SOUTH32
Worsley Alumina

Worsley Mine Development
CONTINUING OPERATIONS

FACT SHEET – FLORA AND VEGETATION **2022**

The **objective** for this component of the environmental review is to **protect flora** and **vegetation** so that **biological diversity** and **ecological integrity are maintained**.

INTRODUCTION

South32 Worsley Alumina is an integrated bauxite mining and alumina refining operation in the South West of Western Australia with a proud track record spanning more than 35 years.

The Worsley Mine Development is the next phase of bauxite mining, providing access to future reserves and resources to sustain production at our Worsley Alumina refinery near Collie.

The project is a key enabler for Worsley Alumina to continue to deliver benefits to the Peel and South West regions, and Western Australia more broadly, for many years to come.

The project is currently subject to a State and Commonwealth environmental approvals process, with a comprehensive environmental review undertaken and an eight-week public review period.

BACKGROUND

The project is located within the Jarrah Forest bioregion and Northern Jarrah Forest subregion as described by the Interim Biogeographic Regionalisation for Australia (IBRA).

The Northern Jarrah Forest subregion is characterised by Jarrah-Marri forest on laterite gravels, and in the eastern part, by woodlands of Wandoo-Marri on clayey soils (Williams and Mitchell, 2001). The two areas of the project, the Boddington Bauxite Mine (BBM) and the Refinery, occur in different components of the Northern Jarrah Forest subregion. The Refinery is in the more mesic southwestern portion in State Forest, with the BBM located to the central east of the subregion in the drier zone within the highly disturbed agricultural region.

The Primary Assessment Area (PAA) includes native, rehabilitated and plantation vegetation, as well as cleared areas (e.g. agriculture and mining) and water bodies (e.g. dams and the Hotham and Williams Rivers). Approximately 44% of the PAA is covered by native vegetation of varying condition with cleared areas (including agriculture and mining) accounting for approximately 43% with other land uses covering the remaining areas, such as urban development and plantations.

FOREST DISEASE AND WEEDS

The PAA has been surveyed for disease, including dieback (Phytophthora cinnamomi) and Australian honey fungus (Armillaria luteobubalina) and weeds to ensure appropriate mine planning can be undertaken in terms of the proposed clearing and soil management. This will assist with containing and minimising the spread of disease or weeds into uninfected areas.

REHABILITATION

Worsley Alumina maintains a progressive rehabilitation program for disturbed areas and has completed a total of 3,200 ha (as at 2019) of rehabilitation since operations commenced in the 1980s (54% of the total mined area). Of the proposed disturbance as a result of the project, approximately 80% will be rehabilitated in the short-term post-mining, with the remaining areas due to be rehabilitated over the longer term (>20 years) as they are required for long term infrastructure i.e. roads, conveyors. Worsley Alumina commit to reducing the rehabilitation deficit to <35% over a 10 year period.

Rehabilitated areas are subject to a rigorous long-term monitoring program over a period of 30 years. Continuous improvements in rehabilitation have been made since the program commenced in 1986. The rehabilitation program is supported by focused research involving in-house trials, field studies and utilising experts from a range of research providers including universities, consultants and industry partners. The propagation and return of recalcitrant flora species, including the conservation significant species Gastrolobium sp. Prostrate Boddington (Priority 1) within rehabilitation areas forms a major component of research and an essential part of the rehabilitation program as it aims to maximise floristic diversity of rehabilitated areas.

POTENTIAL IMPACTS

The project will directly impact flora and vegetation through clearing of land for mining operations and supporting infrastructure.

The project will result in the direct loss of up to 4,399 ha of native vegetation within the PAA, which equates to approximately 34% of the remnant vegetation within the PAA and 14% in the wider mapped area.

The impact of vegetation clearing has been considered at a local scale, with reference to the site vegetation types mapped within the PAA, and at a regional level using the vegetation complex mapping for the Southwest Forest extent.

MITIGATION

Revision of clearing requirements during the assessment have been incorporated into the project. This has resulted in a decrease of native vegetation clearing requirements from 7,119.5 ha to 4,399 ha (avoidance of 2,720.5 ha).

Furthermore, although the location of additional infrastructure is partially constrained by existing infrastructure, landforms, and the location of the ore body; existing areas of disturbance such as cleared and agricultural areas have been prioritised, representing approximately 2,000 ha of the proposed disturbance.

Clearing associated with the project has been designed to avoid, wherever practicable, areas of high environmental value as defined in the Worsley Alumina Protected Areas Plan (PAP). These Protected Areas include Threatened (i.e. Caladenia hopperiana) flora, Priority Ecological Communities (PEC), old growth forest and riparian management buffer zones. The PAP is reviewed regularly to ensure any species listing changes under the EPBC Act, BC Act or DBCA lists are considered. The PAP is incorporated into Worsley Alumina's mine planning process. In addition, Protection Commitment Areas will be protected in accordance with the Protected Areas Plan. The plan provides for additional areas of Threatened Ecological Communities (TEC), PEC's and affiliated PEC heath habitat to be protected, as well as high quality Wandoo habitat.

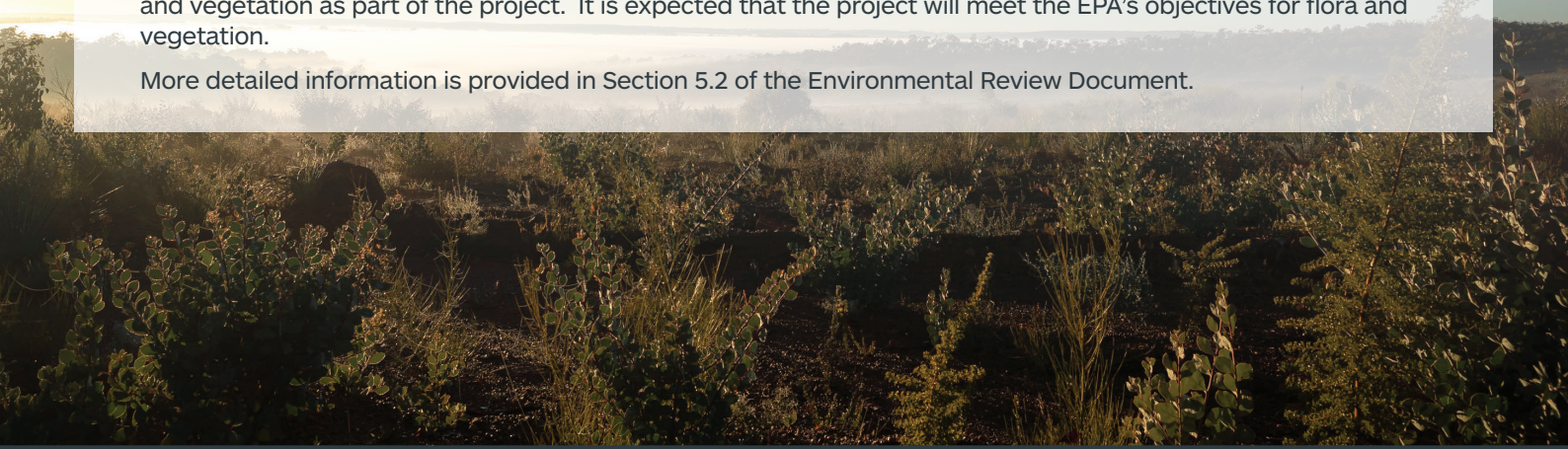
Comprehensive internal procedures regarding vegetation clearing, hygiene management and rehabilitation have been in place and implemented for the project for many years. These procedures will continue to be implemented for this project. Many expansion elements will be designed on existing cleared areas and future pit development areas to avoid unnecessary clearing where practicable. Worsley Alumina proposes to manage and mitigate potential impacts to flora and vegetation through the implementation of a Biodiversity and Forest Management Plan (BFMP), the overarching purpose which is to describe the strategies and procedures that are implemented to minimise the impact and risk of bauxite mining and transport activities to biodiversity. The principles of the mitigation hierarchy are employed in the BFMP by taking a proactive approach to avoid impacts to biodiversity during mine planning, implementing control measures in the construction and operational stages, rehabilitation after the completion of mining and offset where appropriate. The BFMP has been developed in consultation with, and reviewed by, DBCA as part of the DBCA/Worsley Working Arrangements.

PREDICTED OUTCOME

With the exception of vegetation clearing, residual impacts to flora and vegetation are generally equivalent to those associated with existing operating conditions.

Management and monitoring measures are well practiced and understood. Worsley Alumina will continue to mitigate the loss of remnant vegetation through progressive rehabilitation of State Forest and WJV areas disturbed by mining activities. The implementation of offsets for specific Matters of National Environmental Significance (MNES) terrestrial fauna species will be delivered through a net protection of native remnant flora and vegetation as part of the project. It is expected that the project will meet the EPA's objectives for flora and vegetation.

More detailed information is provided in Section 5.2 of the Environmental Review Document.



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