# OEH – Report on Site Verification Certificate

## DP&E Application No. 15_7326

**Project Name :** Marulan South Limestone Mine Continued Operations Project

**Proponents Name:** Booral Cement Limited (BLC)

**Proponents Address:** Hume Street, Marulan South, NSW 2148

**OEH Reference:**

**Date application and data received by OEH:** 19/10/2015

**Date report dispatched to DP&E:** 27/10/15

**Summary of Project:**

The Marulan South Limestone Mine (the mine) is an existing open cut mining operation situated in Marulan South, 10 km south-east of Marulan village and 35 km east of Goulburn, within the Goulburn Mulwaree Local Government Area in the Southern Tablelands of NSW.

Limestone mining and lime manufacturing has occurred on the site since 1875, with the current mine having been in continuous operation since 1953. The mine has produced up to 3.38 million tonnes of limestone and lime-based products per year for the cement, steel, agricultural, construction and commercial markets. The mine is owned and operated by Boral Cement Limited (BCL).

Booral Cement Limited are proposing to expand the operations and extract up to 3.5 million tonnes of limestone each year which would allow for the continuation of mining operations for a further 30 years.

BCL are seeking a State Significant Development approval to continue mining operations and have submitted a Site Verification Certificate (SVC) application as part of this process. The proposed project area consists of two separate planning areas. The *northern assessment area,* with a total area of 94 ha, is being proposed for a water supply dam, and the *southern assessment area,* consisting of a total area of 226 ha, includes land for continued open-cut mining operations.

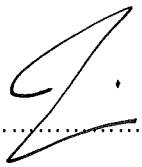
OEH received a complete set of documents and data on the 19th of October, 2015 which enabled OEH to commence the SVC assessment.

This document undertakes a review of data supplied as part of the Marulan South Limestone Continued Operations Project SVC 15_7326 application against the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land (BSAL)*. OEH provides the following advice in respect of the 15_7326 SVC application.

## OEH Advice to DP&E:

| | |
|---|---|
| Applicant's soil and land data appears consistent with the protocol for site verification and mapping of biophysical strategic agricultural land | Mostly |
| 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, is likely to contain BSAL according to the protocol for site verification and mapping of biophysical strategic agricultural land | No |

**Approved by:**



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**Brian Jenkins**, Senior Team Leader, Assessment

## OEH ASSESSMENT OF BSAL SITE VERIFICATION CERTIFICATE APPLICATION

## SVC 15_7326

| 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 | | Dr David McKenzie (CPS 3) was employed to audit the approach, quality and accuracy of the BSAL assessment. |
| **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 | | |

| SUMMARY OF ASSESSED ITEMS | Appropriate as per the Protocol | | Justification |
|---|---|---|---|
| | Yes | No | |
| 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 | | |
| 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 | | |
| **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**). | Mostly | | Proponent has supplied most necessary field data including corrections, which has been entered into SALIS. Some minor field data attributes are still missing which did not affect OEH ability to assess the soil observation's BSAL status. |
| 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*. | Mostly | | Proponent was requested and has supplied calculations for ECe, Ca:Mg ratio and ESP (originally absent). Most laboratory data has now been supplied and uploaded to SALIS. Three observations sites (4, 8, and 13) are |

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|---|---|---|---|
| | Yes | No | |
| | | | missing laboratory data for lower B horizon only. However, this missing data did not affect OEH's assessment of BSAL status due to other limiting factors being present. |
| **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. | NA | NA | Proponents had access to the land. |
| **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 | No soil observation sites are likely to be BSAL due to physical or chemical constraints present as supported by the proponent's data. Additionally, OEH has **not** identified any soil types that would meet the requirements of BSAL based on OEH reconnaissance soil mapping of the general area. |
| Sampling density is as specified in the *Interim Protocol* | X | | Sampling density is 1 site per 21.2 hectares (ha) based on total of 13 sites over a project area of 275 hectares |

| SUMMARY OF ASSESSED ITEMS | Appropriate as per the Protocol | | Justification |
|---|---|---|---|
| | Yes | No | |
| | | | (calculated by OEH using proponent's data). This falls within the range of 1 site per 5 - 25 hectares (ha), as specified for high risk activities, in the interim protocol. |
| Site observations are recorded as specified in the *Interim Protocol* | X | | |
| **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 | | All soil types except the Kurosol soil map unit had at least 3 detailed sites. The Kurosol soil map unit, had 1 *detailed* site, but as the map unit is only 12 ha in size, does not meet the minimum area required for BSAL assessment (>20 ha). Addionally, the single Kurosol *detailed* site observation, provided for the Kurosols soil map unit, does not meet the requirements for BSAL. |
| All relevant data has been collected and provided for **detailed sites** as per the *Interim Protocol* | X | | |
| **Detailed sites** are representative of the soil type being assessed | | X | The reclassification of proponents ASC of all detailed site observations, by OEH, showed some variability within the |

| SUMMARY OF ASSESSED ITEMS | Appropriate as per the Protocol | | Justification |
|---|---|---|---|
| | Yes | No | |
| | | | Sodosols and Tenosols map units. Of note is that no soil observations met the requirements of BSAL.<br><br>In the Sodosol map unit, 50% of *detailed* sites matched the map unit however over 70% of sites were reclassified by OEH as Sodosols, Kurosols or Chromosols. This *within unit variability* is expected in soil map units, within this area, and is supported by OEH knowledge and regional soil landscape mapping. What is important is that this group of soils are all texture contrast with sodic subsoil horizons within 750 mm of the surface, which excludes them as BSAL.<br><br>The Kurosol map unit did not require assessment because of its small area (<20 ha). However, a single detailed site was provided for this map unit that matched the Kurosol map unit soil type. This *detailed* site observations failed to meet chemical barrier requirements of a BSAL soil.<br><br>In the Tenosol map unit, none of the *detailed* sites assessed by OEH were classified as Tenosols, due to the |

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|---|---|---|---|
| | Yes | No | |
| | | | presence of developed B horizons. OEH classified these soils as 2 Chromosols, 1 Dermosol and 1 Kandosol. However, unlike other observation sites of these soil types, all soil observations were moderately deep (<650 mm) and failed the physical barrier requirement for BSAL. |
| Description of **detailed sites** is accompanied by a photograph of the site and of the soil profile being described | X | | |
| Appropriate information (as specified in the *Interim Protocol*) collected for all **exclusion sites** | NA | NA | There were no *exclusion* sites required as there was only one exclusion zone assessed using LIDAR to determine slopes >10%. |
| At least two **exclusion sites** per polygon in excluded areas (except for areas with no access e.g.only remote modelling of attributes) | NA | NA | See comment above |
| Adequate numbers of **check sites** used to (i) allocate a site to a soil type and soil map unit and, (ii) confirm existing mapping | NA | NA | All sites are *detailed sites* and the total number of sites meet the requirements specified in the *Interim Protocol.* |
| **CROSS REFERENCE ASSESSMENT WITH OEH SOILS DATA** | | | |

| SUMMARY OF ASSESSED ITEMS | Appropriate as per the Protocol | | Justification |
|---|---|---|---|
| | Yes | No | |
| Soil mapping and attributes appear consistent with OEH soil and landscape data and expected/anticipated soil types in the project area or locality | X | | Soil mapping and attributes appear consistent with OEH soil and landscape data and knowledge of the soils in the general area. Reconnaissance Soil Landscape mapping, undertaken for the Sydney Catchment Authority, identified 3 main soil landscapes within the project area. They are the steep Cow Hole (**ERce**) soil map unit in the east, the rolling Marulan (**ERml**) unit in the west and the Jacqua (**TRjq**) map unit occurring along the low lying drainage plains and footslopes. All these landscapes have significant constraints to agricultural use (and BSAL) which can include: infertile shallow and acidic topsoils, highly erodible sodic subsoils, high gully and sheet erosion hazard and localised salinity/seasonal waterlogging on lower slopes. |