Kangala Project Competent Person's Report

Report Prepared for:

Coal of Africa Limited & Peel Hunt LLP

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GEMECS

Table of Contents

List of Tables

List of Figures

EXECUTIVE SUMMARY

This report replaces any previous resource reports for the Kangala Project. Gemecs has been engaged by Coal of Africa Limited (the "Client") to update the Competent Person's Report for the Kangala coal resource project in accordance with the AIM rules and guidelines as set out by the AIM Note for Mining, Oil and Gas Companies. This report is addresses to the Client and its Nominated Adviser, Peel Hunt LLP. Gemecs understands that this report will be included as part of an AIM admission document to be published by the Client (the "Admission Document"). For the purposes of the AIM rules for Companies, Gemecs is responsible for this report as part of the Admission Document and declares that it has taken all reasonable care to ensure that the information contained in this report is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import. Gemecs consents to the inclusion of this report, and reference to any part of this report, in the Admission Document.

The Kangala project consist of 3 different coal project areas, all located in close proximity to each other near Delmas in the Mpumalanga Province, South Africa. These are the Kangala Mine (Wolvenfontein project), Middelbult project and Modderfontein project. Previously each project was covered in its own report, but due to the geological similarities and relative proximity of these projects, it was agreed to combine these projects into one report for the Kangala Project. The combined report is in line with the reporting standard used by Universal Coal for previous resource statements.

This report replaces all previous resource reports, and is up to date with mine and geological information as at end of November 2015. To the best of the knowledge of Gemecs, there have been no material changes since November 2015 being the date of the data and the date of this document.

The Kangala mine is covered by a mining right, and mine development commenced in May 2013, and first saleable coal was delivered in April 2014. Both the Middelbult and Modderfontein projects are only covered by prospecting rights at this point in time. This report will only report on the in situ coal resource tonnes. Reserve estimations at Kangala mine are being separately reported upon in the CPR from Mindset dated 29 January 2016.

All three areas are 70.5% owned by Universal Coal Development I (Pty) Ltd a subsidiary of Universal Coal.

Gross tonnes in situ for the Kangala mine is estimated at **54.4 million tonnes**. Mineable in situ coal resources for the Kangala mine is estimated and reported at **18.3 million tonnes**.

The gross in situ coal resources at Middelbult is estimated at **60.2 million tonnes** and the mineable coal resources is estimated to be **24.5 million tonnes** (potential opencast area after geological losses).

Gross in situ coal resources for Modderfontein is estimated at **19.1 million tonnes.**

The total for the three areas amounts to **133.8 million tonnes** gross in situ and **42.8 million tonnes** mineable in situ.

Net attributable tonnes based on the 70.5% interest held by Universal Coal Development I (Pty) Ltd is stated at **38.4 million tonnes** for Kangala Mine**, 42.4 million tonnes** for Middelbult and **13.5 million tonnes** for Modderfontein, totalling **94.3million tonnes** gross in situ.

A total summary table for the combined projects is presented below in Table 1, with a summary for each project by status with net attributable tonnes presented overleaf.

Table 1. Kangala Project – Summary of coal resources by status

Summary of resources by status					
Coal	**Gross in situ tonnes**		**Mineable in situ tonnes**		
Category	**Gross in situ tonnes**	**Net Attributable**	**Mineable in situ tonnes**	**Net Attributable**	**Operator**
	Tonnes (Mt)	**Tonnes (Mt)**	**Tonnes (Mt)**	**Tonnes (Mt)**	
Measured	77.22	54.44	42.16	29.72	
Indicated	22.9	16.1	0.6	0.4	
Inferred	33.7	23.8	0.0	0.0	
Total	**133.8**	**94.3**	**42.8**	**30.1**	**Universal Coal Development I (Pty) Ltd**

Table 2. Kangala Mine – Summary of coal resources by status

Summary of resources by status					
Coal	Gross in situ tonnes		Mineable in situ tonnes		
Category	Gross in situ tonnes	Net Attributable	Mineable in situ tonnes	Net Attributable	Operator
	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	
Measured	18.72	13.20	18.26	12.87	
Indicated	3.6	2.5	0.0	0.0	
Inferred	32.2	22.7	0.0	0.0	
Total	**54.5**	**38.4**	**18.3**	**12.9**	**Universal Coal Development I (Pty) Ltd**

Table 3. Middelbult Project – Summary of coal resources by status

Summary of resources by status					
Coal	Gross in situ tonnes		Mineable in situ tonnes		
Category	Gross in situ tonnes	Net Attributable	Mineable in situ tonnes	Net Attributable	Operator
	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	
Measured	45.00	31.73	23.9	16.85	
Indicated	15.0	10.6	0.6	0.4	
Inferred	0.2	0.1	0.0	0.0	
Total	**60.2**	**42.2**	**24.5**	**17.3**	**Universal Coal Development I (Pty) Ltd**

Table 4. Modderfontein Project – Summary of coal resources by status

Summary of resources by status					
Coal	Gross in situ tonnes		Mineable in situ tonnes		
Category	Gross in situ tonnes	Net Attributable	Mineable in situ tonnes	Net Attributable	Operator
	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	
Measured	13.50	9.52	NA	NA	
Indicated	4.3	3.0	NA	NA	
Inferred	1.3	0.9	NA	NA	
Total	**19.1**	**13.5**	**NA**	**NA**	**Universal Coal Development I (Pty) Ltd**

1. QUALIFICATIONS OF CONSULTANT

Gemecs (Pty) Ltd ("Gemecs") is a medium-sized geological company which renders geological and mining consulting services to the mining industry. Its consultants have the required experience in preparing competent persons', technical advisors' and evaluation reports for mining and exploration companies.

Input is provided in terms of the JORC (Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition) and supported by the Australian Guidelines for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves, 2003 Edition.

Independence is assured by the fact that, neither the Competent Person, nor any of the Competent Person's directors, staff and associates involved in this report, hold any interest in the value of the "Client" or its subsidiary or associated companies, and do not have any interest in Universal and are independent of either Company's directors, senior management and advisers. Gemecs will receive a fee for the preparation of this report in accordance with normal professional consulting practice. This fee is not contingent on Admission or the outcome of this report and Gemecs receive no other benefit for the preparation of this report.

The information in this report that relates to coal resources for the Kangala Project is based on a resource estimate completed by Mr Nico Denner who is employed by Gemecs (Pty) Ltd. Mr Denner, Pr.Sci.Nat, B.Sc Hons (Geology), FGSSA, SEG, is a geologist with 20 years' experience in the South African mining industry and sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Denner is a Member of South African Council for Natural Scientific Professions (Membership No. 400060/98) and consents to the inclusion of this information in the form and context in which it appears in this report. The author states that this report complies with the guidelines as stipulated in the JORC code, 2012 Edition and coal resources are reported in accordance with the JORC code.

Gemecs places reliance on Universal Coal plc that all legal information provided to Gemecs at the time of writing is both valid and accurate for the purpose of compiling this report, including tenure and Mineral Right status.

2. INTRODUCTION

The Kangala project consist of 3 different coal project areas, all located in close proximity to each other near Delmas in the Mpumalanga Province, South Africa. These are the Kangala Mine (Wolvenfontein project), Middelbult project and Modderfontein project. Previously each project was covered in its own report, but due to the geological similarities and relative proximity of these projects, it was decided to combine these projects into one report for the Kangala Project. Universal Coal use to report these resources of the three projects together as Kangala, so the new combined report will be in line with the company reporting standards.

The Kangala Mine is an operational thermal coal mine, owned and operated by Universal Coal plc (Universal). Gemecs was recently appointed to review the latest geological model and to compile an updated coal resource report for the remaining in situ coal resources as at end of November 2015. Mine development commenced in May 2013, and first saleable coal was delivered in April 2014. This report is based on the latest 2015 geological model that was created and supplied by Universal, and includes all the latest borehole and analytical data, as well as mined out areas as at end of November 2015. Both the Middelbult and Modderfontein are projects in exploration stage and were last modelled and reported during 2012. No changes in coal resources is reported since then.

3. LOCALITY

The Kangala projects are all located in close proximity to each other near Delmas in the Mpumalanga Province, South Africa. The project area is located 65km due east of Johannesburg, in the Witbank coalfield of South Africa. The projects are in close proximity to the operating coal mines of Leeuwpan Colliery, Stuart Colliery and Delmas Colliery. It is close to excellent road and railway infrastructure and within a 70km radius of four coal-fired power stations (Figures 1 & 2).

The Middelbult project is adjacent to the Kangala mine, and is located directly to the north-west of the Kangala mine. The Modderfontein project is located approximately 12km north-west of the Kangala mine. Refer to Figure 3.

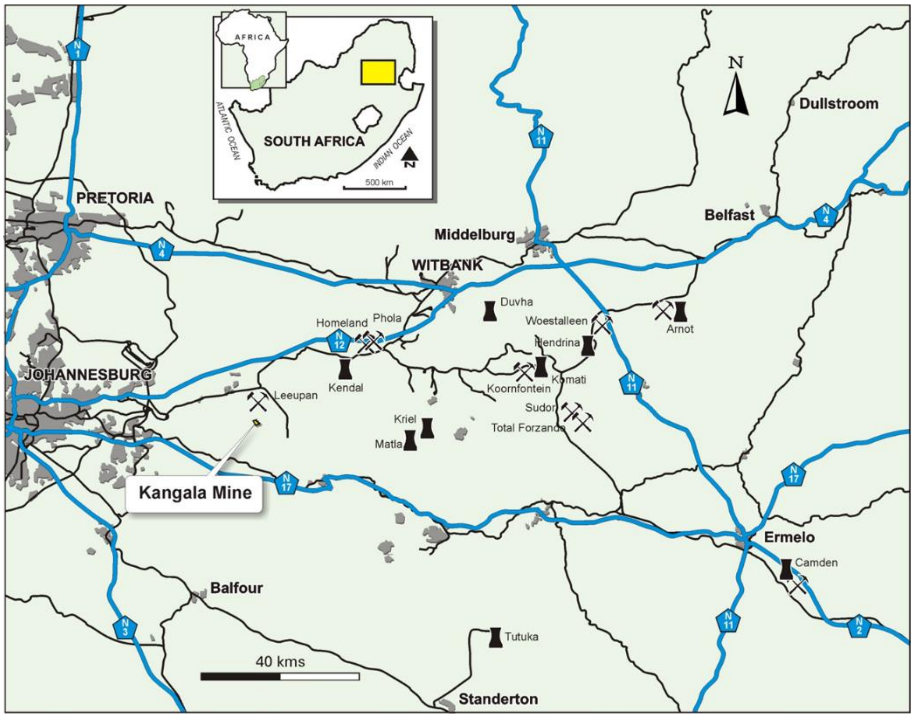

Figure 1. Regional locality plan

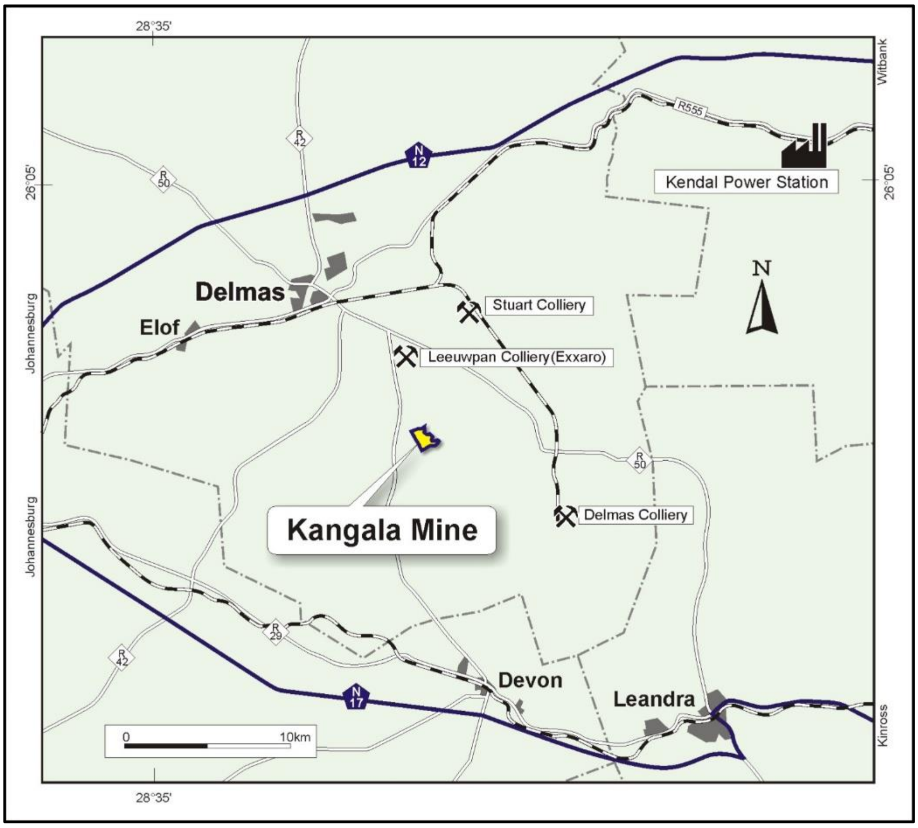

Figure 2. Kangala Mine locality plan

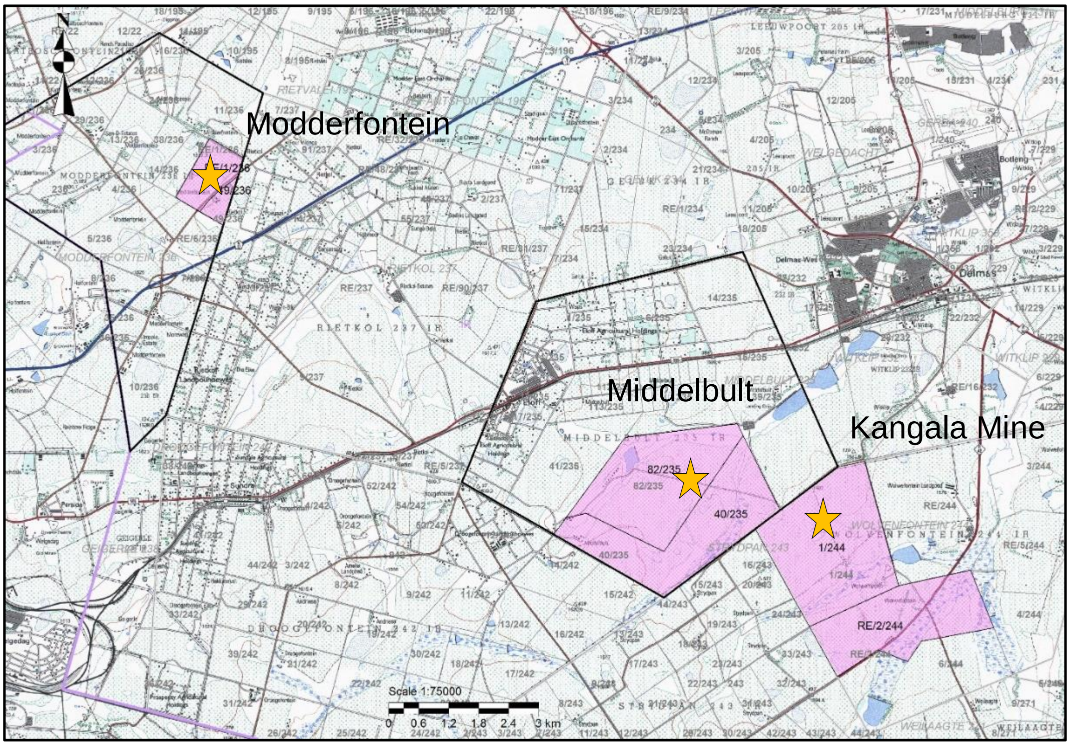

Figure 3. Kangala projects locality map

4. TENURE

4.1 Kangala Mine

The Kangala Mine incorporates a mining right MP30/5/1/2/2/429MR that was granted on 27 September 2010, and executed on 3 May 2012. It is located on portion 1 and the Remaining Extent of portion 2 of the farm Wolvenfontein 244 IR measuring 951.12 hectares (Figure 4). Kangala Mine is 70.5% owned by Universal Coal Development I (Pty) Ltd a subsidiary of Universal Coal.

The following Regulatory Approvals have been granted:

- Mining Right.
- Environmental authorisation in terms of the National Environmental Management Act 107 of 1998 (NEMA), dated 31 January 2012.
- Waste licence in terms of the National Environmental Management: Waste Act 59 of 2008 (NEMWA), dated 9 July 2012.
- Integrated Water Use Licence (IWULA), dated 25 May 2012.
- Land rezoning. A Demolition Permit dated 9 April 2013 was also granted in terms of the National Heritage Resources Act 25 of 1999.

Universal is the registered surface owner of portion 1 of the farm Wolvenfontein 244 IR, and has a grant of servitude agreement in place with the Kallie-Madel Trust who is the registered surface owner of the remaining extent of portion 2 of the farm Wolvenfontein 244 IR. The planned openpit and all relevant surface infrastructure is located on portion 1 owned by Universal Coal. Refer to Table 5 for a summary of the mineral and surface rights.

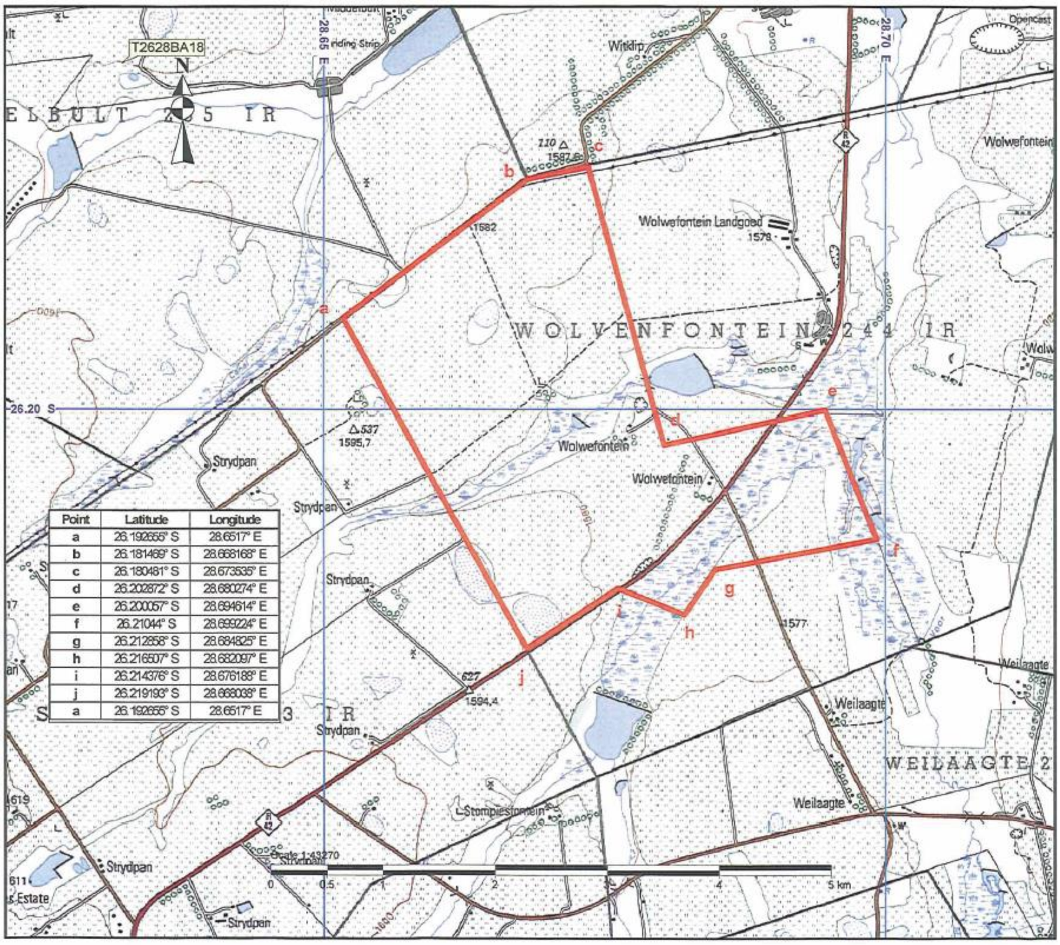

Figure 4. Extent of Mining Right on Wolvenfontein 244 IR

Table 5. Kangala Mine Portions Mineral and Surface rights summary

Farm	Portion	Size (Ha)	Mineral Rights Mining Right	Holder	Expiry date	Surface Rights	
						Owner	Access Agreements
Wolvenfontein 244 IR	Ptn 1	557.76	MP30/5/1/2/2/429MR	Universal Coal Development I (Pty) Ltd	2 May 2032	Universal Coal Development I (Pty) Ltd	Surface right owner
	Remaining Extent of ptn 2	393.15				Kallie-Madel Trust	Servitude rights granted

4.2 Middelbult Project

The Middelbult project has a valid Prospecting Right, MP30/5/1/1/2/641PR that was first executed on 7 November 2006. It was renewed on 26 March 2014 and is valid for a further 3 years. It includes portions 40 and 82 of the farm Middelbult 235 IR, covering an area of approximately 942ha, as indicated in Figure 5. Universal Coal does not own any surface rights. Middelbult Project is 70.5% owned by Universal Coal Development I (Pty) Ltd a subsidiary of Universal Coal.

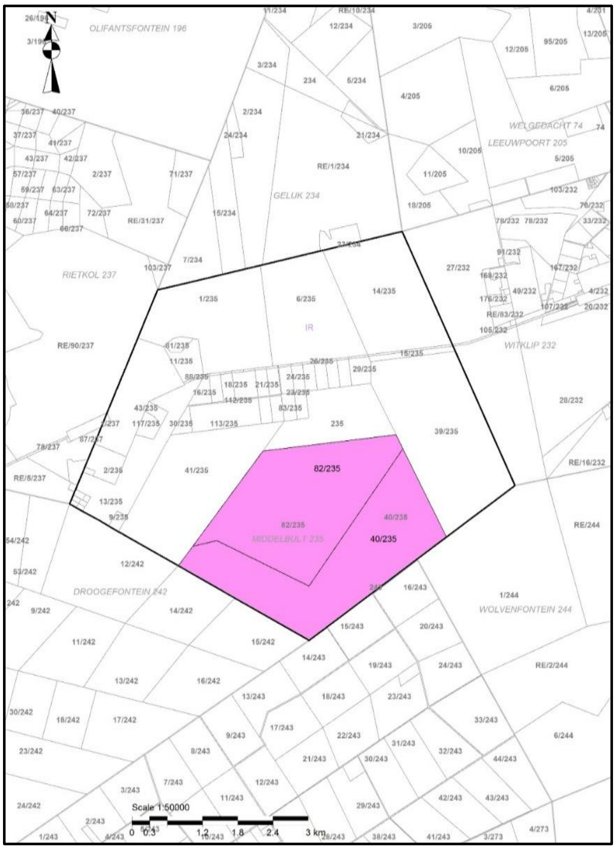

Figure 5. Extent of prospecting right on Middelbult 235 IR

Table 6. Middelbult Portions Mineral rights summary

Farm	Portion	Size (Ha)	Mineral Rights	Holder	Expiry date
			Mining Right		
Middelbult 235 IR	Ptn 40	942	MP30/5/1/1/2/641PR	Universal Coal Development I (Pty) Ltd	25 March 2017
	Ptn 82				

4.3 Modderfontein Project

The Modderfontein project has a valid Prospecting Right MP30/5/1/1/2/639PR that was first executed on 7 November 2006, renewed on 26 March 2014, and valid for a further three years. The project includes portion 1 on farm Modderfontein 236 IR covering an area of approximately 127 ha as indicated in Figure 6. Universal Coal does not own any surface rights. Modderfontein Project is 70.5% owned by Universal Coal Development I (Pty) Ltd a subsidiary of Universal Coal.

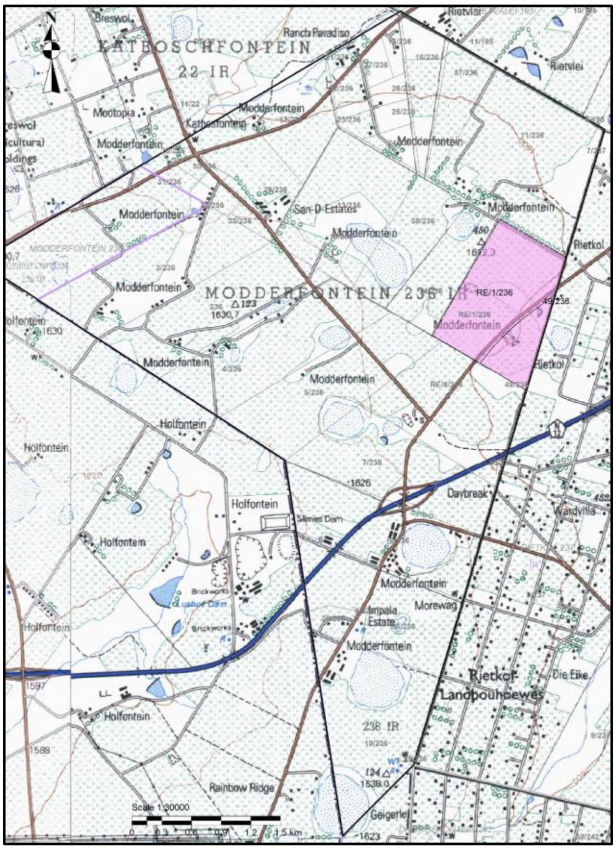

Figure 6. Extent of prospecting right on Modderfontein 236 IR

Table 7. Modderfontein Portions Mineral rights summary

Farm	Portion	Size (Ha)	Mineral Rights Mining Right	Holder	Expiry date
Modderfontein 236 IR	Ptn 01	127	MP30/5/1/1/2/ 639PR	Universal Coal Development I (Pty) Ltd	25 March 2017

5. GEOLOGY

5.1 Regional Geology of Witbank Coalfield

The Kangala projects are located on the western margin of the Witbank Coalfield (Figure 7) within the Springs-Vischkuil block.

Figure 7. South African Coalfields – Witbank coalfield

The northern limit of the Coalfield is defined by the limit of the coal measures where it sub-outcrops against the pre-Karoo formations. The southern limit is regarded as running from several kilometres south of the Delmas Colliery in a generally north-easterly direction to a position somewhere just south of South Witbank Colliery. From this point eastwards for about 60km the limit is defined by the natural boundary of the so-called 'Smithfield Ridge' which is represented by a series of pre-Karoo inliers of Rooiberg felsites, and to the west the limit is where it sub-outcrops against the pre-Karoo formations (Figure 8).

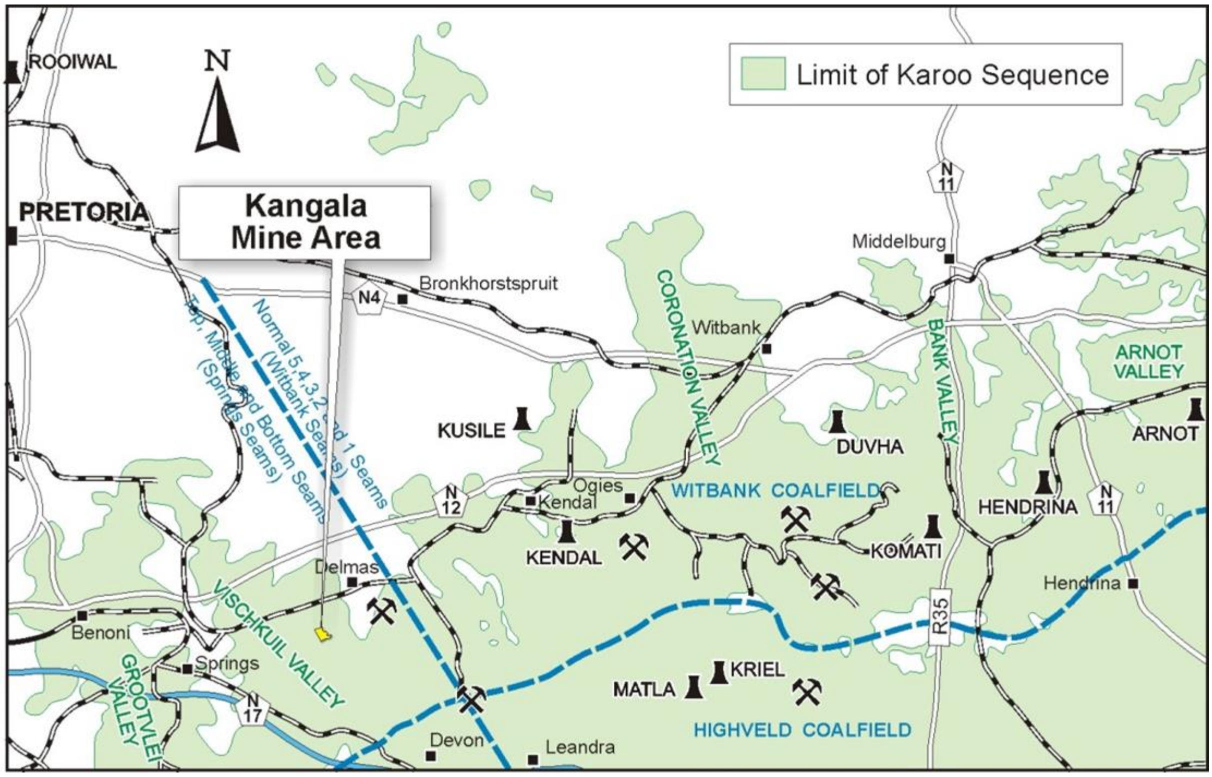

Figure 8. Kangala Mine in the Witbank Coalfield

The sediments of the coal-bearing Ecca Group of the Karoo Sequence in this coalfield were deposited on an undulating pre-Karoo palæo-topographic terrain, which had a significant influence on the nature, distribution and thickness of the coal seams. Post-Karoo erosion has removed parts of the stratigraphic column, including substantial volumes of coal in some areas. A maximum of 180m of Karoo strata is preserved. The general effect of palæo-topography on the coal seams is illustrated in Figure 9 overleaf.

In the Springs-Vischkuil block the coal seams are inconsistently developed, and where present, more closely resemble those of the South Rand Coalfield. Three seams, namely the Top, Mid and Bottom seams are recognized. The Top and Mid seams can possibly be correlated with the No.5 and No.4 and No.3 seams of the Witbank Coalfield and the thicker Bottom seam appears to represent a combination of the No.2 and No.1 seams. Refer to Figure 10 overleaf for a graphical presentation of the coal seam stratigraphy.

Dolerite intrusions, in the form of dykes and sills, have adversely affected certain parts of the Coalfield. Large areas of coal-bearing ground have been devolatilised or burnt and rendered unsuited to exploitation. Transgressive sill intrusions can cause significant displacement of seams, which seriously affects exploitation in many areas.

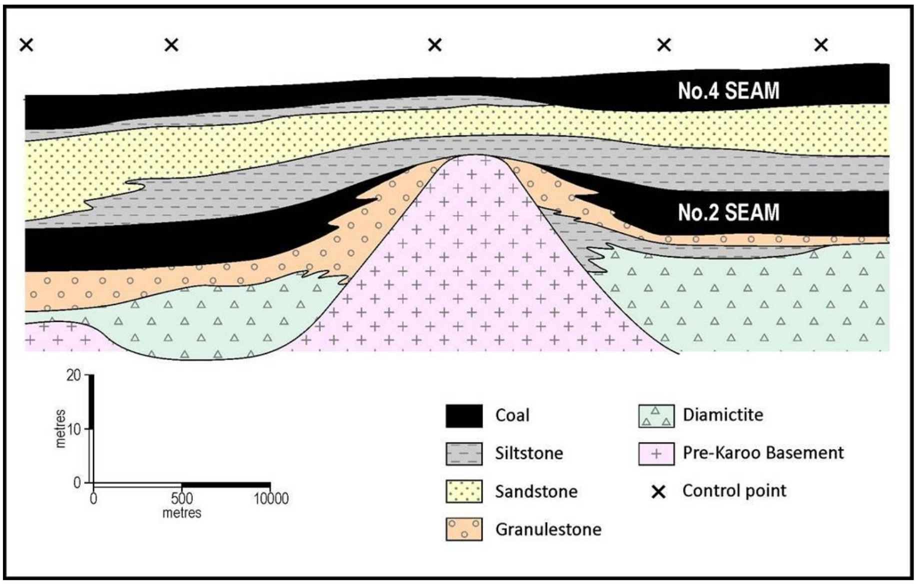

Figure 9. Undulating pre-Karoo palaeo-topographic terrain

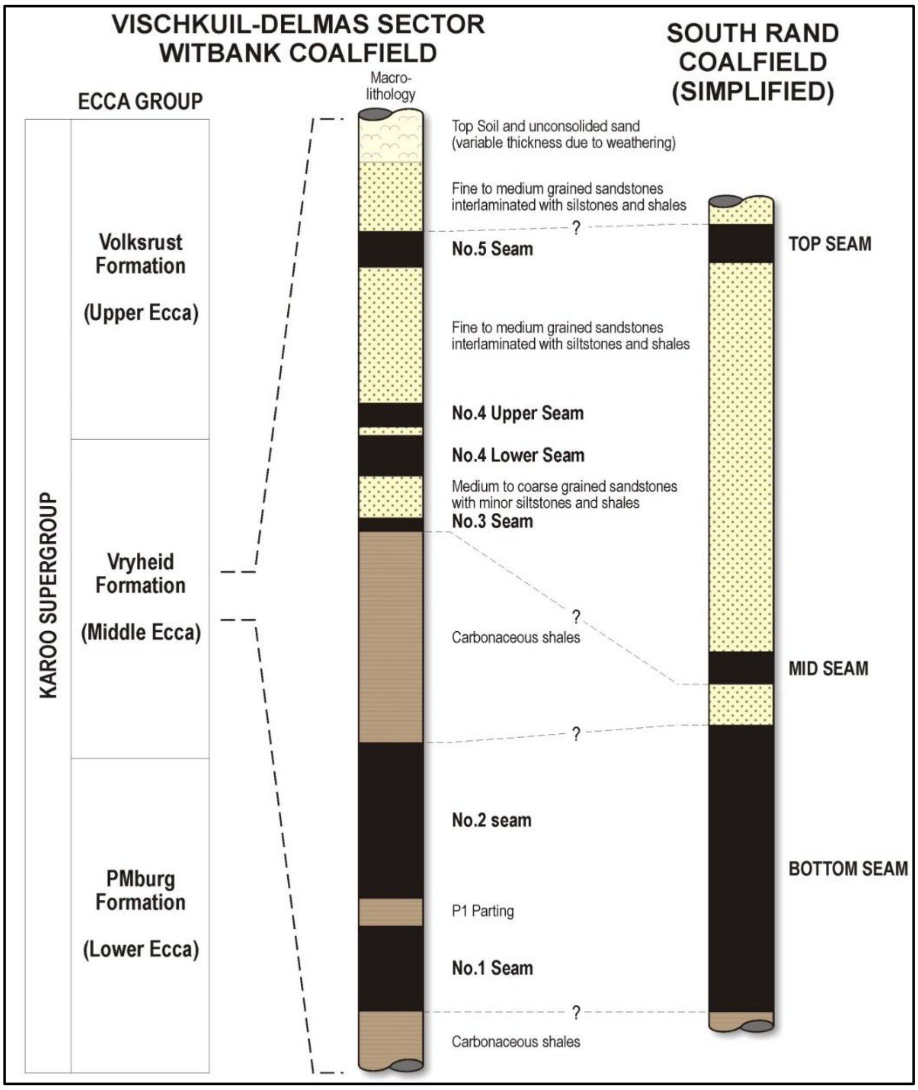

Figure 10. General stratigraphic sequence and coal seams of the Witbank Coalfield

5.2 Local Geology

The project area is mainly underlain by the coal-bearing Vryheid formation, part of the Ecca group (Pv) as presented on an excerpt of the 1:250 000 geological series map no. 2628 (East Rand) in Figure 11. The area is characterised by undulating pre-Karoo palæo-topographic terrain as illustrated before in Figure 9. Some of these basement outcrops are indicated on the geological map and are predominantly of the Proterozoic Transvaal Supergroup (Vmd). The underlying basement consists of dolomite and chert of the Malmani Group and typically displays karst features. Drilling confirmed the presence of such outcrops and these sub outcrops define the limits of the coal measures towards the north and east of the Kangala mine.

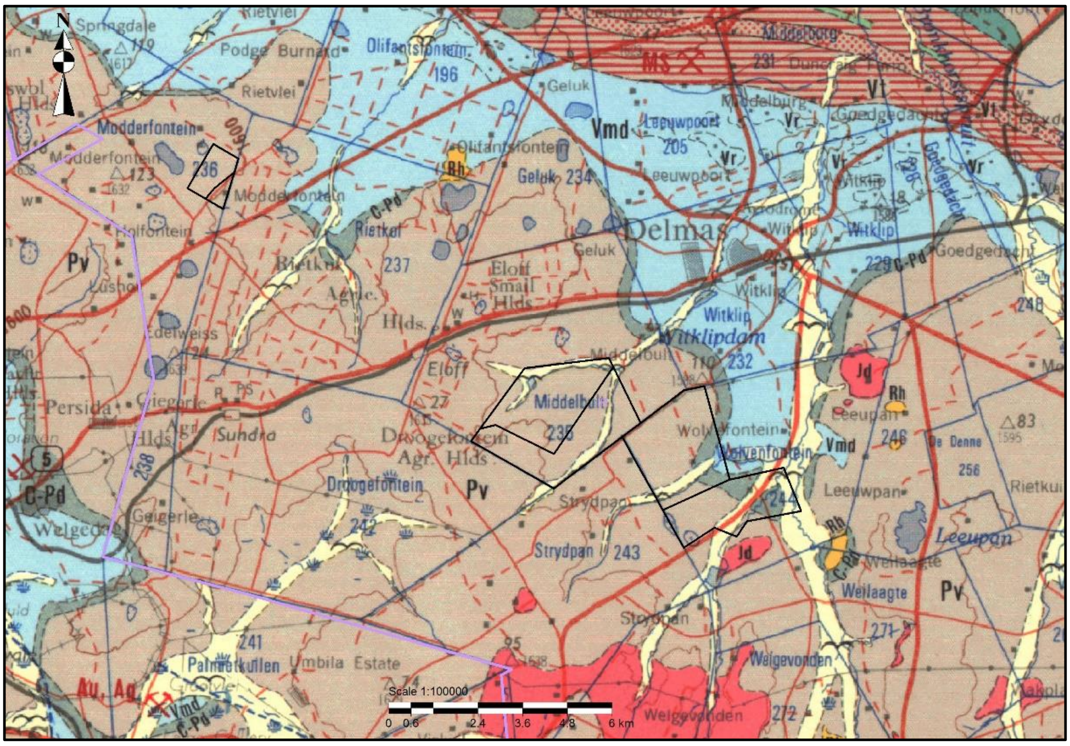

Figure 11. Geological map of the Delmas Area with Kangala portions

5.2.1 Kangala Mine Geology

Three coal seams are locally present as presented before in Figure 10.

Top Seam: The Top seam is generally thin (<1.0m), and absent in most boreholes due to the effect of the local deep weathering profile. When present, it is normally located approximately 20m above the Mid Seam.

Mid Seam: The Mid seam is on average 1.04m thick and consists of high quality bright to dull coal. A carbonaceous shale/siltstone inseam parting, can be locally present, causing the seam to split into two distinct coal plies.

Bottom Seam: The thickness of the Bottom seam is usually between 10-15m, but can vary considerably over short distances due to pre Karoo dolomite floor undulations. It is separated from the Mid seam by a 1-3m thick sandstone to shale parting. The Bottom seam is subdivided from top to bottom into BA, BB, BC and BD coal plies, which are all separated by carbonaceous shale partings. Thicknesses of these coal plies are variable, but in general the average ply thickness for each layer is as follows:

- BA 0.85m
- BB 0.85m
- BC 8.50m (subdivided into two coal plies):
  - BC1 4.00m
  - BC2 4.50m
- BD 2.80m (can consist of up to five coal layers with carbonaceous partings)

A detailed seam profile is presented overleaf in Figure 12 to illustrate the coal seams, coal plies and partings. For practical mining reasons, a series of mining selections have been allocated, so that the coal seams and plies can be subdivided and combined into logical mining units. The current mining selections are presented to the left of the diagram, and include the following selections:

- MM Mid seam only.
- MBAB BA & BB plies including the BP1 parting.
- MBC1 BC1 ply.
- MBC2 BC2 ply including overlying BCP parting.
- MBD One or many of the BD coal plies with partings.

The above mining selections are also being used to construct the geological mining model, and to report in situ coal resources for the project. A pure geological seam or ply model is not modelled or reported, as this mining selection model resembles the actual mining activities more closely than a pure geological model.

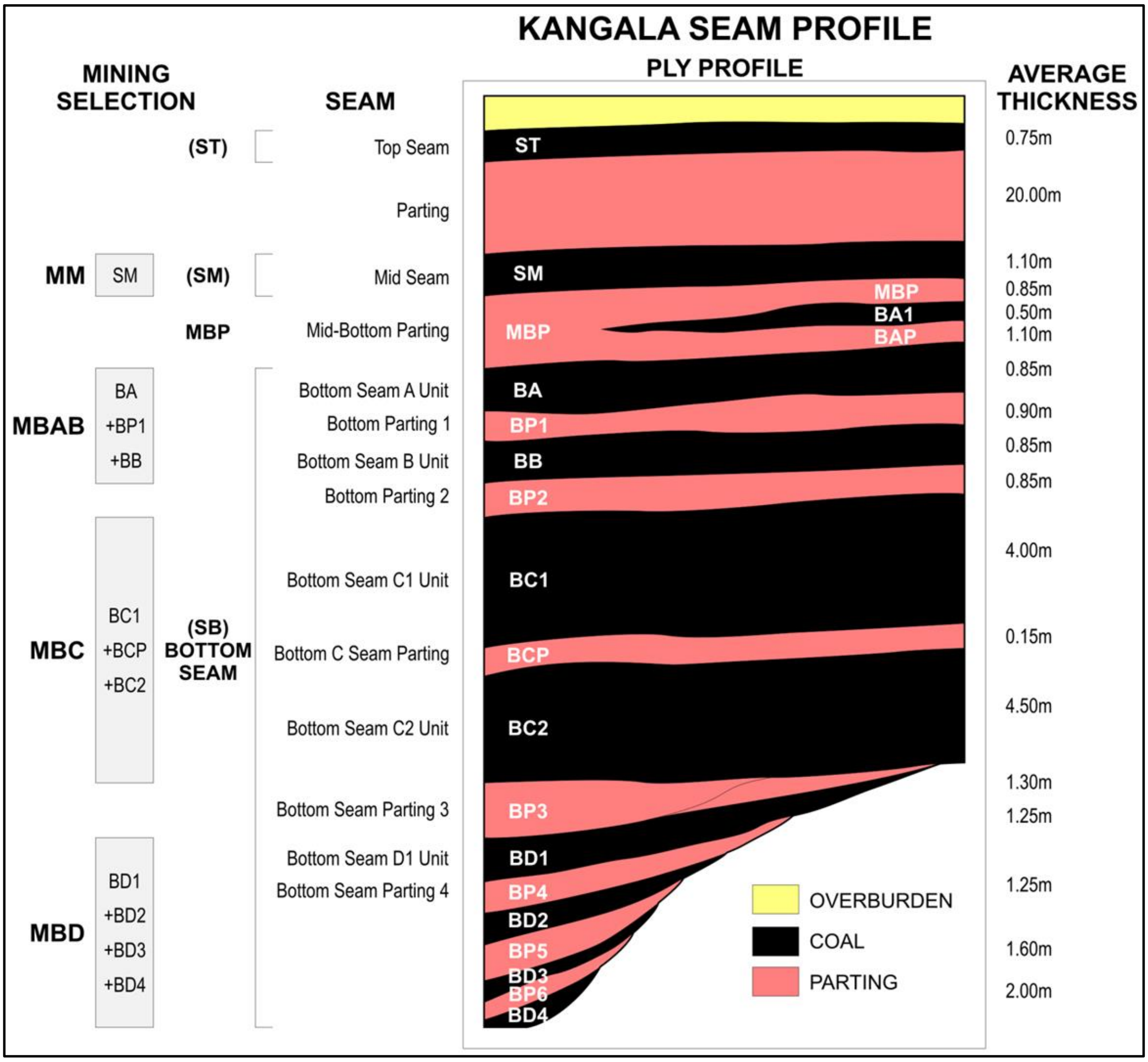

Figure 12. Detailed stratigraphic sequence and coal seams and plies at Kangala Mine

Locally the pre-Karoo basement floor (mainly dolomites) has a direct impact on the coal seam structures. This is mainly due to the pre-Karoo karst topography and possible sinkhole structures. These features caused a highly erratic palaeo-floor. The effect is greatest on the lower coal seams, and gradually becomes less towards the upper coal layers. The Dwyka/pre-Karoo basement formations forming the undulating floor are presented in Figure 13.

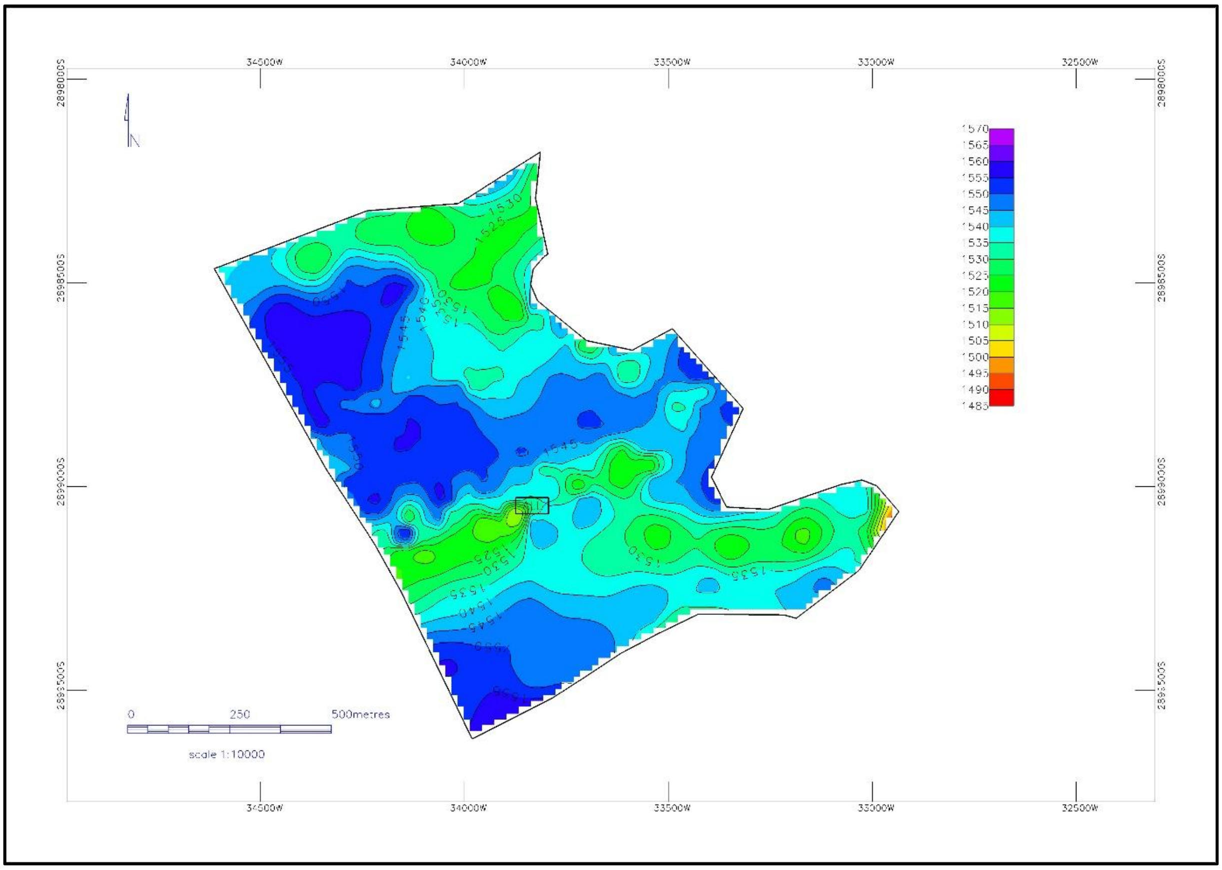

Figure 13. Kangala Mine - Dwyka/Basement floor – 5m elevation contours

Dolerite sills and dykes are known to occur in the area. The known occurrence in and around the immediate mining area is restricted to an area to the east and to the south. Known areas affected by sill intrusions are not included into the mining area. Only minor dyke and sill intersections are recorded in the exploration drilling and some minor small scaled faulting is observed in the pit during mining. Locally some devolatalization of coal can occur, as well as the loss of mineable coal due to the intrusion of these sill and dykes. Provision is made to apply a geological loss factor to the in situ coal resource estimation to compensate for these expected losses.

The effect of surface weathering has a significant impact on coal distribution in the area. Weathering is on average around 25m deep, but can be a deep as 40m. The weathering profile is variable, and generally only the Top and Mid seams are affected by the weathering. Together with this weathering a deep soil profile is present, which in turn allow for easy free dig of overburden material to access the coal seams in the open pit mining operation.

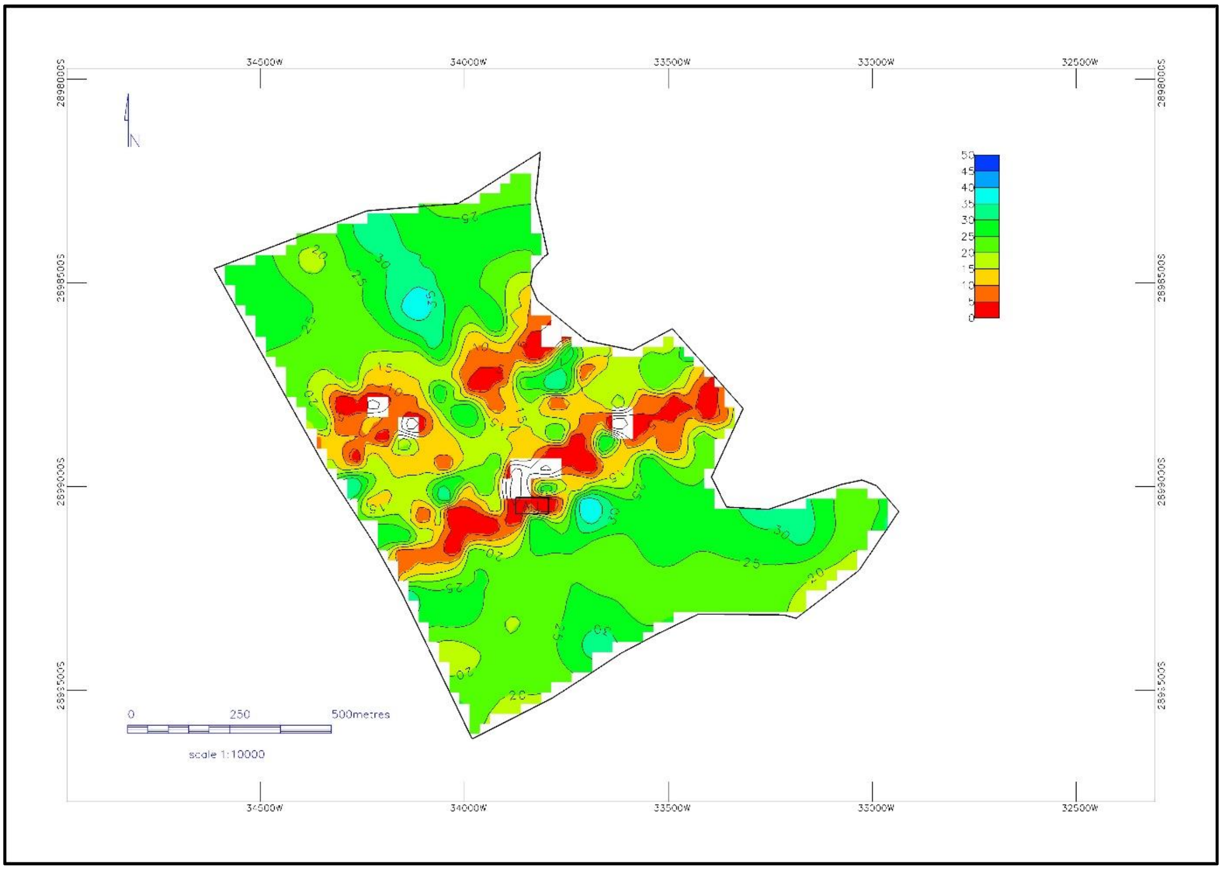

Figure 14. Kangala Mine - Limit of Weathering (LOW) thickness plan – 5m intervals

5.2.2 Kanga Mine Coal Seam Structure Plans

Plans indicating each of the mining selection's physical characteristics, i.e. floor contours, seam thickness and depth below surface are presented overleaf in Figures 15-29.

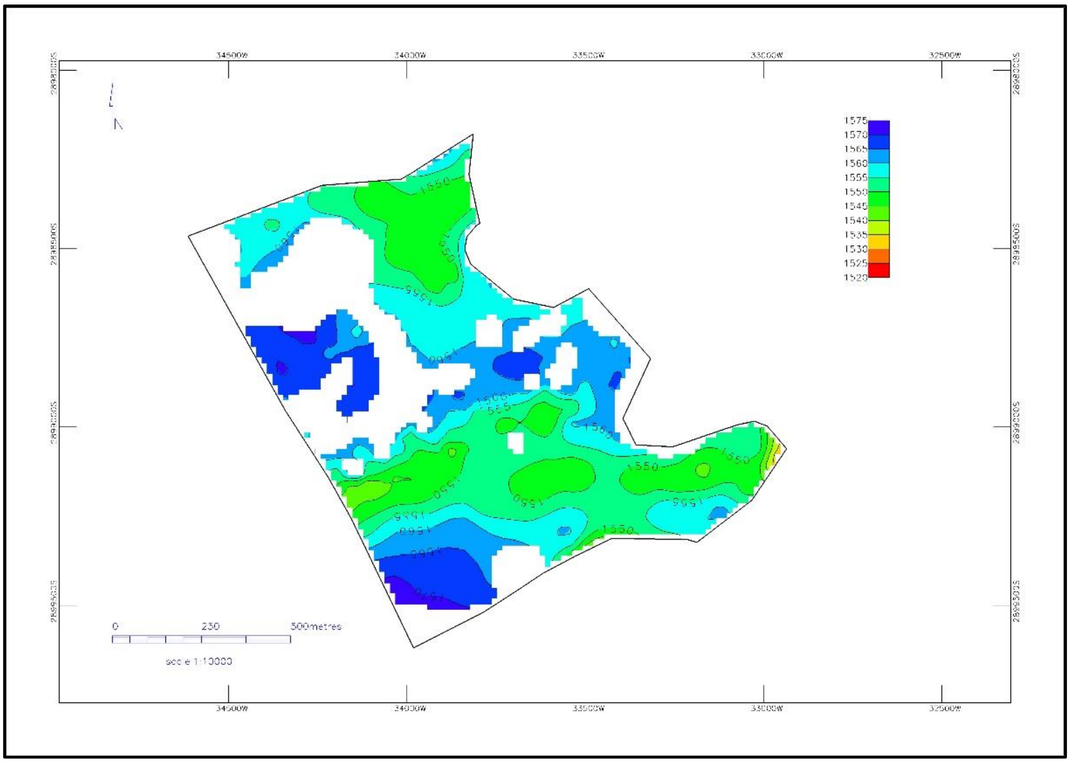

Figure 15. Kangala Mine - MM Mining selection Floor elevation (mamsl)

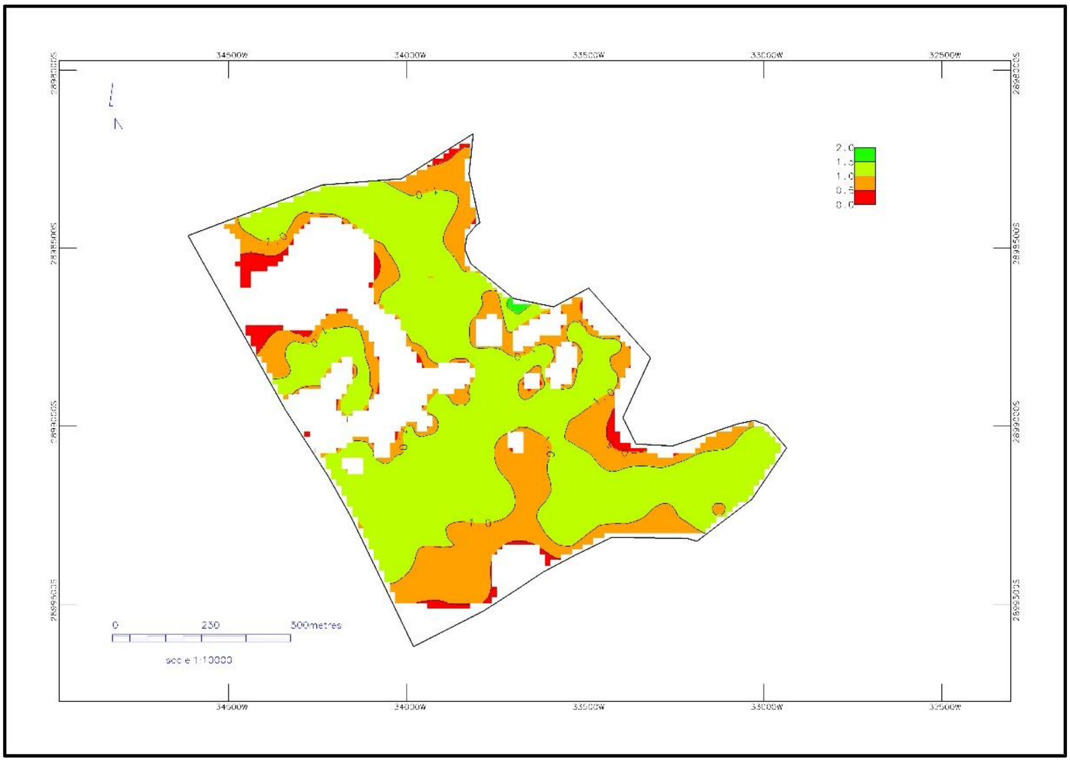

Figure 16. Kangala Mine – MM Mining selection thickness (m)

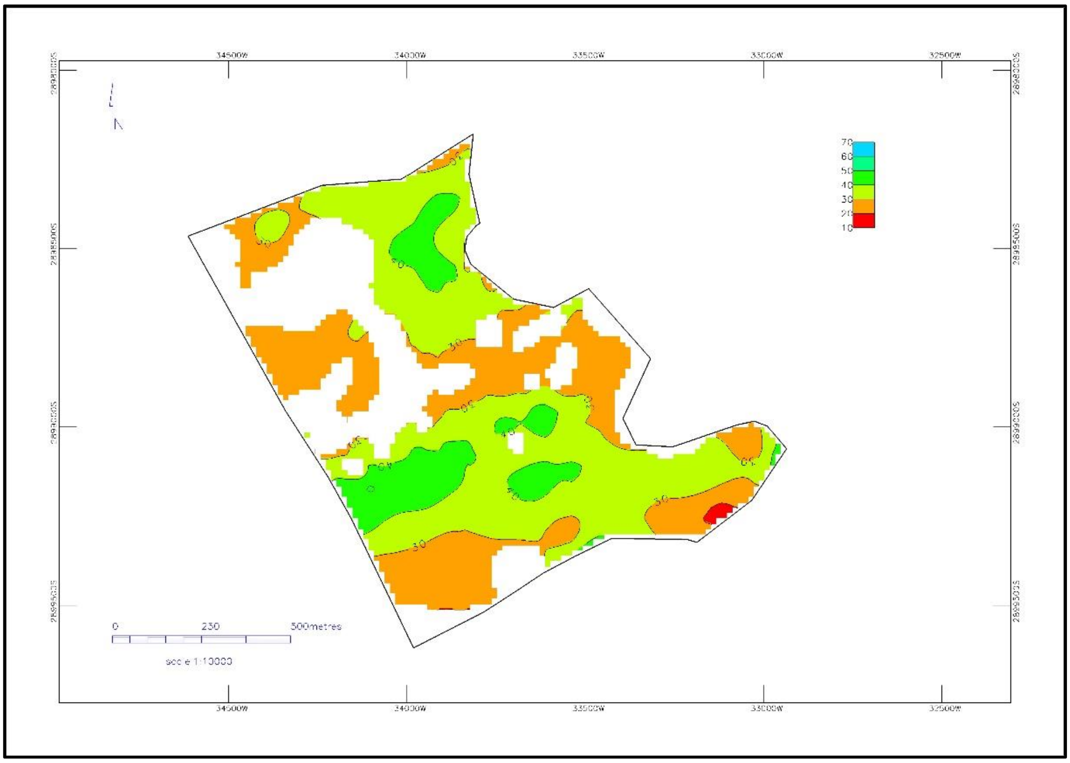

Figure 17. Kangala Mine - MM Mining selection Depth below surface (m)

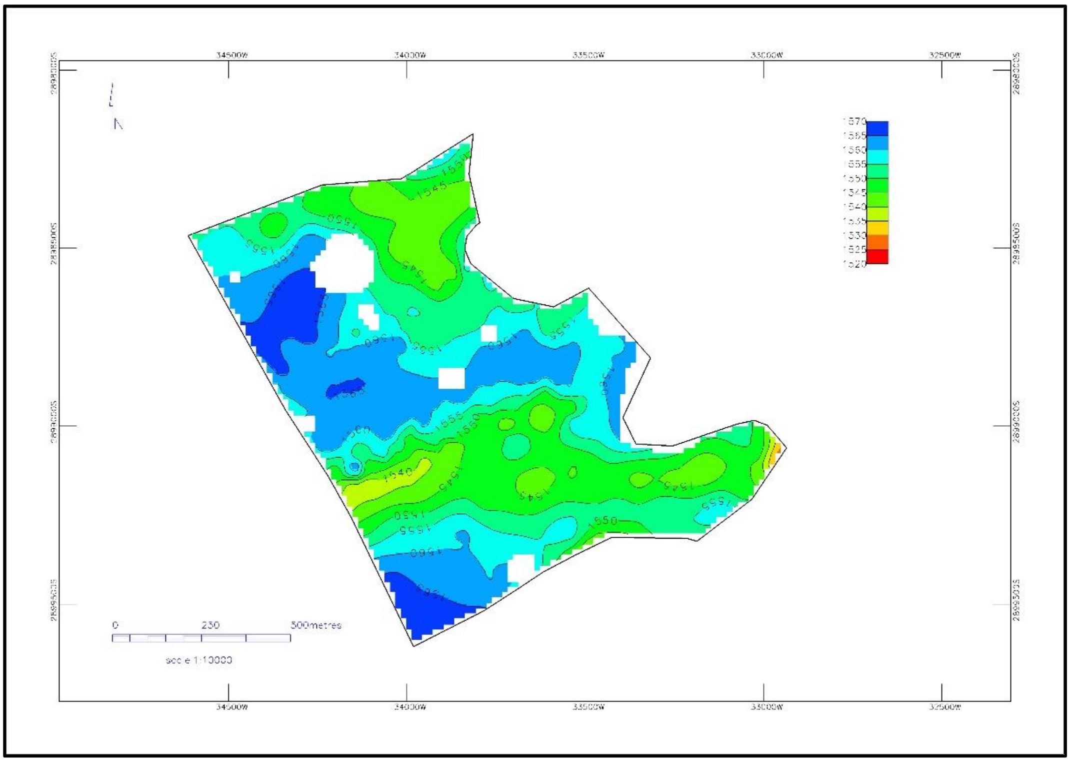

Figure 18. Kangala Mine – MBAB Mining selection Floor elevation (mamsl)

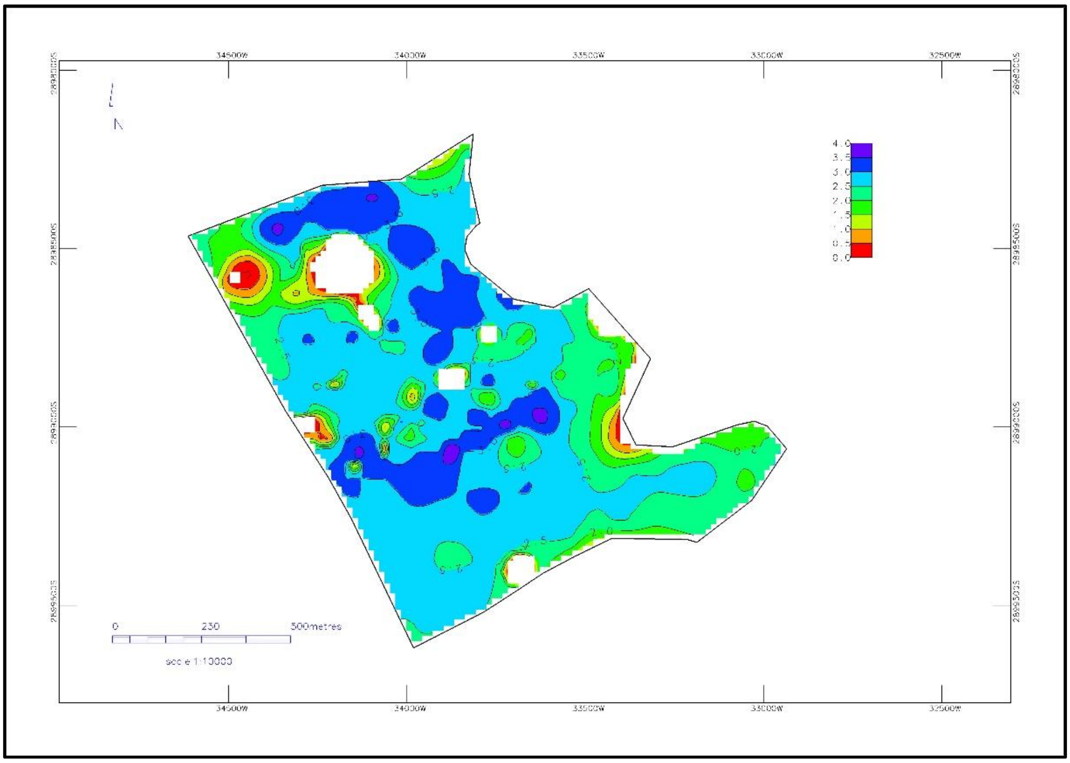

Figure 19. Kangala Mine – MBAB Mining selection Seam thickness (m)

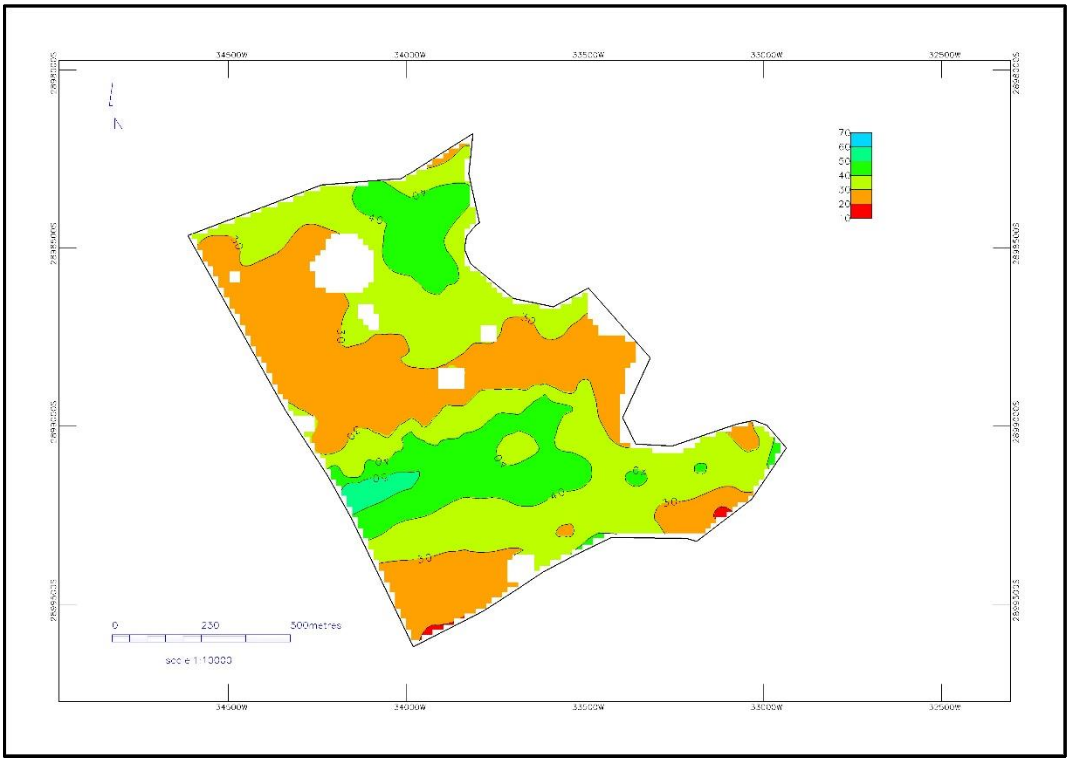

Figure 20. Kangala Mine – MBAB Mining selection Depth below surface (m)

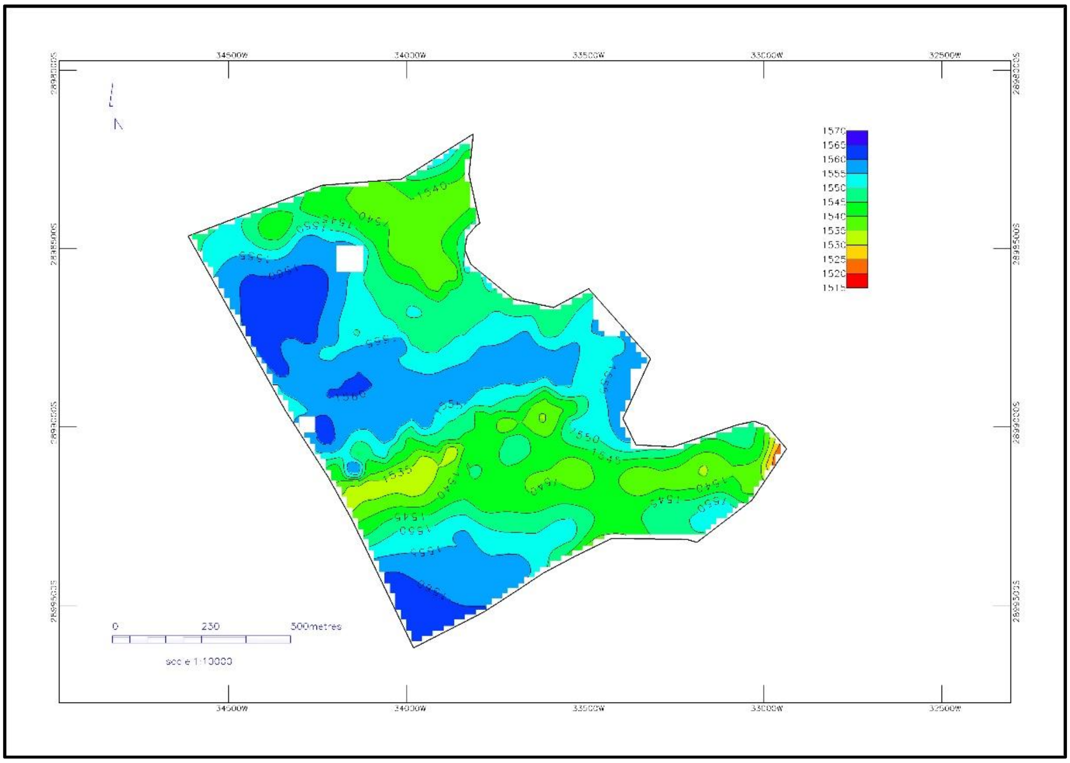

Figure 21. Kangala Mine – MBC1 Mining selection Floor elevation (mamsl)

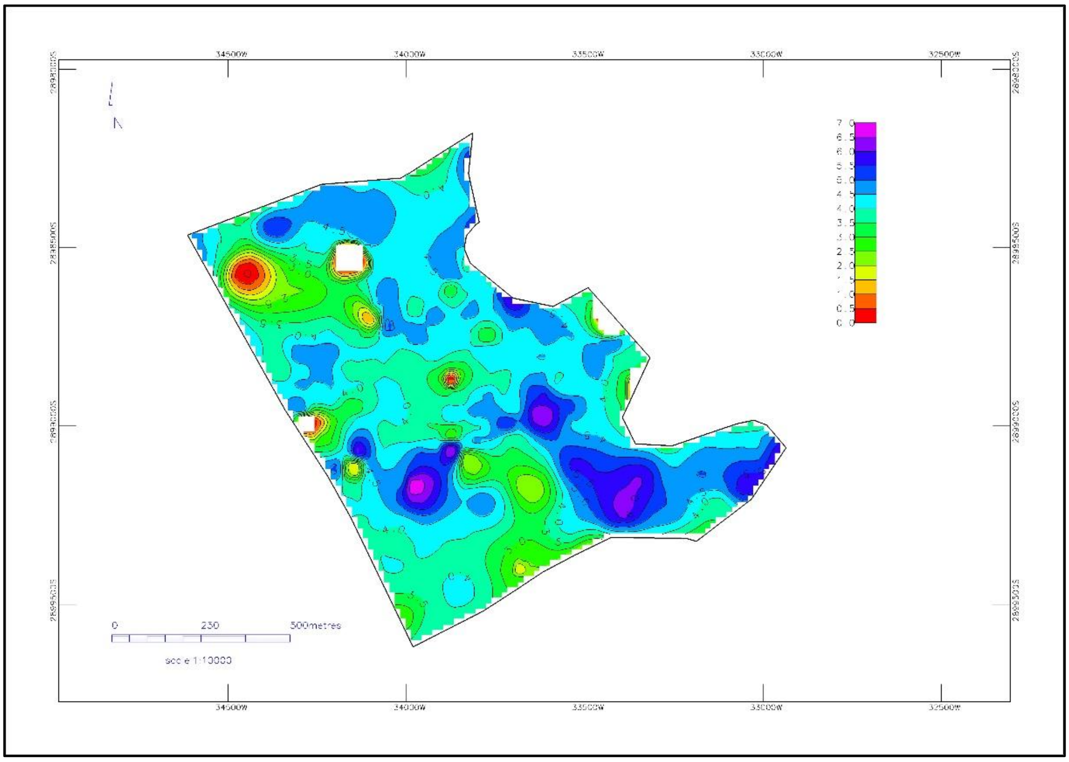

Figure 22. Kangala Mine – MBC1 Mining selection Seam thickness (m)

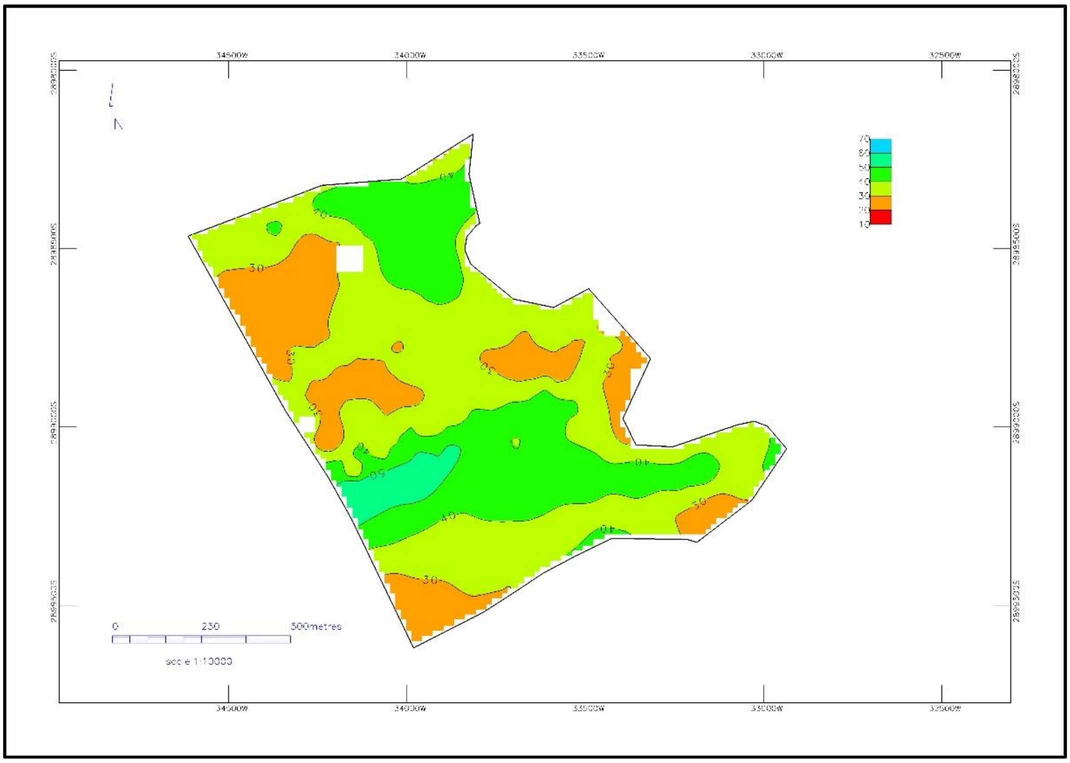

Figure 23. Kangala Mine – MBC1 Mining selection below surface (m)

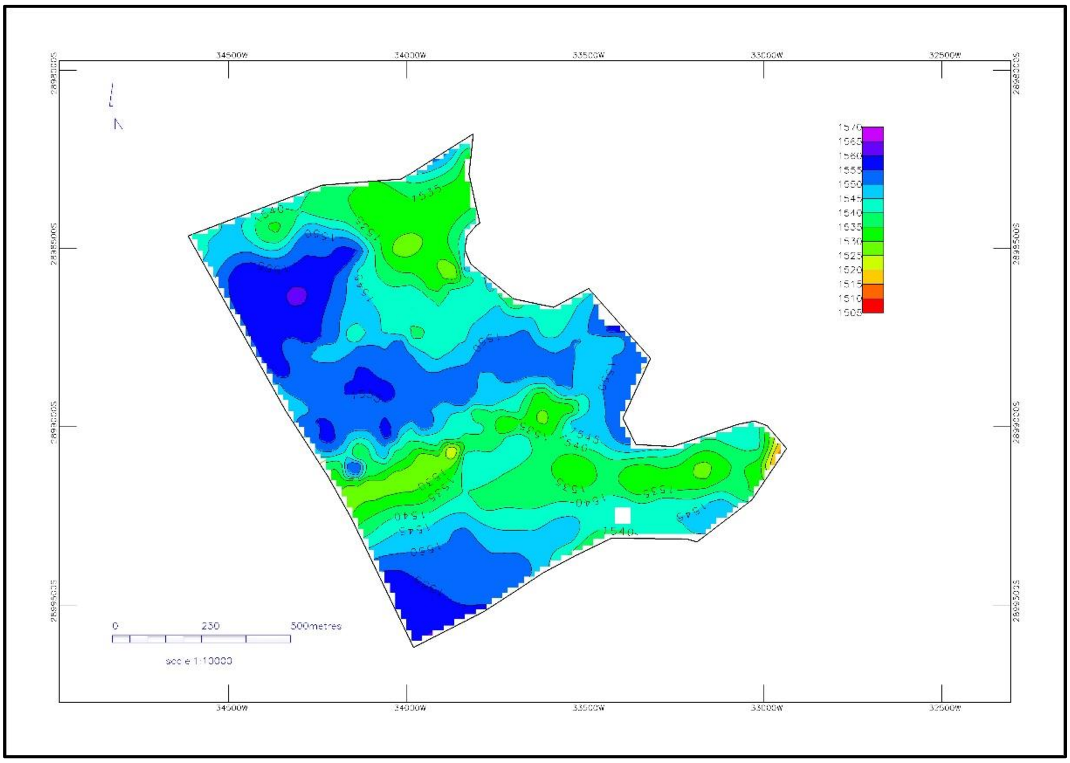

Figure 24. Kangala Mine – MBC2 Mining selection Floor elevation (mamsl)

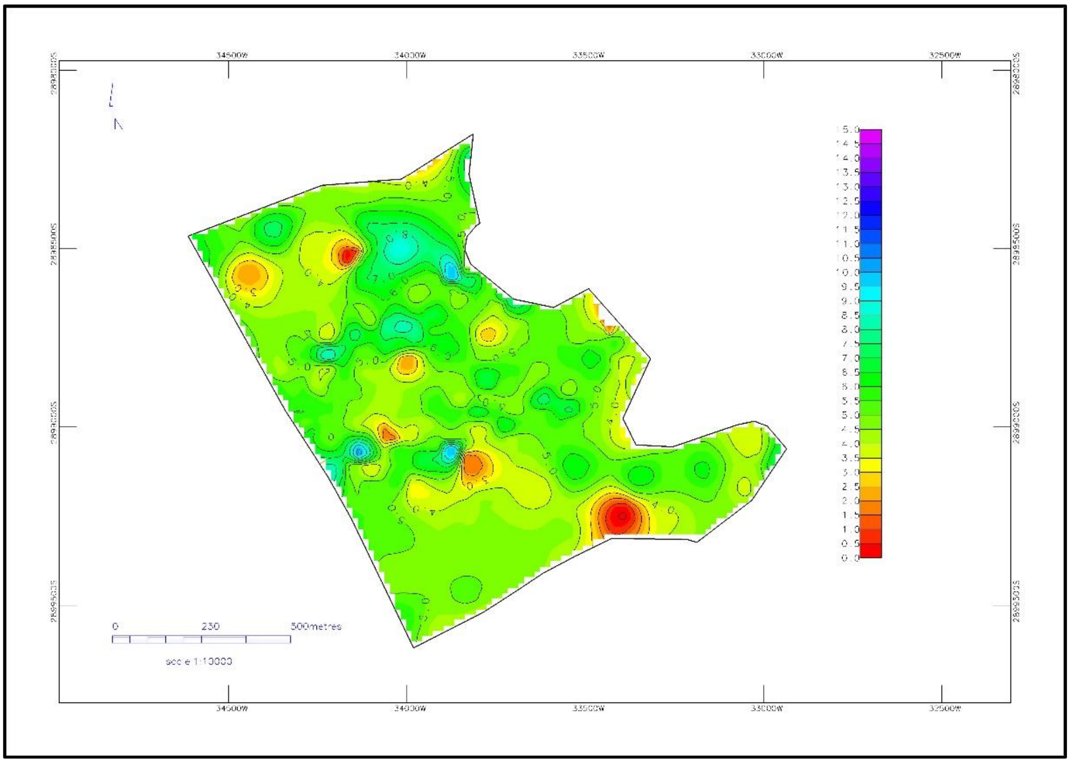

Figure 25. Kangala Mine – MBC2 Mining selection thickness (m)

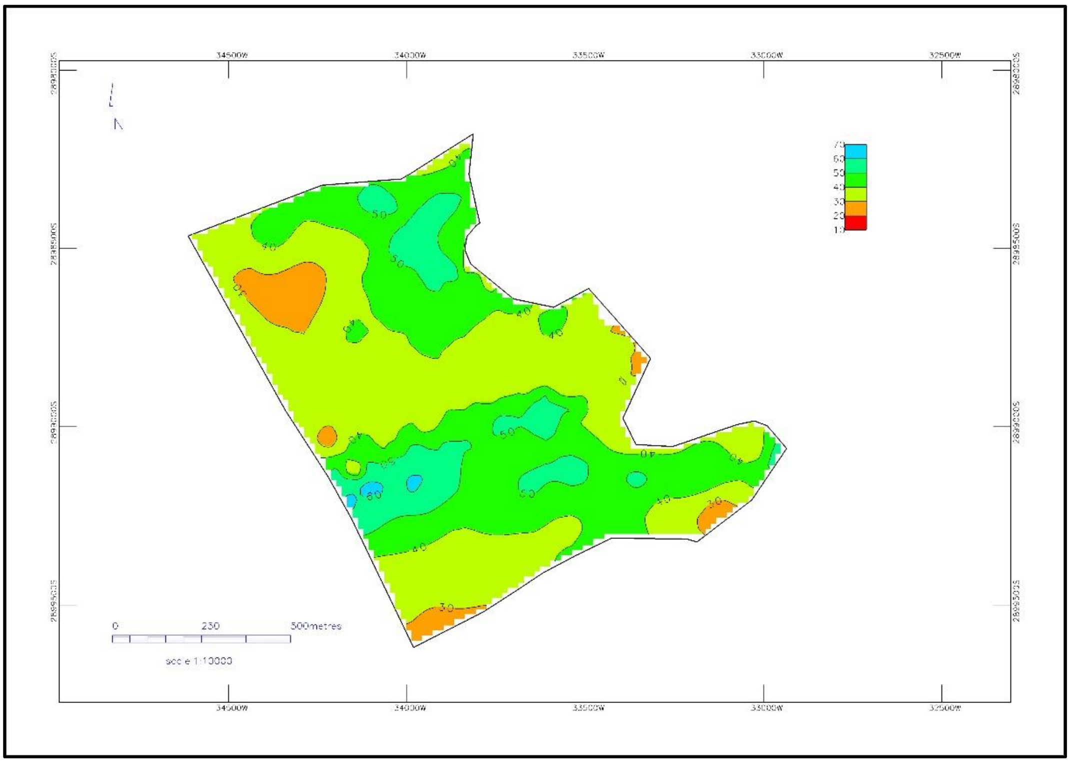

Figure 26. Kangala Mine – MBC2 Mining selection Depth below surface (m)

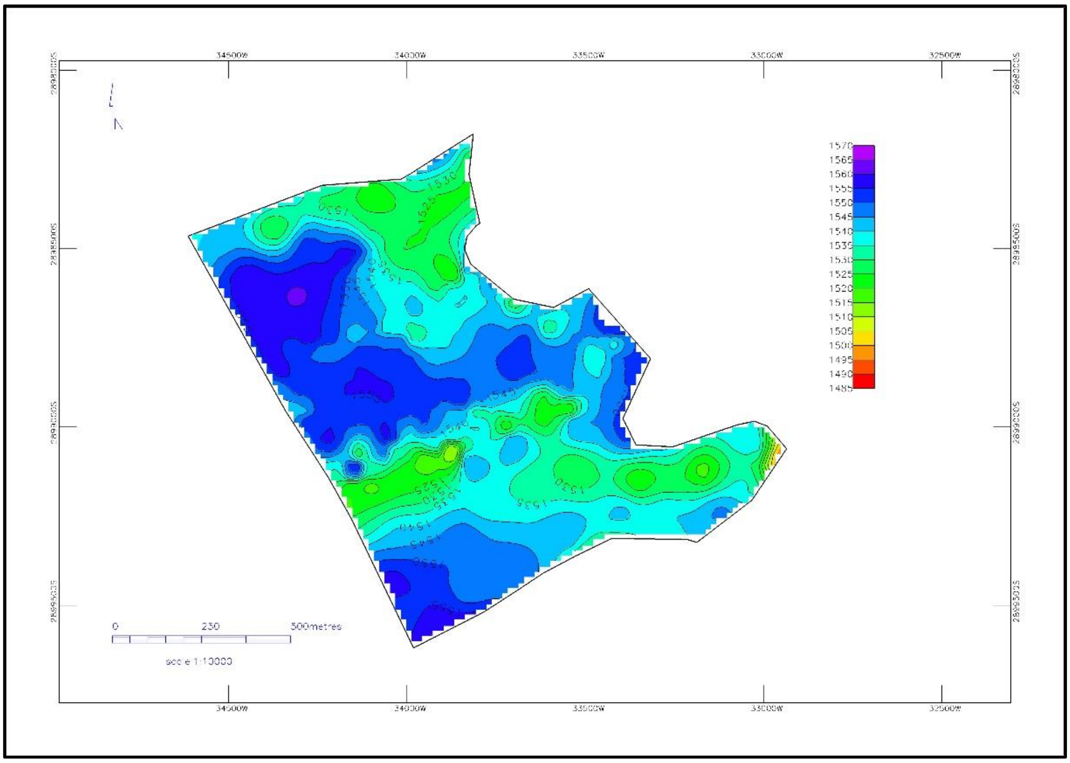

Figure 27. Kangala Mine – MBD Mining selection Floor elevation (mamsl)

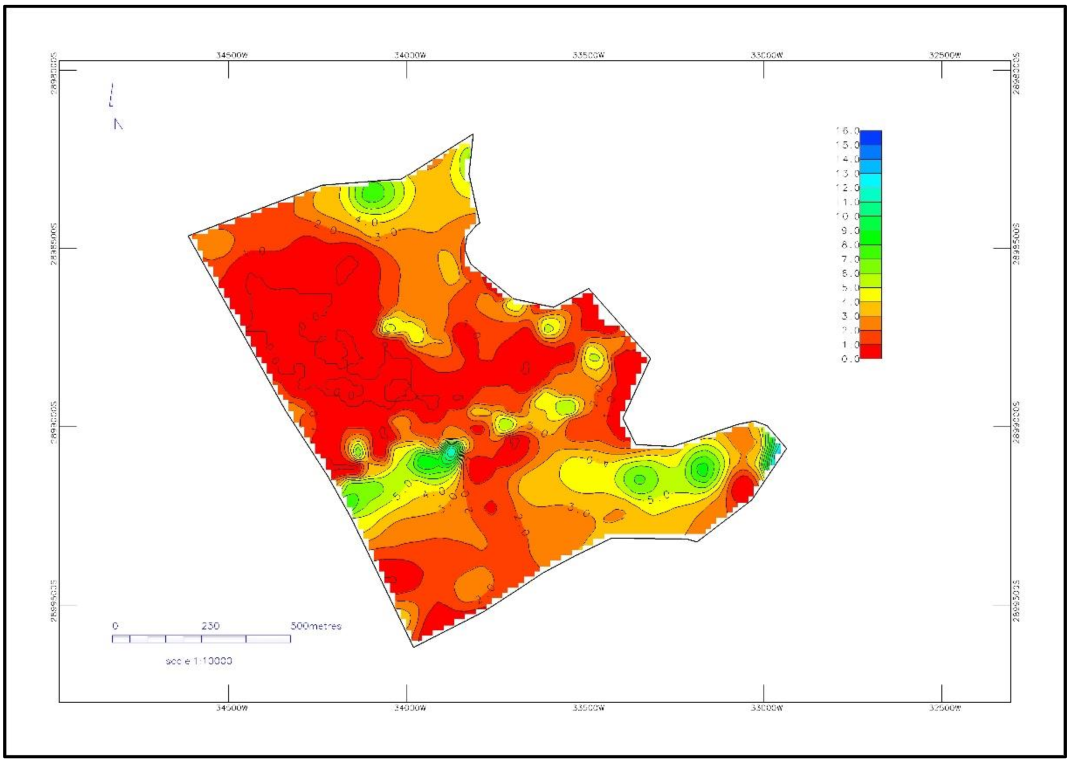

Figure 28. Kangala Mine – MBD Mining selection Seam thickness (m)

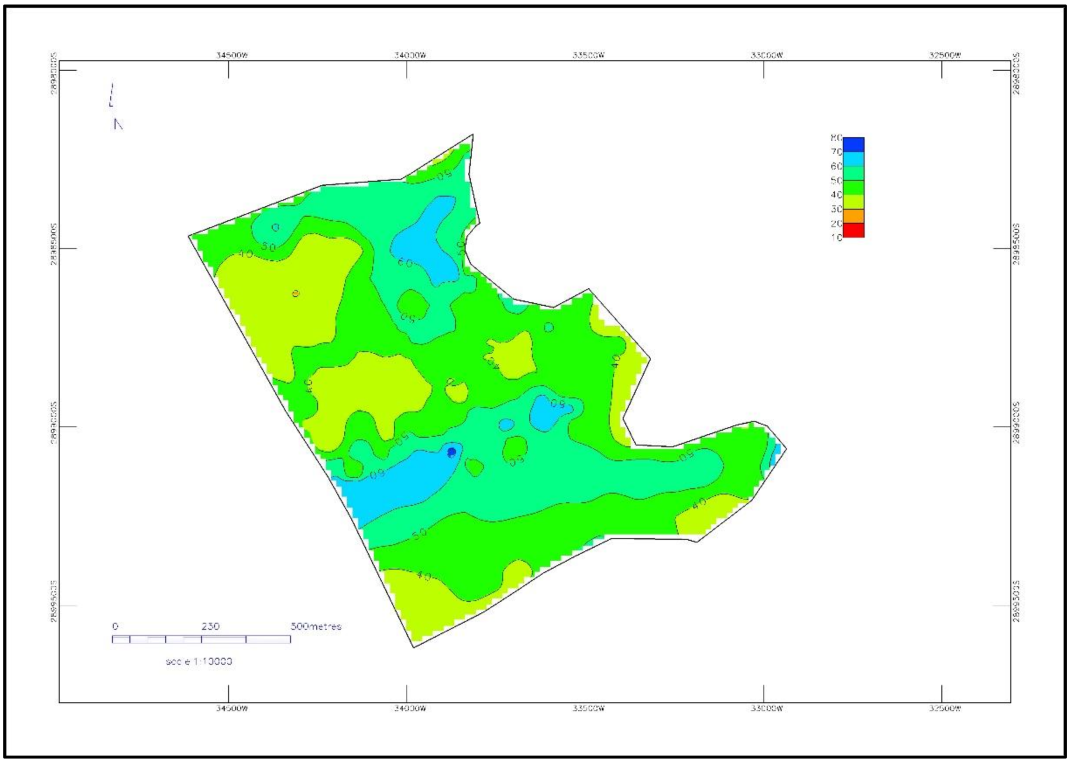

Figure 29. Kangala Mine – MBD Mining selection Depth below surface (m)

5.2.3 Middelbult Project Geology

The local coal seam classification is similar to that of Kangala Mine as previously presented in Figure 12. The characteristics of the coal seams present at the Middelbult project are detailed below.

Top Seam: The Top seam is generally between 0.5m and 1m thick and consists of dull to bright coal with thin intercalated shale bands. The seam is located approximately 20m above the Mid seam and is absent in the project area due to surface weathering.

Mid Seam: Measurements of the thickness of the Mid seam vary between 0.4m to 3.1m and is on average 1.70m in thickness. The Mid seam consists of high quality bright to dull coal with high sulphur content. The seam is of good quality, and can be used as a raw feedstock for power generation or when washed, can deliver suitable inland/export quality coal products. It is sporadically developed over the project area mainly as a result of a deep weathering profile.

Bottom Seam: The thickness of the Bottom seam is usually between 12-30m and can be highly variable as a result of local basement lows. The seam is located 3-5m below the Mid

Seam and consists of four coal plies, namely the BA, BB, BC and BD bands, separated by carbonaceous shale and siltstone partings.

The **BA** coal ply varies in thickness from 0.3m to 4.5m, averaging 2.5m. It typically consists of dull coal and can be split locally into two units by a carbonaceous shale parting. It typically produces a yield at around 75% for a 19MJ/kg CV product.

The **BB** coal ply is approximately 1.7m thick and is separated from the BA band by a shale parting that is approximately 90cm thick. The BB band typically consists of mixed to bright coal and can yield approximately 65-70% at a 19.0MJ/kg CV.

The **BC** coal ply is on average 5.0m thick. This is markedly thinner than at the neighbouring Kangala Mine. The typical split between the upper (BC1) and lower (BC2) unit is not well defined, and not interpreted in the geological model at present. The BC coal band is separated from the BB coal band by a thick carbonaceous shale and siltstone parting. This parting is on average 7.4m thick, but highly variable across the project area and can reach thicknesses of up to 27m as recorded in one borehole. The BC unit typically consists of dull and mixed dull and bright coal capable of yielding around 65-75% for a 19 MJ/kg CV coal.

The **BD** coal ply is fairly well developed although not present in all the boreholes. It is separated from the BC unit by a 2.8m shale parting. Where developed it varies in thickness from 0.4m to up to 7m, with an average thickness of 2.1m. The BD coal band typically consists of a number of coal layers separated by carbonaceous shale partings. The coal is dull and of a poor quality, and yields vary between 30-40% for a 19MJ/kg CV product.

The coal measures generally are underlain by Dwyka tillites with an underlying basement consisting of dolomite and chert of the Malmani Group that typically displays karst features.

5.2.4 Middelbult Project Coal Seam Structure Plans

Overleaf are a number of plans that present the physical as well as selected coal quality characteristics of each of the coal units as modelled at the Middelbult project.

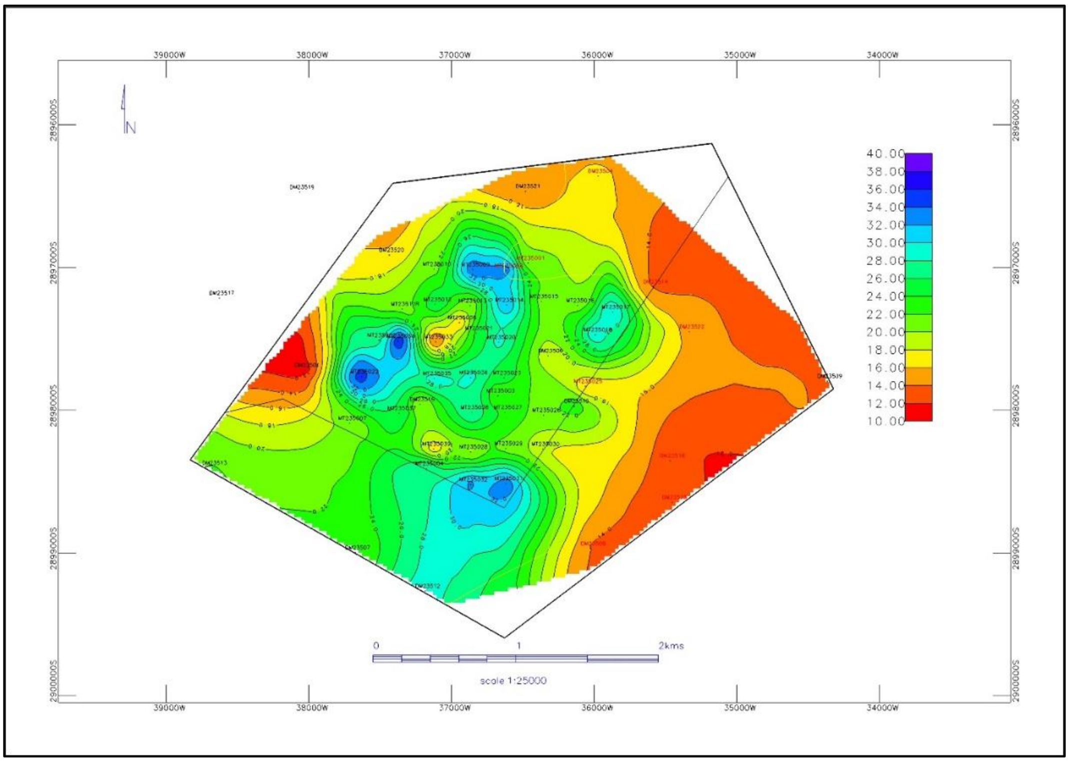

Figure 30. Middelbult - Limit of weathering thickness (depth in metres)

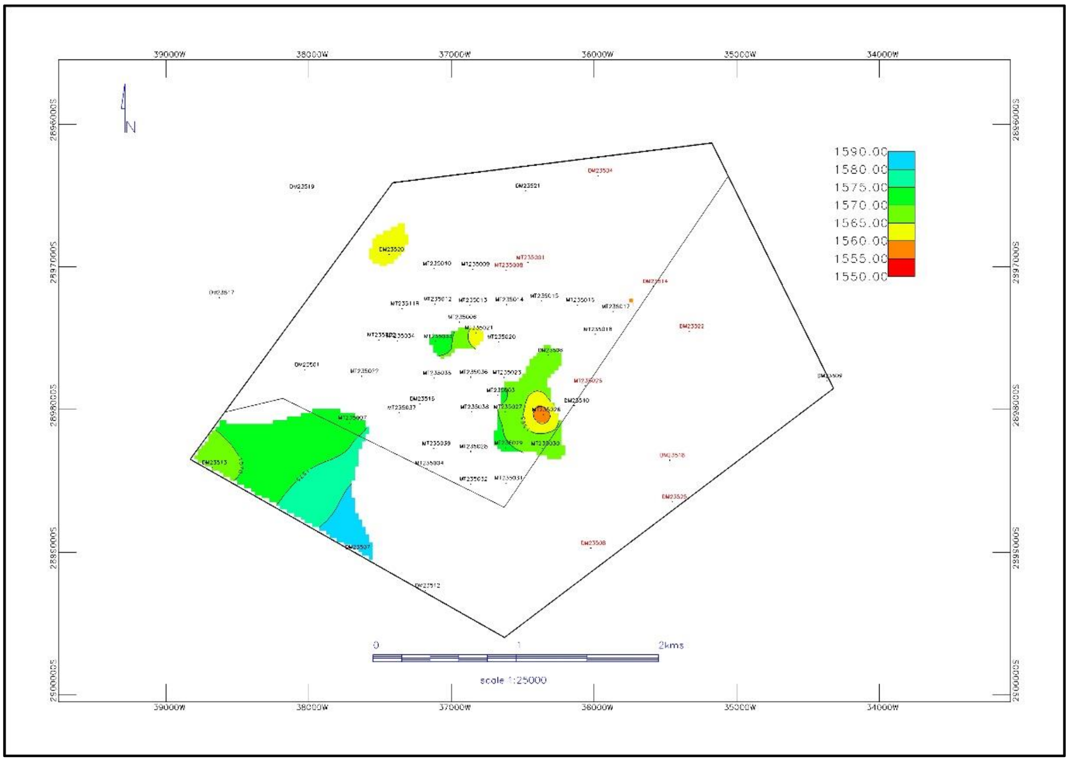

Figure 31. Middelbult - Mid Seam floor elevation (mamsl) and distribution

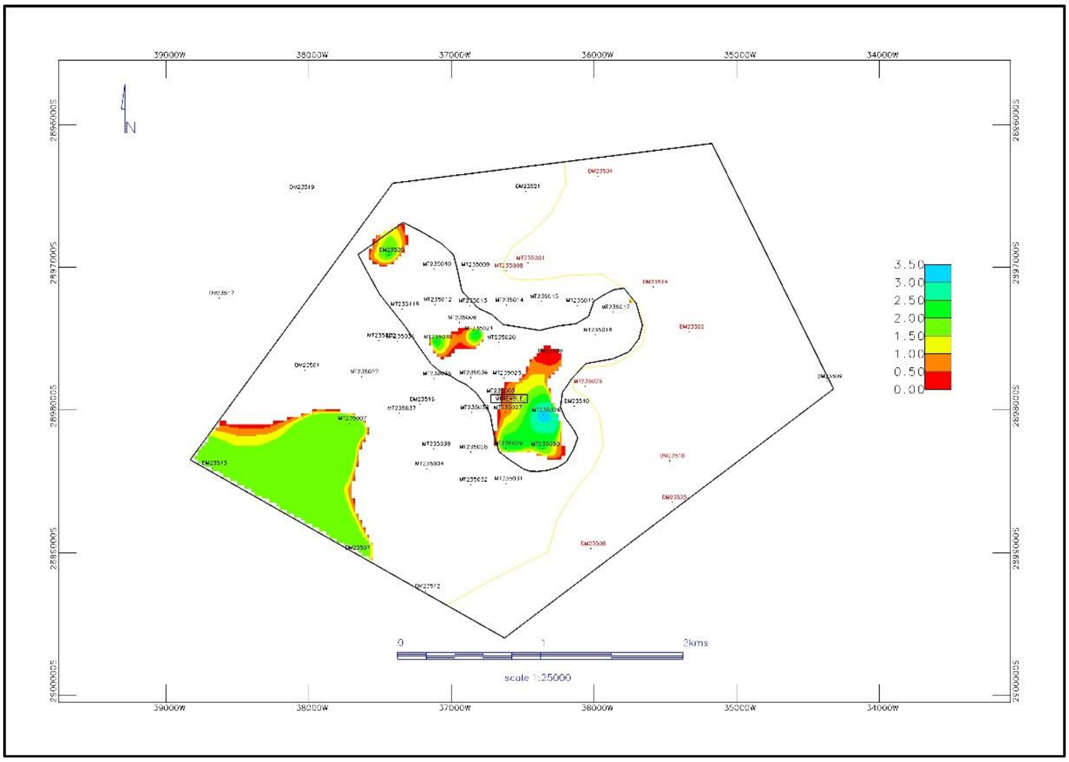

Figure 32. Middelbult - Mid Seam thickness (m) with mineable area

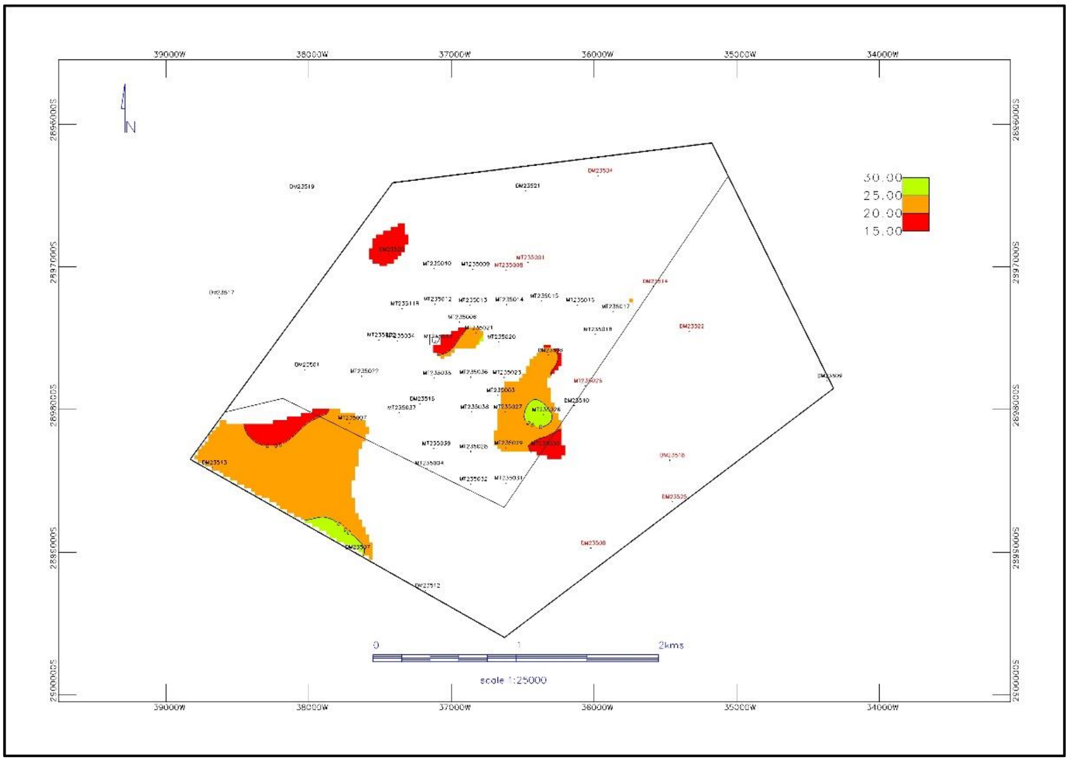

Figure 33. Middelbult - Mid Seam depth below surface (m)

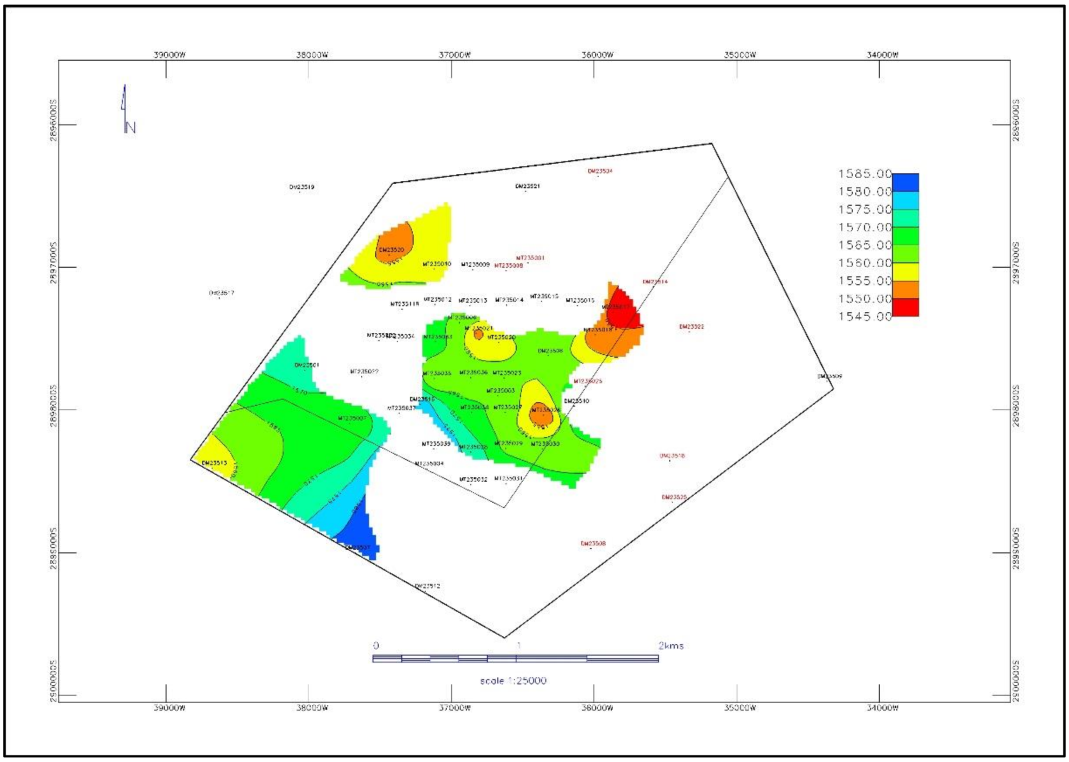

Figure 34. Middelbult - Coal Unit BA floor elevation (mamsl) and distribution

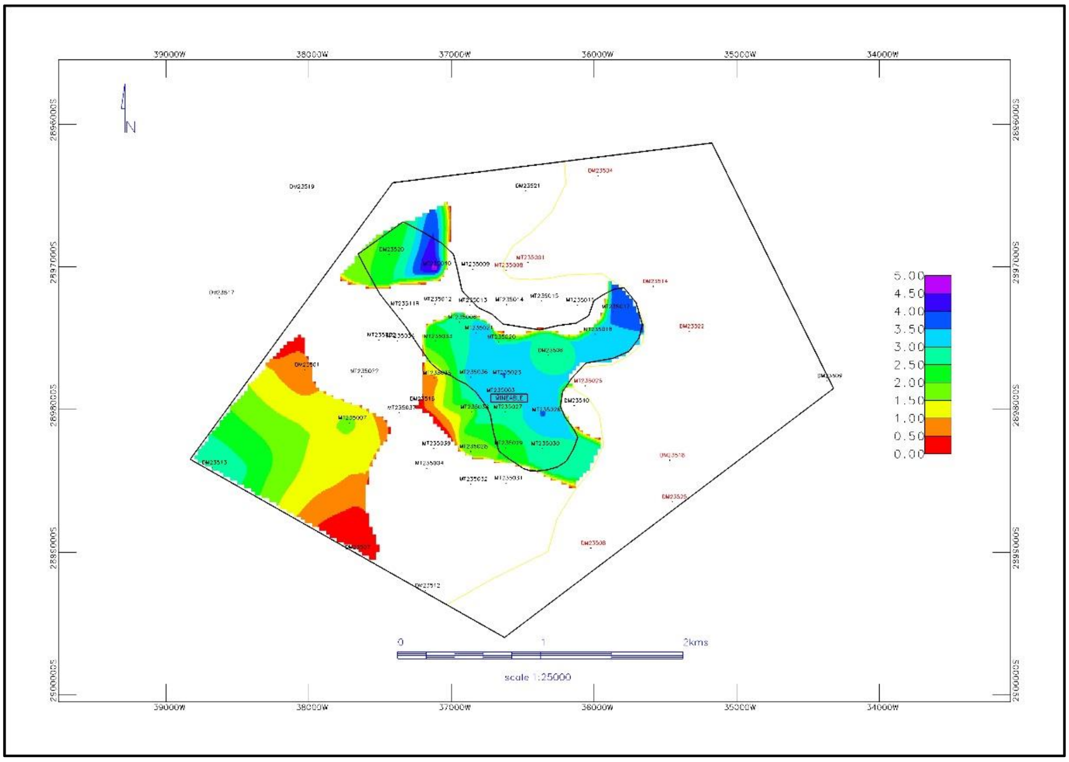

Figure 35. Middelbult - Coal Unit BA thickness (m) with mineable area

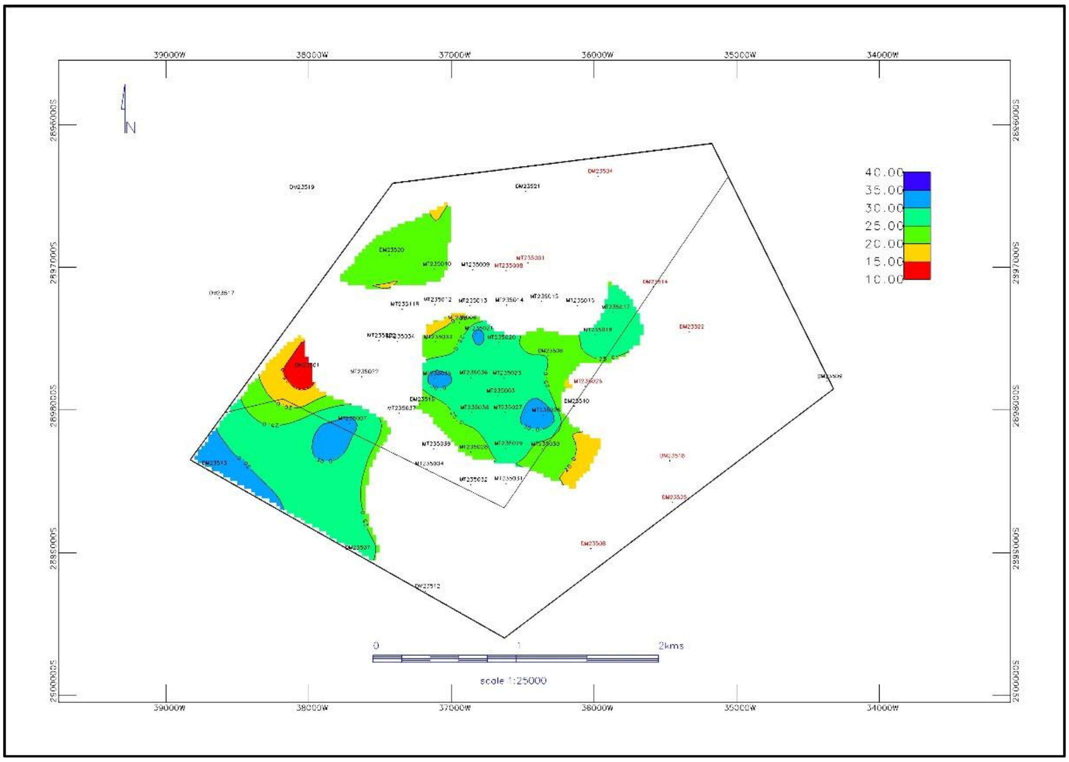

Figure 36. Middelbult - Coal Unit BA depth below surface (m)

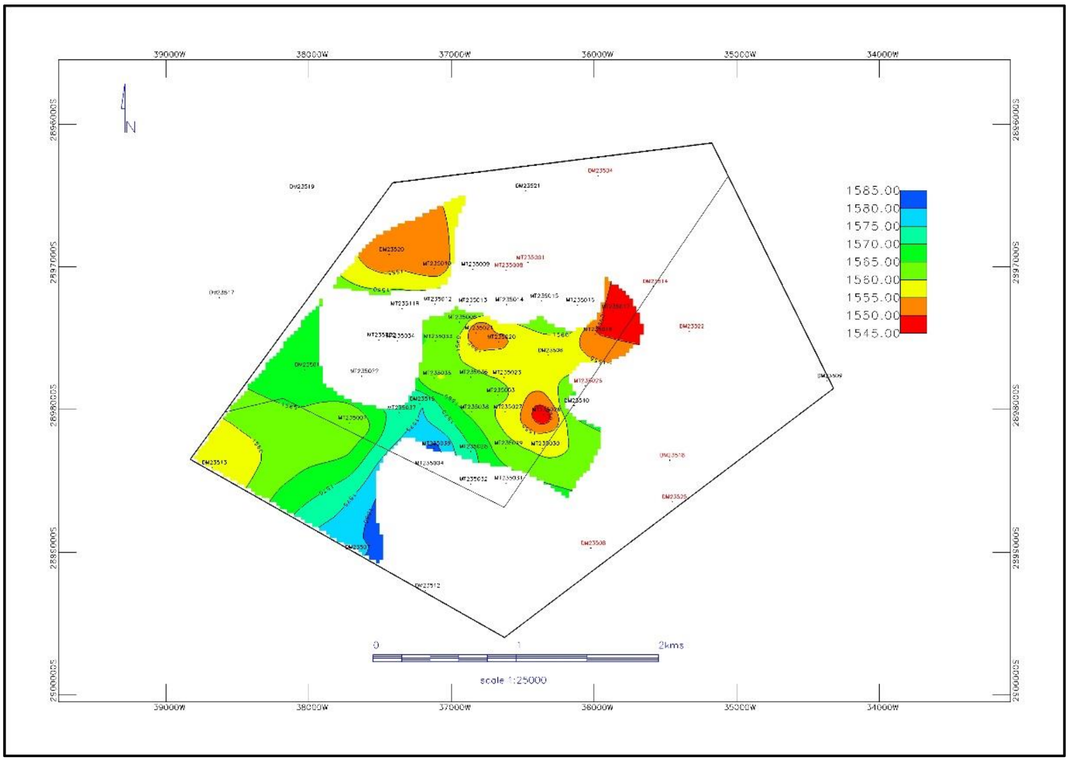

Figure 37. Middelbult - Coal Unit BB floor elevation (mamsl) and distribution

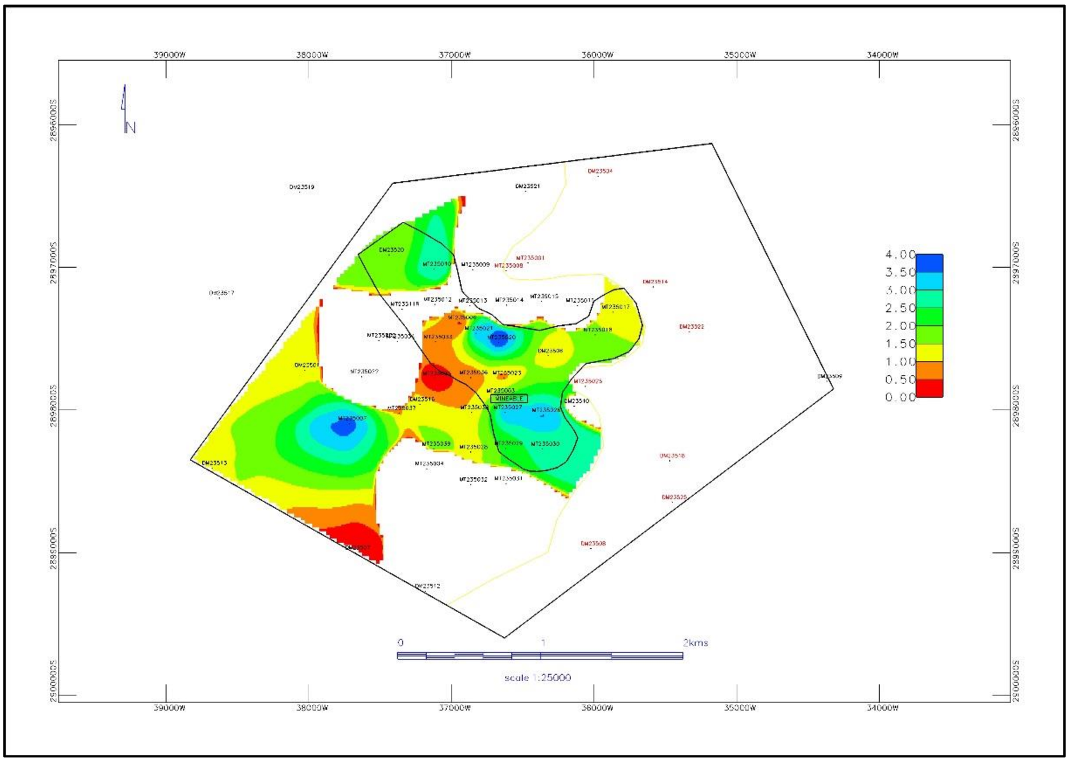

Figure 38. Middelbult - Coal Unit BB thickness (m) with mineable area

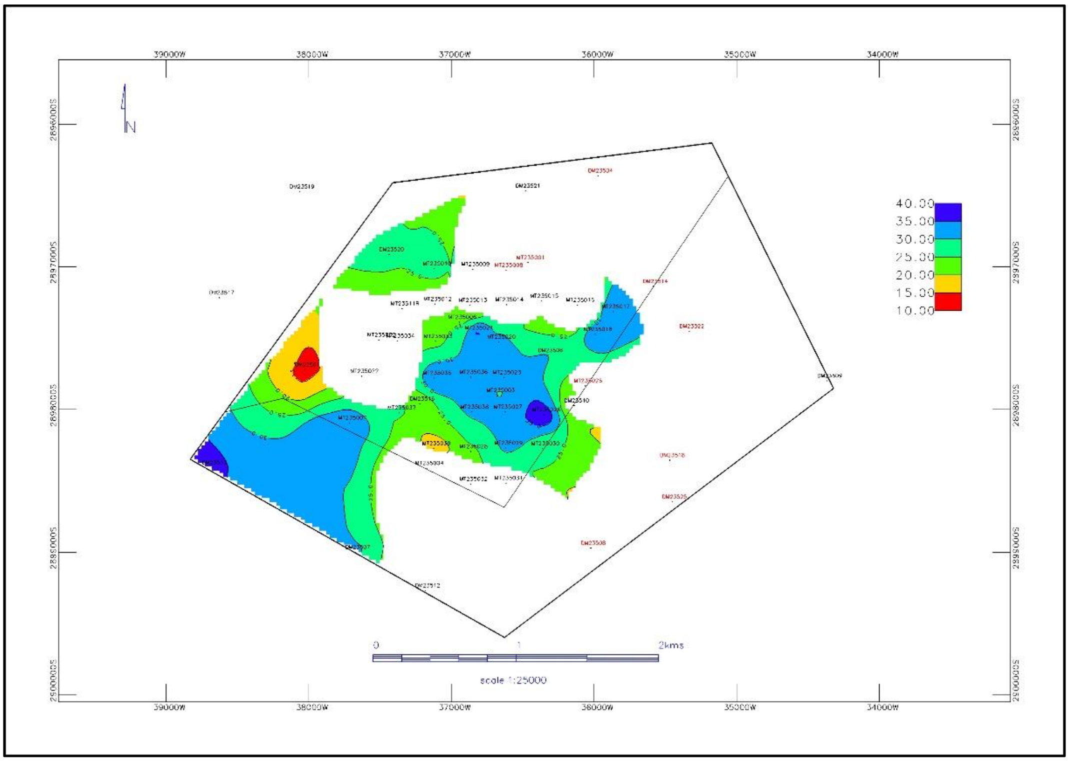

Figure 39. Middelbult - Coal Unit BB depth below surface (m)

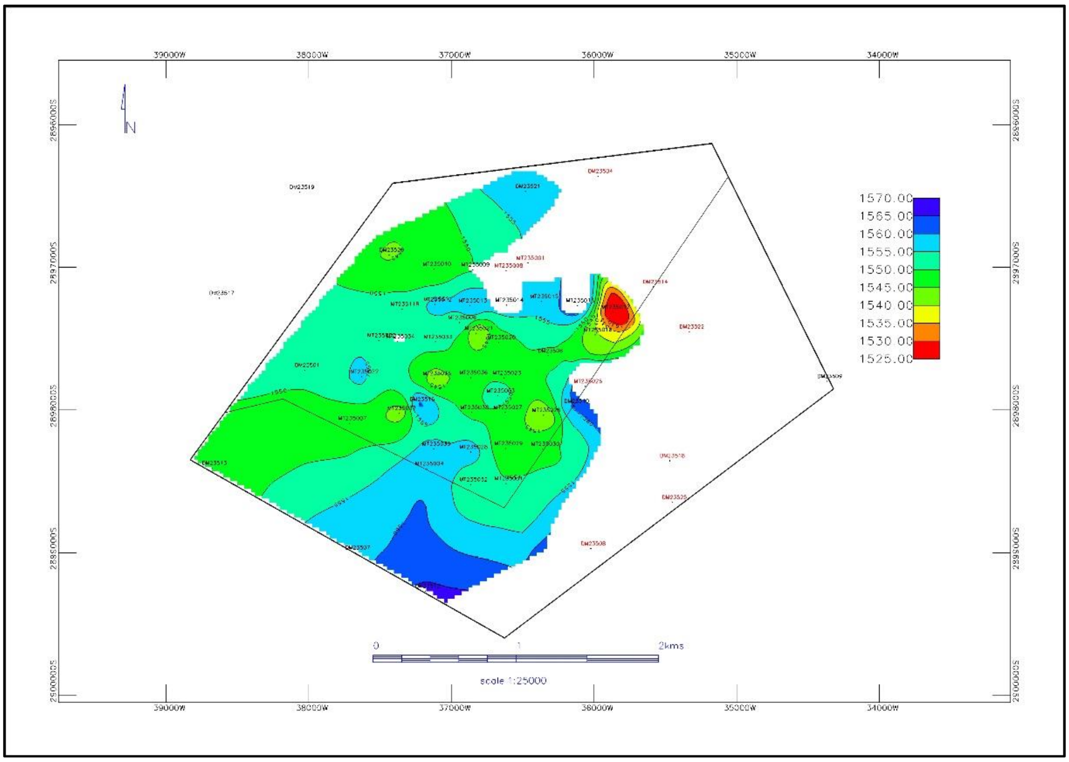

Figure 40. Middelbult - Coal Unit BC floor elevation (mamsl) and distribution

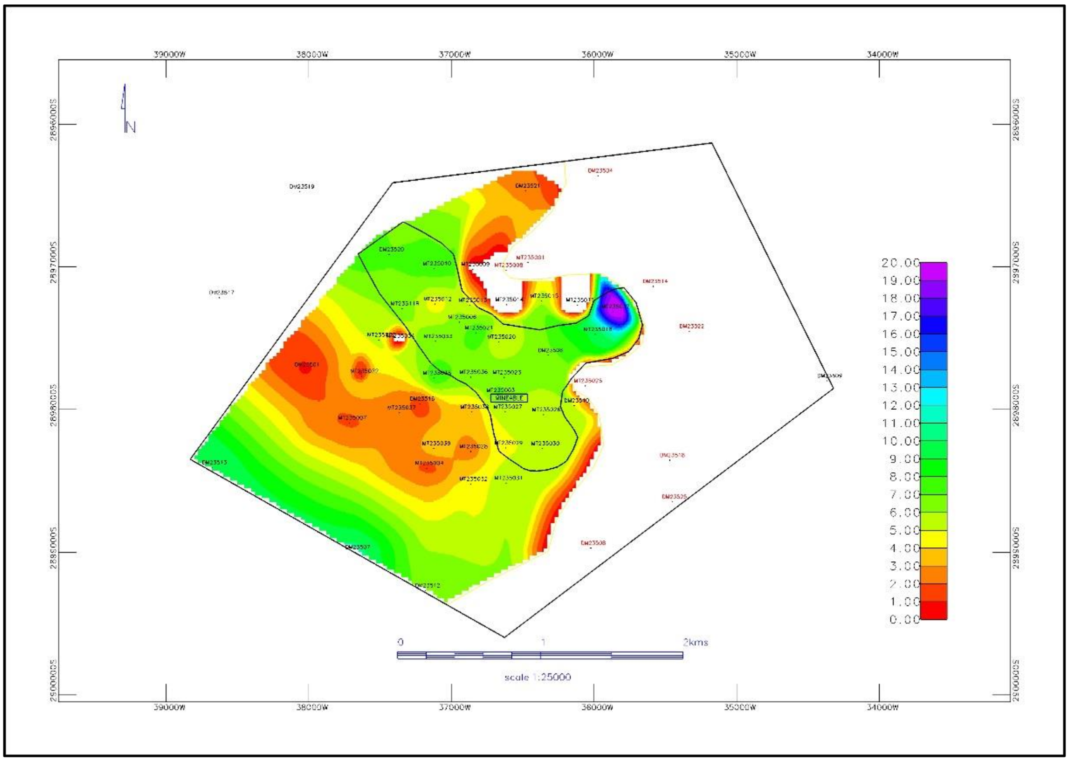

Figure 41. Middelbult - Coal Unit BC thickness (m) with mineable area

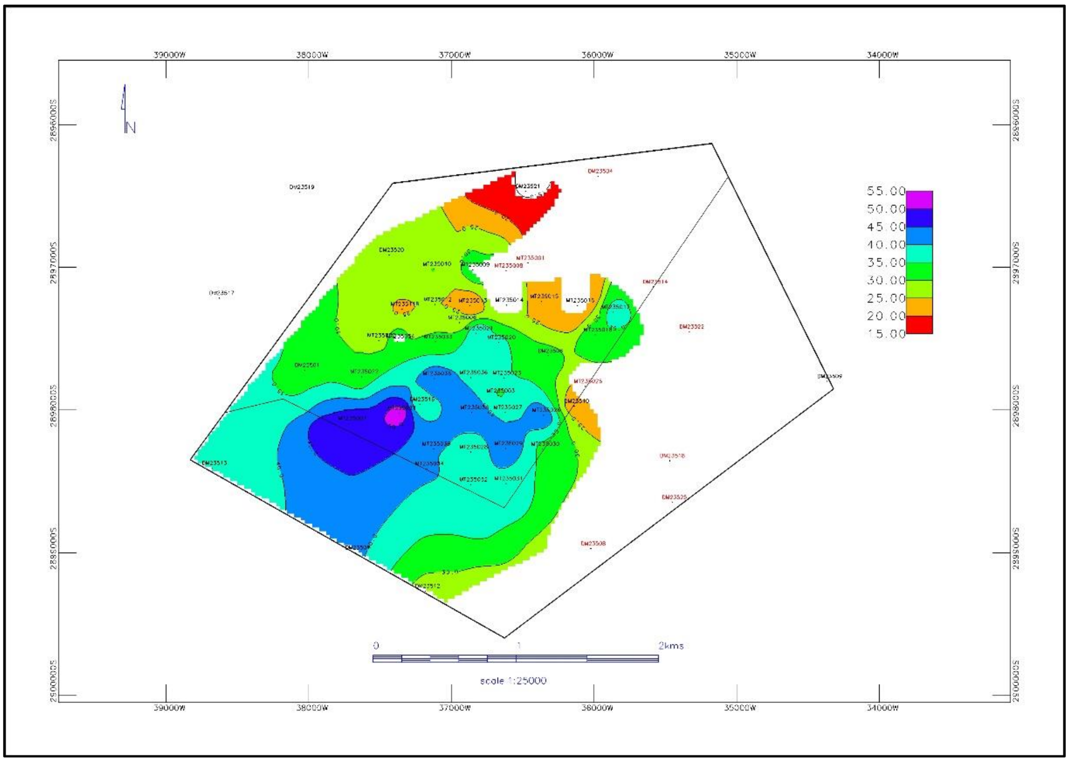

Figure 42. Middelbult - Coal Unit BC depth below surface (m)

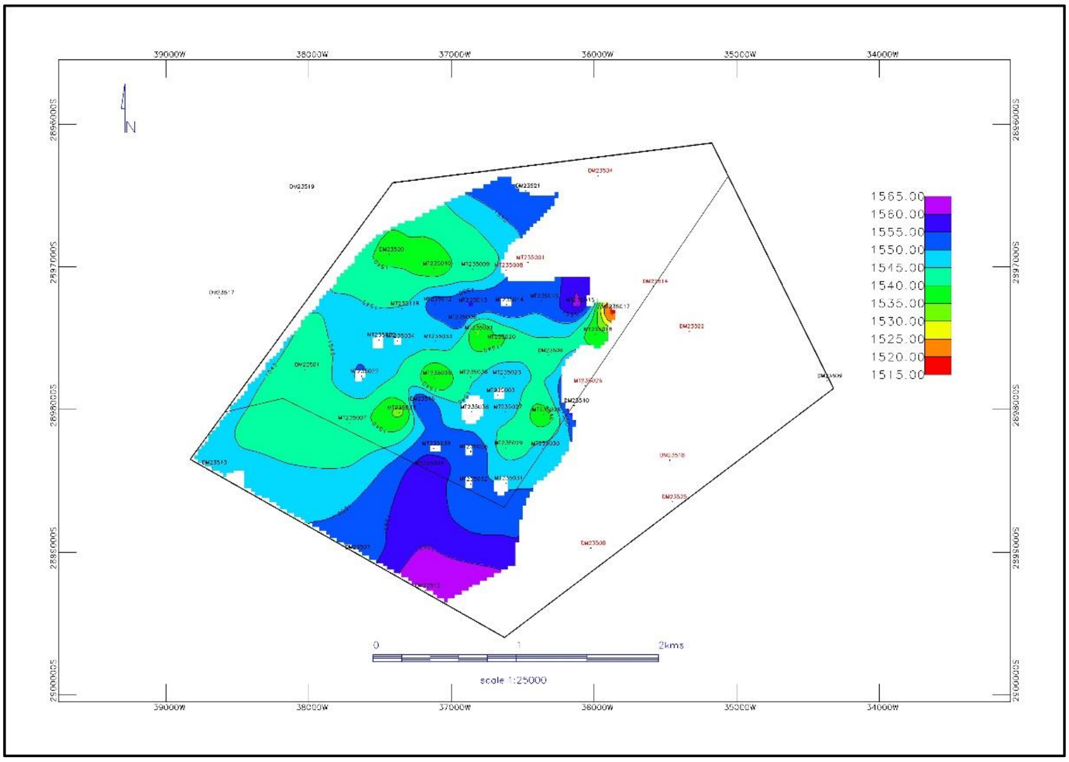

Figure 43. Middelbult -Coal Unit BD floor elevation (mamsl) and distribution

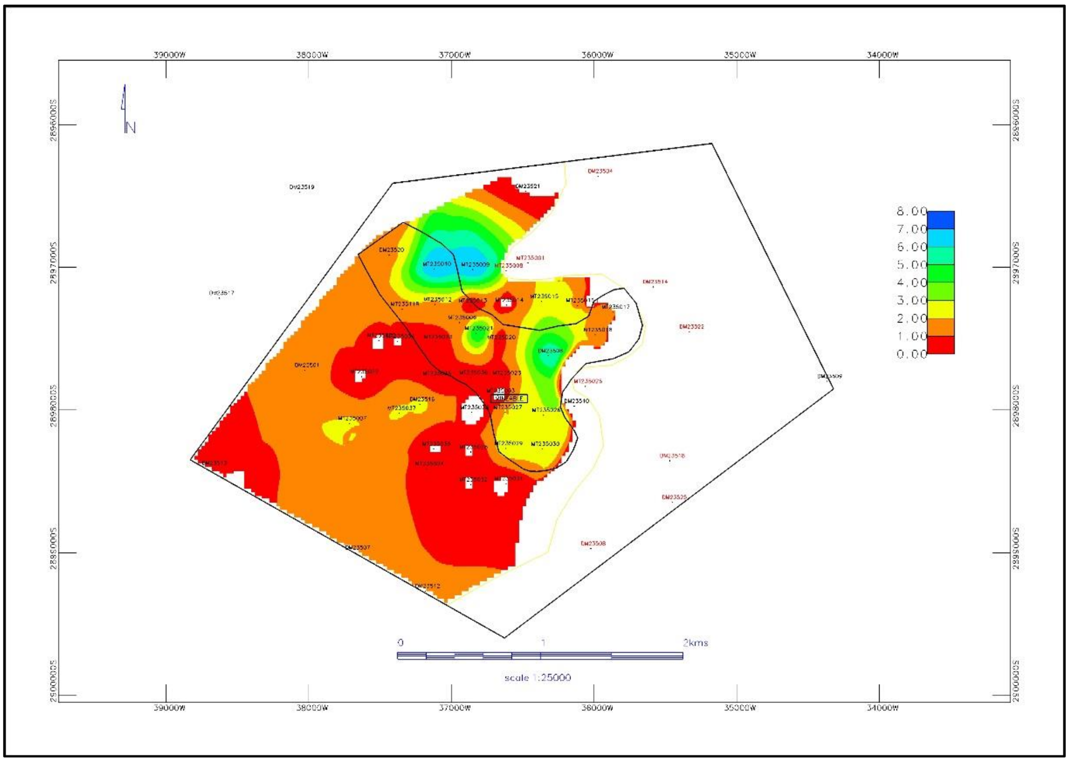

Figure 44. Middelbult - Coal Unit BD thickness (m) with mineable area

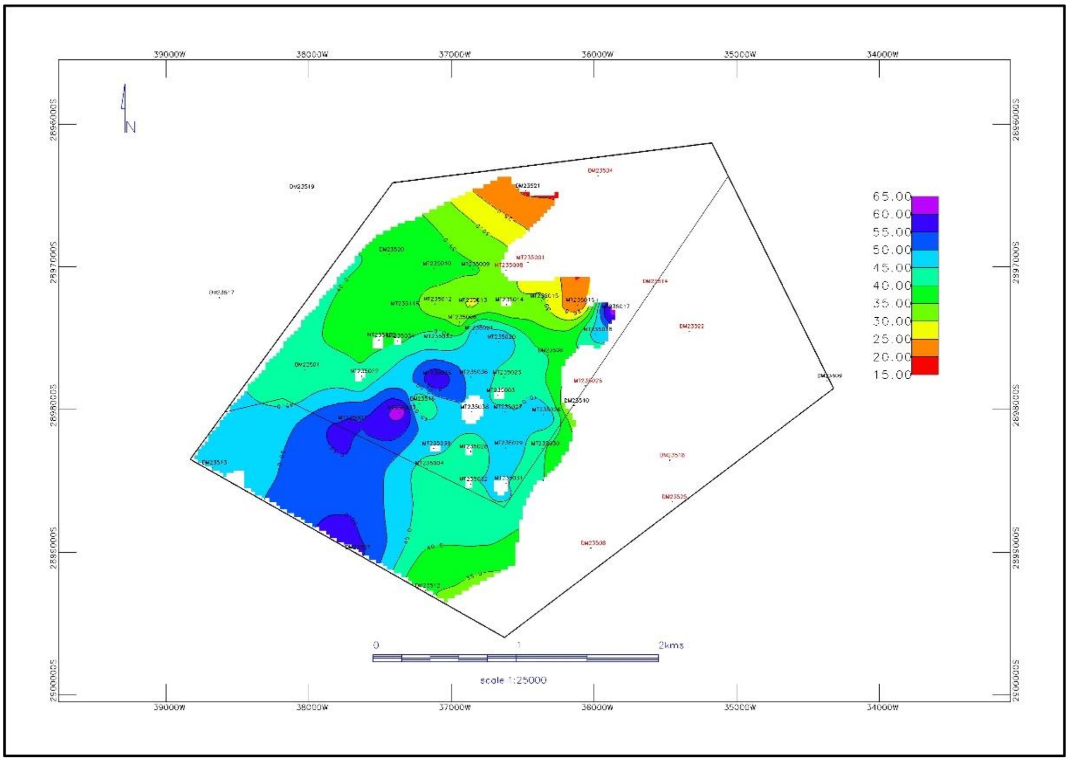

Figure 45. Middelbult - Coal Unit BD depth below surface (m)

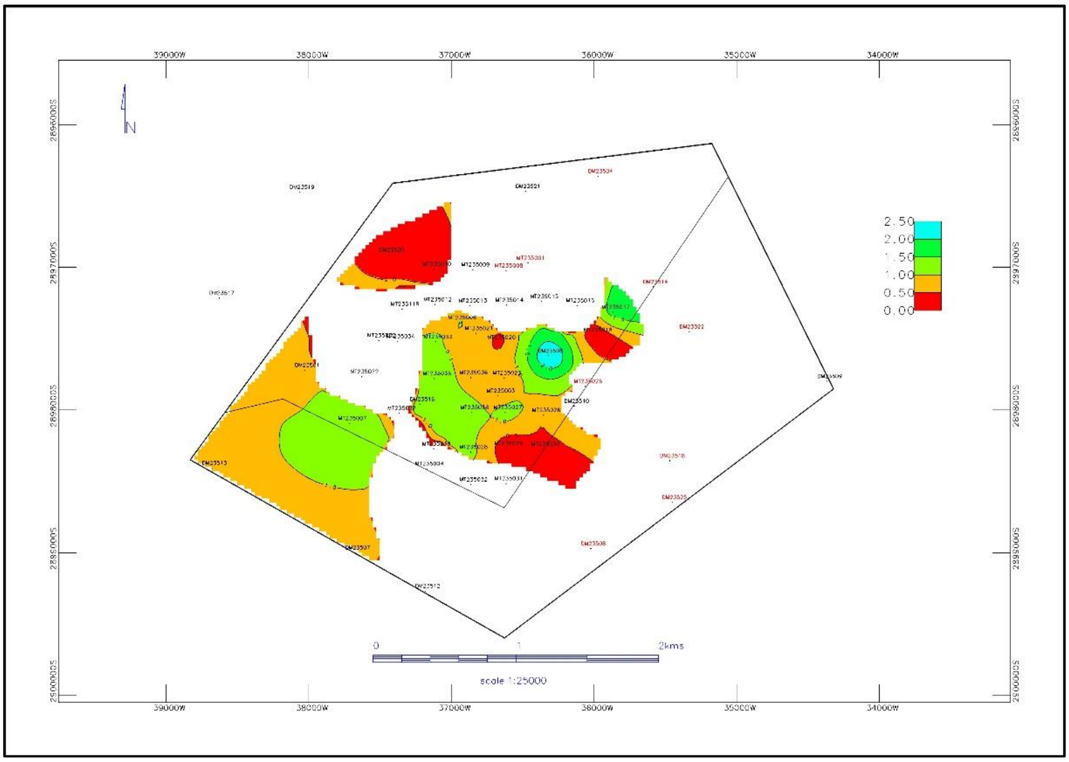

Figure 46. Middelbult - Parting BP1 thickness (m)

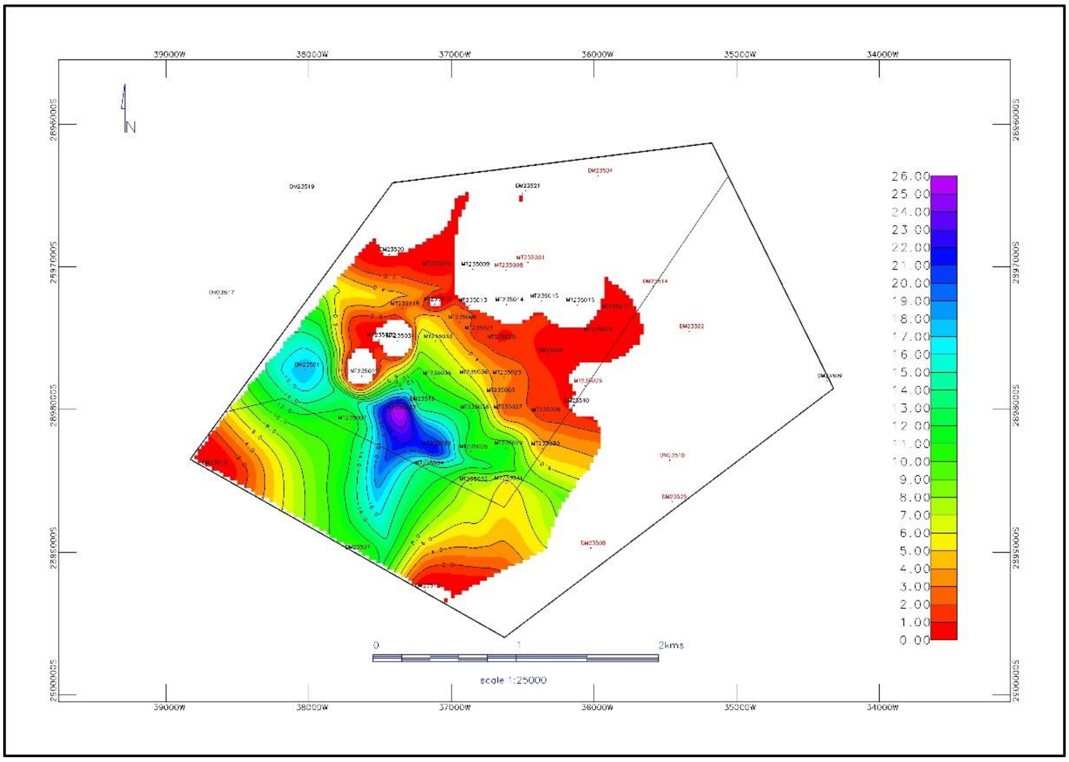

Figure 47. Middelbult - Parting BP2 thickness (m)

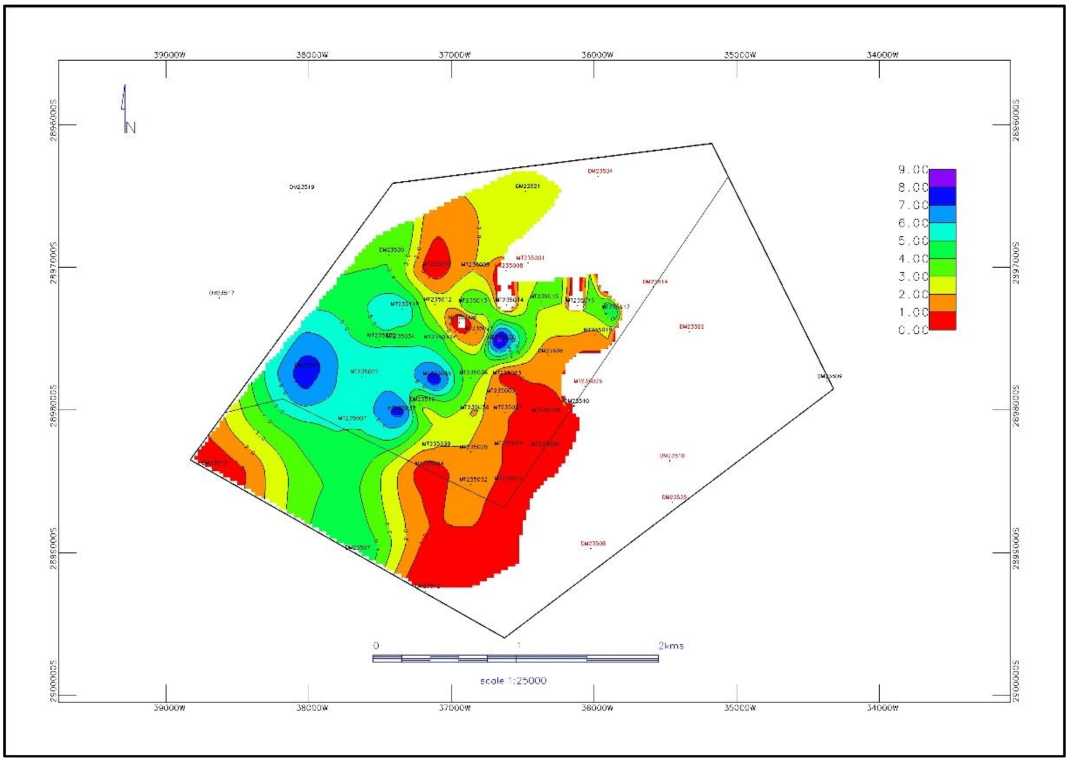

Figure 48. Middelbult - Parting BP3 thickness (m)

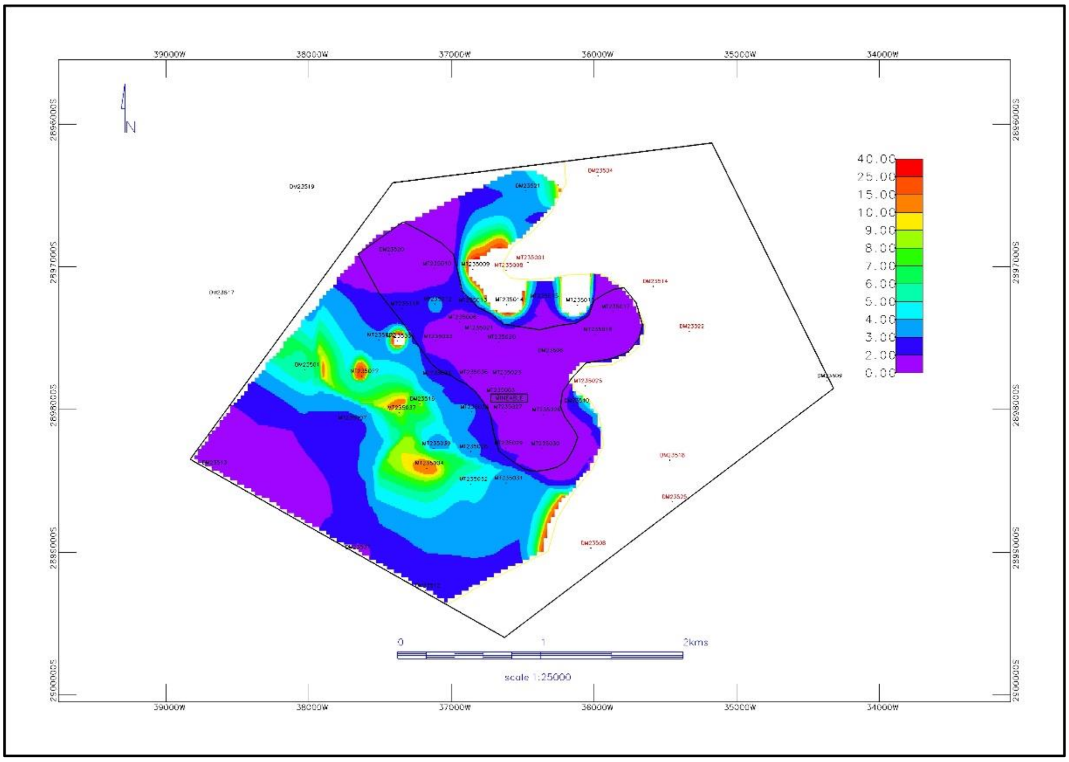

Figure 49. Middelbult - Combined coal unit strip ratio (cum/t)

5.2.5 Modderfontein Project Geology

The typical coal seam profile at the Modderfontein project consists of two main seams, i.e. Middle and Bottom seams, each consisting of a number of intraseam partings similar to what is present at the Kangala Mine and presented previously in Figure 12. The Top seam has mostly been removed by weathering, and is only present towards the deeper western portion of the area. The Mid seam has limited intersections, and only the Bottom seam is generally present on this portion. Below are a number of plans illustrating the physical properties of the Bottom seam at Modderfontein.

5.2.6 Modderfontein Project Coal Seam Structure Plans

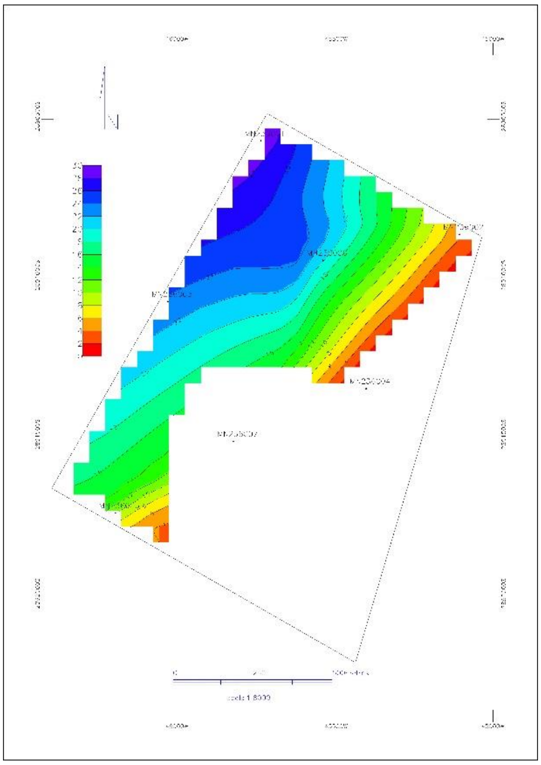

Figure 50. Modderfontein – Bottom seam thickness (m)

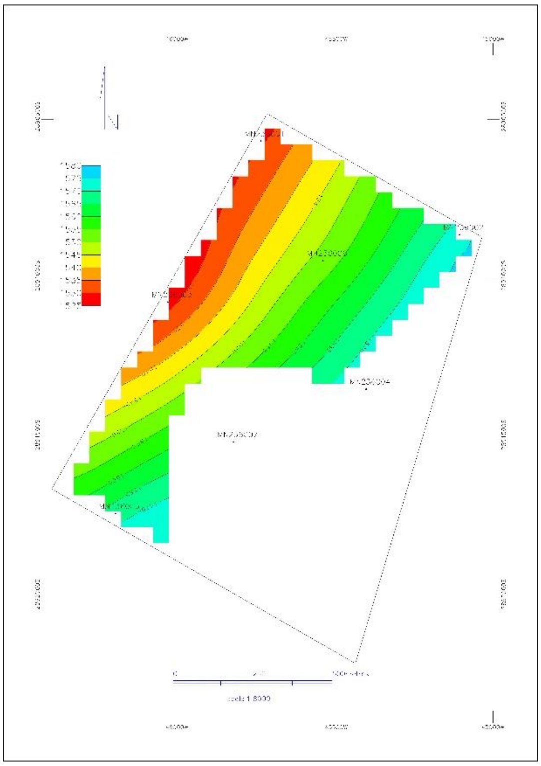

Figure 51. Modderfontein – Bottom seam floor elevation (mamsl)

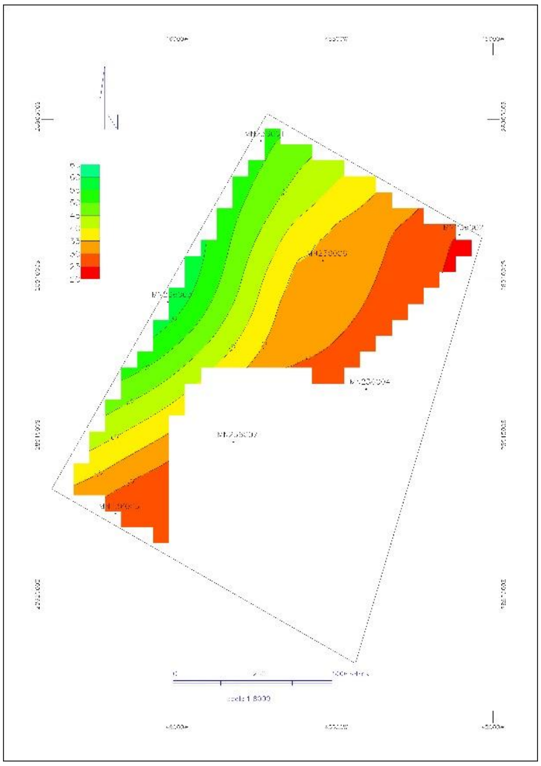

Figure 52. Modderfontein – Bottom seam depth below surface (m)

6. EXPLORATION AND DATA

6.1 Site Visits

The author of this report did not conduct a recent site visit prior to compiling this report. Gemecs was, however, actively involved with the exploration phase of the Kangala mine until 2012, and during this period a number of site visits were conducted. These visits only related to the Kangala Mine property, and the Modderfontein and Middelbult sites were not visited as it was not part of the scope of the project at that point in time. The author is however familiar with these localities as it is located adjacent and nearby to the Kangala mine. The coal resource estimation is based on a recent geological model received from Universal Coal in 2015, and includes all available borehole information, wireline logging and coal analytical data stored in a borehole data base. All other related information such as mined out areas were received from Universal Coal.

6.2 Drilling Kangala Mine

A total of 220 exploration boreholes are present in the database. Historical drill holes have been removed, as sufficient infill drilling was done by Universal Coal to define and estimate the coal resource. All the boreholes used in the geological modelling database were drilled by Universal Coal. The dataset includes 19 large diameter boreholes (T6-146) that were drilled for bulk sample test work and additional coal analyses. All boreholes were cored fully using a conventional TNW size barrel (60.5mm core diameter). An assessment of core recovery was made by the geologist in the field using the recovered thickness versus thickness reported in the geophysical log. If core recovery for a coal seam fell below 95%, the borehole was re-drilled. All boreholes were sealed after drilling, and sites were rehabilitated to acceptable standards.

Exploration drilling carried out by Universal Coal can be summarised as follows:

- 1980s: 28 Core diamond drilling holes drilled by Southern Sphere (Pty) Ltd and Ingwe Coal Corporation. (Historical drilling – not used in geological model).
- 2008-2012: 124 exploration boreholes. Resource definition. Target a drill spacing of 150m.
- 2012-2014: 96 infill drilling holes to assist with detailed mine planning and grade control. Target a drill spacing of 50x50m.

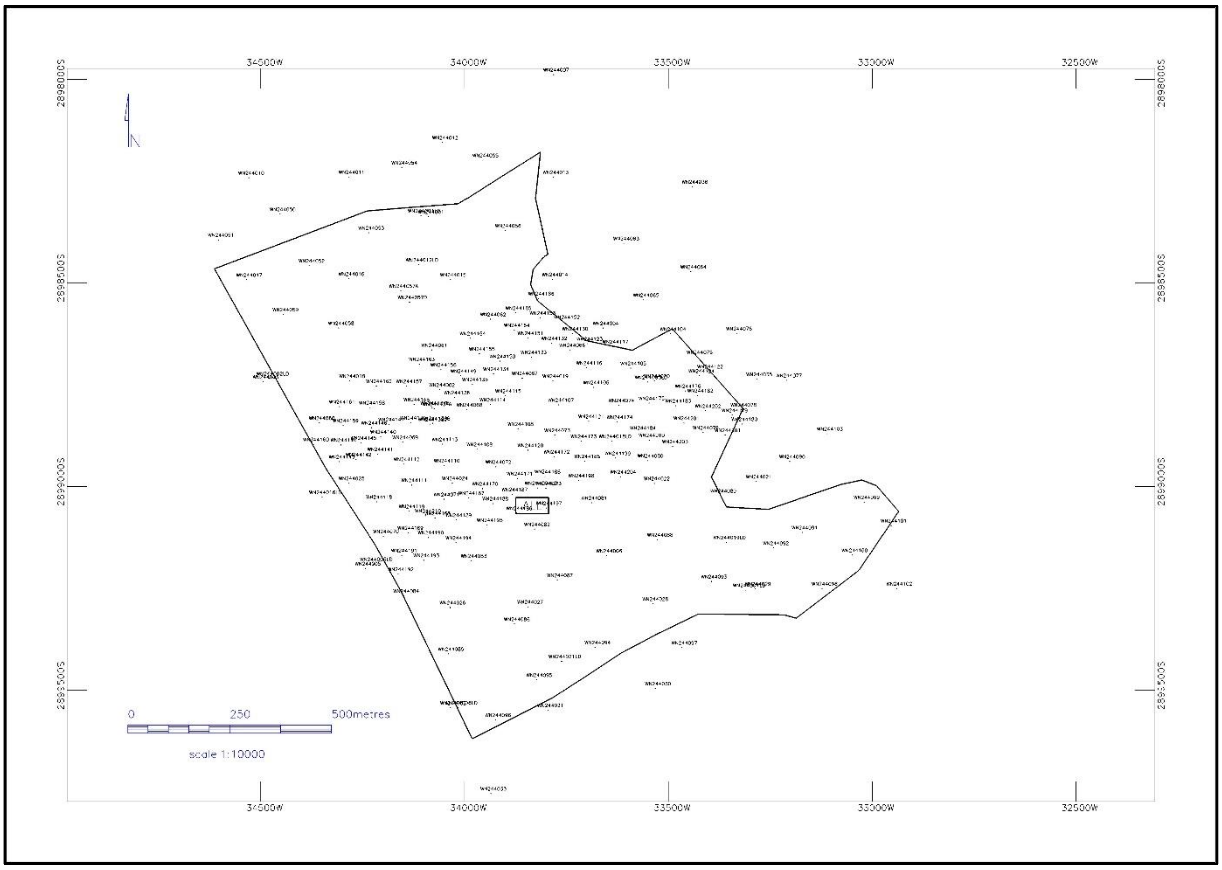

Figure 53. Kangala Mine – Borehole plan indicating borehole positions

6.3 Drilling Middelbult Project

The first prospecting for coal at Middelbult was done between 1977-1981 by Southern Sphere Mining and Development Co. (Pty) Ltd. Results from a total of 23 historical boreholes drilled by this company were obtained from the Council of Geoscience. During 2008, 7 additional boreholes were drilled and were followed up by Universal Coal with another 30 boreholes during 2011. This included twinning one of the 2008 boreholes. All boreholes were drilled using conventional diamond drilling and TNW core size and holes that intersected coal were also logged by means of downhole wireline logging.

The results from the diamond core borehole drilling were used to develop a geological model and complete a coal resource estimate. All the historical boreholes were evaluated and coal unit interpretations adjusted to the latest understanding and interpretation of the coal units.

Refer to Figure 54 overleaf indicating exploration borehole localities, with non-coal boreholes indicated in red, and the estimated limit of coal resources defined by the yellow line.

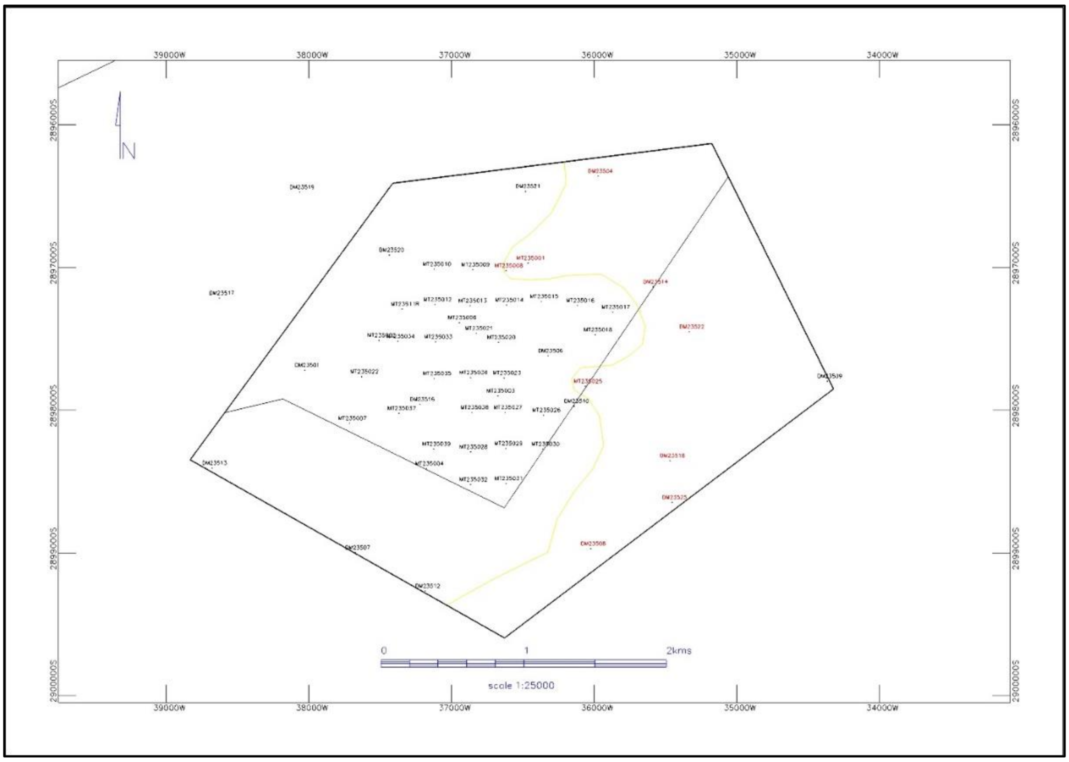

Figure 54. Middelbult - Borehole plan indicating borehole positions

6.4 Drilling Modderfontein Project

A total of 7 exploration boreholes are present in the database. All the boreholes used in the geological modelling database were drilled by Universal Coal. All boreholes were cored fully using a conventional TNW size barrel (60.5mm core diameter). An assessment of core recovery was made by the geologist in the field using the recovered thickness versus thickness reported in the geophysical log. If core recovery for a coal seam fell below 95%, the borehole was re-drilled. All boreholes were sealed after drilling, and sites were rehabilitated to acceptable standards.

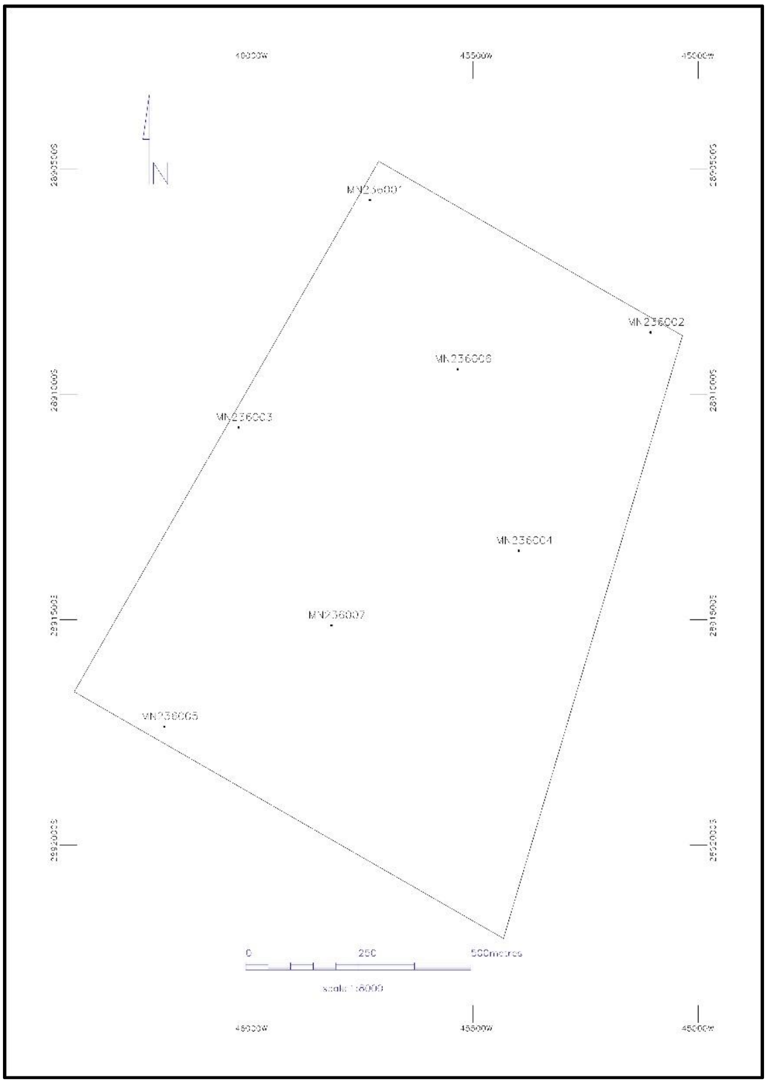

Figure 55. Modderfontein - Borehole plan indicating borehole positions

6.5 Survey

Planned borehole positions were staked in the field using a handheld GPS. Actual borehole positions were sited as close as possible to the planned position, taking into account site accessibility and local surface features. The pegged positions were again surveyed using a handheld GPS, and both X and Y coordinates as well as the ground elevation were recorded for each borehole. After the completion of the borehole, a registered surveyor was contracted to perform the final collar survey for each borehole. The final survey was performed using a dual frequency GPS with base station, with an accuracy of 10mm. All borehole coordinates are surveyed in the Local 29 survey system and Hartebeesthoek 94 datum.

6.6 Logging

Initial core logging and sampling was undertaken by independent, qualified and experienced coal geologists contracted from geological consultancies such as Coffey Mining, Louis Berrington, Gemecs and Geosphere. Most of the infill and grade control boreholes were logged and sampled in-house by Universal Coal's own geologists. The same standard and logging protocols were followed throughout.

All borehole cores (total length) were depth marked, geologically logged and photographed and then sampled by independent, qualified and experienced coal geologists employed by Gemecs or by Universal Coal's in-house geologists. All borehole cores were logged following industry-accepted coal lithological descriptions, procedures and methods. All logging carried out was qualitative in nature. Every aspect of the drill core was recorded in a standard data capturing template, using a standard set of description codes, and transferred to a dedicated borehole database for further validation.

All boreholes intersecting coal were geophysically logged by Geoline Services. A standard suite of geophysical sondes was run, including both long- and short-spaced density (g/cc), gamma and caliper. All geophysical tools were calibrated prior to arrival on site. Hard copy prints of the total borehole layout, as well as detailed printouts of the coal seam horizons, were made available on site. Electronic data files (LAS), as well as soft copy PDF versions, were received at a later stage and imported to the geological database.

6.7 Sampling

Sampling of coal seams was undertaken only once the coal seam was logged accurately and in detail, together with the available hard copy of the geophysical detailed logging results. Sample increments were based on variations in coal characteristics in conjunction with density data obtained from wireline logs.

Whole core was sampled as per the South African industry standards. Where any core loss occurred, this was recorded on the sampling sheet. Only coal seams with satisfactory core recovery were sampled.

The detailed coal ply subdivisions were used as a guide to sample according to these subdivisions. All coal seams and intra seam non-coal partings intersected were usually sampled separately depending on the thickness of the parting. If the non-coal partings were too thin to be sampled on their own, it was included with the coal plies to fit the mining sections.

All coal samples were treated with due care during handling in order to minimise any change to the originally sampled material. The samples were bagged in 250 micron thick polyurethane bags. A specially printed paper sample tag was placed inside the bag with the coal and a further tag affixed to the uppermost fold-over of the bag. Each sample mass was recorded using an electronic scale before being submitted to the coal laboratory. For each sample the unique sample ID, sample thickness and sample mass was recorded on the borehole log sheet. In addition, the client name, project ID, as well as date was added to the sample ticket. The sample mass is not included on the sample ticket to the lab, as the lab is required to weigh and report each sample mass before analysis as a sample control measure.

All samples submitted to the coal laboratory are completed on a standard sample instruction book in triplicate, with the required analytical instructions for each sample. Upon delivery at the lab, all samples are checked and signed off as delivered to the lab.

6.8 Coal Analyses

All Universal Coal's thermal coal samples analysed between 2008 and 2012 were submitted to Inspectorate M&L's (Pty) Ltd Middelburg laboratory. Inspectorate was acquired by Bureau Veritas in 2010 as part of its successful global commodities strategy. Since then, it has been known as Bureau Veritas Inspectorate Laboratories (PTY) Ltd. It is SANAS accredited with certificate number T0313 as well as accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. Since 2012 coal samples were submitted to SGS South Africa (PTY) Ltd Witbank lab, with SANAS accreditation number T0497 and International Standard ISO/IEC 17025:2005.

For each sample the following tests/analyses were performed:

- The raw Relative Density ("RD") was determined.
- The sample was air dried and crushed and screened into –0.5mm and +0.5-25mm fractions.
- Proximate analysis (raw) was performed on the two size fractions including inherent moisture content (IM), ash content (AS), volatile matter content (VM) and fixed carbon (FC) by difference.
- Raw gross calorific value (CV) and total sulphur (TS) content were determined for each size fraction.
- Calculation of reconstituted raw coal values for total sample.
- Washability tests (Float & Sink) were conducted on all specified samples. Ten wash densities plus sink were used (F1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.65, 1.70, 1.80, 1.90 and S1.90). After the washing process the different float fractions obtained were submitted for the following laboratory tests: inherent moisture content, ash

content, volatile matter content, fixed carbon (by difference) raw gross calorific value and total sulphur content.

- Calculation of cumulative wash values for each cut-point density and of reconstituted raw coal values for each washability test sample.
- Ultimate analyses, ash analysis, ash flow temperature, abrasiveness index and Hargrove Index testwork/analyses were carried out on selected representative composite samples.

Where the laboratory detected irregular analytical results, a duplicate sample was re-analysed. Where this procedure did not resolve the irregularity, a duplicate sample was sent to an external laboratory for verification.

Both Bureau Veritas Inspectorate and SGS make use of a custom-designed LIMS with traceability to all raw data. All data calculations are done automatically and are first line checked by the laboratory supervisors for duplicate results and all out-of-tolerance results are repeated. Completed projects are handed over to the Customer Liaison Officer. Data is extracted to Microsoft Excel where it is pulled into graphs (which are macro operated) with pre-set limits using calorific value/ash correlation with upper and lower tolerance values. All results are also manually evaluated by experience and all suspect results, together with all results that deviate by two points below or above the pre-set check value, are repeated.

All analytical results were received from the lab in both electronic and hard copy formats. Electronic files were used to import the raw as well as fractional coal washability data into the borehole database for further checks and data validation.

6.9 Data Verification

Gemecs implemented a core logging and sampling standard that was used by Universal Coal during the exploration program. All historical and older boreholes not logged by Gemecs or Universal Coal were converted to this logging standard. All the borehole and analytical data were imported and is stored in Micromine's Geobank borehole database system. Data was standardised to the same data standard and necessary quality assurance and quality control validations and checks were performed within the database.

The electronic input data consisted of the following:

- Borehole collar survey file
- Borehole lithology descriptions
- Borehole seam interpretations
- Borehole informal unit interpretations

- Downhole geophysical logs (LAS files)
- Original analytical report sheets from the coal laboratory
- Historical borehole information.

All these original electronic files were imported into the borehole database. This included borehole collars, lithological descriptions, unit interpretations, geophysical logs and raw and fractional analyses. Lithological descriptions were verified against the downhole geophysical logs, and coal seam correlations validated. Coal seam intersection depths were adjusted according to the downhole geophysical data where necessary.

A number of analytical data verification routines were used to validate all the raw and washability data as received from the laboratory. Anomalies were identified, queried and corrected where possible, otherwise flagged and removed from the final modelling dataset.

All the coal samples with washability data were normalised in the borehole database to produce cumulative washability data on a sample basis that was used in the modelling of the different coal washability products.

7. GEOLOGICAL MODELLING

7.1 Background

The previous coal resource models were all created by Gemecs, using Geovia Minex^{TM} software. Since 2012, the geological modelling responsibilities was taken over by Universal Coal. Gemecs handed over the geological models, model notes as well as geological database files to Universal Coal during this period. A new updated geological model was created in 2015 by Universal Coal for the Kangala Mine, including the latest infill and grade control diamond drilling boreholes. Gemecs performed an audit on this 2015 model, to ensure the model is acceptable for reporting of in situ mineable coal resources. Although some modelling and data findings were made during this audit, Gemecs is of the opinion that these findings do not have a material impact on the overall coal resource reporting. There are, however, some findings that could have an impact on the accuracy of the short term mining plan that therefore need to be addressed. Notes on the findings were presented to Universal Coal, and it is recommended that these findings be addressed in future model updates. Both the Middelbult and Modderfontein models are unchanged since 2012.

7.2 Structural Modelling

Geological modelling was performed using Geovia Minex™ software. Minex provides the best geology and mine planning tools for coal and other stratified deposits, ensuring resources are evaluated accurately and mined efficiently.

The typical coal seam profile of the Kangala projects consists of three coal seams. The Top seam is usually not present mainly due to the deep weathering profile. The Bottom seam consists of a number of coal plies and intraseam partings as illustrated below in Figure 56.

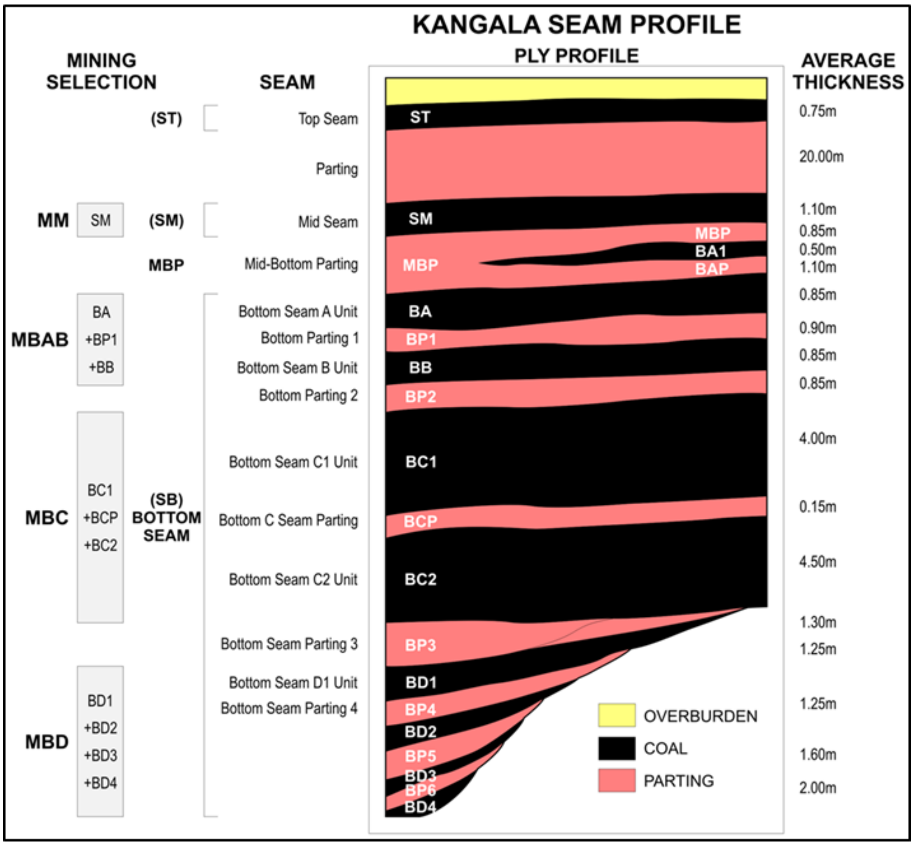

Figure 56. Mining selections relative to coal plies

For Kangala mine, mining selections, rather than the actual coal seams and plies are modelled, as this more closely represents the mining resource as it is currently mined. Sections were used across the resource area to ensure all these correlations are consistent, and were verified against the lithological logging as well as down hole geophysical logs. For Middelbult and Modderfontein different approaches were followed, according to the best interpretation or clients' needs at the time of modelling. These are however all variations of the options as illustrated in Figure 56. Modelling selections for each project are presented in the following tables:

Table 8. Kangala Mine model selection summary

Seam	Model Selection	Coal Plies and Partings
Mid Seam	MM	SM
Bottom Seam	MBAB	BA+BP1+BB
Bottom Seam	MBC1	BC1
Bottom Seam	MBC2	BCP+BC2
Bottom Seam	MBD	BD1 ±BP4 ±BD2 ±BP5 ±BD3 ±BP6 ±BD4

Table 9. Middelbult model selection summary

Seam	Model Selection	Coal Plies and Partings
Mid Seam	SM	SM
Bottom Seam	BA	BA
Bottom Seam	BB	BB
Bottom Seam	BC	BC1+BCP+BC2
Bottom Seam	BD	DB

Table 10. Modderfontein model selection summary

Seam	Model Selection	Coal Plies and Partings
Mid Seam	SM	SM
Bottom Seam	SB	ALL COAL PLY's and PARTINGS

The surface topography was modelled using the borehole collars only. No comparison was made with any surface DTM data, but the contours in general are consistent with the actual observed topographic surface. For each borehole, the softs (no coal and soil recovered at top) and limit of weathering depth as recorded were used to model the softs (SFT) as well as the weathering surface (LOW).

The various model selection sequences were validated in Minex before structural modelling commenced. This is done to check if all the seams/units/ply's are in the correct stratigraphical order, that no negative seam thicknesses are present and to report on any missing seams. Missing seams/mining selections (boreholes that did not intersect seams due to basement, dolerite or weathering) were interpolated and thicknesses set to zero, to ensure a full stratigraphical sequence for modelling and also to ensure that the negative borehole intersections (boreholes that did not intersect any coal seams) are honoured in the modelling process. Basic statistics and histograms within Minex were also used to check and validate various mining selection variables.

Each coal seam was modelled using the general purpose gridding (growth algorithm) in Minex. Roof and floor surfaces were created for each coal seam, as well as a thickness grid. Coal extrapolation was limited to 100m from the last borehole with data.

Known faults and dykes were not used in the structural modelling process, as displacements are small, and do not have a significant impact on the structural integrity of the model. It is also not possible to accurately predict these structures from the borehole data only; rather it is added and extrapolated from actual pit mapping during the mining process.

The palaeo basement/Dwyka floor was also modelled to create a pre-coal deposition floor model surface. This very undulating palaeo floor surface has a negative and highly variable effect locally on mainly the lower coal plies. The final structural model was created using the topographic surface and weathering limit as cutting surfaces at the top, and the Dwyka surface at the base to remove coal where it intersects and overlaps these surfaces.

This final model was validated to actual borehole intersections to ensure the integrity of the model. These verifications also formed part of the model audit process.

7.3 Coal Quality Modelling

Raw coal qualities were modelled for each coal seam/unit/ply using the general purpose gridding in Minex. Basic statistics and histograms, as well as sample variable cross correlation plots within Minex, were used to check and validate the samples and mining selections' composite quality data. No data was excluded from the modelling process.

Raw coal qualities modelled are: Relative Density (RD), Calorific Value (CV), Ash (AS), Inherent Moisture (IM), Fixed Carbon (FC), Volatile Matter (VM) and Total Sulphur (TS). All coal qualities reported hereafter are on an air-dried basis. Coal seam qualities were composited by density weighting in Minex, based on the final mining selection from and to depth values. Model grid expansion was limited to 100m from the last known sampling point.

Various washability options were modelled and investigated for each of these projects. Normally either a raw coal product or a wash product with a target CV of 19MJ/Kg were investigated for each project. This is due to the local thermal coal (ESKOM) market targeted by the client at the stage of modelling. For each project these target coal qualities can be met, although selective coal horizons should be investigated for each project on its own merit due to slight variations in the local geology and coal qualities of each project.

8. COAL RESOURCE ESTIMATION

8.1 Resource Classification

No geostatistical studies were done to determine the coal classification for any of the projects. For Kangala mine, the resource drilling before 2012 had an average borehole spacing of around 150mx150m. The SAMREC and South African National Standard (SANS 10320:2004) requires a borehole spacing of less than 350mx350m to define a measured coal resource in the Witbank coal field. Since 2012, the infill drilling pattern was reduced to approximately 50x50m for the immediate and short-term planned mining areas. Universal Coal is therefore of the opinion that the borehole coverage is sufficient to allow the mining area to be classified as a measured coal resource. The author is of the opinion that the borehole spacing, together with the observed coal continuity, the quality of the borehole data included in the model, general geological setting and mining experience gained, is sufficient to allow for the measured resource classification.

For both Middelbult and Modderfontein, modelled prior to 2012, the resource classification is still based on the 2003 Australian Coal guidelines, using a borehole spacing of up to 500m to classify a measured coal resource, and up to 1000m to classify an indicated coal resource.

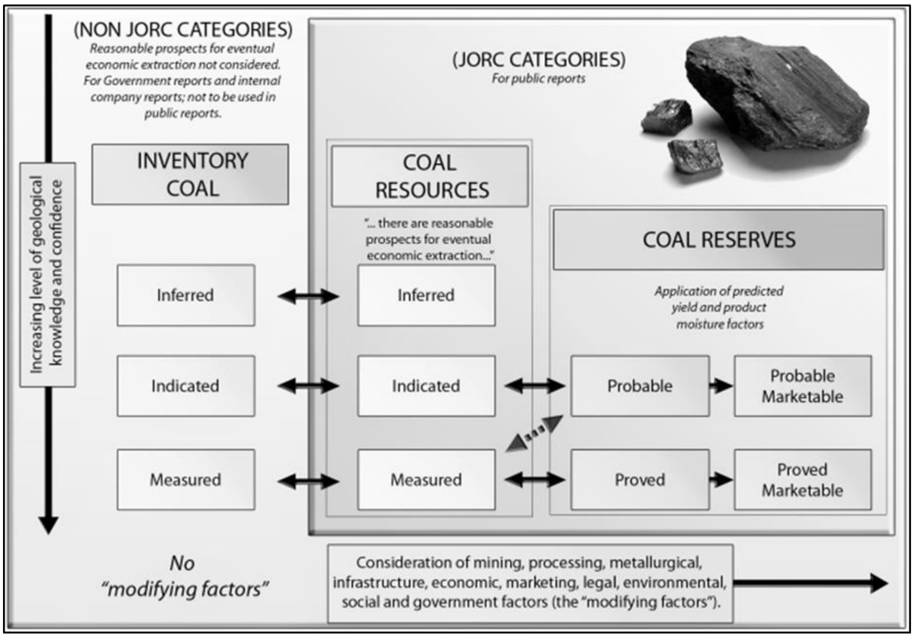

Figure 57. Relationship between inventory coal, coal resources and coal reserves (Australian Guidelines for Coal Reporting)

8.2 Kangala Mine Resource Estimation

8.2.1 Previous Resource Estimations

Previous coal resource estimations were reported by Gemecs for the Kangala mine as part of a final report compiled by Coffey Mining during 2011 which formed part of the feasibility study for Universal Coal. A total gross in situ coal resource of 67.5 million tonnes was reported. Since 2011, numerous changes were made to the geological model, including the definition and modelling of the mining selections, as well as additional borehole information that was added. Opencast mining operations started during 2013 and the latest model has been depleted with the mined out areas up to the end of November 2015. Overall coal resources reported has decreased since previous reports, as the latest resource report takes into account all mined out areas as at end of November 2015. To the best of the knowledge of Gemecs, there have been no material changes since November 2015 being the date of the data and the date of this document. The coal reserves at Kangala are being separately reported upon in the CPR from Mindset dated 29 January 2016.

8.2.2 Resource Areas and Reporting Assumptions

The mineable resource area is defined by a single outline and is based on the following cut-off criteria as applied by Universal Coal. Due to the relative low strip ratio and shallow nature of this coal deposit, it is currently being mined by means of opencast strip mining methods, and resources are reported accordingly.

- Limit of mineable coal sub outcrop along pre-Karoo basement
- Minimum mineable coal selection thickness
- Coal quality cut-offs
- Strip ratio cut-offs
- Structural disturbances (dolerite sill and no coal areas)
- Environmental sensitive areas
- Mining right boundaries
- Relevant surface features
- Mined out areas up to the end of November 2015 are excluded

A plan showing the mining outline with mined out area up until November 2015 is presented overleaf.

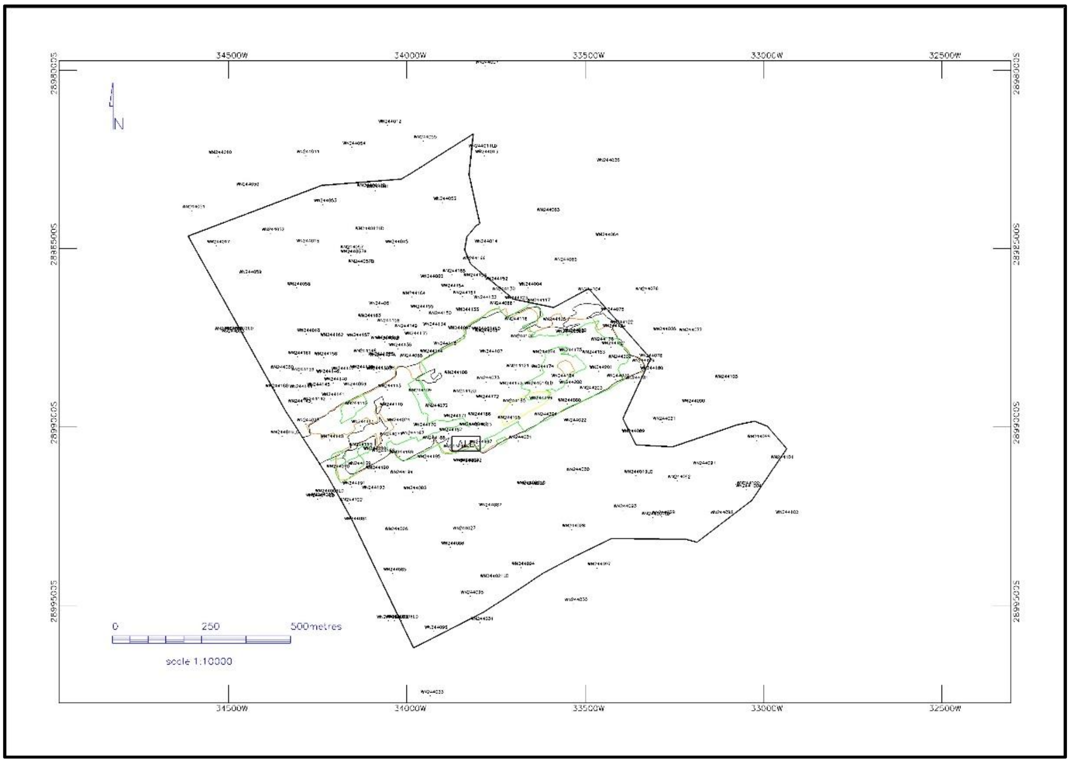

Figure 58. Kangala mining outline with mined out area November 2015

The coal resources remaining within the mineable resource area, are all classified as a measured resource. The immediate areas to the south and west around the mining area, are reported separately as the Remnant area, and is classified as an indicated coal resource. A large resource area is still present to the south, called the Southern Resource area. This area has limited borehole information, and is reported as an inferred coal resource. The extent of these resource areas relative to the current mining area and project boundary is presented overleaf in Figure 59.

Coal resources are reported on an in situ basis, and all coal qualities are reported on an air dried basis. A minimum seam thickness of 0.5m was applied to all mining selections. No coal quality cut-offs were applied for reporting of the coal resource tonnes, as this was already considered in the definition of the mining resource outline. The only exception is the BD mining selection, where a minimum volatile matter cut-off was applied at 18%.

Relative densities were applied to the coal volumes according to the density model grid for each seam. Average relative densities for each mining selection are summarised overleaf in Table 11:

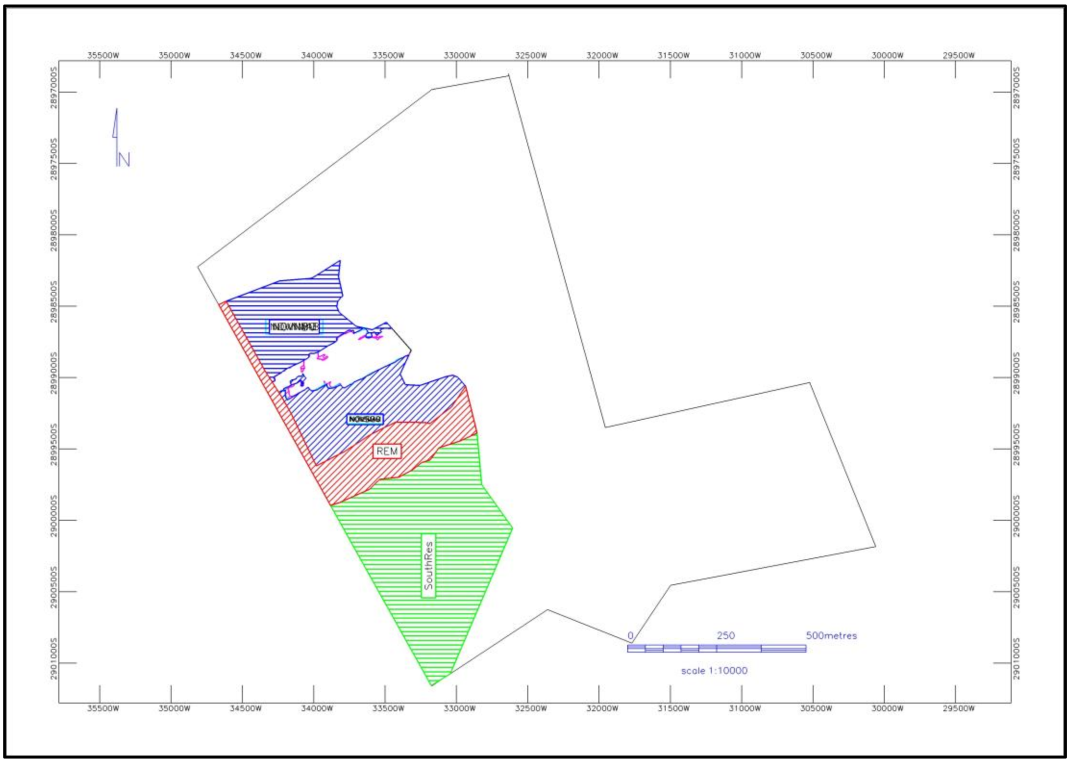

Figure 59. Kangala resource areas. Mineable in blue, Remnant in red and Southern area in green

Table 11. Kangala Mine average relative densities per mining selection

Mining Selection	RD
MM	1.51
MBAB	1.92
MBC1	1.66
MBC2	1.68
MBD	1.83

8.2.3 Geological Loss Factor

It is recommended that a geological loss factor is applied to the gross in situ tonnes within the mineable coal resource area. Due to expected small-scale faulting and thin dolerite dykes, a loss factor of 2.5% is deemed sufficient to allow for the potential loss of coal as a result of these structures.

8.2.4 Coal Resource Statement

Gross tonnes in situ for the Kangala mine is estimated at **54.5 million tonnes**. Mineable in situ coal resources for the Kangala mine is estimated and reported at **18.3 million tonnes**. The mineable coal resource includes provision for geological losses (2.5%) and coal quality cut-off parameters, and is limited to the current pit outline only.

Net attributable tonnes based on the 70.5% interest held by Universal Coal Development I (Pty) Ltd is stated at **38.4 million tonnes** for Kangala Mine. A summary table of coal resources by status is presented below in Table 12. Details for the Mineable area, Remnant area and Southern resource area are presented afterwards in Tables 13 -15.

Table 12. Kangala Mine – Summary of coal resources by status

Summary of resources by status					
Coal	**Gross in situ tonnes**		**Mineable in situ tonnes**		
Category	**Gross in situ tonnes**	**Net Attributable**	**Mineable in situ tonnes**	**Net Attributable**	**Operator**
	Tonnes (Mt)	**Tonnes (Mt)**	**Tonnes (Mt)**	**Tonnes (Mt)**	
Measured	18.72	13.20	18.26	12.87	
Indicated	3.6	2.5	0.0	0.0	
Inferred	32.2	22.7	0.0	0.0	
Total	**54.5**	**38.4**	**18.3**	**12.9**	**Universal Coal Development I (Pty) Ltd**

Table 13. Mineable Coal Resource Summary for the Kangala Mine – November 2015

										AIR DRIED RAW COAL QUALITIES					
AREA NAME	RESOURCE AREA (m^2)	MINING SELECTION	RESOURCE CLASS	COAL AREA (m^2)	COAL VOLUME (m^3)	GROSS IN SITU TONNES ('000 TONNES)	GEOLOGICAL LOSS	MINEABLE IN SITU TONNES ('000 TONNES)	AVERAGE SEAM THICKNESS (m)	RD	CV	AS	IM	VM	TS
NOV2015	850 841	MM	MEASURED	625 974	646 355	970	2.5%	950	1.03	1.51	23.5	22.9	3.8	28.4	2.37
NOV2015	853 476	MBAB	MEASURED	802 235	2 027 537	3 720	2.5%	3 630	2.53	1.84	13.2	48.5	3.5	18.4	1.46
NOV2015	862 819	MBC1	MEASURED	850 375	3 491 980	5 640	2.5%	5 500	4.11	1.61	19.6	30.3	4.4	20.6	1.23
NOV2015	862 819	MBC2	MEASURED	859 895	4 249 163	7 050	2.5%	6 870	4.93	1.66	18.5	34.3	3.9	19.0	1.03
NOV2015	498 679	MBD	MEASURED	223 127	810 346	1 340	2.5%	1 310	3.63	1.65	18.6	34.0	3.8	20.4	0.81
						18 720		**18 260**							

Table 14. Remnant Coal Resource Summary for the Kangala Mine – November 2015

AREA NAME	RESOURCE AREA (m2)	SEAM	RESOURCE CLASS	COAL AREA (m^2)	COAL VOLUME (m^3)	GROSS IN SITU TONNES ('000 TONNES)	AVERAGE SEAM THICKNESS (m)	RD	CV	AS	IM	VM	TS
REMNANT	427 025	MM	INDICATED	105 585	102 755	150	0.97	1.48	23.5	20.6	5.0	29.5	1.54
REMNANT	427 025	MBAB	INDICATED	150 883	335 085	620	2.22	1.84	13.1	48.3	4.0	18.4	1.18
REMNANT	427 025	MBC1	INDICATED	221 184	864 914	1 400	3.91	1.62	19.0	31.1	4.9	20.4	1.51
REMNANT	427 025	MBC2	INDICATED	129 914	716 522	1 180	5.52	1.65	18.6	33.3	4.3	19.3	1.20
REMNANT	427 025	MBC3	INDICATED	12 643	5 629	10	0.45	1.70	17.0	37.8	3.4	18.7	1.45
REMNANT	427 025	MBC4	INDICATED	0	0	0	0						
REMNANT	427 025	MBD	INDICATED	21 432	111 998	190	5.23	1.67	17.9	34.8	4.7	20.0	1.14
			TOTAL			**3 550**							

Table 15. Southern Coal Resource Summary for the Kangala Mine – November 2015

AREA NAME	RESOURCE AREA (m2)	SEAM	RESOURCE CLASS	COAL AREA (m^2)	COAL VOLUME (m^3)	GROSS IN SITU TONNES ('000 TONNES)	AVERAGE SEAM THICKNESS (m)	AVERAGE DEPTH BELOW SURFACE (m)	RD	CV	AS	IM	VM	TS
SouthRes	1 161 250	SM	INFERRED	537 789	713 690	1 250	1.30	35	1.93	8.0	63.1	2.9	11.1	1.48
SouthRes	1 161 250	SB	INFERRED	989 282	17 518 330	30 920	17.50	34	1.76	13.0	49.8	3.5	11.4	0.94
			TOTAL			**32 170**	17.50	**34**	**1.76**	**13.0**	**49.8**	**3.5**	**11.4**	**0.94**

8.2.5 Coal Quality and Products

Coal washability modelling was performed for coal products at densities of RD1.50, 1.60, 1.70 & 1.80. Various options for washed coal quality scenarios are available to the Kangala mine. No coal washability results are, however, reported for the mining selections in this report, but the various washability scenarios can be reported for any mining selection from the geological model should this be required in future. From Table 13 it is clear that most of the mining selections have a raw coal quality that meets current inland and steam coal quality requirements. The only exception is the MBAB selection, which has lower coal qualities. This is a result of the inclusion of the BP1 parting. Washability simulation and actual washing results on mine have, however, demonstrated the successful upgrading of this selection's coal qualities.

Reported coal qualities for the Southern resource area is substantially poorer compared to the mining area. Selective mining units still needs to be identified and modelled here, that can result in improved raw coal qualities. Washability simulation can also be investigated to enhance the coal qualities. Addition exploration boreholes also needs to be drilled, so to establish more reliable coal selections and qualities going forward.

8.2.6 Coal Quality Plans

A number of plans are presented below to illustrate some selected raw coal qualities for the different mining selections as presented in the coal quality tables and reported from the geological model.

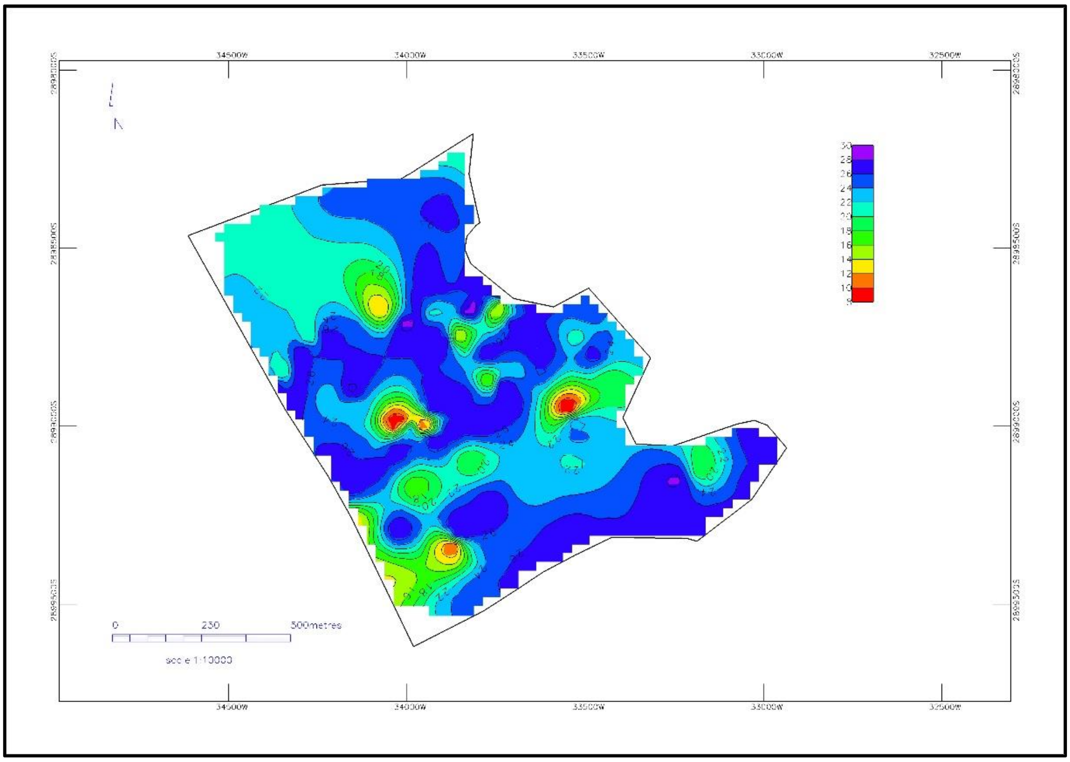

Figure 60. Kangala Mine - MM Mining selection – Raw CV

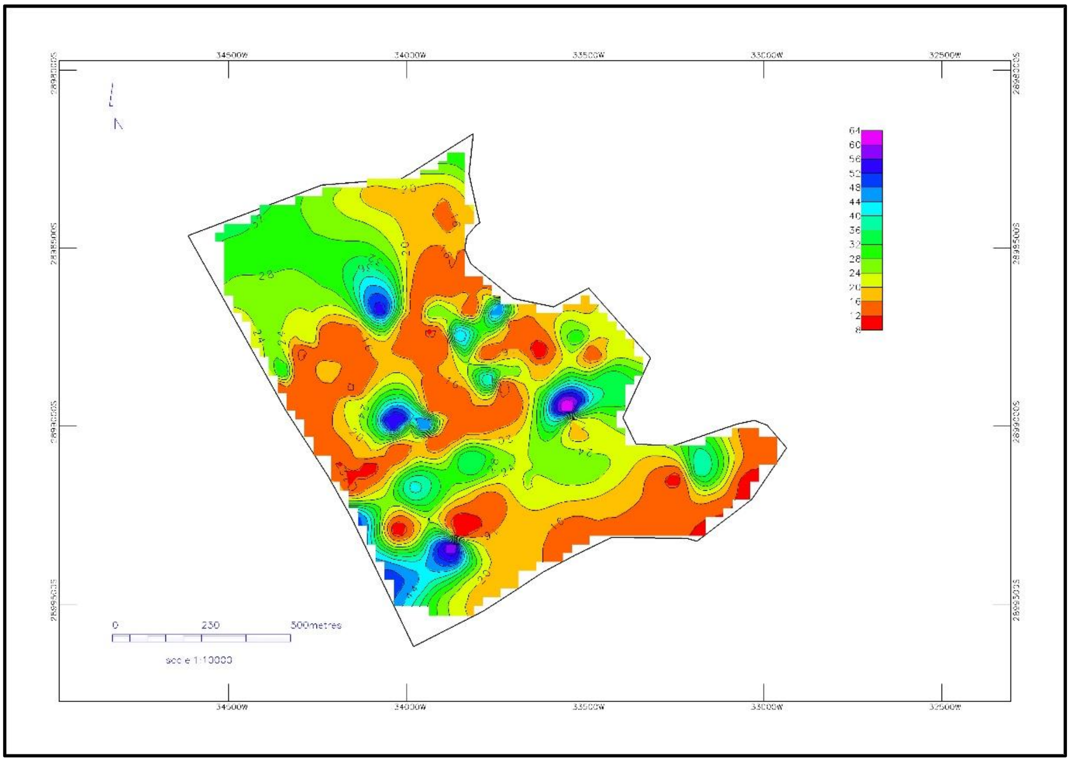

Figure 61. Kangala Mine – MM Mining selection – Raw Ash

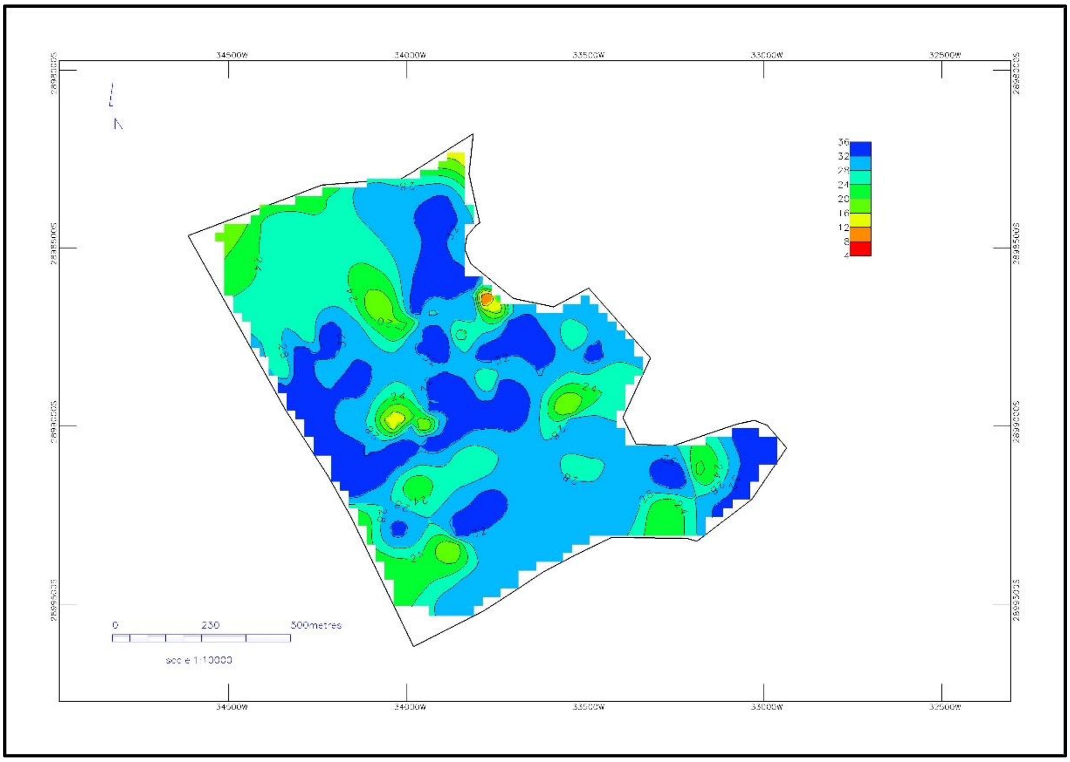

Figure 62. Kangala Mine – MM Mining selection – Raw VM

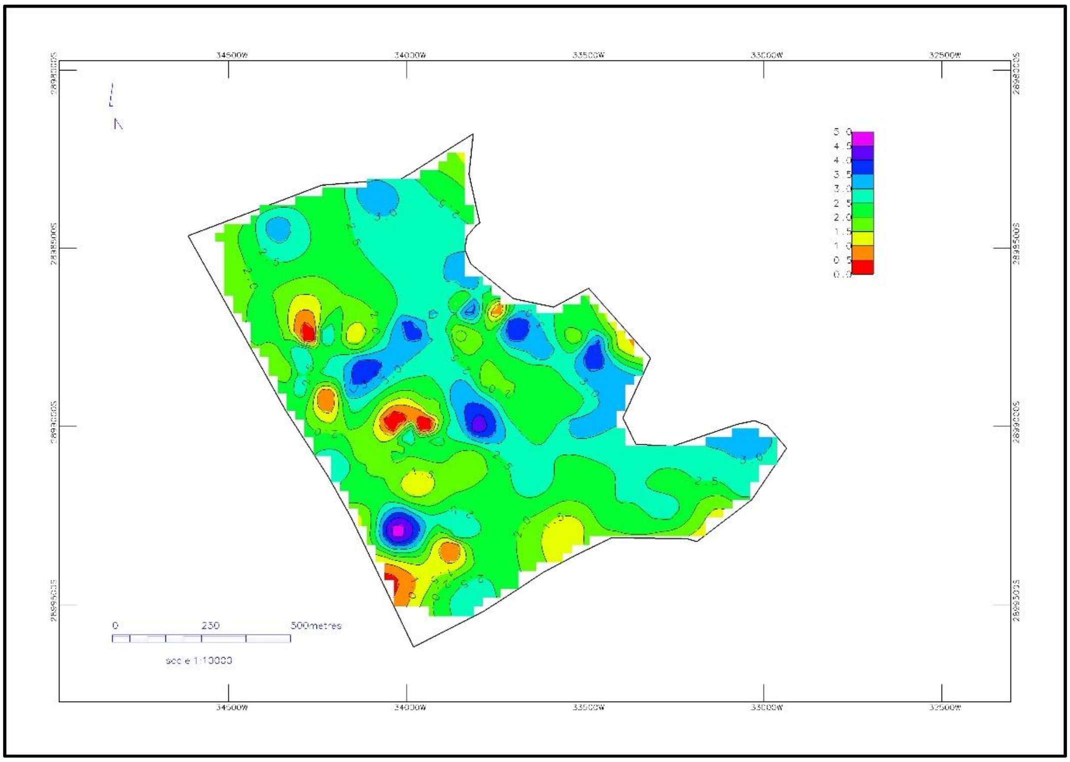

Figure 63. Kangala Mine - MM Mining selection – Raw TS

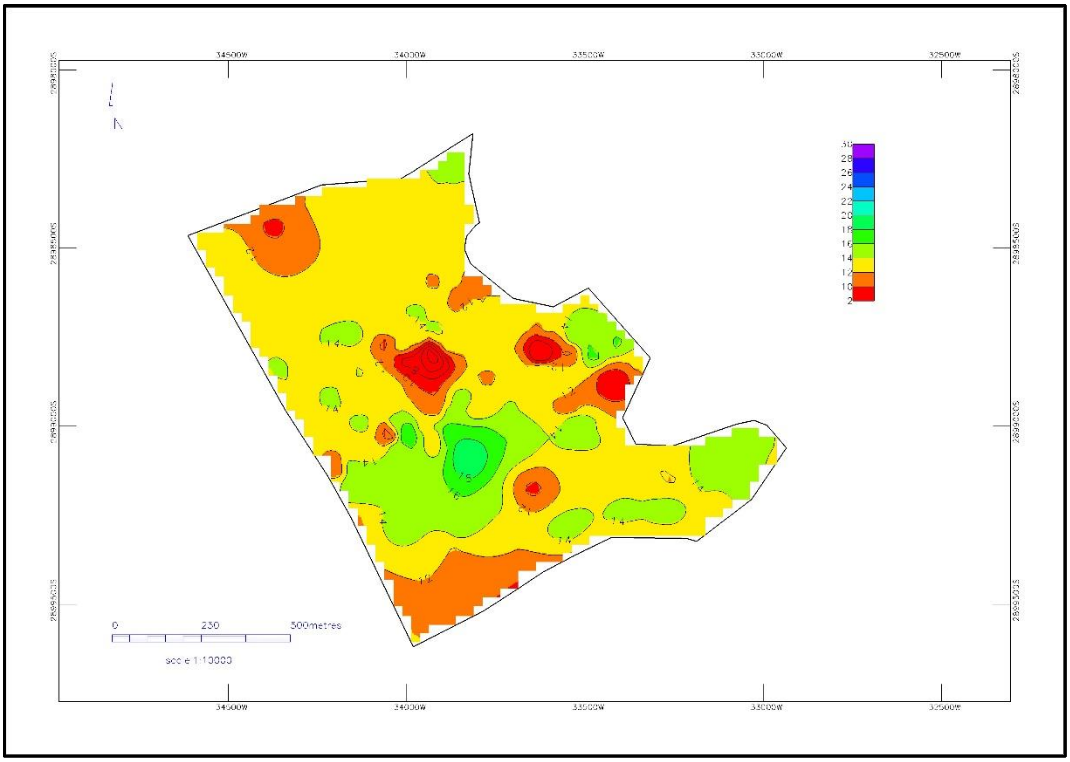

Figure 64. Kangala Mine - MBAB Mining selection – Raw CV

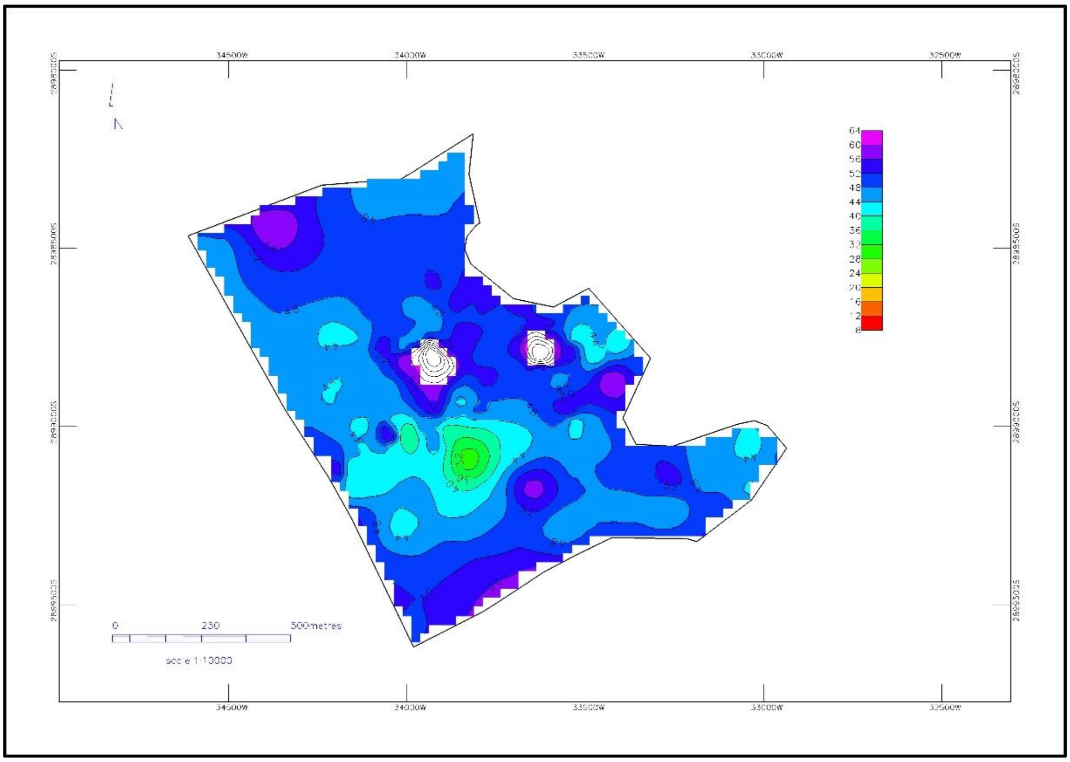

Figure 65. Kangala Mine – MBAB Mining selection – Raw Ash

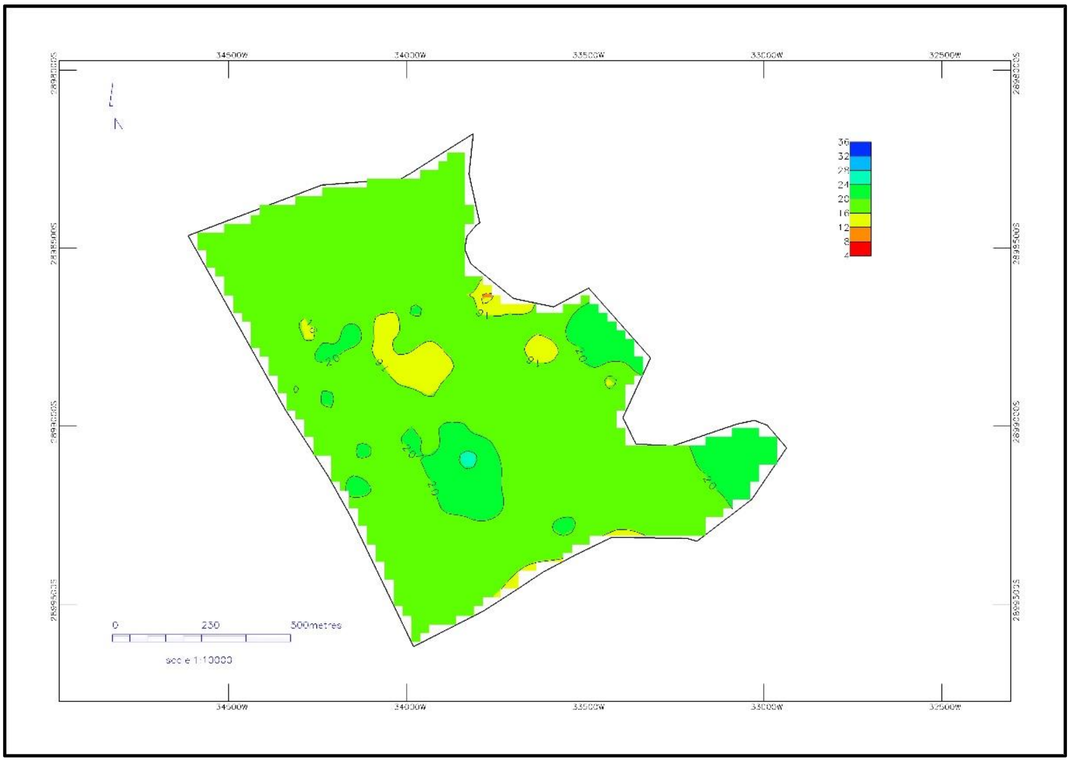

Figure 66. Kangala Mine – MBAB Mining selection – Raw VM

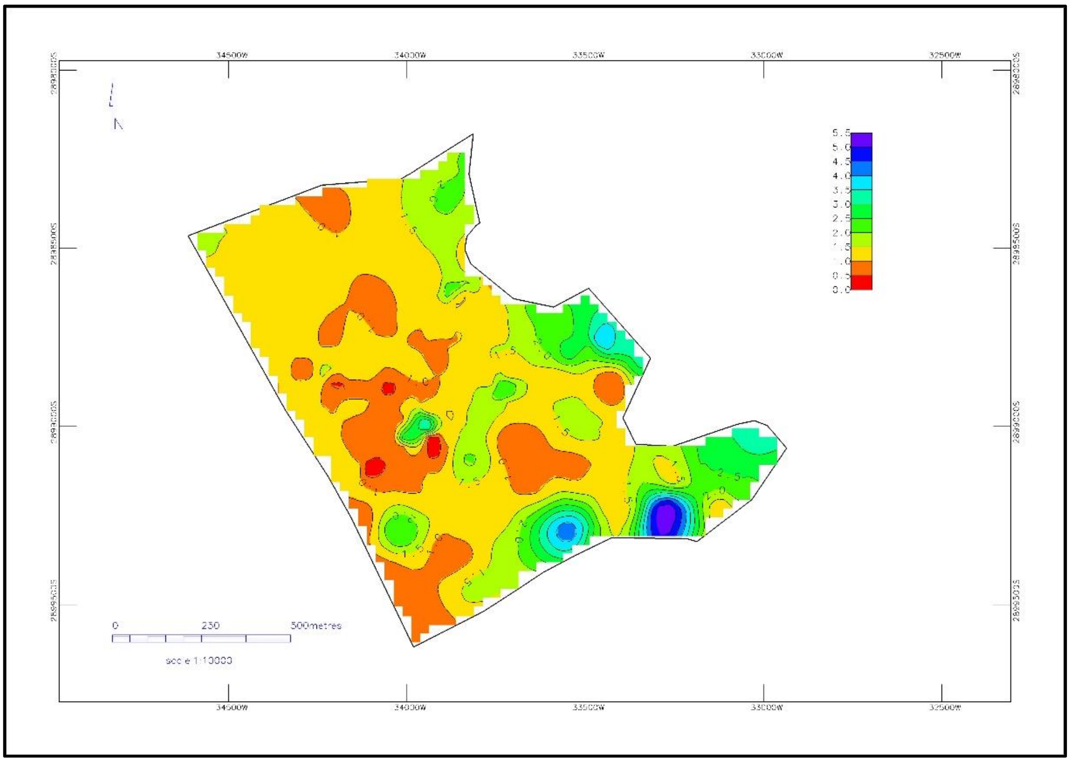

Figure 67. Kangala Mine – MBAB Mining selection – Raw TS

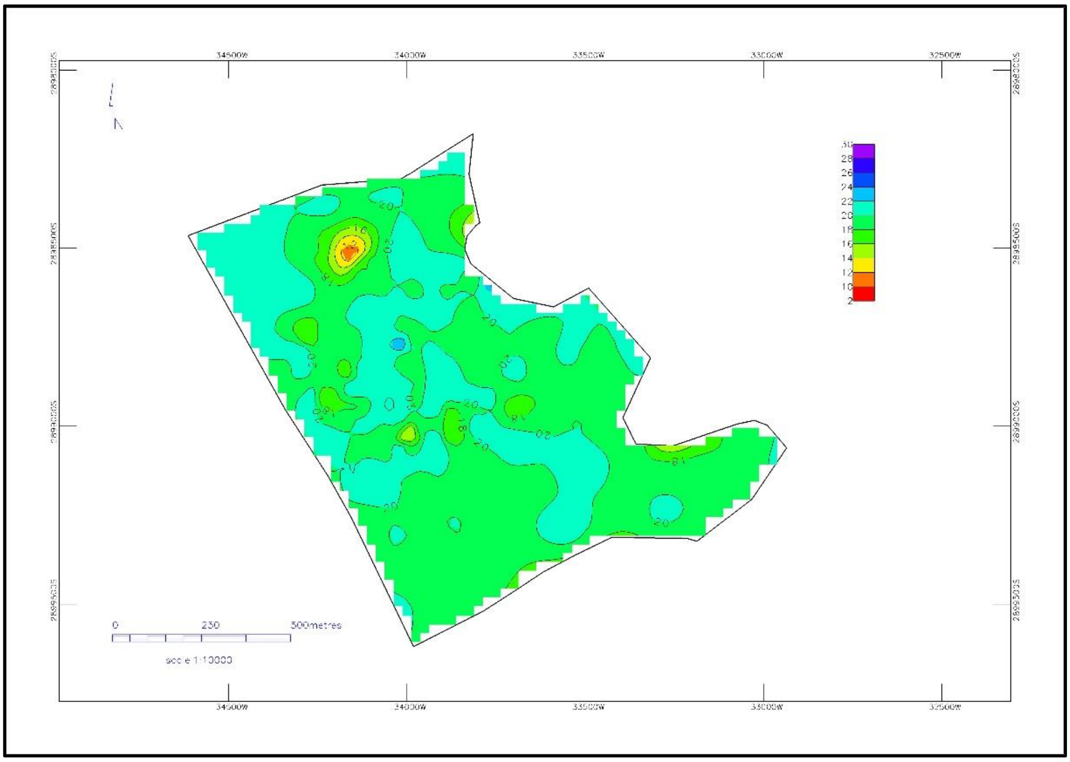

Figure 68. Kangala Mine – MBC1 Mining selection – Raw CV

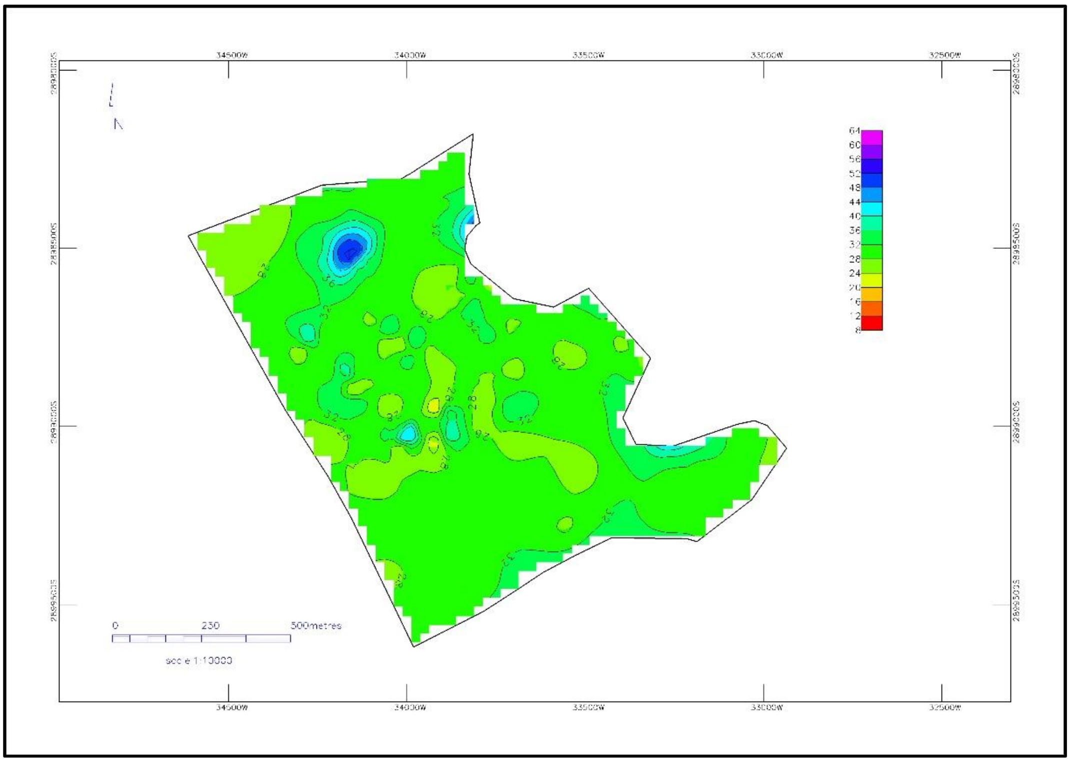

Figure 69. Kangala Mine – MBC1 Mining selection – Raw Ash

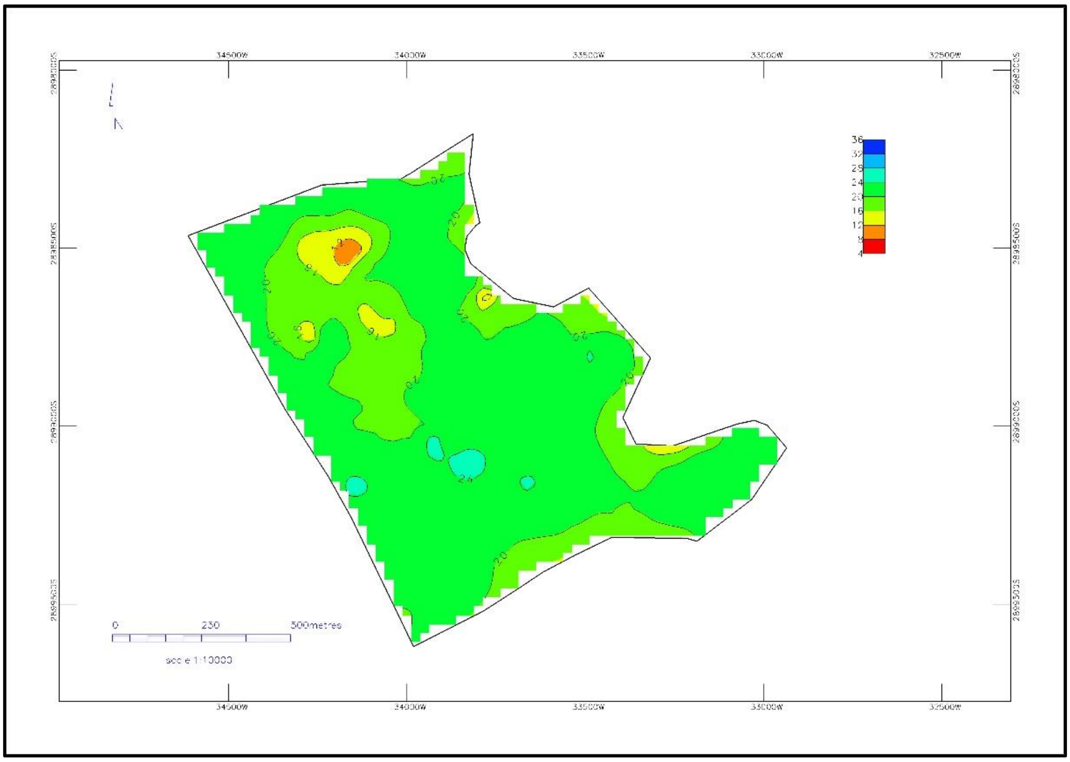

Figure 70. Kangala Mine – MBC1 Mining selection – Raw VM

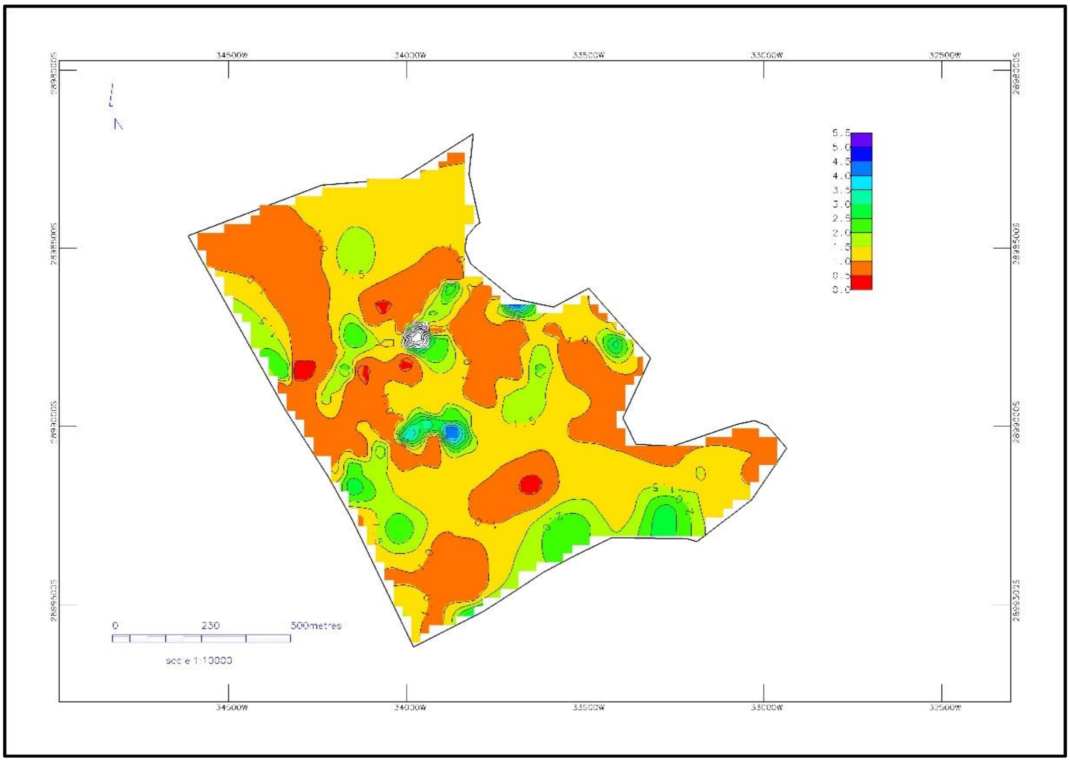

Figure 71. Kangala Mine – MBC1 Mining selection – Raw TS

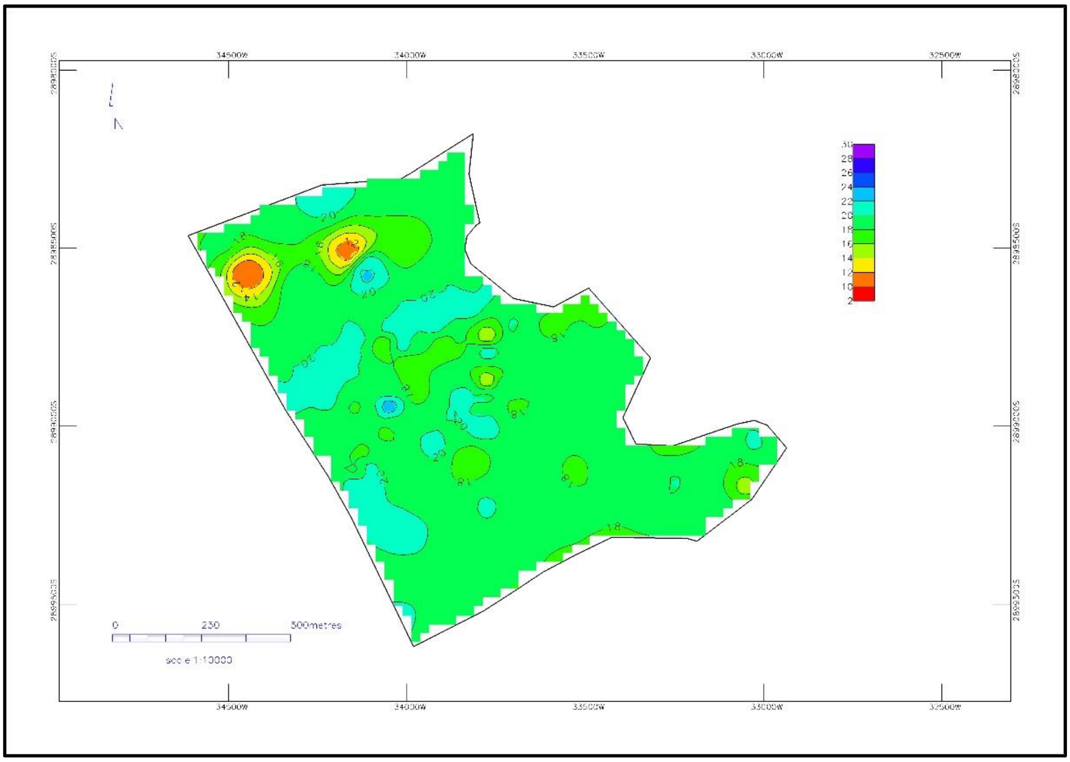

Figure 72. Kangala Mine – MBC2 Mining selection – Raw CV

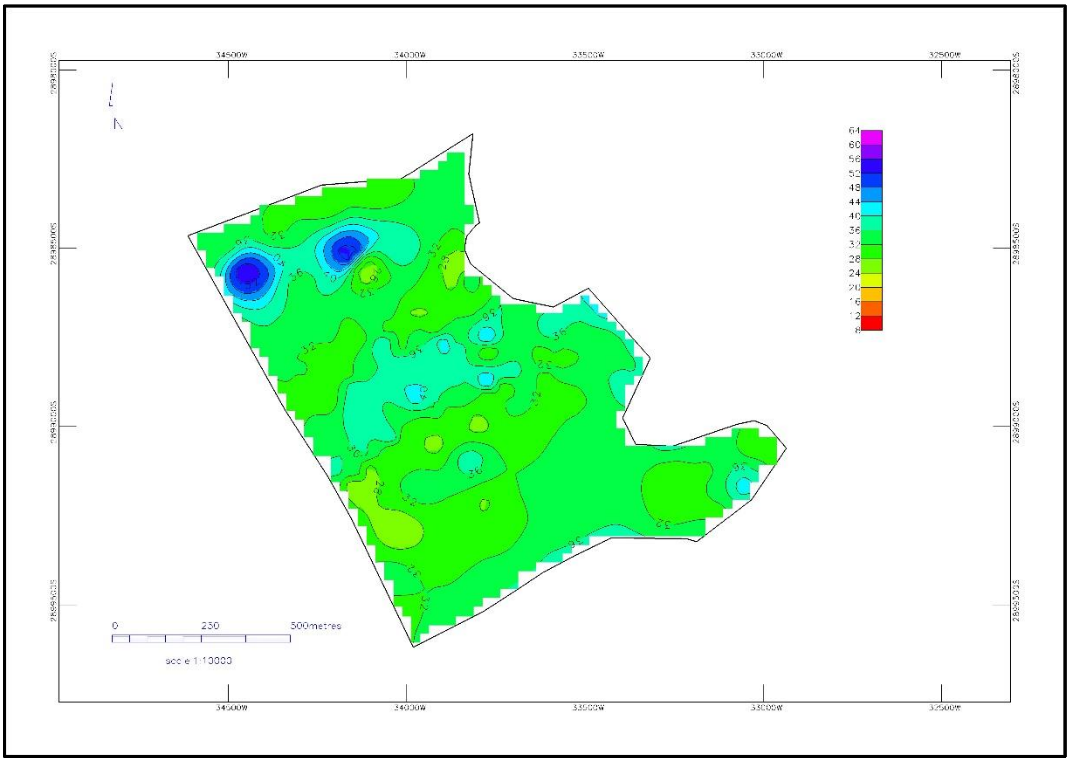

Figure 73. Kangala Mine – MBC2 Mining selection – Raw Ash

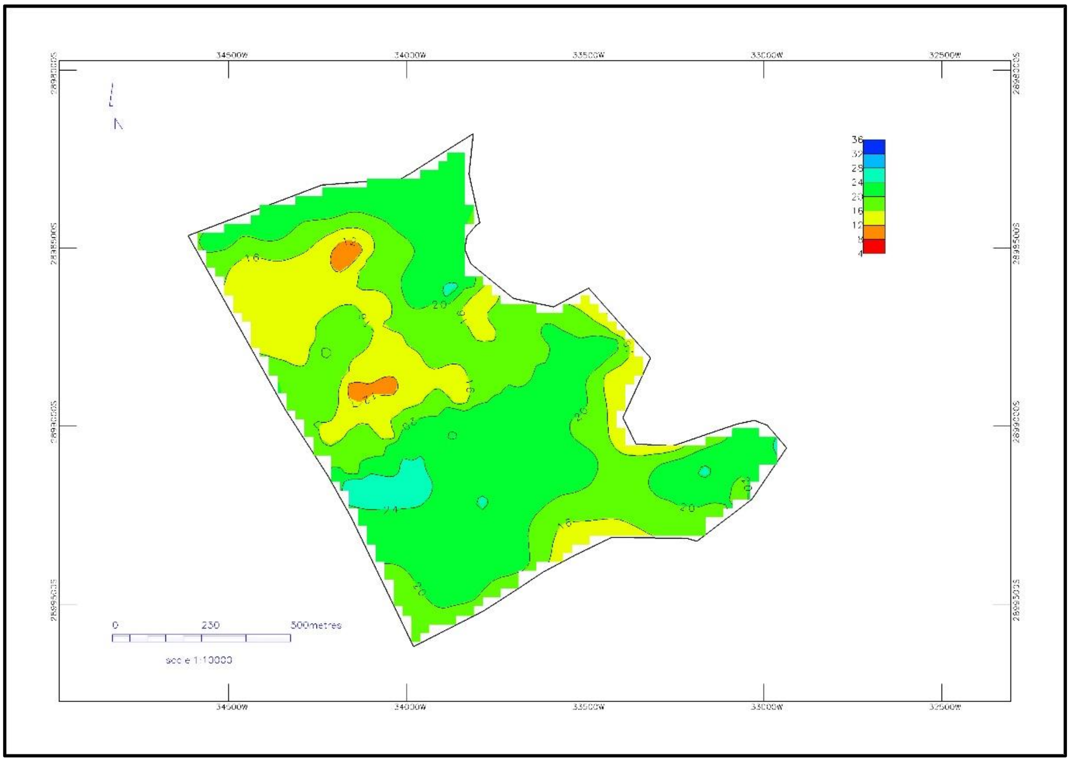

Figure 74. Kangala Mine – MBC2 Mining selection – Raw VM

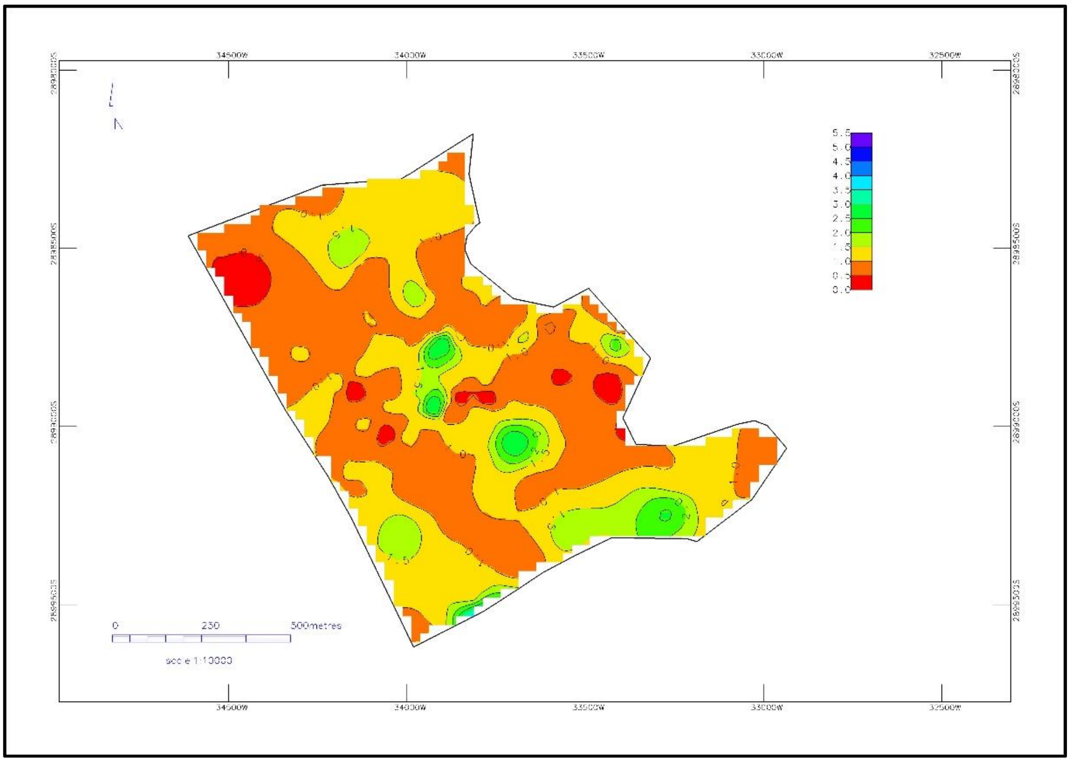

Figure 75. Kangala Mine – MBC2 Mining selection – Raw TS

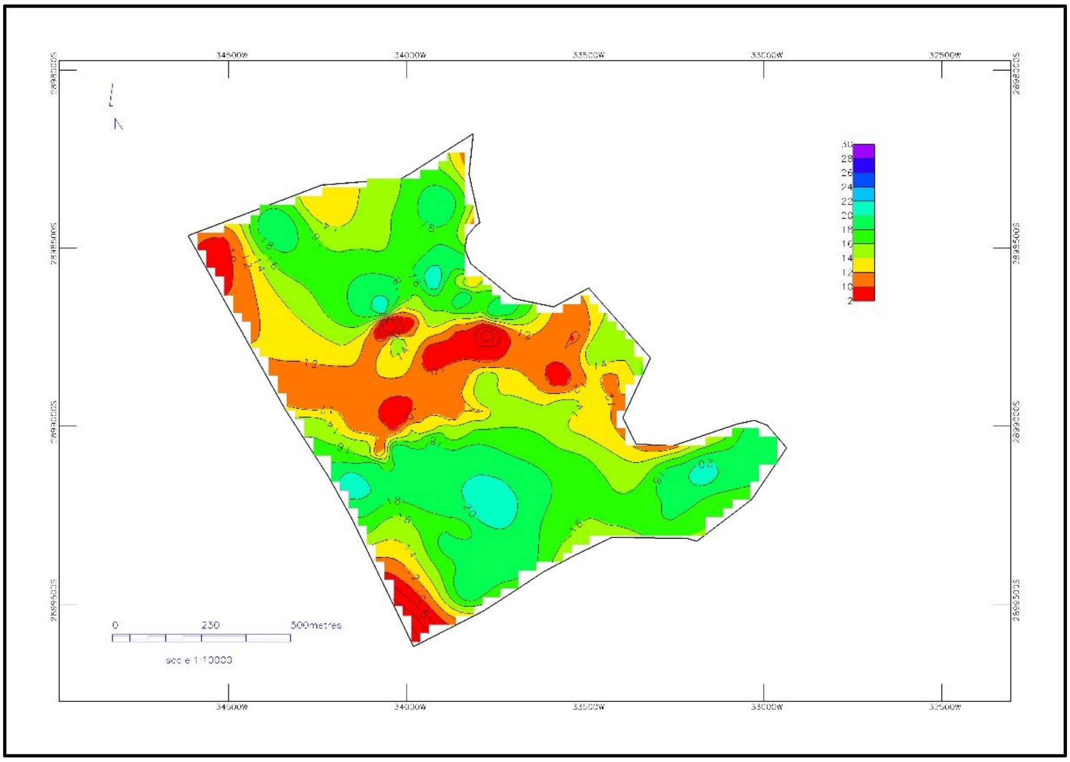

Figure 76. Kangala Mine – MBD Mining selection – Raw CV

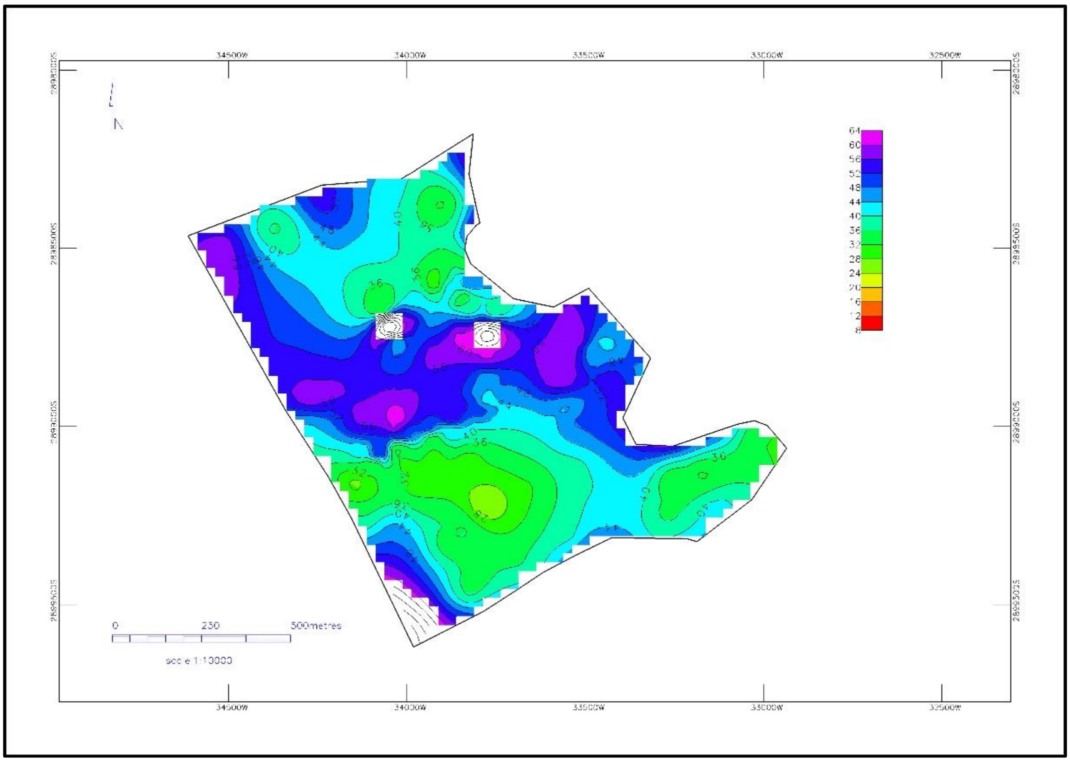

Figure 77. Kangala Mine – MBD Mining selection – Raw Ash

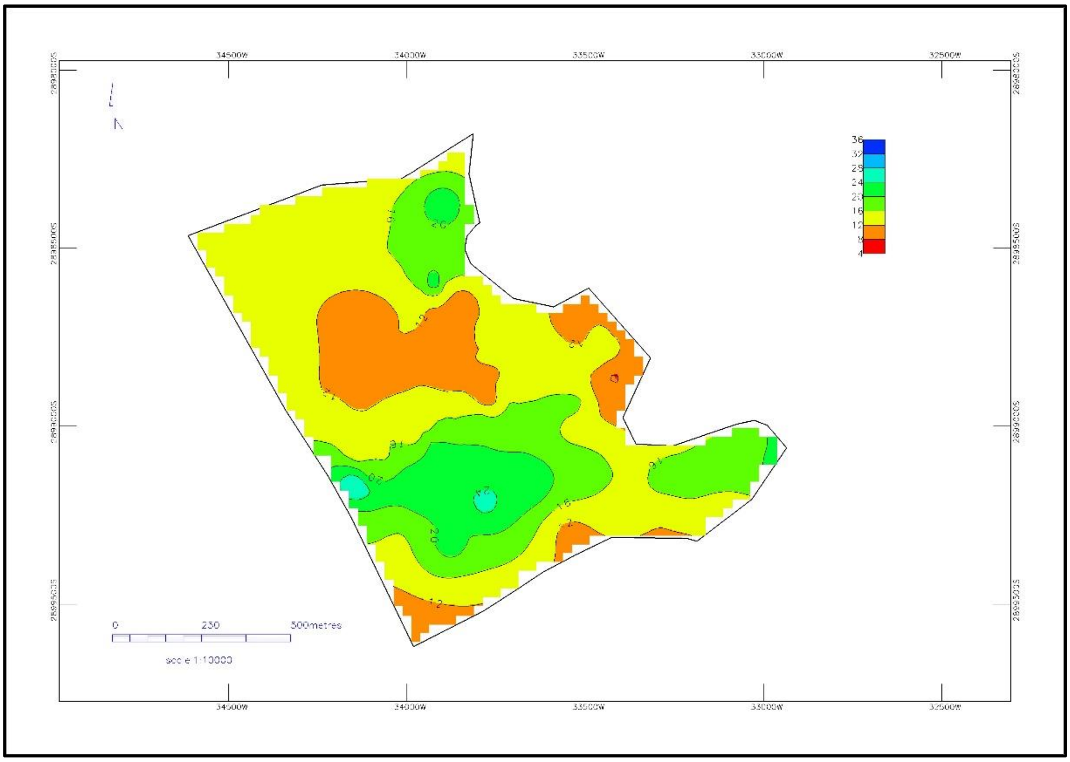

Figure 78. Kangala Mine – MBD Mining selection – Raw VM

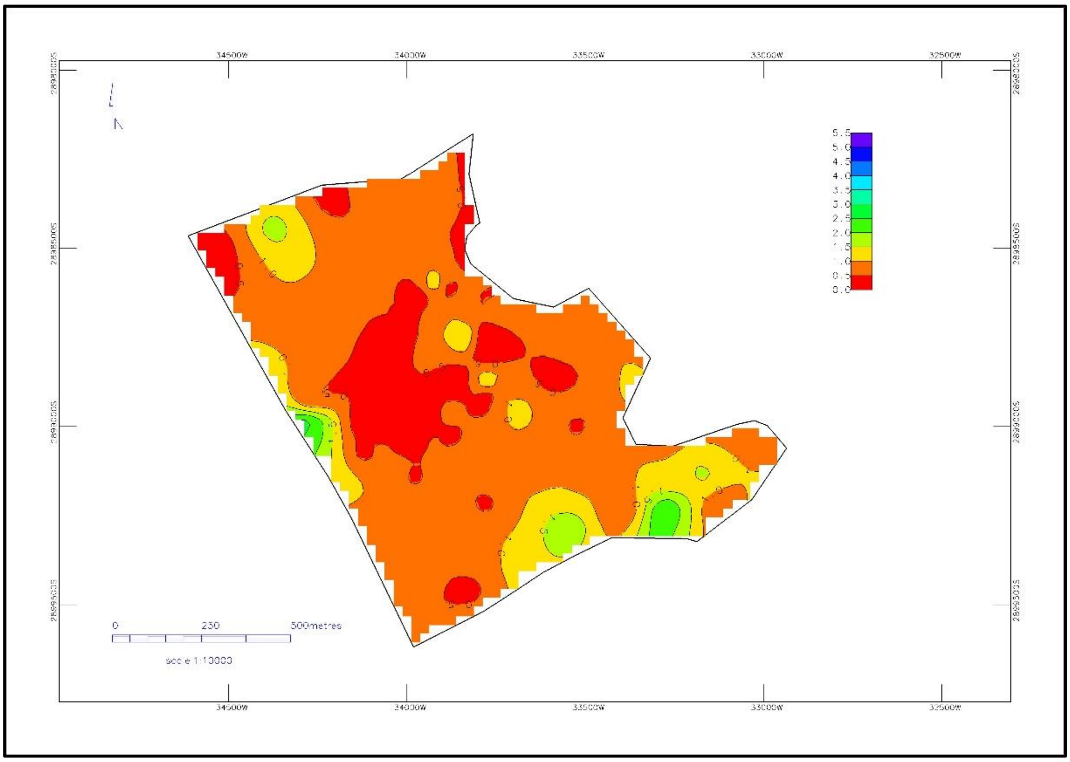

Figure 79. Kangala Mine – MBD Mining selection – Raw TS

8.3 Middelbult Project Resource Estimation

8.3.1 Previous Resource Estimations

No previous coal resource estimations were reported for the Middelbult project.

8.3.2 Resource Areas and Reporting Assumptions

Coal resources is estimated and reported for the entire project area where coal is present, as well as for a possible opencast mineable area. Areas where no coal is present due to the basement topography as well as weathering have been excluded from the resource area. For the remainder of the area, coal resources are reported on a coal unit basis with only the following physical and quality cut-offs being applied:

- Coal unit thickness <0.5m excluded
- Raw ash quality >65% excluded
- No other possible surface features or constraints were applied to exclude any coal resources

A potential opencast mineable area was identified and delineated according to the following guidelines:

- In situ strip ratios were calculated for the following coal units only: SM, BA, BB and BC (with a thickness >0.50m) (BD excluded due to poor coal quality).
- A maximum strip ratio cut-off of 3 cubic metres/tonne was applied
- Coal quality yield cut-off at 60% for a 19MJ/kg CV product was applied for the BC unit (The BC unit quality was used as this is the main coal target containing around 66% of the in situ coal resource)
- The mineable area was delineated by applying these constraints, and tonnages and coal quality reported for each coal unit within this area.

The exploration drilling at Middelbult has resulted in sufficient data being available to classify the area predominantly as a measured and indicated coal resource. A large area to the east is defined as a non-coal deposit that is not included or classified in the resource. Plans overleaf illustrate the resource area, with the opencast mineable area (hatched) as well as no coal area (orange hatch) illustrated with the resource classification for each coal unit. Measured coal resource areas are indicated in green and indicated areas in pink.

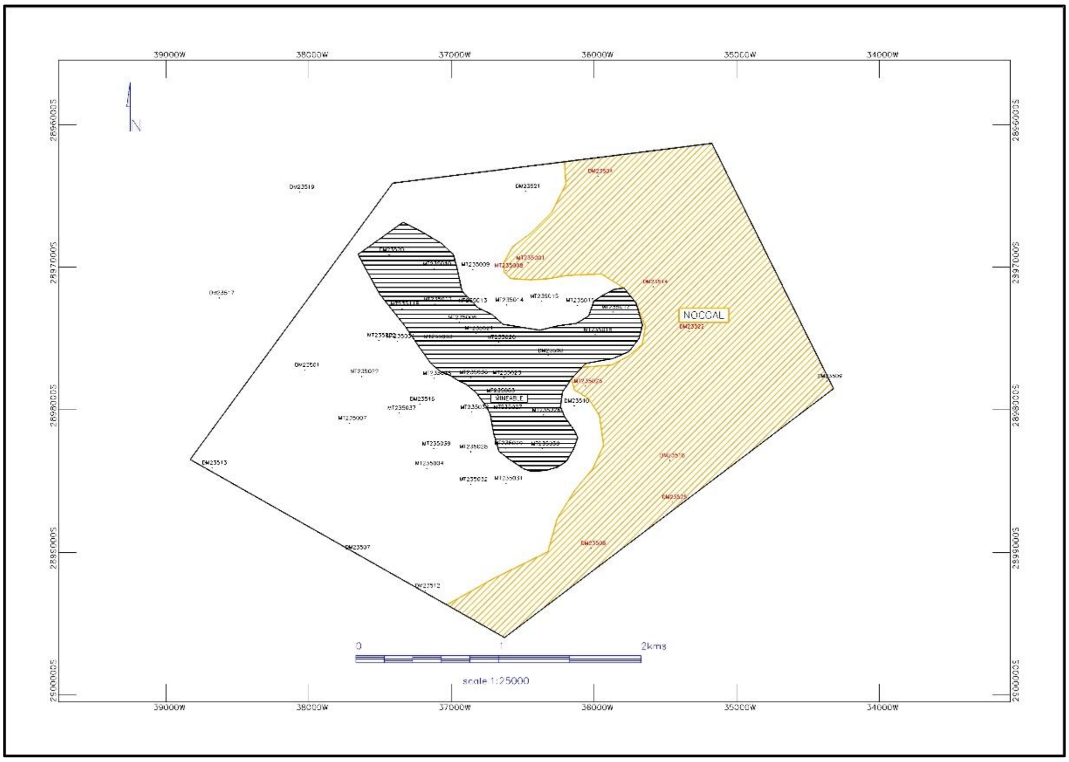

Figure 80. Middelbult coal resource area with mineable opencast area and no coal area outlines

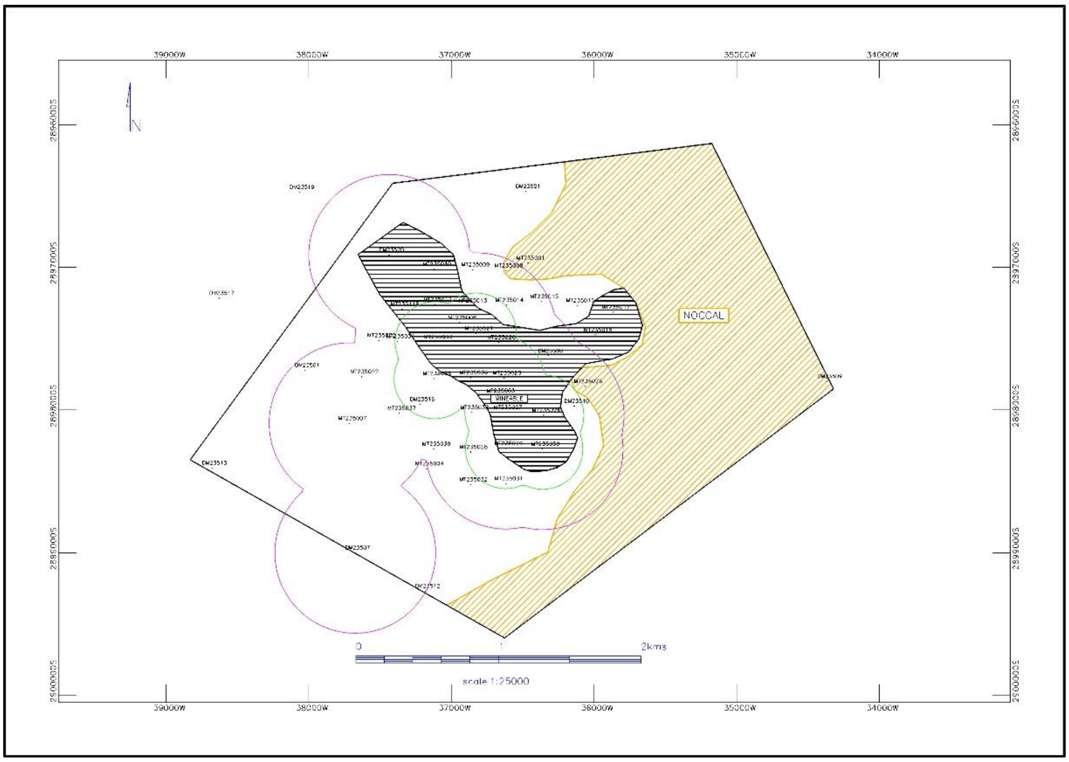

Figure 81. Middelbult Mid seam coal resource classification

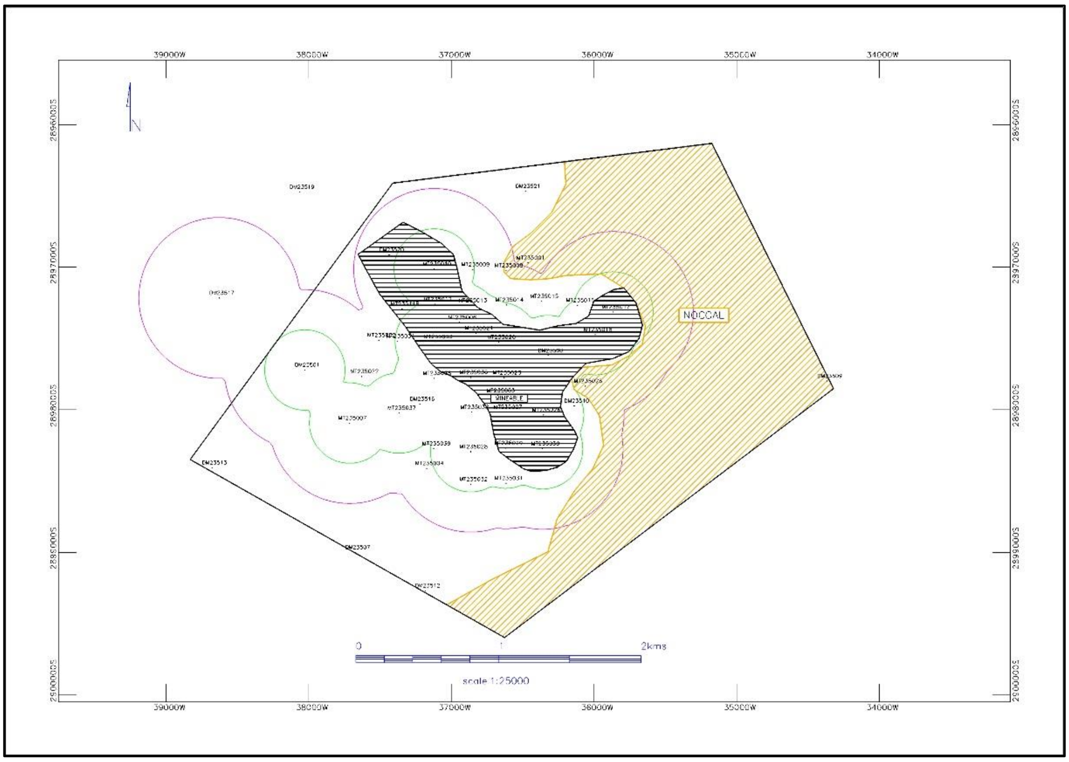

Figure 82. Middelbult coal unit BA coal resource classification

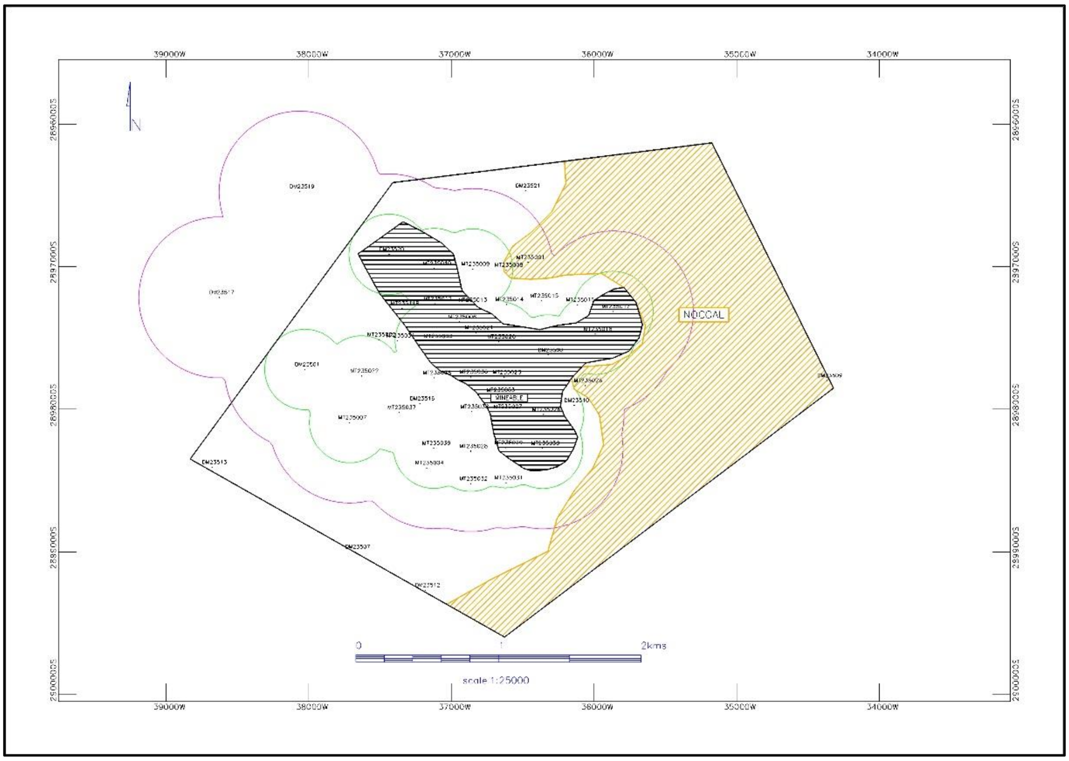

Figure 83. Middelbult coal unit BB coal resource classification

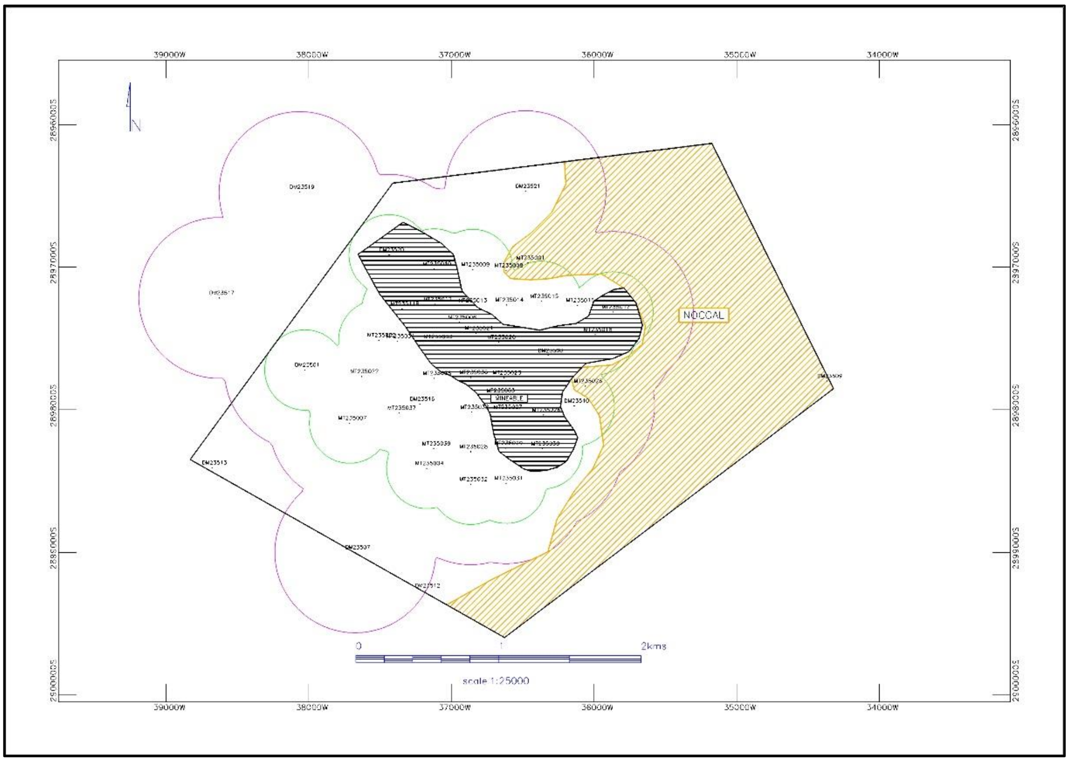

Figure 84. Middelbult coal unit BC coal resource classification

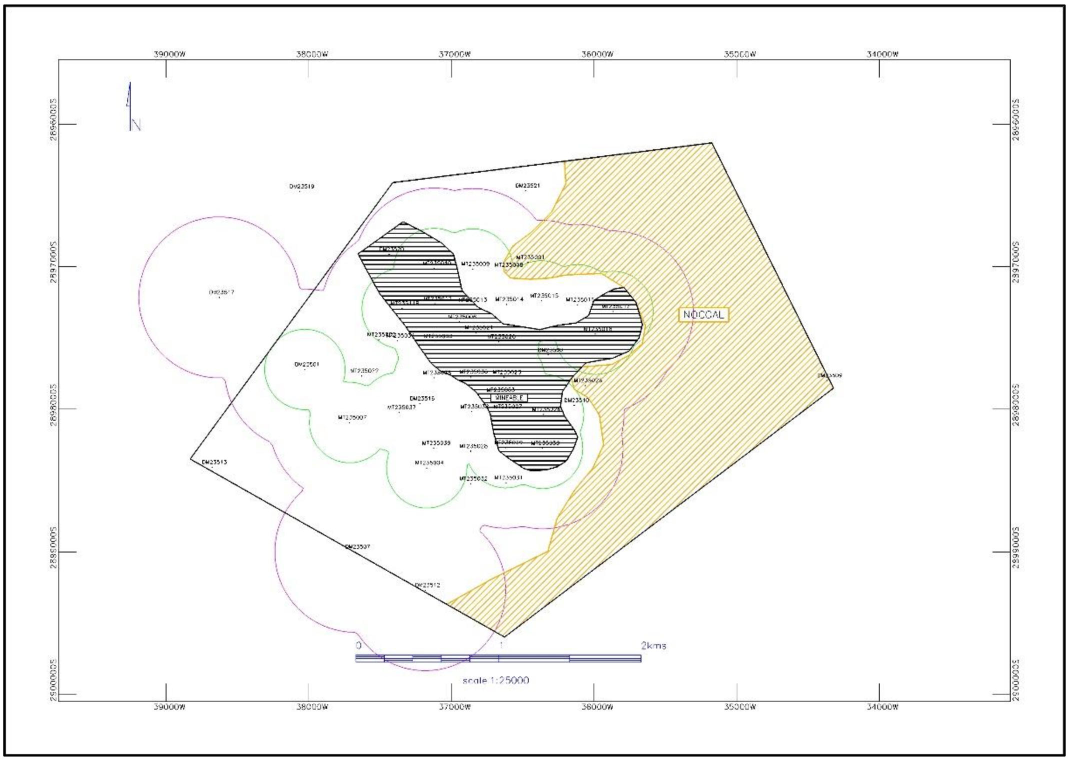

Figure 85. Middelbult coal unit BD coal resource classification

8.3.3 Geological Loss Factor

It is recommended that a geological loss factor of 10% is applied to the gross in situ tonnes due to expected localised small-scale faulting and thin dolerite dykes.

8.3.4 Coal Resource Statement

No changes are reported compared to previous coal resource statements. Gross in situ coal resources for the Middelbult resource area amount **to 60.2 million tonnes**. Mineable in situ coal resources for the possible opencast area is estimated at **24.5 million tonnes** (potential opencast area after geological losses applied at 10%). Net attributable tonnes based on the 70.5% interest held by Universal Coal Development I (Pty) Ltd is stated at **42.4 million tonnes** for Middelbult. A summary table of coal resources by status is presented below in Table 16. Detailed tables for the project are and mineable area are presented afterward in Tables 17 & 18.

Table 16. Middelbult Project – Summary of coal resources by status

Summary of resources by status					
Coal	Gross in situ tonnes		Mineable in situ tonnes		
Category	Gross in situ tonnes	Net Attributable	Mineable in situ tonnes	Net Attributable	Operator
	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	
Measured	45.00	31.73	23.9	16.85	
Indicated	15.0	10.6	0.6	0.4	
Inferred	0.2	0.1	0.0	0.0	
Total	**60.2**	**42.4**	**24.5**	**17.3**	**Universal Coal Development I (Pty) Ltd**

Table 17. Middelbult Gross in situ coal resources

COAL UNIT NAME	RESOURCE CLASS	GROSS IN SITU TONNES	GEOLOGICAL LOSS	IN SITU TONNES	SEAM THICKNESS (m)
SM	MEASURED	693 360	10%	624 024	1.70
SM	INDICATED	1 166 590	10%	1 049 931	1.65
SM	INFERRED	23 540	10%	21 186	1.53
SM TOTAL		**1 883 490**		**1 695 141**	**1.67**
BA	MEASURED	5 624 470	10%	5 062 023	2.44
BA	INDICATED	238 590	10%	214 731	2.01
BA	INFERRED	27 070	10%	24 363	1.45
BA TOTAL		**5 890 130**		**5 301 117**	**2.42**
BB	MEASURED	5 968 240	10%	5 371 416	1.84
BB	INDICATED	222 540	10%	200 286	1.68
BB	INFERRED	0	10%	0	0.00
BB TOTAL		**6 190 780**		**5 571 702**	**1.83**
BC	MEASURED	28 578 460	10%	25 720 614	5.05
BC	INDICATED	10 865 540	10%	9 778 986	5.08
BC	INFERRED	93 190	10%	83 871	7.50
BC TOTAL		**39 537 190**		**35 583 471**	**5.06**
BD	MEASURED	4 124 020	10%	3 711 618	1.70
BD	INDICATED	2 537 360	10%	2 283 624	1.46
BD	INFERRED	22 160	10%	19 944	0.99
BD TOTAL		**6 683 540**		**6 015 186**	**1.61**
Total Coal		**60 185 130**		**54 166 617**	

Table 18. Middelbult Mineable in situ opencast resources

COAL UNIT NAME	RESOURCE CLASS	GROSS IN SITU TONNES	GEOLOGICAL LOSS	IN SITU TONNES	SEAM THICKNESS (m)
SM	MEASURED	691 600	10%	622 440	1.71
SM	INDICATED	89 170	10%	80 253	1.33
SM TOTAL		**780 770**		**702 693**	**1.67**
BA	MEASURED	4 512 790	10%	4 061 511	2.93
BA	INDICATED	177 910	10%	160 119	2.13
BA TOTAL		**4 690 700**		**4 221 630**	**2.90**
BB	MEASURED	3 799 230	10%	3 419 307	1.93
BB	INDICATED	3 200	10%	2 880	0.95
BB TOTAL		**3 802 430**		**3 422 187**	**1.93**
BC	MEASURED	15 571 790	10%	14 014 611	6.91
BC	INDICATED	4 070	10%	3 663	3.83
BC TOTAL		**15 575 860**		**14 018 274**	**6.91**
BD	MEASURED	2 000 690	10%	1 800 621	2.06
BD	INDICATED	397 610	10%	357 849	4.55
BD TOTAL		**2 398 300**		**2 158 470**	**2.47**
Total Coal		**27 248 060**		**24 523 254**	

8.3.5 Coal Quality and Products

A target quality for a coal product with a CV of 19MJ/kg was investigated for this project. Although the Mid seam exceeds this quality, the reminder of the units needs to be washed in order to achieve the required product quality. Tables presenting the raw and washed coal qualities for both the project area as well as the potential opencast area is presented overleaf.

Table 19. Middelbult Raw and 19.0MJ/kg CV product coal qualities for the total resource area

				RAW COAL QUALITIES							PRD AT 19.0 CV					
COAL UNIT NAME	**RESOURCE CLASS**	**GROSS IN SITU TONNES**	**RD**	**CV**	**AS**	**VM**	**IM**	**FC**	**TS**	**DAF**	**PYL**	**PCV**	**PAS**	**PVM**	**PIM**	**PTS**
SM	MEASURED	693 360	1.60	19.2	32.6	23.5	5.4	38.5	1.88	38.0	97.8	20.0	30.0	24.4	5.5	1.89
SM	INDICATED	1 166 590	1.55	21.4	28.0	23.7	4.0	44.2	1.77	34.9	99.9	22.4	25.9	24.6	3.9	1.86
SM	INFERRED	23 540	1.54	21.7	27.6	24.0	4.0	44.3	1.71	35.2						
SM TOTAL		**1 883 490**	**1.57**	**20.6**	**29.7**	**23.6**	**4.5**	**42.1**	**1.81**	**36.0**	**97.9**	**21.2**	**27.1**	**24.2**	**4.4**	**1.85**
BA	MEASURED	5 624 470	1.71	16.5	41.1	19.7	4.8	34.5	0.91	36.6	75.6	19.3	31.2	21.7	5.2	0.91
BA	INDICATED	238 590	1.80	14.4	47.4	17.5	4.8	30.3	0.42	36.7	57.4	19.4	29.3	20.3	5.5	0.48
BA	INFERRED	27 070	1.76	15.4	44.3	18.1	4.6	33.0	0.53	35.4						
BA TOTAL		**5 890 130**	**1.71**	**16.4**	**41.4**	**19.6**	**4.8**	**34.3**	**0.89**	**36.6**	**74.5**	**19.2**	**31.0**	**21.5**	**5.2**	**0.89**
BB	MEASURED	5 968 240	1.80	14.6	45.8	18.9	4.4	30.9	0.66	38.4	66.0	19.1	30.1	21.6	5.2	0.67
BB	INDICATED	222 540	1.80	15.2	45.5	17.7	3.9	32.8	0.52	35.2	58.8	19.0	29.8	20.9	5.9	0.40
BB	INFERRED	0														
BB TOTAL		**6 190 780**	**1.80**	**14.6**	**45.8**	**18.9**	**4.4**	**31.0**	**0.65**	**38.3**	**65.7**	**19.1**	**30.1**	**21.6**	**5.2**	**0.66**
BC	MEASURED	28 578 460	1.78	15.4	45.0	16.5	4.1	34.4	0.65	32.8	65.4	19.0	33.9	18.3	4.3	0.56
BC	INDICATED	10 865 540	1.79	15.5	45.8	14.3	3.1	36.7	0.64	28.5	69.1	19.0	37.0	15.5	3.1	0.63
BC	INFERRED	93 190	1.81	15.9	46.7	16.8	2.3	33.9	0.52	33.0						
BC TOTAL		**39 537 190**	**1.78**	**15.4**	**45.2**	**15.9**	**3.8**	**35.0**	**0.65**	**31.6**	**66.3**	**19.0**	**34.7**	**17.5**	**4.0**	**0.58**
BD	MEASURED	4 124 020	1.94	11.7	57.8	12.5	3.5	26.3	0.55	32.2	34.2	19.0	35.1	14.6	3.6	0.73
BD	INDICATED	2 537 360	1.91	12.4	55.2	10.5	2.8	31.6	0.61	25.6	57.6	18.6	38.4	11.6	2.7	0.70
BD	INFERRED	22 160	1.89	13.1	53.5	11.2	2.2	33.2	0.59	26.0	29.1	19.0	39.8	9.9	3.2	0.65
BD TOTAL		**6 683 540**	**1.93**	**12.0**	**56.8**	**11.7**	**3.2**	**28.3**	**0.57**	**29.7**	**43.1**	**18.8**	**36.4**	**13.4**	**3.3**	**0.72**
Total Coal		**60 185 130**														

Table 20. Middelbult Raw and 19.0MJ/kg CV product coal qualities for the mineable opencast resource area

				RAW COAL QUALITIES							PRD AT 19.0 CV					
COAL UNIT NAME	**RESOURCE CLASS**	**GROSS IN SITU TONNES**	**RD**	**CV**	**AS**	**VM**	**IM**	**FC**	**TS**	**DAF**	**PYL**	**PCV**	**PAS**	**PVM**	**PIM**	**PTS**
SM	MEASURED	691 600	1.60	19.2	32.6	23.5	5.4	38.5	1.88	38.0	97.8	20.0	30.0	24.4	5.5	1.89
SM	INDICATED	89 170	1.70	16.7	37.5	19.2	3.9	39.4		32.7						
SM TOTAL		**780 770**	**1.61**	**18.9**	**33.2**	**23.0**	**5.2**	**38.6**	**1.88**	**37.4**	**97.8**	**20.0**	**30.0**	**24.4**	**5.5**	**1.89**
BA	MEASURED	4 512 790	1.70	16.7	40.5	19.9	4.9	34.8	0.95	36.6	78.6	19.4	31.0	21.8	5.3	0.92
BA	INDICATED	177 910	1.81	14.1	48.3	17.3	4.9	29.5	0.39	37.0	57.4	19.4	29.3	20.3	5.5	0.48
BA TOTAL		**4 690 700**	**1.70**	**16.6**	**40.8**	**19.8**	**4.9**	**34.6**	**0.93**	**36.6**	**77.8**	**19.4**	**30.9**	**21.7**	**5.3**	**0.90**
BB	MEASURED	3 799 230	1.78	15.3	43.8	19.1	4.5	32.6	0.75	37.4	70.9	19.1	30.0	21.7	5.4	0.75
BB	INDICATED	3 200	1.80	15.8	44.2	17.2	3.7	35.1	0.50	32.9	55.4	19.0	30.1	21.0	5.7	0.33
BB TOTAL		**3 802 430**	**1.78**	**15.3**	**43.8**	**19.1**	**4.5**	**32.6**	**0.75**	**37.4**	**70.9**	**19.1**	**30.0**	**21.7**	**5.4**	**0.75**
BC	MEASURED	15 571 790	1.73	16.4	41.2	17.5	4.4	36.9	0.70	32.1	76.0	19.0	33.0	18.9	4.7	0.60
BC	INDICATED	4 070	1.71	17.2	38.6	19.1	5.0	37.4	0.92	33.9	85.4	19.0				
BC TOTAL		**15 575 860**	**1.73**	**16.4**	**41.2**	**17.5**	**4.4**	**36.9**	**0.70**	**32.1**	**76.0**	**19.0**	**33.0**	**18.9**	**4.7**	**0.60**
BD	MEASURED	2 000 690	1.96	11.8	58.7	12.0	4.2	25.2	0.51	32.5	29.0	19.0	35.9	13.7	4.3	0.71
BD	INDICATED	397 610	1.97	11.9	59.7	12.0	3.9	24.5	0.58	32.9	33.8	19.0	36.7	14.0	4.2	0.63
BD TOTAL		**2 398 300**	**1.96**	**11.8**	**58.9**	**12.0**	**4.2**	**25.1**	**0.52**	**32.6**	**29.8**	**19.0**	**36.0**	**13.7**	**4.3**	**0.70**
Total Coal		**27 248 060**														

8.3.6 Coal Quality Plans

A number of plans are presented below to illustrate the product yield quality for a 19.0MJ/Kg CV product for each of the coal units.

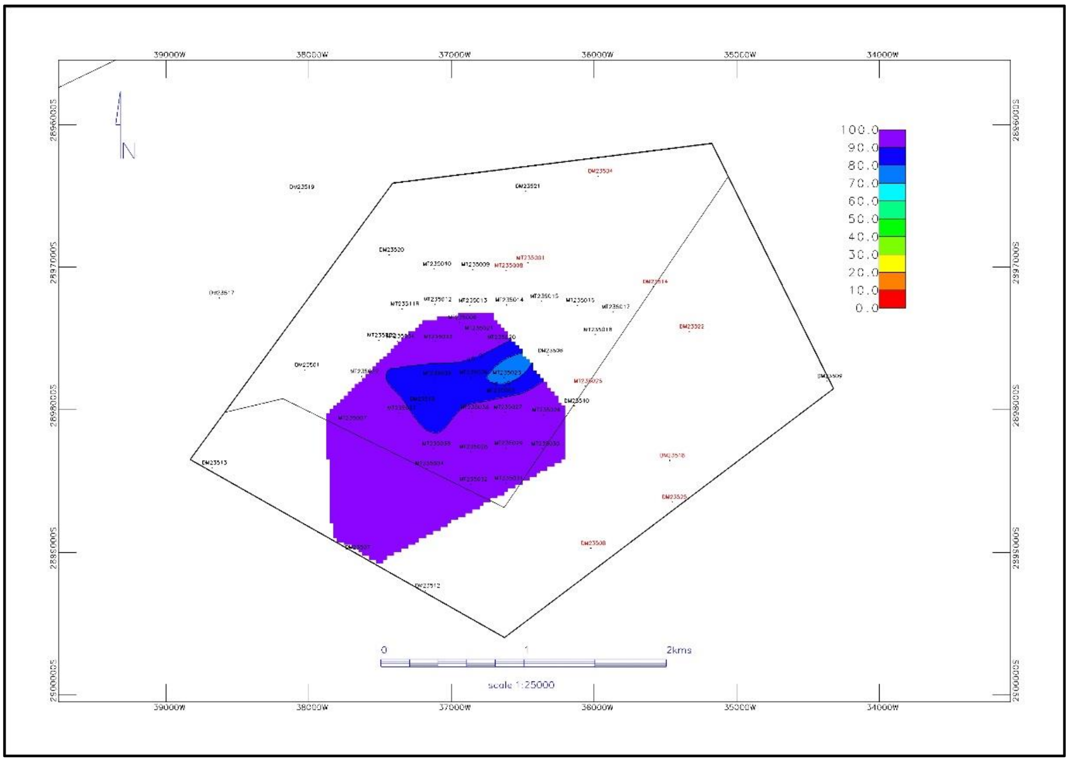

Figure 86. Middelbult Mid seam – Product yield for a 19.0MJ/kg CV

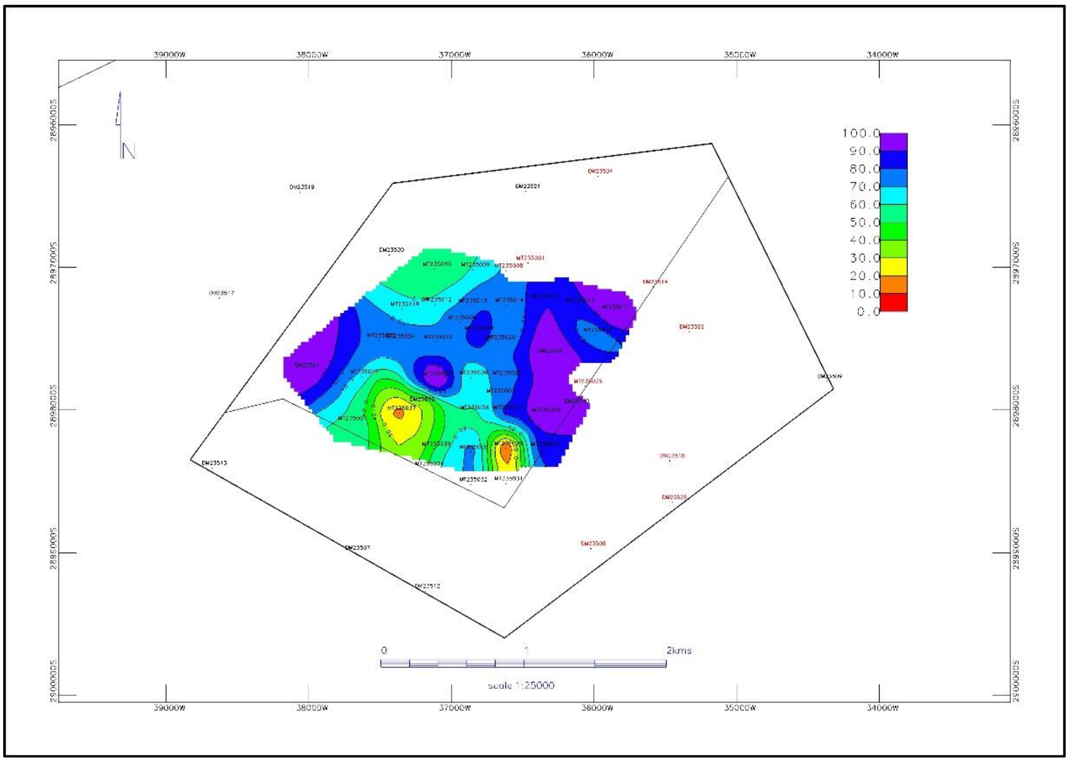

Figure 87. Middelbult coal unit BA – Product yield for a 19.0MJ/kg CV

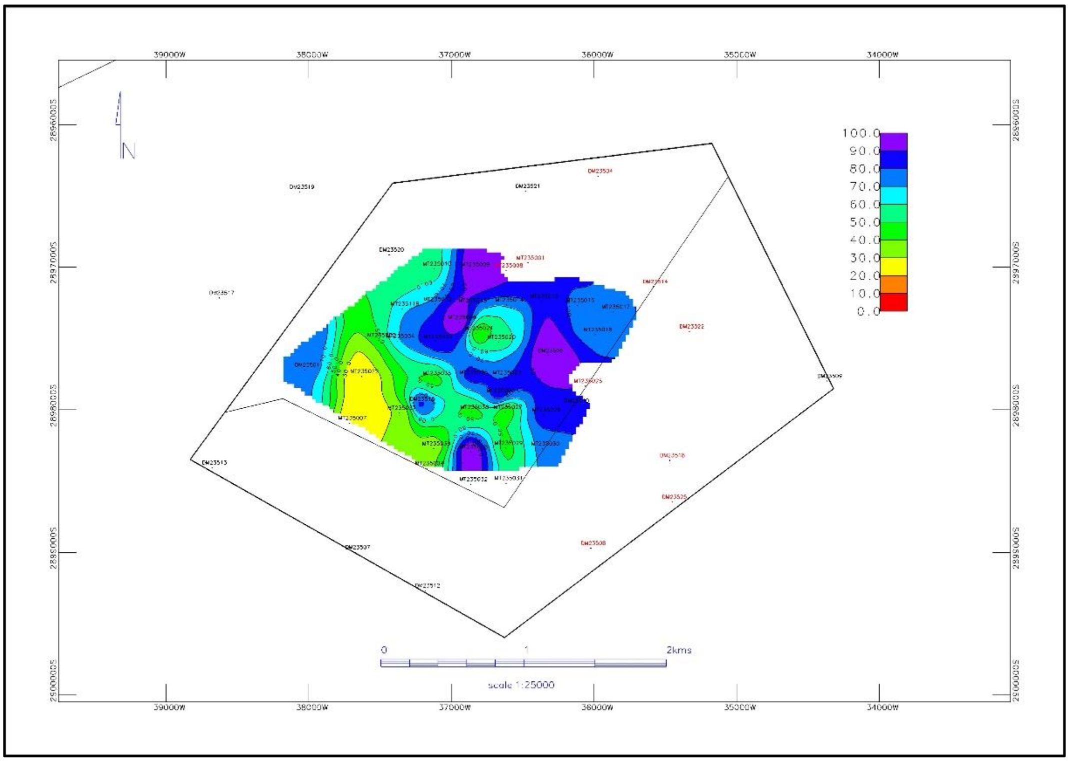

Figure 88. Middelbult coal unit BB – Product yield for a 19.0MJ/kg CV

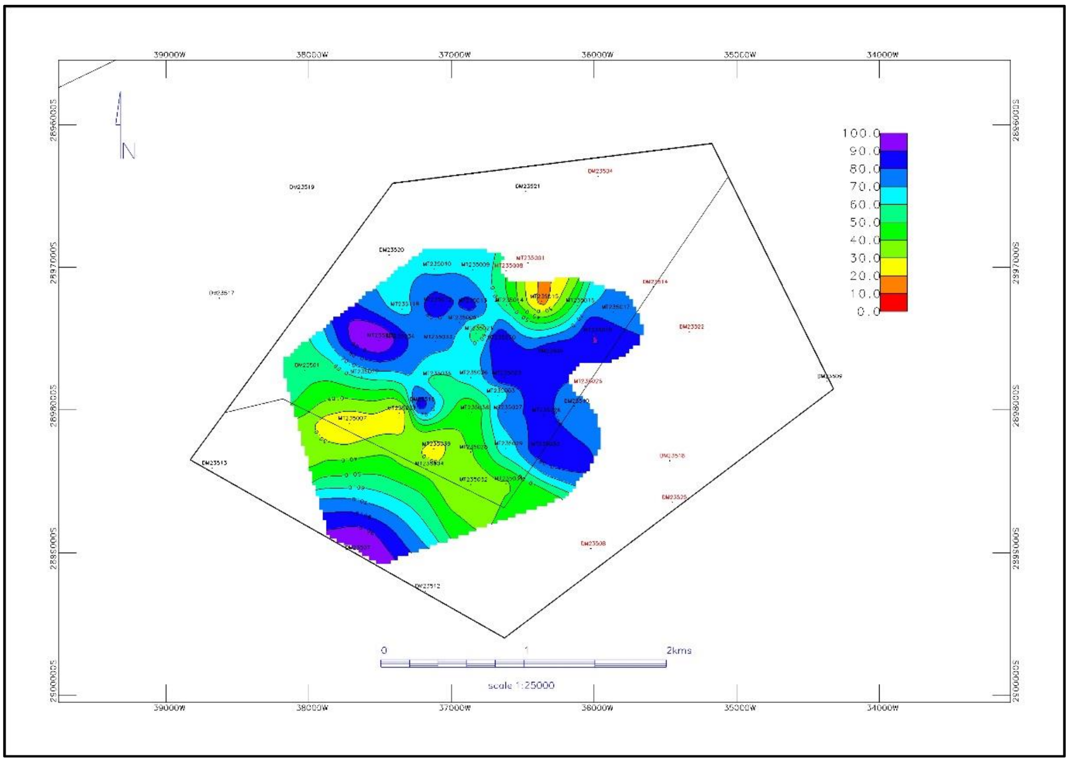

Figure 89. Middelbult coal unit BC – Product yield for a 19.0MJ/kg CV

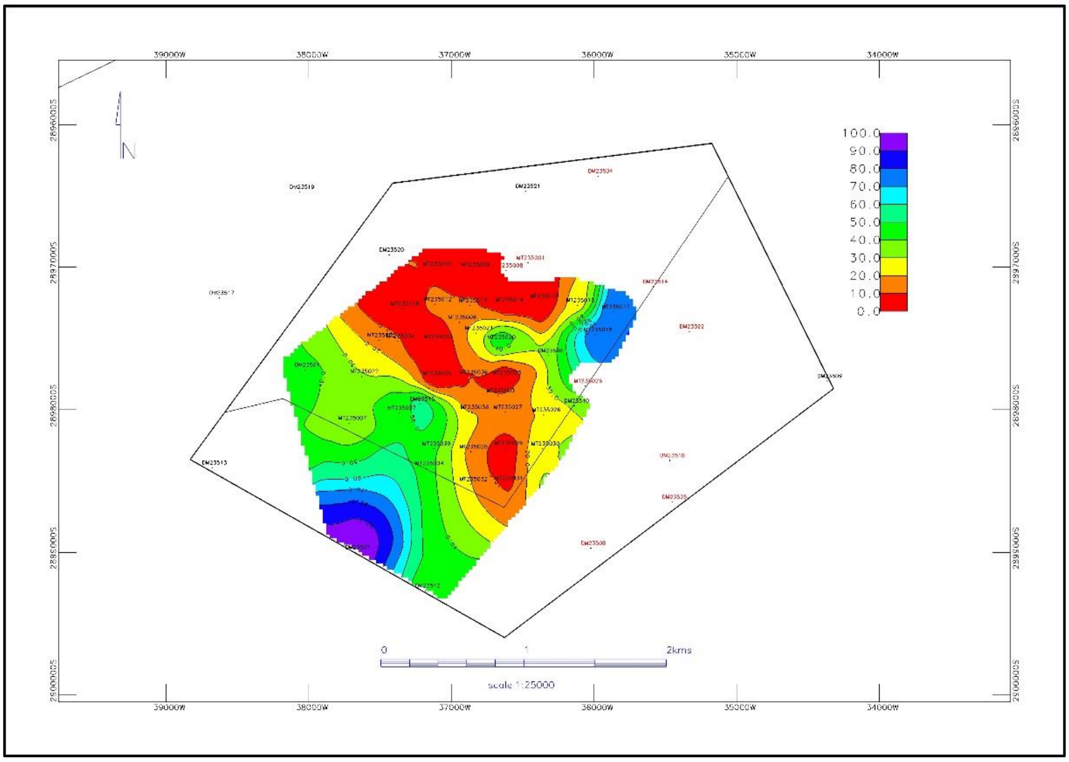

Figure 90. Middelbult coal unit BD – Product yield for a 19.0MJ/kg CV

8.4 Modderfontein Project Resource Estimation

8.4.1 Previous Resource Estimations

No previous coal resource estimations were reported for the Modderfontein project.

8.4.2 Resource Areas and Reporting Assumptions

The coal resource is reported using a minimum coal seam cut-off thickness of 0.5m. The resource outline is limited by the farm portion outline. No quality cut-off parameters were used at this stage as part of the resource reporting. Raw coal qualities do, however, appear to be within acceptable limits and are not considered to be a major limiting factor at this stage.

Raw coal qualities and RD's were applied to the coal volumes according to the raw coal quality model across the area. Average relative densities per seam/unit are summarized in Table 21 overleaf:

Table 21. Modderfontein RD's of raw coal seams and units

Modderfontein			
Average relative densities per seam/unit			
Seam	**RD**	**Unit**	**RD**
SM	1.53	SM	1.53
SB	1.83	BA	1.76
		BB	1.70
		BC	1.64
		BD	1.97

The resource classification for the Bottom seam is shown in Figure 91. The measured category is indicated in green and the indicated category in magenta. The Middle seam is classified as an inferred coal resource only. The area around borehole MN236007 is not classified as it is the estimated extent of non-coal development due to the basement high.

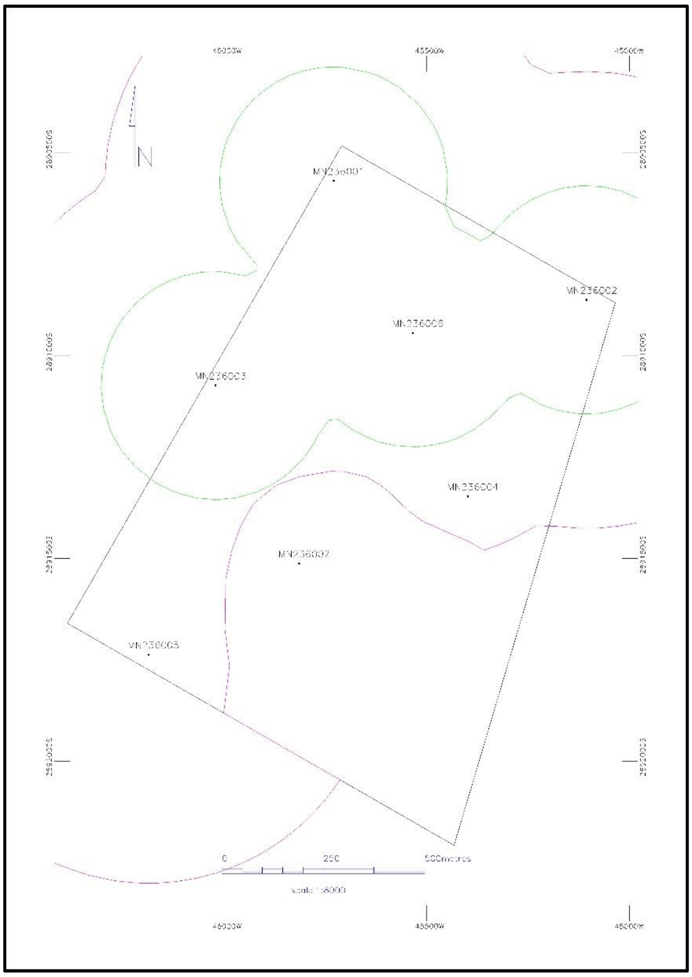

Figure 91. Coal Resource class for the Bottom seam

8.4.3 Geological Loss Factor

It is recommended that a geological loss factor of 10% is applied to the gross in situ tonnes due to expected localised small-scale faulting and thin dolerite dykes.

8.4.4 Coal Resource Statement

No changes are reported compared to previous coal resource statements. Gross in situ coal resources for the Modderfontein prospect is estimated at **19.1 million tonnes** and is summarised below in Table 22, with detailed resources and raw coal qualities presented in Table 23. Net attributable tonnes based on the 70.5% interest held by Universal Coal Development I (Pty) Ltd is stated at **13.5 million tonnes** for Modderfontein. No Mineable in situ tonnes is declared.

Table 22. Modderfontein Project – Summary of coal resources by status

Summary of resources by status					
Coal	Gross in situ tonnes		Mineable in situ tonnes		
Category	Gross in situ tonnes	Net Attributable	Mineable in situ tonnes	Net Attributable	Operator
	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	Tonnes (Mt)	
Measured	13.50	9.52	NA	NA	
Indicated	4.3	3.0	NA	NA	
Inferred	1.3	0.9	NA	NA	
Total	**19.1**	**13.5**	**NA**	**NA**	**Universal Coal Development I (Pty) Ltd**

Table 23. Modderfontein Gross in Situ Coal Resources per seam

RESOURCE CLASS	SEAM	Gross In situ Tonnes	Geological Loss	In situ Tonnes
MEASURED	SM	0	10%	0
INDICATED	SM	0	10%	0
INFERRED	SM	1 311 000	10%	1 179 900
		1 311 000		**1 179 900**
MEASURED	SB	13 498 000	10%	12 148 200
INDICATED	SB	4 323 000	10%	3 890 700
INFERRED	SB	0	10%	0
		17 821 000		**16 038 900**
	Total Coal	**19 132 000**		**17 218 800**

8.4.5 Coal Quality and Products

The Modderfontein Project hosts bituminous coal that would have to be mined selectively and beneficiated to produce a coal product suitable for the domestic steam coal market. Coal washability for various coal quality products was performed as previously described. A summary of the raw coal qualities as well some washability options is presented in the tables overleaf. No coal quality products are reported for the Mid seam, due to lack of washability data.

Table 24. Modderfontein raw coal qualities per seam

					RAW COAL QUALITY						
RESOURCE CLASS	SEAM	In situ Tonnes	Seam Thickness	DBS	RD	CV	AS	IM	VM	FC	TS
MEASURED	SM	0									
INDICATED	SM	0									
INFERRED	SM	1 179 900	2.4	40	1.53	21.6	23.6	5.9	24.8	45.7	2.73
		1 179 900	**2.4**	**40**	**1.53**	**21.6**	**23.6**	**5.9**	**24.8**	**45.7**	**2.73**
MEASURED	SB	12 148 200	18.9	40	1.80	13.1	47.9	4.2	16.3	31.7	0.98
INDICATED	SB	3 890 700	13.3	34	1.80	12.6	49.5	3.6	13.9	32.9	1.10
INFERRED	SB	0									
		16 038 900	**17.6**	**39**	**1.80**	**13.0**	**48.3**	**4.1**	**15.7**	**32.0**	**1.01**
	Total Coal	**17 218 800**									

Table 25. Modderfontein coal washability products

				PRODUCT AT RD 1.90						
RESOURCE CLASS	SEAM	In situ Tonnes	Seam Thickness	PYL	PCV	PAS	PIM	PVM	PTS	PWD
MEASURED	SB	12 148 200	18.9	47.0	20.2	28.4	5.2	20.2	0.65	1.90
INDICATED	SB	3 890 700	13.3	37.2	20.2	29.6	4.1	15.8	0.91	1.90
INFERRED	SB	0								
		16 038 900	**17.6**	**44.6**	**20.2**	**28.7**	**4.9**	**19.1**	**0.71**	**1.90**

				PRODUCT AT RD 1.60						
RESOURCE CLASS	SEAM	In situ Tonnes	Seam Thickness	PYL	PCV	PAS	PIM	PVM	PTS	PWD
MEASURED	SB	12 148 200	18.9	27.5	23.1	20.5	5.6	22.0	0.70	1.60
INDICATED	SB	3 890 700	13.3	20.7	23.8	21.0	4.1	17.1	1.04	1.60
INFERRED	SB	0								
		16 038 900	**17.6**	**25.9**	**23.3**	**20.6**	**5.2**	**20.8**	**0.78**	**1.60**

8.4.6 Coal Quality Plans

Overleaf is a number of raw coal quality plans illustrating the coal seam quality for the Bottom Seam at Modderfontein. Due to limited intersections for the Mid seam, no coal quality plans are presented as such.

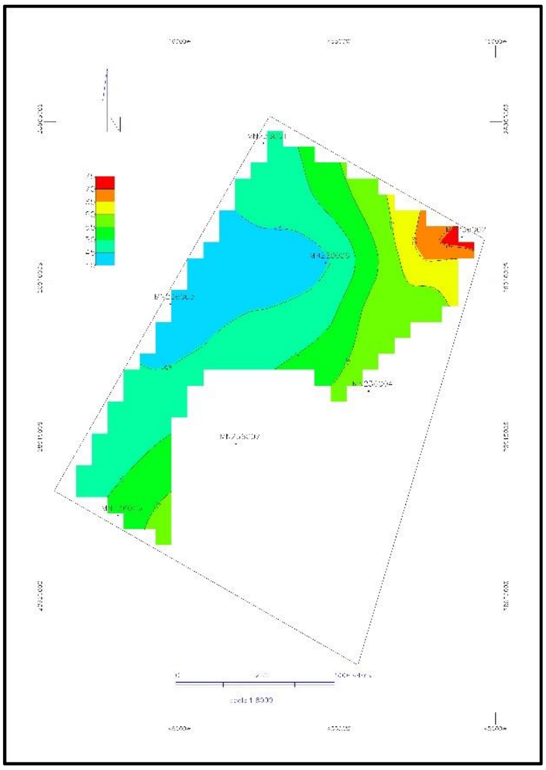

Figure 92. Modderfontein – Bottom seam raw ash

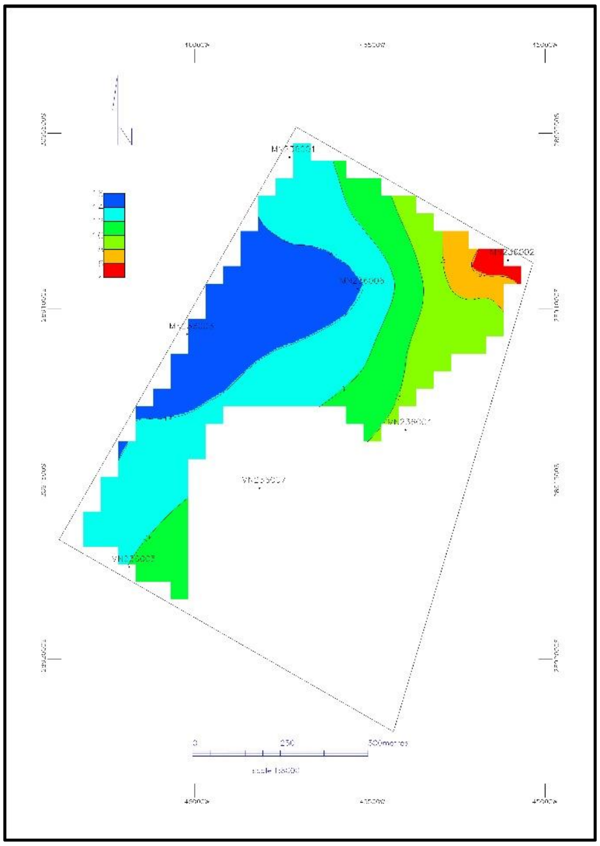

Figure 93. Modderfontein – Bottom seam raw CV

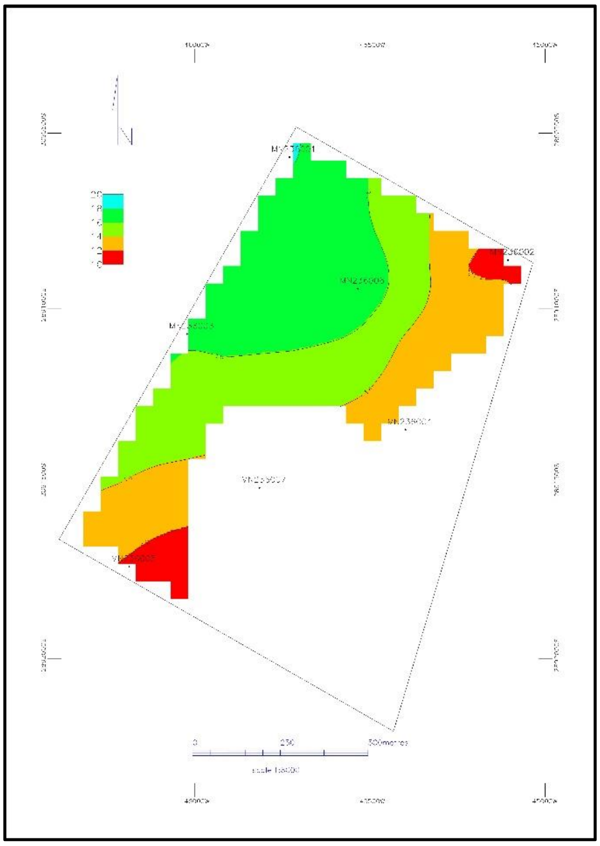

Figure 94. Modderfontein – Bottom seam raw VM

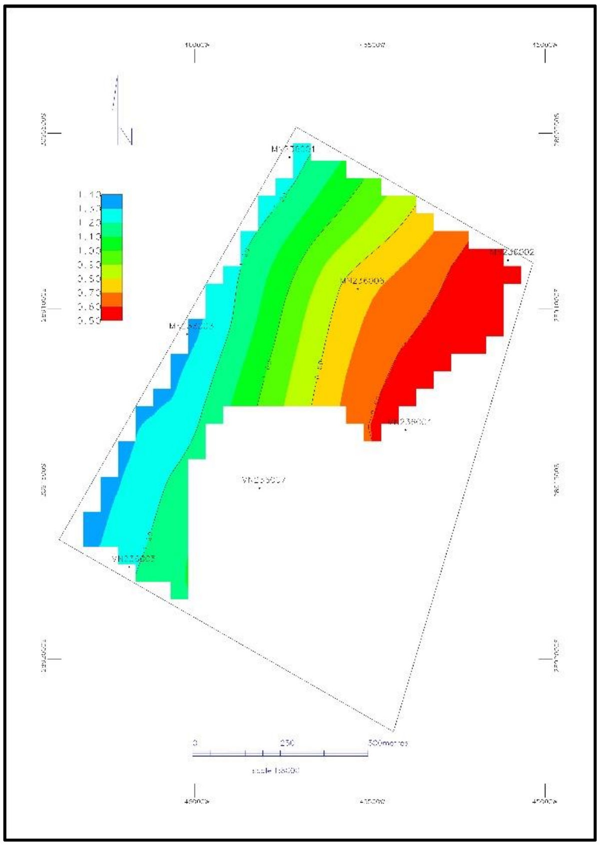

Figure 95. Modderfontein – Bottom seam raw TS

APPENDIX A

Kangala Mine List of borehole collars

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Type	Coordinate system
WN244001	34088.60	2898337.20	1587.70	66.73	0	-90	slim diameter	LO29_WGS84
WN244001LD	34107.37	2898334.34	1587.64	50.00	0	-90	large diameter	LO29_WGS84
WN244002	34061.60	2898761.80	1591.70	45.83	0	-90	slim diameter	LO29_WGS84
WN244002LD	34478.78	2898734.29	1591.67	50.00	0	-90	large diameter	LO29_WGS84
WN244003	34494.10	2898742.30	1591.60	39.20	0	-90	slim diameter	LO29_WGS84
WN244003LD	33550.52	2898743.00	1589.38	50.00	0	-90	large diameter	LO29_WGS84
WN244004	33660.00	2898610.60	1588.60	30.00	0	-90	slim diameter	LO29_WGS84
WN244004LD	33820.64	2899003.08	1592.10	50.00	0	-90	large diameter	LO29_WGS84
WN244005	34243.60	2899200.70	1593.80	67.62	0	-90	slim diameter	LO29_WGS84
WN244005LD	34224.73	2899189.97	1593.63	50.00	0	-90	large diameter	LO29_WGS84
WN244006	33651.50	2899169.00	1590.50	59.11	0	-90	slim diameter	LO29_WGS84
WN244006LD	34016.35	2899542.15	1593.49	50.00	0	-90	large diameter	LO29_WGS84
WN244007	33781.63	2897988.48	1584.58	47.22	0	-90	slim diameter	LO29_WGS84
WN244007LD	33309.77	2899253.88	1585.39	50.00	0	-90	large diameter	LO29_WGS84
WN244008	34024.49	2897927.27	1583.60	35.24	0	-90	slim diameter	LO29_WGS84
WN244009	34346.18	2897962.08	1579.33	29.26	0	-90	slim diameter	LO29_WGS84
WN244010	34529.79	2898241.58	1583.50	29.32	0	-90	slim diameter	LO29_WGS84
WN244011	34283.49	2898239.56	1585.06	29.22	0	-90	slim diameter	LO29_WGS84
WN244012	34053.96	2898154.95	1585.41	23.24	0	-90	slim diameter	LO29_WGS84
WN244012LD	34112.39	2898454.84	1589.13	62.53	0	-90	large diameter	LO29_WGS84
WN244013	33782.58	2898239.83	1585.82	67.94	0	-90	slim diameter	LO29_WGS84
WN244014	33784.37	2898490.81	1588.06	53.22	0	-90	slim diameter	LO29_WGS84
WN244015	34034.68	2898491.65	1589.66	83.22	0	-90	slim diameter	LO29_WGS84
WN244016	34283.86	2898489.65	1589.03	47.32	0	-90	slim diameter	LO29_WGS84
WN244016LD	34349.69	2899025.43	1591.63	48.47	0	-90	large diameter	LO29_WGS84
WN244017	34534.59	2898492.03	1587.90	54.57	0	-90	slim diameter	LO29_WGS84
WN244018	34282.10	2898740.34	1592.14	53.30	0	-90	slim diameter	LO29_WGS84
WN244018LD	33638.58	2898888.21	1590.68	44.85	0	-90	large diameter	LO29_WGS84
WN244019	33783.40	2898740.33	1589.99	59.24	0	-90	slim diameter	LO29_WGS84
WN244019LD	33357.99	2899136.44	1588.01	66.15	0	-90	large diameter	LO29_WGS84
WN244020	33534.59	2898740.16	1589.24	55.80	0	-90	slim diameter	LO29_WGS84
WN244021	33284.29	2898987.33	1587.29	47.30	0	-90	slim diameter	LO29_WGS84
WN244021LD	33762.09	2899428.57	1590.88	45.72	0	-90	large diameter	LO29_WGS84
WN244022	33534.50	2898991.85	1592.18	65.24	0	-90	slim diameter	LO29_WGS84
WN244023	33800.42	2899003.53	1592.12	55.55	0	-90	slim diameter	LO29_WGS84
WN244024	34029.96	2898991.15	1593.24	65.30	0	-90	slim diameter	LO29_WGS84
WN244025	34283.43	2898991.42	1592.14	47.24	0	-90	slim diameter	LO29_WGS84

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Type	Coordinate system
WN244026	34035.63	2899296.59	1596.18	71.30	0	-90	slim diameter	LO29_WGS84
WN244027	33845.16	2899294.56	1594.57	53.27	0	-90	slim diameter	LO29_WGS84
WN244028	33538.40	2899287.40	1588.87	59.24	0	-90	slim diameter	LO29_WGS84
WN244029	33286.61	2899250.31	1585.03	47.24	0	-90	slim diameter	LO29_WGS84
WN244030	33531.84	2899495.03	1583.62	65.27	0	-90	slim diameter	LO29_WGS84
WN244031	33795.38	2899548.29	1588.97	41.30	0	-90	slim diameter	LO29_WGS84
WN244032	34034.35	2899542.75	1593.71	53.30	0	-90	slim diameter	LO29_WGS84
WN244033	33935.52	2899753.35	1583.78	41.30	0	-90	slim diameter	LO29_WGS84
WN244035	33283.44	2898736.20	1586.38	35.30	0	-90	slim diameter	LO29_WGS84
WN244036	33441.33	2898263.40	1582.19	53.24	0	-90	slim diameter	LO29_WGS84
WN244037	33279.62	2897735.12	1580.83	29.27	0	-90	slim diameter	LO29_WGS84
WN244039	33148.69	2900239.91	1585.73	71.24	0	-90	slim diameter	LO29_WGS84
WN244050	34452.66	2898331.02	1585.45	30.97	0	-90	slim diameter	LO29_WGS84
WN244051	34603.98	2898393.91	1585.69	51.32	0	-90	slim diameter	LO29_WGS84
WN244052	34381.53	2898457.53	1588.00	63.97	0	-90	slim diameter	LO29_WGS84
WN244053	34235.32	2898376.54	1587.52	60.85	0	-90	slim diameter	LO29_WGS84
WN244054	34154.07	2898216.21	1585.61	26.07	0	-90	slim diameter	LO29_WGS84
WN244055	33955.02	2898198.58	1585.98	27.96	0	-90	slim diameter	LO29_WGS84
WN244056	33899.61	2898371.16	1588.01	67.70	0	-90	slim diameter	LO29_WGS84
WN244057A	34156.64	2898519.08	1589.74	33.89	0	-90	slim diameter	LO29_WGS84
WN244057B	34135.18	2898546.97	1589.95	46.08	0	-90	slim diameter	LO29_WGS84
WN244058	34309.19	2898610.42	1590.40	33.78	0	-90	slim diameter	LO29_WGS84
WN244059	34445.57	2898576.92	1589.53	34.34	0	-90	slim diameter	LO29_WGS84
WN244060	34356.62	2898843.27	1592.33	38.53	0	-90	slim diameter	LO29_WGS84
WN244061	34080.66	2898664.32	1591.22	54.49	0	-90	slim diameter	LO29_WGS84
WN244062	33936.21	2898588.86	1590.28	66.99	0	-90	slim diameter	LO29_WGS84
WN244063	33609.77	2898402.54	1584.10	46.00	0	-90	slim diameter	LO29_WGS84
WN244064	33444.97	2898472.08	1585.47	79.13	0	-90	slim diameter	LO29_WGS84
WN244065	33561.07	2898541.43	1586.74	57.96	0	-90	slim diameter	LO29_WGS84
WN244066	33742.17	2898664.32	1589.85	51.88	0	-90	slim diameter	LO29_WGS84
WN244067	33858.59	2898733.31	1590.23	51.78	0	-90	slim diameter	LO29_WGS84
WN244068	33994.42	2898810.93	1591.16	45.84	0	-90	slim diameter	LO29_WGS84
WN244069	34151.80	2898890.70	1592.89	39.96	0	-90	slim diameter	LO29_WGS84
WN244070	34199.23	2899121.39	1593.26	61.30	0	-90	slim diameter	LO29_WGS84
WN244071	34050.47	2899030.84	1593.28	39.92	0	-90	slim diameter	LO29_WGS84
WN244072	33923.27	2898951.06	1592.06	46.29	0	-90	slim diameter	LO29_WGS84
WN244073	33778.82	2898873.45	1591.04	46.32	0	-90	slim diameter	LO29_WGS84
WN244074	33621.44	2898800.15	1589.76	44.76	0	-90	slim diameter	LO29_WGS84
WN244075	33429.56	2898681.57	1587.79	37.31	0	-90	slim diameter	LO29_WGS84
WN244076	33332.92	2898623.75	1586.45	31.15	0	-90	slim diameter	LO29_WGS84

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Type	Coordinate system
WN244077	33210.35	2898738.85	1585.28	31.34	0	-90	slim diameter	LO29_WGS84
WN244078	33321.76	2898810.93	1587.09	37.29	0	-90	slim diameter	LO29_WGS84
WN244079	33414.46	2898866.98	1588.31	42.35	0	-90	slim diameter	LO29_WGS84
WN244080	33550.29	2898935.97	1590.17	67.29	0	-90	slim diameter	LO29_WGS84
WN244081	33688.27	2899039.46	1591.18	48.53	0	-90	slim diameter	LO29_WGS84
WN244082	33828.41	2899104.14	1592.05	51.95	0	-90	slim diameter	LO29_WGS84
WN244083	33983.64	2899181.75	1593.36	69.56	0	-90	slim diameter	LO29_WGS84
WN244084	34149.65	2899267.99	1594.75	66.62	0	-90	slim diameter	LO29_WGS84
WN244085	34039.69	2899410.29	1594.31	40.30	0	-90	slim diameter	LO29_WGS84
WN244086	33878.00	2899336.98	1592.76	46.49	0	-90	slim diameter	LO29_WGS84
WN244087	33772.35	2899229.18	1591.74	55.00	0	-90	slim diameter	LO29_WGS84
WN244088	33526.57	2899130.01	1589.60	67.37	0	-90	slim diameter	LO29_WGS84
WN244089	33371.34	2899022.21	1588.11	37.40	0	-90	slim diameter	LO29_WGS84
WN244090	33202.45	2898938.12	1585.78	51.88	0	-90	slim diameter	LO29_WGS84
WN244091	33171.87	2899112.26	1584.13	66.03	0	-90	slim diameter	LO29_WGS84
WN244092	33242.34	2899150.51	1585.21	62.86	0	-90	slim diameter	LO29_WGS84
WN244093	33394.23	2899232.71	1587.10	49.19	0	-90	slim diameter	LO29_WGS84
WN244094	33680.01	2899394.02	1589.44	45.35	0	-90	slim diameter	LO29_WGS84
WN244095	33823.06	2899474.16	1591.25	46.33	0	-90	slim diameter	LO29_WGS84
WN244096	33924.13	2899572.44	1591.05	33.64	0	-90	slim diameter	LO29_WGS84
WN244097	33467.13	2899395.09	1584.26	69.79	0	-90	slim diameter	LO29_WGS84
WN244098	33122.95	2899250.22	1579.23	36.29	0	-90	slim diameter	LO29_WGS84
WN244099	33019.43	2899037.69	1581.02	48.21	0	-90	slim diameter	LO29_WGS84
WN244100	33049.26	2899167.88	1579.09	45.65	0	-90	slim diameter	LO29_WGS84
WN244101	32953.46	2899095.56	1577.40	85.07	0	-90	slim diameter	LO29_WGS84
WN244102	32939.86	2899249.87	1575.61	31.23	0	-90	slim diameter	LO29_WGS84
WN244103	33110.11	2898870.00	1584.19	33.76	0	-90	slim diameter	LO29_WGS84
WN244104	33495.04	2898624.84	1587.83	35.84	0	-90	slim diameter	LO29_WGS84
WN244105	33592.33	2898709.00	1589.10	60.66	0	-90	slim diameter	LO29_WGS84
WN244106	33683.26	2898756.00	1589.73	42.98	0	-90	slim diameter	LO29_WGS84
WN244107	33769.90	2898799.00	1590.39	45.24	0	-90	slim diameter	LO29_WGS84
WN244108	33868.79	2898858.00	1590.84	44.39	0	-90	slim diameter	LO29_WGS84
WN244109	33969.49	2898908.00	1591.88	40.92	0	-90	slim diameter	LO29_WGS84
WN244110	34049.84	2898948.00	1592.72	40.26	0	-90	slim diameter	LO29_WGS84
WN244111	34129.81	2898996.00	1593.12	45.70	0	-90	slim diameter	LO29_WGS84
WN244112	34148.51	2898944.49	1592.92	40.97	0	-90	slim diameter	LO29_WGS84
WN244113	34054.69	2898895.56	1592.48	41.09	0	-90	slim diameter	LO29_WGS84
WN244114	33937.30	2898798.47	1590.46	50.10	0	-90	slim diameter	LO29_WGS84
WN244115	33899.32	2898776.99	1590.28	50.10	0	-90	slim diameter	LO29_WGS84
WN244116	33700.60	2898708.01	1589.18	48.27	0	-90	slim diameter	LO29_WGS84

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Type	Coordinate system
WN244117	33636.24	2898655.77	1588.96	46.09	0	-90	slim diameter	LO29_WGS84
WN244118	34216.00	2899037.00	1588.57	35.17	0	-90	slim diameter	LO29_WGS84
WN244119	34135.89	2899060.20	1593.38	65.75	0	-90	slim diameter	LO29_WGS84
WN244120	33844.70	2898910.33	1591.45	42.78	0	-90	slim diameter	LO29_WGS84
WN244121	33695.59	2898839.36	1590.47	42.07	0	-90	slim diameter	LO29_WGS84
WN244122	33403.80	2898717.04	1587.71	38.36	0	-90	slim diameter	LO29_WGS84
WN244123	33699.36	2898648.96	1589.26	64.63	0	-90	slim diameter	LO29_WGS84
WN244124	33425.10	2898727.77	1588.03	35.48	0	-90	slim diameter	LO29_WGS84
WN244130	33734.97	2898623.87	1589.75	54.91	0	-90	slim diameter	LO29_WGS84
WN244132	33786.44	2898647.66	1590.22	52.18	0	-90	slim diameter	LO29_WGS84
WN244133	33836.56	2898681.72	1590.35	56.14	0	-90	slim diameter	LO29_WGS84
WN244134	33929.07	2898723.11	1590.73	58.05	0	-90	slim diameter	LO29_WGS84
WN244135	33980.63	2898748.60	1590.87	61.06	0	-90	slim diameter	LO29_WGS84
WN244136	34025.00	2898780.63	1590.93	41.53	0	-90	slim diameter	LO29_WGS84
WN244137A	34074.73	2898809.07	1591.78	32.37	0	-90	slim diameter	LO29_WGS84
WN244137B	34079.82	2898806.35	1591.87	44.45	0	-90	slim diameter	LO29_WGS84
WN244138B	34077.81	2898844.29	1592.09	36.48	0	-90	slim diameter	LO29_WGS84
WN244138C	34085.36	2898846.52	1592.24	42.31	0	-90	slim diameter	LO29_WGS84
WN244139	34132.65	2898842.64	1592.47	39.02	0	-90	slim diameter	LO29_WGS84
WN244140	34206.12	2898877.04	1592.70	40.36	0	-90	slim diameter	LO29_WGS84
WN244141	34213.14	2898919.92	1592.51	40.92	0	-90	slim diameter	LO29_WGS84
WN244142	34266.47	2898932.62	1592.00	47.33	0	-90	slim diameter	LO29_WGS84
WN244143	34307.41	2898938.33	1591.90	51.38	0	-90	slim diameter	LO29_WGS84
WN244144	34303.45	2898897.37	1592.10	45.81	0	-90	slim diameter	LO29_WGS84
WN244145	34254.42	2898891.85	1592.36	40.92	0	-90	slim diameter	LO29_WGS84
WN244146	34228.29	2898855.31	1592.74	41.77	0	-90	slim diameter	LO29_WGS84
WN244147	34186.19	2898846.71	1592.71	41.56	0	-90	slim diameter	LO29_WGS84
WN244148	34124.11	2898797.60	1592.24	41.53	0	-90	slim diameter	LO29_WGS84
WN244149	34009.03	2898727.96	1590.72	56.44	0	-90	slim diameter	LO29_WGS84
WN244150	33913.44	2898691.82	1589.97	54.95	0	-90	slim diameter	LO29_WGS84
WN244151	33844.69	2898634.80	1590.47	52.36	0	-90	slim diameter	LO29_WGS84
WN244152	33755.34	2898595.40	1589.41	45.66	0	-90	slim diameter	LO29_WGS84
WN244153	33814.74	2898585.33	1589.95	57.41	0	-90	slim diameter	LO29_WGS84
WN244154	33878.10	2898615.26	1590.38	62.64	0	-90	slim diameter	LO29_WGS84
WN244155	33963.84	2898673.71	1590.92	53.30	0	-90	slim diameter	LO29_WGS84
WN244156	34058.22	2898712.61	1591.34	56.01	0	-90	slim diameter	LO29_WGS84
WN244157	34142.64	2898753.19	1591.97	53.40	0	-90	slim diameter	LO29_WGS84
WN244158	34233.56	2898805.89	1592.53	50.14	0	-90	slim diameter	LO29_WGS84
WN244159	34298.20	2898849.53	1592.32	44.51	0	-90	slim diameter	LO29_WGS84
WN244160	34370.82	2898895.84	1591.83	48.91	0	-90	slim diameter	LO29_WGS84

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Type	Coordinate system
WN244161	34307.00	2898803.47	1592.55	44.23	0	-90	slim diameter	LO29_WGS84
WN244162	34216.39	2898752.93	1591.85	42.44	0	-90	slim diameter	LO29_WGS84
WN244163	34111.11	2898698.82	1591.66	51.58	0	-90	slim diameter	LO29_WGS84
WN244164	33986.36	2898635.70	1590.86	52.90	0	-90	slim diameter	LO29_WGS84
WN244165	33874.13	2898573.32	1590.29	71.04	0	-90	slim diameter	LO29_WGS84
WN244166	33818.16	2898538.08	1589.48	51.37	0	-90	slim diameter	LO29_WGS84
WN244167	33989.63	2899027.71	1592.82	56.33	0	-90	slim diameter	LO29_WGS84
WN244168	34072.64	2899076.97	1593.50	49.06	0	-90	slim diameter	LO29_WGS84
WN244169	34139.27	2899112.95	1593.71	42.95	0	-90	slim diameter	LO29_WGS84
WN244170	33955.98	2899004.68	1592.58	46.16	0	-90	slim diameter	LO29_WGS84
WN244171	33870.76	2898979.67	1592.12	49.96	0	-90	slim diameter	LO29_WGS84
WN244172	33780.22	2898926.04	1591.54	48.27	0	-90	slim diameter	LO29_WGS84
WN244173	33714.25	2898888.36	1590.98	47.74	0	-90	slim diameter	LO29_WGS84
WN244174	33625.74	2898841.19	1589.96	42.96	0	-90	slim diameter	LO29_WGS84
WN244175	33547.40	2898794.95	1589.27	43.02	0	-90	slim diameter	LO29_WGS84
WN244176	33458.22	2898764.76	1588.67	49.05	0	-90	slim diameter	LO29_WGS84
WN244179	33343.48	2898824.52	1587.35	36.96	0	-90	slim diameter	LO29_WGS84
WN244180	33319.59	2898846.03	1587.30	37.71	0	-90	slim diameter	LO29_WGS84
WN244181	33360.75	2898873.30	1587.87	41.26	0	-90	slim diameter	LO29_WGS84
WN244182	33427.75	2898776.14	1588.39	54.30	0	-90	slim diameter	LO29_WGS84
WN244183	33482.13	2898801.07	1588.91	57.31	0	-90	slim diameter	LO29_WGS84
WN244184	33568.75	2898867.48	1589.91	45.91	0	-90	slim diameter	LO29_WGS84
WN244185	33705.32	2898937.18	1591.41	53.93	0	-90	slim diameter	LO29_WGS84
WN244186	33802.78	2898974.88	1591.60	60.92	0	-90	slim diameter	LO29_WGS84
WN244187	33883.37	2899018.57	1592.14	55.10	0	-90	slim diameter	LO29_WGS84
WN244188	33930.80	2899041.22	1592.59	57.04	0	-90	slim diameter	LO29_WGS84
WN244189	34020.65	2899081.60	1592.93	63.24	0	-90	slim diameter	LO29_WGS84
WN244190	34089.12	2899124.63	1593.74	62.72	0	-90	slim diameter	LO29_WGS84
WN244191	34154.46	2899168.32	1593.92	75.87	0	-90	slim diameter	LO29_WGS84
WN244192	34162.95	2899214.57	1594.21	75.82	0	-90	slim diameter	LO29_WGS84
WN244193	34100.25	2899180.49	1593.99	75.97	0	-90	slim diameter	LO29_WGS84
WN244194	34021.24	2899137.40	1593.27	72.93	0	-90	slim diameter	LO29_WGS84
WN244195	33944.51	2899093.81	1592.67	78.55	0	-90	slim diameter	LO29_WGS84
WN244196	33872.05	2899064.79	1592.31	84.07	0	-90	slim diameter	LO29_WGS84
WN244197	33799.23	2899052.20	1591.81	57.27	0	-90	slim diameter	LO29_WGS84
WN244198	33719.87	2898984.50	1591.48	68.49	0	-90	slim diameter	LO29_WGS84
WN244199	33630.43	2898929.81	1590.65	67.96	0	-90	slim diameter	LO29_WGS84
WN244200	33547.13	2898885.35	1589.89	46.44	0	-90	slim diameter	LO29_WGS84
WN244201	33461.87	2898843.71	1589.08	50.86	0	-90	slim diameter	LO29_WGS84
WN244202	33409.01	2898813.71	1588.24	41.20	0	-90	slim diameter	LO29_WGS84

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Type	Coordinate system
WN244203	33489.83	2898901.04	1589.52	49.06	0	-90	slim diameter	LO29_WGS84
WN244204	33617.15	2898975.20	1590.90	71.18	0	-90	slim diameter	LO29_WGS84
WN244210	34096.14	2899071.24	1593.08	52.80	0	-90	slim diameter	LO29_WGS84

APPENDIX B

List of borehole collars – Middelbult Project

Borehole Name	Easting	Northing	Elevation	Depth	Azimuth	Dip	Coordinate system
DM23501	38027.41	2897721.01	1584.00	46.02	0	-90	LO29_WGS84
DM23502	35377.42	2894629.02	1585.00	18.30	0	-90	LO29_WGS84
DM23503	38483.41	2895249.01	1606.00	21.82	0	-90	LO29_WGS84
DM23504	35972.42	2896362.01	1572.00	16.90	0	-90	LO29_WGS84
DM23505	40056.4	2896678.01	1624.00	48.15	0	-90	LO29_WGS84
DM23506	36322.41	2897620.01	1588.00	50.62	0	-90	LO29_WGS84
DM23507	37674.41	2898999.00	1610.00	59.20	0	-90	LO29_WGS84
DM23508	36022.42	2898971.00	1583.00	18.30	0	-90	LO29_WGS84
DM23509	34364.42	2897798.01	1578.00	20.75	0	-90	LO29_WGS84
DM23510	36139.41	2897973.01	1588.00	32.30	0	-90	LO29_WGS84
DM23511	36940.41	2897387.01	1587.00	42.63	0	-90	LO29_WGS84
DM23512	37183.41	2899268.00	1601.00	46.80	0	-90	LO29_WGS84
DM23513	38678.41	2898406.01	1594.00	51.36	0	-90	LO29_WGS84
DM23514	35586.42	2897137.01	1578.00	14.00	0	-90	LO29_WGS84
DM23515	36647.41	2898582.00	1596.00	60.40	0	-90	LO29_WGS84
DM23516	37221.41	2897960.01	1598.00	49.69	0	-90	LO29_WGS84
DM23517	38627.41	2897216.01	1604.00	54.10	0	-90	LO29_WGS84
DM23518	35467.42	2898355.01	1579.00	14.63	0	-90	LO29_WGS84
DM23519	38064.41	2896474.01	1588.00	43.40	0	-90	LO29_WGS84
DM23520	37436.41	2896914.01	1580.00	42.70	0	-90	LO29_WGS84
DM23521	36480.41	2896468.01	1574.00	25.45	0	-90	LO29_WGS84
DM23522	35331.42	2897452.01	1575.00	17.65	0	-90	LO29_WGS84
DM23525	35452.42	2898647.00	1582.00	14.55	0	-90	LO29_WGS84
MT235001	36463.47	2896970.76	1581.15	35.10	0	-90	LO29_WGS84
MT235002	37509.27	2897512.11	1587.16	41.16	0	-90	LO29_WGS84
MT235003	36674.30	2897900.16	1594.08	44.92	0	-90	LO29_WGS84
MT235004	37173.37	2898410.17	1601.98	50.58	0	-90	LO29_WGS84
MT235005	36354.32	2898261.85	1588.51	45.70	0	-90	LO29_WGS84
MT235006	36943.71	2897387.13	1586.84	40.65	0	-90	LO29_WGS84
MT235007	37713.78	2898092.75	1597.86	59.68	0	-90	LO29_WGS84

MT235008	36616.61	2897023.78	1583.30	50.98	0	-90	LO29_WGS84
MT235009	36850.68	2897016.71	1583.41	59.80	0	-90	LO29_WGS84
MT235010	37121.07	2897012.98	1582.76	50.35	0	-90	LO29_WGS84
MT235011	37345.32	2897293.46	1583.05	41.98	0	-90	LO29_WGS84
MT23511R	37345.32	2897293.46	1583.05	39.44	0	-90	LO29_WGS84
MT235012	37116.28	2897260.98	1585.73	35.45	0	-90	LO29_WGS84
MT235013	36870.36	2897268.93	1585.17	39.23	0	-90	LO29_WGS84
MT235014	36613.22	2897264.46	1585.65	42.28	0	-90	LO29_WGS84
MT235015	36368.99	2897239.46	1583.88	39.18	0	-90	LO29_WGS84
MT235016	36116.43	2897267.58	1583.10	30.97	0	-90	LO29_WGS84
MT235017	35867.56	2897314.20	1581.50	64.04	0	-90	LO29_WGS84
MT235018	35991.31	2897473.46	1584.23	57.94	0	-90	LO29_WGS84
MT235020	36669.47	2897526.25	1589.31	54.05	0	-90	LO29_WGS84
MT235021	36825.99	2897462.08	1588.40	57.81	0	-90	LO29_WGS84
MT235022	37629.66	2897766.18	1591.39	46.27	0	-90	LO29_WGS84
MT235023	36630.31	2897775.00	1592.51	47.28	0	-90	LO29_WGS84
MT235025	36061.29	2897833.9	1585.83	19.80	0	-90	LO29_WGS84
MT235026	36353.83	2898036.16	1589.21	67.02	0	-90	LO29_WGS84
MT235027	36623.16	2898016.8	1593.68	52.72	0	-90	LO29_WGS84
MT235028	36865.04	2898293.6	1596.18	48.40	0	-90	LO29_WGS84
MT235029	36619.19	2898269.03	1594.57	56.70	0	-90	LO29_WGS84
MT235030	36360.68	2898273.27	1588.70	49.55	0	-90	LO29_WGS84
MT235031	36617.01	2898514.58	1594.81	50.45	0	-90	LO29_WGS84
MT235032	36865.27	2898521.93	1596.01	50.65	0	-90	LO29_WGS84
MT235033	37112.48	2897522.35	1589.41	50.59	0	-90	LO29_WGS84
MT235034	37376.51	2897518.76	1588.45	47.25	0	-90	LO29_WGS84
MT235035	37120.08	2897778.71	1594.41	66.67	0	-90	LO29_WGS84
MT235036	36864.77	2897772.42	1594.15	50.30	0	-90	LO29_WGS84
MT235037	37367.73	2898022.77	1597.80	69.75	0	-90	LO29_WGS84
MT235038	36857.68	2898017.38	1595.92	50.67	0	-90	LO29_WGS84
MT235039	37124.17	2898272.60	1599.79	53.70	0	-90	LO29_WGS84

APPENDIX C

List of borehole collars Modderfontein

Borehole ID	EASTING	NORTHING	ELEVATION	EOH	AZI	DIP	COORDSYS
MN236001	45729.228	2890568.288	1610.440	92.35	0	-90	LO29_WGS84
MN236002	45105.681	2890861.907	1601.819	31.54	0	-90	LO29_WGS84
MN236003	46021.111	2891073.096	1610.359	92.67	0	-90	LO29_WGS84
MN236004	45398.626	2891346.888	1600.580	30.40	0	-90	LO29_WGS84
MN236005	46186.431	2891737.425	1606.050	47.72	0	-90	LO29_WGS84
MN236006	45534.219	2890943.697	1606.559	64.65	0	-90	LO29_WGS84
MN236007	45814.741	2891512.345	1604.419	27.70	0	-90	LO29_WGS84

APPENDIX D

Terms and Definitions

- **'The JORC Code 2012 Edition'**. Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.

- **'The Coal Guidelines 2014 Edition'**. Australian Guidelines for the Estimation and Classification of Coal resources.

- A ***'Competent Person'*** is a minerals industry professional who is a Member or Fellow of the Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation' (RPO), as included in a list available on the JORC and ASX websites. These organisations have enforceable disciplinary process including the powers to suspend or expel a member.

- An ***'Inferred Coal Resource'*** is that part of a Coal Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

  An Inferred Coal Resource has a lower level of confidence that that applying to an Indicated Coal Resource and must not be converted to a Coal Reserve. It is reasonably expected that the majority of Inferred Coal Resources could be upgraded to Indicated Coal Resources with continued exploration.

- An ***'Indicated Coal Resource'*** is that part of a Coal Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

  Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered.

An Indicated Coal Resource has a lower level of confidence that that applying to a Measured Coal Resource and may only be converted to a Probable Coal Reserve.

- A ***'Measured Coal Resource'*** is that part of a Coal Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

  Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered.

  A Measured Coal Resource has a higher level of confidence that that applying to either an Indicated Coal Resource or an Inferred Coal Resource. It may be converted to a Proved Coal Reserve or under certain circumstances to a Probable Coal Reserve.

- ***Geological loss factor***

  Discount factor applied in the case of gross in situ tonnage to account for as yet unobserved geological features that can occur between points of observation.

- ***Gross in situ coal resource*** (GTIS)

  Tonnage and coal quality, at specified moisture content, contained in the full coal seam above the minimum thickness cut-off and relevant coal quality cut-off parameters, as defined by the competent person.

  NOTE: The seam height does not include any external dilution or contamination material. No loss factors shall be applied to a gross in situ coal resource.

- ***Mineable in situ coal resource*** (MTIS)

  Tonnage and coal quality, at a specified moisture content, contained in the coal seams, or sections of the seams, which are proposed to be mined at the theoretical mining height, excluding dilution and contamination material, with a specific mining method and after the relevant minimum and maximum mineable thickness cut-off and relevant coal quality cut-off parameters have been applied.

  NOTE: The geological loss factor is applied to the mineable in situ coal resource tonnage.