NSW GOVERNMENT | Department of Primary Industries

OUT13/4864

24 APR 2013

Director Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2011

Att: Steven O'Donoghue

Dear Sir

Thank you for your letter of 28 February 2013 concerning the review of the Agricultural Impact Statement (AIS) for the proposed Watermark Coal Project (SSD 4975).

The Office of Agricultural Sustainability & Food Security (the Office) has reviewed the AIS provided by Hansen Bailey for Watermark Coal Project.

The Office is unable to assess the full impact of the project on agriculture based on the AIS provided. The extent of the project's impact on Biophysical Strategic Agricultural Land (BSAL) is unclear. Furthermore, the AIS did not consider alternatives to the proposed three open cut pits which may have a lesser impact on agriculture, agricultural resources and the agricultural community. Alternative locations for biodiversity offsets were similarly not considered.

In addition, the Watermark Coal Project includes 696 hectares of BSAL in the biodiversity offset areas. BSAL land should be retained for agricultural productivity and not be included in any biodiversity offset areas.

A description of the issues and suggested responses are included in Attachment 1 and detailed comments in Attachment 2. Key concerns identified in the project AIS and related documents in the EIS that could potentially affect agricultural production include:

- incomplete identification of BSAL area affected by the project activities and existence of BSAL in the biodiversity offset areas;
- errors in the calculations to identify the amount of soil used for stripping and rehabilitation;
- discrepancies relating to the disturbance boundary, the land area used in rehabilitation plan and agricultural land classification;
- the need for improved analysis for the rehabilitation of agricultural land,
- detailed planning required to monitor agricultural rehabilitated land in consultation with crop and pasture specialists;
- possible risks to the agricultural water supply for surrounding farms; and

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- the absence of a social impact management plan.

This advice from the Office of Agricultural Sustainability & Food Security is forwarded direct to the Department of Planning & Infrastructure in accordance with agreed arrangements for mining applications that affect agricultural land.

Additional advice from the other divisions within the Department of Primary Industries may be forwarded by separate letter.

If you wish to discuss the issue further please call Liz Rogers on telephone 02 63913642 or by email liz.rogers@dpi.nsw.gov.au

Yours sincerely

Dr Regina Fogarty
Director Office of Agricultural Sustainability & Food Security

Encl

Attachment 1

Agricultural Impact Assessment Issues

Please note that specific information supporting the issues raised is provided in Attachment 2.

Issue 1: Identification of BSAL area affected by the project activities

1a - The proponent states that 96.1 hectares of BSAL land will be impacted upon within the disturbance boundary of the mine. Assessment by staff of the information provided in the EIS Soil Survey & Land Capability Impact Assessment (Ap. Y) suggests that there could be up to 1008.9 hectares of BSAL land potentially affected by the project.

1b - The inclusion of 696 hectares of BSAL in the biodiversity offset areas is also of concern for agriculture. BSAL land should be retained for agricultural productivity and not be included in any biodiversity offset areas.

Recommended response to this issue:

1c - Prior to project approval, BSAL verification using the Interim protocol for identifying and mapping BSAL (gazetted on 12 April 2013) should be carried out across both the project boundary area and all offset areas to identify the presence of BSAL land. DPI notes that prior to the gazettal of this version of the Interim protocol, an earlier version was available for use by the Company in 2012.

Once these BSAL areas are identified, these lands (with an additional 200m zero-disturbance buffer) should be excluded from:

a) the disturbance boundary (including active mining areas, overburden emplacement areas and infrastructure areas; and
b) any biodiversity offset areas.

The adjusted project design and associated information should then be resubmitted to the Office to allow for a more accurate assessment of the agricultural impacts of the project.

1d - If 1c (above), cannot be carried out before development consent is granted, that a condition of consent require that this work be completed prior to mining activities commencing.

Issue 2: Characterisation of soil used for stripping and rehabilitation

The Soil Survey and Land Capability Assessment (Ap. Y) provides information on the soil that will be stripped cross the mining areas (Table 41) which will then be utilised for rehabilitation post-mining.

2a - Assessment of information provided in the soil survey suggests that significantly less soil will be available for stripping and hence rehabilitation as smaller volumes of soil than those quoted in Table 41 meet the criteria for soil suitable to be stripped for rehabilitation uses.

2b - These miscalculated balances of soil availability are then used to determine the land capability class targets for rehabilitation in Table 42 which must also be re-assessed as a result.

The amount of soil available for rehabilitation will significantly affect the area of land that can be reinstated in each land capability class and on the likelihood of successful rehabilitation outcomes.

Recommended response to this issue:

Prior to project approval, in conjunction with verification of BSAL:

2c - Use the information gathered in the soil survey to accurately calculate true soil balances available for rehabilitation; and

2d - Provide published peer reviewed information to support the claim that the various agricultural land capability classes are able to be rehabilitated as stated in the EIS.

Any adjustments to the mine and overall project design and associated information should be resubmitted to the Office to allow for a more accurate assessment of the agricultural impacts of the project.

2e - If the above cannot be carried out before development consent is granted, then a condition of consent should require that this work be completed prior to mining activities commencing.

Issue 3: Disturbance boundary, land area used in the rehabilitation plan and inconsistencies in agricultural land classification

3a - The Office notes that there is a very large discrepancy between the mining disturbance area listed in Table 1 (Ap. Y, p viii) of 5630.5ha and the mining disturbance area of 3384ha totalled from Table 41 (Ap. Y, p74) "proposed mining disturbance area" column.

It is assumed that this difference in land area includes the rail loop, infrastructure areas, the main dam and haul roads which still exist on site on the conceptual final land form (Figure 29 Ap. Z). This conflicts with Figure 7 Ap. Y, post-mining agricultural land capability. The Office is concerned that this infrastructure will remain on land capability class II and III rendering it unusable for agriculture.

3b - There is no mention of rehabilitating class II land in the rehabilitation strategy and it is stated below table 36 (Appendix Y, p59) ".... nil disturbance of all land capability Class II land". However the document also states that 351.3ha of Class II land will be in the disturbance area and 425ha Class II land (Booloocooroo landscape 6a and 6b) has been included in the soil stripping balances.

Recommended response to this issue:

3c - That the total disturbance area is clarified;
3d - That the total rehabilitation areas of each land capability class, post-mining be clarified and shown on a map;

3e - That any land capability class II areas be completely excluded from the mining disturbance area and from soil stripping areas;

3f – an explanation is provided on how land outside the mining voids but still within the disturbance boundary (rail loop, infrastructure areas, dams and haul roads) is to be rehabilitated.

Issue 4: Rehabilitation of agricultural land

The project proposal describes the rehabilitation or creation of 3 233 hectares (57.4% of the total post-mine disturbance area) of land post-mining to meet the characteristics of land and soil capability class III of which 1000 hectares is to be dedicated for agriculture.

4a - A further 351.3ha of land capability class II land is included in the disturbance area and will require rehabilitation. However there is no reference to the rehabilitation of any class II land in the rehabilitation strategy.

4b - The evidence provided to back the proponent's claims of the ability to rehabilitate has several flaws. These being:

- the quantities of soil (both top and sub soil) available for rehabilitation are not accurately assessed (significantly less may be available);
- the only evidence of similar rehabilitation cited in the AIS is limited (Nelson & Stewart 2007). This evidence did not demonstrate restoration of appropriate long term land of the same or similar soil and should not be considered as evidence to support the claim that mined land of this soil type can be rehabilitated to land capability class III.
- no evidence has been provided to support the claims that land capability class II areas can be successfully rehabilitated.

Recommended response to this issue:

4c - The proponent should develop an accurate post-mining land capability class allocation (note example in Vol 10, Ap AA, pg 26) which is supported by accurate soil balances that are available from the soil stripping calculations (as discussed in issue 2);

4d - any land capability class II & III land that is created post-mining should be allocated for agricultural purposes.

4e - If 4c and 4d (above), cannot be carried out before development consent is granted, then conditions of consent should include the following:

The proponent shall demonstrate the ability to create land capability class II and III land through a long-term project which must:

(a) be established within 5 years of mining activity commencing and carried out on land that has previously been an active mining area;

(b) be prepared in consultation with crop and pasture experts, in accordance with any relevant DPI guideline and to the satisfaction of the Director-General of NSW DPI;

(c) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the Watermark Coal Project, Eastern Mining Area (or the first mining area used for activity), and trigger points for remedial action (if necessary);

(d) include measures of success in reinstating land capability class II and III lands, developed in conjunction with NSW DPI and include the following:

- a comprehensive suite of indicators of productivity and environmental sustainability (such as soil settling, soil profile development, other soil characteristics, water transmissivity and soil water availability, agricultural productivity, fertiliser needs, weeds and pests) over a 20 year period; and
- be replicated, peer reviewed and published.

(e) prove land capability class III rehabilitation over a minimum 200ha area before further mining activity can occur beyond the first (eastern) active mining area.

Issue 5: Monitoring of agricultural rehabilitated land

5a - The proposed monitoring of the rehabilitated agricultural land (Ap.AA, p. 40) does not demonstrate sustained agricultural production on land capability class II and III land.

Recommended response to this issue:

5b - A detailed agricultural rehabilitation and monitoring program should be developed in conjunction with appropriate crop and pasture specialists.

Issue 6: Security of agricultural water supply for surrounding farms

6a - The EIS notes that a draw-down of groundwater is predicted which could affect agricultural bores in close proximity to the disturbance area.

Recommended response to this issue:

6b - A consent condition should include a requirement to provide secure alternative water supply, should water levels or water quality decline as a result of mining or related operations for groundwater users or any water users on connected/ impacted surface water systems.

Issue 7: Absence of a social impact management plan

7a - The proponent has indicated that they will develop a Social Impact Management Plan once the project has been approved, however this plan should be provided at the project approval stage rather than post-approval. They have committed to develop this Plan to the satisfaction of the Director General, presumably of Planning and Infrastructure.

Recommended response to this issue:

7b - That the Social Impact Management Plan be provided for assessment prior to project approval and should include

- social issues;
- economic welfare issues;
- monitoring and mitigation actions and budget;

- potential collaborative partners; and
- timeframes for actions and implementation.

7c - If 7b cannot be carried out before development consent is granted then a condition of consent require that this work be completed prior to mining activities commencing.

Attachment 2

Detailed comments regarding information provided in the EIS affecting agriculture

A. Agricultural issues

Specific concerns regarding BSAL

- BSAL is included in the mining offset area (Ap. Y, p. 67). There is a calculated BSAL area of 696 ha (fig 10) in offset areas. This should not be used as a biodiversity offset and should be retained as agricultural land.

- Soil type 8 (brown Vertosol in the Yarraman landscape) has 223.8ha in the disturbance area. This soil type has not been mentioned in the land capability assessment (p. 58-59), despite being included in soil stripping calculations, and may well be BSAL.

- Page 66 attempts to describe BSAL in terms of chemical fertility. This is inappropriate since they should be describing the inherent fertility of soil types. This is available in the "Soil Landscapes of the Curlewis" 1:100 000 sheet (Banks 1995) which has been extensively referenced in this document.

- From Banks 1995, an estimate of soil fertility was made. Landscapes 2 (Fullwoods Road), 6b (Boolocooroo), 7 (Ponderosa), 8 (Carinya), 9 (Yarraman), 10 (Black Jack), 12 (Long Mountain), 13 (Pit Hill), 14 (Goran Lake) and 17 (Mooki river) all appear to have fertility estimates of moderate to high or above (thereby putting soils with land capability I, II or III as BSAL). In addition Landscapes 3 (Goscombes Rd), 4 (Watermark), 6a (Booloocooroo), and 16 (Lochaber) were classified as moderate fertility (thereby putting soils with land capability class I or II as BSAL). Combining this with the land classifications given in section 4.2.2, soil types 2, 6a, 6b, (totalling 785.1 ha (62.2 + 722.9)) are BSAL. Also, although soil type 8 is not mentioned in the land capability assessment, it is a brown Vertosol with moderate to high fertility. It is likely that this soil is also class II or III and the 223.8 ha should also be added as potential BSAL. This means that 1 008.9 ha or 18 per cent of the disturbance area could be BSAL.

- Figure 14 (Ap. AA, p. 30) maps existing onsite BSAL land, which cannot be accurate as it includes land with a land capability classes 5 and 6.

Land Capability and Suitability Assessment - Volume 9 app. Y

- Table 36 (p. 59) describes land capability classes for the study area yet lists total ha for the disturbance area. This suggests that 351.3ha of Class II land will be disturbed then returned to class II land. No mention of rehabilitating class II land is made in the rehabilitation strategy yet it is stated (below table 36 p. 59) ".... nil disturbance all land capability Class II land". The authors would like clarification of this and strongly recommend that any class II land be excluded from any area that may be disturbed by mining activity.

- Land capability pre and post mining predictions (table 36, p. 59) suggest that class II and III land make up more than 58% of the pre-mining, and 60% of post-mining study area. Land of this quality should be retained for agriculture and the mine plan should exclude these areas from any mining disturbance.

- Page 58 describes Class II land consisting of soil types 2, 6a and 6b. These soils are not described in any of the other land classifications and total 785.1ha (calculated from table 10, p.18). There is a significant discrepancy between this figure and the figure of a total of 351.3 ha Class II lands described in Table 36. Note that soil type 8 may also be Class II but has not been mentioned. If so, this would take the total amount of Class II land to over 1 000 ha.

- Class III lands on page 58 are stated as soil types 1a (1761.7 ha in disturbance area from table 10, p.18), 3b (assumed to be half of the 692.6 ha in the Goscombes road landscape and which makes up 346.3 ha in the disturbance area) and 16 (zero ha in the disturbance area). This total class III disturbance area of 2108 ha varies considerably with the 2948.4 ha stated in Table 36 (p. 59).

- If the calculated Class II and III lands are added using the values mentioned in the above 2 points, this gives us 2 893.1 (785.1 + 2108) ha of disturbance area. If we also add soil type 8 to this (223.8ha) we arrive at 3116.9 ha of total disturbed Class II and III land. If we refer to Classes II and III described in table 36 (p. 59) we arrive at a total of 3299.7 ha of disturbance area. These discrepancies need to be fixed and the reasons for these discrepancies need to be justified if original calculations are to be validated.

- Alluvial Study Area (Figures 4, 5 & 6, p. 53-57). While a great deal of effort seems to have gone into mapping the small amount of Class II land in the south east of the disturbance boundary, a considerable amount of class II land appears to be within the northern boundary of the project. Rather than a condition of consent, DPI recommends that the disturbance boundary be moved to preserve this land.

- Table 38 describes 351.3 ha of Class 1 suitability land and 2948.4 ha of class 2 land, again making up more than 60% of the disturbance area.

Topsoil and subsoil stripping - Volume 9 app. Y

- Regarding the disturbance boundary area, there is a very large discrepancy between the mining disturbance area listed in Table 1 (p viii) of 5630.5ha and the mining disturbance area quoted in table 41 (3384 ha). The proponent states that the 3384 ha does not include infrastructure areas. It is unclear if there is a mis-calculation or that infrastructure areas total 2246.5 hectares.

- Table 41 notes that a total 425ha of Booloocooroo landscape (soil types 6a and 6b) are stated as being in the actual mining disturbance area. Table 10 notes that the Booloocooroo landscape makes up 722.9ha within the disturbance area which includes both the mining and infrastructure areas. All of this land has been classified by the

proponent as land capability class II land (p. 58), however the proponent consistently indicates that no class II land capability land will be disturbed (p. ix, 59, 76 & App. Z, p. 88).

- In the soil survey, soil types 5, 6b, and 7 (total 737 ha and 2 638 000 m^3) are only recommended if blended. Soil 4b (total 453 ha and 2 491 500 m^3) is also recommended for blending. There is no mention of how these soils are to be blended. DPI is highly sceptical that over 5 million cubic metres of soil can be effectively blended.

- There are a number of discrepancies regarding the depths of sampling and depths of topsoil recommended.
  - Soil type 1 has a recommended stripping depth of 25cm even though the sampling analysis was conducted on layers from 0-15 and 15-55cm (the 15-55cm layer has a pH of 9.2 and ESP of 6);
  - Soil type 3a is allocated for both top and subsoil stripping despite soil test results indicating soil sodicity issues present at all depths;
  - Soil type 4a has a recommended stripping depth of 25 cm with sampling depths of 0-15 and 15-45cm (the 15-45cm layer has a pH of 9.3 and a clay content of 58%).
  - Soil type 4b is recommended for stripping to 1.2m even though sampling only went to 80cm;
  - Soil type 6b is not recommended for stripping beyond 0.35m yet stripping calculations include soil down to 1.2m despite its highly sodic nature;
  - Soil type 8 is recommended as suitable for stripping topsoil only, yet subsoil stripping is recommended to 1.2m depth with chemical testing conducted to only 0.65m depth which recommends against subsoil use for soil chemistry reasons.

- Table 42 states a total required volume of 16 021 000 m3 of subsoil yet there are discrepancies with Table 41 and the soil survey. Soil type 4a is not recommended for stripping below 0.25m "mainly due to the high sodicity and associated dispersion characteristics of the Sodosols" (p. 28), yet Table 41 recommends stripping of soil type 4a for subsoil to a depth of 1.2m (providing 4 284 000 m3 of subsoil). Likewise, stripping for subsoil is not recommended for soil types 6a, 6b, 7 and 8. This reduces the total amount of subsoil available to 10 410 000 m3, a shortfall of 5 611 000m3 to meet the stated 16 021 000 m3 minimum subsoil required for rehabilitation..

- Table 42 states that land capability classes III - VII will be rehabilitated with the described topsoil and subsoil depths. The claimed surplus soil balances allow for little additional soil to be added to areas to enhance rehabilitation over time as subsidence occurs. If subsidence cannot be managed and addressed over time with appropriate soil volumes, areas of classified land class capabilities (particularly class III) would need to be re-assessed as being of lower quality. As stated above, DPI believes that the balances listed are not accurate or achievable.

- Seedbed preparation after topsoil re-spreading recommends ripping but does not specify to what depth.

Rehabilitation and Mine Closure - Volume 10 app. AA

- 3233 ha of class III land to exist within the disturbance boundary area post-mining. 1963ha of this will be rehabilitated land (from table 42, soil survey) and 1270ha will be land not affected by the mining footprint.

  1000ha of the total 3233 ha Class III land has been allocated for agricultural use (ap. AA, p. 29) and will be located on the rehabilitated land. The soil stripping balances have been assessed as being inaccurate and therefore DPI believes that this area of land may not be created with the balances that are actually available.

  If 1963ha of class III land is to be rehabilitated, then this entire area of land should be fully returned to agricultural uses, rather than to Box Gum Woodland which may be allocated and better suited to other land classes.

- 100ha of BSAL is claimed to be reinstated post-mining (Ap. AA, p 29). Figure 14 (p. 30) claims to map existing onsite BSAL, however the entire mapped area cannot be considered BSAL as it includes area with land capability classes 5 and 6.
  No Information is provided to indicate where the 100ha of claimed post-mining onsite BSAL area will be located.

- There is no pasture or cropping plan included in the rehabilitation strategy. The potential for rehabilitation of the class II and III land which is marked for agricultural use is unable to be assessed without a detailed pasture or cropping plan. The species selections and management plan for all of the potential agricultural land is not discussed and is considered to be a crucial piece of missing information from the rehabilitation strategy.

- The proposed monitoring of the rehabilitated agricultural land (Ap. AA, p. 40) is not suitable for providing evidence of sustained agricultural production on land capability class II and III land.

Agricultural Impact Statement - Appendix Z

- 696 ha of BSAL is included in the biodiversity offset area (Ap. Y, p. 67-68). BSAL should not be included in biodiversity offset areas and should be retained as agricultural land.

- The AIS (p. 96) states that "the project will not significantly reduce the agricultural productivity of potential BSAL within the onsite biodiversity offset areas, but rather change the land use". This "land use change" from agricultural production to biodiversity offsets is considered by NSW DPI to be removal of BSAL from agricultural productivity. NSW DPI recommends that all BSAL be removed from inclusion in biodiversity offsets and the project disturbance area.

- NSW DPI is concerned that agricultural land (BSAL and other agricultural land) is being included in biodiversity offsets (1116 ha of grazing land affected by the Watermark offsite biodiversity offset). The Watermark offsite biodiversity offset area is located near Barraba and is adjacent to the Maules Creek Offset property. NSW DPI has major concerns that

agricultural land is being used for biodiversity offsets and believes that the ongoing cumulative effects of these offset programs now need to be considered as a threat to agricultural production.

- Rehabilitation - Evidence relied on in the AIS as "previous examples of high quality mine rehabilitation" (p. 109) includes only one piece of work/ evidence. The 'Alluvial Lands Project' has been suggested as evidence of high quality rehabilitation work (p. 112). Recent analysis of this project by DPI staff (including published documents and site visits) has concluded that whilst achieving short-term success, this project has not achieved appropriate long-term land capability class outcomes and should not be considered as evidence to support the claim that previously mined land can be rehabilitated to land capability class II or III.

- The AIS states that "sustainable farming practices" will continue for the life of the project on available areas outside the project boundary. No information is provided on what area of land is to be utilised, what farming practices would be considered to be "sustainable" (considering that much of this land is land capability class II), or what production targets would be considered achievable.

- The AIS notes that a draw-down of groundwater could occur as a result of the projects activities potentially affecting the many agricultural bores in close proximity to the disturbance area. A consent condition has been suggested to include a requirement to provide secure alternative water supply, should water levels or water quality decline as a result of mining or related operations for groundwater users or any water users on connected/ impacted surface water systems is required.

- The actual quantity of water that will be "relocated" from agriculture is unclear. A figure of 194 ML/yr is consistently stated (eg Executive summary, p. 77, 88 and 122), however, the annual average water relocated from agriculture to mining is stated on p.109 is 257 ML/yr.

- The source of the "external water supply" (p. 87) needs to be defined. It has been stated that the water is to be obtained from a source outside the project area as the resources of the project area are not sufficient, but it is not clear what resource will be used.

B. Socio-economic Assessment

1. Impacts on agricultural enterprises, including farm productivity, land values and flow on impacts to regional communities and the environment.

- Impacts on farm productivity - No comment can be made on farm productivity impacts because the information describing land capability and suitability is incomplete in the AIS. The farm productivity impacts of local groundwater draw-down are also not considered.

A number of uncertainties have been identified by NSW DPI regarding land classification (BSAL, Class II and III land). These include:
- Uncertainty about the extent and location of BSAL land in the proposed mine site area and in the proposed on-site biodiversity offset area.
- Uncertainty about the disturbance boundary, land area used in the rehabilitation plan and inconsistencies in agricultural land classification.
- Suitability of the rehabilitation and monitoring plans for agricultural land.

NSW DPI has also identified that the "EIS notes that a draw-down of groundwater is predicted which could affect agricultural bores in close proximity to the disturbance area". Consideration needs to be given to the potential economic impact on farm productivity due to changes in groundwater levels or groundwater quality decline.

- Land values
  No data is provided in the AIS regarding the potential impact on local land values due to the project. Relevant data and summary statistics need to be analysed and presented by the proponent in order for an evaluation to be made.

- Flow on impacts to regional communities
  The AIS provides limited information to describe the potential socio-economic and amenity impacts on regional communities. The proponent recognises that there will be regional impacts and will develop a Social Impact Management Plan once the project has been approved. The proponent has committed to develop this Plan to the satisfaction of the Director General, presumably of Planning and Infrastructure. Given social conditions and economic welfare are linked, it is recommended that the Plan covers both issues.

  Specific reference is made in the EIS to the likelihood that the project will result in the exacerbation of the existing undersupply of skilled labour in the regional community. Mitigation measures discussed include apprenticeships, traineeships and graduate placements. Limited detail is provided regarding these employment programs and it is questionable whether they will be sufficient to address expected labour shortages. Reference is made to a Regional Workforce Plan proposed in the Strategic Regional Land Use Plan –New England North West as the mechanism for the expected labour shortage issue to be addressed. However, there is no certainty that such a Plan will be developed. Alternative mitigation options should be provided by the proponent to address the impacts identified.

- Any water that is transferred or will no longer be available for agricultural use.

  Sufficient information has been provided in general. Additional information to describe a water management strategy for drought periods would further assist.

2. Impacts on agricultural support services, processing and value adding industries and regional employment.

- Agricultural support services
  Limited information is provided in the AIS with respect to the potential impacts on agricultural support services. References are made in the EIS to the possible cumulative impact of the project and other mine developments in the region, which would contribute to local skilled labour shortages. These expected shortages are likely to adversely impact on the provision of agricultural support services. This issue could be addressed through the Social Impact Management Plan.

- Processing and value adding industries
  Expected skilled labour shortages are likely to negatively impact on local processing and value adding industries. This has not been addressed in the AIS. However, these impacts could be monitored and mitigated via the Social Impact Management Plan.

- Regional employment
  The AIS compares the total number of jobs created by the project (908) with the number of jobs foregone from agriculture (41), but there is no discussion of the social and economic consequences (page 16). More information is provided in the EIS, which indicates that the project is expected to contribute to regional employment growth. The proponent has identified that some negative cumulative impacts are expected to eventuate from the competition for skilled labour. Consideration of pre-emptive actions should be provided as part of the Social Impact Management Plan.

3. Impact on visual amenity, landscape values and tourism infrastructure relied upon by local and regional agricultural enterprises.

- Visual amenity
  The proponent has committed to developing a Visual and Lighting Management Plan to mitigate potential visual amenity impacts due to the project. Only general details are provided with limited specifics, for example "Where deemed necessary through consultation within (sic) relevant stakeholders, offsite mitigation and management measures will be implemented" (AIS Section 8.9 Visual, page 100).

  Vegetation screens are identified by the proponent as a potential component of visual impact management. However, there would be a time lag (which could be years) between initial planting and effective screening by vegetation. This will need to be considered in the Visual and Lighting Management Plan. It is recommended that plantings to screen high visual impact areas be commenced as soon as practical (i.e. soon after development approval is issued).

- Landscape values
  The expansion of mining activities and associated infrastructure may change perceptions of the area and impact on regional tourism values. No data is presented regarding this issue. Also see 1b) regarding land values.

- Tourism infrastructure
  No discussion is presented in the AIS regarding impacts on tourism infrastructure. Some discussion is presented in the EIS suggesting accommodation shortages, the perception of which could have long-term impacts on tourism enterprises in the region. The AIS should address the potential adverse impacts on tourism infrastructure provided by local and regional agricultural enterprises.

3. Mitigation measures for minimising adverse impacts on agricultural resources, including agricultural lands, enterprises and infrastructure at the local and regional level.

- Agricultural lands
  Mitigation measures are discussed, but are inadequate because of the level of uncertainty regarding land capability and suitability (see 1a)). Once these issues are resolved, appropriate evaluation of mitigation measures should be resubmitted.

- Agricultural enterprises
  In the AIS, the proponent has presented only limited data to describe impacts on agricultural enterprises, support services and the community. The Social Impact Management Plan should identify relevant data required to validate assumptions, to facilitate benchmarking and enable the development of mitigation strategies.