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9 March 2015

NSW Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Attention: Strategic Regional Policy

Dear Sir/Madam,

**RE: MOOLARBEN COAL COMPLEX SITE VERIFICATION CERTIFICATE APPLICATION  
(14\_6609)**

Moolarben Coal Operations Pty Ltd (MCO) lodged a Site Verification Certificate application (14\_6609) for lands located wholly within Exploration Licence 6288 (the Study Area) on 11 July 2014.

Subsequently, in consultation with the NSW Department of Planning and Environment (the Department) and the NSW Office of Environment and Heritage (OEH), MCO has undertaken supplementary desktop and field investigations in order to satisfy comments received from OEH (dated 11 December 2014).

The supplementary field investigation involved undertaking three additional detailed soil test pits. Following this field investigation, OEH stated (email dated 6 March 2015):

*OEH considers the assessment is adequate based on the information supplied during this supplementary field work.*

The outcomes of the supplementary field investigation have been provided progressively to OEH who have subsequently confirmed that the interpretation of the soil data and revised Soil Map (including associated GIS files and metadata) are satisfactory (email dated 9 March 2015).

A detailed reconciliation of how each of OEH's comments have been addressed is provided in Enclosure 1.

A revised Soil Map incorporating the outcomes of the supplementary desktop and field investigations is provided in Enclosure 2, along with supporting GIS files and metadata.

In consideration of the above, MCO requests that the Department issues a Site Verification Certificate verifying the 'Study Area' as **non-BSAL**.

Please do not hesitate to contact the undersigned should you wish to discuss.

9 March 2015

Yours sincerely,

**MOOLARBEN COAL OPERATIONS PTY LTD**

A handwritten signature in black ink, appearing to read 'Mark Jacobs', written over a large, loopy circular mark.

**MARK JACOBS**

General Manager, Environment, Approvals & Community Relations

Enclosure 1 – Reconciliation of OEH Comments

Enclosure 2 – Revised Soil Map and Supporting Metadata

9 March 2015

**ENCLOSURE 1**  
**RECONCILIATION OF OEH COMMENTS**

00661329

ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
	PERSONNEL				
1	Evidence provided by the applicant that a qualified soil scientist oversaw the verification assessment and signed off on the quality and extent of the work	X		<p>Soil survey stated to have been undertaken by Dr David McKenzie who is a Certified Professional Soil Scientist Stage 3 accreditation, a PhD in soil science and "Chartered Scientist" accreditation with British Society of Soil Science.</p> <p>OEH cannot confirm that Dr McKenzie supervised or collected the initial batch of 8 sites as no <b>Surveyor No</b> supplied despite repeated requests, and these profiles are missing substantial key attributes. These profile sites could not be uploaded to SALIS and were consequently not considered as part of OEH's assessment.</p> <p>In the supplementary SVC application received, 11 additional observation sites were described by David McKenzie and have been assessed.</p>	<p>Noted. This issue was discussed further with OEH who subsequently stated the following with regard to the supplementary field work undertaken in October 2014 and January 2015 (email dated 6 March 2015):</p> <p><i>The original check sites have not been considered in our assessment. However, you are correct in that the supplementary field work undertaken in October 2014 and January 2015 has been sufficient for the application. OEH considers the assessment is adequate based on the information supplied during this supplementary field work.</i></p>
	MAPS				
2	Geographically accurate base map (at 1:25,000) of assessment area supplied as per <i>Interim Protocol</i> . Spatial dataset (boundary of assessment area) supplied in GIS format as per <i>Interim Protocol</i> .	X			No response required.
3	Soil map (at 1:25,000) of project area supplied including all observation (Detailed, Check and Exclusion) sites as per <i>Interim Protocol</i> . Spatial datasets (soil map, observation sites and data reliability/data source diagram) supplied in GIS format as per <i>Interim Protocol</i> .		X	<p>Soil types can be inferred from the "soil landscape map" (<b>Figure 9</b>) and <b>Table 3</b> in the report. The revised soil type map (<b>figure 9</b>) was not supplied in GIS format.</p>	<p>The relevant spatial information from Figure 9 was provided in GIS format (i.e. shapefiles) as Attachment 3 of the letter to the Department of Planning and Environment dated <b>3 December 2014</b> under the shapefile names "MMC_Soil_LandscapeUnits" and "ASC_Sampling_Oct2014".</p> <p>This was discussed further with OEH who subsequently stated the following with regard to the GIS files (email dated 13 January 2015):</p> <p><i>All this information appears to be adequate.</i></p> <p>Notwithstanding, a revised soil map was prepared as a result of the additional desktop and field investigations and is presented in Enclosure 2. The GIS files for the Soil Map have been provided to OEH, who subsequently confirmed they are satisfactory (email dated 9 March 2015). The GIS files are also included with this letter.</p>

ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
4	Map of assessment area showing BSAL (at 1:25,000) and exclusion zones marked according to their BSAL limitation. Spatial dataset (boundary of BSAL areas) supplied in GIS format as per the <i>Interim Protocol</i> .		X	No BSAL map provided. <b>Figure 6</b> delineates exclusion zones but does not describe BSAL status of other areas using the results of the soil survey as depicted in the "soil landscape map".	This was discussed further with OEH who subsequently stated the following with regard to the original Figure 1, which showed the area that is verified non-BSAL (email dated 13 January 2015):  <i>All this information appears to be adequate.</i>
5	Maps presented in correct datum with appropriate symbology, north points, unambiguous legends, meaningful colour ramps, scale bars, and sampling grid included as per the Interim Protocol.	X			No response required.
6	Metadata for spatial datasets have been provided as per the <i>Interim Protocol</i> .		X	The metadata provided for the spatial data is not compliant with the ISO 19115 standard, as required by the <i>Interim Protocol</i> .	This was discussed further with OEH who subsequently stated the following with regard to the original metadata supplied (email dated 13 January 2015):  <i>All this information appears to be adequate.</i>  Consistent with the previous metadata, the metadata for the new Soil Map complies with the requirements of ISO19115 (i.e. no 'exclamation marks' shown against any of the metadata elements). This metadata has been provided to OEH who have confirmed it is satisfactory (email dated 9 March 2015).
<b>LODGEMENT OF SITE LABORATORY DATA</b>					
7	All Site observations lodged on BSAL Soil Data Cards and all required field attributes completed correctly for each observation type as per the <i>Interim Protocol</i> (i.e. <b>check, exclusion and detailed</b> ).	X		None of the 8 sites described in the original application are valid for BSAL site assessment under the <i>Interim Protocol</i> , as none qualify as either Detailed, Check or Exclusion sites, and could not be loaded into SALIS. Several requests to the proponent have not so far resulted in receipt of any corrections or additional data that would bring these sites up to the standard required for BSAL assessment. These sites have therefore not been included in OEH's assessment of the SVC application.  The additional 11 sites provided in the supplementary report (whose numbers overlap the original 8 sites) were provided on BSAL Soil Data Cards and are adequately described for use in BSAL assessment.	Noted. This issue was discussed further with OEH who subsequently stated the following with regard to the supplementary field work undertaken in October 2014 and January 2015 (email dated 6 March 2015):  <i>The original check sites have not been considered in our assessment. However, you are correct in that the supplementary field work undertaken in October 2014 and January 2015 has been sufficient for the application. OEH considers the assessment is adequate based on the information supplied during this supplementary field work.</i>

ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
8	All laboratory data supplied in the SALIS Lab Data Template, appropriate test procedures (e.g. National Test Code) identified and all relevant test results completed as per the <i>Interim Protocol</i> .	X			No response required.
<b>MODEL OF SOILS DISTRIBUTION</b>					
9	Where the proponent does not have access to the land, a model of soils distribution is provided detailing the methodology used to enable an assessment of the land in question to be made.	N/A	N/A		N/A
<b>SITE ASSESSMENT</b>					
10	The project area or part thereof contains a contiguous area of at least 20 hectares which meets all BSAL conditions - possible/verified BSAL adjoining the assessment area may need to be considered	?		Only one site was deemed to potentially meet the <i>Interim Protocol</i> requirements as BSAL. Site ML10, located close to the far eastern boundary of the project area, has been identified as “probably BSAL” (see <b>Table 4</b> ) but the extent of this soil type inside/outside the project area has not been described. As this site is potentially BSAL, and given its position in the application area, this soil type should be mapped outside the project area to determine whether it forms a contiguous area of >20 ha.	<p>A revised Soil Map is presented in Enclosure 2.</p> <p>The revised Soil Map shows the extent of the new Soil Landscape Unit that concurs with Steps 1 to 12 of the Interim Protocol surrounding Site ML10. Consistent with the Interim Protocol, this includes the estimated boundary in adjoining areas. The area has been refined and is approximately <b>2.6 hectares</b> (i.e. well less than the 20 hectare threshold) and, therefore the new soil landscape unit is <b>verified non-BSAL</b>.</p> <p>This justification was provided to OEH who subsequently stated the following (email dated 13 January 2015):</p> <p><i>NO FURTHER DETAILED SURVEY REQUIRED.</i></p> <p><i>This is not an issue as the remapped area is &lt;20 hectares.</i></p>
11	Sampling density is as specified in the <i>Interim Protocol</i> .	X		Sampling density is 1 site per 70 hectares based on total of 11 sites over a project area of 771 hectares (calculated by OEH using proponent's data). This falls within 1 site per 25 – 400 hectares (ha) as specified for low risk activities in the <i>Interim Protocol</i> .	It is relevant to note that the original Study Area was 771 hectares, however, as described in Yancoal's letter dated 3 December 2014 the Study Area was been revised and is now 652 ha.
12	Site observations are recorded as specified in the <i>Interim Protocol</i>	X		The additional 11 observations have been supplied as required and have been recorded as specified in the <i>Interim Protocol</i> . The original 8 observations are missing various key data such as ASC classifications, landform, profile drainage, field textures and soil structure and have not been used in OEH's assessment.	<p>Noted. This issue was discussed further with OEH who subsequently stated the following with regard to the supplementary field work undertaken in October 2014 and January 2015 (email dated 6 March 2015):</p> <p><i>The original check sites have not been considered in our assessment. However, you are correct in that the supplementary field work undertaken in October 2014 and January 2015 has been sufficient for the application. OEH considers the assessment is adequate based on the information supplied during this supplementary field work.</i></p>

ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
13	Observation sites (check, detailed and exclusion sites) are relatively evenly distributed across the survey area		X	Most useable sites are concentrated in the northeast of the area. The additional 11 sites collected to supplement the original application did not improve the spread of observations sites across the application area with none collected in the central and southern areas (the "upper slope" soil landscape) despite containing large areas of <10% slope.	<p>As described in the Supplementary Information dated 3 December 2014, JAMMEL undertook detailed sites in August and September 2005 on nearby Upper Slopes that are representative of the Upper Slopes within the Study Area (refer to Section 3.3 of the Site Verification Report). JAMMEL mapped the Upper Slopes as a Lithosol soil type using the Great Soil Group classification.</p> <p>Review of the JAMMEL soil data by Dr David McKenzie indicates that the Lithosol Great Soil Group would be classified as a Tenosol under the Australian Soil Classification. Accordingly, the Tenosol soil type is classified as having <b>moderately low inherent fertility</b> under the Interim Protocol (i.e. <u>fails Step 7 of the Interim Protocol</u>). It is relevant to note that both of the two Lithosol sites (21 and 87 – refer Appendix 2) surveyed by JAMMEL on the nearby Upper Slopes and the hand auger site (M1 – refer Figure 9) surveyed by Dr David McKenzie on the Upper Slopes in the Study Area had a sandy loam texture. The Lithosol soils on the nearby Upper Slopes have similar landscape positions and are considered to be a good representation of the soils in Upper Slope soil landscape unit within the Study Area.</p> <p>In addition to the Upper Slope site M1, the two detailed sites undertaken on nearby Upper Slopes mapped by JAMMEL had auger refusal at less than 75 cm and therefore <u>fail Step 8 of the Interim Protocol</u>. Similarly, Site M1 located in the Study Area in the Upper Slopes timbered area, which was investigated by Dr David McKenzie in May 2014, had a pH (measured in water) of less than 5.0 and, therefore, <u>fails Step 10 of the Interim Protocol</u>.</p> <p>Based on the data above, Dr David McKenzie (as a Certified Professional Soil Scientist) determined that the Upper Slopes soil landscape unit is <b>non-BSAL</b> in consideration of the Interim Protocol.</p> <p>The use of a backhoe to conduct detailed sites on MCO-owned land on the top of the ridgeline (i.e. Upper Slopes soil landscape unit) is not viable and would likely require the clearing of access tracks and/or the use of helicopter lifts. The clearance of native vegetation for the purpose of obtaining 3 detailed sites within the Upper Slopes soil landscape unit is considered unnecessary given the Upper Slopes have been validated as non-BSAL (refer above).</p> <p>Further, the heavily timbered Upper Slopes typically comprise rugged terrain with large areas where the slopes is greater than 5%. Access to the Upper Slopes with large mobile equipment for agricultural purposes is constrained due to the ridgeline being heavily timbered, surrounded by approved open cut pit highwalls to the north and west, and the limited number of existing access tracks traversing the steep slopes of the ridgeline.</p>

ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
13 (Cont.)					<p>This justification was provided to OEH who subsequently stated the following (email dated 13 January 2015):</p> <p><i>No further assessment required for the Upper Slopes soil landscape unit.</i></p>
14	Each soil type identified has at least three <b>Detailed sites</b>		X	<p>Only one of the three map units defined had adequate detailed sites as per the <i>Interim Protocol</i>.</p> <p>Whilst the "Midslope, Sodosol dominant" unit has 4 detailed and 1 checked site, the "Midslope, Rudosol dominant" unit only has 1 detailed site (ML6) - which is not a Rudosol and is thus not a typical or representative example of the soil type. The "Upper slope" unit has no useable sites at all. The Dermosol soil type, identified at <b>check site</b> ML10, which is potential BSAL, needs to be adequately tested to determine its BSAL status. If the site is deemed BSAL, then it may form part of a larger contiguous area of BSAL (&gt;20 ha) on adjoining land (adjacent to the project area) and would be a new soil map unit This unit would require delineating in the project area and include <b>3 detailed sites</b>, including laboratory data and <b>check sites</b> to establish soil map boundaries within the project area.</p> <p>The boundary of the soil map unit, outside the project area, would have to be derived by desktop analysis, extrapolation soil boundaries from the assessment area. An on-ground assessment outside the application areas would not be required (<i>Interim Protocol</i> Section 9.2, p.10).</p>	<p>Refer to Response ID 10 regarding the Lower-Slope (Dermosol) Soil Landscape Unit.</p> <p>Refer to Response ID 13 regarding the Upper Slope Soil Landscape Unit.</p>



ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
15	All relevant data has been collected and provided for <b>detailed sites</b> as per the <i>Interim Protocol</i>	X		<p>Although all relevant data was provided for detailed sites there were numerous errors in the assessment of the Australian Soil Classification (ASC). Over half of the ASCs for the 11 profiles in the supplementary application were incorrect at Order level, with other profiles exhibiting some inconsistencies at lower levels.</p> <p>OEH undertook full ASC classification of each soil profile and found numerous inconsistencies in the classifications and data provided. These are sufficient to change the distribution of some soil types in the soil mapping -the dominant soil type (when reclassified) in the "Midslope, Rudosol dominant" unit is Tenosols, with Chromosols, Dermosols and Rudosols as subdominant soil types.</p> <p>Once reclassified, however, only 1 soil observation check site (ML10 a Dermosol) remained as potential BSAL, and the overall BSAL assessment of the sites is in line with the proponent's assessment in <b>Table 4</b> of their report.</p>	<p>The inconsistencies between the ASC classifications have been discussed in detail between OEH's soil scientists and Dr David McKenzie and agreement reached regarding each classification (email dated 9 March 2015).</p> <p>An updated Soil Map incorporating the agreed ASC classifications is provided in Enclosure 2.</p> <p>Refer to Response ID 10 regarding the Lower-Slope (Dermosol) Soil Landscape Unit.</p>
16	<b>Detailed sites</b> are representative of the soil type being assessed		X	<p>Observation site (ML6) identified as a Brown Kurosol was the only detailed site for "Midslope, Rudosol dominant" unit. Kurosols are significantly different from Rudosols and therefore is not representative of the soil type unit. The Dermosol soil type identified at site ML10 may need to be adequately described with sufficient <b>detailed sites</b> to determine its BSAL status if the areal extent (contiguous, both inside and outside project area) is greater than 20 Ha in size. The extent of this soil type has yet to be determined.</p>	<p>Three additional detailed sites have been undertaken in the Mid-Slope (Chromosol) dominant, formerly referred to as the Mid-Slope (Rudosol) dominant, Landscape Unit. The ASC classification for each of these detailed sites has been agreed with OEH and is presented on the revised Soil Map in Enclosure 2.</p> <p>A total of five detailed sites has now been undertaken for the Mid-Slope (Chromosol dominant) Landscape Unit.</p>
17	Description of <b>detailed sites</b> is accompanied by a photograph of the site and of the soil profile being described	X		<p>Photos of landscape and profile pits are excellent and well presented.</p>	No response required.
18	Appropriate information (as specified in the <i>Interim Protocol</i> ) collected for all <b>exclusion sites</b>	X		<p>Exclusion sites are not required for this area as LIDAR was used to measure slope.</p>	No response required.

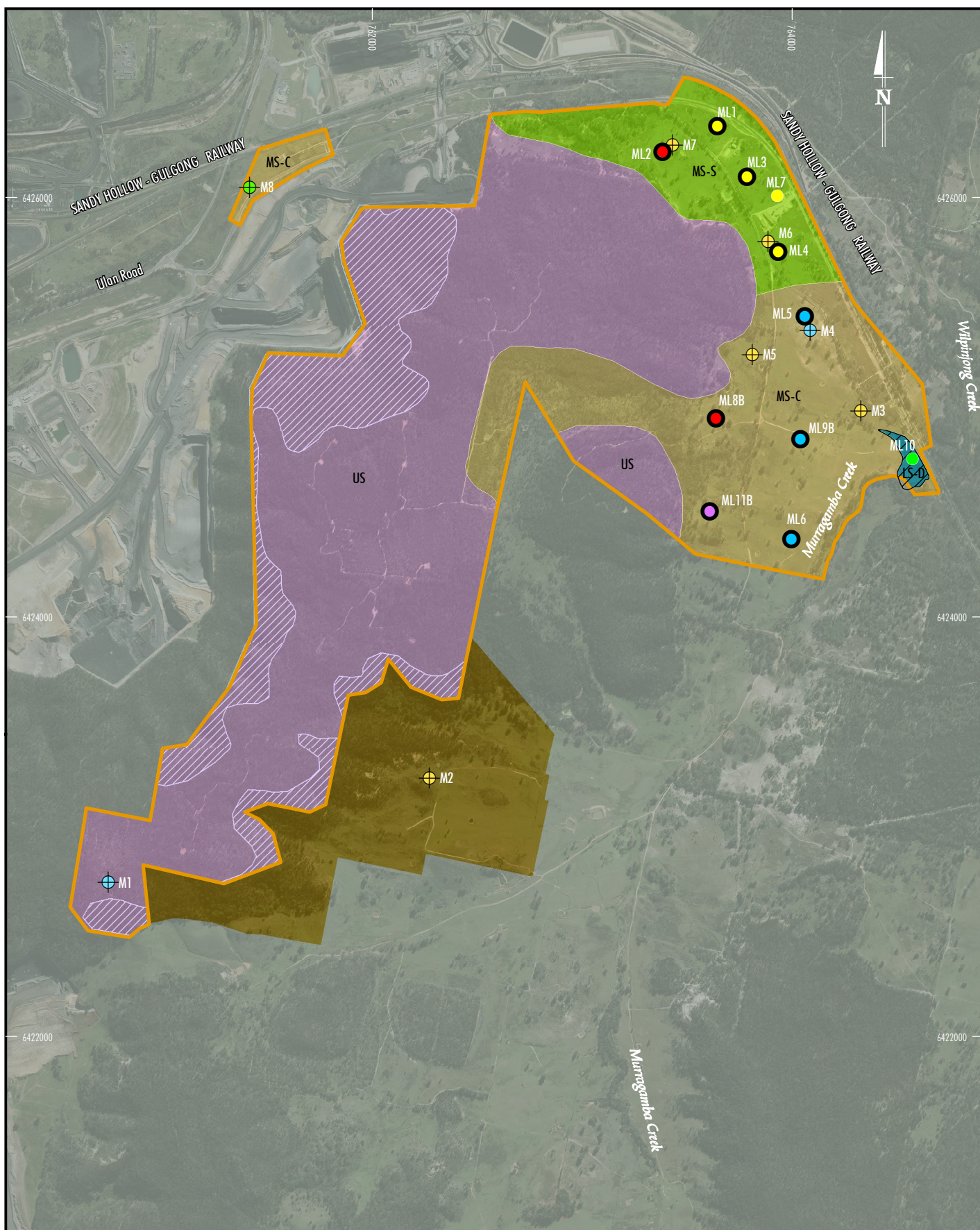
ID	SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification	Yancoal Response
		Yes	No		
19	At least two <b>exclusion sites</b> per polygon in excluded areas (except for areas with no access e.g. only remote modelling attributes)	X		Exclusion sites are not required for this area as LIDAR was used to measure slope.	No response required.
20	Adequate numbers of <b>check sites</b> used to (i) allocate a site to a soil type and soil map unit and, (ii) confirm existing mapping		X	No observations including check sites were collected in "Upper slope" unit.	Refer to Response ID 13 regarding the Upper Slope Soil Landscape Unit.
<b>CROSS REFERENCE ASSESSMENT WITH OEH SOILS DATA</b>					
21	Soil mapping and attributes appear consistent with OEH soil and landscape data and expected/anticipated soil types in the project area or locality		X	<p>Existing OEH data for the area suggests that no BSAL is expected, however the proponent has provided insufficient data to undertake an assessment as required under the <i>Interim Protocol</i>.</p> <p>Soil landscapes mapped in the area (from the <i>Soil Landscapes of the Dubbo 1:250,000 Sheet - Murphy &amp; Lawrie 1998</i>) comprise Lee's Pinch (<b>lp</b>), Munghorn Plateau (<b>mp</b>) and Ulan (<b>ul</b>). Local soils are typically of low fertility, moderate to high erodibility, localised sodicity and localised salinity. None of these soils would qualify as BSAL and no BSAL has been identified in the area through the Statewide BSAL mapping.</p>	<p>Yancoal, in consultation with OEH, have undertaken 3 additional detailed sites in the Mid-Slope (Chromosol dominant) Soil Landscape Unit.</p> <p>OEH have subsequently confirmed (email dated 6 March 2015):</p> <p><i>OEH considers the assessment is adequate based on the information supplied during this supplementary field work.</i></p> <p>The outcomes of the supplementary field investigation have been provided progressively to OEH who have subsequently confirmed that the interpretation of the soil data and revised Soil Map (including associated GIS files and metadata) are satisfactory (email dated 9 March 2015).</p>

9 March 2015

**ENCLOSURE 2**  
**REVISED SOIL MAP AND SUPPORTING METADATA**

00661329





#### LEGEND

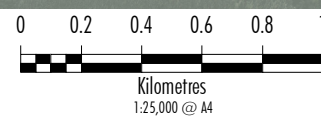
- Revised Study Area
- Area Excised from Original Study Area
- Exclusion Area based on LIDAR (Slope > 10%)  
McKenzie Soil Management (May, 2014)
- + Non-BSAL (Depth to Physical Barrier < 750 mm)
- + Non-BSAL (pH measured in water < 5.0)
- + Non-BSAL (Depth to Waterlogged Layer < 750 mm)

#### ASC Sampling (October 2014 and January 2015)

- Sodosol
- Kurosol
- Dermosol
- Chromosol
- Tenosol
- Indicates Detailed Soil Survey Site

#### Landscape Unit

- US Upper Slope
- MS-S Mid-Slope (Sodosol Dominant)
- MS-C Mid-Slope (Chromosol Dominant)
- LS-D Lower-Slope (Dermosol Dominant)
- Total Extent of Lower-Slope (Dermosol Dominant) Including Areas Adjoining the Study Area



#### MOOLARBEN COAL COMPLEX

##### FIGURE

Soil Landscape Units





### **General Properties**

File Identifier	55177AB1-0B8F-492D-8C2F-695CCE75044A
Hierarchy Level	dataset
Hierarchy Level Name	dataset
Standard Name	ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information - Metadata
Standard Version	1.1
Date Stamp	2015-03-06
Resource Title	Total Extent of Lower-Slope (Dermosol Dominant) Soil Landscape Unit
Alternate Resource Titles	Lower_Slope_Dermosol_Dominant
Format Name	*.shp
Format Version	Unknown

### **Key Dates and Languages**

Date of revision	2015-03-06
Metadata Language	eng
Metadata Character Set	utf8
Dataset Languages	eng
Dataset Character Set	utf8
Abstract	Soil Landscape Unit defined by Dr David McKenzie based on detailed soil test pit profile. Soil test pit surveyed in October 2014.
Purpose	

### **Metadata Contact Information**

Name of Individual	Name withheld
Organisation Name	Moolarben Coal Operations Pty Ltd
Position Name	
Role	pointOfContact
Voice	
Facsimile	
Email Address	
Address	

Australia

### **Resource Contacts**

Lineage Statement	The Soil Landscape Unit has been defined by Dr David McKenzie based on desktop methods and soil surveys undertaken in October 2014.
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### **Themes and Categories**

Topic Category	environment
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### **Status and Maintenance**

Status	
Maintenance and Update Frequency	
Date of Next Update	

### **Reference system**

Reference System	EPSG::28355 (GDA94 / MGA zone 55)
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### **Data Scales/Resolutions**

Scale	1:25000
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### ***Spatial Representation Type***

Spatial Representation Type    **vector**

### ***Schedule***

**other**

### ***Extent - Geographic Bounding Box***

North Bounding Latitude        **-32.2662**

South Bounding Latitude        **-32.3044**

West Bounding Longitude        **149.7654**

East Bounding Longitude        **149.8117**

### ***Additional Extents - Geographic***

Identifier                        **aus**

### **General Properties**

File Identifier	63DDB05B-EEAE-47FB-9508-73241C38082C
Hierarchy Level	dataset
Hierarchy Level Name	dataset
Standard Name	ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information - Metadata
Standard Version	1.1
Date Stamp	2015-03-06
Resource Title	Moolarben Coal Operations Soil Sampling Locations (Dr David McKenzie, 2014 & 2015)
Alternate Resource Titles	SoilPits_Sampling_Sites
Format Name	*.shp
Format Version	Unknown

### **Key Dates and Languages**

Date of revision	2015-03-06
Metadata Language	eng
Metadata Character Set	utf8
Dataset Languages	eng
Dataset Character Set	utf8
Abstract	Soil sampling locations surveyed by Dr David McKenzie (McKenzie Soil Management) to support the Site Verification Certificate for the Moolarben Coal Complex. Soil sampling was undertaken in October 2014 and January 2015.
Purpose	The Resource is a component of a Site Verification Certificate under the NSW State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

### **Metadata Contact Information**

Name of Individual	Name withheld
Organisation Name	Moolarben Coal Operations Pty Ltd
Position Name	
Role	pointOfContact
Voice	02 8243 5300
Facsimile	
Email Address	info@yancoal.com.au
Address	Locked Bag 2003 Mudgee NSW 2850 Australia Australia

### **Resource Contacts**

Lineage Statement	The soil sample site locations mapped by Dr David McKenzie at the Moolarben Coal Mine based on surveys undertaken during October 2014 and January 2015. Locations based on GPS record.
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### **Themes and Categories**

Topic Category	environment
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### **Status and Maintenance**

Status	
Maintenance and Update Frequency	
Date of Next Update	

### **Reference system**

Reference System                    **EPSG::28355**  
  **(GDA94 / MGA zone 55)**

***Data Scales/Resolutions***

Scale                                    **1:25000**

***Spatial Representation Type***

Spatial Representation Type   **vector**

***Schedule***

**other**

***Extent - Geographic Bounding Box***

North Bounding Latitude        **-32.2662**

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***Additional Extents - Geographic***

Identifier                            **aus**



### **General Properties**

File Identifier	A39AD56B-5D60-4706-9BCA-00E7034D3421
Hierarchy Level	dataset
Hierarchy Level Name	dataset
Standard Name	ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information - Metadata
Standard Version	1.1
Date Stamp	2015-03-06
Resource Title	Soil Landscape Units at the Moolarben Coal Complex (McKenzie Soil Management, 2014 & 2015)
Alternate Resource Titles	Soil_Landscapes
Format Name	*.shp
Format Version	Unknown

### **Key Dates and Languages**

Date of revision	2015-03-06
Metadata Language	eng
Metadata Character Set	utf8
Dataset Languages	eng
Dataset Character Set	utf8
Abstract	Soil landscape unit boundaries and types within the Site Verification Certificate Area .
Purpose	The Resource is a component of a Site Verification Certificate under the NSW State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 .

### **Metadata Contact Information**

Name of Individual	Name withheld
Organisation Name	Moolarben Coal Operations Pty Ltd
Position Name	
Role	pointOfContact
Voice	
Facsimile	
Email Address	
Address	

Australia

### **Resource Contacts**

Lineage Statement	The soil landscape units mapped by McKenzie Soil Management at the Moolarben Coal Mine in accordance with the Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land based on surveys undertaken in October 2014 and January 2015 .
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### **Themes and Categories**

Topic Category	environment
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### **Status and Maintenance**

Status	
Maintenance and Update Frequency	
Date of Next Update	

### **Reference system**

Reference System                    **EPSG::28355**  
  **(GDA94 / MGA zone 55)**

***Data Scales/Resolutions***

Scale                                    **1:25000**

***Spatial Representation Type***

Spatial Representation Type   **vector**

***Schedule***

**other**

***Extent - Geographic Bounding Box***

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***Additional Extents - Geographic***

Identifier                            **aus**