

## **ADDITIONAL SUPPORTING INFORMATION REGARDING THE APPLICATION OF OFFSETS FOR THE OREBODY 31 IRON ORE MINE PROJECT REFERRAL**

The Orebody 31 Iron Ore Mine Project is the first BHP Billiton Iron Ore Pty Ltd (BHP Billiton Iron Ore) Proposal to be referred to the Environmental Protection Authority (EPA) following the release of the *Offsets Guideline* (WA Government, 2014). Prior to this, no other active BHP Billiton Iron Ore mine operation has been conditioned for offsets under a Ministerial Statement.

A BHP Billiton Iron Ore Offsets Strategy is currently being developed and will continue to develop throughout this year in parallel to the EPA's update of the *Offsets Guideline* 'to include further information on the use of metrics in determining offsets and on the determination and application of offsets for cumulative impacts' (WA Government, 2014 p. 3), through avenues such as established strategic working groups.

This correspondence has been compiled to:

- a) explain how BHP Billiton Iron Ore has completed the required Offsets Template for the Orebody 31 Iron Ore Mine Project; and
- b) explain work currently underway to answer the questions in the required *Offsets Template Form*. This work will be addressed within an *Impact Reconciliation Procedure* for the Orebody 31 Iron Ore Mine Project and will also be presented as necessary for discussion at strategic working group meetings.

### **Completed Offsets Template Form for the Orebody 31 Iron Ore Mine Project**

The required *Offsets Template Form* is completed and attached to this document. Following application of the Mitigation Hierarchy outlined in the *Offsets Guideline* (WA Government, 2014), BHP Billiton Iron Ore has reduced proposed native vegetation clearing down from 3,400 ha to 2,500 ha, representing a 25% reduction overall for the Orebody 31 Iron Ore Mine Project. This is represented as a line item in the attached *Offsets Template Form* and is consistent with the example provided in the *Offsets Guidelines* (WA Government, 2014). Of the remaining proposed 2,500 ha of native vegetation clearing, BHP Billiton Iron Ore has divided this into four types of 'clearing domains', which are consistent with how BHP Billiton Iron Ore currently reports annually on its native vegetation clearing across all its operations. These are:

- mine pits;
- Overburden Storage Areas (OSA);
- infrastructure (this includes, for example, haul roads, overland conveyors, ancillary facilities, water infrastructure, etc.); and
- topsoil stockpiles.

In the case of the Orebody 31 Iron Ore Mine Project Proposal, BHP Billiton Iron Ore understands that, in accordance with the *Offsets Guideline* (WA Government, 2014), offsets will be applied to the proposed clearing of 'Good-to-Excellent' vegetation.

Notwithstanding this, it is noted that BHP Billiton Iron Ore has been undertaking rehabilitation activities since the 1970's. Considerable work has been undertaken in recent years to compile and interpret rehabilitation monitoring data. The data indicates that several domains can be rehabilitated back to a comparable 'Good-to-Excellent' condition. At the appropriate time, BHP Billiton Iron Ore will present relevant information to the OEPA and other decision-making authorities.

BHP Billiton Iron Ore's view on its rehabilitation practices as listed in the attached completed *Offsets Template Form* for the Orebody 31 Iron Ore Mine Project is briefly explained below.

## **Orebody 31 Clearing Domains**

### Mine Pit – 778 ha

The 'worst-case' scenario modelled for the Orebody 31 Iron Ore Mine Project is that the mine pit will not be backfilled and will eventually become a lake. Therefore, BHP Billiton Iron Ore acknowledges that the mine pit will be subject to offsets based on the 'worst-case' modelled scenario.

### OSAs – 952 ha

Monitoring data to demonstrate success in rehabilitating OSAs back to 'Good-to-Excellent' at BHP Billiton Iron Ore operations is currently considered limited, however, is expected to become more widely available over coming years. Therefore, BHP Billiton Iron Ore acknowledges that clearing for the purposes of OSAs at the Orebody 31 Iron Ore Project Proposal will be subject to offsets, based on the limited amount of publically available data at the present time.

### Infrastructure – 520 ha and Topsoil stockpiles – 250 ha

BHP Billiton Iron Ore is currently reviewing and compiling a range of monitoring data which is expected to demonstrate that these clearing domains can be rehabilitated back to a comparable 'Good-to-Excellent' condition. At the time of submission of the Orebody 31 Iron Ore Mine Project Proposal, however, BHP Billiton Iron Ore acknowledges that clearing for these purposes will be subject to offsets, based on the limited amount of publically available data at the present time.

## **Continuous improvement in rehabilitation at BHP Billiton Iron Ore**

BHP Billiton Iron Ore acknowledges the journey it is currently on with regard to continuous improvement in rehabilitation. BHP Billiton Iron Ore believes that there are valuable opportunities available to showcase success in rehabilitating selected clearing domains back to a 'Good-to-Excellent' condition, thus reducing residual impacts as a result of native vegetation clearing in the Pilbara region in the future. These successes would provide learning and sharing opportunities across the industry to a range of proponents and we look forward to discussing these further at the appropriate time.

Orebody 31 Iron Ore Mine									
Existing environment/ Impact	Mitigation			Significant Residual Impact	Type	Risk	Offset Calculation Methodology		
	Avoid and minimise	Rehabilitation type					Likely offset success	Time Lag	Offset Quantification
3,420 hectares of clearing									
778 hectares of 'Good-to-Excellent' vegetation to be cleared - for a pit area	The worst-case scenario is that the mine pit will not be back-filled and will become a lake over time. However, the Proponent is committed to prioritising back-fill of the Orebody 31 mine pit or depleted mine pits at its adjacent operations (Orebody 18 Mine Hub) where practicable. Further investigations in relation to closure of the mine void are addressed through the Mine Closure Plan (current and future revisions).	Site specific rehabilitation approach based on ability to backfill.	<p><u>Can the environmental values be rehabilitated/Evidence?</u> No. Various closure scenarios are being investigated, however, worst case is that the depleted pit is likely to become a lake overtime and therefore not rehabilitated.</p> <p>The Proponent would like the EPA to note that there are comparable sites whereby mine batters and 'in-pit OSAs' have been successfully rehabilitated. The Proponent proposes to compile case-studies and present to the EPA as part of discussions via working strategy groups and/or in relation to future developments.</p>	<p><u>Extent</u> 778 hectares</p> <p><u>Quality</u> Three closure options are currently being modelled, these are no-backfill (pit lake), partial backfill (partial lake) and full-backfill to above water table level. These options are discussed further in the Mine Closure Plan. Based on the worst-case scenario, this area will become a pit-lake.</p> <p><u>Conservation Significance</u> Nil</p> <p><u>Land Tenure</u> unallocated crown land or pastoral</p> <p><u>Time Scale</u> To be determined via Mine Closure Planning process</p> <p><u>According to the agreed significance framework, residual impact is considered to be significant because:</u> 778 ha of 'Good-to-Excellent' vegetation in the Fortescue IBRA sub-region will be cleared and potentially (worst-case scenario) not rehabilitated.</p>	Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)	N/A	Suggested Ministerial Conditions are provided in the Orebody 31 Iron Ore Referral Supporting Document		\$1,500 per hectare of 'Good-to-Excellent' vegetation cleared within the Fortescue IBRA subregion.
952 hectares of 'Good-to-Excellent' vegetation to be cleared - for Overburden Storage Areas (OSAs)	Minimise clearing for OSAs through the progressive backfilling of depleted pits or adjacent depleted pits at the Orebody 18 Mine Hub wherever practicable.	Site specific rehabilitation approach.	<p><u>Can the environmental values be rehabilitated/Evidence?</u> Yes. BHP Billiton Iron Ore has seen recent successes in the rehabilitation of OSAs at various Pilbara operations, albeit limited data. Further information is contained within a memo attached to this spreadsheet.</p> <p>The Proponent would like the EPA to note that notwithstanding the currently limited data, the Proponent proposes to compile case-studies for presentation to the EPA via working strategy groups in relation to future developments as more data demonstrating rehabilitation success of OSAs becomes available.</p>	<p><u>Extent</u> 952 hectares</p> <p><u>Quality</u> The Proponent acknowledges that there is currently limited data available to demonstrate the quality of the the post-mining OSA to the pre-mining condition, however there have been some successes.</p> <p><u>Conservation Significance</u> A small area of <i>Acacia</i> sp. East Fortescue occurs within this domain.</p> <p><u>Land Tenure</u> unallocated crown land or pastoral</p> <p><u>Time Scale</u> Varying from site to site</p> <p><u>According to the agreed significance framework, residual impact is considered to be significant because:</u> 952 ha of 'Good-to-Excellent' vegetation in the Fortescue IBRA sub-region will be cleared and potentially not rehabilitated back to its pre-mining 'good-to-excellent' condition.</p>	Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)	N/A	Suggested Ministerial Conditions are provided in the Orebody 31 Iron Ore Referral Supporting Document		Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)
520 hectares of 'Good-to-Excellent' vegetation to be cleared - for haul road and overland conveyor (infrastructure) and ancillary facilities (including water infrastructure)	Avoid - designs are currently being reviewed to determine whether the proposed overland haul road can be moved north and tied in with an existing road from Orebody 17/18. This has the potential to reduce the current haul road design from eight kilometres down to three kilometres.  Avoid - constructing new ancillary infrastructure and instead, utilising existing infrastructure such as workshops, offices, etc. at adjacent Orebody 17/18.	520 hectares rehabilitated back to a comparable 'Good-to-Excellent' condition	<p><u>Can the environmental values be rehabilitated/Evidence?</u> Yes. BHP Billiton Iron Ore has successes in rehabilitating a range of low-impact disturbances of a comparable nature and timeframe at various Pilbara operations. Further information is contained within a memo attached to this spreadsheet.</p> <p><u>Operator experience in undertaking rehabilitation?</u> Yes, please refer to the memo attached to this spreadsheet.</p> <p><u>What is the type of vegetation being rehabilitated?</u> Hummock and Tussock Grassland frequenting with <i>Acacia</i>.</p> <p><u>Time lag?</u> 12 years post closure.</p> <p><u>Credibility of the rehabilitation proposed (evidence of demonstrated success)</u> Please refer to the memo attached to this spreadsheet for discussion and a brief overview of recent successes in the rehabilitation of comparable low impact clearing. The Proponent would like the EPA to note that extensive rehabilitation monitoring data is currently being compiled to demonstrate the credibility of its rehabilitation. The Proponent proposes to compile case studies for presentation to the EPA in future.</p>	<p><u>Extent</u> 520 hectares</p> <p><u>Quality</u> The Proponent has had successes in rehabilitating 'low impact' clearing disturbance back to a similar pre-mining condition.</p> <p><u>Conservation Significance</u> Nil</p> <p><u>Land Tenure</u> unallocated crown land or pastoral</p> <p><u>Time Scale</u> 12 post closure</p> <p><u>According to the agreed significance framework, residual impact may not be considered to be significant because:</u> 520 ha of 'Good-to-Excellent' vegetation in the Fortescue IBRA sub-region will be cleared and based on recent comparable successes, it could potentially be rehabilitated back to a comparable pre-mining condition.</p>	Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)	N/A	Suggested Ministerial Conditions are provided in the Orebody 31 Iron Ore Referral Supporting Document		Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)
250 hectares to be cleared - for topsoil stockpiling		250 hectares rehabilitated back to a comparable 'Good-to-Excellent' condition	<p><u>Can the environmental values be rehabilitated/Evidence?</u> Yes. BHP Billiton Iron Ore has successes in rehabilitating a range of low-impact disturbances of a comparable nature and timeframe at various Pilbara operations. Further information is contained within a memo attached to this spreadsheet.</p> <p><u>Operator experience in undertaking rehabilitation?</u> Yes, please refer to the memo attached to this spreadsheet.</p> <p><u>What is the type of vegetation being rehabilitated?</u> Hummock and Tussock Grassland frequenting with <i>Acacia</i>.</p> <p><u>Time lag?</u> 12 years post closure.</p> <p><u>Credibility of the rehabilitation proposed (evidence of demonstrated success)</u> Please refer to the memo attached to this spreadsheet for discussion and a brief overview of recent successes in the rehabilitation of comparable low impact clearing. The Proponent would like the EPA to note that extensive rehabilitation monitoring data is currently being compiled to demonstrate the credibility of its rehabilitation. The Proponent proposes to compile case studies for presentation to the EPA in future.</p>	<p><u>Extent</u> 250 hectares</p> <p><u>Quality</u> The Proponent has had successes in rehabilitating 'low impact' clearing disturbance back to a similar pre-mining condition.</p> <p><u>Conservation Significance</u> Nil</p> <p><u>Land Tenure</u> unallocated crown land or pastoral</p> <p><u>Time Scale</u> 12 years post closure.</p> <p><u>According to the agreed significance framework, residual impact may not be considered to be significant because:</u> 250 ha of 'Good-to-Excellent' vegetation in the Fortescue IBRA sub-region will be cleared and based on recent comparable successes, it may potentially be rehabilitated back to a comparable pre-mining condition.</p>	Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)	N/A	Suggested Ministerial Conditions are provided in the Orebody 31 Iron Ore Referral Supporting Document		Offsets as per the <i>Offset Guidelines</i> (Western Australian Government, 2014)
920 hectares of 'Good-to-Excellent' vegetation containing: - a new species of <i>Acacia</i> sp. Nov - records of <i>Rhagodia</i> sp. - two large populations of <i>Triodia</i> sp. and - an extensive area of native vegetation classified as being in 'Excellent' condition.	The Proponent has committed to avoiding impacts on these recordings by implementing the Mitigation Hierarchy as illustrated within the <i>Offsets Guideline</i> (WA Government, 2014) and reducing the Proposal Development Envelope and proposed clearing down from 3,420 (February 2014) to 2,500 ha (November 2014)	N/A	N/A	None - no longer an impact					