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Geology Report

BYLONG COAL PROJECT
Environmental Impact Statement

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Memo: Additional geological work conducted since the change in management of the Bylong Coal Project for KEPCO Bylong Australia Pty Ltd

The management of all geological work on the KEPCO Bylong Australia Pty Ltd (KEPCO) owned Bylong Coal Project (the Project) was conducted by Cockatoo Coal Limited (CCL) since acquisition of the tenements from Anglo Coal (Bylong) Pty Limited at the end of 2010 until a management change in September 2014. All exploration drilling, analyses, geological interpretations, and studies undertaken by KEPCO were therefore managed by CCL's geological department.

CCL had commenced a large scale exploration drilling program in May 2011 to build upon the previous exploration boreholes completed by Austen & Butta (1982/1984) and Anglo Coal (Bylong) Pty Ltd (2003/2011). The intention was to define the resource, identify coal seam structure/continuity, and coal quality appraisal. A total of 525 boreholes were completed by 25 June 2014[1] (BY0457CH) comprising of 284 partial/fully cored boreholes and 241 open borehole[2]. This includes HQ cored holes for coal quality, open holes for structure definition, limit of oxidation (LOX) holes for open-cut boundary limits, and 8C Large Diameter holes for washability and boiler simulation. The borehole spread covers extensive areas of both Authorisations.

The following outcomes were achieved as a result of the exploration program:

- Comprehensive understanding of the local geology and its relationship on a regional scale;
- Thorough knowledge of the coal quality throughout the deposit;
- Validating historic structural interpretations (i.e. faults);
- Validating historic igneous interpretations (i.e. intrusions);
- Sound understanding of seam structure and continuity and identifying new areas of structural events;
- Detailed identification of potential open-cut and underground resource limits;
- Systematic resource modelling according to JORC standards;
- Establishing a comprehensive geological database incorporating historic data;
- Various detailed laboratory analyses (i.e. coal quality, boiler burn simulations, materials handling, geotechnical, in-seam gas, spontaneous combustion potential, oxidation limits, groundwater modelling etc.)

As management of the Project transferred to WorleyParsons Services Pty Ltd (WorleyParsons) in August 2014, the following work was conducted:

1. A review of coal quality results/test work of all quality data received: historic results to the latest drilled boreholes.

[1] Completion date of final borehole under CCL management. Different data cut-off dates were used at different stages of reporting (i.e. Feasibility Report, EIS geology report etc.)
[2] Including re-drills and large diameter holes. Excluding holes drilled for environmental monitoring. Including 18 holes drilled by Anglo Coal (Bylong) Pty Limited in early 2011 as part of acquisition agreement.

2. An entire geological review of all available data and subsequent recommendations - Interpretation of quality results received since September 2014.
3. Identify preferred areas for further exploration work – devise new Drill Plan.

WorleyParsons will utilise its expertise to continue the geological management of the Project, building upon the comprehensive geological understanding of the deposit.

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GEOLOGY REPORT

Prepared as Part of the Bylong Coal Project EIS

August 2014

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GLOSSARY AND LIST OF ABBREVIATIONS

A247	Authorisation 247
A342	Authorisation 342
ad	air dried
as	as received
AHD	Australian Height Datum
AMD	Acid and Metalliferous Drainage from mine waste materials characterised by low pH, elevated metal/metalloid concentrations, high sulphate concentrations and high salinity.
ANC	Acid neutralising capacity, expressed as kg H_2SO_4 per tonne of sample
CCL	Cockatoo Coal Limited
CHPP	Coal handling preparation plant
daf	dry ash free
kcal/kg	kilocalories per kilogram
km	kilometres
km^2	square kilometres
kPa	kilopascals
MJ/kg	Megajoules per kilogram
MPa	megapascals
JORC	Joint Ore Reserves Committee
LAS	Log ASCII Standard
L/s	Litres per second
m	Metres
m^3/t	Cubic metres per tonne
mm	millimetres
NAF	Non Acid Forming. Geochemical classification criterion for a sample that will not generate acid conditions
NATA	National Association of Testing Authorities
NMD	Neutral Mine Drainage from mine waste materials characterised by neutral pH, elevated sulphate concentrations and salinity, and potentially elevated metal/metalloid concentrations
PAF	Potential Acid Forming. Geochemical classification criterion for a sample that has the potential to generate acid conditions
RD	Relative Density
RQD	Rock Quality Designation
R.L.	Relative Level
SE	Specific energy
t	tonnes
TD	Total Depth
UCS	Uniaxial Compressive Strength

1. INTRODUCTION

In December 2010, KEPCO Bylong Australia Pty Ltd (KEPCO) acquired Authorisation (A) 287 and A342. Cockatoo Coal Limited (Cockatoo Coal) was appointed by KEPCO as the manager to explore the feasibility of developing a coal mine within the authorisations, subsequently named the Bylong Coal Project (the Project).

Since KEPCO's acquisition of A287 and A342, Cockatoo Coal has completed a comprehensive exploration, mine planning and environmental monitoring process focused on defining the extent of the coal resource, assessing all key Project alternatives, and determining the potential environmental constraints. This extensive process has resulted in the development of a mine plan for the Project, which will facilitate the extraction of approximately 121 Million tonnes (Mt) of Run of Mine (ROM) coal via open cut and underground mining methods for a period of approximately 29 years (including construction).

This report has been prepared as part of the Bylong Coal Project EIS to discuss the geological features encountered as part of the wider exploration program.

2. LOCATION

The Project is located wholly within A287 and A342 which are located within the Mid-Western Regional Council (MWRC) Local Government Area (LGA). The closest regional centre is Mudgee, located approximately 55 km south-west from the Project. The small settlement of Bylong Village is located within the central portion of the Project Boundary. The Project is approximately 230 km by rail from the Port of Newcastle. **Error! Reference source not found.** illustrates the locality of the Project within New South Wales (NSW).

The topography within the Project Boundary falls into two distinct physiographic categories: (1) elevated, partly cliff-bounded plateau ranging from 400 to 600 m above sea level, and (2) undulating farming and grazing land in broad valleys and alluvial flats ranging from 200 to 250 m above sea level. These lands are mainly used for grazing or irrigated crops such as Lucerne.

The Bylong River bisects the lease and flows northward into the Goulburn River near the Northern boundary of A287. Numerous water courses, mainly ephemeral streams drain towards these rivers from surrounding elevated regions. The Wollemi National Park is adjacent to the southeast and the Goulburn River National Park is adjacent to the northeast.

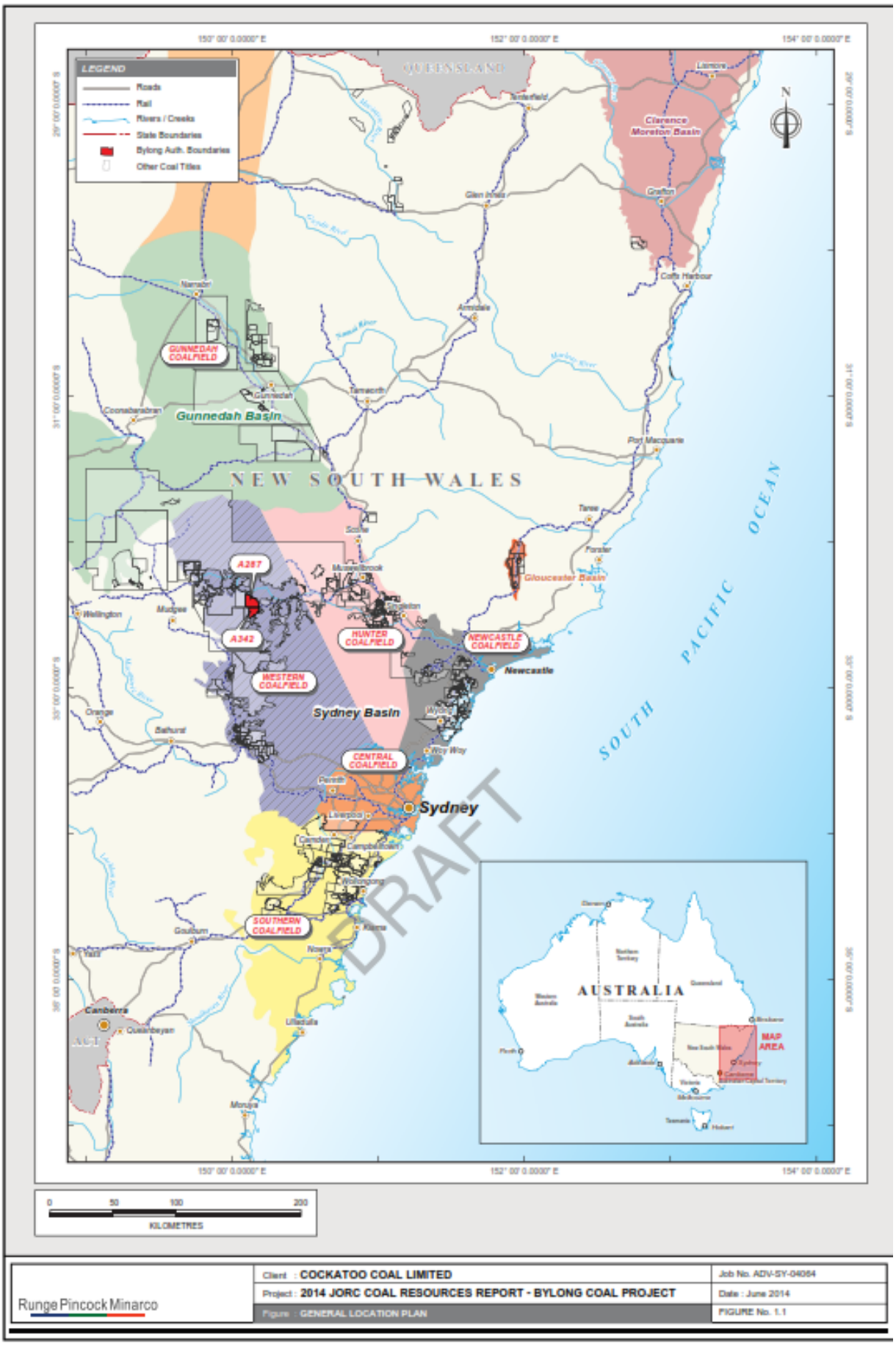


Figure 2: Project Location

3. CONVENTIONS

3.1 SURVEY

The NSW Integrated Survey Grid (ISG) and Australian Height Datum (AHD) were utilised for all survey control. All drill holes are located using Digital Global Positioning System (DGPS) survey equipment operated by registered surveyors and reported relative to ISG and AHD. Accuracy conforms to Class 'C' as per the "Manual of the New South Wales Integrated Survey Grid".

3.2 DRILL HOLE NAMING

The drill hole naming convention adopted for the Project, starts with a two-letter prefix of the Project area followed by a four-number sequential drill hole number, all holes apart from open holes are then followed by a two-letter suffix which indicates the purpose of each hole (Table 1). Any redrilled holes include the original drill hole name followed by R1 (Redrill 1 etc.).

Table 1: Drill Hole Naming Convention

PROJECT – 2 LETTER PREFIX	SEQUENTIAL NUMBER	HOLE PURPOSE – 2 LETTER SUFFIX
BY (Bylong)	Starting from 0001	CH (Core Hole), LD (Large Diameter), LX (Lox)

3.3 COAL SEAM PLY NAMING

Following detailed correlations of drill hole intersections, 55 coal plies, a minimum 0.1 metres thick, were defined for the Farmers Creek, State Mine Creek, Goulburn, Glen Davies, Ulan and Coggan coal seams. The coal seam naming convention is a two to three-letter alpha prefix of the seam group followed by a descending alphabetical suffix one to two-letters which restarts at each seam group (Table 2). Not all plies modelled are of economic potential. A further five stone plies were modelled and are key marker units for the lower plies.

Table 3: Bylong Coal Project Seam Naming Convention

(Note: Modelled parting units are marked in grey)

SEAM	COAL PLY
Farmers Creek	FMCA
	FMCB
	FMCC
	FMCD
	FMCE
	FMCF
	FMCH
	FMCI
	FMCJ
	FMCK
	FMCL
	FMCM
	FMCN
	FMCO
	FMCP
	FMCQ
State Mine Creek	SMCA
	SMCB
	SMCC
	SMCD
	SMCE
Goulburn	GOD
	GOE
	GOF
	GOG
	GOH
	GOI
Glen Davies	GDA
	GDB
	RGDC
	GDC
	GDD
	GDE
	GDF
	GDG
	GDH
	GDI
	GDJ

SEAM	COAL PLY
Ulan	ULNB
	ULNC
	ULND
	ULNF
	ULNG
	ULNHU
	ULNHL
	ULNIP
	ULNIU
	ULNIL
	ULNJ
	CMKR
	ULNL
	FMKR
	ULNM
	ULNN
Coggan	COGB
	CGBP
	COGC
	COGD
	COGE
	COGF

4. TENURE

The Bylong Coal Project is comprised of A287 and A342 which were first granted to Austen & Butta Limited. A287 encompasses an area of 181.46 km² and was granted on 12 January 1982. A342 comprises an area of 73 km² and was granted on 9 February 1984. Austen & Butta Limited became a subsidiary of Shell Company of Australia Ltd in the early 1990's.

Tenure of the two Authorisations was transferred to Anglo Coal (Bylong) Pty Ltd on 28 July 2000, and have been kept current by regular renewals. In February 2011, tenure of the two Authorisations was transferred to KEPCO (Table 3).

Table 4: Tenure details for Authorisations 287 and 342

TENURE No.	TENURE TYPE	AREA (KM^2)	PURPOSE OF LEASE	DATE FIRST HELD	DATE LAST HELD	DATE OF EXPIRY	PRIMARY HOLDER
A287	Authorisation	181.46	Exploration	12/01/1982	28/07/2000	N/A	Austen & Butta Limited
A342	Authorisation	73.00	Exploration	09/02/1984	28/07/2000	N/A	Austen & Butta Limited
A287	Authorisation	89.00	Exploration	28/07/2000	02/2011	N/A	Anglo Coal (Bylong) Pty Ltd
A342	Authorisation	37.24	Exploration	28/07/2000	02/2011	N/A	Anglo Coal (Bylong) Pty Ltd
A287	Authorisation	65.93	Exploration	02/2011	28/07/2011	27/07/2014	KEPCO (Bylong) Australia Pty Ltd
A342	Authorisation	37.24	Exploration	02/2011	28/07/2011	27/07/2014	KEPCO (Bylong) Australia Pty Ltd

KEPCO currently holds ownership for the majority of the properties in the proposed mining areas within the tenement boundaries, with the exception of the area covered by the Bylong State Forest, a basalt quarry owned by RF & BW Murdoch, land currently owned by LJ Desreaux, Upper Bylong Public School and various public roads. As at 1 September 2014, KEPCO owns 58.3% (38.45 km^2) of the land inside the boundary of A287 and 58.5% (21.80 km^2) of the land inside the boundary of A342.

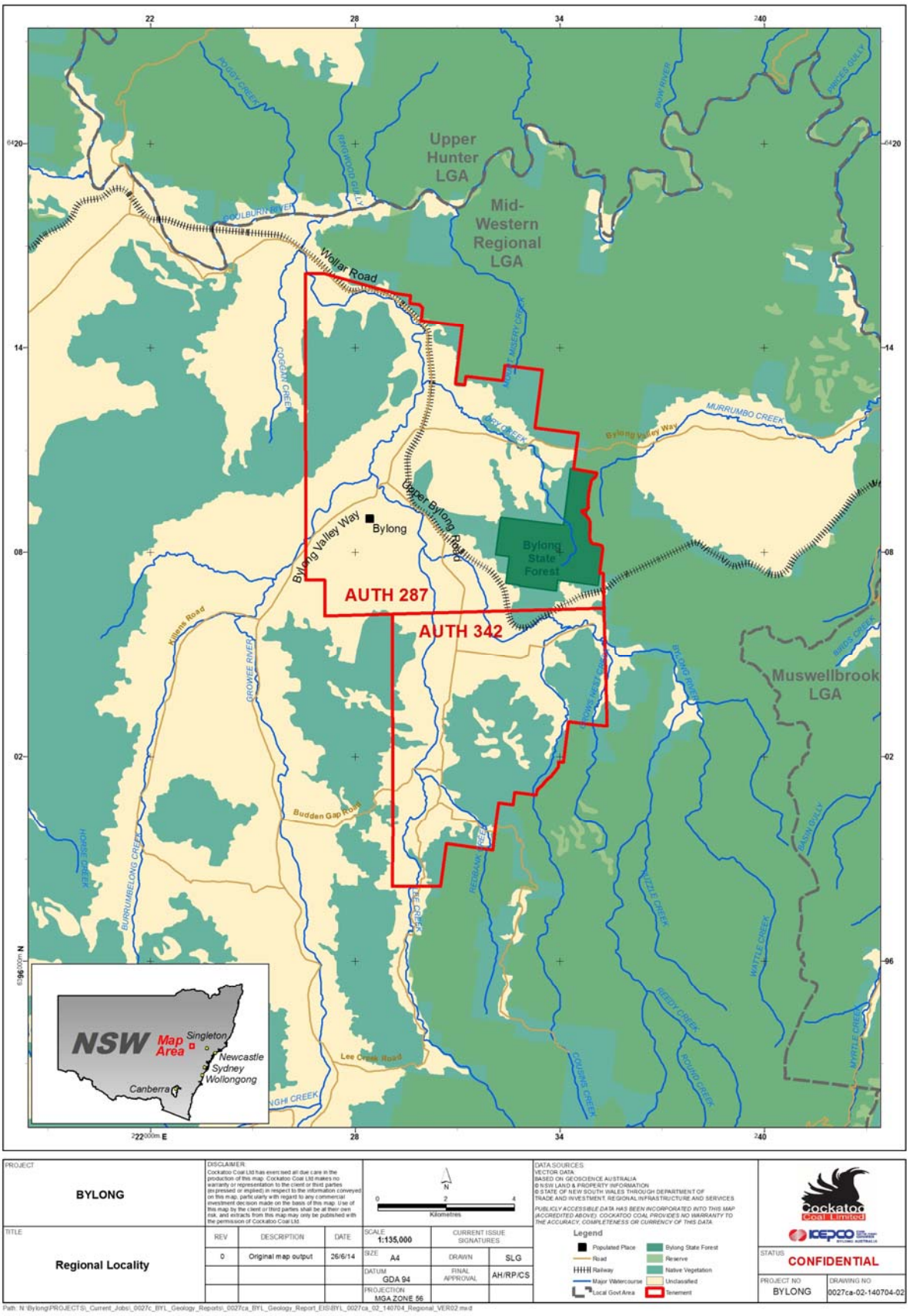


Figure 2: Exploration Licences

5. REGIONAL GEOLOGY

The Bylong Coal Project is located in the Western Coalfield which covers an area of approximately 17,000 km² in the central western region of the Sydney-Gunnedah Basin. The Western Coalfield is part of the much larger Sydney-Gunnedah-Bowen Basin that extends from coastal southern NSW to central Queensland.

The Sydney Basin overlies the Lachlan Fold Belt and Late Carboniferous volcanoclastic sediments and formed during extension in the Early Permian. Half-grabens formed during this time are infilled with the Dalwood and the Talaterang Groups. Foreland loading followed by the compression of the Currarong Orogen in the Early Permian. Late Permian uplift associated with the New England foreland loading phase resulted in the formation of depocentres within the northeast Sydney Basin.

These depocentres filled with pyroclastic and alluvial-paludual sediments of the Newcastle-Illawarra Coal Measures. In the Triassic, uplift of the offshore basin resulted in reworking of Permian sediments in fluvial environments. The basin underwent a final phase of deformation (thrusting) in the Middle Triassic.

The Illawarra Coal Measures crop out close to the Wallerawang-Gwabegar Railway between Lithgow and Ben Bullen, swing north-easterly to Glen Davis and then extend north-westerly to Leadville, parallel to the Wallerawang-Gwabegar Railway. Coal was first discovered in the Western Coalfield in 1824 and continuous production commenced in 1868 (Bembrick, 1983). Until the early 1970's, both exploration and mining, were small scale, commencing from outcrops adjacent to existing transport routes such as at Lithgow.

Several structural elements were active during Late Permian sedimentation of the Illawarra Coal Measures. Two main regional syn-depositional structures influenced the sedimentation of the Illawarra Coal Measures, the Mt Tomah Monocline and the Mt Coricudgy Anticline (Bembrick et al. 1973). The north trending Mt Tomah Monocline developed syn-depositional to the Illawarra Coal measures and was later reactivated during the Late Pliocene (Browne, 1969). The west trending Mt Coricudgy Anticline defines the boundary of the Sydney Basin to the Gunnedah Basin. Three North-northwesterly trending hinge lines (i.e. the Ulan, Wollar and Bylong hinge lines) influenced sedimentation on a local scale (Yoo et al, 2001) (Figure 3).

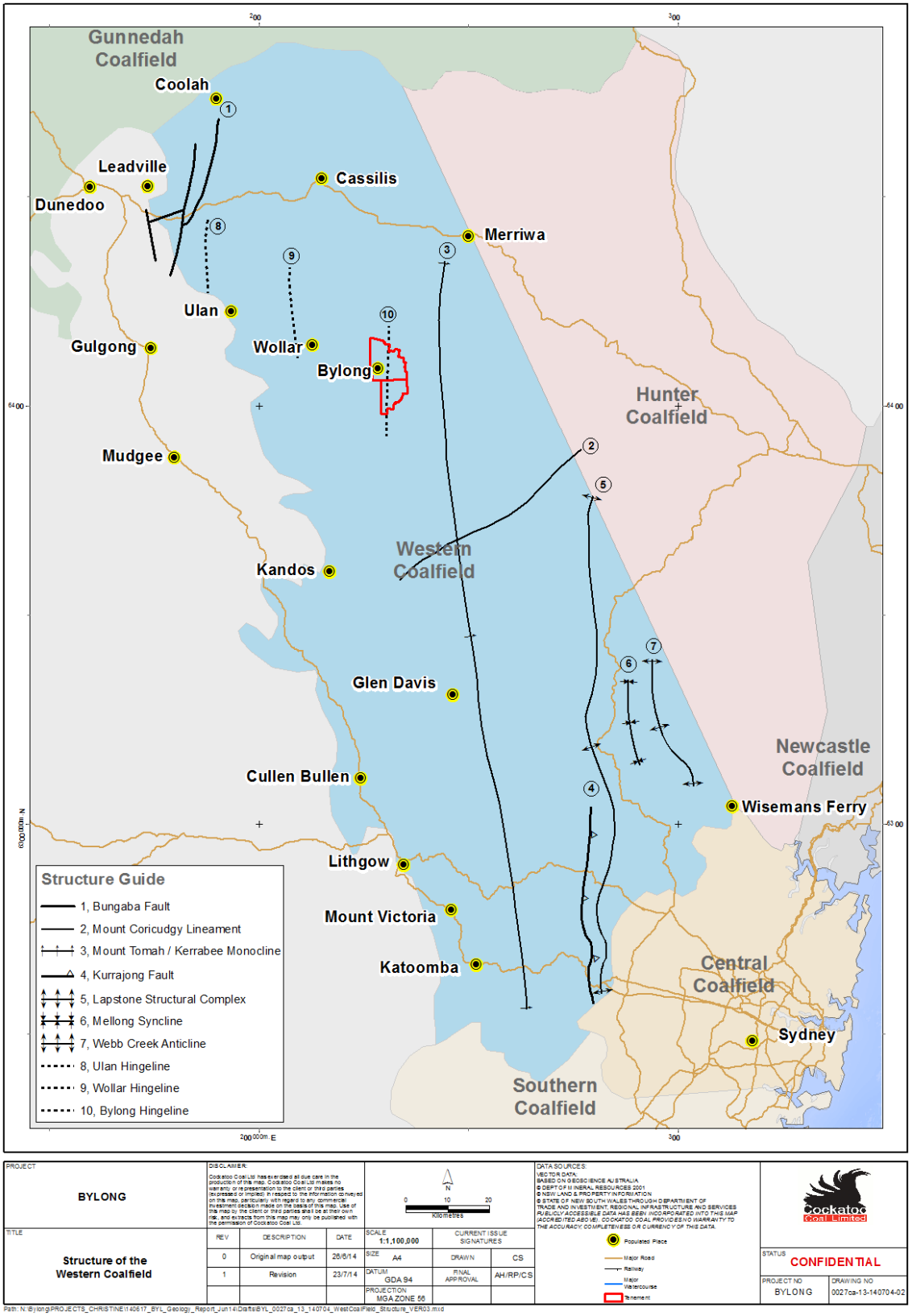


Figure 3: Sydney - Gunnedah Basin

The Bylong hingeline location (Figure 4) is defined by where the Lithgow / Coggan coal seam begins to thicken to the east. The Long Swamp Formation and Denman Formation also increase substantially in thickness east of this hingeline. West of the Bylong Hingeline, the State Mine Creek Formation becomes thinner and the Cockabutta Creek Sandstone Member of the Glen Davis Formation wedges out (Yoo et al, 2001).

The Illawarra Coal Measures unconformably overlie the Ordovician basement rocks and the Carboniferous Gulgong Granite. East of the margin, the Illawarra Coal Measures conformably overlie the Shoalhaven Group. The Illawarra Coal Measures are then comfortably overlain by the Triassic sediments of the Narrabeen Group, which in turn conformably overlain by sparse Jurassic sediments.

The Illawarra Coal Measures (Clarke, 1866) are relatively thin to the western edge of the coalfield maintaining a uniform thickness of 100 to 200 m, and pinch out west of Ulan. As the coal measures move eastward the measures thicken rapidly from 100 to 900 m as they pass over troughs within the Sydney Basin. The coal measures in the Bylong area dip gently to the north-east at approximately 2°. Two coal seams of main economic interest of the Bylong Coal Project, are the Ulan and the Coggan seams.

The Lithgow (Coggan) Coal Seam is the major economic coal seam in the Lithgow and Bylong areas (Yoo et al, 2001). It overlies the well-exposed, bench forming outcrops of the Marrangaroo Formation. The Lithgow Coal ranges in thickness from less than 1 m to 9 m and consists of generally dull coal with minor bright layers, generally increasing towards the base and top of the formation. Some thin carbonaceous or tuffaceous claystone layers are present in the upper half. The top unit is recognised by a change from coal and carbonaceous claystone to either sandstone or conglomerate of the Blackmans Flat Conglomerate. The base of the unit is marked by the transition from coal or carbonaceous claystone to sandstone, conglomerate and minor mudstone of the Marrangaroo Conglomerate.

The Lithgow Coal seam is the stratigraphic equivalent of the Coggan Coal seam in the Bylong Area (Agnew and Bayly, 1989), and is the main economic underground target as well as one of the target seams in any future open cut operations of the Bylong Coal Project.

Regional geology (Figure 5) has controlled the present day topography of the Bylong area with sandstone cliffs and basalt-capped hills found throughout the area. The orientation of the cliffs and valleys are thought to be strongly influenced by the regional joint trend. The low relief areas surrounding Bylong are covered in alluvium and sediments thought to be Tertiary in age.

Igneous activity is common in the western coalfield with examples of Tertiary basalt occurring as extrusive flows and dolerite intrusive dykes and sills common throughout the Bylong lease. Mesozoic phonolite intrusions are also common to the south of Wollar and Bylong, recent dating of the phonolite intrusion to the east of Project Boundary yields a fission track date of 178±7 Ma (Hodkinson, 2013a & b).

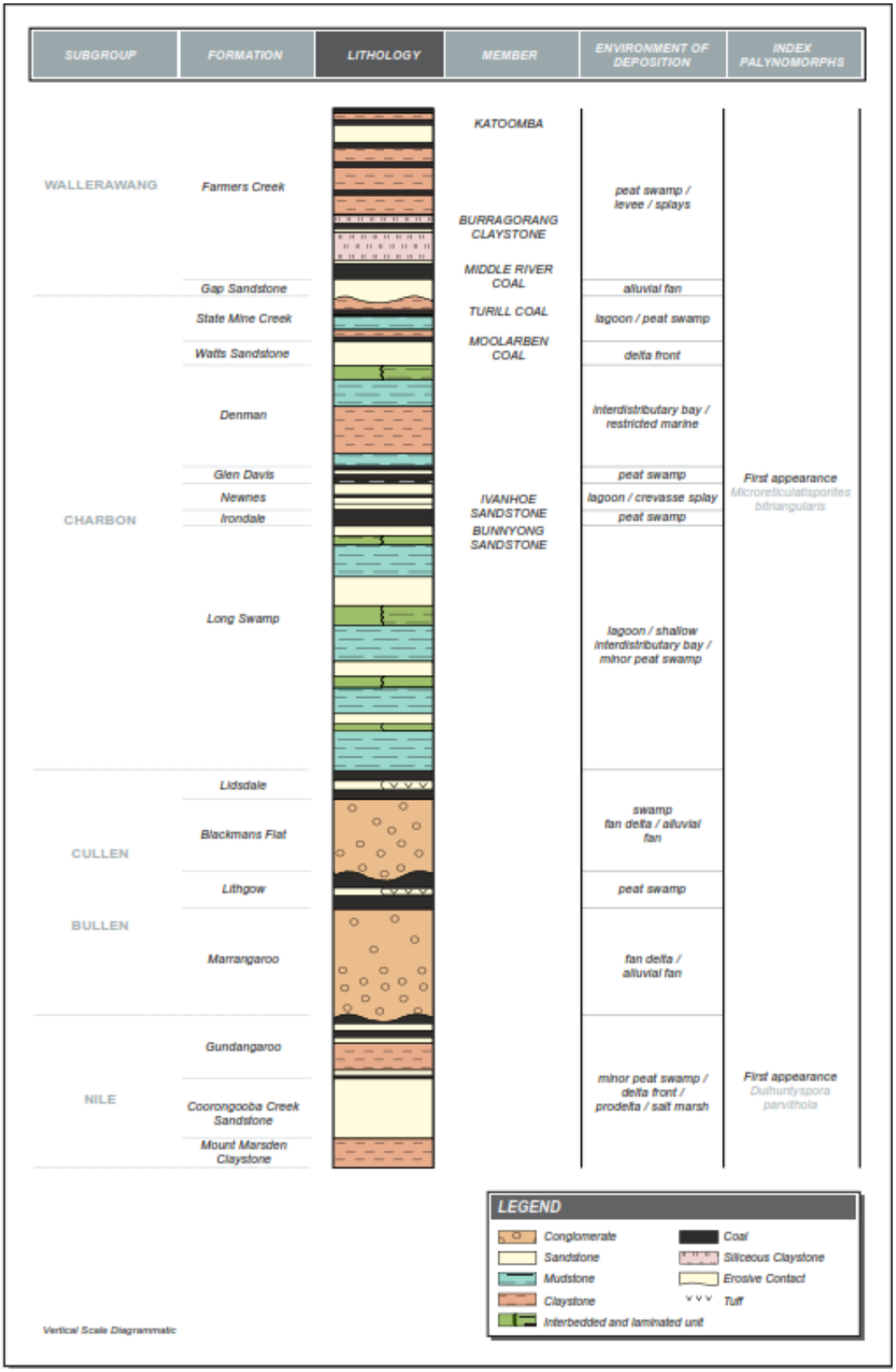


Figure 5: Generalised Stratigraphic Column

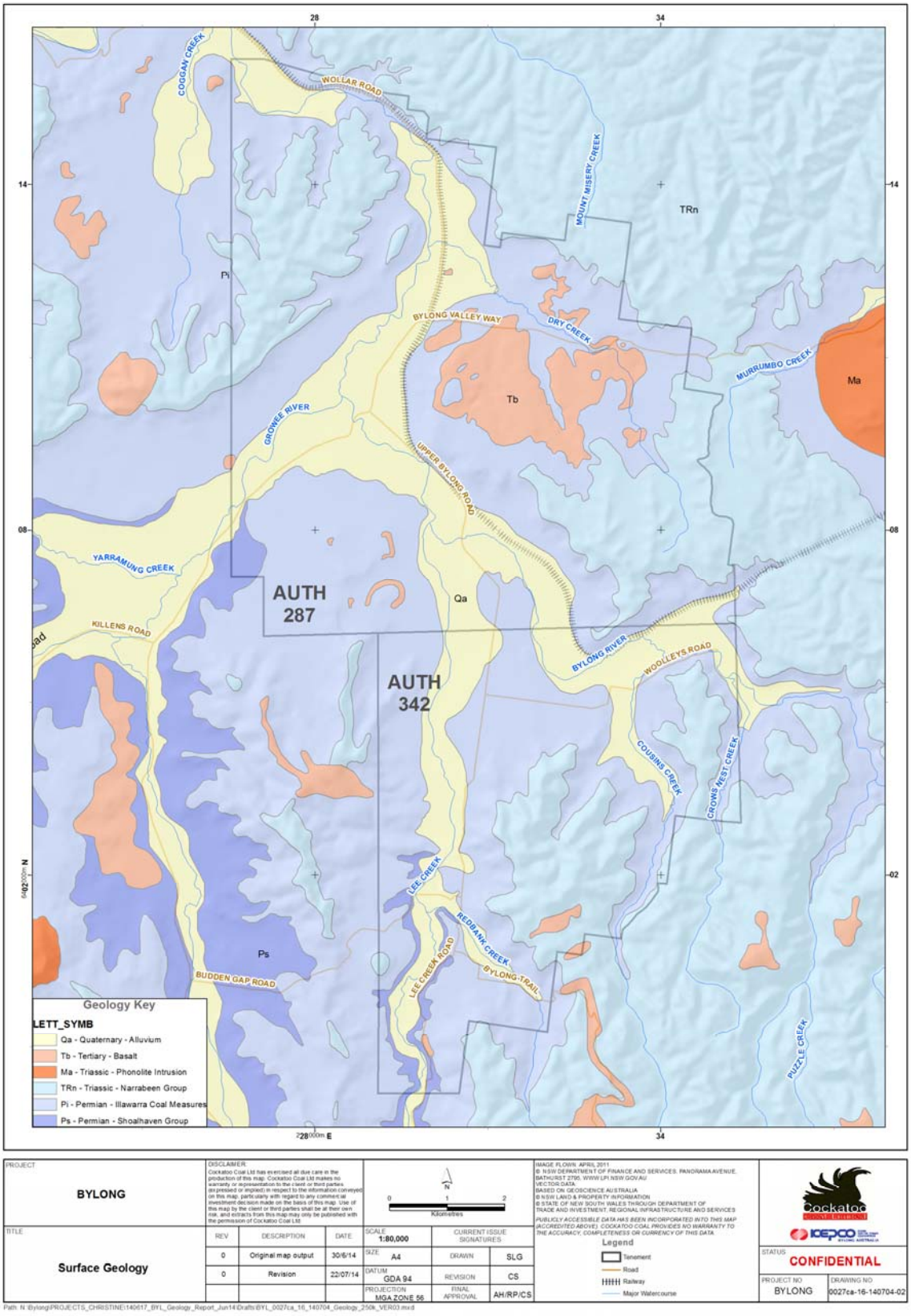


Figure 5: Local Surface Geology

6. EXPLORATION HISTORY

Multiple phases of exploration have been conducted on the Bylong leases since 1973. This included rotary drilling for structural data, partly and fully cored holes for structural and coal quality data, large diameter cored holes for CHPP (washability, sizing) data and line of oxidation data as well as a variety of seismic and magnetic surveys.

During 1972, the NSW Department of Mines completed partly cored holes in the vicinity of the Project Boundary.

During the period from 1982 to 1992, Austen & Butta completed two phases of drilling as well as completing detailed local field mapping survey to generate a surface map. Surface geological mapping identified significant igneous activity, including dolerite dykes and large basaltic extrusive flows.

The Shell Company of Australia, held the leases from 1992 to 2000 and did not complete any drilling on the leases. They commissioned a landform study to investigate the likely impact of mining induced subsidence on cliff stability and the scenic aspect of landform types in 1993.

In 1994, a detailed helicopter mounted aeromagnetic survey was flown to better define the occurrences of igneous intrusions identified from field mapping and aerial photo interpretation to exist within the lease. Mining Geophysics Pty Ltd prepared the report on this survey, which covered approx. 18km^2. Laws (1996) prepared a detailed geological review based on all available information. In 1999 Geophysical Technology Limited completed a ground magnetic survey targeting areas with open cut potential.

Between 2000 and 2011, Anglo Coal Australia completed a small drilling program of open and cored holes in the northern lease.

Table 4: Details of Previous Exploration

DRILLING PROGRAM	DRILL HOLE NAMES	YEAR	TOTAL DRILL HOLES	SLIM CORE (M)	NON-CORE (M)	TOTAL (M)
NSW Department of Mines	DM001-003	1972	3	370.00	5.82	375.82
Austen & Butta	DDH001-050	1982-1984	50	4667.05	842.82	5,509.87
Anglo Coal	DDH051-058	2003	9	234.83	880.97	1,115.80
Anglo Coal	RDH001-010	2011	10	-	683.96	683.96
Anglo Coal	DDH059-066	2011	8	113.26	561.71	674.97
TOTAL			**80**	**5,385.14**	**2,975.28**	**8,360.42**

7. DATA ACQUISITION

7.1 TOPOGRAPHIC AND CADASTRAL INFORMATION

Cadastral, topographic and cultural information was obtained in digital format from the NSW Land Information Centre (LIC). Airborne laser survey and photography (LIDAR) over the Project was commissioned in April 2011 to supplement the existing geological and spatial datasets.

Airborne LIDAR surveys use remote sensing technology to collect high resolution survey information and are commonly used for generating high resolution topographical maps. The terrain model has an estimated point density of 0.7 m and is separated into ground and non-ground return data. Accuracy is stated as 0.15 m for vertical data and <0.2 m for horizontal data. Data was validated by comparison to 159 test points which were assumed to be error free. All test points were located on open clear ground and verified accuracy.

This information has been used in the geological model as well as used for lineament and drainage analysis as well as to confirm historic drill hole and recent drill hole collar survey data.

7.2 DRILLING AND GEOPHYSICS

7.2.1 AEROMAGNETIC

In 1994, Geo Instruments Pty Ltd acquired an aeromagnetic survey of the Bylong area to improve the understanding of igneous intrusions identified by previous field mapping and aerial photo interpretation. The survey covered an area of 118km² at a line spacing of 100 m with tie lines at 1,000 m.

Mining Geophysics Pty Ltd prepared the initial report on the survey in 1995, delineating magnetic features and conducting Fourier Depth Analysis for certain features.

In 1999, Geophysical Technology Ltd conducted a ground magnetics survey to further define intrusive features within potential open cut and underground mine targets. The survey covers an area of 17.96 km^2 split into two areas and was completed using both all-terrain vehicle (ATV) and personnel on foot along a 50 m line spacing (Corkin 2006).

7.2.2 DRILLING

Exploration drilling is based on a staged grid pattern that progressively reduces the spacing of drill holes. Early stages of drilling comprised partly cored HQ drill holes drilled on a 2 km square grid. To support mine planning, drilling on a 500 m grid was undertaken within the area of maximum mining potential. All drill holes were geophysically logged with at least the dual density, gamma and caliper tool unless the hole was abandoned and/or required to be redrilled. Sonic, Neutron, Resistivity, Verticality and Acoustic Scanner probes were run in selected drill holes.

Cockatoo Coal commenced drilling for the Project in 2011. By the end of June 2014, a total of 255 HQ drill holes were drilled. 18 large diameter (200 mm) drill holes were drilled to assist coal characterisation studies. Table 5 summarises the drill holes, and Figure 7 shows the locations of drill holes drilled prior to the exploration programme for the Project and all drill holes drilled to the end of June 2014.

Table 5: Exploration Summary by Drill Hole Type

AUTHORISATION	OPEN	LOX	FULLY CORED (HQ)	PARTLY CORED (HQ)	LARGE DIAMETER	TOTAL
A287	107	20	96	91	11	325
A342	31	80	68	0	7	186
TOTAL	**138**	**100**	**164**	**91**	**18**	**511**

7.2.3 SEISMIC

Anglo commissioned Velseis to undertake a 2D seismic survey of the Bylong Project area which was completed early 2011. Although limited to public roads, the intent of the survey was to identify structural features that may have an impact on future mining activities such as faulting or folding. The survey was comprised of 8 lines totalling 38 km and were almost entirely limited to road reserves due to access restrictions (Figure 7). The survey was completed using the Mini-Sosie method which utilises a modified road compactor to generate seismic energy.

Cockatoo Coal commissioned Velseis to conduct a 3D seismic survey, which was completed in April 2014. Due to tree cover within the State Forest and a basalt cap on the initially proposed area, the survey was limited to a zone between the railway and escarpment (Figure 7). The 3D seismic survey aimed to further define known structural features and identify additional structure not previously defined by drilling activities.

The survey covered an area of 0.70 km^2 of gently sloping grass land using the Mini-Sosie method (a hand portable compactor) on 3,295 locations 10 m apart on NW-SE lines, 20 m apart; 6,578 receivers were set up 5 m apart on NE-SW lines, 20 m apart. Vibrations were recorded in 150 sets from each location.

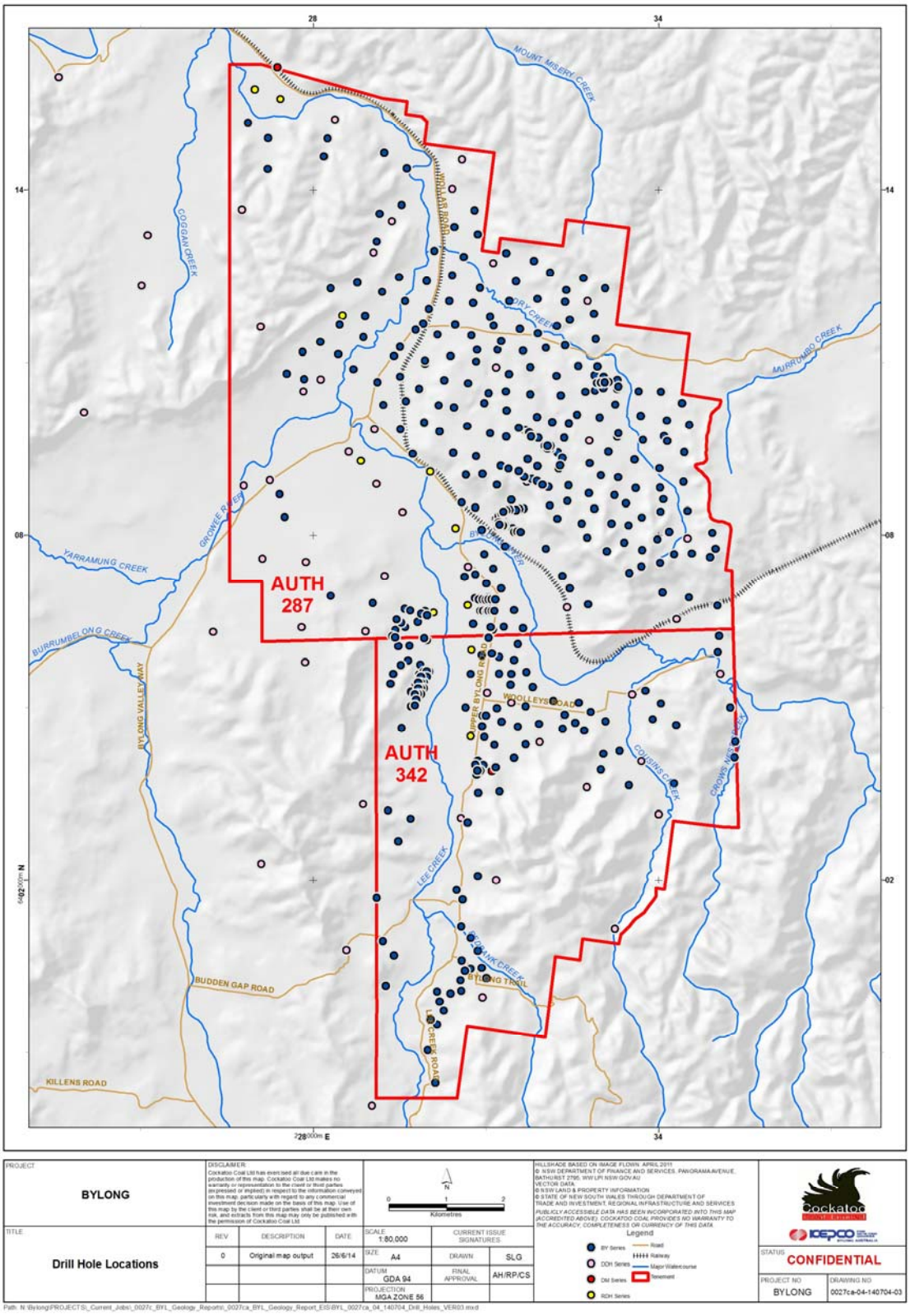


Figure 7: Data Acquisition – Drillholes

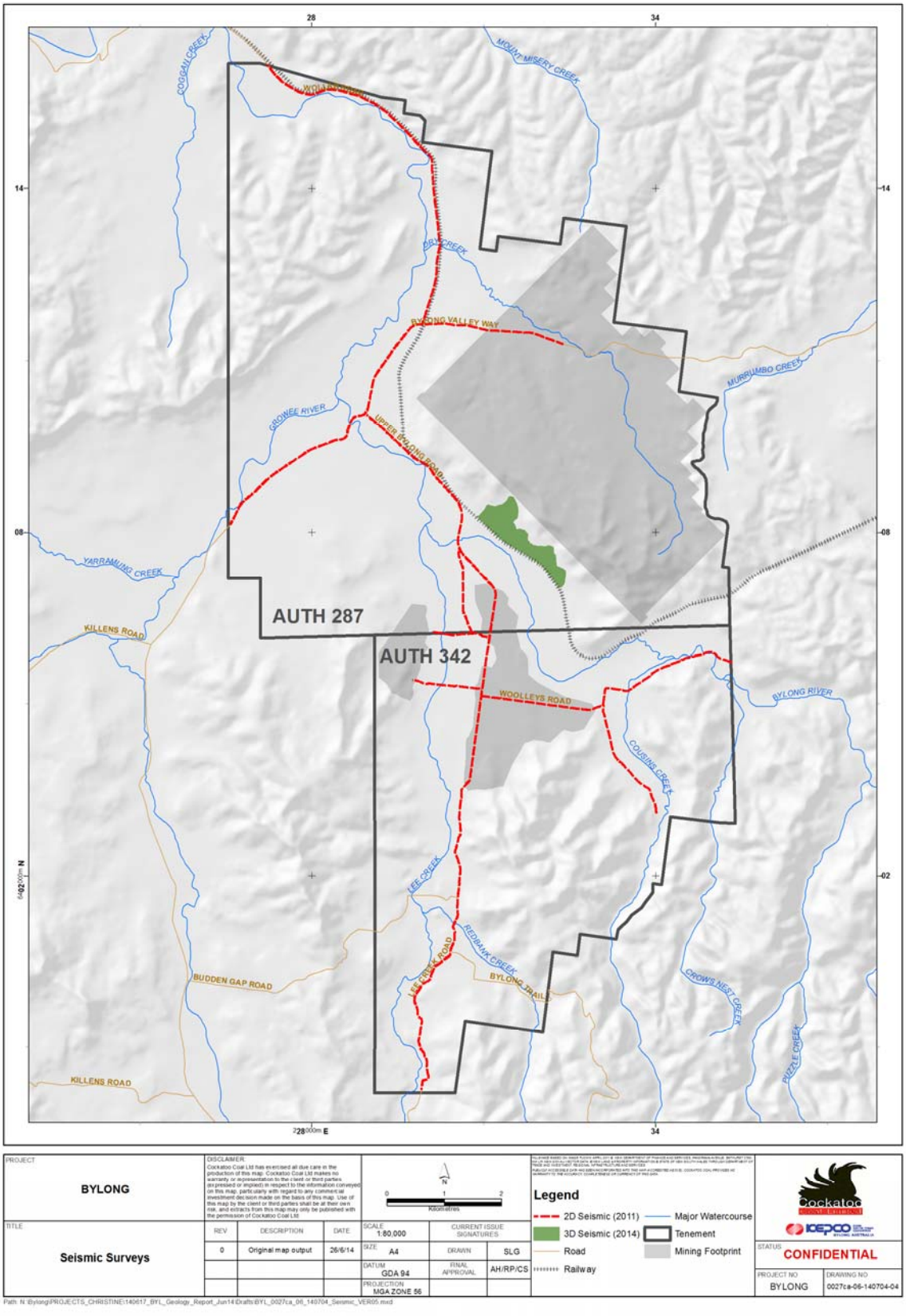


Figure 7: Data Acquisition – Seismic

7.3 GEOTECHNICAL

A total of 264 drill holes with geotechnical defects are stored in Cockatoo Coal's geological database GBIS software from Micromine. A further eight historic holes (DDH059-DDH066) also recorded defect information from core samples.

In addition to core defect logging, geotechnical sampling was conducted on all cored holes. Samples were taken throughout the lithological sequence, with focus on roof and floor horizons.

All samples were dispatched to Douglas Partners who decided an appropriate testing regime and analysed a total of 433 geotechnical samples, with testing conducted on these samples including:

- Uniaxial compressive strength
- Slake Durability
- Young's Modulus/Poisson's Ratio
- Indirect Tensile Strength

Sigra Pty Ltd conducted in situ stress testing on one borehole (BY0054CH). A total of eight tests were attempted of which five were successful. Of these five successful attempts, three were rated with a low reliability, due to inadequate control on the drilling rate.

Point Load testing was carried out by Douglas Partners on dedicated geotechnical drill holes as well as on site by Cockatoo Coal staff. Axial and diametral tests on HQ core were completed approximately every two m and/or when a change in lithology was observed as well as near the roof and floor of coal seams.

Coal Mine Roof Rating (CMRR) diametral point load testing was conducted on strata located between the FMKR ply (part of Ulan) and 1-2 m into the Coggan seam with a sample density of 0.10 m. The CMRR is a roof classification system, designed to evaluate the properties of the coal mine roof rock mass which contribute to its weakness and convert them into a relative strength rating from 0 - 100.

7.4 GEOCHEMICAL

A total of 444 geochemical samples were taken from HQ core during the drilling and logging process and stored separately as individual samples. Out of the 444 available samples, a total of 251 were dispatched for analysis to the ALS Brisbane laboratory under instruction of RGS Environmental Pty Ltd (RGS). Of the 251 samples analysed, 195 were over/inter-burden, coal (raw, uneconomic), parting, roof, floor and spoil material and 56 were coal (raw) & roof/floor composites, coarse reject and tailings.

Samples were analysed for pH, Conductivity, Nett Acid Production Potential, Acid Neutralising Capacity and Total Sulphur, to complete a geochemical impact assessment for coal and mine waste materials likely to be generated from mining and processing activities at the Bylong Coal Project.

RGS completed a geochemical impact assessment for inclusion within the EIS detailing the results of representative samples of coal and mine waste materials for the Project. Conclusions are summaries below:

- The majority of coal and mine waste materials are expected to have a low sulfur content, excess ANC, and be classified as NAF;
- The majority of coal and mine waste materials are likely to have a high factor of safety with respect to potential acid generation;

- Some of the coal reject material generated from processing coal from the Ulan and Coggan seams is likely to be PAF. This material will need to be well managed at the Project to reduce the risk of AMD, NMD and saline drainage;
- Some of the floor material from the Coggan seam is likely to be PAF and therefore there is some potential for parts of the final pit floor at the proposed open cut operation to be a source of AMD;
- The concentration of total metals/metalloids in coal and mine waste materials is typically low and apart from a few minor exceptions, is below the applied guideline criteria for soils, and is therefore unlikely to present any environmental issues associated with revegetation and rehabilitation;
- Most (NAF) coal and mine waste materials reporting to stockpile and storage areas should generate pH neutral to slightly alkaline run-off/seepage with low salinity values, following surface exposure. The salinity of run-off/seepage from these materials is expected to remain low even with extended exposure to oxidising conditions;
- The concentration of trace metals/metalloids in surface run-off and seepage from most (NAF) coal and mine waste materials in the field situation is likely to be low;
- Overall, the risk of potentially significant water quality impacts from NAF coal and mine waste material is low;
- Some coal materials could have a moderate to high propensity to spontaneously combust, however the risk of self-heating can be moderated significantly, with appropriate controls being identified and implemented as part of a Spontaneous Combustion Management Plan; and
- Coal reject materials at the project are likely to be well mixed and hence dilution of the relatively small amount of pyritic coal reject material with low pyrite coal reject material is likely to produce a composite coal reject material with a relatively low propensity to spontaneously combust.

7.5 GROUNDWATER

Douglas Partners began hydrogeological field investigations for the Project in December 2011 under the direction of Cockatoo Coal.

Monitoring to date has included the following:

- Testing rock strata permeability with packers within coal exploration bores;
- Installing standpipe piezometers in exploration bores;
- Drilling, soil logging and installing twin nested standpipe piezometers in alluvium;
- Rising head hydraulic testing within installed standpipe piezometers;
- Automated logging of piezometer head and electrical conductivity (EC) in selected locations;
- Monitoring of piezometer levels;
- Multi-level pore water pressure measurements (piezometric levels)through seven vibrating wire piezometer (VWP) installations;
- Surface water and groundwater sampling and chemical analyses at selected locations; and
- Automated logging of surface water flow velocity at three locations.

As part of the Bylong Coal Project EIS, Cockatoo Coal engaged Australasian Groundwater & Environmental Consultants Pty Ltd (AGE) in mid-2012 through Hansen Bailey (HB) to undertake the numerical modelling and groundwater impact assessment for inclusion within the EIS.

AGE hydrological assessments to date have indicated that the Permian Coal Measures are recharged in part by leakage from alluvium. Although in some areas, higher pressures within the Permian Coal Measures may in-turn discharge groundwater to alluvium (AGE, 2014).

Baseline data presents two main groundwater systems within the Project Boundary. A shallow surface water and alluvial groundwater system, that based on water level and hydrochemistry data has significant interaction. Alluvial groundwater levels suggest sub-surface flow within the alluvium along the alignment of present day water courses. The depth to water table against mapped surface water occurrence suggests further evidence of significant interaction between alluvial groundwater and surface water. The Permian Coal Measures, in particular the Coggan Coal Seam and to a lesser extent the Ulan Coal Seam, represent the second main groundwater system. A third minor perched groundwater system is also potentially present associated with the Tertiary basalt cap in area overlying the proposed underground extraction area (AGE, 2014).

Recharge to the system is thought to be from rainfall infiltration through the soil zone during periods of above average rainfall when the soil moisture deficits are overcome. Leakage from creeks and rivers represents the second source of recharge to the system. Due to the permeability and storage of the alluvial sediments, a larger volume of recharge is probable to the alluvium over recharge to the Permian Coal Measures and other consolidated and weathered formations (age, 2014).

Volcanic intrusions are likely to form barriers to groundwater flow within the subsurface groundwater environment (AGE, 2014).

Discharge in the current environment is from evaporation from open water bodies, evapotranspiration where water tables are near surface, baseflow to creeks and rivers and extraction from bores. Discharge from the Permian Coal Measures to the alluvium is also possible (AGE, 2014).

7.6 LOGGING, SAMPLING AND DATA MANAGEMENT

7.6.1 LITHOLOGICAL LOGGING

Lithological information has been recorded from the drillhole in lithological logs in accordance with Cockatoo Coal logging procedures 2.3.1 and 2.3.2. Chip samples from open holes have been lithologically logged in 1 m intervals, whilst drill core from cored holes has been logged in greater detail done to a cm scale.

Cockatoo Coal logging procedures are enforced to provide consistent logging across the Project, regular internal audits are undertaken to ensure standards are being met.

7.6.2 DATA STORAGE

Geological data for the Project is managed and stored on behalf of KEPCO by Cockatoo Coal in a GBIS geological database system, covered by Cockatoo Coal procedures 2.4.1 – 2.4.2.

7.6.3 VERIFICATION BY GEOPHYSICS

The geophysical surveys are currently used to confirm the lithological log and sampling intervals identified by the geologist to ensure seam interpretation and the sampling process is consistent. Coal units have an easily recognisable response in the geophysical surveys and Cockatoo Coal has developed seam interpretation protocols which identify geophysical signatures for individual seam and plies. The geophysical surveys are also used to make any absolute depth adjustments to the lithological logs (Cockatoo Coal procedure 2.4.3), although no significant absolute depth adjustments have been required.

7.6.4 CHIP / CORE PHOTOGRAPHY

Core photography has also been collected for most of the drillholes and includes labelled core photographed in both splits and core boxes. Representative chip samples are also collected and placed in chip boxes and photographed. Core and chip photography is completed in accordance with Cockatoo Coal procedure 2.3.11.

7.6.5 EXTERNAL AUDITING

A review of the logging by RungePincock Minarco (RPM) shows that the relevant geological and geotechnical information has been recorded. The method of logging core and open holes is considered to be industry standard for coal exploration in Australia.

The coal seams as identified in the geological model were compared against the lithological records provided in the lithological logs and the graphical logs for a selection of drillholes. No differences were identified regarding the roof and floor depths. The lithological logs were also reviewed against the core photo records and no material differences were observed. The geological database is considered a good method of managing the existing data.

7.6.6 MODELLED DATA

The lithological data used in the geological model is considered to be an accurate representation of the drill hole lithological records. The level of detail is considered appropriate to support Mineral Resources Estimate and mining studies, Cockatoo Coal procedure 3.5.1.

7.7 COAL QUALITY ANALYSIS

Drill holes completed by Cockatoo Coal were sampled following Cockatoo Coal's Geological Procedures 2.3.3.1, 2.3.3.2 and 3.3.1, which align with best practice industry standards. The validation of historic data yields sufficient information to assume that sampling was carried out according to similar industry wide standards.

The NSW Department of Mines completed three cored holes. Quality results were recovered for two of these holes. Raw coal analysis includes Free Swelling Index, Hygroscopic Moisture, Ash and True Specific Gravity. Fixed Carbon and Volatile Matter were determined for one of the raw ply samples. Total Sulphur was collected on a seam basis. Limited washability data on composites at 1.35, 1.45, 1.60 float fractions are available.

Austen & Butta completed 37 drill holes in 1982 and a further 13 cored or partially cored holes in 1984. On drill holes completed in 1982 sampling and testing was carried out on most of the seams on a ply basis. Raw coal quality testing of drill holes completed in 1984 were carried out on the Coggan Seam only.

The standard suite of tests for raw coal quality included Proximate Analysis, Total Sulphur, Specific Energy and Relative Density. Float-sink testing as well as Ultimate Analysis, Ash Fusion Temperature and Ash Oxides on clean coal composites was carried out to varying extents. Other specialist analysis included forms of sulphur, Moisture Holding Capacity, coal petrology and coking properties.

Anglo Coal (Bylong) completed 8 partially cored drill holes in 2003 and planned a further 8 which were not completed. Testing was carried out on the Ulan and Coggan Seams only and included Proximate Analysis, Total Sulphur, Specific Energy, Relative Density, Moisture Holding Capacity (MHC), sizing, Ash Fusion, Ash Analysis and float sink testing on 1.30, 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.8, and 2.0 float fractions. Each fraction received the raw ply testing suite as well as Crucible Swelling Number (CSN). Testing was completed on clean coal composites with the same testing suite as the float fractions and additional Ultimate Analysis and limited Maceral and Reflectance testing.

Cockatoo Coal completed a further 262 cored holes until May 2013. Raw coal analysis results are reported for 211 of these holes. The standard raw ply testing includes Proximate Analysis, Total Sulphur, Specific Energy and Relative Density, MHC, CSN, Phosphorus and Chlorine.

7.8 COAL SEAM GAS

Over 150 samples of HQ core from 11 exploration drill holes were chosen for gas content tests. Samples of HQ core were also selected from coal intersections that showed no potential for mining. Samples were sealed in gas canisters and sent to GeoGAS in Wollongong for fast desorption testing. A summary of the available coal seam gas results are presented in Section 8.6.

8. DEPOSIT GEOLOGY

8.1 STRATIGRAPHY

8.1.1 TERTIARY COVER

Alluvium and sediments of Tertiary age cover the low relief areas of the Bylong leases, although the nature and thickness of these sediments has not been investigated. Field mapping, drilling activities and aeromagnetic surveys have delineated a basalt flow in the Northeast of A287, tertiary in age from Potassium-Argon (K-Ar) dating (Wellman & McDougall, 1974).

8.1.2 TRIASSIC STRATA

Triassic sediments are present to the east, north and west of the leases, forming cliffs of conglomeratic sandstones, which are common through much of the Sydney Basin. The Triassic sequences unconformably overlie the Permian, Illawarra Coal Measures with an easily identifiable, sharp erosional contact.

8.1.3 COAL SEAM GEOLOGY (ILLAWARRA COAL MEASURES)

The Illawarra Coal Measures are approximately 220 m thick within the Bylong Coal Project area and contain six major seam group: Farmers Creek Seam, State Mine Creek Seam, Goulburn Seam, Glen Davis Seam, Ulan Seam and the Coggan Seam. The Coal Measures dip consistently between 1^{o} to 3^{o} the north-northeast across the Project area.

The Farmers Creek Formation is the upper most formation within the Illawarra Coal Measures. The Farmers Creek seam is comprised of 16 plies (FMCA to FMCQ – FMCG does not exist) with an average thickness of 50 to 80 cm. The formation is primarily composed of interbedded coal and tuffaceous claystone with a total thickness ranging between 10 and 50 m. This formation progressively thickens towards the east. Due to the banded nature and the high ash content of the coal, the Farmers Creek seam has no economic value. This formation also contains the State Mine Creek Seam towards its base. The State Mine Creek seam is characterised by dull coal interbedded with tuff and mudstone bands.

Interbedded sandstones, siltstones and claystones, varying in thickness between 18 and 46 m of the Gap Sandstone separate the Farmers Creek Formation from the State Mine Creek Formation. This formation contains the Goulburn Coal Seam towards its base, which is primarily composed of banded coal and claystone varying in thickness between 1 and 16 m. This seam is the equivalent of the Moolarben Coal Member described in the Western Coalfield. Due to its high ash content and variable thickness this seam has no potential for economic development. The Goulburn seam is separated from the underlying Glen Davis Seam by an average of approximately 20 m of interbedded sandstones and claystones, a combination of the Watts Sandstone and the Denman Formation.

The Glen Davis Formation/Seam extends over 40-60 m and comprises 10 plies (GDA-GDJ) of mainly 10 to 30 cm in thickness with the exception of GDA Ply, which is thicker and can reach up to 2 m. This formation is separated from the underlying Ulan seam by up to 25 m of interbedded sandstones and claystones, a combination of the Newnes Formation, Irondale Coal and the Long Swamp Formation.

The Ulan seam is the major economic seam mined in the Ulan mine 30 km to the west, has deteriorated substantially within the Bylong area. Within the Bylong area nine coal plies of the Ulan are recognised and are relatively easily correlated across the lease. Two minor carbonaceous to coaly plies (ULND and ULNF) are also traceable across the deposit but haven't been consistently picked. These two coaly plies are uneconomic.

Importantly, two tuffaceous marker horizons (CMKR and FMKR) are used to correlate the Ulan seam as they are the most laterally consistent horizons. The F Marker is the thickest one of these marker units with an average thickness of 0.6 m. The F Marker dated at 257 Ma (Black, 1998), is a consistent horizon throughout both authorisations, and splits the Ulan seam, with seven plies plus the C Marker above and two plies below.

The naming of the C Marker in the Bylong deposit was carried over from the nomenclature established by Austen & Butta and Anglo. Cockatoo Coal notes that what is called the C Marker in this deposit does not correlate to the regional marker band of the same name. The C Marker named in this deposit is the stratigraphic equivalent to the pervasive double tuffaceous marker bands of the 'ELR' ply (northern part of the Western Coalfield).

The upper plies range in combined thickness from 1.5 to more than 4.5 m to the Northwest, and are primarily composed of interbanded inferior coal and stone bands. The lower plies range in thickness from 0.2 to 1.5 m within the Bylong area thinning substantially to the South.

The Ulan seam was subdivided into 9 coal plies to aid in correlation of the coal partings near the top of the seam and also to increase the understanding of the depositional environment. The high ash content and inclusion of stone bands together with the Ulan seams high variability is challenging to bring to an economical level. It must however be noted that the Ulan seam is 'cleaner' to the north in the deeper part of the deposit.

The Ulan and the Coggan seams are separated by the Blackmans Flat Formation. This unit consists of coarse, upwards-fining, pebble-bearing quartzose sandstone, often showing a basal conglomerate band (Blackmans Flat Conglomerate). The unit commonly features an erosional basal contact with a gradational top progressively becoming siltier and developing into the Ulan seam. It is suggested that the erosional basal contact may indicate a controlling factor in the preserved thickness of the Coggan seam immediately below.

The Blackmans Flat Formation is developed throughout the majority of the northern portion of the Western Coalfield, ranging from 0 to 5 m in thickness. To the north east of the A287, the Ulan and Coggan Seams gradually coalesce where the Blackmans Flat Formation is virtually non-existent.

The lowermost seam of the northern portion of the Illawarra Coal Measures is locally called the Coggan Seam. It is the stratigraphic equivalent of the Lithgow seam, which is extensively mined and targeted in the Western Coalfield mines to the south. Within the Bylong leases, the seam consists of predominantly dull coal with minor bright bands and is usually free of stone bands.

The upper portion of the Coggan Seam does become increasingly stony over some portions of the authorisations. The seam thickens down dip from 2 m in the west of the A342 lease area to more than 5 m near the eastern boundary of the Project Boundary. Depth of cover varies irregularly from 0 to 400 m within the leases, due to the varied topography. In more incised areas around Dry Creek and Bylong River, significant portions of the seam are shallower than 60 m and maintaining a thickness of 3 to 4 m.

Several of the boreholes show an erosional contact between the Coggan and the overlying sandstone/conglomerate of the Blackmans Flat Conglomerate. This is indicative of a high-energy environment and increases the probability that an unknown portion at the top of the seam may have been eroded or washed out in a fluvial palaeoenvironment. The Coggan seam is relatively consistent in both thickness and ash contents across both authorisations, gradually increasing in thickness from 2 m in the west (near the Bylong Hinge) to over 5 m in the Eastern edge of the Project. Regionally, the Coggan seam thickens to the west in a trough shape, possibly in relation to basement faulting, associated with the Mount Tomah Monocline.

8.2 STRUCTURE

Structural interpretation has been compiled from, review of previous interpretations from former tenement holders, regional mapping, aeromagnetics, 2D seismic, 3D seismic and drillholes.

For the purpose of this report, the 500 m spaced drill hole grid pattern, at best, limits the identification to greater than seam displacement geological features (>5 m). Additional datasets such as the 2D and 3D seismic surveys have helped to further define the location, nature and extent of the previously identified features. In some cases the seismic dataset(s) have identified features with displacements expected to be less than 5 m.

As well as identifying the location, extent and nature of each geological feature a confidence level has been defined based on the supporting geological data. Three categories have been used to define confidence level and a general description of the supporting information required:

8.2.1 FAULTS

8.2.1.1 Large Scale Faults greater than 5 m

Through interpretation of the 3D Seismic data, Velseis noted in their report that there is clear evidence of large faulting in the deeper stratigraphy (units lower than the Illawarra Coal Measures). No faults with displacements greater than 5 m are currently interpreted or modelled, as only limited drillhole data with drill hole spacing of less than 500 m is available.

8.2.1.2 Micro Faulting

Within the Project area, normal and reverse minor/micro faulting has been identified through either interception of fault planes in drill holes or from the processing and interpretation of 2D & 3D Seismic and acoustic scanner analysis (Figure 7.1), due to their scale it is difficult to determine the exact nature of these features. Faulting is expected to be associated with the folding deformation zones as defined below.

8.2.2 FOLDS

The following structures should not be confused with the Bylong Hingeline by Yoo et al (2001), the hingeline is a basement structure, syndepositional with the Illawarra Coal Measures. While it is possible that reactivation of this structure may have occurred, there is insufficient data to confirm this at this time.

A number of sub parallel anticline and synclinal structures have been interpreted from a combination of 2D and 3D seismic data as well an extensive drillhole data set (Figures 8 and 9).

The identified folding runs North/South with displacements of 3-12 m over a 100 m zone (Figure 8). The Coal Measures appear to be continuous however associated faulting (less

than seam displacement) is expected; a zone of deformation up to 50 m from the apex of the fold has been identified from drilling and seismic data. The deformation zone is defined by increased jointing or faulting (<5 m) typically sub-parallel to the dominant feature. Refer to section below for information on the nature of jointing.

It is interpreted that even major structures are unlikely to provide a significant transient pathway to groundwater movement and discharge.

8.2.3 JOINTING

Joint and cleat orientations have been determined based on the interpretation of 8 down-hole Acoustic Scanner surveys (reported by ASIMS 2013). Each ASIMS report provides a summary of the interpreted data, including the average strike and dip for each joint and cleat "set" identified, and an indication as to whether the set is either a "primary set" or a "secondary set" (which is understood to be based on the number of unique defects measured in that general orientation along the borehole trace).

Using the ASIMS 2013 joint set classification as a guide, the primary joint directions in the area are taken to be:

- Joint Set 1 = 85 – 98° (strike)/84 – 90° (dip) (average of 89°/86°)
- Joint Set 2 = 130 – 174°/79 – 90° (average of 152°/84°)
- Joint Set 3 = 33 – 63°/88 – 86° (average of 45.5°/84°)

The results from the most recent testing correlate well to the results from drilling completed in 2003.

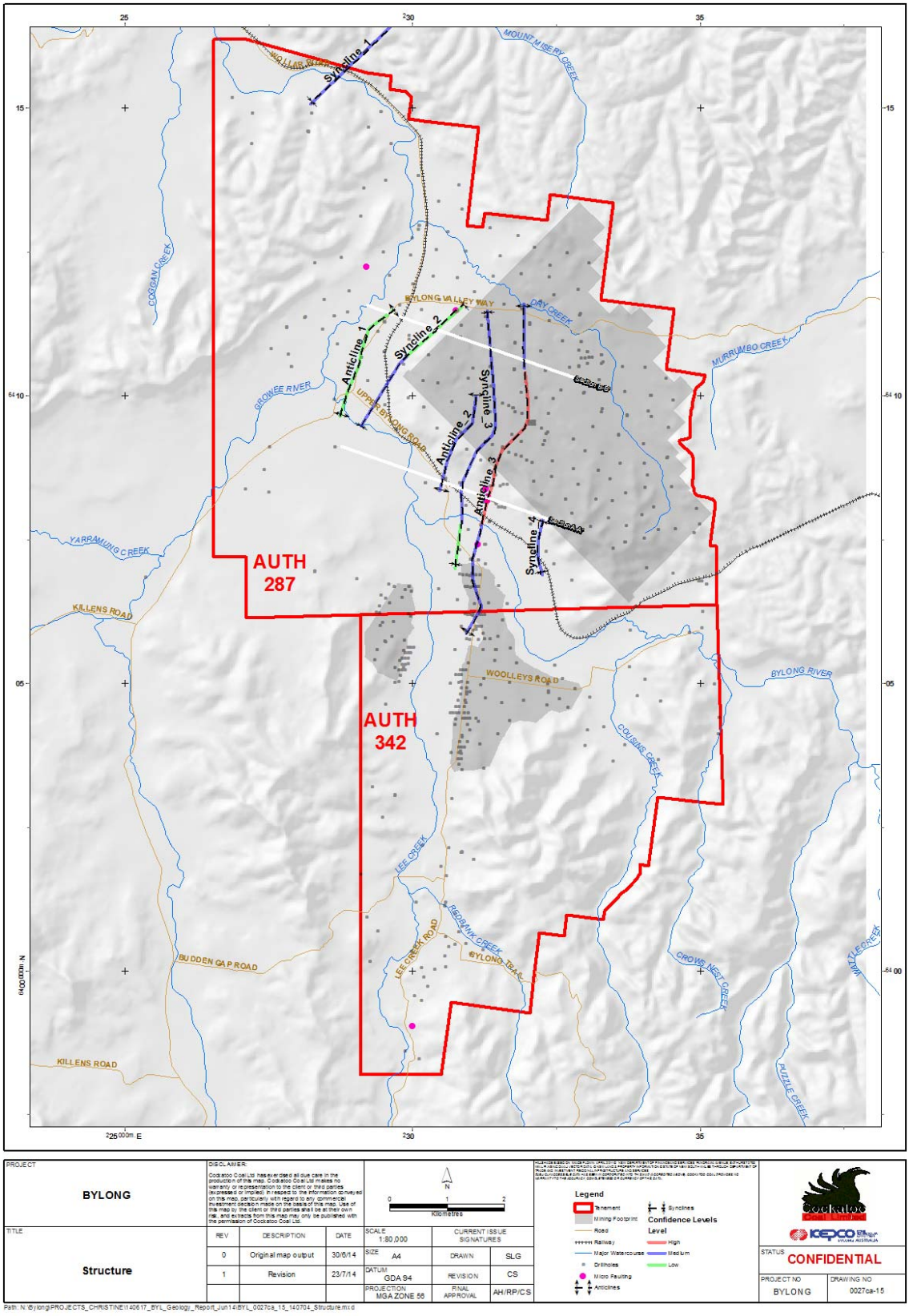
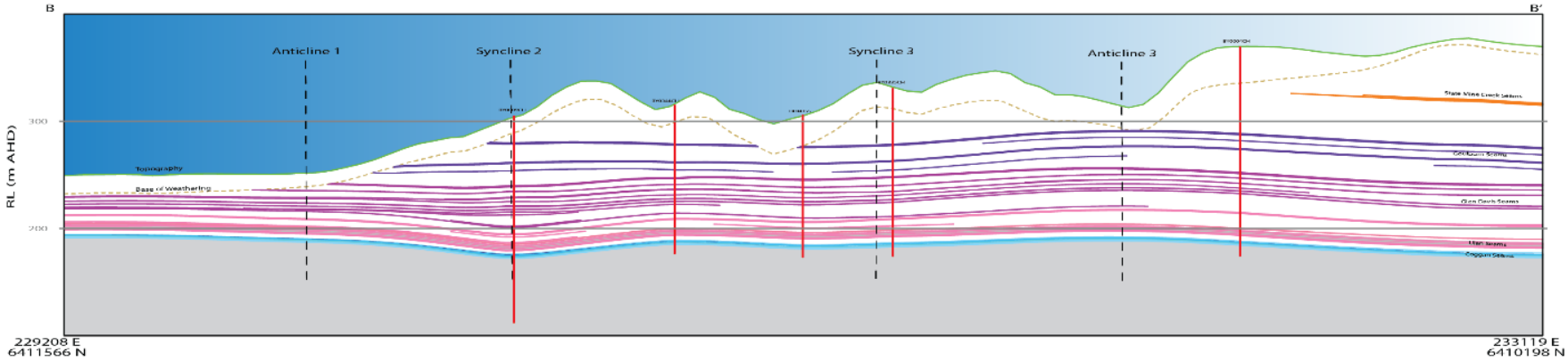


Figure 8: Structure - Faults and Folds



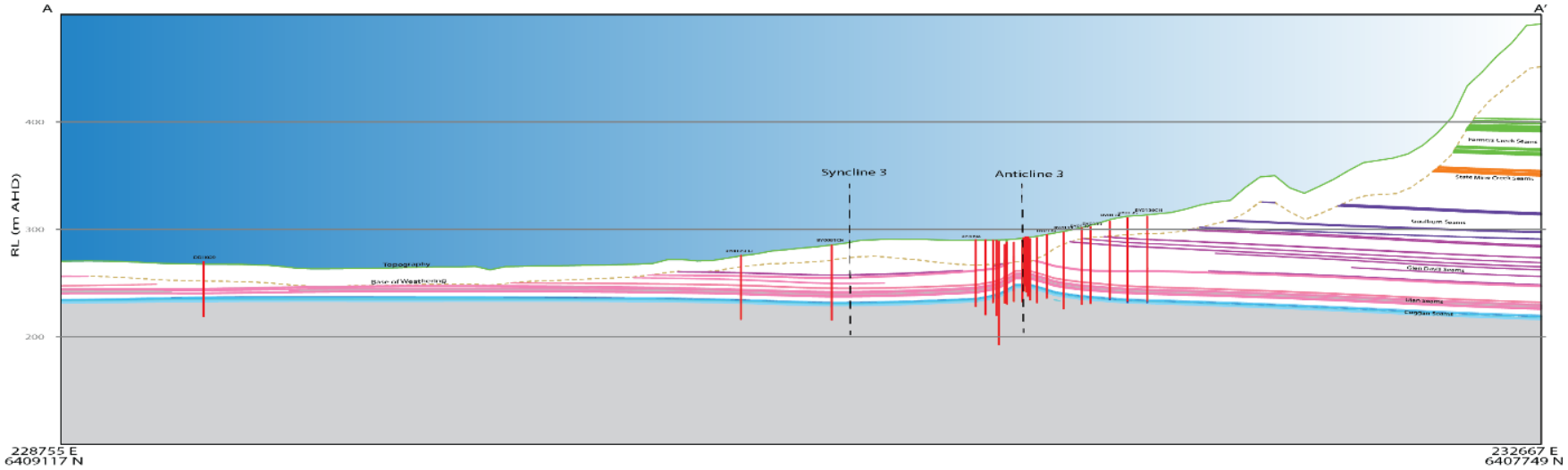


Figure 9: Cross Sections through Major Structures

8.3 IGNEOUS GEOLOGY

A number of sills, dykes and basalt cover have been identified by magnetic surveys as well as being encountered in drilling. These features are displayed in Figure 10.

8.3.1 BASALT COVER

The basalt cover is located at the topographic surface and is typically overlain by soil/alluvium. The thickness varies from 10-40 m and is blocky (Highly fractured sub 10 cm scale). Commonly calcite infill can be seen along fracture planes as well as pervasive oxidisation. Both infill and oxidisation indicates water flow.

8.3.2 SILLS

Intruded post deposition, the sills have partially replaced the coal measures. The Coggan, Glen Davies and the Ulan sills are irregular in nature, and should not be considered continuous features (vertically or horizontally) however they are connected in places. They are typically solid with little jointing evident, unlike the basalt cover.

Emplacement of the sills has also resulted in a heat affected zone which is typically less than 1 m directly from the intrusive itself. The heat affected coal appears steely grey, becomes brittle and can be more porous.

8.3.3 DYKES

Dykes identified in the area through field mapping by Austen & Butta were basalt, ranging from 1 to 2 m in thickness. The dykes are trending from northwest to north with the average orientation being north-northwest. One dyke was measured trending northeast and dipping 80° in outcrop.

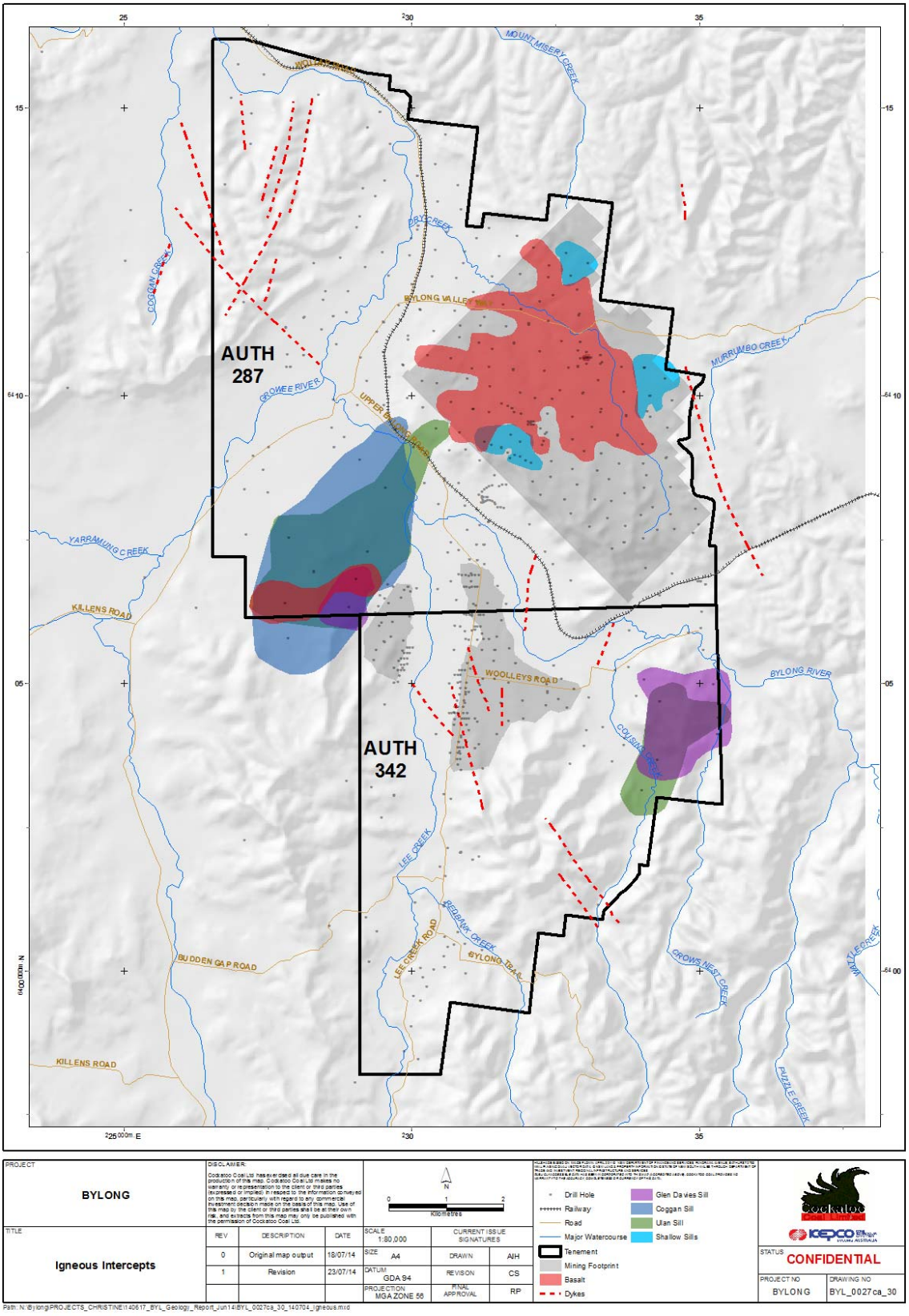


Figure 10: Igneous Activity

8.4 GEOTHERMAL GRADIENT

Temperature logs were run in eight (8) drillholes during exploration. The geothermal gradient varies from 2.2 to 6.4 degrees Celsius per 100 m of depth (Figure 11).

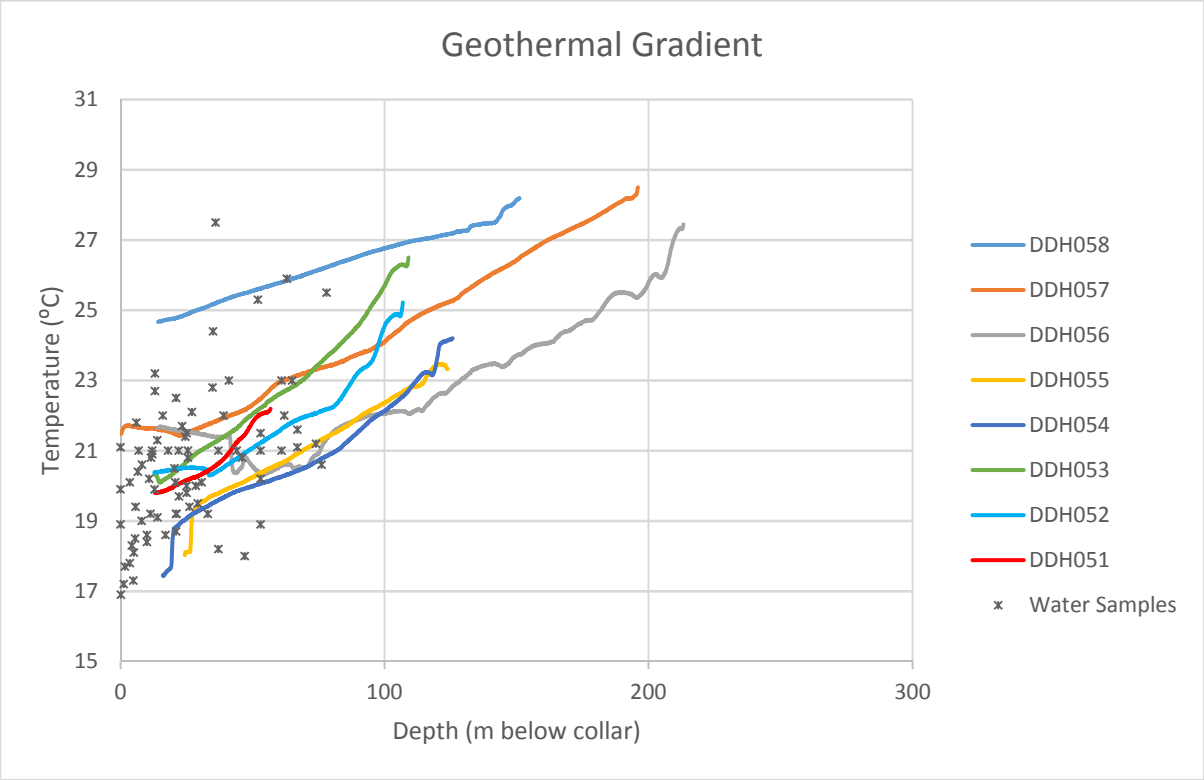


Figure 11: Geothermal Gradient measured in Exploration Drill Holes

8.5 STRESS

Acoustic scanner results as well as the results from in situ stress measurement (over coring) data have been used to determine the major and minor horizontal stress directions. The major horizontal stress is taken to be 327° (147°) (i.e. approximately NW: SE – NNW: SSE). Assuming the minor horizontal stress direction is 90° to the major (which is typically the case for sedimentary basins in Australia), then the minor horizontal stress is taken to be oriented 057° (237°) (i.e. approximately NE: SW – ENE: WSW).

8.6 COAL SEAM GAS

Results from tests described previously were compiled by GeoGas Pty Ltd and a comprehensive assessment was undertaken. The following conclusions were made and are being incorporated into mine planning:

- Gas content for areas not affected by intrusions can be predicted confidently from depth, ash content, volatile matter
- The predicted regional gas content gradient is determined by depth below sea level. Gas contents measured from drillholes ranging from 0.56 to 2.34 m^3/t (Figure 7.18)
- Outburst potential is low but will be further assessed prior to mining in proximity to igneous structures; and
- Some form of gas drainage or gas capture may be required to achieve satisfactory gas levels with high production rates and acceptable ventilation levels.

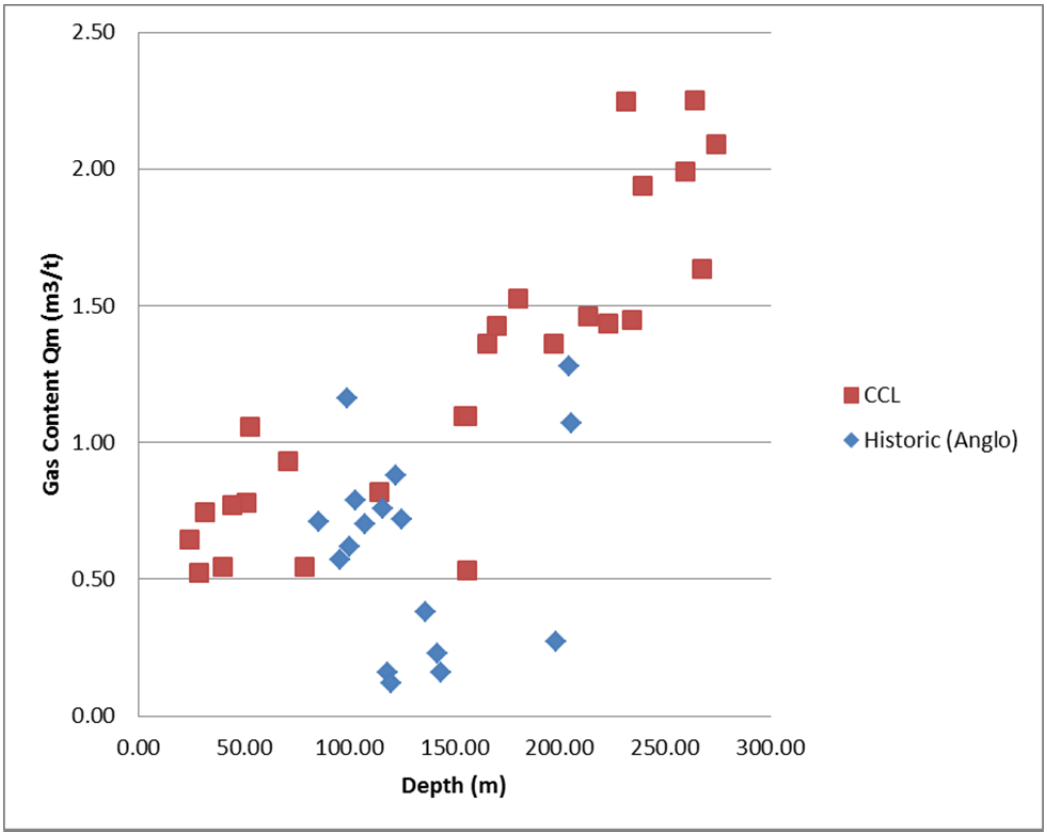


Figure 12: Chart of Gas Content Qm, (m^3/t) versus depth (m)

9. RESOURCE ESTIMATION

RPM were commissioned by Cockatoo Coal to review the available geological information for the Bylong Coal Project and prepare and document a Resource Estimate in accordance with the 2012 JORC Code.

A total of 471 drillholes have been completed for the Project (as of 24th January 2014) and were used to develop a geological model of the deposit. The geological data and geological model were provided by Cockatoo Coal to RPM. RPM reviewed the geological information provided and audited 10% of the dataset to determine that the information provided was suitable for the estimation of Coal Resources.

In order to estimate Resources, RPM determined points of observations from the drillholes, and defined Resource polygons based on appropriate distances between points of observations (500 m, 1,000 m, and 4,000 m for Measured, Indicated, and Inferred Resources respectively). The Resources were identified as either Open Cut or Underground Resources based on consideration of technical and economic criteria and appropriate cut off parameters were applied.

Mining Studies identified the Coggan Seam (Thickness and Cover Figures are shown in Figures 13 and 14) as the main economic interest and proposed to extract the Coggan Seam using open cut and underground methods. In the Open Cut Areas identified, the overlying Ulan Seam, and to a much lesser extent the Goulburn and Glen Davis Seams are also proposed to be extracted.

A summary of the Resources Estimate by Resource Category is provided in Table 6.

Table 6: Summary of 2014 JORC Resources Estimate for the Bylong Coal Project

RESOURCE	RESOURCE CATEGORY			
	MEASURED (MT INSITU)	INDICATED (MT INSITU)	INFERRED (MT INSITU)	TOTAL (MT INSITU)
Grand Total	293.6	318.8	261.9	874.3

Further feasibility and mine planning studies will be needed for any additional mining, not covered by the current EIS process.

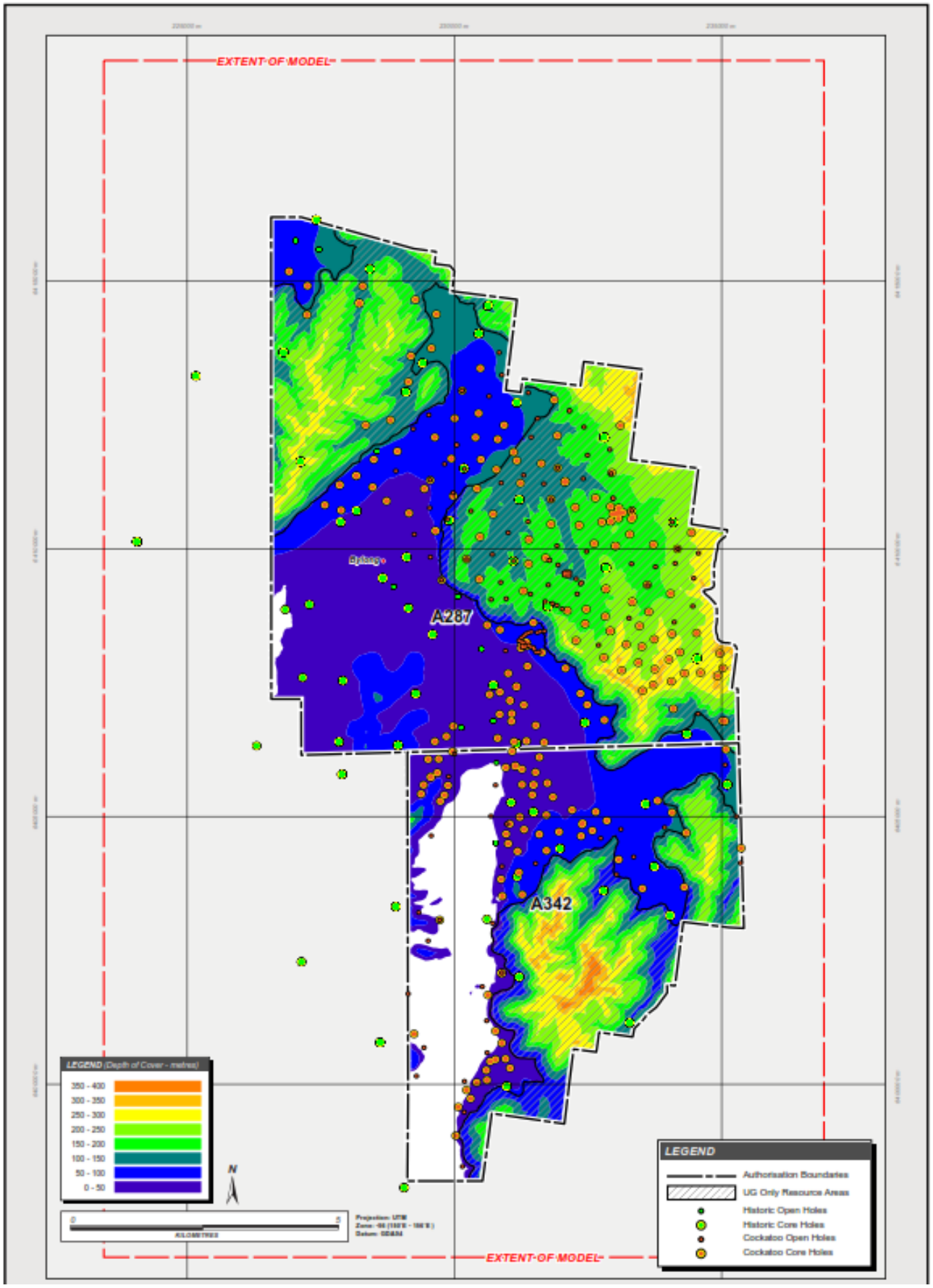


Figure 13: Depth of Cover - Coggan Seam (From RPM 2014 JORC Coal Resources Report)

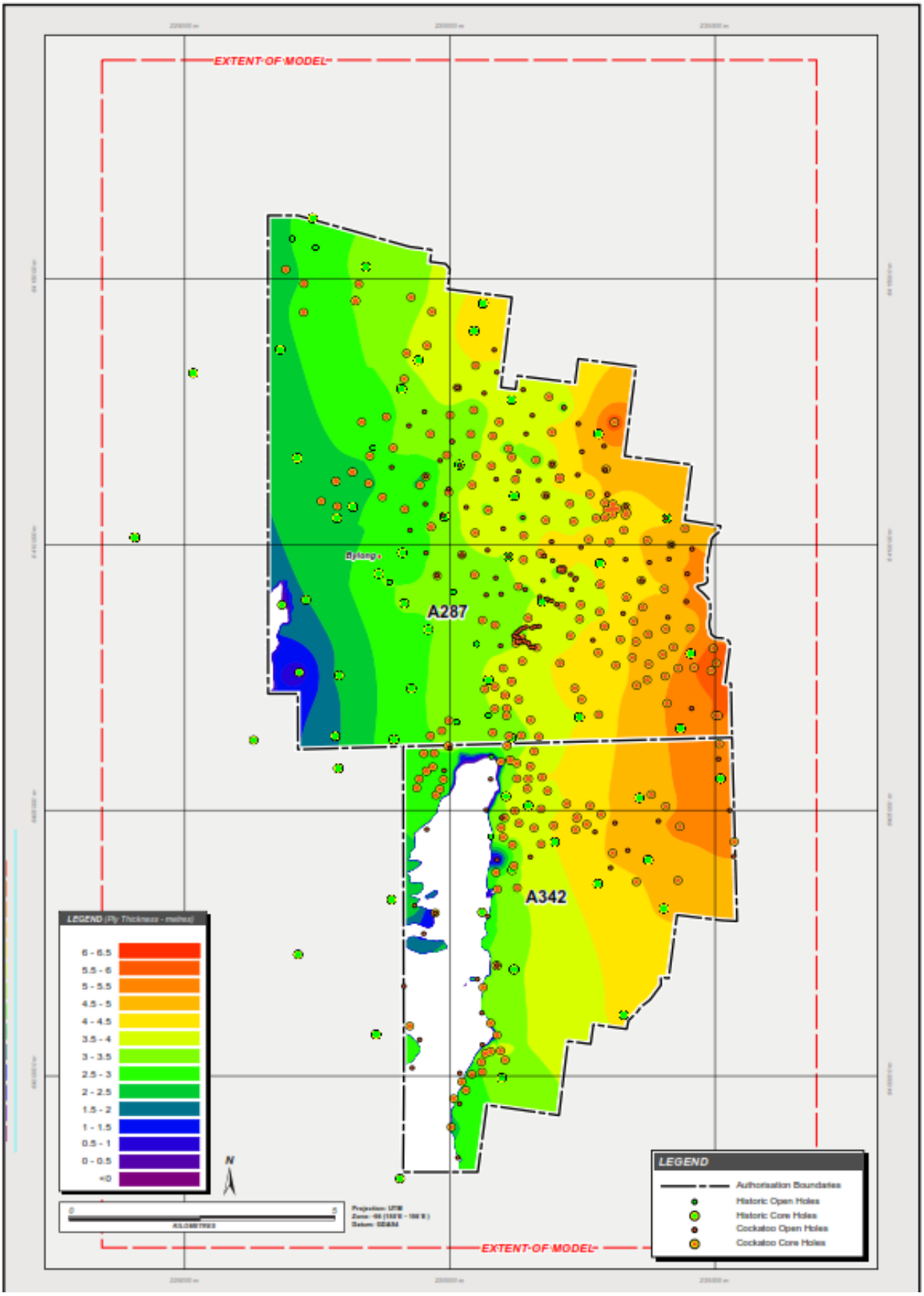


Figure 14: Thickness - Coggan Seam (From RPM 2014 JORC Coal Resources Report)

10. SUMMARY

This report summarises all available geological data and provides Cockatoo Coals interpretation of geology within the Bylong Project area. Incorporating previous interpretation from regional datasets and reports with recent and localised exploration datasets, has allowed Cockatoo Coal to provide a robust interpretation of the projects geological setting and coal resources.

The regional geology of the Bylong Coal Project and surrounding projects has been steadily built upon from the early 1800's, which has delineated some basement structures that are found within in the Bylong Coal project boundary such as the Bylong hingeline. Cover basalt has also been defined in previous exploration programs run by other companies outside of the Bylong Coal project.

Ongoing exploration across both A287 and A342 has focussed on defining coal resources and potential geological hazards within the Bylong Project. To date Over 500 drillholes have been completed the majority during 2011 to 2014. As well as drilling, a variety of other exploration methods were used to determine the structure and stratigraphy of the Bylong Coal Project. These methods included aeromagnetics, magnetics, field mapping, 2D seismic & 3D seismic. Drilling provided samples to determine coal quality, washability, geotechnical, coal seam gas, geochemistry and insitu stress testing.

As discussed above the local geology of the Bylong Coal Project has incorporated the existing regional datasets. The recent exploration campaigns have further refined and delineated coal resources to JORC measured status (Section 9. Resources). The extensive drilling of over 500 drillholes and sample testing as well as other exploration methods have been used to help determine the extent and quality of the coal seams. Geological structures (folds and faults) and any other potential impediments to mining have also been delineated as part of this process.

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