



Sinosteel Midwest Corporation Limited

Blue Hills Mungada East Expansion
Project

Assessment No. 2028

Response to the
Environmental Protection Authority
Assessment Advice

April 2016

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1. General Comments

Significance of Mungada Ridge

Sinosteel Midwest Corporation (SMC) notes the advice to the Environmental Protection Authority (EPA) that "...there is a high degree of connectivity and interrelatedness of the processes and impacts across the key environmental factors particularly in relation to impacts on the Mungada Ridge which is a distinctive Banded Ironstone Formation (BIF) landform".

In the Public Environmental Review (PER) assessment, it was concluded that assessing the ecological importance of BIF landform and its role maintaining existing ecological and physical processes is very complex. Comparative analysis of additional information would be required against other BIF landforms in the Local Assessment Unit (LAU) and regional context to allow for rigorous conclusions, such as that above, to be made. There is minimal information available regarding these interrelationships, as this would require substantial further geological and ecological surveys and assessments to be conducted. Such information would be required to conduct an assessment of the interrelationships of BIF landform characteristics through a comparative analysis. Due to the lack scientific evidence, it has not been proven that there is a high degree of connectivity and interrelatedness of the processes and impacts across the key environmental factors for Mungada Ridge.

SMC also notes the advice to the EPA that the Mungada Ridge itself is:

- largely intact;
- has unique physical attributes (i.e. slope, size, height and shape) which makes this landform distinctive;
- supports biodiversity values such as populations of threatened and priority flora and vegetation communities that are largely restricted to the ridge; and
- is located in a landscape setting which has visual aesthetic values and the potential to support tourism/recreation developments in the future.

In response, SMC recommends that the EPA also notes:

- Mungada Ridge has historic remnants of mining activities from the late 1960's and will remain largely intact if the extension proposal is implemented. At least 98% of the ridge landform will remain intact;
- While the physical attributes may make the landform distinctive on a local scale, they are not unique or distinctive on a regional scale (50 x 50 km);
- There are some biodiversity values that are largely restricted to Mungada Ridge, however none are endemic to the ridge; and
- Future tourism and recreation developments in the area of Mungada Ridge are only conceptual. Given these developments have not been formally referred to Government for assessment, they are not reasonably foreseeable and therefore should not be considered by the EPA as part of this assessment (as conceded by the EPA Chairman in our meeting of 4 April 2017).

Local Assessment Unit versus the Mungada/Karara/Koolanooka Region

SMC notes that the assessment advice is particularly focused on assessment and impacts within the LAU. The Environmental Scoping Document provides specific guidance (page 5) with respect to addressing environmental factors in the PER: "Impacts associated with proposals are to be considered at a Local and Regional scale, including evaluation of cumulative impacts, and provide details of proposed management/mitigation measures."

It is of concern to SMC that impacts to the Mungada/Karara/Koolanooka Region have not been equally used in context with the advice provided on impacts to the LAU, as this would provide a more balanced and objective assessment of overall impacts for the EPA to consider. Discussion of the regional impacts would provide the EPA with more context when considering the scale and level of potential impacts.

SMC is of the view that, if the EPA takes into account the local and regional area into its assessment, it will show that Mungada Ridge is not that significant in the Mungada/Karara/Koolanooka Region and this should be balanced against its importance in the LAU. The significance of the Mungada Ridge Landform is discussed in more detail in Section 2.1.

IUCN Assessment

SMC notes that DPaW has advised that if the proposed mining activity occurs, it is likely (not that it will) that reassessment of the category ranking of *Acacia woodmaniorum* would lead to a change from vulnerable to endangered. SMC's environment consultants (Ecological) have conducted a thorough International Union of Nature Conservation (IUCN) assessment for *Acacia woodmaniorum*. The assessment clearly shows that the category ranking of *Acacia woodmaniorum* would not change from vulnerable to endangered.

SMC notes the following specific advice from DPaW:

"The proponent's reassessment of the threat category based on the revised proposal for the threatened flora Acacia woodmaniorum under the International Union of Nature Conservation (IUCN) criteria does not:

- apply the threshold value for the endangered threat category correctly (i.e. the threshold value for endangered is ≤ 5 locations);
- consider the continuing decline on the habitat and / or mature individuals should the mine be approved in proximity to the residual population; and
- consider the potential for ongoing mining and / or exploration (which has not been addressed or discounted)."

In response, SMC advises the following:

- *Acacia woodmaniorum* is found at two locations (Blue Hills and Jasper Hills). This has been noted in the column "Assessment" in table 2 (Appendix 1 of the Response to Submissions, March 2017). The assessment criteria has been applied as ≤ 5 locations for the threshold value for the endangered criteria. Therefore the threshold value for the categorisation has been applied correctly and in an endangered classification of B2(a). However, for a

classification of endangered, B2(b) and (c) must also be met, which they are not. It's not just one classified on only one criteria alone as all criteria must be met. This therefore is an error by DPaW in their assessment.

- Continuing decline has been considered in the IUCN assessment. In order to meet the lowest criteria (vulnerable) for continuing decline, the population size reduction must reduce in size by $\geq 30\%$ over 10 years or three generations. Taking into account that the total reduction in size of the *Acacia woodmaniorum* known population is 18.2%, this is well below the threshold to meet any of the IUCN classification criteria. It should be noted that the figure of 18.2% includes indirect impacts of 10% (a conservative estimate of predicted indirect impact) from mining on the residual population in close proximity to the mine pit. It should also be noted that although 10% has been used to cover indirect impacts, the actual indirect impacts as measured by vegetation monitoring on Mungada ridge show that an indirect impact of 2% is more likely.
- the potential for ongoing mining and exploration has been considered in the IUCN assessment. The Ecological assessment states that "Other than the Proposal, no other projected future decline is anticipated for *Acacia woodmaniorum*. As per the OEPA definition of reasonably foreseeable developments - no further proposals for mining of areas containing this species have been referred under Part IV of the EP Act or under any other decision making authority approvals. Therefore there are no projected future declines planned with a high degree of certainty that they will take place." In any event, should any further mining or exploration be planned for Mungada Ridge, future proposals would be subject to assessment by the EPA and impacts to *Acacia woodmaniorum* would be protected by this process. Mungada Ridge is managed for the purposes of conservation by DPaW (who has purchased the underlying pastoral lease tenure) and this will provide ongoing protection for vegetation, including *Acacia woodmaniorum*.

Notwithstanding the above, if the impact to *Acacia woodmaniorum* did result in the IUCN category ranking changing from vulnerable to endangered, the EPA offsets policy would be applied. According to the offsets policy, offsets would apply if the EPA determines that the impact is significant and/or would result in a change in conservation status. SMC has already proposed offsets that address the requirements of the EPA offsets policy and these are detailed further below and in SMCs Conservation Management Plan Outline.

Offsets

Proposed Offset

SMC notes the summary from the EPA Mt Gibson Range Mine Operations Iron Hill Deposits Report 1570 which states the following "Translocation trials show that *D. masonii* and *L. gibsonii* have the ability to be planted and survive on ironstone substrate on the Mt Gibson Range (BGPA 2010). For example, a ten-year trial of translocated *D. masonii* clones on Iron Hill East showed a high survival rate, with plants producing flowers and seeds. The trial showed that irrigation of the plants in the first two years is necessary for *their* growth". Further SMC notes that the cumulative impacts to rare flora species *D. masonii* and *L. gibsonii* are approximately the same as that for *Acacia woodmaniorum* and that the agreed offsets between Mt Gibson and the EPA are the same as SMC's proposed translocation and further research.

In order to get the most up to date information, and to address the lack of confidence the EPA has with the ability to translocate *Acacia woodmaniorum*, SMC commissioned a flora survey (April 2017) to determine if the *Acacia woodmaniorum* growing in disturbed and rehabilitated areas on Mungada Ridge would be able to produce a self-sustaining population.

The survey revealed that *Acacia woodmaniorum* is growing in disturbed and rehabilitated areas and is fruiting and producing seed. In addition, there is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are producing more seed in some disturbed areas than those in the undisturbed areas. The evidence clearly shows that *Acacia woodmaniorum* is growing, fruiting and producing seed in both unrehabilitated and rehabilitated areas without any restoration management techniques being applied. The report for the survey is attached as Appendix 2.

Consistent with Mt Gibson Mining's approved offsets, SMC proposes to translocate 1,739 impacted *Acacia woodmaniorum* and undertake five years of research with the Australian Research Council (ARC), Centre for Mine Site Restoration (CMRS). Accordingly, the proposed offsets for the Proposal have changed in line with the above and SMC's Conservation Management Plan Outline (CMP) has been updated to reflect the latest changes. The updated CMP is attached as Appendix 1.

An offset for landform has not been proposed as the residual cumulative impact on Mungada Ridge for the following reasons:

1. In the LAU, Mungada Ridge is only distinct for being the largest and highest landform and this will not change if the proposal is implemented; Mungada Ridge does not have any other significant attributes over other landforms in the LAU;
2. On a regional scale, Mungada Ridge is only the fifth largest, third highest and one of 12 landforms that have some slopes >15 degrees;
3. The environmental values are not unique to Mungada Ridge and the impact of the Proposal on overall environmental values is low;
4. The social value is based on the current and potential for future developments that are not reasonably foreseeable and therefore should not be considered by the EPA;
5. If the Proposal is implemented, the residual cumulative impact will only be 2% (from pit voids) of the Mungada Ridge landform. Note: there is already a 1% impact on the ridge from existing mine pit;
6. 98% of Mungada Ridge landform will be left intact; and
7. The proposal impact on BIF in the LAU is only 0.3%.

Given the above, SMC is cannot reconcile that a cumulative impact of 2% to the Mungada Ridge landform can be assessed as significant and is therefore of the view that the impact to Mungada Ridge is not significant and does not require an offset.

Alternative Offset

The OEPA and EPA have previously stated that the Proposal will likely have a significant residual impact on landform. It is SMC's position that the PER assessment and subsequent changes to the Proposal have clearly demonstrated that the residual impact to the Mungada Ridge landform is not significant and therefore does not require an offset. However, if it is determined that there is a significant residual impact for the Landform Factor and an offset is required, SMC is open to a direct offset in the form of partial tenement relinquishment (for placement in a conservation reserve) over an area of Mungada Ridge that is "like for Like" with the residual landform impact. Figure 1 shows a proposed offset area on Mungada Ridge.

The area proposed for offset contains 2,194 *Acacia woodmaniorum* plants (455 more plants than will be impacted by the Proposal) as well as 36 ha, or approximately six times the area of Mungada Ridge that will be impacted. It should be noted that the offset area contains landform features that are more significant than those proposed to be impacted e.g. height and slope and therefore offers inherently better value as an offset.

The EPA should be aware that, if the alternative offset is required and implemented, SMC would not implement the proposed offset i.e. the *Acacia woodmaniorum* re-establishment program and related CMSR research.

Conservation Management

The land tenure underlying the mining tenure for the wider Blue Hills area was purchased by the Department of Parks and Wildlife (DPaW) for the purposes of conservation management. Conservation management of the Blue Hills area will continue throughout mining operations and after the closure of the proposed mine expansion. This will ensure that rehabilitation undertaken by SMC has a high level of protection by DPaW who is committed to ongoing management of the area for conservation purposes.

In addition, SMC has had ongoing consultation with DPaW regarding the existing Mine Closure Plan and will continue to engage with DPaW, and other key stakeholders, to ensure the site is left in the best possible state when rehabilitation has been completed.

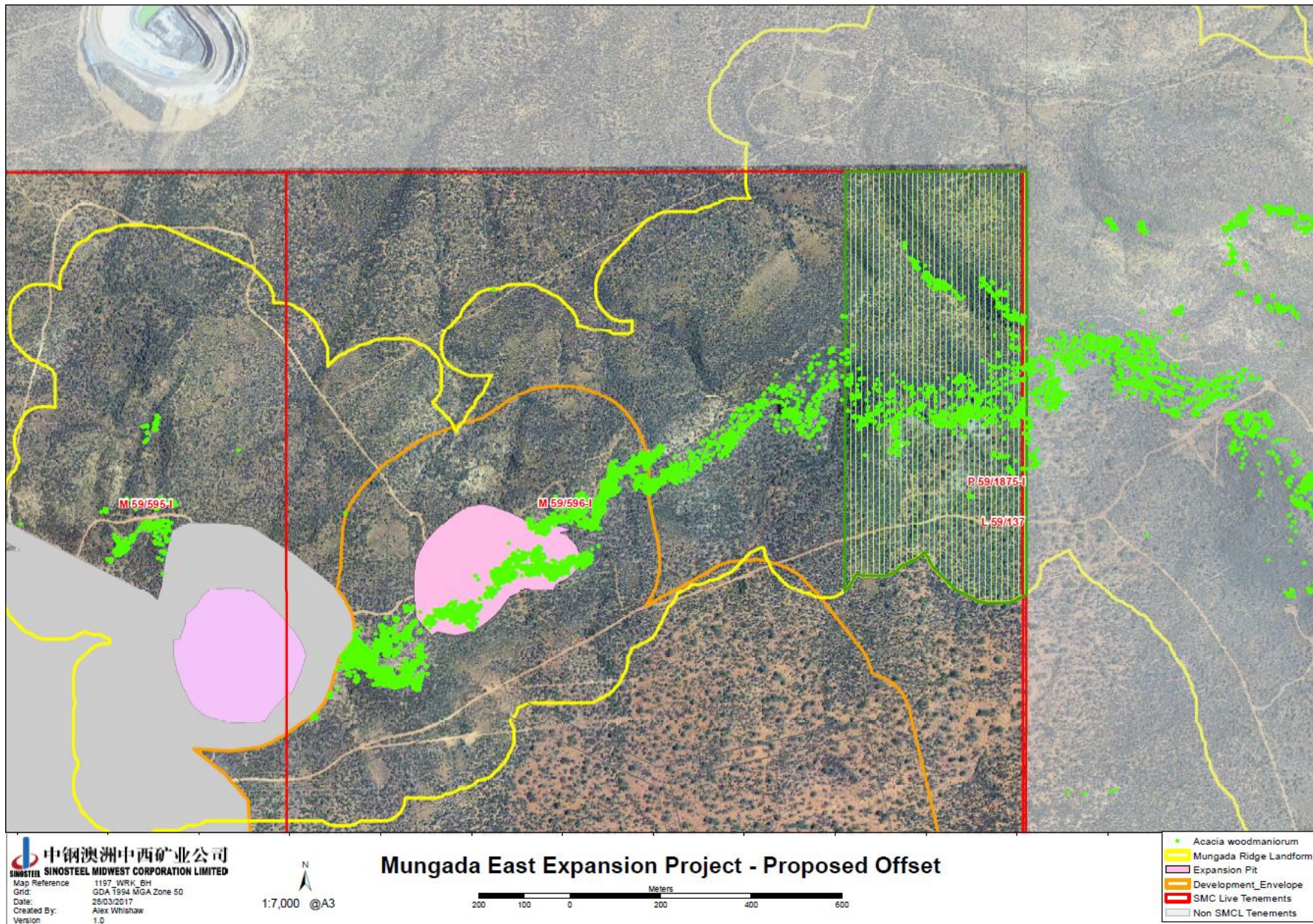


Figure 1: Alternative offset area (shaded green)

2. Key Environmental Factors

2.1. Landforms

SMC notes the OEPA advice from the EPA 2016 Environmental Factor Guideline: Landforms (the Landform Guideline) that “The EPA recognises that there are significant biodiversity and mineral resource values in the banded ironstone ranges. It is not possible to reconstruct the structure of BIF ranges, once disturbed, which means that impacts from disturbance may be significant”.

SMC believes it is important that the EPA considers all aspect of the Guideline in its assessment and determination of significance.

For the purpose of EIA, the Landform Guideline defines a landform as:

“A distinctive, recognisable physical feature of the earth’s surface having a characteristic shape produced by natural processes.” and;

“A landform can be a small scale feature, such as a cliff or dune, or of larger scale, such as a dune field. The EPA considers the defining feature of a landform to be the combination of its geology (composition) and morphology (form).” *

With respect to environmental values supported by landforms, the Guideline states “The focus of this factor and its associated objective is on the significance of the landform itself and the significance of the impacts on the landform. In considering these impacts, the EPA will focus on the significance of the removal or alteration of the landform’s defining geology and morphology”. Further, “Where impacts to flora and vegetation or fauna supported by landforms are considered significant, the EPA will directly consider impacts through those factors.” *

Given the above, the EPA should consider all aspects of the Landform Guideline, not take a myopic view on a particular part of the guideline.

* Underlined for emphasis.

In accordance with the Landform Guideline policy, and taking into account the assessment advice provided in Attachment 1 of the EPA letter dated 24 March 2017, SMC provides the following response on the Landform Factor:

Variety

EPA Landform Guideline:

Variety: The landform is a particularly good or important example of its type. The landform is not well represented over the local, regional or national scale or differs from other examples at these scales.

There are 31 BIF landforms in the local area and 362 in the Mungada/Karara/Koolanooka region. The large number of similar BIF landforms in the local and regional areas provides an extensive representation of the landform over a local and regional scale. The vast majority of the Mungada Ridge landform and its more distinctive attributes (height, slope, shape and size) will remain in the landscape.

The steepest slopes on Mungada Ridge only form a small portion of its overall area. Approximately 3% of Mungada Ridge has a slope greater than 15 degrees. A total of 11 BIF landforms in the Mungada/Karara/Koolanooka region (including Mungada Ridge) have slopes of 15 degrees or greater. The most prominent (highest and steepest) areas of the ridge are >500 mAHD and 15-20 degrees and will not be affected by the Proposal. The original pit was to impact 0.75 ha of the ridge within the 10-15 degrees slope bracket. The new pit design does not impact any areas with slopes of 10-15 degrees. The steepest slopes to be affected are now only between 5-10 degrees.

While unusual, the distinct crescent shape of Mungada Ridge is not known, nor believed to influence the ecological or scientific importance of the landform. There is no evidence to suggest that the distinct crescent shape of Mungada Ridge would provide any function other than visual aesthetic value. The crescent shape of Mungada Ridge will also not be affected by the Proposal.

The only distinct feature of Mungada Ridge is that it is the largest in size and height in the LAU. Given the restricted size of the LAU, SMC is of the view that being the largest in size and height in the LAU is not significant, especially when considering that Mungada Ridge is only the fifth largest (approximately half the size of the Koolanooka Hills) and third highest (there are 51 other landforms between 410 m and 540 m) landform in the Mungada/Karara/Koolanooka region.

The OEPA has identified that "92% of the landform currently remains largely intact and in good condition". Taking into account the Landforms Guideline, particularly with respect to landform integrity (intactness), the proposal will leave a cumulative permanent residual impact on landform integrity of only 2% of the Ridge, leaving the remaining 98% intact and in good condition. The EPA should therefore note that Mungada Ridge will remain largely intact (98%) if the Proposal was implemented.

In Table 3, SMC notes that the OEPA does not consider Canning Hill to be probable BIF. The Geological Survey WA has identified Canning Hill as containing BIF, as shown in Figure 2. Specifically, the geological unit Aih shown as purple lines on the map at Canning Hill is hematite-magnetite-quartz Banded Iron Formation.

Integrity

EPA Landform Guideline:

Integrity: The landform is intact, being largely complete or whole and in good condition.

Mungada Ridge is not considered to be an 'intact' landform as it was mined by Western Mining operations in the 1960's and subsequent mine expansions by SMC for the Mungada East pit and waste rock dump.

The proposal has a total disturbance (clearing) of 1.9% on Mungada Ridge including the MEE pit, pit abandonment bund and haul roads. Although 2% of Mungada Ridge will be disturbed by clearing, only 1% of the integrity of the Mungada Ridge landform will be impacted by the proposal. The Mungada East Expansion pit will leave a permanent void, however the pit abandonment bund and haul road will not permanently impact on the integrity of the landform.

The cumulative impact of two pit voids on landform integrity is 2% (in the case that the Mungada East pit is not fully restored by backfilling). The existing Mungada East pit impacts on 8 ha or 1% of the ridge while the proposed Mungada East Expansion pit impacts in 7 ha or 1% of the ridge.

Taking into account the Landform Guideline policy, and given the low cumulative impact to the integrity of the ridge (2%), SMC is of the view that, with 98% of the ridge remaining intact, the landform would remain intact, largely complete and in good condition.

Ecological Importance

EPA Landform Guideline:

Ecological importance: The landform has a distinctive or exclusive role in maintaining existing ecological and physical processes; for example, by providing a unique microclimate, source of water flow, or shade. The landform supports endemic or highly restricted plants or animals.

In the PER assessment, it was concluded that assessing the ecological importance of BIF landform and its role maintaining existing ecological and physical processes is very complex. Comparative analysis of additional information would be required against other BIF landforms in the LAU and regional context to allow for rigorous conclusions to be made. SMC has minimal access to information regarding these interrelationships, which would require substantial further geological and ecological surveys and assessments to be conducted. More importantly, the information is limited or not available for BIF landforms locally and, in particular, in the Mungada/Karara/Koolanooka region. Such information would be required to investigate the interrelationships of BIF landform characteristics through a comparative analysis. This has also been recognised by the OEPA in previous meetings.

SMC notes the information provided in Table 3 of the Assessment Advice regarding Ecological Importance. However, the points listed in the table do not reflect the summary of the ecological

characteristics and values of Mungada Ridge presented in the PER. The PER assessment concluded the following:

- Although Mungada Ridge supports a variety of environmental values including conservation significant flora and fauna species, and a PEC, none are endemic to the Mungada Ridge.
- The rocky habitat of Mungada Ridge is preferred by two conservation significant flora species; *Acacia woodmaniorum* (Threatened) and *Lepidosperma* sp. Blue Hills (Priority 1);
- Mungada Ridge contains Rocky Ridge habitat, as well as south-facing slopes; however, these characteristics are not unique to Mungada Ridge;
- The records of potential or confirmed SREs and Malleefowl mounds, occur across varying habitat types and on slopes facing various directions so are not restricted to the ridge or specific areas of the ridge;
- No significant rivers, creeks or drainage lines occur on or near Mungada Ridge;
- None of the conservation significant flora, vegetation or fauna considered appear to be reliant on areas of prolonged shade provided by Mungada Ridge;
- Mungada Ridge does not have any significant features such as monoliths or other highly distinct features of a similar nature.

Taking into account the Landform Guideline policy and the assessment conclusion from the PER, SMC is of the view that the Ecological Importance of Mungada Ridge is not significant.

Scientific Importance

EPA Landform Guideline:

Scientific importance: The landform provides evidence of past ecological processes or is an important geomorphological or geological site. The landform is of recognised scientific interest as a reference site or an example of where important natural processes are operating.

Table 3 states “The Mungada Ridge is an example of BIF landform. Deposition of BIF landforms are linked to the environmental and geochemical evolution of the earth, undisturbed by seas or glaciers for more than 250 million years”. This generic statement was provided as background information in the PER to inform the origin of iron formations and in no way implies that iron formations are scientifically important.

The term geoheritage is used to refer to features of geology that occur at a global, national, state, regional, or local scale and that are intrinsically or culturally important, offer information or insights into the formation or evolution of the Earth, or into the history of science, or that can be used for research, teaching, or reference (Brocx and Semeniuk 2007). State Geoheritage Reserves are sites that are recognised nationally and internationally for their geo-scientific importance and are created under Section 41 of the Land Administration Act 1997 (WA).

As concluded in the PER “None of the BIF landforms in the Mungada/Karara/Koolanooka region are currently listed or proposed as Geoheritage Sites or Reserves”.

Taking into account the Landform Guideline policy and the above, SMC is of the view that the Scientific Importance of Mungada Ridge is not significant.

Rarity

EPA Landform Guideline:

Rarity: The landform is rare or relatively rare, being one of the few of its type at a national, regional or local level.

Mungada Ridge is not rare at a local or regional level as there are 31 BIF landforms in the local area and 362 in the Mungada/Karara/Koolanooka region. The large number of similar BIF landforms in the local and regional areas provides an extensive representation of the landform over the local and regional level.

It is recognised that a number of attributes (size, height and steepness/relief) of Mungada Ridge make it one of the more prominent BIF landforms in the Mungada/Karara/Koolanooka region. These attributes, along with a number of conservation significant flora and fauna values, also contribute to its relative significance in the region. However, SMCs environmental consultant has undertaken a detailed analysis of the Mungada Ridges' values and in doing so, has identified that the ridge is not unique and its features and values are shared with a large number of other BIF landforms in the local and regional area. It should be noted that Mungada Ridge is not the largest, highest, nor steepest landform in the region. Of the vegetation types and conservation significant flora and fauna that occur, none are strictly endemic to the ridge.

Further, the Mungada/Karara/Koolanooka region covers approximately 2.9 million ha and only 18,780 ha (0.6%) of this is occupied by 362 BIF landforms. Mungada Ridge is only the fifth largest, third highest and one of 12 BIF landforms that have slopes greater than 15° within the Mungada/Karara/Koolanooka region.

Taking into account the Landform Guideline policy and the above, SMC is of the view that Mungada Ridge is not rare and is therefore not significant.

Social Importance

EPA Landform Guideline:

Social importance: The landform supports significant amenity, cultural or heritage values.

A number of sites were identified by survey on Mungada Ridge and were registered on the Department of Aboriginal Affairs database at the time of SMC's Section 18 application. However, these sites were reassessed by the DIA and found not to be sites as defined under section 5 of the *Aboriginal Heritage Act 1972* (AHA). Consequently, consent to implement the Proposal (which included the development envelope) was given by the Minister for Aboriginal Affairs on 12 February 2016. It is important to note that the Ministers' consent advised that the Purpose (Proposal) "*will not impact upon any Aboriginal sites on the Land within the meaning of section 5 of the AHA*".

SMC notes that the walk trail proposed by DPaW is conceptual and that no formal application has been made to develop the trail. Given that the walk trail is conceptual and hasn't been referred formally, the development is not reasonably foreseeable and therefore, should not be considered by the EPA in its assessment as per EPA policy to only consider reasonably foreseeable

developments. In any event, the VIA has been carried in accordance with the WAPC Guidelines (as required by ESD) and peer reviewed. The VIA concluded that visual amenity from any viewpoints (including the walk trail) would not be significantly impacted by the proposal. It should be noted that there is very limited access to Mungada Ridge by the public due to legal restrictions from active mining and exploration activities. These restrictions will remain in place for the foreseeable future (decades).

Taking into account the Landform Guideline policy and the above, SMC is of the view that Mungada Ridge does not support significant amenity, cultural or heritage values and is therefore not significant.

Assessment of Residual Impacts

SMC notes the OEPA advice that “The proposal has the potential to directly impact on the landform through the excavation and extraction of ore which forms part of the physical structure of the landform, construction of the mine abandonment bund, and clearing of flora and vegetation and terrestrial fauna habitat. Up to 13.3 ha of the Mungada Ridge landform would be permanently impacted by the proposal (around 2% of Mungada Ridge).”

Further, the OEPA has advised that “When considering whether the proposal would impact on the intactness of Mungada Ridge, the location and scale of the impacts of this proposal combined with the previous proposal are important considerations. The cumulative impacts of this proposal combined with previous development represents around 10% of the ridge, with most of the impacts being on the western edge of the landform.”

As stated previously, and taking into account the Landform Guideline policy with respect to integrity (intactness), there will not be a residual cumulative impact of approximately 10% on Mungada Ridge. Only 2% (cumulative) of Mungada Ridge will be permanently impacted by the remaining pit voids that have been created as a result of mining. This will leave 98% of Mungada Ridge substantially intact and will not result in a significant residual impact i.e. the remainder of Mungada Ridge will remain intact. Further, the residual impact of the proposal on the landform is only 1% of Mungada Ridge, not 2%.

SMC notes the advice that the Mungada Ridge landform is the most significant landform in the LAU and is one of the most significant landforms in the region. For the reasons outlined previously, with respect to variety, integrity, ecological and scientific importance and rarity, Mungada Ridge is not significantly different from other BIF, especially in the Mungada/Karara/Koolanooka region.

SMC notes the advice regarding the important environmental and social values the Mungada Ridge landform supports. The environmental values of Mungada Ridge are recognised, however the PER assessment and subsequent mitigation measures have minimised impact to a level where there is no residual environmental impact requiring offset, with the exception of *Acacia woodmaniorum*. With regard to social values, given no formal referral of tourism development has been formally referred and therefore, only a conceptual development has been proposed, this is not reasonably foreseeable and shouldn't be considered in the assessment.

SMC notes the advice that the cumulative impact to the landforms within the Local Assessment Unit would be 28%. It should be noted by the EPA that, although the cumulative impact to the landforms would be 28%, SMCs proposal would only add 0.3% impact to the existing impact in the LAU.

Conclusions

1. In the LAU, Mungada Ridge is only distinct for being the largest and highest landform and this will not change if the proposal is implemented; Mungada Ridge does not have any other significant attributes over other landforms in the LAU;
2. On a regional scale, Mungada Ridge is only the fifth largest, third highest and one of 12 landforms that have some slopes >15 degrees;
3. The environmental values are not unique to Mungada Ridge and the impact of the Proposal on overall environmental values is low;
4. The social value is based on the potential for conceptual developments that are not reasonably foreseeable and therefore should not be considered by the EPA;
5. If the Proposal is implemented, the residual cumulative impact will only be 2% (from pit voids) of the Mungada Ridge landform. Note: there is already a 1% impact on the ridge from existing mine pit;
6. 98% of Mungada Ridge landform will be left intact; and
7. The proposal impact on BIF in the LAU is only 0.3%.

Based on the above, SMC is of the view that the impacts to the Landform Factor are not significant.

2.2. Flora and Vegetation

As a general point, SMC notes that Mungada Ridge is located in a Priority Ecological Community (PEC). If the ecological community and values, along with threatening processes (such as mining), is so significant, then SMC queries why this wouldn't have resulted in the elevation of the Blue Hills area to one of a Threatened Ecological Community (TEC). Many floristic and faunal surveys have been carried out in the Blue Hills PEC over the past 15 years yet, given the huge amount of data that has been collected and analysed by DPaW, the area has not been reclassified to TEC status. If the ecological value of the Blue Hills PEC was of the order as it has been portrayed in the various assessment and comments throughout this assessment process, it would be expected that the PEC would have been reclassified as a TEC.

IUCN Assessment

SMC notes that DPaW has advised that if the proposed mining activity occurs, it is likely (not that it will) that reassessment of the category ranking of *Acacia woodmaniorum* would lead to a change from vulnerable to endangered. SMC's environment consultants (Ecological) have conducted a thorough International Union of Nature Conservation (IUCN) assessment for *Acacia woodmaniorum*. The assessment clearly shows that the category ranking of *Acacia woodmaniorum* would not change from vulnerable to endangered.

SMC notes the following specific advice from DPaW:

"The proponent's reassessment of the threat category based on the revised proposal for the threatened flora Acacia woodmaniorum under the International Union of Nature Conservation (IUCN) criteria does not:

- apply the threshold value for the endangered threat category correctly (i.e. the threshold value for endangered is ≤ 5 locations);
- consider the continuing decline on the habitat and / or mature individuals should the mine be approved in proximity to the residual population; and
- consider the potential for ongoing mining and / or exploration (which has not been addressed or discounted).”

In response, SMC advises the following:

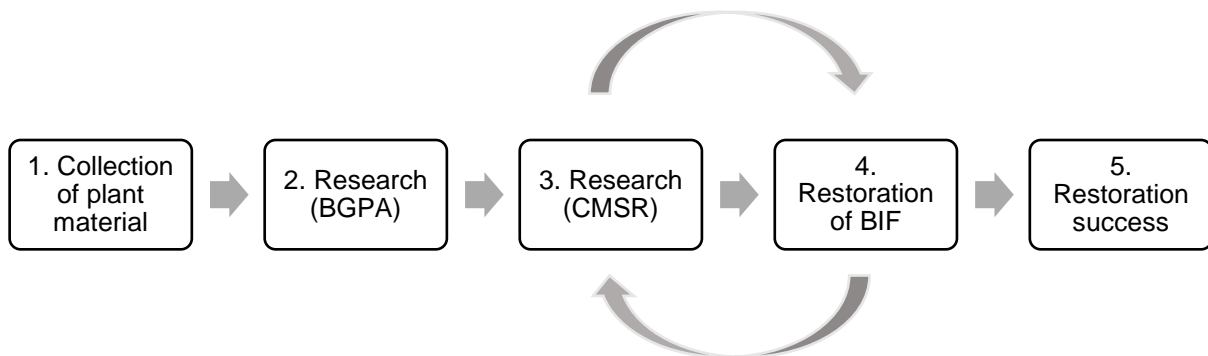
- *Acacia woodmaniorum* is found at two locations (Blue Hills and Jasper Hills). This has been noted in the column “Assessment” in table 2 (Appendix 1 of the Response to Submissions, March 2017). The assessment criteria has been applied as ≤ 5 locations for the threshold value for the endangered criteria. Therefore the threshold value for the categorisation has been applied correctly and in an endangered classification of B2(a). However, for a classification of endangered; both B2(b) AND (c) must also be met. It’s not just one classified on only one criteria alone as all criteria must be met. This therefore is an error by DPaW in their assessment.
- Continuing decline has been considered in the IUCN assessment. In order to meet the lowest criteria (vulnerable) for continuing decline, the population size reduction must reduce in size by $\geq 30\%$ over 10 years or three generations. Taking into account that the total reduction in size of the *Acacia woodmaniorum* known population is 18.2%, this is well below the threshold to meet any of the IUCN classification criteria. It should be noted that the figure of 18.2% includes indirect impacts of 10% (a conservative estimate of predicted indirect impact) from mining on the residual population in close proximity to the mine pit. It should also be noted that although 10% has been used to cover indirect impacts, the actual indirect impacts as measured by vegetation monitoring show that an indirect impact of 2% is more likely.
- the potential for ongoing mining and / or exploration has been considered in the IUCN assessment. The Ecological assessment states that “Other than the Proposal, no other projected future decline is anticipated for *Acacia woodmaniorum*. As per the OEPA definition of reasonably foreseeable developments - no further proposals for mining of areas containing this species have been referred under Part IV of the EP Act or under any other decision making authority approvals. Therefore there are no projected future declines planned with a high degree of certainty that they will take place.” In any event, should any further mining or exploration be planned for Mungada Ridge, future proposals would be subject to assessment by the EPA and impacts to *Acacia woodmaniorum* would be protected by this process.

Notwithstanding the above, if the impact to *Acacia woodmaniorum* did result in the IUCN category ranking changing from vulnerable to endangered, the EPA offsets policy would be applied. According to the offsets policy, offsets would apply if the EPA determines that the impact is significant and/or would result in a change in conservation status. SMC has already proposed offsets that address the requirements of the EPA offsets policy and these are detailed further below and in SMCs Conservation Management Plan Outline.

Restoration of Flora and Vegetation

SMC (in partnership with the Botanic Parks and Gardens Authority (BGPA)) has completed five years of flora restoration research in BIF and has committed to another five years of research under the Australian Research Council's, Centre for Mine Site Restoration Project (CMSR). SMC has also collected a large variety and quantity of seeds from vegetation in the Blue Hills area and this seed is currently being held in storage, ready for rehabilitation and research purposes.

In order to ensure that restoration of BIF flora species is successful, SMC will continue to implement the following restoration process:



1. Collection of plant material

SMC provided Karara Mining Limited (KML) with access to *Acacia woodmaniorum* in areas prior to clearing the at the existing Mungada pit area. KML collected whole plants and cutting for propagation in their nursery. SMC can take the same approach (using KML's facilities and research knowledge) when undertaking the proposed clearing of *Acacia woodmaniorum*. In addition, SMC has collected and stored approximately *Acacia woodmaniorum* 1,000 seeds and seeds for most other flora species that are proposed to be impacted, for research and rehabilitation purposes.

2. Research (BGPA)

BGPA research has found that "Overall restoration outcomes for the Koolanooka TEC offset area and drill pad restoration at Blue Hills show that, assessed a few years after establishment, SMC have returned biodiverse systems comparable to the reference communities. This is the first demonstrated capacity to restore this level of biodiversity in BIF across the resources sector". Further, the BGPA has concluded "If best practice restoration is followed then there doesn't appear to be any significant barriers to restoration over the first few years of restoration. With ongoing adaptive management programs, including threat mitigation and supplementary restoration works (plantings etc) then these biodiversity levels should be maintained".

A copy of the BGPA comment on restoration activities and potential outcomes at Blue Hills is provided as Appendix 4.

3. Research (CMRS)

SMC is a partner in the CMSR research project which will allow SMC to focus studies on the restoring *Acacia woodmaniorum* and other flora species requiring restoration. The CMSR project will commence in May 2017. SMC envisages that rehabilitation will take five years from the implementation of mine closure. If the Proposal was to be implemented in 2018, approximately three years of research would have been completed under the CMSR project

by the time mine closure / rehabilitation commences. A further two years of the CMSR project will run in parallel with the initial stages of rehabilitation. The remaining three years of rehabilitation will involve monitoring of vegetation to assess restoration success and if required, the implementation of actions to ensure completion criteria are met.

4. Restoration of BIF

New information shows that *Acacia woodmaniorum* growing in the disturbed and rehabilitated areas are fruiting and producing seed. There is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are potentially producing more seed in some disturbed areas than those in the undisturbed areas (discussed in detail below).

The BGPA research has also resulted in the production of a Practitioner Restoration Manual (attached as Appendix 3). The manual provides specific processes to enable the restoration of sustainable native vegetation communities, using local species, on SMCs project areas. In particular, the BGPA has given specific instructions on how to restore *Acacia woodmaniorum* (Appendix 4 of the Practitioner Restoration Manual).

5. Restoration Success

In setting standards for the restoration of BIF vegetation, SMC is committed to achieving best practice rehabilitation. Accordingly, SMC will further develop its CMP to include offset objectives and completion criteria for *Acacia woodmaniorum*.

Translocation Success

SMC has previously stated that it is committed to offsetting 100% of the impact to *Acacia woodmaniorum* through translocation of the species. However, the EPA has expressed a lack of confidence that *Acacia woodmaniorum* could be successfully translocated into its habitat on Banded Ironstone Formations to achieve a self-sustaining population.

Karara Mining Limited recently (March 2017) provided SMC with a report of a flora survey on Mungada Ridge. Based on the information provided in the report, a number of tracks and pads were cleared for exploration drilling in 2009, on tenement M59/650. The flora survey was undertaken in 2012, three years after the exploration clearing occurred. The report estimated that a total of 238 *Acacia woodmaniorum* plants would be impacted by the rehabilitation. It should be noted that not all of these were located on the disturbed areas as some were located adjacent to the cleared areas but were recorded as they would likely be impacted by rehabilitation.

In order to get the most up to date information, and to address the lack of confidence the EPA has to translocate *Acacia woodmaniorum*, SMC commissioned a flora survey (April 2017) to determine if the *Acacia woodmaniorum* will re-grow in disturbed and rehabilitated areas on Mungada Ridge and would be able to produce a self-sustaining population. To achieve this, data was collected from:

- *Acacia woodmaniorum* growing in disturbed (unrehabilitated) and rehabilitated areas;
- *Acacia woodmaniorum* growing in areas disturbed (unrehabilitated) and rehabilitated at different times;
- *Acacia woodmaniorum* growing in areas disturbed (unrehabilitated) and rehabilitated to different degrees e.g. in areas rehabilitated post exploration programs and areas rehabilitated post mining; and
- *Acacia woodmaniorum* growing in undisturbed areas.

Information collected from each *Acacia woodmaniorum* included:

- Life stage (seedling, juvenile or adult) and height recorded in height ranges;
- Reproductive state (vegetative, flowering or fruiting);
- If flowering and / or fruiting some idea of the number of flowers and pods and their maturity; and
- Soil samples were collected from beneath mature plants to see if they were producing seed.

The results of the survey show:

- More *Acacia woodmaniorum* were located (in total) in the assessment areas in 2017 than were in these areas before any impact; the density of the *A. woodmaniorum* was also higher in 2017 than it was pre-impact.
- No seed was spread over the rehabilitated or disturbed areas and the new plants have therefore either germinated from seed buried by ants (in those areas where not much of the original surface was removed) or from seed brought into the areas from the surrounding vegetation by e.g. birds and mammals.
- Fewer *Acacia woodmaniorum* appear to grow in the areas that have been rehabilitated compared with areas that have been disturbed but not rehabilitated. This is possibly because these areas are lower down the slope than the areas that have not been rehabilitated (KML areas) and there were fewer *Acacia woodmaniorum* located in those areas pre impact anyway (KML and SMC areas).
- The increase in *Acacia woodmaniorum* density compared with pre-impact density is greatest in the older KML exploration areas where there have been 5-fold and 3-fold increases in plant density.
- *Acacia woodmaniorum* grows in different locations in the disturbed areas i.e. in centre of old tracks, drill pads, windrows and track edges; however, they appear to be larger and the plants are more numerous in water gaining areas i.e. at track edges, at base of rock cuttings and at lower points in any disturbed but reshaped areas; the soil in these areas would also have been compacted less than the centre of tracks and drill pads.
- In areas that were disturbed longer ago plants are taller, have more fruit still on them and mean extrapolated seed number is higher than in the areas disturbed more recently or in the undisturbed areas. Larger plants (up to 2 m high), more pods and potentially more seed probably reflects the reduced competition for light, water and nutrients in these disturbed areas where the vegetation is less dense. It is also possible that the rock is more broken up in these areas and plant roots can grow more easily.
- In areas disturbed longer ago the proportion of adult to juvenile plants is similar to that in undisturbed areas. However, in areas disturbed more recently the proportion of juveniles is higher than that of adults. As plants classified as 'adult' in these disturbed areas had no old fruit on them (or on the ground around them) then size is not an indicator of maturity re reproductive capacity. [Borger & Giltay (2012) recorded pods on some plants and flowers on many when the areas to be rehabilitated in KML exploration areas were assessed in 2012, just three years after exploration works ceased, whereas *Acacia woodmaniorum* in areas disturbed four years ago had no pods – this could reflect the degree of disturbance i.e. exploration compared with mining.]

- The *Acacia woodmaniorum* in the two KML exploration areas had more fruit on them than the plants in the adjacent undisturbed areas, while there was a similar amount of fruit on the plants in the SMC exploration areas as in the undisturbed areas. The plants in the three disturbed areas on SMC's tenements had no fruit on them. As these have been growing for the shortest length of time the lack of fruiting material likely reflects a lack of plant maturity rather than a lack of ability to produce fruit. [Note that the old pods recorded in April 2017 were those left after flowering in 2016 and only provide an estimate of actual fruiting capacity as many will have fallen off the plants and there would have been more pods on the plants in late 2016.]
- *Acacia woodmaniorum* growing in the disturbed and rehabilitated areas on KML's tenement have reached an age to produce flowers and seed. These seeds appear to be viable as a number of seedlings and juvenile plants were located in the old exploration areas.
- Analysis of the soil and frass samples gathered from beneath adult plants in unrehabilitated areas, rehabilitated areas and undisturbed areas indicated that extrapolated mean seed number is greatest in samples taken from beneath adult plants in exploration areas that are unrehabilitated. The plants tended to be larger in this than in other areas and had more fruit/pods on them than in the two other treatment groups. Extrapolated mean seed amount in the KML exploration areas that had been rehabilitated was similar to that in the undisturbed areas.
- *Acacia woodmaniorum* growing in the disturbed areas are healthier than those growing in natural vegetation. This could be a result of reduced competition in the sparse vegetation of the disturbed areas and also of the young age of the plants.
- *Acacia woodmaniorum* are regrowing in a number of disturbed areas on Mungada Ridge. The plants are tending to grow in areas where there were large numbers of *A. woodmaniorum* before the area was cleared. As the soil level in some of these disturbed areas is below the original land surface it is unlikely that they are all growing from seed buried by ants but that they are being brought to these areas by other mechanisms, probably birds or other mammals.
- More *A. woodmaniorum* appear to be growing in areas that were disturbed and or rehabilitated longer ago and in areas surrounding by vegetation where *Acacia woodmaniorum* was located previously and was relatively dense. None of the disturbed areas have been sown with *Acacia woodmaniorum* and therefore the seed has come from the surrounding areas. In some areas the *Acacia woodmaniorum* is now denser than it was pre any impact from mining while in others there are fewer *Acacia woodmaniorum* than in the area previously. These tend to be the areas where a large area has been cleared and where the plants are not close to any extant plants e.g. SMC Mungada west bund area - disturbed.
- *Acacia woodmaniorum* growing in the disturbed and rehabilitated areas are fruiting and producing seed. There is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are potentially producing more seed in some disturbed areas than those in the undisturbed areas.

A copy of the survey report is provided as Appendix 2.

The evidence clearly shows that *Acacia woodmaniorum* is growing, fruiting and producing seed in both unrehabilitated and rehabilitated areas without any restoration management techniques being applied. Therefore, it is clear that *Acacia woodmaniorum* can be successfully re-established to produce a self-sustaining population on Mungada Ridge.

Assessment of residual impacts

SMC notes the EPA advice that “The application of the Residual Impact Significance Model in the WA State Offsets Guideline (Attachment 2) identifies whether these impacts require an offset in accordance with the WA State Offsets Policy. Offsets would generally only be applied if the EPA determines that the impact is significant and/or would result in a change in conservation status.”

“Consistent with the Guidelines, any impacts to species protected by statute are considered to be significant residual impacts that must be offset. An appropriate offset for this impact is on-ground actions or research project. Research projects should only be used in certain circumstances, such as to add value to the outcomes of on-ground management and the understanding of the environmental value being impacted.”

Given the above advice, SMC is proposing to undertake both on-ground actions and a research project to offset the residual impacts to *Acacia woodmaniorum*. Specifically, SMC is proposing to offset the impact to *Acacia woodmaniorum* by translocating and re-establishing and re-establishing at least 1,739 plants and implementing a five year research project with the Australian Research Council, Centre for Mine Site Restoration.

SMC notes the EPA’s concern regarding the available information and lack of scientific confidence that *Acacia woodmaniorum* could be successfully translocated into its habitat on Banded Ironstone Formations to achieve a self-sustaining population. As stated above, SMC has collected evidence that *Acacia woodmaniorum* can re-establish and sustain itself in unrehabilitated and rehabilitated areas and produce seed. Given this new information to support that translocation and reproduction of the species is possible, SMC is of the view that the EPA now has more than sufficient evidence to form a conclusion that translocation of *Acacia woodmaniorum* would be successful.

SMC notes the EPA advice in the Mt Gibson Iron Hill Report 1570 that “Over 17,000 individuals of *D. masonii* and 25,000 individuals of *L. gibsonii* would remain on the undisturbed areas of the Mt Gibson Range”. This is analogous with SMC’s proposal as over 25,000 individuals of *Acacia woodmaniorum* would remain undisturbed in areas on Mungada Ridge.

SMC also notes from Report 1570 that “The EPA considers that the 2.6% impact on the PEC and 6% and 2% direct impact (and 22% and 18% cumulative impact) on *D. masonii* and *L. gibsonii* respectively is unlikely to significantly affect their diversity, viability or ecological function. Consistent with Position Statement No. 3, the EPA considers that the proponent has proposed reasonable measures to avoid impacts and the impacts to flora and vegetation would not result in unacceptable loss or compromise the regional biodiversity.”

The direct and cumulative impacts on rare flora *D. masonii* and *L. gibsonii* are commensurate with the impacts SMC’s proposal would have on *Acacia woodmaniorum*. Consistent with the approach taken by Mt Gibson, SMC has also taken significant mitigation measures to avoid impacts to flora and vegetation. For these reasons, SMC is of the view that the impacts to flora and vegetation would not result in unacceptable loss or compromise the regional biodiversity of *Acacia woodmaniorum*.

SMC re-iterates that BGPA research has found that “Overall restoration outcomes for the Koolanooka TEC offset area and drill pad restoration at Blue Hills show that, assessed a few years after establishment, SMC have returned biodiverse systems comparable to the reference communities. This is the first demonstrated capacity to restore this level of biodiversity in BIF across the resources sector”. Further, the BGPA has concluded “If best practice restoration is followed then there doesn’t appear to be any significant barriers to restoration over the first few years of restoration. With ongoing adaptive management programs, including threat mitigation and supplementary restoration works (plantings etc) then these biodiversity levels should be maintained”.

Conclusions

1. SMCs environmental consultant has undertaken a detailed IUCN assessment and determined that there will be no change to the IUCN classification; the threshold criteria to classify *Acacia woodmaniorum* as ‘endangered’ is a decline of $\geq 50\%$ which is well above the predicted cumulative impact of 18.43%; further decline (indirect impacts) has been included in the calculation of a cumulative impact of 18.43%;
2. The impacts from the proposal to priority flora and FCT’s are minimal (*Lepidosperma* sp. Blue Hills (P1) 0.4%, *Drummondita fulva* (P3) 2.6% and *Micromyrtus Trudgenii* (P3) 9.6%; the Blue Hills PEC 0.2% and Floristic Community Types 13 - 2% and 14 – 0.05%);
3. Over 25,000 (81.5%) of *Acacia woodmaniorum* individuals would remain undisturbed on Mungada Ridge; There is also approximately four thousand *Acacia woodmaniorum* tubestock ready for translocation;
4. New information shows that *Acacia woodmaniorum* is growing very well in disturbed and rehabilitated areas (not seeded with *Acacia woodmaniorum*) and is fruiting and producing seed. In addition, evidence shows that there is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are potentially producing more seed in some disturbed areas than those in the undisturbed areas;
5. The BGPA advice that “If best practice restoration is followed then there doesn’t appear to be any significant barriers to restoration over the first few years of restoration. With ongoing adaptive management programs, including threat mitigation and supplementary restoration works (plantings etc) then these biodiversity levels should be maintained”; and
6. SMC has committed to five years of research as a partner with the ARC Centre for Mine Restoration, in addition to the five years already undertaken by the BGPA. SMC will ensure research is directly targeted at translocating *Acacia woodmaniorum* into suitable habitat on BIF to achieve a self-sustaining population.

Based on the above, SMC is of the view that the impacts to the Flora and Vegetation Factor is not significant.

2.3. Terrestrial Fauna

The assessment advice states that “five inactive Malleefowl mounds were recorded within the proposed disturbance footprint and would be removed as a result; of implementation of the proposal”. Due to the reduction in the pit footprint, direct impact to three of the inactive mounds will be avoided. In total, two Malleefowl inactive mounds will be directly impacted by the revised proposal.

SMC notes the advice from the OEPA that “Consistent with the Offset Guidelines (Government of WA 2014) impacts to species protected by statute are considered to be significant residual impacts that must be offset. Therefore, if it is considered that there is a significant residual impact to Malleefowl and *Idiosoma nigrum* this would require an offset.” and:

“The EPA should note in a recent EPA Report (Mt Gibson Range Mine Operations - Iron Hill Deposits) published on 18 July 2016, that although similar impacts were predicted for both of these species, the EPA concluded that the impacts were not significant and therefore didn’t consider Terrestrial Fauna to be a key environmental factor and offsets were not required.”

SMC notes that residual impacts to conservation significant species require an offset if the impacts are considered to be significant. Given the comparison the OEPA has made with the Mt Gibson Range Mine Operations - Iron Hill Deposits predicted impacts, SMC is of the view that the impacts are likewise not significant for the proposal, Terrestrial Fauna should not be a key environmental factor and offsets should not be required.

Based on the above, SMC is of the view that the impacts to the Terrestrial Fauna Factor is not significant.

2.4. Social Surroundings

Aboriginal Heritage

While the S18 Application identified a number of sites, these were registered on the Department of Aboriginal Affairs database at the time of the application. These sites were reassessed by the DIA and found not to be sites as defined under section 5 of the AHA. Consequently, consent to implement the Proposal (which included the development envelope) was given by the Minister for Aboriginal Affairs on 12 February 2016. The consent advised that the Purpose (Proposal) “*will not impact upon any Aboriginal sites on the Land within the meaning of section 5 of the AHA*”.

Given the above, the EPA should note that no Aboriginal sites exist with the Proposal area, including the development envelope.

Assessment of residual impacts

SMC notes the statement in the assessment advice that “Parks and Wildlife have advised that it is highly likely that the proposal would be noticeable if visual simulations were undertaken from viewpoints further north and west of those shown in the proponent’s PER”. The EPA should note that SMC chose the view locations, using Google Earth, which give the most exposure to the Proposal development. Viewpoints taken further to the north show less of the Proposal as high points in the ridge obscure the view of the Proposal, especially the MEE pit. SMC has consulted with DPaW regarding the location of future developments, however no details of planned development have been made available for SMC to consider.

SMC notes that statement that “The OEPA notes while there are likely to be some impacts to visual amenity following mining operations, the extent to which the associated waste rock landforms and infrastructure, and the cumulative impacts from the existing mining on Mungada Ridge, would be visible is subject to the success of the proponent’s proposed rehabilitation”. SMC also notes the statement that there is “uncertainty that the proponent can rehabilitate the waste rock dump to a standard that would maintain the aesthetic values of the area”.

SMC has already demonstrated that waste rock dumps can be formed to a standard that would maintain the aesthetic values of the area at Koolanooka. In addition, the BGPA have confirmed that BIF rehabilitation can be achieved.

With regard to the Amenity Factor, the Environmental Scoping Document specified the required work for the PER to:

“34. Characterise the current, and any other reasonably foreseeable, land uses and amenity values of the Mungada Ridge.

35. Design and undertake a visual impact assessment (VIA) for before, during and after the proposed mining activities, to assess the impacts of the proposal on visual amenity in accordance with the Western Australian Planning Commission (2007) Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design, and in consultation with Parks and Wildlife”.

It should be noted that there is very limited access to Mungada Ridge by the public due to legal restrictions from active mining and exploration activities and these restrictions will remain in place for the foreseeable future (decades).

SMC notes that the walk trail is conceptual and that no formal application has been made to develop the walk trail. Given that the walk trail is conceptual and hasn’t been referred formally, the development cannot be classified as reasonably foreseeable and therefore, should not be considered by the EPA in its assessment.

Further, the VIA has been carried in accordance with the WAPC Guidelines and peer reviewed. The VIA concluded that visual amenity from any viewpoints would not be significantly impacted by the proposal.

Conclusions

1. There are no Aboriginal sites within the Proposal area, including the development envelope;
2. The VIA assessment in the PER concludes that visual amenity from the proposed walk trail won’t be significantly impacted by the proposal;
3. As the potential walk trail has not been formally referred to Government, it can’t be considered as reasonably foreseeable and therefore should not be considered by the EPA; and
4. Studies undertaken by the BGPA have found that “Overall restoration outcomes for the Koolanooka TEC offset area and drill pad restoration at Blue Hills show that, assessed a few years after establishment, SMC have returned biodiverse systems comparable to the reference communities. This is the first demonstrated capacity to restore this level of

biodiversity in BIF across the resources sector”. Further, the BGPA has concluded “If best practice restoration is followed then there doesn’t appear to be any significant barriers to restoration over the first few years of restoration. With ongoing adaptive management programs, including threat mitigation and supplementary restoration works (plantings etc) then these biodiversity levels should be maintained”.

Based on the above, SMC is of the view that the impacts to the Social Surroundings Factor are not significant.

3. Department of Parks and Wildlife – Response to Submissions Advice

DPaW Advice	SMC Response
<p>The response to submission does not address the high level of importance and low level of protection afforded to BIF ranges, for conservation of biodiversity, the distribution of conservation values across ranges and the proposed impacts on the multiple values of Mungada Ridge.</p>	<p>The Response to Submissions addresses the comments directly. In any event, it is not within the scope of the PER (or RtS) to “address the high level of importance and low level of protection afforded to BIF ranges, for conservation of biodiversity, the distribution of conservation values across ranges”.</p>
<p>The cumulative residual impacts of the proposal on flora and vegetation, amenity, landform and current and future recreation and tourism values of the Mungada Ridge and 'Karara Complex' remain an issue.</p>	<p>The cumulative residual impacts to flora and vegetation have been addressed at length in the PER and RtS. The residual impacts have been calculated in great detail and updated in the RtS document. SMC has also proposed offsets for residual impacts to flora and vegetation, in particular <i>Acacia woodmaniorum</i>.</p> <p>SMC is of the view that the cumulative residual impact to Landform is not significant due to the</p>
<p>The proponent's reassessment of the threat category based on the revised proposal for the threatened flora <i>Acacia woodmaniorum</i> under the International Union for Conservation of Nature (IUCN) criteria does not:</p> <ul style="list-style-type: none"> • apply the threshold value for the endangered threat category correctly (i.e. the threshold value for endangered is —<5 locations); • consider the continuing decline on the habitat and / or mature individuals should the mine be approved in proximity to the residual population; and • consider the potential for ongoing mining and / or exploration (which has not been addressed or discounted).” 	<p>SMC advises the following:</p> <ul style="list-style-type: none"> • <i>Acacia woodmaniorum</i> is found at two locations (Blue Hills and Jasper Hills). This has been noted in the column “Assessment” in table 2 (Appendix 1 of the Response to Submissions, March 2017). The assessment criteria has been applied as ≤ 5 locations for the threshold value for the endangered criteria. Therefore the threshold value for the categorisation has been applied correctly and in an endangered classification of B2(a). However, for a classification of endangered, B2(b) and (c) must also be met, which they are not. It's not just one classified on only one criteria alone as all criteria must be met. This therefore is an error by DPaW in their assessment. • Continuing decline has been considered in the IUCN assessment. In order to meet the lowest criteria (vulnerable) for continuing decline, the population size reduction must reduce in size by ≥ 30% over 10 years or three generations. Taking into account that the total reduction in size of the <i>Acacia woodmaniorum</i> known population is 18.2%, this is well below the threshold to meet any of the criteria. It should be noted that the figure of 18.2% includes indirect impacts of 10% (a conservative estimate of predicted indirect impact) from mining on the residual population in close proximity to the mine pit. It

	<p>should also be noted that although 10% has been used to cover indirect impacts, the actual indirect impacts as measured by vegetation monitoring show that an indirect impact of 2% is more likely.</p> <ul style="list-style-type: none"> the potential for ongoing mining and / or exploration has been considered in the IUCN assessment. The assessment states that “Other than the Proposal, no other projected future decline is anticipated for <i>Acacia woodmaniorum</i>. As per the OEPA definition of reasonably foreseeable developments - no further proposals for mining of areas containing this species have been referred under Part IV of the EP Act or under any other decision making authority approvals. Therefore there are no projected future declines planned with a high degree of certainty that they will take place.” In any event, should any further mining or exploration be planned for Mungada Ridge, future proposals would be subject to assessment by the EPA and impacts to <i>Acacia woodmaniorum</i> would be protected by this process. <i>Acacia woodmaniorum</i> growing in disturbed and rehabilitated areas are fruiting and producing seed. There is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are potentially producing more seed in some disturbed areas than those in the undisturbed areas. This evidence shows that rehabilitation of <i>Acacia woodmaniorum</i> can sustain itself by reproduction and is not in danger of decline.
<p>On the information provided, it is difficult to determine if Priority flora and vegetation units proposed to be impacted by the proposal (in consideration of cumulative impacts) is likely to meet the criteria for listing as threatened and if so at what category</p>	<p>The PER (including appendices) and RtS provide very detailed data and information regarding priority flora and vegetation units. Given the detailed level of information provided, there should have been more than enough for DPaW to undertake an assessment to determine whether the criteria for listing as threatened would be met and if so, in what category.</p>
<p>The 'Karara Complex' pastoral lease acquisitions:</p> <ul style="list-style-type: none"> were identified under the Cabinet endorsed Gascoyne-Murchison Strategy and purchased using State and Commonwealth funds for inclusion in the State and National formal reserve system, which is a key strategy for the conservation of Western Australia's biodiversity; contain areas of highly significant and representative conservation values (biodiversity and landform), including Yilgarn Craton BIF ranges, that are affected by 	<p>SMC acknowledges the pastoral lease acquisitions and understands that the Karara Complex is important for conservation and tourism development.</p> <p>It should also be acknowledged that Mungada Ridge and other BIF ridges in the LAU and region are covered by mining and exploration leases. In the case of SMC's proposal, the area of development is covered by a mining lease and this is an important resource for the State Government.</p> <p>Given the former pastoral leases are currently managed by DPaW for conservation purposes, this provides a high level of protection for conservation values. For example,</p>

<p>a range of threatening processes, unrepresented or underrepresented in the current reserve system, and restricted to the former pastoral leases; and</p> <ul style="list-style-type: none"> • are managed by Parks and Wildlife for conservation and recreation, consistent with broader plans to develop and diversify tourism opportunities in the Midwest, including the 'Karara Complex'. 	<p>feral animals such as goats are controlled and this will provide a greater chance for rehabilitation to succeed.</p>
<p>Mungada Ridge is the subject of class A nature reserve recommendations by the EPA and Government, and is considered the last remaining and largely intact conservation significant BIF range in the Blue Hills / Mungada / Karara area, with no other BIF range in the area considered to be of similar scale, intactness or biodiversity value.</p>	<p>Although Mungada Ridge is the subject of class A nature reserve recommendations by the EPA, it is not by the State Government. As stated in RtS, the Governments position on creating a Class A nature reserve over Mungada Ridge is made clear in Appeal Number 107-254 of 2009 where the Minister for Environment stated that “the environmental values of the Mungada Ridge will be protected through <u>the Government’s intention to include part of the Ridge in a conservation reserve</u>.” Further, “The south-west cluster of ranges (i.e. Karara/Mungada/Blue Hills, Mt Gibson, Koolanooka) present significant environmental impact assessment challenges because of their biodiversity richness. The Karara/Mungada/Blue Hills range system represents the most outstanding of these ranges and is worthy of full protection, however, development planning and environmental assessment of Karara/Mungada/Blue Hills is well advanced. <u>Creation of a reserve category such as national park or Class A nature reserve over the entirety of this area at this stage would be inappropriate (notwithstanding that existing tenements would be honoured).</u>”</p>
<p>The information provided does not demonstrate that the proposed flora, vegetation and fauna management measures and rehabilitation prescriptions will be effective. These measures and prescriptions have not been fully developed and some are only at the research trial stage (for example irrigation of rehabilitated vegetation to facilitate survival and native vegetation to promote seed recovery to rectify the seed deficit).</p>	<p>BGPA research has found that “Overall restoration outcomes for the Koolanooka TEC offset area and drill pad restoration at Blue Hills show that, assessed a few years after establishment, SMC have returned biodiverse systems comparable to the reference communities. This is the first demonstrated capacity to restore this level of biodiversity in BIF across the resources sector”. Further, the BGPA has concluded “If best practice restoration is followed then there doesn’t appear to be any significant barriers to restoration over the first few years of restoration. With ongoing adaptive management programs, including threat mitigation and supplementary restoration works (plantings etc) then these biodiversity levels should be maintained”.</p> <p><i>Acacia woodmaniorum</i> growing in disturbed and rehabilitated areas are fruiting and producing seed. There is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are potentially producing more seed in some disturbed areas than those in the undisturbed areas.</p>
<p>Offsets are unlikely to satisfactorily mitigate the residual impacts of the proposal on the multiple values of Mungada Ridge. The proposed translocation offset to establish 1,739</p>	<p>BGPA research has found that “Overall restoration outcomes for the Koolanooka TEC offset area and drill pad restoration at Blue Hills show that, assessed a few years after</p>

<p>A. <i>woodmaniorum</i> individuals, is considered to be a high-risk strategy with low likelihood of success. To-date the successful long term survival of threatened species habitat and populations post mining on BIF has not been demonstrated. No offset is proposed to mitigate the residual impacts of the proposal on the landscape, recreation, tourism and amenity values.</p>	<p>establishment, SMC have returned biodiverse systems comparable to the reference communities. This is the first demonstrated capacity to restore this level of biodiversity in BIF across the resources sector". Further, the BGPA has concluded "If best practice restoration is followed then there doesn't appear to be any significant barriers to restoration over the first few years of restoration. With ongoing adaptive management programs, including threat mitigation and supplementary restoration works (plantings etc) then these biodiversity levels should be maintained".</p> <p><i>Acacia woodmaniorum</i> growing in disturbed and rehabilitated areas are fruiting and producing seed. There is a similar proportion of adult to juvenile plants as in the undisturbed areas and the plants are potentially producing more seed in some disturbed areas than those in the undisturbed areas.</p> <p>No offset is proposed to mitigate the residual impacts of the proposal on the landscape as SMC is of the view that a 2% residual impact on Mungada Ridge is not significant. No offset is proposed to mitigate the residual impacts of the proposal on recreation, tourism and amenity values as these are not reasonably foreseeable and the peer reviewed VIA shows that the Proposal will significantly affect amenity.</p>
<p>While the Department recognises the attempts the proponent has made to minimise some impacts and likely risk to conservation significant values, the capacity to suitably mitigate the proposed mining impacts on Mungada Ridge remains questionable. Mungada Ridge is the last remaining largely intact high conservation value BIF range in the Blue Hills / Mungada / Karara area and therefore the remainder is worthy of full protection</p>	<p>The mitigation undertaken by SMC has been significant and has resulted in significant impact reductions, especially to conservation significant flora. The changes to minimise impacts have resulted in reductions of up to 50% of the total number of plants directly impacted.</p> <p>Mungada Ridge is not the last remaining largely intact high conservation value BIF range in the Blue Hills / Mungada / Karara area. There many more BIF landforms in the Blue Hills / Mungada / Karara area that are fully intact and also support high conservation values. This is backed up by the detailed assessment in the PER Landform section. In any event, Mungada Ridge will retain its conservation values and remain largely intact.</p> <p>While Mungada Ridge has been purchased for the purpose of conservation, it should also be recognised that a Mining Lease exists over the ridge and accessing the mineral deposits are also important for the State.</p>

Appendix 1

Conservation Management Plan Outline

Appendix 2

Acacia woodmaniorum Assessment Report

Mungada Ridge, Disturbed and Undisturbed Areas

Appendix 3

Sinosteel Midwest Corporation

Practitioner Restoration Manual

Appendix 4

Botanic Gardens and Parks Authority

Comment on restoration activities and potential outcomes at
Blue Hills