – Asia Pacific Transaction Services</i>
<i>Signed:</i>	<u>DRAFT</u>
<i>Date:</i>	18 October 2013

Preliminary Environmental Site Assessment

Macquarie Generation - Project Symphony

October 2013

Environmental Resources Management Australia Pty Ltd Quality System

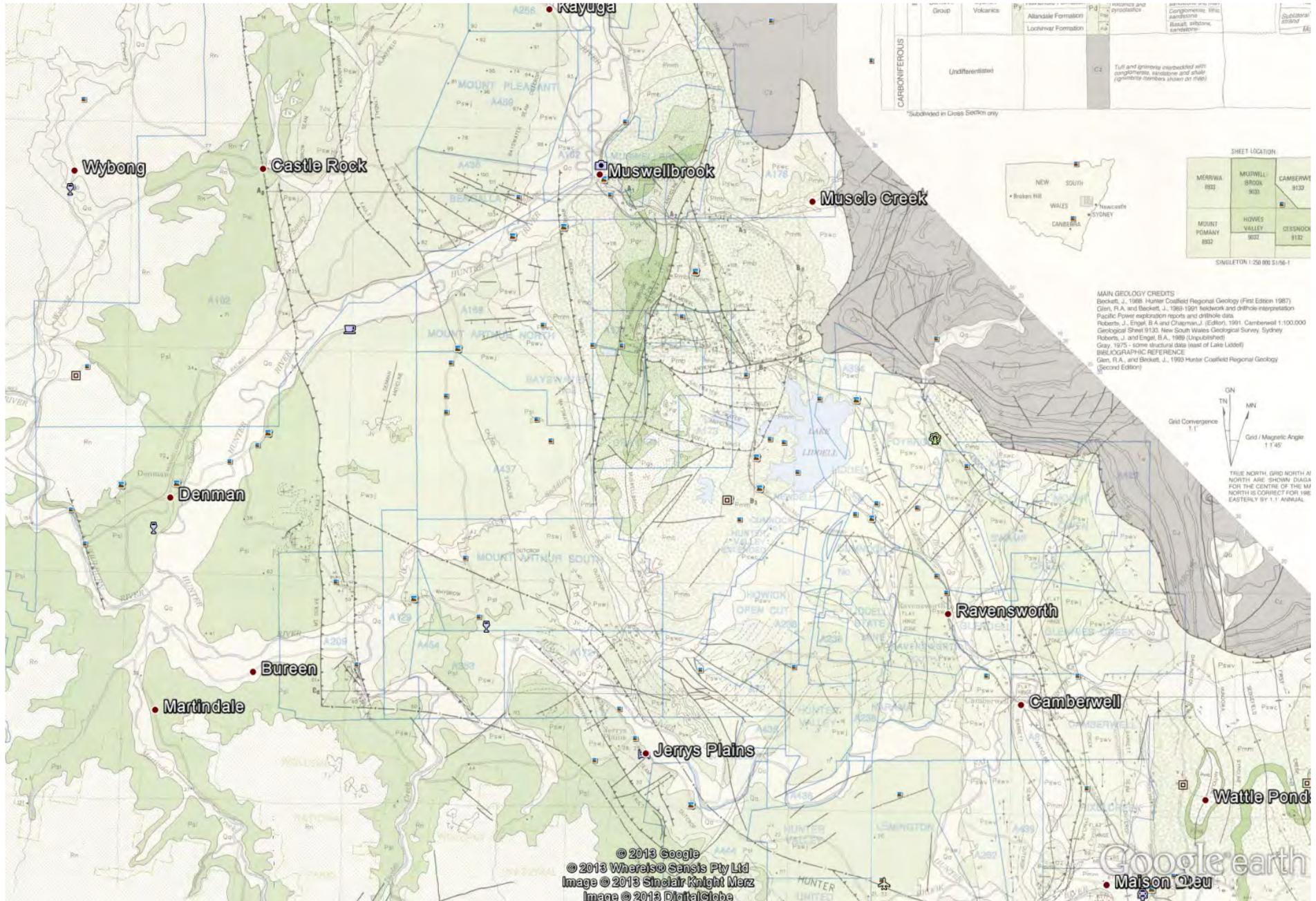
0213879RP01_DRAFT Rev02

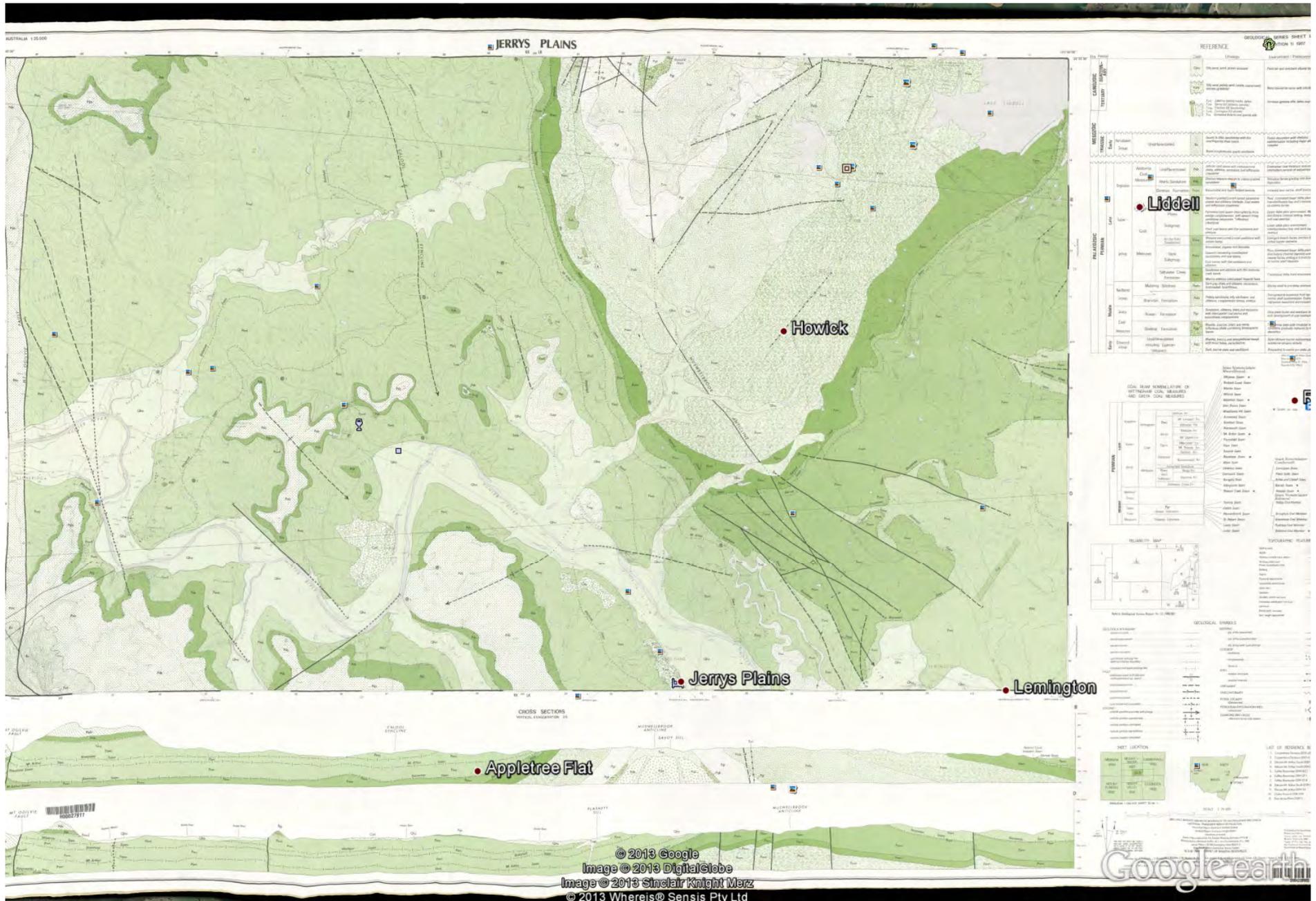
www.erm.com

This disclaimer, together with any limitations specified in the report, apply to use of this report. This report was prepared in accordance with the contracted scope of services for the specific purpose stated and subject to the applicable cost, time and other constraints. In preparing this report, ERM relied on: (a) client/third party information which was not verified by ERM except to the extent required by the scope of services, and ERM does not accept responsibility for omissions or inaccuracies in the client/third party information; and (b) information taken at or under the particular times and conditions specified, and ERM does not accept responsibility for any subsequent changes. This report has been prepared solely for use by, and is confidential to, the client and ERM accepts no responsibility for its use by other persons. This report is subject to copyright protection and the copyright owner reserves its rights. This report does not constitute legal advice.

Annex D

Results of Background Searches







Licensed Groundwater Bores within a 1 km radius of Ravensworth Mine Restoration Area

Bore ID	Distance from site (km)	Direction from site	Use	Total Bore Depth	Standing Water Level	Water Bearing Zone (m)	General Geology	Date Of Completion
GW018328	0.57	East	Not known	5.8	4.6	4.6-5.8	Unconsolidated.	1/01/1959
GW018329	0.56	East	Not known. (collapsed)	-	4.6	4.6-5.8	-	1/01/1959
GW024385	0.61	East	Irrigation Stock	4.6	-	-	-	1/01/1926
GW046786	0.15	East	Domestic	6.9	-	-	Alluvial gravel, sand and clay.	1/01/1972
GW046787	0.1	East	Domestic	6.2	-	-	Alluvial gravel, sand and clay.	-
GW046788	0.19	East	Domestic	6.1	-	-	Gravel between 6.15-6.2 m	-
GW046789	0.22	East	Domestic	6.9	-	-	Clay "grit", underlain by gravel clay.	-
GW078054	0.1	East	Authorised: Industrial	16.2	6.9	11.4-12	Sandstone	-
			Intended Purpose: Domestic Stock					
GW080725	0.77	West	Dewatering Bore	130	-	-	-	8/10/2000
GW200104	0.6	East	Test Bore	-	-	-	-	4/08/2003
GW200109	0.83	South	Test Bore	-	-	-	-	24/07/2003
GW200110	0.42	South east	Test Bore	-	-	-	-	24/07/2003
GW200111	0.5	South east	Test Bore	-	-	-	-	24/07/2003
GW200112	0.61	South east	Test Bore	-	-	-	-	24/07/2003
GW200113	0.07	South east	Test Bore	-	-	-	-	24/07/2003
GW200114	0.42	South east	Test Bore	-	-	-	-	24/07/2003
GW200115	0.18	South east	Test Bore	-	-	-	-	24/07/2003
GW200116	1	South	Test Bore	-	-	-	-	24/07/2003
GW200117	1	South	Test Bore	-	-	-	-	24/07/2003
GW200118	1.06	South	Test Bore	-	-	-	-	24/07/2003
GW201032	0.31	South east	Monitoring Bore	8.7	4.7	41459	Gravel, Alluvial, some bands of up 40mm	19/01/2011

Licensed Groundwater Bores within a 1 km radius of Ravensworth Mine Restoration Area

Bore ID	Distance from site (km)	Direction from site	Use	Total Bore Depth	Standing Water Level	Water Bearing Zone (m)	General Geology	Date Of Completion
GW201033	0.53	South east	Monitoring Bore	8	41461	4.8	Gravel, fine, alluvial, 3mm	25/01/2011
GW201034	0.58	South east	Monitoring Bore	9	-	6	Shale, weathered, yellow	28/01/2011
GW201035	0.65	South	Monitoring Bore	10.1	6.1	41524	Sand/Gravel, alluvial, band up to 3mm, some angular granitic material (Diorite?)	31/01/2011
GW201036	0.76	South	Monitoring Bore	12	6.9	41587	Gravel, alluvial, fine, some gravel up to 5mm	1/02/2011
GW201037	0.98	South	Monitoring Bore	8.4	4.6	5.4-7.4	Sand, alluvial with bands of small gravel up to 5mm	2/02/2011
GW201038	0.8	South	Monitoring Bore	8	5.8	41461	Gravel, fine, Alluvial, up to 5mm	4/02/2011
GW201039	0.21	South east	Monitoring Bore	6	2.6	41398	Gravel, fine, Alluvial, up to 2mm	10/02/2011
GW201040	0.16	South east	Monitoring Bore	14.19	1.6	41398	Gravel, Alluvial, fine, up to 2mm	11/02/2011
GW201110	1.15	North west	Dewatering Bore	48		-	Interbedded sandstone and siltstone	20/03/2001
GW201505	1.28	South	Monitoring Bore	360	-	-	-	17/04/2012
GW201506	0.71	South	Monitoring Bore	330	-	-	-	17/04/2012
GW201843	0.72	South	Test Bore	7.8	5.2	5.2-7.2	Sand; poorly sorted, with Gravel & Cobble	28/11/2000
GW201844	0.26	South east	Test Bore	9.5	4.88	4.88-8.2	Medium grained sand with coarse gravels and cobbles, underlain by silty gravel with coarse sand; and clay with gravel.	
GW201957	0.29	r. Within Rave	Test Bore	77.75	-	-	Fill; mine spoil between 0-76.5 m, underlain by sandstone.	15/07/2006
GW201958	0.73	ndary. Within	Test Bore	71.1	-	-	Fill; mine spoil between 0-70 m, underlain by sandstone.	15/08/2006

Licensed Groundwater Bores within a 1 km radius of Ravensworth Mine Restoration Area

Bore ID	Distance from site (km)	Direction from site	Use	Total Bore Depth	Standing Water Level	Water Bearing Zone (m)	General Geology	Date Of Completion
GW201959	0.44	y. Within Rave	Test Bore	69.2	-	-	Fill; mine spoil between 0-68.2 m, underlain by sandstone.	15/08/2006
GW202117	0.36	South east	Monitoring Bore	7.9	3.96	-	Sandy soil to 4m deep, underlain by clayey gravel	10/10/2007
GW202118	0.38	South east	Monitoring Bore	12.6	3.3	-	Gravel, slightly clayey	10/10/2007
GW202119	0.81	South	Monitoring Bore	8.9	5.2	-	Interbedded sandy clay and gravel.	10/10/2007
GW202148	0.66	South east	Monitoring Bore	8.1	-	-	Sandy clay, interbedded with clayey gravel.	27/09/2007

- No details available

Licensed Groundwater Bores within a 5 km radius of Bayswater Power Station

Bore ID	Distance from Power Station (km)	Direction from site	Use	Total Bore Depth	Standing Water Level	Water Bearing Zone (m)	General Geology	Date Of Completion
GW024022	1.6	North East	Industrial	3.1	-	3	Clayey Peaty Silt	1/02/1966
GW047486	3.75	North West	Industrial	92	-	Dec-25	Rhyolite, underlain by interbedded siltstone and coal.	1/10/1979
				-	-	28-40	Coal, interbedded with siltstone and sandstone	
				-	-	43-70	Coal, interbedded with siltstone and sandstone	
				-	-	75-92	Interbedded coal and sandstone	
GW053862	3.2	North West	Industrial	99	-	15-17	Fractured shale	1/02/1982
				-	-	26-29	Shale underlain by coal	
				-	-	66-69	Sandstone and shale	
				-	-	80-81	Sandstone	
				-	-	96-97	Shale and sandstone	
GW060263	4.91	North West	Industrial	61	-	57.9-58.5	Gabbro	1/02/1982
GW080212	4.7*	North East	Monitoring Bore	-	-	-	-	31/05/2002
GW080725	4.57*	South East	Dewatering (Groundwater) Bore	130	43	-	-	8/10/2000
GW200743	2.65	North West	Test Bore	114	-	-	-	1/01/2004
GW200746	2.62	North West	Test Bore	133	28	-	-	1/01/2004
GW200956	4.55*	South West	Monitoring Bore	96	-	93.6-96.6 ^	-	27/02/2008
GW201061	2.4*	East	Monitoring Bore (Abandoned)	15.1	-	12-15.10	-	16/12/2009
GW201062	2.35*	East	Monitoring Bore (Abandoned)	17.4	-	14.50-17.40	-	17/12/2009

Licensed Groundwater Bores within a 5 km radius of Bayswater Power Station

Bore ID	Distance from Power Station (km)	Direction from site	Use	Total Bore Depth	Standing Water Level	Water Bearing Zone (m)	General Geology	Date Of Completion
GW201110	4.52*	East	Dewatering (Groundwater) Bore	48	-	-	Weathered rock, underlain by medium grained sandstone, becoming pebbly towards 17 m depth. Underlain by medium grained sandstone interbedded with siltstone and mudstone. Interbedded coal between 23-32m, and 45-48m.	20/03/2001
GW201266	1.4*	South	Monitoring Bore	60	-	-	Coal between 8-11 m, underlain by interbedded fine grained siltstone, and fine to medium grained sandstone.	19/02/2008

* Distance from Pikes Gully Ash Dam (located at a closer proximity than the Power Station)

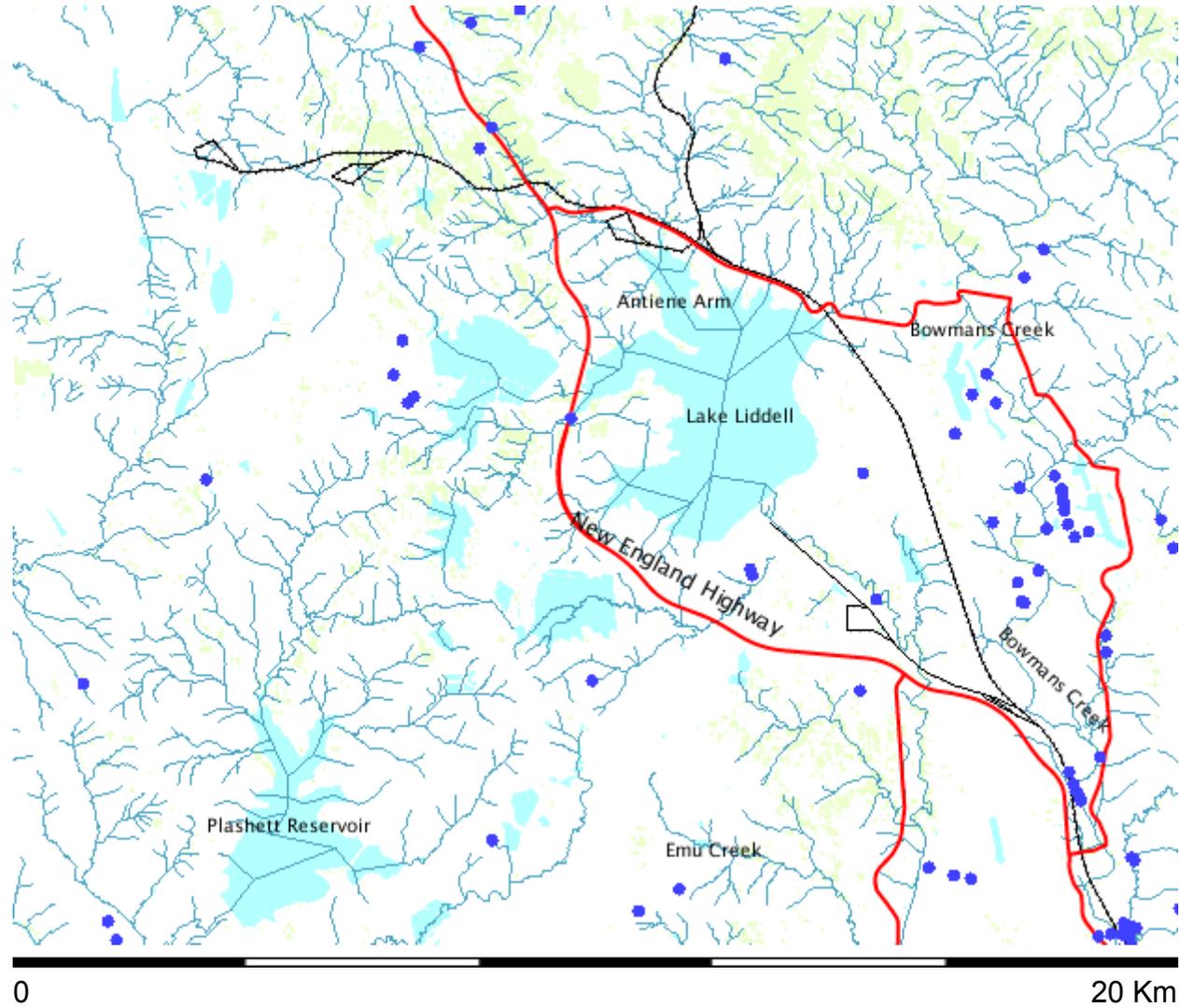
- No details available

^ Depth of well screen

Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - <http://nratlas.nsw.gov.au>

Wednesday, August 14, 2013



Legend

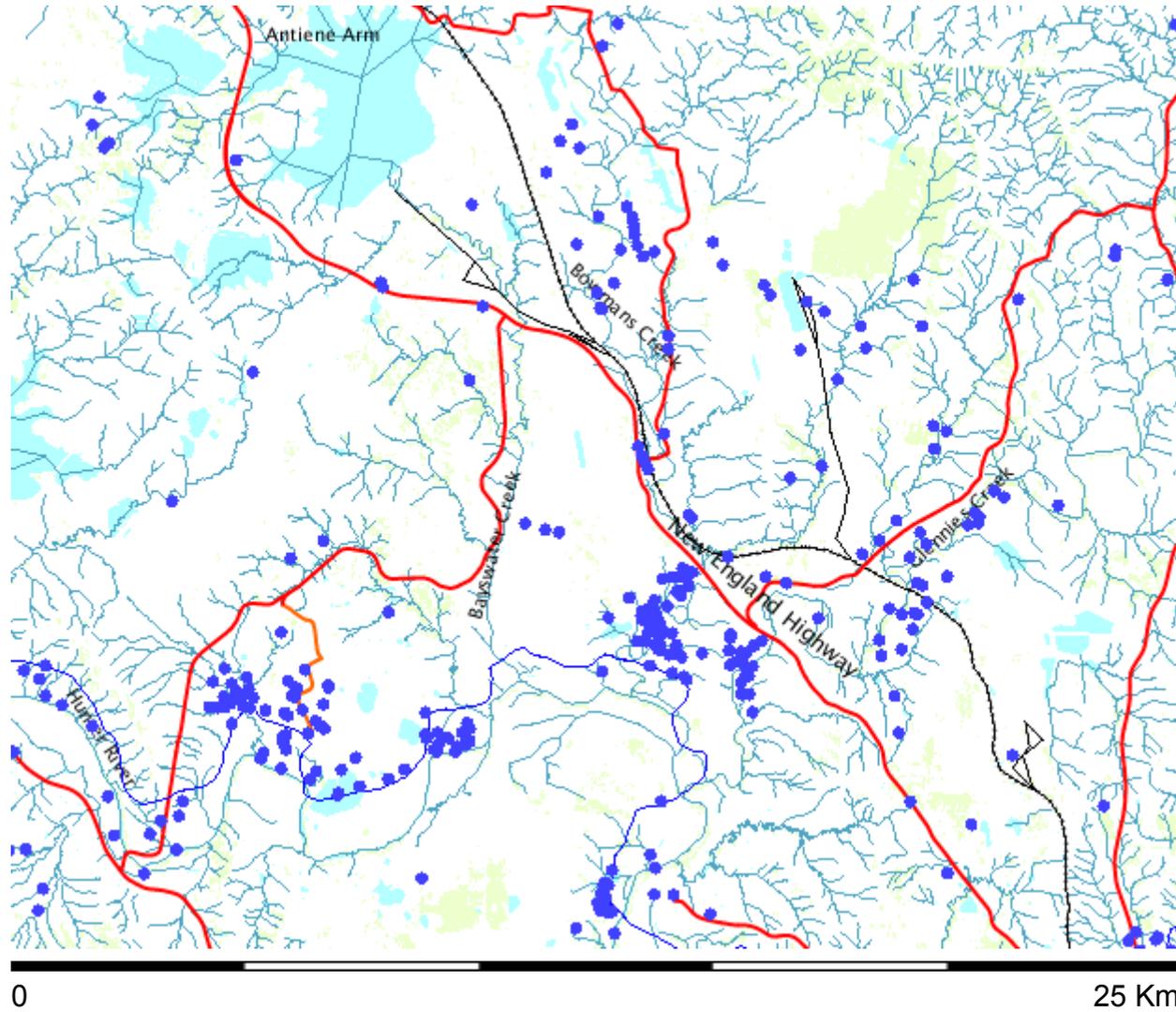
Symbol	Layer	Custodian
	Groundwater Bores	
	Cities and large towns renderImage: Cannot build image from features	
	Populated places renderImage: Cannot build image from features	
	Towns	
	Catchment Management Authority boundaries	
	Primary/arterial road	Topographic base map
	Motonway/freeway	
	Railway	
	Runway	
	Contour	
	Background	

Copyright © 2013 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.

Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - <http://nratlas.nsw.gov.au>

Friday, August 16, 2013



Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
	Populated places renderImage: Cannot build image from features	
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	
	Primary/arterial road	
	Motorway/freeway	
	Railway	
	Runway	
	Contour	
	Background	
	Topographic base map	

Copyright © 2013 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.

UAg 1025 151.45

NSW
2242
106

CROWN
COPY N.S.
LANDS PHOT
LOG-E

MUSWELLBROOK
NSW 2242



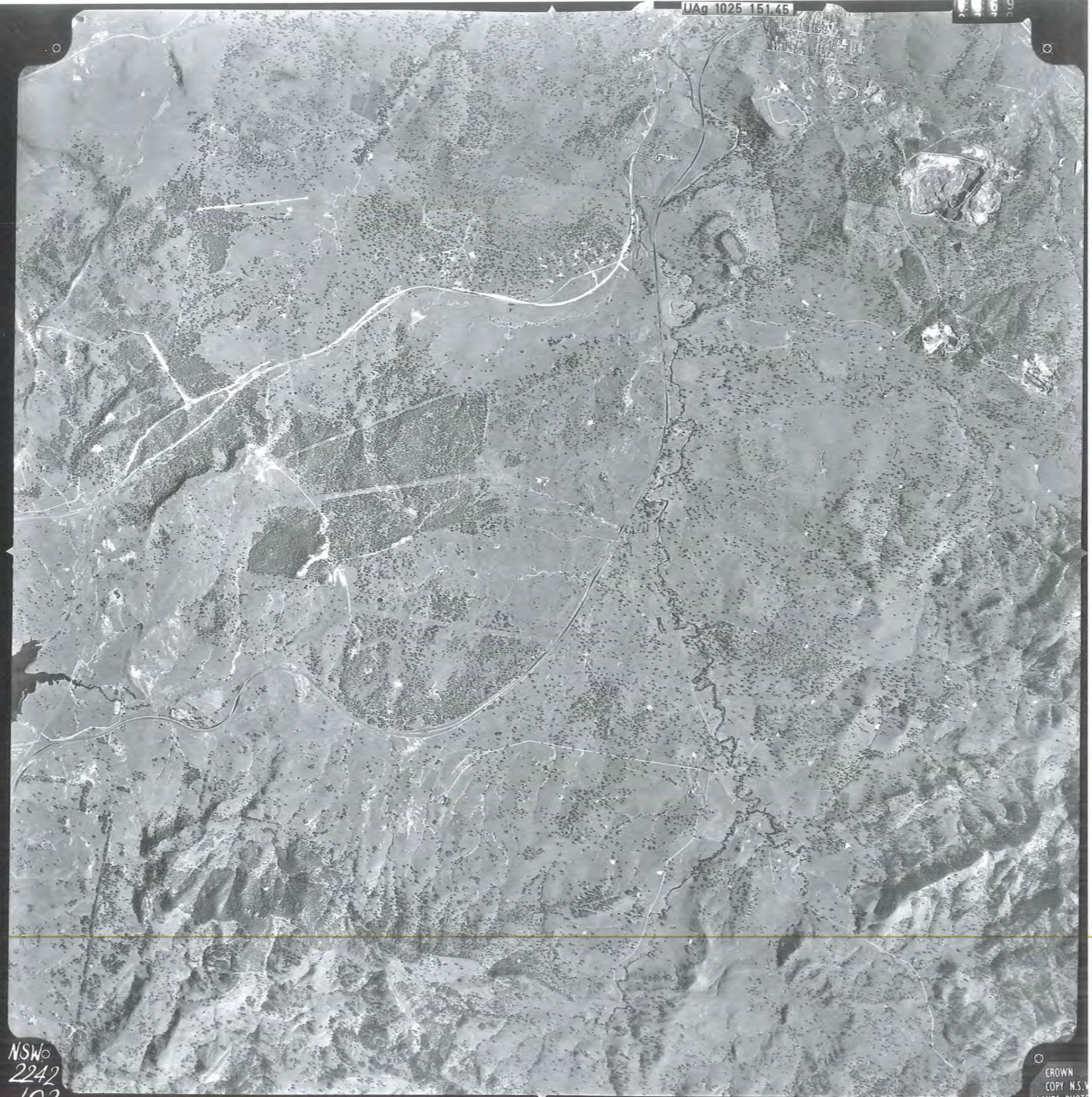
RUN 1M
28.6.74



8230 M ASL
151.45 MM

IST COPY

UAg 1025 151.45



NSW
2242
102

MUSWELLBROOK
NSW 2242



RUN 1M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

UAg 1025 151.45

1025 151.45



NSW
2242
98

© CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

MUSWELLBROOK
NSW 2242



RUN 1M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

UAg 1025 151.45



NSW
2242
94

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

MUSWELLBROOK
NSW 2242



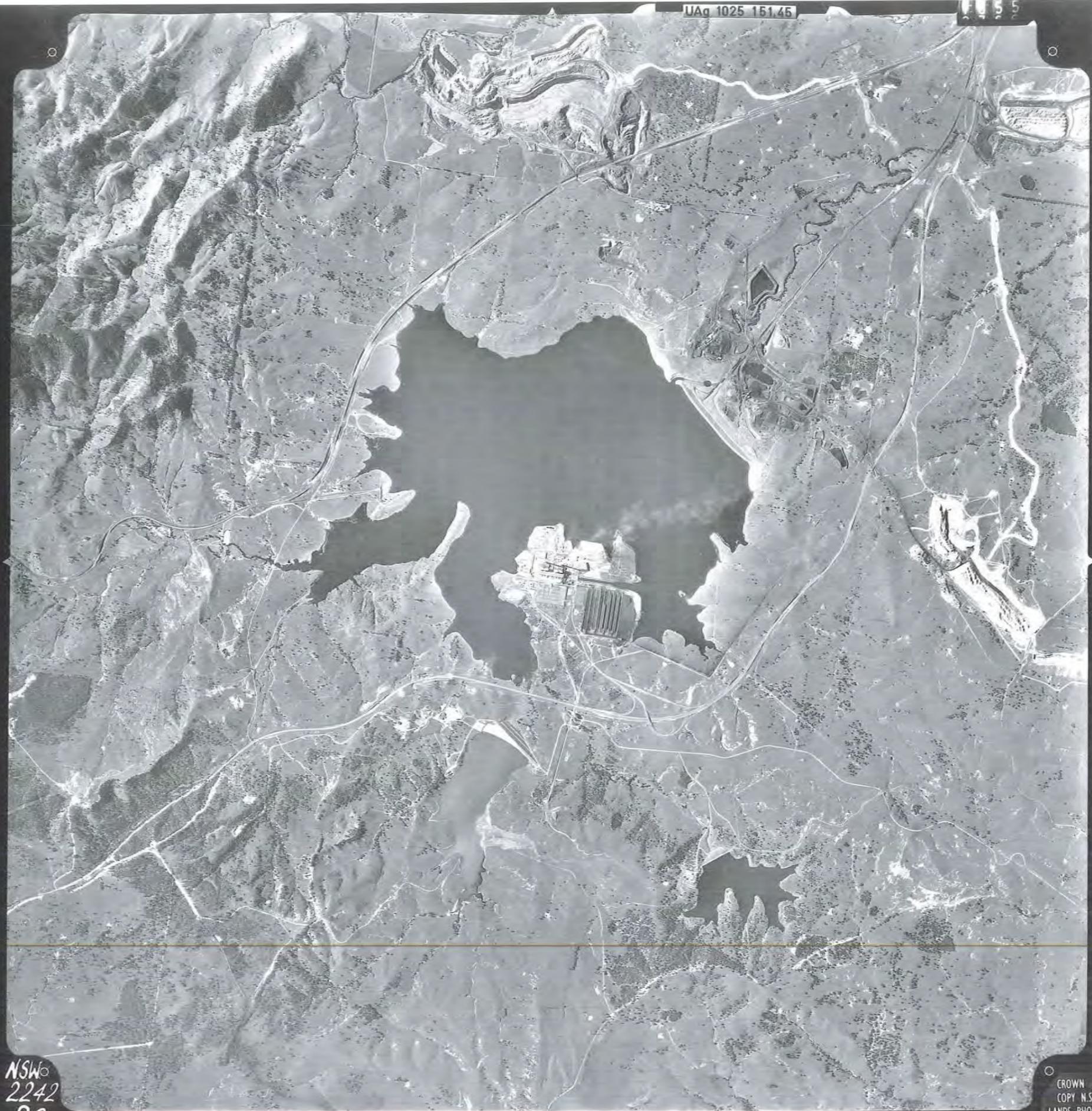
RUN 2M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

UAg 1025 151.45



NSW
2242
90

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

MUSWELLBROOK
NSW 2242



RUN 2M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

UAg 1025 151.45

NSW
2242
86

CROWN
COPY N.S.
LANDS PHOT
LOG-E

MUSWELLBROOK
NSW 2242



RUN 2M
28.6.74



8230 M ASL
151.45 MM

IST COPY

UAg 1025 151,45



NSW
2242
48

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

MUSWELLBROOK
NSW 2242



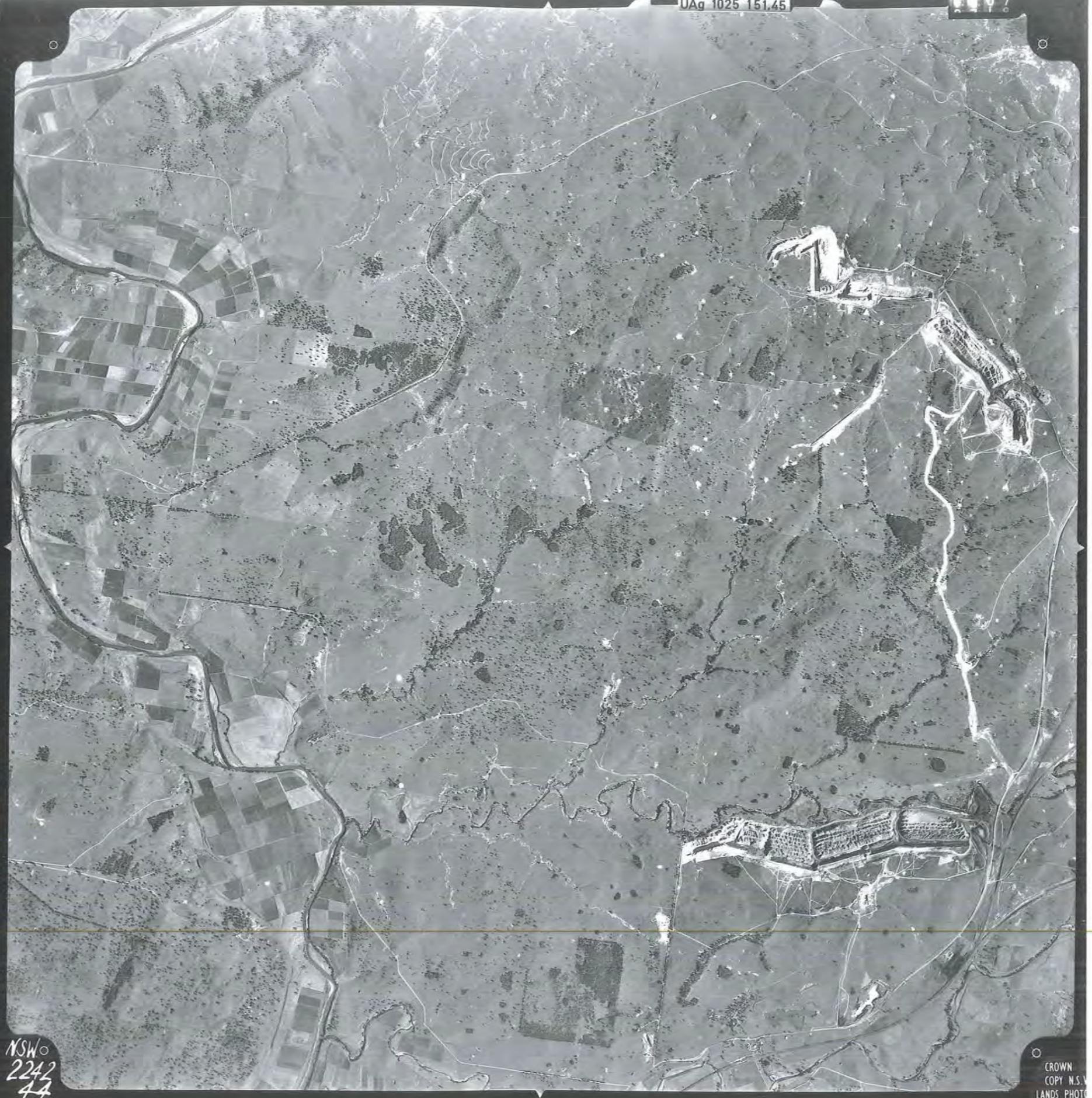
RUN 3M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

UAg 1025 151.45



NSW
2242
44

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

MUSWELLBROOK
NSW 2242



RUN 3M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

UAG 1025 151.45

1003



NSW
2242
40

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

MUSWELLBROOK
NSW 2242



RUN 3M
28.6.74



8230 M ASL
151.45 MM

1ST COPY

NSW
3248
72

MUSWELLBROOK
1:25 000
NSW 3248

RUN 12
21.8.82

4267m ASL
151.45mm



CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E



NSW
3251
89

COPYRIGHT
LANDS DE
NSW GOV

MUSWELLBROOK AREA
1:25000
(MISC 1450) NSW 3251

RUN 9
28.8.82

4267 M ASL
151.45MM



NSW
3251
91

MUSWELLBROOK
1:25 000
NSW 3251

RUN 9
28.8.82

4267m ASL
151.45mm



IST COPY

CROWN
COPY N.S.W.
LANDS PHOTO
LOG-E

ERM has over 100 offices
across the following
countries worldwide

Australia	Netherlands
Argentina	Peru
Belgium	Poland
Brazil	Portugal
China	Puerto Rico
France	Singapore
Germany	Spain
Hong Kong	Sri Lanka
Hungary	Sweden
India	Taiwan
Indonesia	Thailand
Ireland	UK
Italy	USA
Japan	Venezuela
Korea	Vietnam
Malaysia	
Mexico	

Environmental Resources Management

Building C, 33 Saunders Street
Pyrmont NSW 2009
Locked Bag 24,
Broadway NSW 2007

T: 61 2 8584 8888
F: 61 2 8584 8800
www.erm.com

