OEH – Report on Site Verification Certificate

DP&E Application No. 18_9512

Project Name: Mangoola Coal Continued Operations Project

Proponents Name: Mangoola Coal Operations Pty. Ltd. (Glencore)

Proponents Address: PO Box 495, MUSWELLBROOK NSW 2333

Summary of Project:

Mangoola Open Cut is an open cut coal mine in the Wybong area, about 20 kilometres west of Muswellbrook and about 10 kilometres north of Denman. Mangoola Coal is seeking approval, through the Mangoola Coal Continued Operations (MCCO) Project, to continue its open cut mining to the north of the existing mine. The MCCO Project would provide access to approximately 45 Mt of coal resources located on land largely owned by Mangoola Coal.

As the project is classified as a *State Significant Development* under the *Environmental Planning and Assessment Regulation (2000)* it requires the development application to be accompanied by either a Site Verification Certificate (SVC), which certifies that the land of the proposed development is to be carried out is not Biophysical Strategic Agricultural Land (BSAL), or a Gateway Certificate.

The proponents submitted an SVC application, with site assessment data, to DP&E, whom have requested OEH to undertake an assessment of the data against the standards of the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land (BSAL)*, the mandated standard for SVC applications.

OEH received the proponent's original data and report from DP&E on the 5th September 2018 but the application was incomplete as it included neither spatial data nor lab data and contained a range of errors and omissions. Supporting information was supplied to OEH on 11th September 2018, which enabled OEH to commence the SVC assessment, and final complete and correct laboratory data was supplied on 16th October 2018, allowing the assessment to be concluded.

This document undertakes a review of data supplied as part of the application against the *Interim protocol.* OEH provides the following advice in respect of the 18_9135 SVC application.

OEH Advice to DP&E:

Applicant's soil and land data appears consistent with the *Interim protocol for site verification and mapping of biophysical strategic agricultural land*	Partially
Applicant's soil and land data appears consistent with OEH soil survey knowledge and existing soil and landscape data of the general area	Yes
Applicant's project area, or part thereof, could possibly contain BSAL according to the *Interim protocol for site verification and mapping of biophysical strategic agricultural land*	No

Approved by:

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Rob Muller, A/Senior Team Leader, Assessment

OEH ASSESSMENT OF BSAL SITE VERIFICATION CERTIFICATE APPLICATION

SVC 18_9135

SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification
	Yes	No	
PERSONNEL			
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		The application report has been reviewed and authorised by Dr Timothy Rohde (CPSS).
MAPS			
Geographically accurate base map (at 1:25,000) of assessment area supplied as per *Interim Protocol*. Spatial dataset (boundary of assessment area) supplied in GIS format as per *Interim Protocol*.	X		
Soil map (at 1:25,000) of project area supplied including all observation (Detailed, Check and Exclusion) sites as per *Interim Protocol*. Spatial datasets (soil map, observation sites and data reliability/data source diagram) supplied in GIS format as per *Interim Protocol*.	X		
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 *Interim protocol*.	X		Spatial data had topological conflicts, with slope exclusion polygons present on top of soil fertility exclusion areas. The dataset provided was still usable in OEH's assessment.

SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification
	Yes	No	
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		
Metadata for spatial datasets have been provided as per the *Interim protocol*.	X		Very minimal metadata were included for package.
LODGEMENT OF SITE AND LABORATORY DATA			
All Site observations lodged on BSAL Soil Data Cards or eDIRT and all required field attributes completed correctly for each observation type as per the *Interim protocol* (i.e. **check. exclusion and detailed**).		X	No HCl data provided and Munsell colour given as dry instead of moist.
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 *Interim protocol*.	X		
MODEL OF SOILS DISTRIBUTION			
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	Proponents had access to the land.

SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification
	Yes	No	
SITE ASSESSMENT			
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		X	Many detailed sites in the Dermosols unit are not BSAL as their subsoils are too saline. Although in OEH's assessment Profile 53 qualifies as BSAL, it seems unlikely that this profile exists within a contiguous area of >20 ha of BSAL extending outside the project area given its slope position and the proximity of the hills to north and north-east.
Sampling density is as specified in the *Interim protocol*	X		Sampling density is 1 site per 19 hectares (ha), which falls within the range of 1 site per 5 to 25 ha for intensive developments in the *Interim protocol*.
Site observations are recorded as specified in the *Interim protocol*		X	The soil descriptions contained multiple errors and omissions, of which some were corrected long after the field assessment took place and some of which (e.g., recording dry colours rather than moist, some questionable soil textures) could not be corrected. Field staff engaged in BSAL assessment need to be sufficiently skilled and experienced in field soil description.
Observation sites (**check, detailed and exclusion sites**) are relatively evenly distributed across the survey area	X		
Each soil type identified has at least three **detailed sites**	X		

SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification
	Yes	No	
All relevant data has been collected and provided for **detailed sites** as per the *Interim protocol*		X	Various incorrect data elements; see above
Detailed sites are representative of the soil type being assessed	X		
Description of **detailed sites** is accompanied by a photograph of the site and of the soil profile being described	X		Photos are of poor resolution/quality and are insufficient to effectively support and corroborate the soil descriptions. Soil pits have not been oriented or prepared for description or photography, with the working face not cleaned to remove smearing from the backhoe bucket so that features such as layers, structure, colour and mottling can be seen. Some photos seem to have been misapplied to the incorrect profiles. Detailed site 5 has no photo and photo of site 48 doesn't appear to match description well.
Appropriate information (as specified in the *Interim protocol*) collected for all **exclusion sites**	N/A	N/A	No **exclusion** sites have been identified.
At least two **exclusion sites** per polygon in excluded areas (except for areas with no access e.g. only remote modelling of attributes)	N/A	N/A	**Exclusion** sites not required as LIDAR was used to exclude slopes >10%.
Adequate numbers of **check sites** used to (i) allocate a site to a soil type and soil map unit and, (ii) confirm existing mapping	X		

SUMMARY OF ASSESSED ITEMS	Appropriate as per the Protocol		Justification
	Yes	No	
CROSS REFERENCE ASSESSMENT WITH OEH SOILS DATA			
Soil mapping and attributes appear consistent with OEH soil and landscape data and expected/anticipated soil types in the project area or locality	X		The project area occurs within the Sandy Hollow (**syu**), Dunwell (**dwz**), Donalds Gully (**dnz**), Tinagroo (**tgy**) and Wingen Maid (**wxy**) map units of the *Soil and Land Resources of the Hunter Region* (OEH 2017) mapping. Map units include dominant soils types similar to those described in this application, with various limitations to land use including poor drainage, structure decline, acidity and shallow soils. These limitations rule out these soil types and map units as having extensive areas of BSAL. No regional BSAL has been mapped in the project area.