GEOLOGICAL MODEL AND REPORT FOR WOODBURY COAL PROJECT

For

resource generation

December 2010

MARSTON

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(A023-002)

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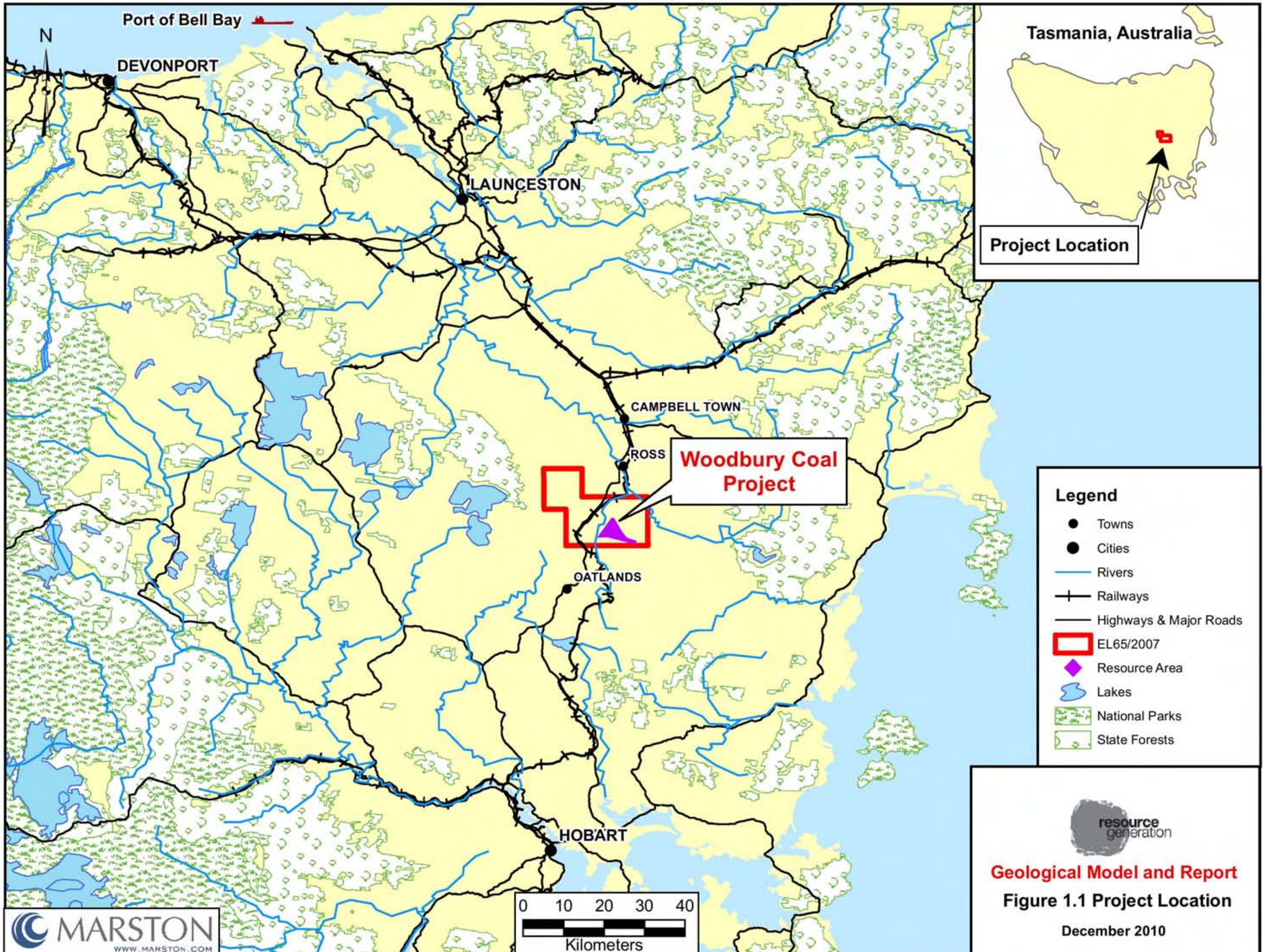
1.0 INTRODUCTION

Resource Generation Limited (Resgen) has commissioned Marston International Pty Ltd (Marston) to prepare a preliminary geological report and provide an updated model based on new exploration conducted on the Woodbury coal deposit. The Woodbury Coal Project (WCP) is located in the Tasmanian Central Midlands between the townships of Ross and Oatlands, see Figure 1.1, Project Location.

Predominantly the area surrounding the WCP consists of undulating farm lands which are principally used for agriculture and grazing sheep. The Woodbury coal deposit is situated within Exploration Licence (EL) 65/2007. The deposit is located 5 kilometres (km) east of the Midlands Highway near the township of Woodbury. A major north-south railway line is in close proximity to EL 65/2007 which connects Launceston 85 km to the north and Hobart 80 km to the south. The Tamar River deepwater inlet, located 40 km north of Launceston, has a number of deep water, load out facilities situated around Bell Bay. The Tamar River currently services 40,000 to 60,000 tonne (t) Panamax size vessels regularly, refer to Figure 1.1 for the location of these facilities.

The potential of the Woodbury coal deposit for commercial open pit coal production was investigated in the early 1980's by Victor Petroleum & Resources Limited, The Broken Hill Pty. Co. Ltd. (now BHPBilliton) and international coal miner Costain Australia Limited. The goal of this project was to develop a 20 year coal resource to support a potential coal fired power station near Campbell Town. The project was abandoned when the Tasmania government made the decision in 1984 to build an oil fired power station near Launceston instead of a coal fired station. This power station has subsequently been converted to gas.

The principal objective of exploring the Woodbury region is to develop a geological and geophysical foundation for coal tonnage definition within the near surface Permo-Triassic coal measures. Typically the coal measures are associated with a characteristic lithic sandstone sequence which has been preserved from erosion by Jurassic dolerite that now caps the Black Tier Range immediately to the south. Continuity of the coal seams has been established by past exploration through a combination of lithological, geophysical and coal quality correlation.



Geological Model and Report

Figure 1.1 Project Location

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The Woodbury Resource Area (WRA) is bounded by three major fault structures creating a triangular shaped deposit. Although little is known of the extent and correlation of seams, coal also exists to the west, north and east of the WRA.

2.0 EXECUTIVE SUMMARY

The following discussion summarises Marston's findings from the investigation of the Woodbury coal deposit.

Marston's scope of work for the WCP included a review of existing correlations and interpretations through an iterative review of plans and cross sections and modeling of exploration data to produce an estimate of in situ coal tonnage within the WRA. Marston also reviewed possible additional exploration requirements to provide sufficient data to increase confidence levels and enable coal resource estimates to be stated at the Indicated category for a significant portion of the deposit.

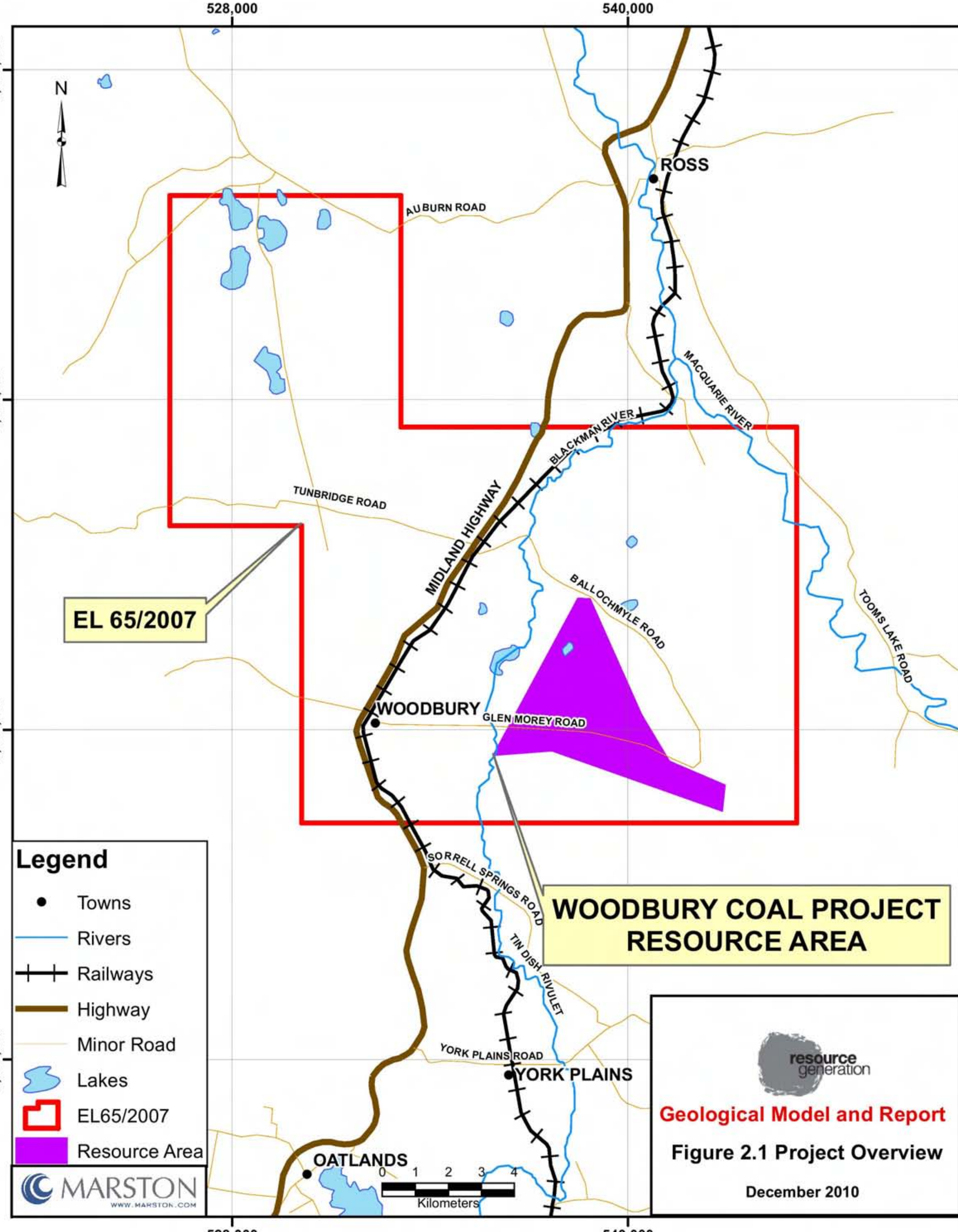
The WCP is located in Tasmania's Central Midlands between the townships of Ross and Oatlands. The WRA is located approximately 5 km east of the Township of Woodbury along Glen Morey Road. The location of the WRA is shown in Figure 2.1, Project Overview.

Geology

The primary geological feature of the coal measures in the Woodbury area is an east-west trending anticline plunging gently towards the west. Seams dip approximately 8^{o} to the south and approximately 4^{o} to the north. There are three major fault structures which delineate the Woodbury resource area. The Tin Dish Fault lies to the west, Sugarloaf Fault to the east, and the Wood 2 fault to the south. An elongate dolerite intrusion occurs to the south of the resource as well as two small dolerite intrusions in the northeast section of the resource area.

There are four major seams in the deposit; stratigraphically they are Seam D, C, B, and A. The average thickness of the seams is 1.55 metres (m), 1.15 m, 0.8 m and 0.95 m respectively. The majority of coal tonnage appears to be in Seams D and C which are the thickest and most widely distributed seams.

The lateral distribution of Seams D and C is largely governed by topography, and the extent of weathering. Seam B subcrops near the hinge of the anticline and appears to be the most laterally continuous seam throughout the deposit to date. Seam A is the deepest



Geological Model and Report

Figure 2.1 Project Overview

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seam in the coal bearing sequence. Seam A theoretically has the potential to be the most laterally continuous seam in the area. However; due to shallow drilling very few drill holes have intersected the seam and it is therefore difficult to confirm its full extent and thickness.

Marston created a digital, grid-based geological and coal quality model of the Woodbury coal deposit. All four seams and their splits were correlated across the deposit and were named as AU, AM, AL, A, BU, BM, BL, BML, CU, CM, CL, CML, C, DT, DU, DL, D. The geological model consisted of 96 drill holes posted for structural interpretation, while 29 drill holes were excluded due to their close proximity to another hole or due to incomplete data. The locations of all drill holes within the WCP are shown in Figure 2.2, All Drill hole Locations and Local Geology.

In Situ Coal Tonnage

Marston estimated the in situ coal tonnages and quality on an air-dried basis (adb) for all the seams included in the study. It should be noted that Marston has used a default density of 1.4 tonnes per cubic metre (t/m^3) for the estimate, pending results from the current laboratory test work. Marston advises that the reported in situ tonnage is not compliant with JORC requirements.

The overall tonnage estimate derived by Marston for in situ coal at Woodbury is 64.75 million tonnes (Mt).

Marston's preliminary studies indicate that further exploration of the Woodbury area is justified. It is recommended that a more uniformly spaced drill pattern be used to further explore the resource area. This should consist of a mixture of HQ cored and open holes, drilled to gather data on structure, seam continuity and coal quality. This increased drill density would allow the coal resource estimate to be stated at Measured and/or Indicated category for the resource area and allow mine planning and feasibility studies to be conducted.

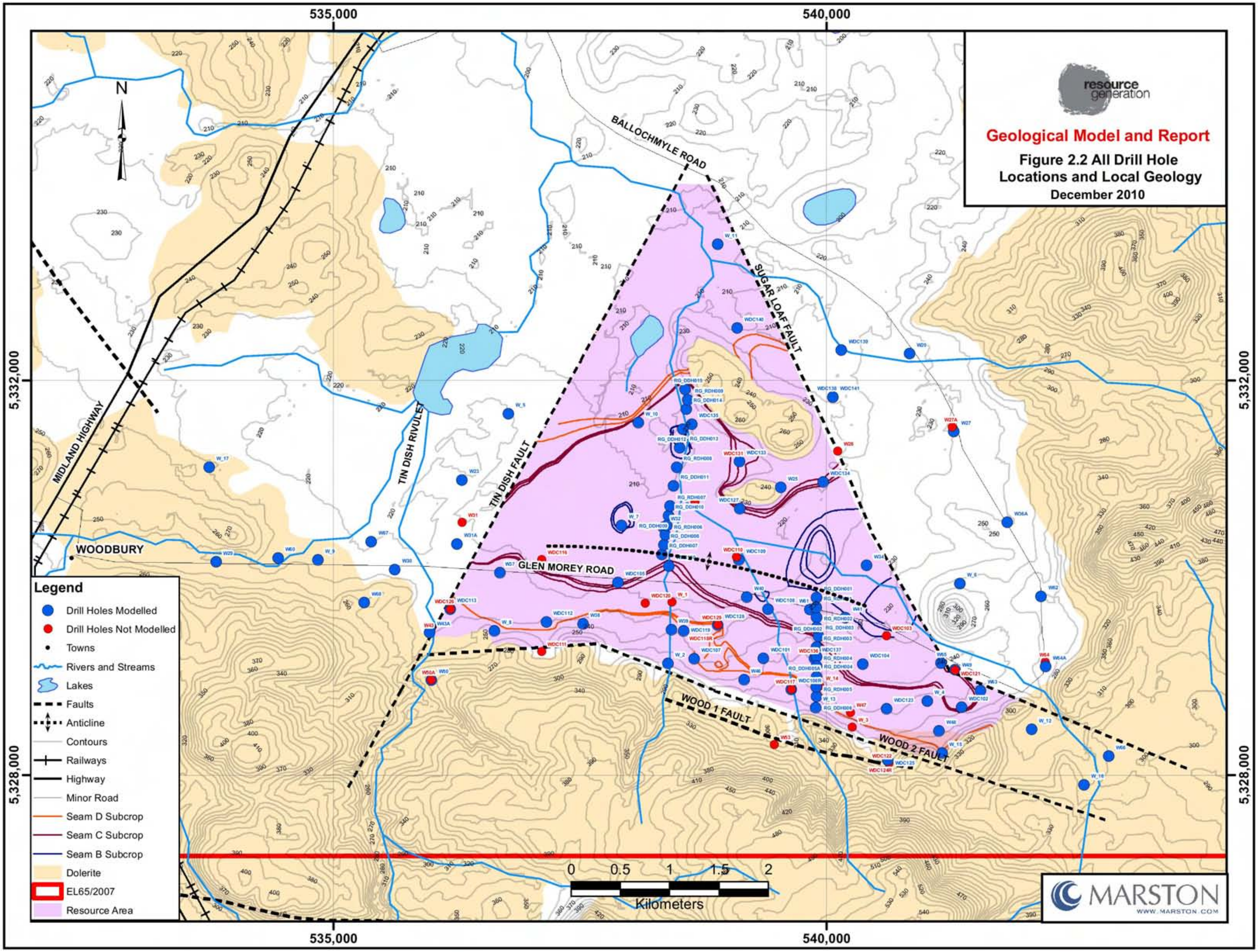
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Figure 2.2 All Drill Hole Locations and Local Geology
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535,000
540,000
5,332,000
5,328,000
N
BALLOCHMYLE ROAD
SUGAR LOAF FAULT
TIN DISH FAULT
TIN DISH RIVULET
MIDLAND HIGHWAY
WOODBURY
GLEN MOREY ROAD
WOOD 1 FAULT
WOOD 2 FAULT
Legend
Drill Holes Modelled
Drill Holes Not Modelled
Towns
Rivers and Streams
Lakes
Faults
Anticline
Contours
Railways
Highway
Minor Road
Seam D Subcrop
Seam C Subcrop
Seam B Subcrop
Dolerite
EL65/2007
Resource Area
0 0.5 1 1.5 2
Kilometers
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Marston also recommends further exploration outside the main resource area at Woodbury to delineate any potential resources to the east and west. The limited drilling to the east and west has indicated some resource potential, however, to date the lateral seam extent and continuity is relatively unknown. Further drilling of these areas would allow greater control and understanding of geological structure in the area as well as the potential to delineate other resource areas in the lease.

3.0 GEOLOGY

3.1 Regional Geology

The sedimentary rocks of the Permo-Triassic Parmeener Supergroup overlie a folded and eroded basement of Precambrian and early Paleozoic rocks. The upper sequences of the Parmeener Supergroup have been intruded by concordant and discordant dolerite sills of Jurassic age. The region was extensively faulted during the mid to late Mesozoic and Tertiary periods. Basaltic extrusions associated with minor fluviatile sedimentation occurred during the Tertiary period, see Figure 3.1 Regional Geology.

Tectonic activity associated with the Tabberabberan orogeny during the Devonian period initiated a prolonged phase of erosion which persisted through to the commencement of the Triassic coal forming episode.

From the cessation of Triassic sedimentation until recent, Tasmania was subjected to normal north-north-west trending regional faulting. During this tensional phase there was only limited sedimentation in restricted basins.

During the Tertiary period, horst and graben structures of major dimensions developed with the largest horst forming the Central Highlands Plateau and West Coast Range. Drag folding against faults resulted in locally steep dips and gentle tilting of the fault blocks.

The overall result of the Jurassic dolerite intrusions and Tertiary epeirogeny was the development of the central plateau mass consisting of a huge slab of block faulted and warped Permo-Triassic sediments with coal bearing units and dolerite.

3.2 Local Geology

The primary geological structure of the coal measures in the Woodbury area consists of an east-west trending anticline plunging gently towards the west. To the south of Woodbury Road, in the central Woodbury area, seams dip approximately 8^0 to the south and the northern extent dips by approximately 4^0.

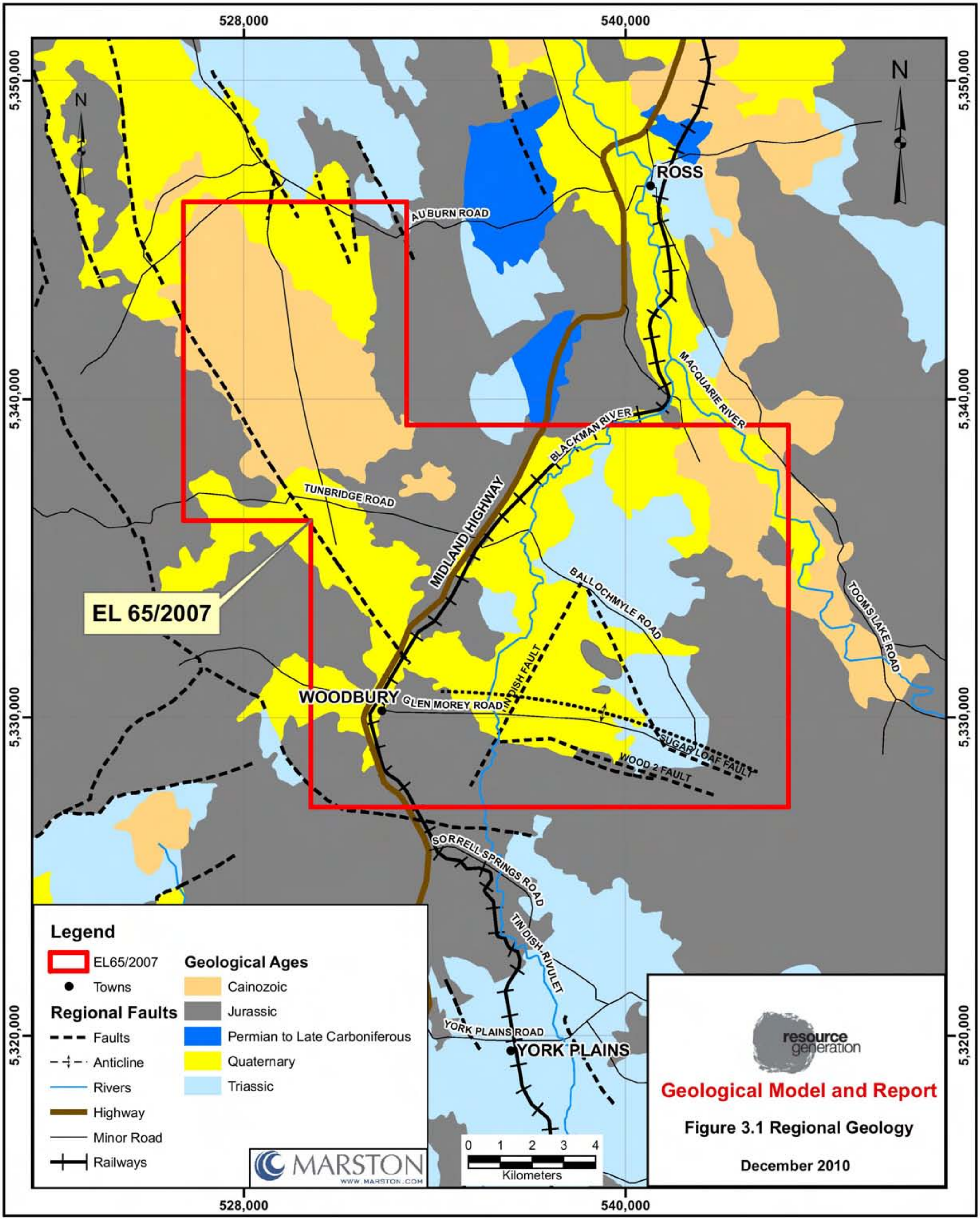

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Figure 3.1 Regional Geology

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An elongate dolerite intrusion occurs to the south of the resource as well as two small dolerite intrusions in the north-eastern section of the resource area.

Distribution of the major coal bearing units, Seams C and D, is governed by topography, the depth of seam weathering, the three major faults as well as localized small scale structures throughout the deposit.

The principle structure containing the coal bearing sequence on the Woodbury plain is a narrow graben, trending north-south with an elongate dolerite intrusion lying to the east and south. It has been suggested in past reviews of the area that the coal bearing sequence possibly extends southward beneath the dolerite intrusion that dominates the region; however, there is no data available to support this theory.

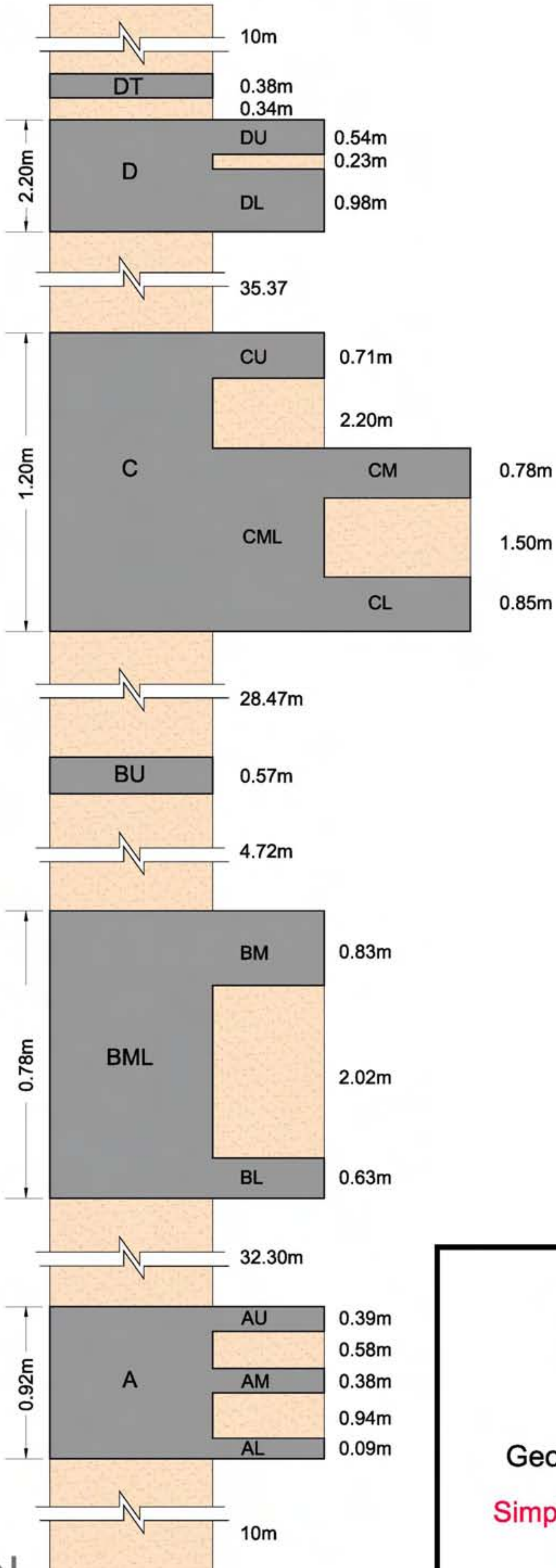
The middle to late Triassic stratigraphy consists of coal measures overlying a siltstone-mudstone sequence, with a total thickness less than 150 m. Coal measures consist of a number of coal seams which range from 0.07m to 3.90m thick,interbedded with lithic sandstone and minor siltstones and mudstones.

The five coal seams of potential economic significance in the Woodbury deposit are Seams A, B, C, D and E, in ascending stratigraphic order. The total thickness of the coal bearing strata has been calculated as approximately 140 m. The stratigraphic sequence of the coal bearing strata is shown in Figure 3.2, Simplified Stratigraphic Column.

The coal seams are located within a triangular shaped polygon (the WRA) which is defined by three major fault systems in the east of the deposit. These faults are known as the Sugarloaf Fault, Tin Dish Fault and the Wood 2 Fault.

Structurally the geology within the resource area appears to consist of localised small scale faulting. Drill hole RGDDH009 intersected a fault during the 2010 field program. The fault plane dipped at 80^0 and was characterized by a brecciated zone approximately 34 centimetres (cm) thick, between 26 m and 28 m depth. The brecciated zone was competent in nature and consisted of 1 – 5 cm rounded to sub-rounded coaly mudstone clasts at the top and base of the unit and grey mudstone clasts in the middle of the unit. All clasts were well cemented with clayey mudstone.

Simplified Stratigraphic Column



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Simplified Stratigraphic Column

FIGURE 3.2

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The displacement of the coal seams between holes RGDDH008 and RGDDH009 which are 100 m apart is approximately 20 m. The orientation of the fault is unknown. More detailed drilling would be required to determine the extent and nature of this fault and other structures within the resource area.

3.3 Exploration Activities

Historic Exploration Programmes

An initial exploration programme of 74 cored and open rotary holes was drilled in 1981 by Victor Petroleum Pty Ltd within EL31/80. In situ Measured and Indicated resources were estimated based on 18 of these initial holes.

In 1984, a joint venture between Costain Australia Limited (50%), Victor Petroleum and Resources Limited (40%) and Northwest Bay Company Pty Ltd (10%), conducted another exploration programme consisting of 41 drill holes in EL31/80. The programme consisted of 25 open holes, 11 partly and fully cored HQ diamond holes and three 200 millimetre (mm) cored seam intersections. The aim of this programme was to further delineate the geological structure and coal seam stratigraphy.

Resource Generation Exploration Programme 2010

Resgen concluded that two major issues needed to be addressed to determine the coal resources and potential open cut reserves in the Woodbury area. Firstly, a quantification of the variations in the geological factors related to sedimentology and structure which affect the determination of volumes (i.e., seam continuity and thickness). Secondly, the variations in the coal quality characteristics, as they affect the prediction of washing yield and product characteristics, needed to be defined.

The major deficiency that Resgen found in the Woodbury data was the uncertainty in the sedimentary and structural geological features. While there are approximately 115 historical exploration holes drilled in the Woodbury area, many of which are irregularly spaced across the deposit; very few of these holes have a complete data set. The lack of a complete data set makes determining seam correlation, coal quality and resource estimates for the deposit difficult to ascertain.

The lack of good quality data is the principal reason that Resgen designed a new drilling program. The program consisted of two north-south lines bisecting the deposit to obtain a better understanding of the stratigraphy and structure of the coal bearing sequence.

A total of 25 drill holes were drilled by Resgen comprising 15 cored holes and 9 open holes between June and September 2010, as shown in Table 3.1, Woodbury 2010 Drill Hole Data. All drill holes were geophyscially logged, accurately surveyed by a registered surveyor; and rehabilitated to the standards set out in the Mineral Resources Tasmania, Mineral Exploration Code of Practice.

The holes were spaced along two parallel lines. Line 1 consisted of 12 drill holes spaced approximately 100 m apart, drilled in a cored/open hole sequence, see Figure 3.3 Woodbury Drill Hole Locations. Line 1 was chosen to also further delineate the subcrop limit approaching the overlying dolerite. The coal bearing sequence in the area dipped towards the overlying dolerite to the south. Due to the gradual rise in elevation along Line 1, drilling was restricted to intersecting the two uppermost coal seams in the sequence in any one drill hole.

Line 2 consisted of 13 drill holes spaced approximately 100 – 200 m apart, drilled alternately as either cored or open holes at the discretion of Resgen.

Peter Binney Surveys from Granton Tasmania was contracted to survey all hole locations and elevations. Survey data for all 25 holes was available at the time of reporting and was used to model the drill hole locations in the geology and quality models.

Groundsearch Australia was contracted to geophysically log the holes. All holes were geophysically logged to the bottom of the hole. The suite of geophysical tools used at Woodbury included:

- Long-spaced density
- Short-spaced density
- Natural gamma
- Resistivity
- Caliper

Table 3.1
Woodbury 2010 Drill Hole Data

Site ID	Land Owner	Property Name	Drill Type	Drill Start Date	Drill End Date	Drill Hole ID	Surveyed GDA MGA 1994 Zone 55			TD	BOW (Field)	Standing Water Level	Geophys. Logged	Rehab.
							Easting	Northing	Collar					
X	Richard Headlam	Lowes Park	HQ	31/08/2010	2/09/2010	RG_DDH015	538566.93	5331913.22	210.84	72.00	n/a	7.00	✓	✓
W	Richard Headlam	Lowes Park	OH	30/08/2010	31/08/2010	RG_RDH009	538592.63	5331807.25	210.61	91.00	13.00	7.70	✓	✓
V	Richard Headlam	Lowes Park	HQ	25/08/2010	30/08/2010	RG_DDH014	538577.33	5331710.16	208.27	69.48	7.17	n/a	✓	✓
U	Richard Headlam	Lowes Park	HQ	23/08/2010	24/08/2010	RG_DDH013	538541.44	5331507.81	207.91	51.50	n/a	n/a	✓	✓
T	Richard Headlam	Lowes Park	HQ	17/08/2010	20/08/2010	RG_DDH012	538511.36	5331317.28	208.54	57.50	8.93	n/a	✓	✓
S	Richard Headlam	Lowes Park	OH	16/08/2010	17/08/2010	RG_RDH008	538478.84	5331120.16	209.36	91.00	7.00	5.40	✓	✓
R	Richard Headlam	Lowes Park	HQ	10/08/2010	16/08/2010	RG_DDH011	538446.92	5330930.94	209.54	69.50	7.60	n/a	✓	✓
Q	Richard Headlam	Lowes Park	OH	10/08/2010	10/08/2010	RG_RDH007	538413.61	5330729.70	210.07	103.00	7.00	4.00	✓	✓
P	Richard Headlam	Lowes Park	HQ	5/08/2010	9/08/2010	RG_DDH010	538396.95	5330631.46	210.27	60.50	6.92	n/a	✓	✓
O	Richard Headlam	Lowes Park	OH	4/08/2010	4/08/2010	RG_RDH006	538381.41	5330533.35	210.76	67.00	7.00	2.90	✓	✓
N	Richard Headlam	Lowes Park	HQ	2/08/2010	3/08/2010	RG_DDH009	538364.25	5330435.73	211.09	57.50	9.77	n/a	✓	✓
M	Richard Headlam	Lowes Park	HQ	28/07/2010	29/07/2010	RG_DDH008	538349.09	5330335.91	211.77	75.50	6.77	6.00	✓	✓
L	Richard Headlam	Lowes Park	HQ	27/07/2010	28/07/2010	RG_DDH007	538331.27	5330237.54	212.54	75.28	6.45	n/a	✓	✓
B	Phillip Lester	The Braes	HQ	21/07/2010	23/07/2010	RG_DDH006	539898.46	5328799.01	258.64	72.60	13.28	n/a	✓	✓
C	Phillip Lester	The Braes	OH	20/07/2010	20/07/2010	RG_RDH005	539897.00	5328897.87	254.88	61.00	9.00	6.50	✓	✓
Dx	Phillip Lester	The Braes	HQ	16/07/2010	19/07/2010	RG_DDH005A	539898.42	5328995.47	251.95	51.60	n/a	n/a	✓	✓
D	Phillip Lester	The Braes	HQ	14/07/2010	16/07/2010	RG_DDH005	539898.57	5328999.17	251.82	42.20	15.80	4.50	✓	✓
E	Phillip Lester	The Braes	OH	13/07/2010	15/07/2010	RG_RDH004	539898.66	5329103.55	248.81	79.00	14.00	12.50	✓	✓
F	Phillip Lester	The Braes	HQ	9/07/2010	13/07/2010	RG_DDH004	539900.06	5329199.30	246.35	66.55	8.18	11.75	✓	✓
G	Phillip Lester	The Braes	OH	8/07/2010	8/07/2010	RG_RDH003	539897.62	5329298.94	242.08	73.00	8.50	8.00	✓	✓
H	Phillip Lester	The Braes	HQ	6/07/2010	7/07/2010	RG_DDH003	539917.00	5329406.36	231.24	51.28	4.84	4.50	✓	✓
I	Phillip Lester	The Braes	OH	5/07/2010	6/07/2010	RG_RDH002	539901.20	5329499.60	229.75	49.00	2.50	5.50	✓	✓
J	Phillip Lester	The Braes	HQ	30/06/2010	5/07/2010	RG_DDH002	539900.05	5329599.87	230.12	81.28	3.03	10.20	✓	✓
K	Tom Burbury	Glen Morey	OH	29/06/2010	29/06/2010	RG_RDH001	539896.90	5329700.62	227.14	100.00	14.00	5.50	✓	✓
Kx	Tom Burbury	Glen Morey	HQ	22/06/2010	28/06/2010	RG_DDH001	539899.51	5329801.88	221.55	81.60	6.76	2.80	✓	✓

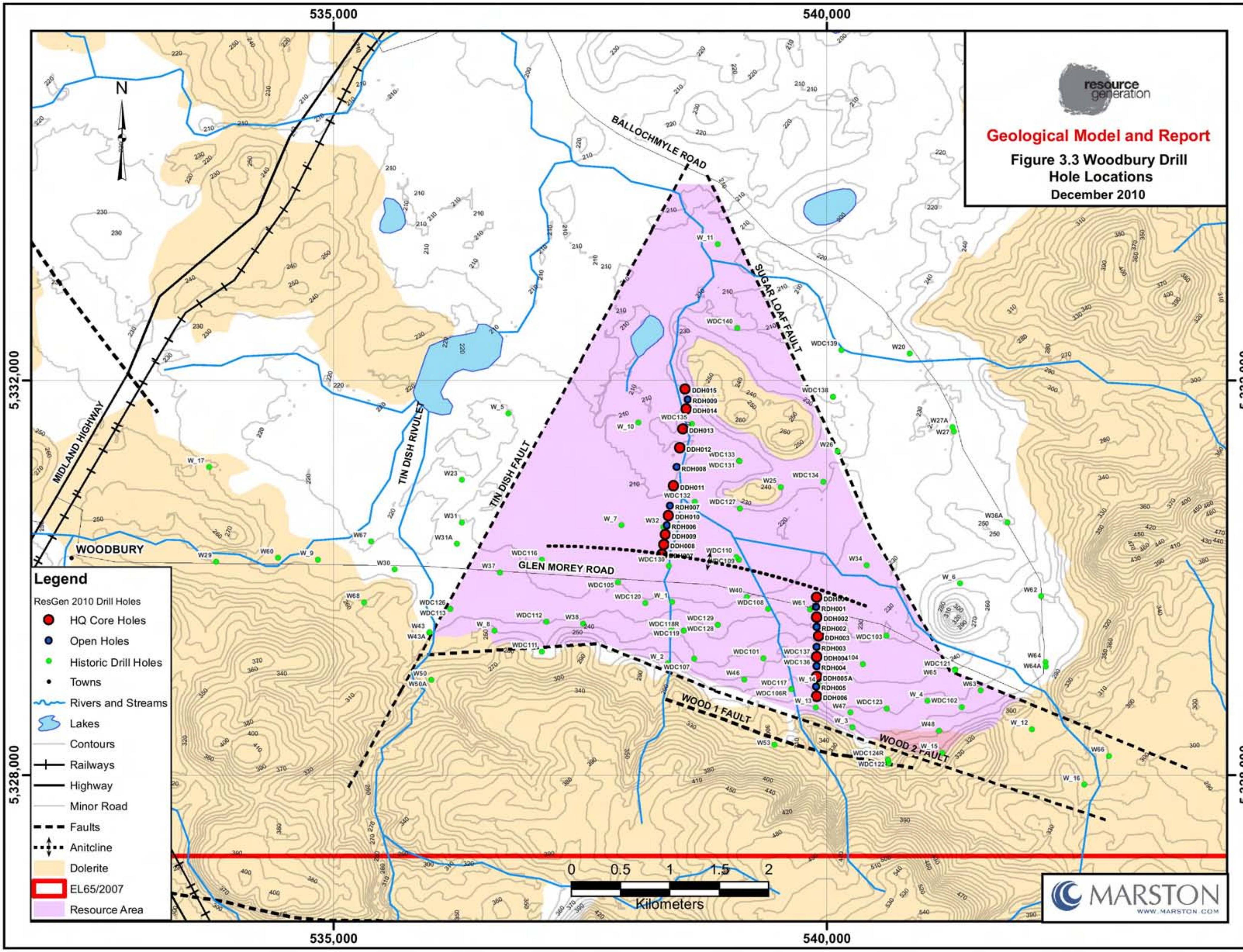

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Figure 3.3 Woodbury Drill Hole Locations
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Legend
ResGen 2010 Drill Holes
HQ Core Holes
Open Holes
Historic Drill Holes
Towns
Rivers and Streams
Lakes
Contours
Railways
Highway
Minor Road
Faults
Anitcline
Dolerite
EL65/2007
Resource Area
0 0.5 1 1.5 2
Kilometers
535,000
540,000
5,332,000
5,328,000
N
WOODBURY
MIDLAND HIGHWAY
TIN DISH RIVULET
TIN DISH FAULT
BALLOCHMYLE ROAD
SUGAR LOAF FAULT
GLEN MOREY ROAD
WOOD 1 FAULT
WOOD 2 FAULT

Drilling Techniques

KMR Drilling used a truck mounted Hydrapower Explorer 500, Truck Man 26-280 6X4 (WV1049) drill rig. The rig was used to drill all rotary and diamond HQ holes for the project.

HQ core drilling initially involved drilling a rotary hole through any unconsolidated and weathered material using a 6.75-inch blade bit, creating an outside hole diameter of 171 mm. PVC surface set casing (150 mm) was then inserted into the hole to a depth of between 1 m and 9 m, depending on the ground conditions encountered. The hole was then drilled further using a 5.5-inch blade bit, creating an outside hole diameter of 140 mm, deepening the hole depth further by between 1 – 3 m. HWT steel casing was then inserted into the hole from the surface down to the base of the open hole.

The hole was core drilled using a diamond impregnated bit which produced an outside diameter hole width of 96.10mm. An HQ bit, attached to the base of the bottom hole assembly produced 63.5 mm core. A triple-tube inner tube system was used to obtain optimum core recovery, using a 3 m barrel. Coring commenced from approximately 5 m depth on average. After each individual core run was completed, the core barrel was retrieved, and the core was measured for recovery, described and photographed. On completion of the hole, which was cored 4 – 10 m below the last coal seam, the rods and HWT steel casing were pulled, leaving just the 150 mm PVC surface set casing in the ground. Where the hole was deemed to have a potential risk for caving in, the entire hole was cased with 75 mm PVC which has an internal diameter of 70 mm.

The rotary hole drilling programme was conducted using 6.75 mm blade or tricone drill bits which formed an outside hole diameter of 171 mm. The bits were used to open the top of the hole to a depth of approximately 1 – 3 m, and PVC casing was set in the hole; the casing depth varied according to the competency of the strata encountered. Once the casing was set, the hole was drilled to total depth using a 5-inch downhole percussion hammer bit with the aid of an Atlas Copco XRVS 476 truck mounted compressor. The holes were terminated approximately 6 m below the base of the lowest coal seam.

3.4 Geological Model

Model Summary

Marston constructed a geological model for the deposit which was used to evaluate the structure, coal quality and to estimate coal tonnage. The model was constructed using Mincom Stratmodel® software, version 4.119. Lithology data and drill hole coordinates were provided by Resgen. Additional data was obtained from historical reports available from the Mineral Resources Tasmania. There was very limited coal quality data available in the historical reports. Marston visited the offices of Mining & Exploration Geological Modelling Services (MEGMS) and was able to obtain additional data and verify many of the input files and correlations used by MEGMS in their initial geological model and data review. The majority of the historical data did not contain geophysical data (or were of poor quality) and/or coal quality. Some historic holes were also missing other data such as lithological, English and field logs. In addition to the historical data, the 16 cored holes and 9 open holes drilled by ResGen in 2010 were used in the database. Coal sampling was conducted on 15 of the cored holes to correlated depths picked from geophysical logs. The nine open holes had geophysical logs which were used to determine seam correlation and thickness.

The resource area was delineated by MEGMS in the initial geological model based on the three major fault structures surrounding the deposit. Marston has used this same resource area in this model to estimate coal tonnage.

Topography

Topographic data was provided to Marston in the form of a DXF data file from ResGen. The modeled topographic grid was created with 5 m grid cell spacing. The data was provided in the GDA 1994 MGA Zone 55 coordinate system.

A comparison of collar elevations with the topographic surface identified 17 holes where the difference in elevation was greater than 5 m. All holes were draped to topography. The topography of the area is shown in Figure 3.3.

Structure and Coal Quality Database

Marston constructed a structural model on a seam-by-seam basis as historical, lithological, quality and geophysical data was not sufficiently detailed to create a ply-by-ply model.

Marston adopted the historical seam correlations and seam picks that were originally chosen by MEGMS as the basis for the structural model. After an initial review of the MEGMS model some minor re-correlations were made based on the 2010 Resgen drilling results. The base of weathering was determined by using field logs based on field geologist's interpretations. Rod Davis of Resgen selected the seam names for the 25 holes drilled in 2010. Marston later correlated these picks and also chose to reassign some seam names based on the new modeling data generated.

There are 100 historical drill holes drilled within EL 65/2007 and Marston excluded 26 of these for reasons discussed further below. Marston was able to verify the lithology records for 72 of these historical holes. Data from 25 recent Resgen drill holes was also available at the time of modeling. One of these drill holes, RGDDH005 was not used in the model, due to drilling difficulties. A total of 96 drill holes were used in the Marston structural model. All drill hole data is shown in Table 3.2, Woodbury Drill Hole Database.

Geophysical logs were available for the all 25 Resgen holes and 33 of the historic holes. Marston corrected the seam depths to the geophysical log depths for all Resgen drill holes. Coal seam thicknesses from historic drill holes were all determined by Resgen and MEGMS during initial correlation and modeling in 2008.

Three dummy drill holes were used in the model along the southern boundary of the resource area to control seam structure. This gave the model better extrapolation in areas where there was insufficient drill hole coverage.

Masks were created in the structural model to delimit all dolerite that was within the resource area. The masks prevented the model form estimating coal tonnage beneath these rock types as data was not available to verify the continuation of the seams under these units.

Table 3.2
Woodbury Drill Hole Database (Page 1 of 3)

DHID	Coordinates		Collar	Total Depth	BOW	Geophysics	Model	Prox. Analysis (adb)
	Easting	Northing						
W_1	538,432.14	5,329,752.52	226.2	126.0	-	✓	-	-
W_2	538,392.14	5,329,132.51	254.6	96.0	-	✓	✓	-
W_3	540,262.17	5,328,482.51	269.0	128.0	-	✓	-	-
W_4	541,022.19	5,328,752.51	254.9	80.0	-	✓	✓	-
W_5	536,772.15	5,331,662.53	219.0	46.0	-	-	✓	-
W_6	541,352.20	5,329,942.52	256.0	154.0	-	-	✓	-
W_7	537,922.14	5,330,532.51	207.0	110.0	-	✓	✓	-
W_8	536,632.14	5,329,462.50	245.0	40.0	-	✓	✓	-
W_9	534,842.14	5,330,182.50	230.0	106.0	-	✓	✓	-
W_10	538,092.15	5,331,572.55	209.0	94.0	-	✓	✓	-
W_11	538,898.16	5,333,382.58	240.0	96.0	-	-	✓	-
W_12	542,082.31	5,328,462.53	266.0	26.0	-	-	✓	-
W_13	539,892.16	5,328,682.51	264.8	88.0	-	✓	✓	-
W_14	539,932.16	5,328,902.52	252.8	52.0	-	✓	-	-
W_15	541,172.19	5,328,222.51	282.8	137.0	-	✓	✓	-
W_16	542,612.22	5,327,902.52	292.0	53.0	-	-	✓	-
W_17	533,737.15	5,331,122.51	240.0	40.0	-	-	✓	-
W20	540,842.20	5,332,272.54	225.3	35.1	-	✓	✓	-
W23	536,302.14	5,330,992.52	224.9	100.0	-	✓	✓	-
W25	539,537.16	5,330,917.54	222.5	83.8	✓	✓	✓	✓
W26	540,112.18	5,331,282.54	218.0	81.4	-	-	-	-
W27	541,292.20	5,331,482.53	228.7	35.8	✓	-	✓	-
W27A	541,277.20	5,331,527.53	228.7	80.0	-	✓	-	-
W29	533,807.14	5,330,162.50	229.6	34.0	✓	-	✓	-
W30	535,622.14	5,330,082.50	223.2	50.5	-	✓	✓	✓
W31	536,302.14	5,330,557.51	222.0	116.0	-	✓	-	-
W31A	536,252.14	5,330,342.51	224.1	54.3	✓	✓	✓	✓
W32	538,347.15	5,330,512.53	211.1	88.5	✓	-	✓	✓
W34	540,407.18	5,330,127.53	225.0	66.1	✓	✓	✓	-
W36A	541,832.21	5,330,562.53	238.6	82.5	-	✓	✓	✓
W37	536,687.14	5,330,052.51	220.0	86.3	✓	-	✓	✓
W38	537,532.14	5,329,532.51	235.2	102.4	✓	-	✓	✓
W39	538,427.14	5,329,472.52	238.5	103.3	-	-	✓	✓
W40	539,192.15	5,329,802.53	222.2	99.2	✓	✓	✓	✓
W41	540,192.17	5,329,597.52	228.6	76.5	✓	✓	✓	✓
W43	535,972.13	5,329,442.49	229.2	76.0	-	✓	-	-
W43A	535,977.13	5,329,447.49	232.2	70.0	✓	-	✓	✓
W46	539,162.15	5,328,967.52	250.2	99.9	-	-	✓	✓
W47	540,242.17	5,328,632.51	253.8	95.3	-	-	-	✓
W48	541,142.19	5,328,447.51	270.8	90.0	✓	✓	✓	✓
W49	541,302.20	5,329,067.52	242.5	48.1	✓	-	✓	✓
W50	535,992.13	5,328,962.48	273.2	64.0	-	-	✓	-

Table 3.2
Woodbury Drill Hole Database (Page 2 of 3)

DHID	Coordinates		Collar	Total Depth	BOW	Geophysics	Model	Prox. Analysis (adb)
	Easting	Northing						
W50A	535,992.13	5,328,962.48	273.2	106.0	-	-	-	-
W53	539,472.15	5,328,307.51	294.3	66.0	-	-	-	-
W60	534,437.14	5,330,202.50	224.0	61.0	✓	-	✓	-
W61	539,832.16	5,329,677.52	229.3	88.7	✓	✓	✓	✓
W62	542,177.21	5,329,812.53	270.0	72.0	-	✓	✓	-
W63	541,562.20	5,328,857.52	250.8	44.6	✓	✓	✓	✓
W64	542,217.21	5,329,142.53	261.1	92.0	-	✓	-	-
W64A	542,222.21	5,329,102.53	261.1	52.5	✓	-	✓	✓
W65	541,162.19	5,329,137.52	240.0	86.0	-	✓	✓	-
W66	542,862.22	5,328,192.52	299.5	113.0	-	✓	✓	-
W67	535,382.14	5,330,367.51	218.0	88.5	✓	✓	✓	✓
W68	535,312.14	5,329,747.50	249.4	33.5	-	-	✓	-
W69	544,112.24	5,327,882.53	293.4	115.0	-	✓	✓	-
W70	545,112.26	5,327,682.53	289.6	242.0	-	-	✓	-
W71	531,612.15	5,330,632.50	260.0	91.0	-	✓	✓	-
W73	528,712.17	5,331,782.50	280.0	71.0	-	-	✓	-
W74	527,912.17	5,332,182.50	300.0	35.0	-	-	✓	-
WDC101	539,362.15	5,329,182.52	247.5	53.8	-	-	✓	-
WDC102	541,370.20	5,328,689.51	257.9	57.0	-	-	✓	-
WDC103	540,608.18	5,329,412.52	236.1	52.0	-	-	-	-
WDC104	540,367.18	5,329,122.52	234.3	55.0	-	-	✓	-
WDC105	537,887.14	5,329,952.52	219.1	50.0	-	-	✓	-
WDC106R	539,642.16	5,328,869.51	264.2	70.0	-	-	✓	-
WDC107	538,657.14	5,329,177.52	238.6	20.7	-	-	✓	-
WDC108	539,407.15	5,329,682.52	226.2	48.0	-	-	✓	-
WDC109	539,112.15	5,330,182.53	215.1	51.0	-	-	✓	-
WDC110	539,087.15	5,330,207.53	214.7	30.4	-	-	-	-
WDC111	537,112.14	5,329,250.50	244.7	30.0	-	-	-	-
WDC112	537,157.14	5,329,552.50	230.4	40.0	-	-	✓	-
WDC113	536,182.14	5,329,682.50	226.4	54.0	-	-	✓	-
WDC114	-	-	-	-	-	-	-	-
WDC115	-	-	-	-	-	-	-	-
WDC116	537,112.14	5,330,182.51	215.1	51.0	-	-	-	-
WDC117	539,642.16	5,328,869.51	264.3	24.7	-	-	-	-
WDC118R	538,550.14	5,329,462.52	237.8	27.0	-	-	-	-
WDC119	538,550.14	5,329,462.52	237.9	21.3	-	-	✓	-
WDC120	538,162.14	5,329,742.52	223.7	34.9	-	-	-	-
WDC121	541,302.20	5,329,062.52	242.5	35.4	-	-	-	-
WDC122	540,632.18	5,328,117.51	288.6	45.0	-	-	-	-
WDC123	540,612.18	5,328,672.51	248.1	50.0	-	-	✓	-
WDC124R	540,624.18	5,328,152.51	283.2	24.0	-	-	-	-
WDC125	540,624.18	5,328,152.51	283.2	20.9	-	-	✓	-

Table 3.2
Woodbury Drill Hole Database (Page 3 of 3)

DHID	Coordinates		Collar	Total Depth	BOW	Geophysics	Model	Prox. Analysis (adb)
	Easting	Northing						
WDC126	536,182.14	5,329,682.50	226.4	24.1	-	-	-	-
WDC127	539,121.15	5,330,702.54	215.3	51.0	-	-	✓	-
WDC128	538,897.14	5,329,522.52	226.7	36.0	-	-	✓	-
WDC129	538,897.14	5,329,522.52	226.8	26.0	-	-	-	-
WDC130	538,402.15	5,330,117.53	216.0	13.0	-	-	✓	-
WDC131	539,114.16	5,331,183.55	211.7	39.0	-	-	-	-
WDC132	538,664.15	5,330,767.54	211.2	36.0	-	-	-	-
WDC133	539,115.16	5,331,179.55	211.7	19.0	-	-	✓	-
WDC134	539,964.17	5,330,972.54	217.8	39.0	-	-	✓	-
WDC135	538,632.15	5,331,557.55	208.8	51.0	-	-	✓	-
WDC136	539,879.16	5,329,184.52	247.6	45.0	-	-	-	-
WDC137	539,879.16	5,329,184.52	247.6	36.2	-	-	✓	-
WDC138	540,064.18	5,331,832.55	215.2	69.0	-	-	✓	-
WDC139	540,152.18	5,332,310.55	213.6	30.0	-	-	✓	-
WDC140	539,094.16	5,332,534.56	209.5	58.0	-	-	✓	-
WDC141	540,064.18	5,331,832.55	215.2	7.2	-	-	✓	-
RG_DDH001	539,899.51	5,329,801.88	221.6	81.6	✓	✓	✓	-
RG_DDH002	539,900.05	5,329,599.87	230.1	81.3	✓	✓	✓	-
RG_DDH003	539,917.00	5,329,406.36	231.2	51.3	✓	✓	✓	-
RG_DDH004	539,900.06	5,329,199.30	246.4	66.6	✓	✓	✓	-
RG_DDH005	539,898.57	5,328,999.17	251.8	42.2	-	✓	-	-
RG_DDH005A	539,898.42	5,328,995.47	252.0	51.6	-	✓	✓	-
RG_DDH006	539,898.46	5,328,799.01	258.6	72.6	✓	✓	✓	-
RG_DDH007	538,331.27	5,330,237.54	212.5	75.3	✓	✓	✓	-
RG_DDH008	538,349.09	5,330,335.91	211.8	75.5	✓	✓	✓	-
RG_DDH009	538,364.25	5,330,435.73	211.1	57.5	✓	✓	✓	-
RG_DDH010	538,396.95	5,330,631.46	210.3	60.5	✓	✓	✓	-
RG_DDH011	538,446.92	5,330,930.94	209.5	69.5	✓	✓	✓	-
RG_DDH012	538,511.36	5,331,317.28	208.5	57.5	✓	✓	✓	-
RG_DDH013	538,541.44	5,331,507.81	207.9	51.5	-	✓	✓	-
RG_DDH014	538,577.33	5,331,710.16	208.3	69.5	✓	✓	✓	-
RG_DDH015	538,566.93	5,331,913.22	210.8	72.0	-	✓	✓	-
RG_RDH001	539,896.90	5,329,700.62	227.1	100.0	✓	✓	✓	-
RG_RDH002	539,901.20	5,329,499.60	229.8	49.0	✓	✓	✓	-
RG_RDH003	539,897.62	5,329,298.94	242.1	73.0	✓	✓	✓	-
RG_RDH004	539,898.66	5,329,103.55	248.8	79.0	✓	✓	✓	-
RG_RDH005	539,897.00	5,328,897.87	254.9	61.0	✓	✓	✓	-
RG_RDH006	538,381.41	5,330,533.35	210.8	67.0	✓	✓	✓	-
RG_RDH007	538,413.61	5,330,729.70	210.1	103.0	✓	✓	✓	-
RG_RDH008	538,478.84	5,331,120.16	209.4	91.0	✓	✓	✓	-
RG_RDH009	538,592.63	5,331,807.25	210.6	91.0	✓	✓	✓	-

Marston developed a new schema for the Woodbury deposit. All four seams and their splits were correlated and named as AU, AM, AL, A, BU, BM, BL, BML, CU, CM, CL, CML, C, DT, DU, DL, D. All seams and splits were correlated to confirm continuity and thickness across the deposit. The seam parent-daughter relationships are shown in Figure 3.4, Woodbury Model Schema 2010.

Survey data for 2010 drill holes was supplied in the GDA 1994 MGA Zone 55 coordinate system. Historical drill holes used in the model where converted to the same coordinate system used by MEGMS.

All lithology and survey data was loaded into an Access data base for checking. This revealed a number of errors that required resolution.

- Holes duplicated by subsequent drilling (+/- 20 m) were excluded from the model
- Discrepancies between lithology and total depth were resolved
- Holes with no collar data were excluded from the model
- Holes with miscorrelations were corrected

The revised data base was used to create the Mincom model. The drill hole intercepts and thickness data for each seam are shown in Table 3.3, Geological Model Drill Hole Statistics. The data shows that the most frequently intercepted unit was Seam BM. Table 3.3 further shows that Seam D has the greatest average and maximum thicknesses.

Coal Quality

There was limited coal quality data available for most of the historical drill holes, and no quality data was available for the Resgen holes at the time of reporting. Most seams had only two or three complete analyses. Marston used coal quality data from 18 holes within the quality model. The limited data was modeled to obtain a preliminary indication of quality within the resource area. Not all sample plies had proximate analysis, total sulphur content, calorific value and CSN values. However, individual plies were composited and proximate analysis was available for most seams that were sampled. In other instances, Marston used the composite analysis for the complete interval.

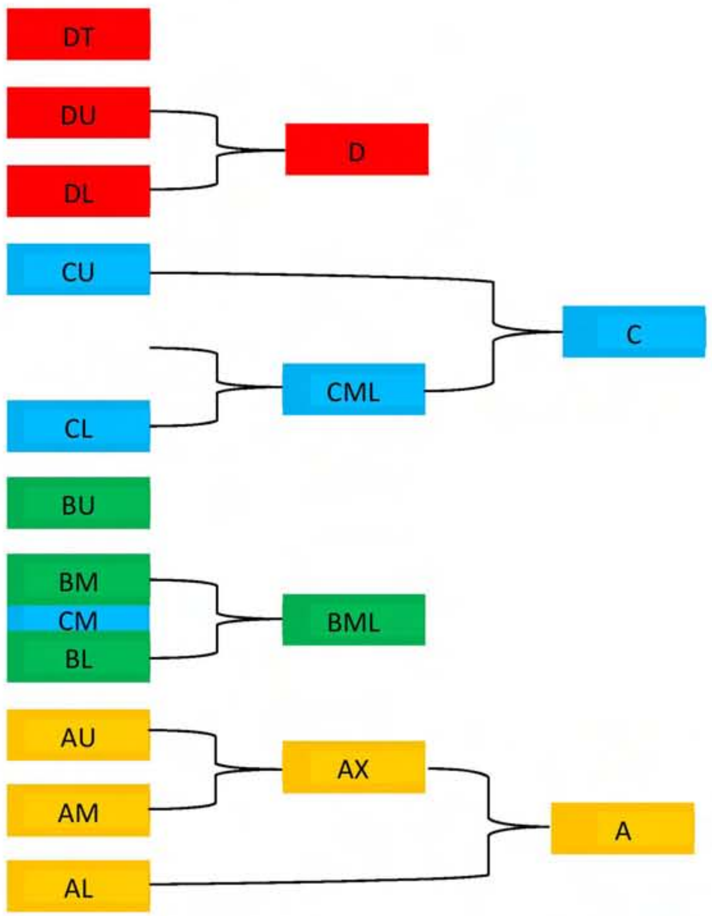

Figure 3.4 Woodbury Model Schema 2010

***Note: AX was a dummy seam used to force the A seam to split into three plys in Mincom*

Table 3.3
Geological Model Drill Hole Statistics

Seam Name	Number of Intercepts	Average Thickness (m)	Minimum Thickness (m)	Maximum Thickness (m)
A	18	0.92	0.19	1.98
AU	3	0.39	0.26	0.45
AM	3	0.38	0.32	0.41
AL	3	0.09	0.07	0.11
BU	23	0.58	0.10	1.06
BM	42	0.83	0.13	2.77
BL	27	0.63	0.10	1.88
BML	3	0.78	0.67	0.85
C	11	1.21	0.60	2.66
CU	13	0.71	0.11	2.50
CM	14	0.78	0.23	1.38
CL	21	0.85	0.30	1.92
CML	2	1.93	1.58	2.28
D	12	2.20	0.80	3.90
DT	4	0.38	0.16	0.64
DU	4	0.54	0.37	0.69
DL	5	0.98	0.47	1.42

The Relative Density (RD) reported in the analysis was an apparent relative density. Marston determined that as there was only a small sample group and additional values would be available from the current testing programme, the Preston Sanders correction would not be applied to the RD until all results were available. Marston used a default RD value of 1.4 t/m^3 and applied this to the modeled seam intervals.

Raw coal and estimated quality data was loaded into the model from the Access database following revisions and other data manipulations described above. The quality data for each seam intercept was then composited and gridded and plots of contoured quality parameters created. The quality data was modeled using a height interpolator.

The historical quality data used in the modeling calculations included the number of drill hole intercepts and the minimum, maximum and average composite values. These statistics are shown in Table 3.4, Seam Coal Quality Composite Statistics. All drill holes are within the WRA.

Table 3.4
Seam Coal Quality Composite Statistics

Description	A	AU	AM	AL	BU	BM	BL	C	CU	CM	CL	DT	DU	DL
Inherent Moisture (% adb)														
Intercepts	1	3	3	2	3	13	5	4	2	3	3	2	2	2
Average	3.80	5.30	4.52	3.60	3.94	3.63	4.46	5.28	4.74	5.84	4.78	5.05	5.22	5.43
Minimum	3.80	4.10	3.52	3.60	2.70	1.80	2.20	2.56	4.20	4.57	4.30	4.40	4.40	4.40
Maximum	3.80	6.20	6.20	3.60	5.40	6.50	6.40	6.60	5.55	6.80	5.60	6.40	6.40	6.40
Ash (% adb)														
Intercepts	1	3	3	2	3	13	5	4	2	3	3	2	2	2
Average	33.70	51.51	53.53	58.46	43.98	50.79	51.48	39.09	56.58	46.92	37.52	44.81	45.51	46.38
Minimum	33.70	32.70	44.58	57.60	28.00	31.10	34.50	26.00	55.60	39.20	28.27	42.10	42.10	42.10
Maximum	33.70	61.40	61.40	59.40	64.90	91.10	61.00	47.00	58.02	54.50	54.50	50.40	50.40	50.40
Fixed Carbon (% adb)														
Intercepts	1	1	1		3	8	3	2	1	2	2	2	2	2
Average	49.40	27.50	27.50		41.50	33.85	32.78	41.28	29.90	35.51	40.65	32.94	32.46	31.86
Minimum	49.40	27.50	27.50		21.30	22.80	22.10	34.40	29.90	28.80	28.80	34.80	29.10	29.10
Maximum	49.40	27.50	27.50		57.20	48.60	55.00	48.30	29.90	40.30	51.80	29.10	34.80	34.80
Volatile Matter (% adb)														
Intercepts	1	1	1		3	8	3	2	1	2	2	2	2	2
Average	49.40	4.90	4.90		10.58	9.33	9.37	15.96	10.30	12.62	13.26	17.20	16.81	16.33
Minimum	49.40	4.90	4.90		8.00	4.80	8.30	12.00	10.30	11.10	11.10	14.10	14.10	14.10
Maximum	49.40	4.90	4.90		15.70	15.40	10.50	20.00	10.30	13.70	15.30	18.70	18.70	18.70
Total Sulphur (% adb)														
Intercepts	1	1	1		2	8	3	2	1	2	2	2	2	2
Average	0.36	0.43	0.43		0.44	0.24	0.32	0.36	0.24	0.33	0.37	0.41	0.42	0.43
Minimum	0.36	0.43	0.43		0.36	0.14	0.20	0.27	0.24	0.27	0.27	0.37	0.37	0.37
Maximum	0.36	0.43	0.43		0.51	0.41	0.66	0.45	0.24	0.37	0.47	0.48	0.48	0.48
Calorifc Value (Mj/kg adb)														
Intercepts	1	1	1		3	8	3	2	1	2	2	2	2	2
Average	21.06	8.04	8.04		16.57	13.36	12.51	18.45	9.58	15.31	17.36	14.94	14.58	14.14
Minimum	21.06	8.04	8.04		7.78	7.24	9.00	14.20	9.58	11.68	11.68	12.12	12.12	12.12
Maximum	21.06	8.04	8.04		23.24	21.50	19.92	22.78	9.58	17.90	22.70	16.30	16.30	16.30
Relative Density (t/m^3)														
Intercepts	1	3	3	2	3	13	5	4	2	3	3	2	2	2
Average	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Minimum	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Maximum	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Relative Density (adb)														
Intercepts	1	3	3	2	3	13	5	4	2	3	3	2	2	2
Average	1.63	1.86	1.97	2.01	1.72	1.79	1.78	1.68	1.90	1.83	1.73	1.68	1.69	1.70
Minimum	1.63	1.53	1.78	1.97	1.54	1.49	1.49	1.50	1.85	1.64	1.48	1.65	1.65	1.65
Maximum	1.63	1.99	2.15	2.05	1.98	2.53	1.92	1.89	1.94	2.18	2.18	1.76	1.76	1.76

Model Results

The geological model was used to generate cross sections, thickness and coal quality isopleths. Cross sections for the WRA are shown in Appendix A, Woodbury Cross Section. The sections show a relatively consistent seam dip toward the south and flatter lying structure towards the north. Seams A and B are present consistently across the deposit. Seams C and D appear to subcrop towards the hinge of the anticline in the south. In the north, Seams C and D are occasionally present due to erosion over the flat lying part of the area. Seams C and D are present where they have been preserved under areas of higher topography.

Structure contours of the floor of the AU, AM, AL, A, BU, BM, BL, BML, CU, CM, CL, CML, C, DT, DU, DL, D seams are shown in Appendix B, Seam Floor Maps. The structure contours show a relatively consistent east-west trending anticline feature towards the south of the deposit. The structure contours illustrate that Seams D and C are sub-cropping towards the hinge in the anticline while Seams B and A continue with relative continuity across the deposit with some sub-crop near the anticline hinge. This structure has resulted in all seams dipping approximately 8^0 to the south towards the Wood 2 fault and the Jurassic Dolerite, while all seams dip gently to the north by approximately 4^0.

The thickness of the AU, AM, AL, A, BU, BM, BL, BML, CU, CM, CL, CML, C, DT, DU, DL, D seams are shown in Appendix C, Thickness Isopach Maps. The thickness isopachs illustrate that Seams D and C are thickest towards the south of the deposit near the dolerite intrusion. Seams B and A are relatively consistent in thickness across the resource area.

Currently, the coal quality data is insufficient to properly characterise the Woodbury deposit. Marston is waiting on the laboratory test results from the recent drilling program. Once this data is available it will be imported into the quality model and quality isopleths will be generated along with an updated report and resource estimate.

3.5 Tonnage Estimate

Using the geologic model Marston developed in situ tonnage and quality estimates for the Woodbury resource area; the triangular area bound within the Sugarloaf Fault, Tin Dish Fault and the Wood 2 Fault. A summary of Marston's in situ tonnage estimates are presented in Table 3.5, Summary of In Situ Tonnage Estimates. Reported in situ tonnage and quality estimates are on an air dried basis (adb) and include Seams A, AU, AM, AL, BU, BM, BL, BML, C, CU, CM, CML, D, DT, DU and DL. The table indicates that there is approximately 64 Mt in situ coal tonnage located within the defined resource area. This estimate is not based on JORC compliant standards, and represents calculations from the Mincom model based on the data available at the time.

Marston will estimate coal quality for the area when test results from current samples are received from SGS laboratory in Newcastle.

The estimates represent in situ tonnes and no minimum seam thickness, mining roof and floor loss or dilution parameters have been applied.

Table 3.5
Summary of In Situ Tonnage Estimates

Seam	Coal Tonnage (Mt)	Average Thickness (m)	Ash (% adb)	Fixed Carbon (% adb)	Volatile Matter (% adb)	Total Sulphur (% adb)	Inherent Moisture (% adb)	Total Moisture (arb)	Relative Density Default	Calorifc Value (Mj/kg adb)
A	8.34	0.95	33.72	49.43	13.11	0.36	3.80	-	1.40	21.07
AU	2.93	0.45	46.12	27.52	4.90	0.43	4.92	-	1.40	8.05
AM	1.63	0.27	52.57	27.52	4.90	0.43	4.37	-	1.40	8.05
AL	0.55	0.11	-	-	-	-	-	-	1.40	-
BU	2.19	0.31	43.90	42.08	10.16	0.43	3.89	-	1.40	16.61
BM	14.08	0.78	50.60	36.97	10.94	0.28	3.66	-	1.40	15.26
BL	3.88	0.27	48.69	34.48	9.43	0.38	4.20	-	1.40	13.09
BML	0.02	0.84	-	-	-	-	-	-	1.40	-
C	0.76	1.14	43.11	37.77	13.94	0.31	5.89	-	1.40	16.28
CU	10.96	1.13	-	-	-	-	-	-	1.40	-
CM	4.56	0.46	48.00	34.80	12.46	0.32	5.61	-	1.40	14.92
CL	4.38	0.43	36.78	40.57	13.25	0.37	4.75	-	1.40	17.32
CML	0.20	0.92	-	-	-	-	-	-	1.40	-
D	7.85	1.55	-	-	-	-	-	-	1.40	-
DT	1.06	1.00	-	-	-	-	-	-	1.40	-
DU	0.39	0.26	-	-	-	-	-	-	1.40	-
DL	0.99	0.45	-	-	-	-	-	-	1.40	-
Total	**64.75**	**0.67**	**44.73**	**38.58**	**11.00**	**0.34**	**4.22**	**-**	**1.40**	**15.69**

* Note - Quality results are based on a small number of historical drill hole records only.