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Statement No.

000719

STATEMENT THAT A REVISED PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

WORSLEY ALUMINA – PRODUCTION TO MAXIMUM CAPACITY OF 4.4MTPA ALUMINA AND ASSOCIATED MINING

SHIRE OF BEVERLEY, SHIRE OF BODDINGTON, SHIRE OF BROOKTON SHIRE OF COLLIE, SHIRE OF HARVEY, SHIRE OF WANDERING AND SHIRE OF WILLIAMS

Proposal: To upgrade the Worsley alumina refinery in order to increase production to 4.4 million tonnes per annum (Mtpa).

Proponent: Worsley Alumina Pty Ltd

Proponent Address: PO Box 344
COLLIE WA 6225

Assessment Numbers: 984, 1526

Previous Statement Number: 423 (published on 2 July 1996)

Reports of the Environmental Protection Authority: Bulletins 823, 1209

The conditions and procedures of this statement supersede those conditions and procedures of statement 423 in accordance with section 45B of the *Environmental Protection Act 1986*.

A. REVISED PROPOSAL: REPORTS OF THE ENVIRONMENTAL PROTECTION AUTHORITY - BULLETINS 823 AND 1209.

The revised proposal to which the Reports of the Environmental Protection Authority – Bulletins 823 and 1209 relate may be implemented by the proponent subject to the following conditions and procedures that apply to all mining, construction and operation within and outside the Primary Bauxite Area:

Published on:

13 APR 2006

1 Implementation

1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Commitments

2-1 The proponent shall implement the environmental management commitments documented within schedule 2 of this statement.

3 Proponent Nomination and Contact Details

3-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the *Environmental Protection Act, 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.

3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.

3-3 The nominated proponent shall notify the Department of Environment of any change of contact name and address within 60 days of such change.

4 Commencement and Time Limit of Approval

4-1 The proponent shall substantially commence the proposal within five years of the date of this statement or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment will determine any dispute as to whether the proposal has been substantially commenced.

4-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment, prior to the expiration of the five-year period referred to in condition 4-1.

The application shall demonstrate that:

1. the environmental factors of the proposal have not changed significantly;
2. new, significant, environmental issues have not arisen; and
3. all relevant government authorities have been consulted.

Note: The Minister for the Environment may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

5 Compliance Audit and Performance Review

5-1 The proponent shall prepare an audit program. The aim of this audit program is to ensure that there is on-going compliance with this Ministerial Statement. The audit program shall include the following:

1. an audit table, which lists the implementation conditions and the proponent's commitments, and details how these will be met by listing the actions required, their objectives, details of how the actions/objectives will be achieved, and the relevant timeframes; and

2. details of any criteria and/or standards that will be used to measure compliance, and the rationale for their use.

5-2 The proponent shall submit compliance reports in accordance with the audit program approved by the Department of Environment and the compliance monitoring guidelines, and shall:

1. describe, or update, the status of implementation of the proposal;
2. provide verifiable evidence of compliance with the conditions, procedures and commitments;
3. review the effectiveness of corrective and preventative actions contained in the environmental management plans and programs;
4. provide verifiable evidence of the fulfilment of requirements specified in the environmental management plans and programs;
5. identify all confirmed non-conformities and non-compliances and describe the related corrective and preventative actions taken; and
6. identify potential non-conformities and non-compliances and provide evidence of how these are being assessed for corrective action

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environment is empowered to monitor the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

5-3 The proponent shall submit a performance review report every five years following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, which addresses:

1. the major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives;
2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best practicable measures available;
3. significant improvements gained in environmental management, including the use of external peer reviews;
4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
5. the proposed environmental objectives over the next five years, including improvements in technology and management processes.

5-4 The proponent may submit a report prepared by an independent auditor to the Chief Executive Officer of the Department of Environment on each condition or commitment of this statement which requires the preparation of a management plan, programme, strategy or system, stating whether the requirements of each condition or commitment have been fulfilled within the timeframe stated within each condition or commitment.

6 Greenhouse Gas Abatement

6-1 Prior to commencement of construction, the proponent shall prepare a Greenhouse Gas Emissions Management Plan to:

- ensure that through the use of best practice, the total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product from the project are minimised; and
- manage "greenhouse gas" emissions in accordance with the *Framework Convention on Climate Change, 1992*, and consistent with the National Greenhouse Strategy;

to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

This Plan shall include:

1. calculation of the "greenhouse gas" emissions associated with the proposal, as advised by the Environmental Protection Authority;

Note: The current requirements of the Environmental Protection Authority are set out in: *Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12* published by the Environmental Protection Authority (October 2002). This document may be updated or replaced from time to time.

2. specific measures to minimise the total net "greenhouse gas" emissions and/or the "greenhouse gas" emissions per unit of product associated with the proposal using a combination of "no regrets" and "beyond no regrets" measures;

   Note: The following definitions apply:

   1. "no regrets" measures are those which can be implemented by a proponent and which are effectively cost-neutral.
   2. "beyond no regrets" measures are those which can be implemented by a proponent and which involve additional costs that are not expected to be recovered.

3. estimation of the "greenhouse gas" efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing a similar product, both within Australia and overseas;
4. actions for the monitoring and annual reporting of "greenhouse gas" emissions and emission reduction strategies;
5. a target set by the proponent for the reduction of total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product and as a percentage of total emissions over time, and annual reporting of progress made in achieving this target. Consideration should be given to the use of renewable energy sources such as solar, wind or hydro power;
6. consideration by the proponent of entry (whether on a project-specific basis, company-wide arrangement or within an industrial grouping, as appropriate) into the Commonwealth Government's "Greenhouse Challenge" voluntary cooperative agreement program. Components of the agreement program include:

   - an inventory of emissions;
   - opportunities for abating "greenhouse gas" emissions in the organisation;
   - a "greenhouse gas" mitigation action plan;
   - regular monitoring and reporting of performance; and
   - independent performance verification.

6-2 The proponent shall implement the Greenhouse Gas Emissions Management Plan required by condition 6-1.

6-3 Prior to the commencement of construction, the proponent shall make the Greenhouse Gas Emissions Management Plan required by condition 6-1 publicly available.

7 Decommissioning

7-1 Within twelve months following the commencement of construction, the proponent shall prepare a Preliminary Decommissioning Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The Preliminary Decommissioning Plan shall provide the framework to ensure that the site is left in an environmentally acceptable condition.

The Preliminary Decommissioning Plan shall address:

1. the rationale for the siting and design of plant and infrastructure as relevant to environmental protection, and conceptual plans for the removal or, if appropriate, retention of plant and infrastructure;
2. the long-term management of ground and surface water systems affected by the refinery, coal stockpiles, waste disposal areas, and associated infrastructure;
3. a conceptual rehabilitation plan for all disturbed areas and a description of a process to agree on the end land use(s) with all stakeholders;
4. a conceptual plan for a care and maintenance phase; and
5. management of potentially polluting materials to avoid the creation of contaminated areas.

7-2 At least 12 months prior to the anticipated date of decommissioning, or at a time agreed with the Environmental Protection Authority, the proponent shall prepare a Final Decommissioning Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The objective of the Final Decommissioning Plan is to ensure that the site is left in an environmentally acceptable condition.

The Final Decommissioning Plan shall address:

1. the removal or, if appropriate, retention of plant and infrastructure in consultation with relevant stakeholders;
2. the long-term management of ground and surface water systems affected by the refinery, coal stockpiles, waste disposal areas, and associated infrastructure;
3. rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and
4. identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.

7-3 The proponent shall implement the Final Decommissioning Plan required by condition 7-2 until such time as the Minister for the Environment determines, on advice of the Environmental Protection Authority, that the proponent's decommissioning responsibilities are complete.

7-4 The proponent shall make the Final Decommissioning Plan required by condition 7-2 publicly available.

B. REVISED PROPOSAL: REPORT OF THE ENVIRONMENTAL PROTECTION AUTHORITY - BULLETIN 1209.

The revised proposal that relates to the Report of the Environmental Protection Authority - Bulletin 1209 may be implemented by the proponent subject to the following further conditions and procedures that apply to:

- upgrades and modifications to the Worsley alumina refinery;
- operations at the Worsley alumina refinery;
- mining outside the Primary Bauxite Area as shown in Figure 2; and
- construction of additional bauxite transport corridors outside of the Primary Bauxite Area.

8 Biodiversity-Related Investigations

8-1 The proponent shall prepare a draft Scope of Biodiversity-related Investigations document which encompasses those areas within the proposed new mining areas, shown in Figure 2 of schedule 1, and sufficient surrounding area to provide for information on regional context.

The draft Scope of Biodiversity-related Investigations shall include investigation of the following matters:

1. the occurrence and spatial extent of floristic and vegetation communities at local and regional scale;
2. the condition of floristic and vegetation communities identified in Item 1 above;
3. the occurrence and spatial extent of Threatened Ecological Communities (TECs), including nominated TECs;
4. the occurrence and extent of Declared Rare and Priority Flora pursuant to the *Wildlife Conservation Act 1950* and other Priority Flora as identified in the database maintained by the Department of Conservation and Land Management;
5. the role and significance of ecological linkages;
6. the occurrence, severity and spatial extent of forest disease and the potential for the spread of forest disease;
7. characterisation of landform;
8. the identification and spatial extent of fauna habitat, including specifically, habitat for Threatened, Priority listed and other significant Fauna, and significant Short Range Endemic fauna, and other significant invertebrate taxa;

9. the occurrence and abundance of vertebrate fauna, including specifically, threatened fauna as defined in the *Wildlife Conservation Act 1950* or the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*; Priority fauna as defined and listed by the Department of Conservation and Land Management (CALM); obligate tree hollow nesting or roosting species; and species requiring specialised habitats or resources, including Honey Possums;
10. the occurrence and abundance of significant Short Range Endemic and other significant invertebrate taxa;
11. groundwater systems and the occurrence and distribution of groundwater-dependent ecosystems;
12. stream flow and quality, and stream-dependent ecosystems;
13. weed and pest severity status in State Forest; and
14. impacts of climate change.

8-2 The proponent shall, within twelve months following the formal authority issued to the decision-making authorities under section 45(7) of *the Environmental Protection Act 1986*, submit the draft Scope of Biodiversity-related Investigations document required by condition 8-1 for review to:

1. the Department of Conservation and Land Management;
2. the Conservation Commission of Western Australia;
3. the Environmental Management Liaison Group (refer Procedure 5); and
4. the Stakeholder Consultation Group (refer Procedure 6).

8-3 The proponent shall, within eighteen months following the formal authority issued to the decision-making authorities under section 45(7) of *the Environmental Protection Act 1986*, submit a revised Scope of Biodiversity-related Investigations document, taking into account all comments and recommendations (if any) received under condition 8-2, to the Minister for the Environment for endorsement on the advice of the Environmental Protection Authority, the Department of Conservation and Land Management and the Conservation Commission of Western Australia.

8-4 The proponent shall make the endorsed Scope of Biodiversity-related Investigations document referred to in condition 8-3 publicly available.

8-5 The proponent shall conduct biodiversity-related investigations in accordance with the endorsed Scope of Biodiversity-related Investigations document referred to in condition 8-3.

8-6 Prior to the lodgement of Bauxite Mining Plans (refer condition 11-1) and the commencement of ground-disturbing activities (including mining and transport corridor construction activities), the proponent shall prepare and submit a Biodiversity-related Investigations Report to the Minister for the Environment for endorsement on the advice of the Environmental Protection Authority, the Department of Conservation and Land Management and the Conservation Commission of Western Australia which details the results of biodiversity-related investigations conducted as required by condition 8-5.

The Biodiversity-related Investigations Report shall include the following:

1. written certification that the endorsed Scope of Biodiversity-related Investigations document is complete;
2. key biodiversity values to be protected;
3. indicators, parameters or criteria to be used in measuring maintenance of the key biodiversity values identified, and ongoing monitoring requirements;
4. outcomes and findings for each of the matters investigated, including those matters identified in condition 6-3;
5. surveyed plans detailing the ecological linkages and the proposed areas of zero disturbance;
6. the proposed areas of zero disturbance; and
7. defined buffer areas around ecological linkages and areas of zero disturbance.

8-7 The proponent shall make the Biodiversity-related Investigations Report required by condition 8-6 publicly available.

9 Protection of Biodiversity

9-1 The proponent shall not, unless otherwise approved by the Minister for the Environment on advice of the Environmental Protection Authority and the Department of Conservation and Land Management, implement the proposal so as to cause or contribute to the direct or indirect disturbance of the following:

1. vegetation complexes (as mapped for the Regional Forest Agreement) which have less than 30% of their pre-European extent remaining;
2. Threatened Ecological Communities (TECs) as identified in the Biodiversity-related Investigations Report;
3. heathland as identified in the Biodiversity-related Investigations Report;
4. granite outcrops as identified in the Biodiversity-related Investigations Report;
5. other naturally rare or restricted floristic communities, vegetation or ecological communities and key ecological linkages identified in the Biodiversity-related Investigations Report;

6. Declared Rare Flora, unless the disturbance is approved under the *Wildlife Conservation Act 1950*;

7. Significant populations of Priority Flora identified in the Biodiversity-related Investigations Report;

8. significant areas of habitat for Threatened, Priority listed and other significant fauna, significant Short Range Endemic fauna, and other significant invertebrate taxa identified in the Biodiversity-related Investigations Report;

9. stream zones in accordance with the Department of Environment Guidance for protection of sensitive water bodies, except for the construction and operation of stream crossings for haul roads, service roads, transport corridors, mine water supply and other infrastructure; and

10. other important conservation values and habitats identified in the Biodiversity-related Investigations Report.

9-2 Without limiting condition 9-1, the proponent shall ensure that mining, transport corridor construction or operational activities do not cause or contribute to the following:

1. any significant adverse impact on any groundwater-dependent ecosystems identified by Biodiversity-related Investigations Report or lead to waterlogging of significant areas of dry land vegetation;

2. any increase in severity status of weeds or pests (as identified in the Biodiversity-related Investigations Report) in State Forest;

3. increased spread of forest disease outside areas identified as infected by the Biodiversity-related Investigations Report;

4. placing any species or ecological community into a higher category of threat (consistent with the expectations of the Forest Management Plan 2004 - 2013); and

5. causing disturbance in defined buffer areas around ecological linkage and areas of zero disturbance identified in the Biodiversity-related Investigations Report.

10 Transport Corridor Route Plans

10-1 Prior to the commencement of ground-disturbing activities (including mining and transport corridor construction activities) in any mining envelope (refer to Figure 2), the proponent shall prepare and submit a Transport Corridor Route Plan to the Minister for the Environment for endorsement on the advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

The Transport Corridor Route Plan shall:

1 describe the route, area of disturbance and evaluation of alternative routes considered for each proposed transport corridor; and

2 describe how the selected transport corridor route complies with the requirements of the Biodiversity-related Investigations Report and is in accordance with condition 9.

10-2 The proponent shall implement and comply with the Transport Corridor Route Plan required by condition 10-1.

10-3 The proponent shall make the Transport Corridor Route Plan required by condition 10-1 publicly available.

10-4 The Minister for the Environment may initiate a review and/or amendment of the endorsed Rehabilitation Plan referred to in condition 10-1.

11 Bauxite Mining Plans

11-1 At least 12 months prior to ground disturbing activities, the proponent shall prepare and submit a draft Bauxite Mining Plan to the Department of Environment, the Department of Conservation and Land Management, the Conservation Commission of Western Australia, the Environmental Management Liaison Group and the Stakeholder Consultation Group for review.

The draft Bauxite Mining Plan shall:

1. incorporate the findings contained in the Biodiversity-Related Investigations Report;
2. ensure that the areas for mining are consistent with the areas of zero disturbance, ecological linkages, and buffers identified in the Biodiversity-related Investigations Report, and take into account the location of indicative fauna habitat zones as identified and in accordance with the requirements of the Forest Management Plan 2004 - 2013;
3. set out the management and mitigation measures which will be undertaken to ensure that mining activities comply with conditions 9-1 and 9-2;
4. set out monitoring and auditing to be conducted prior to, during and following mining activities;
5. demonstrate how the proponent's implementation of the proposal protects the key biodiversity values identified in the Biodiversity-related Investigations Report and is in accordance with condition 9; and
6. address the objectives of the Forest Management Plan 2004 - 2013.

11-2 The proponent shall revise and submit the draft Bauxite Mining Plan, taking into account all comments and recommendations (if any) received under condition 11-1, to an independent Environmental Auditor chosen by the proponent (refer to Procedure 7) for review.

11-3 The proponent shall submit its response to review comments received under 11-1 together with the revised draft Bauxite Mining Plan and the report prepared by the Environmental Auditor (refer procedure 7) to the Department of Conservation and Land Management and the Department of Environment for review.

11-4 The proponent shall prepare a Final Bauxite Mining Plan, taking into account all comments and recommendations (if any) received from the independent Environmental Auditor referred in condition 11-2 and additional comments received under condition 11-3.

11-5 Prior to the commencement of ground-disturbing activities, the proponent shall submit the Final Bauxite Mining Plan and the report prepared by the independent Environmental Auditor (refer Procedure 7) to the Department of Environment and the Department of Conservation and Land Management who may advise the Minister for the Environment of any remaining deficiencies within the Bauxite Mine Plan in which case ground disturbing activities shall not commence until the Minister has made a determination.

11-6 The proponent shall implement and comply with the Final Bauxite Mining Plan.

11-7 The proponent shall make the Final Bauxite Mining Plan publicly available.

11-8 The proponent may revise and amend the Final Bauxite Mining Plan subject to the amended Final Bauxite Mining Plan undergoing review and revision as specified in conditions 11-1, 11-2 ,11-3, 11-4 and 11-5.

11-9 The Minister for the Environment may initiate a review and/or amendment of the Final Bauxite Mining Plan referred to in condition 11-6.

11-10 The proponent shall implement and comply with the amended Final Bauxite Mining Plan referred to in condition 11-6.

11-11 The proponent shall make the amended Final Bauxite Mining Plan referred to in condition 11-6 publicly available.

12 Rehabilitation

12-1 The proponent shall, within twelve months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, prepare and submit a draft Rehabilitation Plan for review to:

1. the Department of Conservation and Land Management;
2. the Conservation Commission of Western Australia;
3. the Environmental Management Liaison Group (refer Procedure 5); and
4. the Stakeholder Consultation Group (refer Procedure 6).

The objectives of the draft Rehabilitation Plan are to ensure that:

- rehabilitation research and trials are targeted to the key issues facing the rehabilitation of the proposed bauxite mine areas;
- planning and implementation of rehabilitation is carried out in a manner consistent with industry best practice;
- planning and implementation of rehabilitation is carried out in a manner consistent with relevant objectives and strategies in the Forest Management Plan 2004 - 2013;
- rehabilitated native vegetation in State Forest areas will ultimately develop into sustainable ecological systems which are compatible with surrounding native vegetation and its land uses, and approximates as closely as possible the pre-mining biodiversity and functional values;
- rehabilitated private land areas return to a mix of productive agricultural land and native vegetation compatible with the original native vegetation, which at least maintains the extent of the existing native vegetation and enhances ecological connectivity; and
- the matters identified in the report entitled, 'A Review of the Rehabilitation at Worsley Alumina's Boddington Bauxite Mine' prepared by URS Australia Pty Ltd relating to the assessment of ecosystem sustainability are given due consideration.

The draft Rehabilitation Plan shall address the following topics which are relevant to long term sustainable rehabilitation:

1. objectives for rehabilitation, including site specific variation, and objectives of the Forest Management Plan 2004 - 2013;
2. an outline of proposed rehabilitation research priorities;
3. conduct and application of research;
4. topsoil management;
5. targets for nutrient cycling;
6. pest and disease control and management;
7. targets for flora and fauna recruitment, including specific targets for:
    - the return of recalcitrant species;
    - the return of key fauna habitat;
    - the translocation of mature specimens of long-lived species required for fauna habitat (eg. Xanthorrhoea and Macrozamia);
    - the recolonisation of invertebrate fauna; and
    - the recolinisation of mycorrhizal fungi;
8. hydrological function;
9. climate change consideration;
10. integration with State Forest management;
11. monitoring and adaptive management;

12. plant species composition (including reference to the species listed in the report entitled, 'A Review of the Rehabilitation at Worsley Alumina's Boddington Bauxite Mine' prepared by URS Australia Pty Ltd), including species vulnerability to fire;

13. long term sustainability, including criteria for assessing ecosystem sustainability on natural and disturbed land;

14. completion criteria including an overall requirement that no extraordinary residual management liability (above the normal cost of managing undisturbed forest) shall accrue to the land management authority unless agreed by the State. Completion criteria should have an objective of achieving integration of the rehabilitation areas into large scale prescribed burning programs for the purpose of fire management prior to the hand-back of responsibility to the State; and

15. peer review and reporting.

12-2 The proponent shall, at least twelve months prior to commencement of ground disturbing activities (including mining and transport corridor construction), prepare and submit a final Rehabilitation Plan, taking into account all comments and recommendations (if any) received under condition 12-1, to the Minister for the Environment for endorsement on the advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

12-3 The proponent shall implement and comply with the endorsed Rehabilitation Plan referred to in condition 12-2.

12-4 The proponent shall make the endorsed Rehabilitation Plan referred to in condition 12-2 publicly available.

12-5 The proponent shall review the endorsed Rehabilitation Plan annually and present its findings in an Annual Environmental Report submitted to the Department of Environment.

The review shall include the following:

1. presentation of results of monitoring; and

2. plans for improvement in rehabilitation to meet objectives and targets where necessary.

12-6 The proponent may revise and amend the endorsed Rehabilitation Plan referred to in condition 12-2, in accordance with the review of condition 12-5 and subject to the amended Rehabilitation Plan undergoing review and revision as specified in conditions 12-1.

12-7 The Minister for the Environment may initiate a review and/or amendment of the endorsed Rehabilitation Plan referred to in condition 12-2.

12-8 The proponent shall submit the amended Rehabilitation Plan referred to in condition 12-6 to the Minister for the Environment for endorsement on the advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

12-9 The proponent shall implement and comply with the endorsed amended Rehabilitation Plan referred to in condition 12-7.

12-10 The proponent shall make the endorsed amended Rehabilitation Plan referred to in condition 12-7 publicly available.

13 Water Supply Protection

13-1 Prior to the commencement of any ground disturbing activities in areas proclaimed as water reserves or catchment areas under the *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* or under the *Country Areas Water Supply Act 1947*, the proponent shall prepare a Water Resource Management Plan to the requirements of the Minister for the Environment on advice of the Water and Rivers Commission and the Water Corporation.

The Water Resource Management Plan shall demonstrate that the ground disturbing activities shall have negligible impact on the quantity and quality of water supplies in the catchments.

13-2 The proponent shall implement and comply with the Water Resource Management Plan referred in condition 13-1.

13-3 The proponent shall make the Water Resource Management Plan referred in condition 13-1 publicly available.

14 Air Quality Management Plan

14-1 Prior to commencement of construction, the proponent shall prepare an Air Quality Management Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The objective of the Air Quality Management Plan is to ensure that best available practicable and efficient technologies are used to minimise and monitor air emissions from the refinery and bauxite residue disposal areas.

The Plan shall include:

1. an air quality improvement plan addressing priority areas. These will include mercury emissions from digestion and the coal-fired cogeneration facility, fugitive dust emissions from bauxite residue disposal areas, VOC emissions from calciners, a program for the Air Emissions Impact Assessment project, and community consultation;
2. the results of a field odour assessment study;

3. an assessment of odour from the refinery catchment lake;
4. an ambient air monitoring program;
5. an emissions monitoring program, which includes odour, mercury, particulate, and VOC emissions from significant point and area sources;
6. actions to control fugitive and point source particulate emissions;
7. incident and complaints response; and
8. a program for annual reporting on air quality.

14-2 The proponent shall implement the Air Quality Management Plan required by condition 14-1.

14-3 The proponent shall make the Air Quality Management Plan required by condition 14-1 publicly available.

Procedures

1. Where a condition states "to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment for the preparation of written advice to the proponent.

2. Where a condition states that a report, plan or program will be submitted to the Minister for the Environment for endorsement on the advice of the Environmental Protection Authority and the Department of Conservation and Land Management, the proponent shall seek the advice of the Environmental Protection Authority and the Department of Conservation and Land Management and provide that advice to the Department of Environment. The Department of Environment will then provide notice of that advice, along with other relevant information, to the Minister for the Environment for consideration of endorsement of the document. The endorsed document will form part of the implementation conditions.

3. Where a condition states that a report, plan or program will be submitted to the Minister for the Environment for endorsement on the advice of the Department of Conservation and Land Management and the Conservation Commission of Western Australia it is expected that these two agencies would prepare a co-ordinated response.

4. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment.

5. Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment.

6. The Environmental Management Liaison Group comprises representatives of state government agencies whose areas of responsibility are affected by the mining and refining operations of the proponent. The Environmental Management Liaison Group will comprise of officers of the Department of Industry and Resources, the Department of Environment, the Department of Conservation and Land Management and the Department of Agriculture.

   Note: Other agencies which may have areas of responsibility from time to time affected by the mining and refinery operations of the proponent may be involved in providing advice or become members of the Environmental Management Liaison Group.

   The Environmental Management Liaison Group shall have the following functions:

   - provide comment on the draft Scope of Biodiversity-related Investigations (refer condition 8-2);
   - provide comment on draft Rehabilitation Plan and revisions and amendments (refer conditions 12-1 and 12-6);
   - provide comment on the draft Bauxite MiningPlan(s) and revisions and amendments (refer conditions 11-1 and 11-6).;
   - review any 10 year rolling mine plans prepared by the proponent pursuant to clause 16 (10) of the *Alumina Refinery (Worsley) Agreement Act 1973*, and provide reports on its findings to the Minister for State Development and the Minister for the Environment; and
   - review the proponent's environmental performance annually against its Bauxite Mining Plan(s) and Rehabilitation Plan.

7. The Stakeholder Consultation Group will comprise members of the proponent's established community liaison committees or other consultative groups, non-government conservation organisation(s), relevant members of natural resource management groups within or adjoining proposed new mining areas, and relevant government agencies, including the Shire of Collie which have established research or related activities in or adjoining proposed new mining areas.

   The Stakeholder Consultation Group will have the following functions:

   - provide comment on the draft Scope of Biodiversity Investigations;
   - provide comment on the draft Rehabilitation Plan and revisions and amendments (refer conditions 12-1 and 12-6); and
   - provide comment on any draft Bauxite Mining Plan(s) and revisions and amendments (refer conditions 11-1 and 11-6).

8. The revised draft Bauxite Mining Plan will be reviewed by an independent accredited Environmental Auditor(s) (i.e. an individual currently certified/ accredited by RABQSA as a Lead Environmental Auditor or an individual currently certified as a Lead Environmental Auditor by an organisation accredited to ISI/IEC 17924 (by JAS-ANZ or a body recognised by JAS-ANZ) as follows:

(a) within one month of the proponent submitting a revised draft Bauxite Mining Plan to it, the Environmental Protection Authority will provide the proponent with a list of names of five independent Environmental Auditors to whom the proponent may submit a revised draft Bauxite Mining Plan;

(b) within one month of receiving a revised draft Bauxite Mining Plan, the independent Environmental Auditor shall prepare a draft report on whether, in its opinion, the Plan will comply with condition 9 (Protection of Biodiversity). The draft report should be submitted to the proponent for the proponent's consideration; and

(c) within one month of receiving a revised draft Bauxite Mining Plan, the Environmental Auditor will prepare a final report on whether, in its opinion, the Plan will comply with condition 9 (Protection of Biodiversity).

9. The proponent should undergo consultation as established within condition 11 (Bauxite Mine Plans) prior to making any application to the Minister for the Environment under condition 9 (Protection of Biodiversity).

Notes

1. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment over the fulfilment of the requirements of the conditions.

2. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

3. Within this statement, to "have in place" means to "prepare, document, implement and maintain for the duration of the proposal".

HON MARK McGOWAN MLA
MINISTER FOR THE ENVIRONMENT;
RACING AND GAMING

13 APR 2006

Schedule 1

The Proposal (Assessment No. 1526)

Worsley Alumina Pty Ltd proposes to upgrade the Worsley alumina refinery in order to increase production to 4.4 million tonnes per annum (Mtpa). The proposed production rate will require an increase in the rate of mining from 13.2 Mtpa (dry) to approximately 16.5 Mtpa (dry). In the long term, mining is proposed to extend into additional areas to those currently approved. The proposal will result in ground disturbance and progressive rehabilitation of approximately an additional 100 hectares per annum, situated in cleared farmland, remnant vegetation on farmland and within areas of State Forest.

The currently approved mining envelope is referred to as the Primary Bauxite Area (PBA). The PBA comprises the Saddleback, Marradong and Hotham North mining envelopes as shown in Figure 1. Currently mining only occurs within the Saddleback mining envelope. Mined bauxite is crushed in primary and secondary crushers at the Saddleback mine site and transported by the overland bauxite conveyor to the refinery (Figure 2).

The proposal is to expand the mining area to include the East Quindanning, Morgans, Hotham North Extension, Central and Brookton envelopes as shown in Figure 2. The total area of the proposed new mining envelopes is 75,016 hectares of which approximately 21% (15,950 hectares) has been designated as bauxite resource. The area delineated as bauxite resource that is within forested area is 12,803 hectares. Additional exploration and close-spaced drilling is required to determine the economic "proven" bauxite reserves in order to construct a detailed mine plan that will determine the actual areas and extent of clearing.

The proposed expansion of mining activities will require the installation of three additional primary crushers within the proposed mining envelopes and relocation within mining areas as bauxite mining is completed. The secondary crusher will remain at the Saddleback location but an additional crushed ore stockpile will be required to provide extra surge material to feed the overland bauxite conveyor.

The proposal includes the following additional bauxite transport corridors that may contain conveyors (Figure 2):

- extension of the bauxite conveyor from Saddleback to Marradong and Hotham North mining envelopes;
- 34km extension of a bauxite transport corridor from the Hotham North mining envelope which will cross both the Albany Highway and the Wandering-North Bannister Road;
- 16km bauxite transport corridor from the south east of the Central mining envelope to the Luptons mining envelope; and
- 28km bauxite transport corridor extension from the Central mining envelope to the Brookton mining envelope.

Indicative mine planning for the East Quindanning and Morgan mining envelopes to the south of the current mining operation has not been completed at this stage. However, bauxite transport options will include overland bauxite conveyor spurs in combination with haul truck transport.

The proposal includes the following upgrades to the refinery:

- an increase in bauxite feed and flow through the digestion;
- an expansion of separation and bauxite residue washing and filtration facilities;
- a new precipitation train and seed thickener;
- a new hydrate filtration building and an additional gas fired calciner; and
- a coal-fired cogeneration facility that will produce 350 tonnes of steam per hour (equivalent to 204 megawatts) and 35 megawatts of electrical power.

The proposal does not include any change to the footprint of the BRDA's. However, the deposition rate will increase from approximately 11.8Mtpa to 16Mtpa.

The main characteristics of the proposal are summarised in Table 1 below. A detailed description of the proposal is provided in Chapter 1 - Section 4 of the ERMP document (Strategen, 2005).

Table 1: Summary of key proposal characteristics

Element	Description
Bauxite-Alumina Project	
Alumina Production	4.4Mtpa.
Greenhouse gases	3.7Mtpa of CO_{2-e}.
Bauxite Mining[1]	
Mining areas	Refer to Figures 1 & 2.
Mining rate	Up to16.5Mtpa (dry).
Areas of disturbance to native vegetation: 1. Within Primary Bauxite Area (PBA) 2. Outside PBA (includes transport corridors)	1. Areas of bauxite reserves (unchanged) as specified in CER (1995) (refer Figure 2). 2. Up to 8,400 ha (refer Figure 2).
Water supply sources	Groundwater and surface water in the vicinity of mining areas.
Water usage (average)	500 ML/a on average
Crushing plant	4 primary crushers, 1 secondary crusher
Bauxite transport [2]	
Existing cable belt conveyor (location) Capacity Operation	Refer Figure 2 Increase to 3,200 tph Up to 140 hours per week (unchanged)
Extension of bauxite transport corridor within PBA from Saddleback to Hotham North Capacity Operation	Refer Figure 2 3500 tph Up to 140 hours per week
New transport corridor outside of PBA Preliminary alignment	Conventional idler-type conveyors and/or truck transport. Refer Figure 1
Refinery [3]	
Refinery lease area	2,500ha.
Operation	24 hours per day 365 days per year.
Digestion process area Emissions control	 Regenerative thermal oxidiser
Calciners - fuel Particulate emission control	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner
Liquor burner Emission control	 Baghouse, regenerative thermal oxidiser and wet scrubber
Bauxite stockpiles	1.92 Mt approximately
Power and steam raising facilities	
Existing gas fired cogeneration - capacity	120 MW
Existing coal fired facility - capacity Particulate emission control	110 MW (electrical) Electrostatic precipitators on three boilers
New coal fired boiler – nominal capacity Emissions control	35 MW (electrical), 204 MW thermal Baghouse and sulphur dioxide scrubber
New gas fired cogeneration (alternative) [4] – capacity	 120 MW
Bauxite Residue Disposal Areas	
Deposition rate Footprint and location	16Mtpa (wet) (no change to footprint of BRDA) Figure 3

Element	Description
Raw Water supply	
Sources Usage (average)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)
Air emissions	
Sulphur dioxide (SO_2) from coal fired facilities	Up to 12,220tpa.
Nitrogen oxides (NO_X) from combustion, liquor burner and calciner sources	Up to 6,890tpa.
Particulates from combustion, liquor burner and calciner sources	Up to 520tpa.
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 940tpa.
Total volatile organic compounds (VOCs) from all sources	Up to 270tpa.

Abbreviations

BRDA's	Bauxite residue disposal area
GL/a	1000 million litres per annum
ha	hectares
ML/a	million litres per annum
MW	million watts
Mt	million tonnes
Mtpa	million tones per annum
tpa	tones per annum
tph	tones per hour

Definitions

[1] **Bauxite mining:** includes all mining operations and related activities such as exploration, development and operation of haul roads, crushers, material handling facilities, water supply, electricity supply and mining related infrastructure, and mine site maintenance (clearing of regrowth around minesite infrastructure, clearing and re-shaping of previously cleared rehabilitated areas)

[2] **Bauxite transport:** includes construction of new overland bauxite conveyors (or other transport systems) from mining areas to the existing overland bauxite conveyor. Also includes transport corridor maintenance activities (clearing and removal of regrowth encroaching on corridor infrastructure, maintenance of corridor drainage system).

[3] **Worsley Refinery:** includes maintenance of the Refinery Lease Area (clearing and removal of regrowth vegetation encroaching on infrastructure within Lease Area, clearing and stabilisation of previously cleared rehabilitated areas).

[4] **New gas fired cogeneration:** alternative option to new coal fired boiler.

[5] **Mining activities:** include all mining operations and related activities such as haul roads, crushers, material handling, water supply, electricity supply and mining related infrastructure.

[6] **Transport Corridor Construction:** includes construction of new overland bauxite conveyors or other transportation systems from mining areas to the existing overland bauxite conveyor, refinery facility.

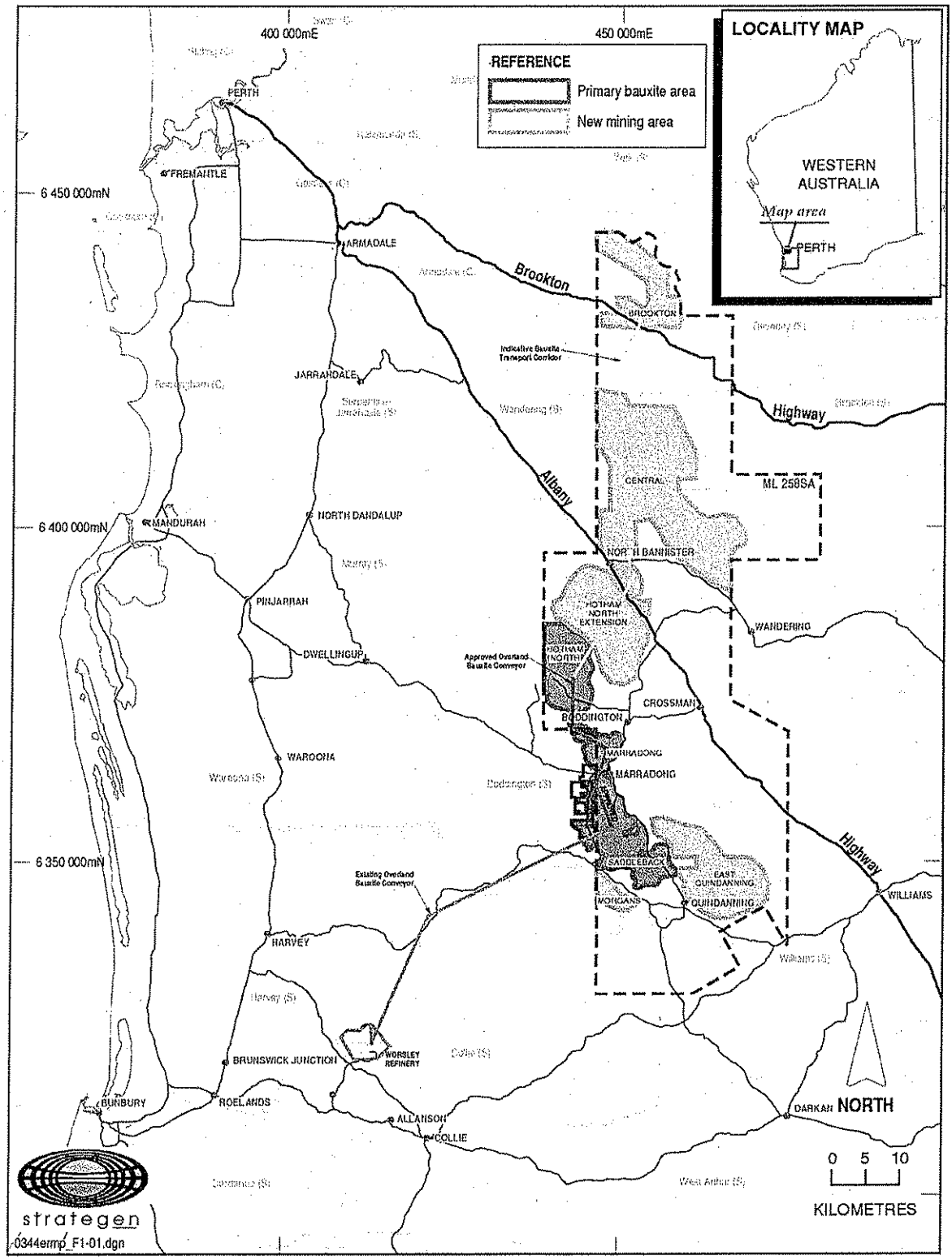

Figure 1: Regional location (Source: Figure 1.1 from Strategen, 2005)

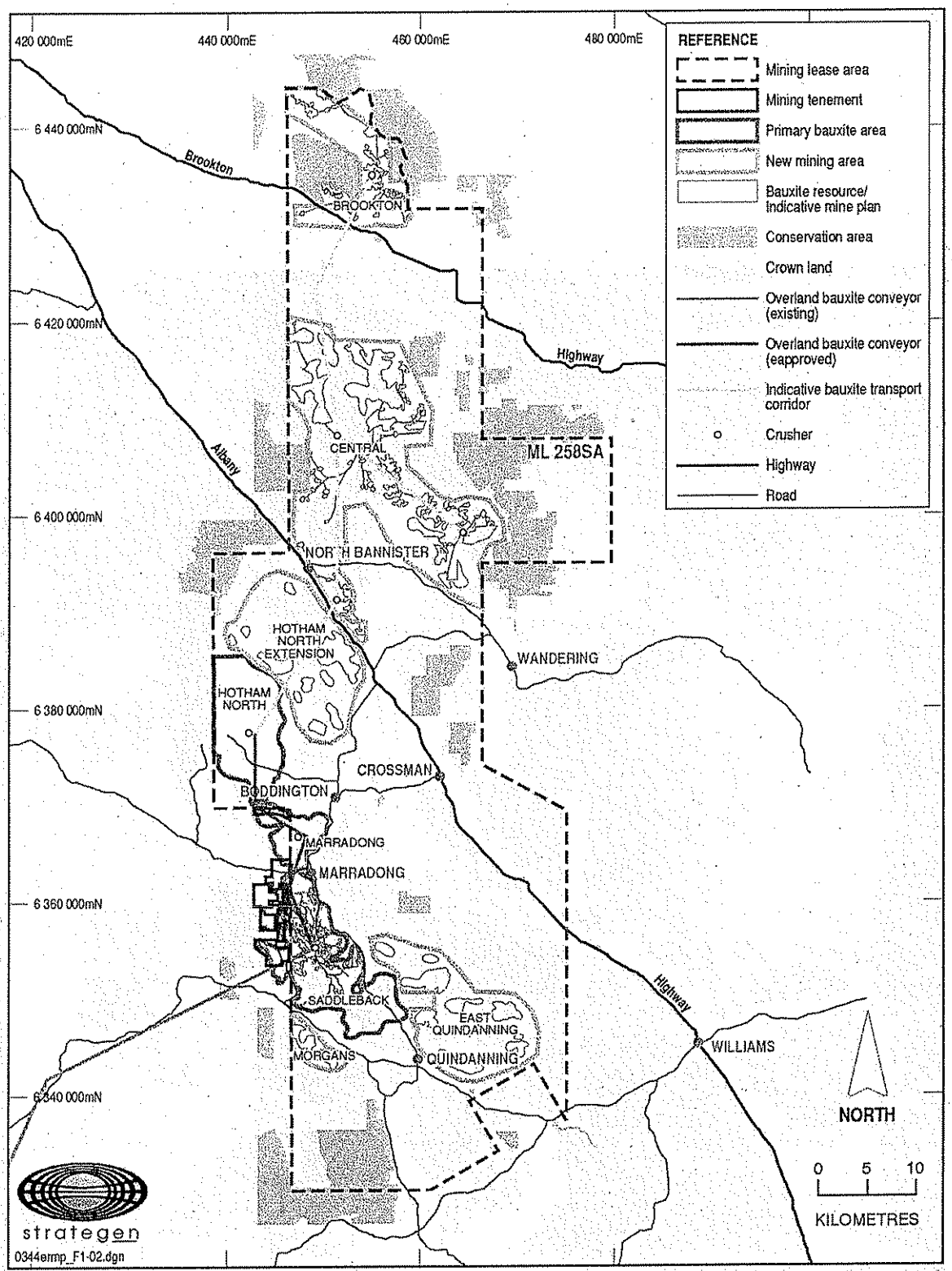

Figure 2: Existing and proposed mining envelopes (Source: Figure 1.3 from Strategen, 2005)

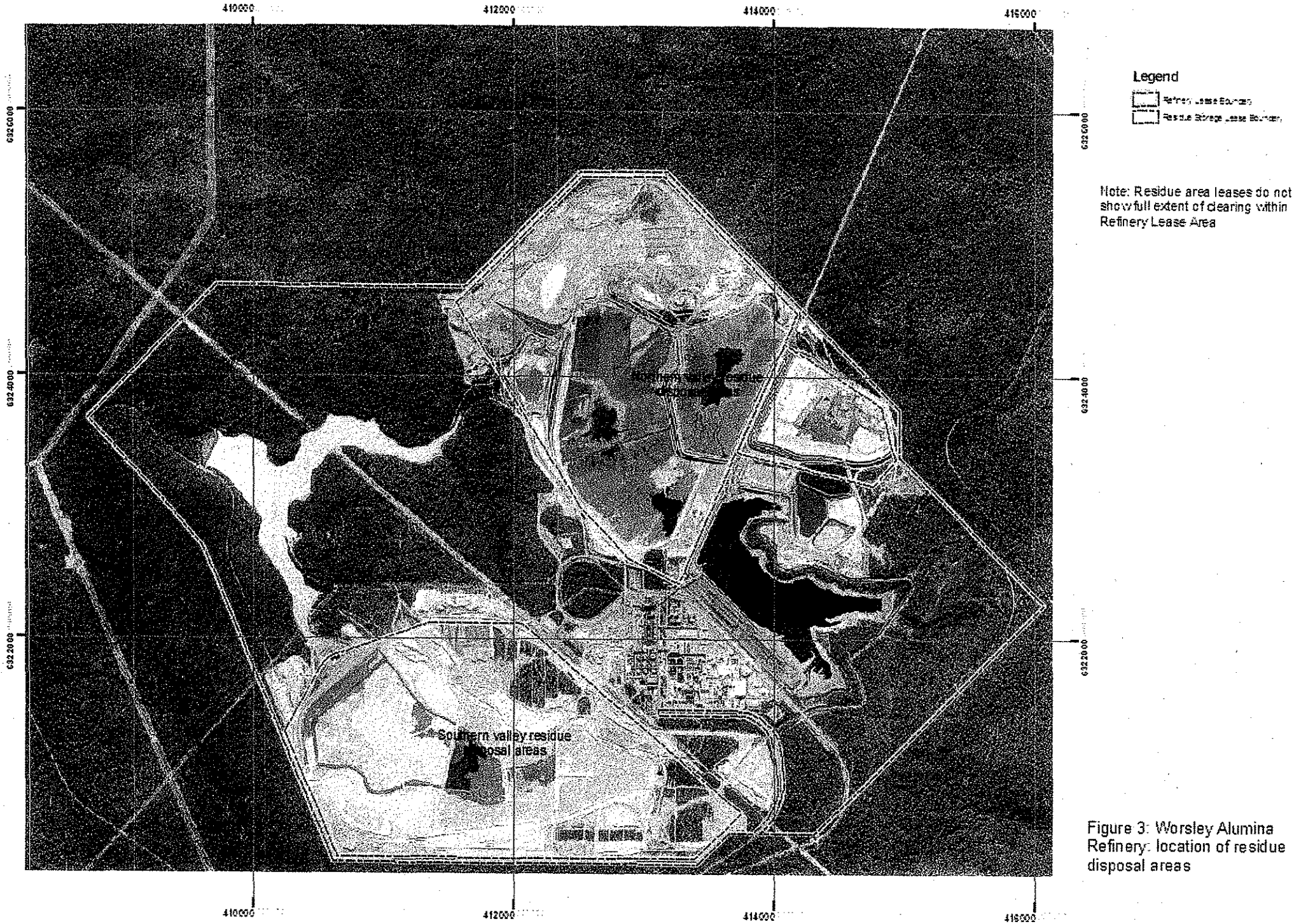

Figure 3: Worsley Alumina Refinery: location of residue disposal areas

Schedule 2

Proponent's Environmental Management Commitments

December 2005

WORSLEY ALUMINA - PRODUCTION TO MAXIMUM CAPACITY OF 4.4MTPA ALUMINA AND ASSOCIATED MINING

(Assessment No. 823 &1526)

Worsley Alumina Pty Ltd

Proponent's Environmental Management Commitments - December 2005

WORSLEY ALUMINA - EFFICIENCY AND GROWTH INCREASE OF EXISTING OPERATIONS TO 4.4MTPA ALUMINA PRODUCTION (Assessment No. 1526)

Note: The term "commitment" as used in this schedule includes the entire row of the table and its six separate parts as follows:

- a commitment number;
- a commitment topic;
- the objective of the commitment;
- the 'action' to be undertaken by the proponent;
- the timing requirements of the commitment; and
- the body/agency to provide technical advice to the Department of Environment.

Consolidated Management Commitments

Commitment Number	Topic	Objective	Action	Timing	Advice From
All mining areas, bauxite transport corridors and overland conveyors.					
1	Water Resources	To ensure that the environmental values of surface and groundwater resources are maintained and protected from adverse impacts of bauxite mining activities and construction of bauxite transport corridors.	Worsley will prepare and implement a Water Resource Management Plan – Mining which takes into account changing rainfall patterns and which will address the following: • assessment of salinity hazard and salt storage in soils in proposed mining areas; • development of predictive tools to estimate the extent of watertable rise due to mining operations; • monitoring of salinity and level of groundwater in and near mining areas; • monitoring of regional water quality (salinity) of streams and groundwater; • contingency measures for salinity management; • assessment of water dependent ecosystems in new mining areas; • a process for selection of water supplies for the mine, including the evaluation of alternatives;	Within 12 months of the formal issuance of this statement	EMLG/DoE

Commitment Number	Topic	Objective	Action	Timing	Advice From
			• improvement in the efficiency of water use; • monitoring of water usage, groundwater level and any groundwater dependent ecosystems which may be affected by Worsley's groundwater abstraction; • working arrangements for exploration and mining in public drinking water supply areas; • establishment of appropriate stream buffer zones; • spills management; and • sediment control and drainage management in all areas where Worsley operates.		
2	Dust	To comply with statutory requirements so that the amenity of nearby residences is protected form dust impacts resulting form bauxite mining activities and construction of bauxite transport corridors and operation of overland conveyors. To ensure that dust management techniques meets relevant best practice principles.	Worsley will prepare and implement a Dust Management Plan that addresses the following: • suppression of dust from the construction of bauxite transport corridors and operation of overland conveyors • suppression of dust in all areas where Worsley operates, including the use of additives to reduce water consumption where appropriate; • monitoring of dust levels at locations upwind and downwind of mining activities; and • monitoring of the impact of dust on vegetation adjoining haulroads and the development of measures to address any identified significant adverse impacts.	Within 12 months of the formal issuance of this statement	EMLG/DoE
3	Noise and Vibration	To comply with the statutory requirements so that the amenity of nearby residences is protected from noise impacts resulting from mining activities.	Worsley will prepare and implement a Noise and Vibration Management Plan – Mining, that will address the following: • forecasting of operational noise; • measures to ensure compliance with noise regulations. These will include mine planning and day to day noise forecasting; • measures to control noise emissions from mining equipment; • monitoring of operational and blast noise and vibration; • implementation of corrective and preventative actions where in-house targets are exceeded; • response to complaints; and • community consultation.	Within 12 months of the formal issuance of this statement	EMLG/DoE

Commitment Number	Topic	Objective	Action	Timing	Advice From
4	Offsets	To achieve a net environmental benefit as a result of land disturbance due to mining activities.	Worsley will prepare and implement an offsets program that addresses the following: 1. Establishing conservation areas: • provision of an area of land comparable to the area of State Forest disturbed in new mining areas for conservation by means of conservation covenants or agreements; • the timeframe for establishment of conservation areas in conjunction with Worsley's Ten Year Mine Plan. 2. Catchment and landscape enhancement for previously cleared land in the region: • provision of up to $100,000 pa for the duration of mining of private land, up to a maximum of ten years; • the timeframe for establishment catchment and landscape enhancement initiatives in conjunction with Worsley's Ten Year Mine Plan. 3. Specific management programs • identification and contribution to jarrah forest conservation initiatives including: • research and understanding of jarrah forest biodiversity values; • forest disease management; • flora and fauna conservation programs.	Prior to entering into new mining areas	EMLG

Commitment Number	Topic	Objective	Action	Timing	Advice From
Bauxite transport corridor					
5	Noise	Ensure noise emissions for the overland bauxite conveyor and proposed extension comply with statutory requirements (Agreement Act conditions)	Worsley will prepare and implement a Noise Management Plan – Bauxite Transport, which will address: • construction of bauxite transport corridors and operation of overland conveyors • the use of noise emissions modelling results in the siting of transport corridors; • monitoring of noise emissions from conveyor systems to demonstrate compliance with Agreement Act requirements; • corrective and preventative actions where in house targets are exceeded; • identification of potential noise sensitive premises; • community consultation; and • response to complaints.	Within 12 months of the formal issuance of this statement	EMLG/CALM

Primary Bauxite Area.					

6	Management of biodiversity, forest resources and rehabilitation in Primary Bauxite Area	To ensure biodiversity and sustainability of Eastern Darling Range forest ecosystems are maintained from adverse impact of Worsley's bauxite mining activities and construction of bauxite transport corridors and operation of overland conveyors.
		
		To minimise the risk of bauxite mining activities introducing or spreading jarrah dieback or other forest disease into areas of State and private forest.
		
		To ensure that rehabilitated areas of State Forest is timely, sustainable and meets completion criteria agreed by the State.
		
		To ensure that rehabilitation of mined areas on private property leaves the land in an environmentally stable and sustainable conditions and meets the requirements of the private property owner.
			Worsley will prepare and implement a Biodiversity and Forest Management Plan - Primary Bauxite Area that will address the following:
			
			1. Vegetation, flora and fauna:
			• a program of baseline flora and fauna surveys before mining to determine:
			  • the occurrence and extent of vegetation communities;
			  • the occurrence and extent of forest disease, and
			  • occurrence and abundance of vertebrate fauna, significant Short Range Endemic and other significant invertebrate taxa;
			• seasonal flora and fauna surveys in and adjoining mining areas;
			• weed and feral animals control. Programs;
			• forest hygiene procedures;
			• identification of areas of potentially high conservation values in the Primary Bauxite Area;
			• control measures to ensure that the biodiversity and sustainability of these areas will not be substantially adversely affected by mining and bauxite conveyors; and
			• creation of wildlife corridors and establishment of fauna habitat zones in consultation with the State.
				Within 12 months of the formal issuance of this statement	EMLG/CALM

			2. Rehabilitation: • description of the rehabilitation process; • a program of research to improve rehabilitation outcomes, in particular to encourage recruitment of recalcitrant or rare and priority flora and fauna species into rehabilitated areas; • monitoring of the establishment of flora and the recruitment of fauna species into rehabilitated areas • a process for progressive development of completion criteria; • the use of local provenance seed in rehabilitation; • the re-creation of fauna habitat in rehabilitation; and • rehabilitation of forest project areas affected by jarrah dieback caused by mining operations.		
Worsley Refinery					
7	Water resources	To ensure that the environmental values of surface and groundwater resources are maintained from adverse impacts of refinery operations.	Worsley will prepare and implement a Water resources management Plan – Refinery that takes into account changing rainfall patters and addresses: • Strategic water source planning • Improvement in the efficiency of water use at the refinery • Protection of water quality in the Augustus River, which is located downstream of the refinery • Maintenance of environmental water provisions • Surface and groundwater quality monitoring • Management and cleanup of spills and onsite contamination		

Key

EMLG: Environmental Management Liaison Group.
CALM: Department of Conservation and Land Management
DoE: Department of Environment

Attachment 1 to Statement 719

Change to Proposal

Proposal: Worsley Alumina 4.4 Mtpa Expansion Project.

Proponent: Worsley Alumina Pty Ltd.

Change: from a single coal fired boiler to two circulating fluidised bed co-generation boilers.

Amendment of Schedule 1 – Key Proposal Characteristics

Features of previously approved Proposal:

Element	**Description**
Power and steam raising facilities	Single coal fired boiler.
Nominal capacity:	35 MW (electrical). 204 MW (thermal).
Emissions control:	Baghouse and sulphur dioxide scrubber.
Emissions to Air (indicative)	
CO (combustion, liquor burner and calciner)	Up to 940 tonnes per annum.

Features of changed Proposal:

Element	**Quantities/Description**
Power and steam raising facilities	Two circulating fluidised bed multi-fuel co-generation boilers.
Nominal capacity:	100 MW (electrical). 342 MW (thermal).
Emissions control:	Limestone injection and baghouse filters.
Emissions to Air (indicative)	
CO (combustion, liquor burner and calciner)	Up to 970 tonnes per annum.

Approved under delegation from Minister for the Environment:

EPA Chairman

Approval Date: 26/10/07

Attachment 2 to Statement 719

Change to Proposal

Proposal: Worsley Alumina – Production to maximum capacity of 4.4 Mtpa Alumina and Associated Mining.

Proponent: Worsley Alumina Pty Ltd.

Change: To change the maximum capacity from 4.4 Mtpa alumina to 4.7 Mtpa.

Amendment of Schedule 1 – Key Proposal Characteristics

Features of previously approved Proposal:

Element	**Quantities/Description**
Bauxite–Alumina Project	
Alumina production	4.4 Mtpa
Greenhouse gases	3.7 Mtpa of CO_2
Bauxite mining	
Mining rate	Up to 16.5 Mtpa (dry.)
Bauxite Residue Disposal Areas	
Deposition rate, footprint and location	16 Mtpa (wet) (no change to footprint of BRDA) Figure 3.
Air Emissions	
Particulates from combustion, liquor burner and calciner sources	Up to 520 tpa
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 970 tpa
Total Volatile Organic Compounds (VOCs) from all sources	Up to 270 tpa

Features of changed Proposal:

Element	Quantities/Description
Bauxite–Alumina Project	
Alumina production	4.7 Mtpa
Greenhouse gas emissions	3.75 Mtpa of CO_2
Bauxite mining	
Mining rate	Up to 18.8 Mtpa (dry.)
Bauxite Residue Disposal Areas	
Deposition rate, footprint and location	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3.
Air Emissions	
Particulates (PM_{10}) from combustion, liquor burner and calciner sources	Up to 520 tpa
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 1010 tpa
Total Volatile Organic Compounds (VOCs) from all sources	Up to 300 tpa

Approved under delegation from Minister for the Environment:

Approval Date: 26.2.08

Attachment 3 to Statement 719

Changes to Proposal

Proposal: Worsley Alumina – Production to maximum capacity of 4.4 Mtpa Alumina and Associated Mining

Proponent: Worsley Alumina Pty Ltd

Change: Clearing of state forest for a lay down area for expansion related plant and equipment and further stockpiling of overburden material for construction of Bauxite Residue Disposal Areas in the Refinery Lease Area (RLA).

Amendment of Schedule 1 – Key Proposal Characteristics

Features of previously approved Proposal:

Element	**Quantities/Description**
Clearing within Refinery Lease Area	Not specified

Features of changed Proposal:

Element	**Quantities/Description**
Clearing within Refinery Lease Area	29 hectares

Approved under delegation
from Minister for the Environment:

Approval Date: 17.4.08

Attachment 4 to Statement 719

Changes to Proposal

Proposal: Worsley Alumina – Production to maximum capacity of 4.4 Mtpa Alumina and Associated Mining

Proponent: Worsley Alumina Pty Ltd

Change: Clearing of state forest in order to expand the freshwater lake at the bauxite refinery

Amendment of Schedule 1 – Key Proposal Characteristics

Features of previously approved Proposal:

Element	**Quantities/Description**
Clearing within Refinery Lease Area	none

Features of changed Proposal:

Element	**Quantities/Description**
Clearing within Refinery Lease Area	16.5 hectares

Approved under delegation
from Minister for the Environment:

Approval Date: 25.7.08

Attachment 5 to Statement 719

Change to Proposal

Proposal: Worsley Alumina – Production to Maximum Capacity of 4.4Mtpa Alumina and Associated Mining

Proponent: Worsley Alumina Pty Ltd

Change: Installation of an additional secondary crushing plant adjacent to the existing crushing facilities at Saddleback

Component	**Quantities/Description**
Crushing plant	4 primary crushers, 1 secondary crusher

Components of changed Proposal:

Component	**Quantities/Description**
Crushing plant	4 primary crushers, 2 secondary crushers

Dr Paul Vogel
Chairman
Environmental Protection Authority
under delegated authority

Approval date: 23.1.09

Attachment 6 to Ministerial Statement 719

Change to Proposal

Proposal: Worsley Alumina - Production to Maximum Capacity of 4.4 Mtpa Alumina and Associated Mining

Proponent: BHP Billiton Worsley Alumina Pty Ltd

Change: Change to conveyor operations

Key Characteristics Table:

Element	Description	Description of approved change to proposal
Bauxite-Alumina Project		
Alumina Production	4.4Mtpa.	4.7Mtpa (attachment 2)
Greenhouse gases	3.7Mtpa of $CO_{2-e.}$	3.75Mtpa of $CO_{2-e.}$ (attachment 2)
Bauxite Mining[1]		
Mining areas	Refer to Figures 1 & 2	No change
Mining rate	Approximately 16.5Mtpa (dry).	Up to 18.8Mtpa (dry)
Areas of disturbance to native vegetation: 1. Within Primary Bauxite Area (PBA) 2. Outside PBA (includes transport corridors)	 1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (refer Figure 2) 2. Up to 8,400 ha (refer Figure 2)	 No change No change
Water supply sources	Groundwater and surface water in the vicinity of mining areas.	No change
Water usage (average)	500 ML/a	No change
Crushing plant	4 primary crushers, 1 secondary crusher	4 primary crushers, 2 secondary crusher (attachment 5)
Bauxite transport[2]		
Existing cable belt conveyor (location) Capacity Operation	Refer to Figure 2 Increase to 3,200tpa. Up to 140 hours per week (unchanged).	 **Remove** **Remove (attachment 6)**
Extension of bauxite transport corridor within PBA from Saddleback to Hotham North Capacity Operation	Refer to Figure 2 Increase to 3,200tpa. Up to 140 hours per week (unchanged).	 **Remove** **Remove (attachment 6)**
New transport corridor outside of PBA Preliminary alignment	Conventional idler-type conveyors and/or truck transport. Refer figure 1	No change
Refinery[3]		
Refinery lease area	2,500ha	No change
Clearing within Refinery lease area (attachment 3 & 4)	Not specified	45.5 hectares (attachment 3 & 4)
Operation	24 hours per day 365 days per year	No change
Digestion process areas Emissions control	Regenerative thermal oxidiser	No change
Calciners – fuel Particulate emission control	Natural gas Electrostatic precipitators on five calciners, baghouse system on one	No change

	calciner	
Liquor burner Emission control	 Baghouse, regenerative thermal oxidiser and wet scrubber	No change
Bauxite stockpiles	1.92 Mt approximately	No change
Power and steam raising facilities		
Existing gas fired cogeneration - capacity	120 MW	No change
Existing coal fired facility – capacity Particulate emission control	110 MW (electrical) Electrostatic precipitators on three boilers	No change
New coal fired boiler - normal capacity Emission control	 35 MW (electrical) 240 MW (thermal) Baghouse and sulpher dioxide scrubber	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 342 MW (thermal) Limestone injection and baghouse filters (attachment 1)
New gas fired cogeneration (alternative) [4] – Capacity	 120 MW	 No change
Bauxite Residue Disposal Areas		
Deposition rate Footprint and location	16Mtpa (wet) (no change to footprint of BRDA) Figure 3	18.5Mtpa (wet) (no change to footprint of BRDA) Figure 3 (attachment 2)
Raw Water supply		
Sources Usage (average)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)	No change No change
Air emissions		
Sulphur dioxide (SO_2) from coal fired facilities	Up to 12,220tpa.	No change
Nitrogen oxides (NO_X) from combustion, liquor burner and calciner sources	Up to 6,890tpa.	No change
Particulates from combustion, liquor burner and calciner sources	Up to 520tpa.	Particulates (PM_{10}) from combustion, liquor burner and calciner sources (attachment 2)
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 940tpa.	Up to 970tpa (attachment 1) Up to 1010tpa (attachment 2)
Total volatile organic compounds (VOCs) from all sources	Up to 270tpa.	Up to 300tpa (attachment 2)

Abbreviations

BRDA's	Bauxite residue disposal area	MW	megawatts
GL/a	gigalitres per annum	Mt	megatonnes
ha	hectares	Mtpa	million tonnes per annum
ML/a	megalitres per annum	tpa	tonnes per annum

Dr Paul Vogel
CHAIRMAN
Environmental Protection Authority
under delegated authority

Approval date: 27 June 2011

Attachment 7 to Ministerial Statement 719

Change to Proposal

Proposal: Worsley Alumina - Production to Maximum Capacity of 4.4 Mtpa Alumina and Associated Mining

Proponent: BHP Billiton Worsley Alumina Pty Ltd

Change: Change to Sulphur dioxide and Carbon monoxide emissions

Key Characteristics Table:

Element	Description	Description of approved change to proposal
Bauxite-Alumina Project		
Alumina Production	4.7 Mtpa.	4.7Mtpa
Greenhouse gases	3.75 Mtpa of $CO_{2\text{-}e.}$	3.75Mtpa of $CO_{2\text{-}e.}$
Bauxite Mining[1]		
Mining areas	Refer to Figures 1 & 2	Refer to Figures 1 & 2
Mining rate	Approximately 18.8 Mtpa (dry).	Up to 18.8Mtpa (dry)
Areas of disturbance to native vegetation: 1. Within Primary Bauxite Area (PBA) 2. Outside PBA (includes transport corridors)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (refer Figure 2) 2. Up to 8,400 ha (refer Figure 2)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (refer Figure 2) 2. Up to 8,400 ha (refer Figure 2)
Water supply sources	Groundwater and surface water in the vicinity of mining areas.	Groundwater and surface water in the vicinity of mining areas.
Water usage (average)	500 ML/a	500 ML/a
Crushing plant	4 primary crushers, 2 secondary crushers	4 primary crushers, 2 secondary crushers
Bauxite transport[2]		
New transport corridor outside of PBA Preliminary alignment	Conventional idler-type conveyors and/or truck transport. Refer figure 1	Conventional idler-type conveyors and/or truck transport. Refer figure 1
Refinery[3]		
Refinery lease area	2,500ha	2,500ha
Clearing within Refinery lease area (attachment 3 & 4)	45.5 hectares	45.5 hectares
Operation	24 hours per day 365 days per year	**Removed as not environmentally significant**
Digestion process areas Emissions control	Regenerative thermal oxidiser	Regenerative thermal oxidiser
Calciners – fuel Particulate emission control	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner
Liquor burner Emission control	Baghouse, regenerative thermal oxidiser and wet scrubber	Baghouse, regenerative thermal oxidiser and wet scrubber
Bauxite stockpiles	1.92 Mt approximately	1.92 Mt approximately

Power and steam raising facilities		
Existing gas fired cogeneration - capacity	120 MW	120 MW
Existing coal fired facility – capacity Particulate emission control	110 MW (electrical) Electrostatic precipitators on three boilers	110 MW (electrical) Electrostatic precipitators on three boilers
New coal fired boiler - normal capacity Emission control	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 342 MW (thermal) Limestone injection and baghouse filters	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) **400 MW (thermal)** Limestone injection and baghouse filters
New gas fired cogeneration (alternative) [4] – Capacity	120 MW	120 MW
Bauxite Residue Disposal Areas		
Deposition rate Footprint and location	18.5Mtpa (wet) (no change to footprint of BRDA) Figure 3	18.5Mtpa (wet) (no change to footprint of BRDA) Figure 3
Raw Water supply		
Sources Usage (average)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)
Air emissions		
Sulphur dioxide (SO_2) from coal fired facilities	Up to 12,220tpa.	**Up to 13,370 tpa from combustion, liquor burner and calciner sources**
Nitrogen oxides (NO_X) from combustion, liquor burner and calciner sources	Up to 6,890tpa.	Up to 6,890tpa.
Particulates (PM_{10}) from combustion, liquor burner and calciner sources	Up to 520tpa.	Up to 520tpa.
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 1010tpa.	**Up to 1350 tpa**
Total volatile organic compounds (VOCs) from all sources	Up to 300tpa	Up to 300tpa

Abbreviations

BRDA's	Bauxite residue disposal area	MW	megawatts
GL/a	gigalitres per annum	Mt	megatonnes
ha	hectares	Mtpa	million tonnes per annum
ML/a	megalitres per annum	tpa	tonnes per annum

Dr Paul Vogel
CHAIRMAN
Environmental Protection Authority
under delegated authority

Approval date: 30 April 2012

Attachment 8 to Ministerial Statement 719

Change to proposal approved under section 45C of the
Environmental Protection Act 1986

This Attachment replaces Schedule 1 and 7 previous Attachments of Ministerial Statement 719

Proposal: Worsley Alumina - Production to Maximum Capacity of 4.4 Mtpa Alumina and Associated Mining
Proponent: South32 Worsley Alumina Pty Ltd

Changes:

- Increase in clearing within the Refinery Lease Area from 45.5 to 66.6 ha.

Table 1: Summary of the Proposal

Proposal Title	Worsley Alumina – Production to Maximum Capacity of 4.4MTPA Alumina and Associated Mining
Short Description	The upgrade of the Worsley alumina refinery in order to increase production to 4.4 million tonnes per annum (Mtpa)

Table 2: Location and authorised extent of physical and operational elements

Element	Description of approved proposal	Description of approved change to proposal
Bauxite-Alumina Project		
Alumina Production	4.7 Mtpa.	4.7 Mtpa
Greenhouse gases	3.75 Mtpa of $CO_{2\text{-e.}}$	3.75 Mtpa of $CO_{2\text{-e.}}$
Bauxite Mining		
Mining areas	Refer to Figures 1 & 2	Refer to Figures 1 & 2
Mining rate	Approximately 18.8 Mtpa (dry).	Up to 18.8 Mtpa (dry)
Areas of disturbance to native vegetation: 1. Within Primary Bauxite Area (PBA) 2. Outside PBA (includes transport corridors)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (refer Figure 2) 2. Up to 8,400 ha (refer Figure 2)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (refer Figure 2) 2. Up to 8,400 ha (refer Figure 2)
Water supply sources	Groundwater and surface water in the vicinity of mining areas.	Groundwater and surface water in the vicinity of mining areas.
Water usage (average)	500 ML/a	500 ML/a
Crushing plant	4 primary crushers, 2 secondary crushers	4 primary crushers, 2 secondary crushers
Bauxite transport		
New transport corridor outside of PBA Preliminary alignment	Conventional idler-type conveyors and/or truck transport. Refer figure 1	Conventional idler-type conveyors and/or truck transport. Refer figure 1
Refinery		
Refinery lease area	2,500 ha	2,500 ha
Clearing within Refinery lease area (attachment 3 & 4)	45.5 hectares	**66.6 hectares (Figure 3) (approved clearing area)**
Digestion process areas Emissions control	Regenerative thermal oxidiser	Regenerative thermal oxidiser
Calciners – fuel Particulate emission control	Natural gas	Natural gas

Element	Description of approved proposal	Description of approved change to proposal
	Electrostatic precipitators on five calciners, baghouse system on one calciner	Electrostatic precipitators on five calciners, baghouse system on one calciner
Liquor burner Emission control	Baghouse, regenerative thermal oxidiser and wet scrubber	Baghouse, regenerative thermal oxidiser and wet scrubber
Bauxite stockpiles	1.92 Mt approximately	1.92 Mt approximately
Power and steam raising facilities		
Existing gas fired cogeneration - capacity	120 MW	120 MW
Existing coal fired facility – capacity Particulate emission control	110 MW (electrical) Electrostatic precipitators on three boilers	110 MW (electrical) Electrostatic precipitators on three boilers
New coal fired boiler - normal capacity Emission control	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 400 MW (thermal) Limestone injection and baghouse filters	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 400 MW (thermal) Limestone injection and baghouse filters
New gas fired cogeneration (alternative) Capacity	120 MW	120 MW
Bauxite Residue Disposal Areas		
Deposition rate Footprint and location	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3
Raw Water supply		
Sources Usage (average)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)
Air emissions		
Sulphur dioxide (SO_2) from coal fired facilities	Up to 13,370 tpa from combustion, liquor burner and calciner sources	Up to 13,370 tpa from combustion, liquor burner and calciner sources
Nitrogen oxides (NO_X) from combustion, liquor burner and calciner sources	Up to 6,890 tpa.	Up to 6,890 tpa.
Particulates (PM_{10}) from combustion, liquor burner and calciner sources	Up to 520 tpa.	Up to 520 tpa.
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 1350 tpa.	Up to 1350 tpa
Total volatile organic compounds (VOCs) from all sources	Up to 300 tpa	Up to 300 tpa

Note: Text in **bold** in Table 2 indicates a change to the proposal.

Table 3: Abbreviations

Abbreviation	Term
PBA	Primary Bauxite Area
RLA	Refinery Lease Area
BDRA	Bauxite residue disposal area
GL/a	Gigalitres per annum
ha	hectares
ML/a	Megalitres per annum
MW	Megawatts
Mt	Megatonnes
Mtpa	Million tonnes per annum
tpa	tonnes per annum

Figures (attached)

Figure 1 Primary Bauxite Area and Refinery Lease Area
Figure 2 Mining Envelopes within the Primary Bauxite Area
Figure 3 Clearing Area within the Refinery Lease Area

Signed 15 April 2016

Dr Tom Hatton
CHAIRMAN
Environmental Protection Authority
under delegated authority

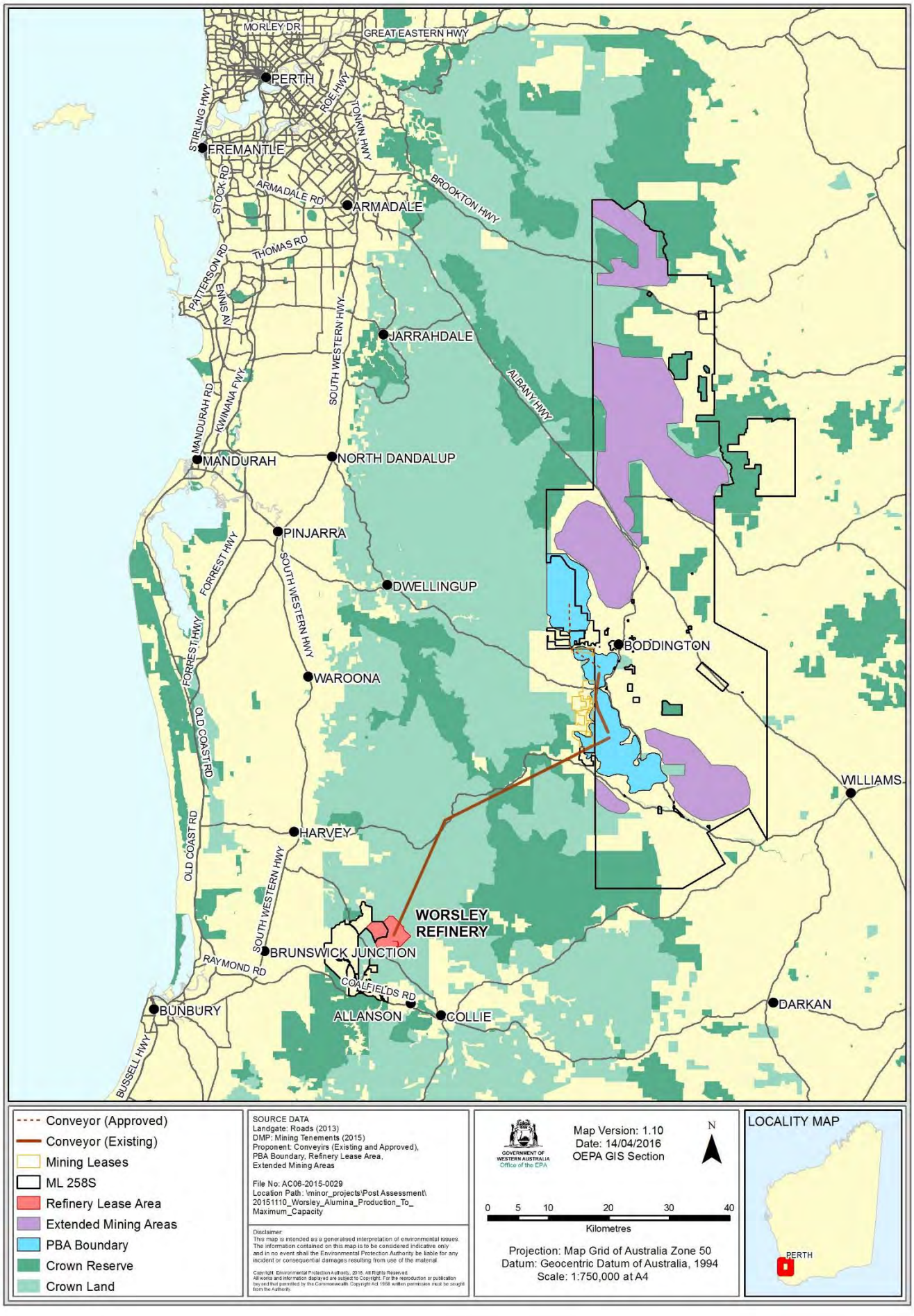

Figure 1: Primary Bauxite Area (PBA) and Refinery Lease Area (RLA)

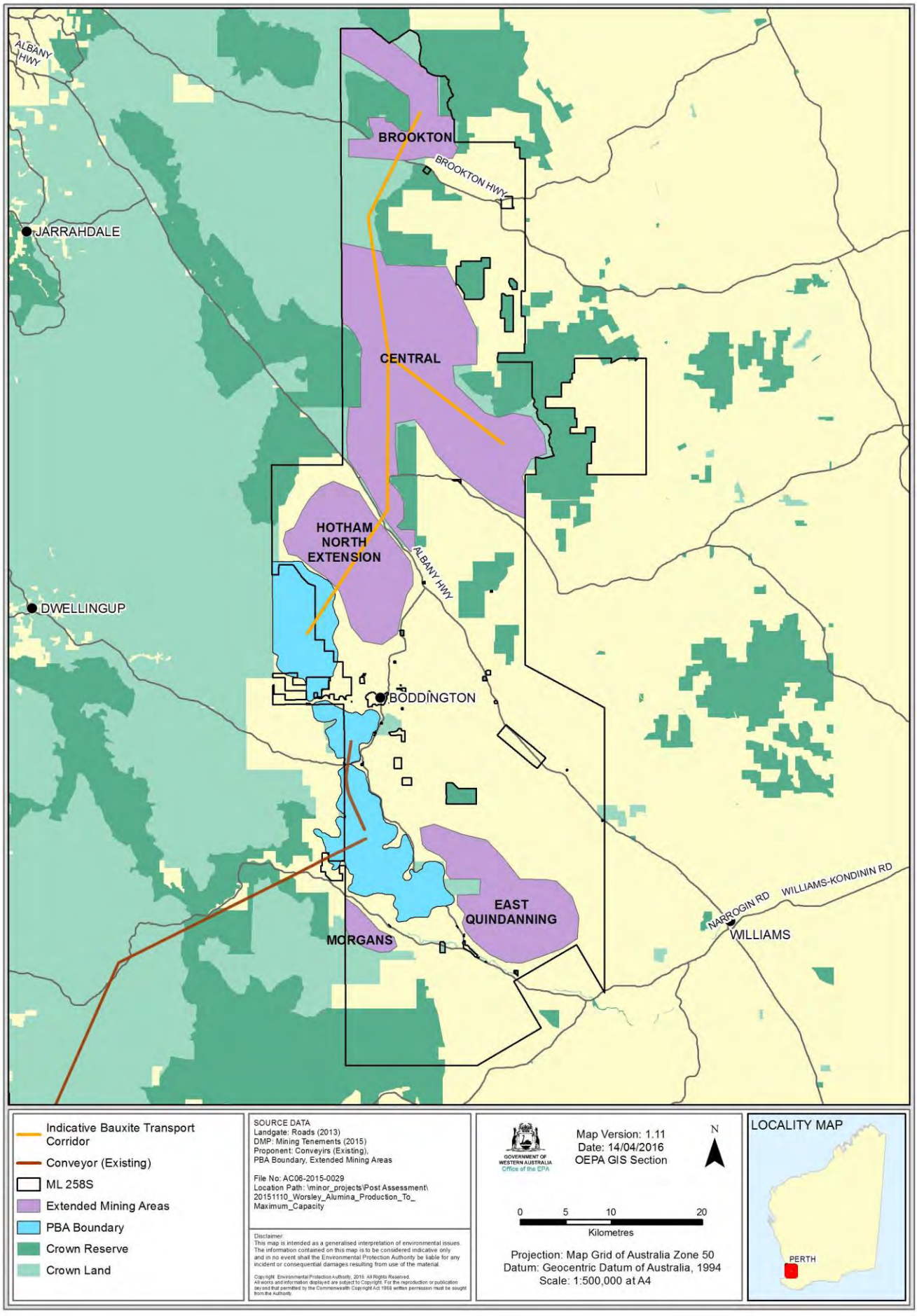

Figure 2: Mining Envelopes within the Primary Bauxite Area (PBA)

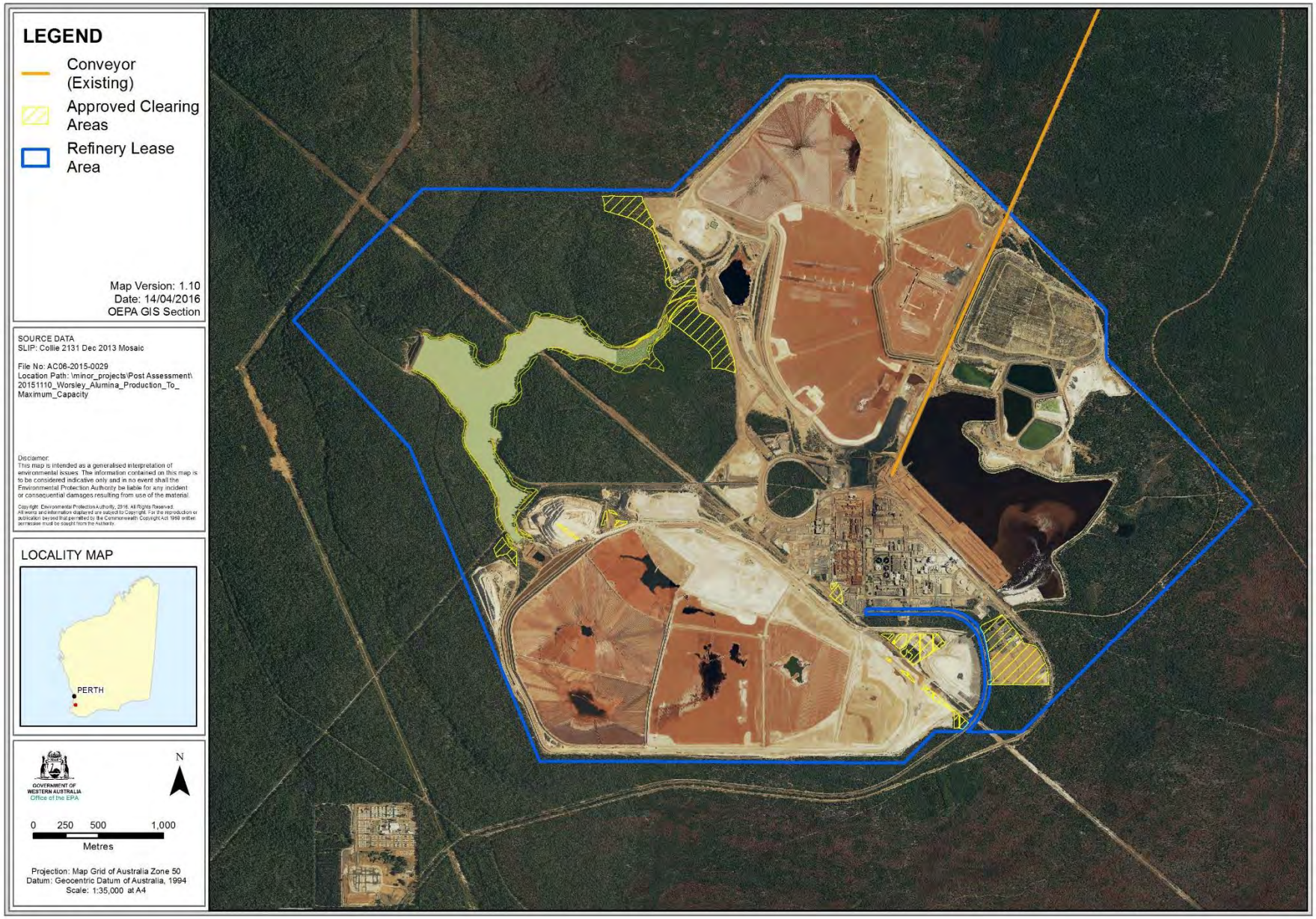

Figure 3: Clearing Area within the Refinery Lease Area (RLA)

Attachment 9 to Ministerial Statement 719

Change to proposal approved under section 45C of the
Environmental Protection Act 1986

This Attachment replaces Schedule 1 and Attachments 1 to 8 of Ministerial Statement 719

Proposal: Worsley Alumina - Production to Maximum Capacity of 4.4 Mtpa Alumina and Associated Mining

Proponent: South32 Worsley Alumina Pty Ltd

Changes:

- Construction of a temporary water supply pipeline and associated pumping infrastructure from Wellington Dam to the Worsley Refinery which requires clearing of up to 2 ha of undisturbed native vegetation and up to 6 ha previously disturbed native vegetation within Wellington National Park.

Table 1: Summary of the Proposal

Proposal Title	Worsley Alumina – Production to Maximum Capacity of 4.4MTPA Alumina and Associated Mining
Short Description	The upgrade of the Worsley alumina refinery in order to increase production to 4.4 million tonnes per annum (Mtpa)

Table 2: Location and authorised extent of physical and operational elements

Element	Description of approved proposal	Description of approved change to proposal
Bauxite-Alumina Project		
Alumina Production	4.7 Mtpa.	4.7 Mtpa
Greenhouse gases	3.75 Mtpa of $CO_{2\text{-e.}}$	3.75 Mtpa of $CO_{2\text{-e.}}$
Bauxite Mining		
Mining areas	Refer to Figures 1 & 2	Refer to Figures 1 & 2
Mining rate	Approximately 18.8 Mtpa (dry).	Up to 18.8 Mtpa (dry)
Areas of disturbance to native vegetation: 1. Within Primary Bauxite Area (PBA) 2. Outside PBA (includes transport corridors)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (Figure 2) 2. Up to 8,400 ha (Figure 2)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (Figure 2) 2. Up to 8,400 ha (Figure 2)
Water supply sources	Groundwater and surface water in the vicinity of mining areas.	Groundwater and surface water in the vicinity of mining areas.
Water usage (average)	500 ML/a	500 ML/a
Crushing plant	4 primary crushers, 2 secondary crushers	4 primary crushers, 2 secondary crushers
Bauxite transport		
New transport corridor outside of PBA Preliminary alignment	Conventional idler-type conveyors and/or truck transport (Figure 1)	Conventional idler-type conveyors and/or truck transport (Figure 1)
Refinery		
Refinery Lease Area (RLA)	2,500 ha	2,500 ha
Clearing within Wellington National Park	N/A	**Clearing of up to 8 ha for Wellington Dam Pipeline (Figure 4)**
Clearing within Refinery Lease Area (attachment 3 & 4)	66.6 hectares (Figure 3) (approved clearing area)	66.6 hectares (Figure 3) (approved clearing area)

Element	Description of approved proposal	Description of approved change to proposal
Digestion process areas Emissions control	Regenerative thermal oxidiser	Regenerative thermal oxidiser
Calciners – fuel Particulate emission control	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner
Liquor burner Emission control	Baghouse, regenerative thermal oxidiser and wet scrubber	Baghouse, regenerative thermal oxidiser and wet scrubber
Bauxite stockpiles	1.92 Mt approximately	1.92 Mt approximately
Power and steam raising facilities		
Existing gas fired cogeneration - capacity	120 MW	120 MW
Existing coal fired facility – capacity Particulate emission control	110 MW (electrical) Electrostatic precipitators on three boilers	110 MW (electrical) Electrostatic precipitators on three boilers
New coal fired boiler - normal capacity Emission control	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 400 MW (thermal) Limestone injection and baghouse filters	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 400 MW (thermal) Limestone injection and baghouse filters
New gas fired cogeneration (alternative) Capacity	120 MW	120 MW
Bauxite Residue Disposal Areas		
Deposition rate Footprint and location	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3
Raw Water supply		
Sources Usage (average)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)
Air emissions		
Sulphur dioxide (SO_2) from coal fired facilities	Up to 13,370 tpa from combustion, liquor burner and calciner sources	Up to 13,370 tpa from combustion, liquor burner and calciner sources
Nitrogen oxides (NO_X) from combustion, liquor burner and calciner sources	Up to 6,890 tpa.	Up to 6,890 tpa.
Particulates (PM_{10}) from combustion, liquor burner and calciner sources	Up to 520 tpa.	Up to 520 tpa.
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 1350 tpa.	Up to 1350 tpa
Total volatile organic compounds (VOCs) from all sources	Up to 300 tpa	Up to 300 tpa

Note: Text in **bold** in Table 2 indicates a change to the proposal.

Table 3: Abbreviations

Abbreviation	Term
PBA	Primary Bauxite Area
RLA	Refinery Lease Area
BDRA	Bauxite residue disposal area
GL/a	Gigalitres per annum
ha	hectares
ML/a	Megalitres per annum
MW	Megawatts
Mt	Megatonnes
Mtpa	Million tonnes per annum
tpa	tonnes per annum

Figures – All previous Figures are replaced by the following:

Figure 1 Primary Bauxite Area and Refinery Lease Area
Figure 2 Mining Envelopes within the Primary Bauxite Area
Figure 3 Clearing Area within the Refinery Lease Area
Figure 4 Indicative Wellington Dam Pipeline Corridor

Tables – Table 4 is inserted

Table 4 coordinates of Wellington Dam Pipeline

[Signed 30 November 2016]

Dr Tom Hatton
CHAIRMAN
Environmental Protection Authority
under delegated authority

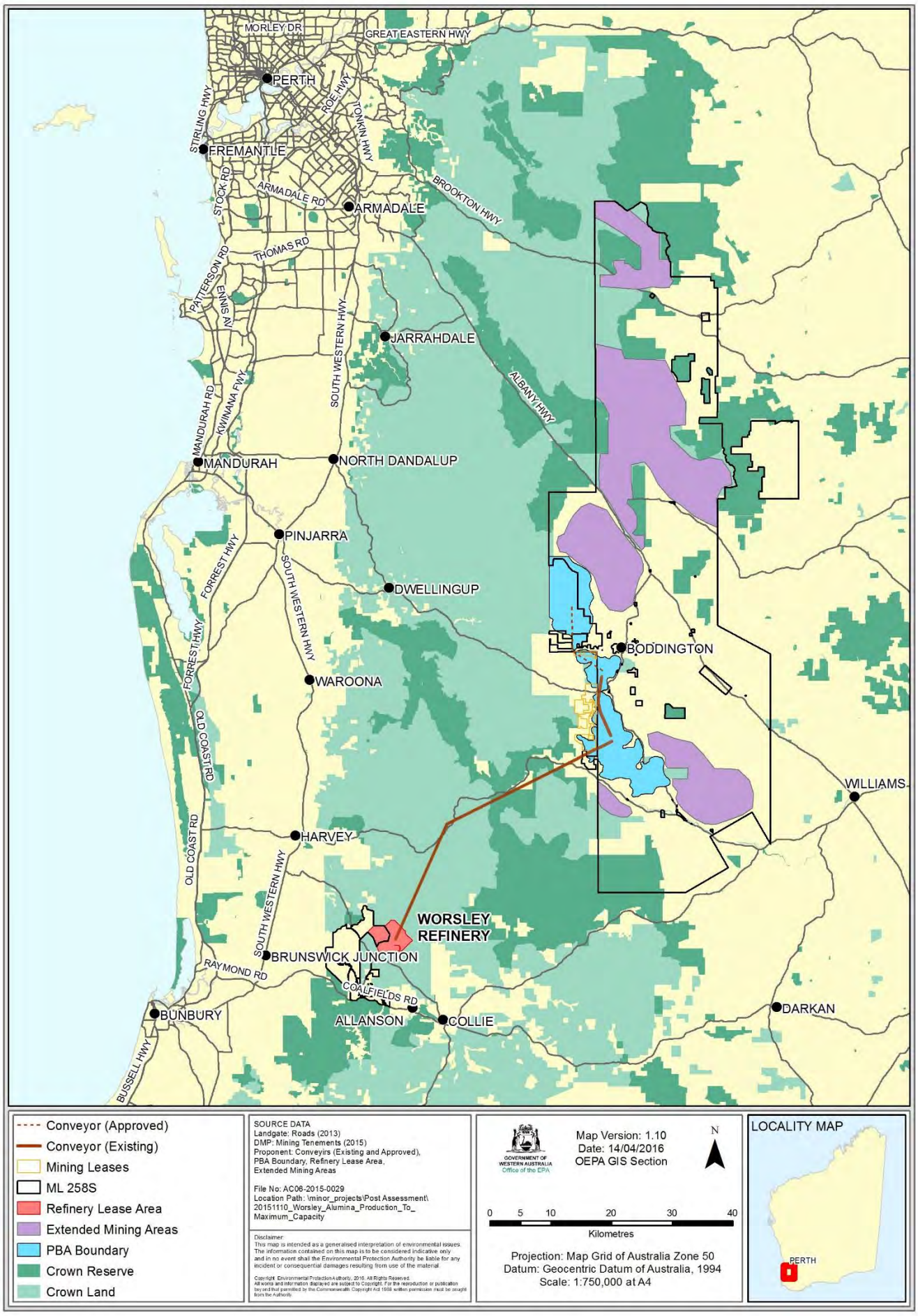

Figure 1: Primary Bauxite Area (PBA) and Refinery Lease Area (RLA)

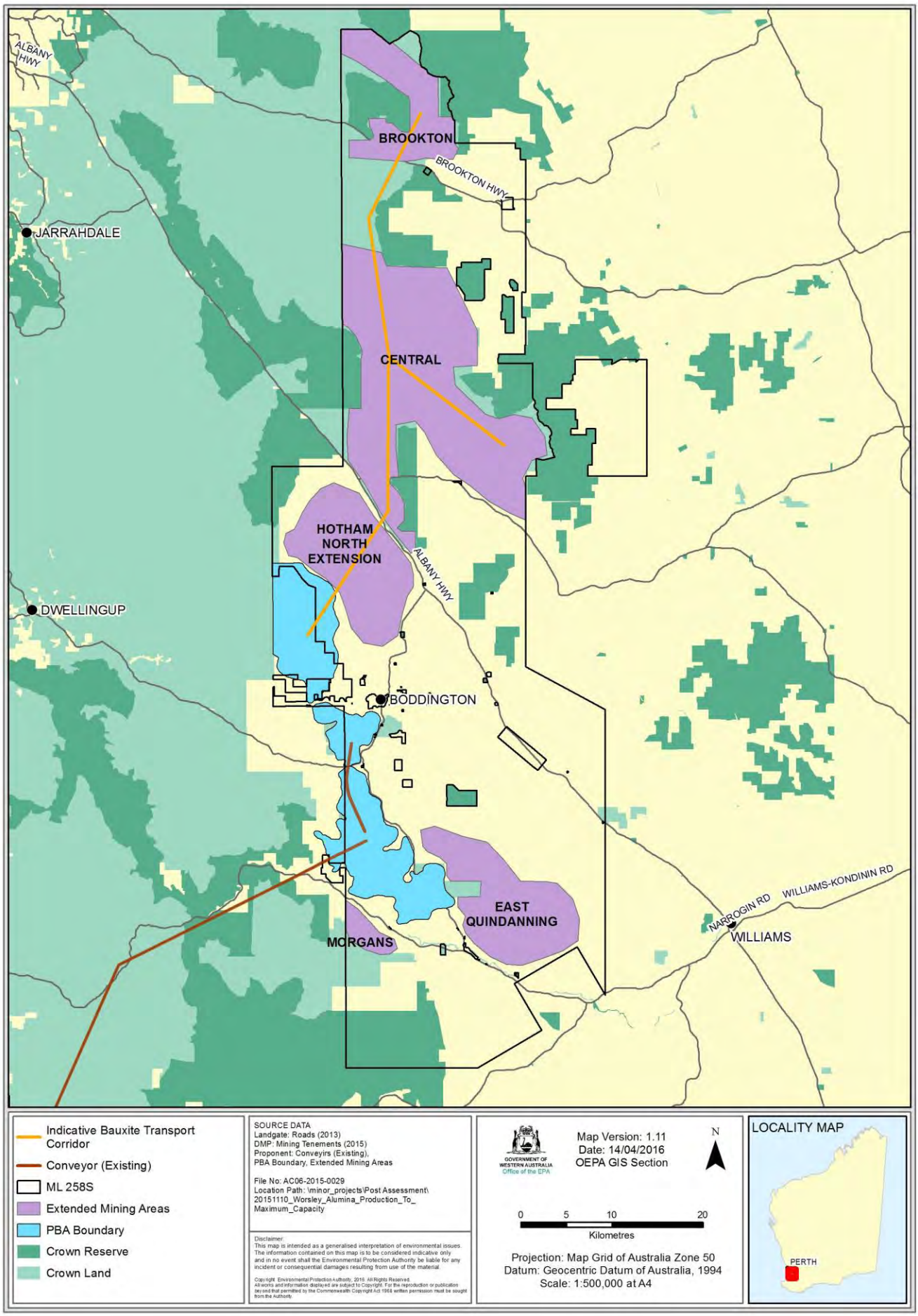

Figure 2: Mining Envelopes within the Primary Bauxite Area (PBA)

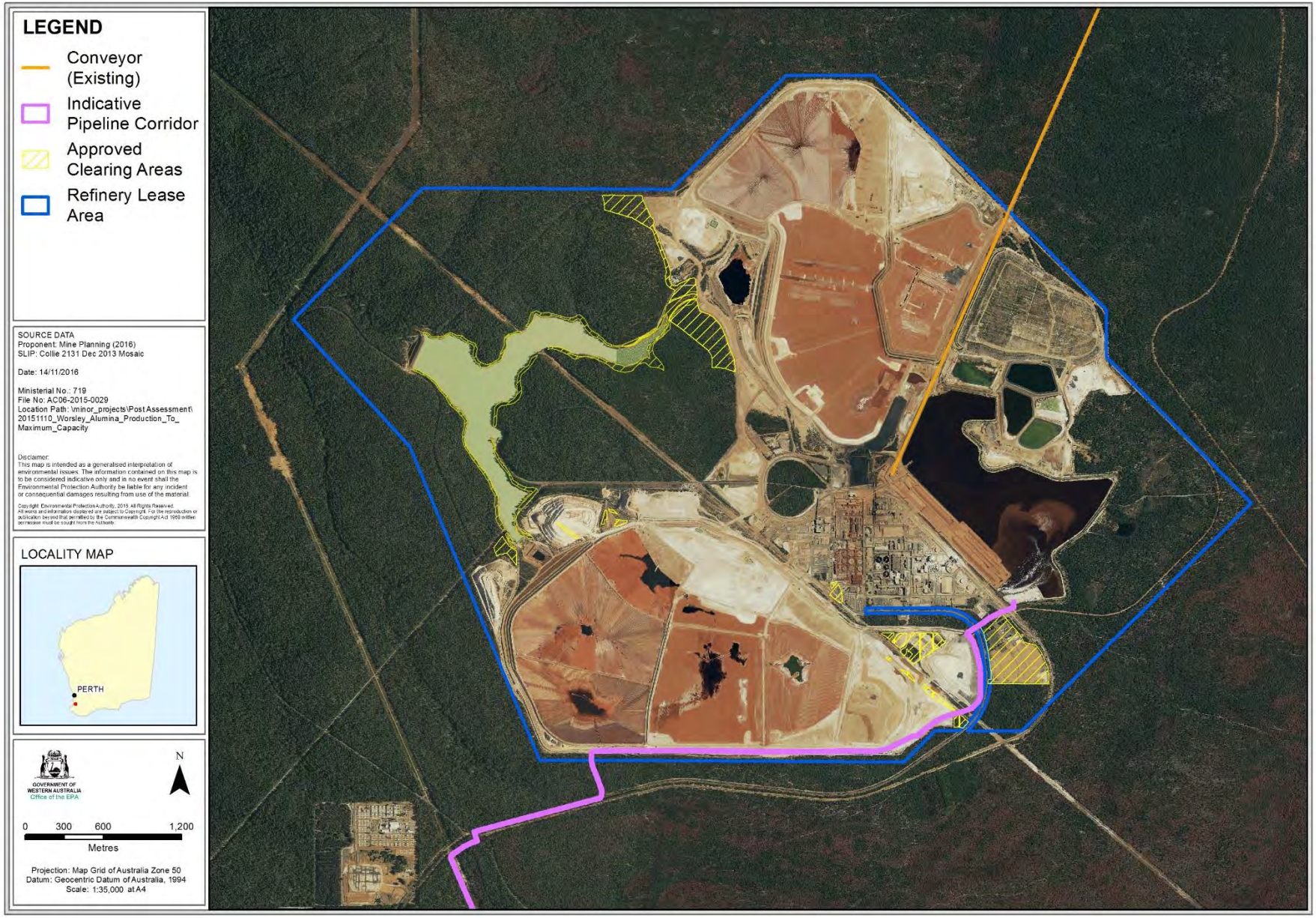

Figure 3: Clearing Area within the Refinery Lease Area (RLA)

Figure 4: Indicative Wellington Dam Pipeline Corridor

Table 4: Coordinates for Refinery Lease Area – Map Grid of Australia (MGA) Zone 50 coordinates.

ID	Easting (MGA)	Northing (MGA)
1	409437.96	6324404.51
2	409571.52	6324540.08
3	409715.07	6324685.78
4	410192.54	6324683.41
5	410304.10	6324682.86
6	410670.01	6324681.04
7	411147.49	6324678.66
8	411624.96	6324676.29
9	411919.77	6324968.21
10	412214.57	6325260.12
11	412509.38	6325552.03
12	412849.23	6325550.36
13	413189.08	6325548.70
14	413524.38	6325210.09
15	413859.68	6324871.49
16	414194.98	6324532.89
17	414225.14	6324502.43
18	414473.46	6324251.66
19	414721.78	6324000.89
20	414970.11	6323750.12
21	414968.34	6323390.25
22	415184.85	6323171.59
23	415246.88	6323108.95
24	415525.43	6322827.65
25	415803.97	6322546.35
26	416082.51	6322265.05
27	415728.80	6321914.82
28	415375.10	6321564.60
29	415184.85	6321376.24
30	415021.38	6321214.38
31	414667.68	6320864.16
32	414313.97	6320513.93
33	413898.22	6320516.01
34	413930.79	6320545.40
35	413960.34	6320581.80
36	413988.92	6320617.01
37	413996.14	6320630.08
38	414033.66	6320697.97
39	414063.17	6320785.61
40	414076.75	6320876.81
41	414075.71	6320968.46
42	414046.81	6321172.67
43	414020.04	6321262.73
44	413969.64	6321343.58
45	413898.13	6321405.83
46	413809.98	6321444.78
47	413718.13	6321458.36
48	413495.74	6321458.16
49	413479.83	6321458.16
50	413445.05	6321458.15
51	413429.06	6321458.15
52	413275.34	6321458.27
53	413119.16	6321458.24
54	413119.17	6321418.25
55	413119.85	6321418.25
56	413275.35	6321418.28
57	413375.99	6321418.18
58	413395.83	6321418.18
59	413430.83	6321418.19
60	413455.00	6321418.19
61	413462.88	6321418.19
62	413715.20	6321418.38
63	413798.76	6321406.02
64	413876.43	6321371.70
65	413938.87	6321317.34
66	413983.25	6321246.16
67	414007.64	6321164.12
68	414035.76	6320965.42
69	414036.74	6320879.55
70	414024.15	6320795.01
71	413996.92	6320714.15
72	413965.01	6320656.42
73	413955.64	6320639.46
74	413929.81	6320607.63
75	413901.70	6320573.01
76	413838.87	6320516.31
77	413654.22	6320517.23
78	413412.69	6320278.10
79	412946.11	6320280.45
80	412479.52	6320282.80
81	412012.94	6320285.14
82	411546.35	6320287.49
83	411079.77	6320289.83
84	410613.18	6320292.18
85	410446.90	6320693.06
86	410280.63	6321093.94
87	410247.23	6321174.46
88	410114.35	6321494.82
89	409948.07	6321895.69
90	409781.80	6322296.57
91	409615.52	6322697.45
92	409317.08	6323023.62
93	409018.64	6323349.79
94	408720.20	6323675.96
95	408959.46	6323918.81
96	409198.71	6324161.66
97	409437.96	6324404.51

Coordinates defining Wellington Dam Pipeline Corridor are held by the Office of the Environmental Protection Authority (Document Reference Number 2016-1479192137865).

Attachment 10 to Ministerial Statement 719

Amendment to proposal approved under section 45C of the *Environmental Protection Act 1986*

This Attachment replaces Schedule 1 and Attachment 9 of Ministerial Statement 719

Proposal: Worsley Alumina - Production to Maximum Capacity of 4.4 Mtpa Alumina and Associated Mining

Proponent: South32 Worsley Alumina Pty Ltd

Changes:

Conversion of the existing coal fired boilers to a natural gas fired facility (boilers) within the existing power and steam raising facilities at the Worsley Alumina Refinery.

Table 1: Summary of the proposal

Proposal title	Worsley Alumina – Production to Maximum Capacity of 4.4 Mtpa Alumina and Associated Mining
Short description	The upgrade of the Worsley alumina refinery in order to increase production to 4.4 million tonnes per annum (Mtpa)

Table 2: Location and authorised extent of physical and operational elements

Element	Previously authorised extent	Authorised extent
Bauxite-Alumina Project		
Alumina Production	4.7 Mtpa	4.7 Mtpa
Greenhouse gases	3.75 Mtpa of CO2-e.	3.75 Mtpa of CO2-e.
Bauxite Mining		
Mining areas	Refer to Figures 1 & 2	Refer to Figures 1 & 2
Mining rate	Up to 18.8 Mtpa (dry)	Up to 18.8 Mtpa (dry)
Areas of disturbance to native vegetation: 1. Within Primary Bauxite Area (PBA) 2. Outside PBA (includes transport corridors)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (Figure 2) 2. Up to 8,400 ha (Figure 2)	1. Areas of bauxite reserves (unchanged) is specified in CER (1995) (Figure 2) 2. Up to 8,400 ha (Figure 2)
Water supply sources	Groundwater and surface water in the vicinity of mining areas.	Groundwater and surface water in the vicinity of mining areas.
Water usage (average)	500 ML/a	500 ML/a
Crushing plant	4 primary crushers, 2 secondary crushers	4 primary crushers, 2 secondary crushers
Bauxite transport		
New transport corridor outside of PBA Preliminary alignment	Conventional idler-type conveyors and/or truck transport (Figure 1)	Conventional idler-type conveyors and/or truck transport (Figure 1)
Refinery		
Refinery Lease Area (RLA)	2,500 ha	2,500 ha
Clearing within Wellington	Clearing of up to 8 ha for	Clearing of up to 8 ha for

Element	Previously authorised extent	Authorised extent
National Park	Wellington Dam Pipeline (Figure 4)	Wellington Dam Pipeline (Figure 4)
Clearing within Refinery Lease Area (attachment 3 & 4)	66.6 hectares (Figure 3) (approved clearing area)	66.6 hectares (Figure 3) (approved clearing area)
Digestion process areas Emissions control	Regenerative thermal oxidiser	Regenerative thermal oxidiser
Calciners – fuel Particulate emission control	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner	Natural gas Electrostatic precipitators on five calciners, baghouse system on one calciner
Liquor burner Emission control	Baghouse, regenerative thermal oxidiser and wet scrubber	Baghouse, regenerative thermal oxidiser and wet scrubber
Bauxite stockpiles	1.92 Mt approximately	1.92 Mt approximately
Power and steam raising facilities		
Existing gas fired cogeneration - capacity	120 MW	120 MW
Existing coal fired facility **or gas fired facility (conversion)** capacity Particulate emission control	110 MW (electrical) Electrostatic precipitators on three boilers	110 MW (electrical) Electrostatic precipitators **on coal fired facilities only**
New coal fired boiler - normal capacity Emission control	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 400 MW (thermal) Limestone injection and baghouse filters	Two circulating fluidized bed multi-fuel co-generation boilers 100 MW (electrical) 400 MW (thermal) Limestone injection and baghouse filters
New gas fired cogeneration (alternative) Capacity	120 MW	120 MW
Bauxite Residue Disposal Areas		
Deposition rate Footprint and location	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3	18.5 Mtpa (wet) (no change to footprint of BRDA) Figure 3
Raw Water supply		
Sources Usage (average)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)	Freshwater lake (Augustus River) and offsite purchase from water provider as required 2.6 GL (from Freshwater lake)
Air emissions		
Sulphur dioxide (SO2) from **combustion, liquor burner and calciner sources**	Up to 13,370 tpa from combustion, liquor burner and calciner sources	Up to 13,370 tpa
Nitrogen oxides (NOX) from combustion, liquor burner and calciner sources	Up to 6,890 tpa	Up to 6,890 tpa
Particulates (PM10) from combustion, liquor burner and calciner sources	Up to 520 tpa.	Up to 520 tpa.
Carbon monoxide (CO) from combustion, liquor burner and calciner sources	Up to 1350 tpa.	Up to 1350 tpa.
Total volatile organic compounds (VOCs) from all sources	Up to 300 tpa	Up to 300 tpa

Note: Text in **bold** in Table 2 indicates a change to the proposal.

Table 3: Abbreviations

Abbreviation	Term
PBA	Primary Bauxite Area
RLA	Refinery Lease Area
BDRA	Bauxite residue disposal area
GL/a	Gigalitres per annum
ha	hectares
ML/a	Megalitres per annum
MW	Megawatts
Mt	Megatonnes
Mtpa	Million tonnes per annum
tpa	tonnes per annum

Figures – All previous figures have not been replaced

Figure 1 Primary Bauxite Area and Refinery Lease Area
Figure 2 Mining Envelopes within the Primary Bauxite Area
Figure 3 Clearing Area within the Refinery Lease Area
Figure 4 Indicative Wellington Dam Pipeline Corridor

Tables

Table 4 coordinates of Wellington Dam Pipeline

Prof Matthew Tonts
CHAIR
Environmental Protection Authority
under delegated authority

Approval date: 16 May 2023

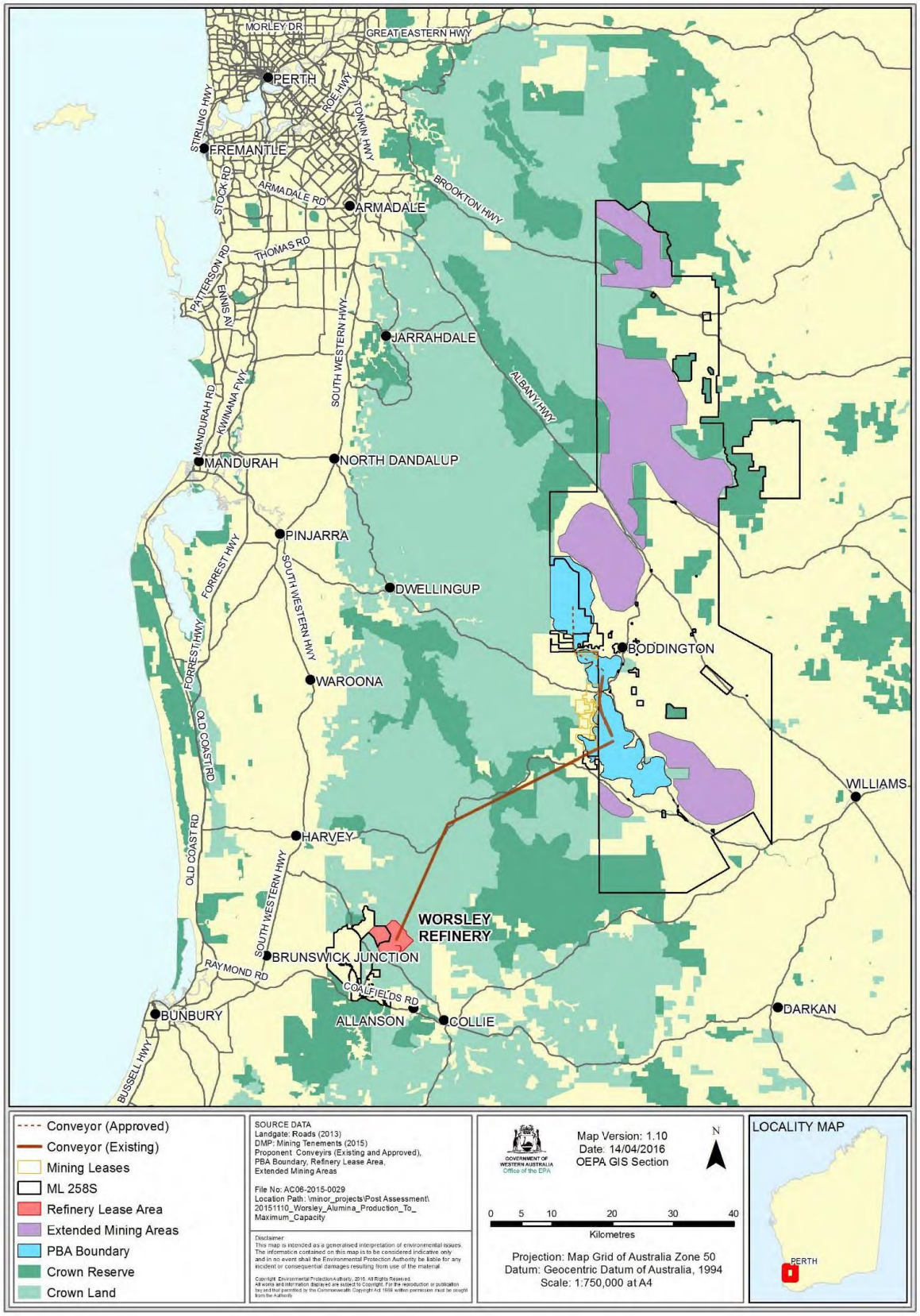

Figure 1: Primary Bauxite Area (PBA) and Refinery Lease Area (RLA)

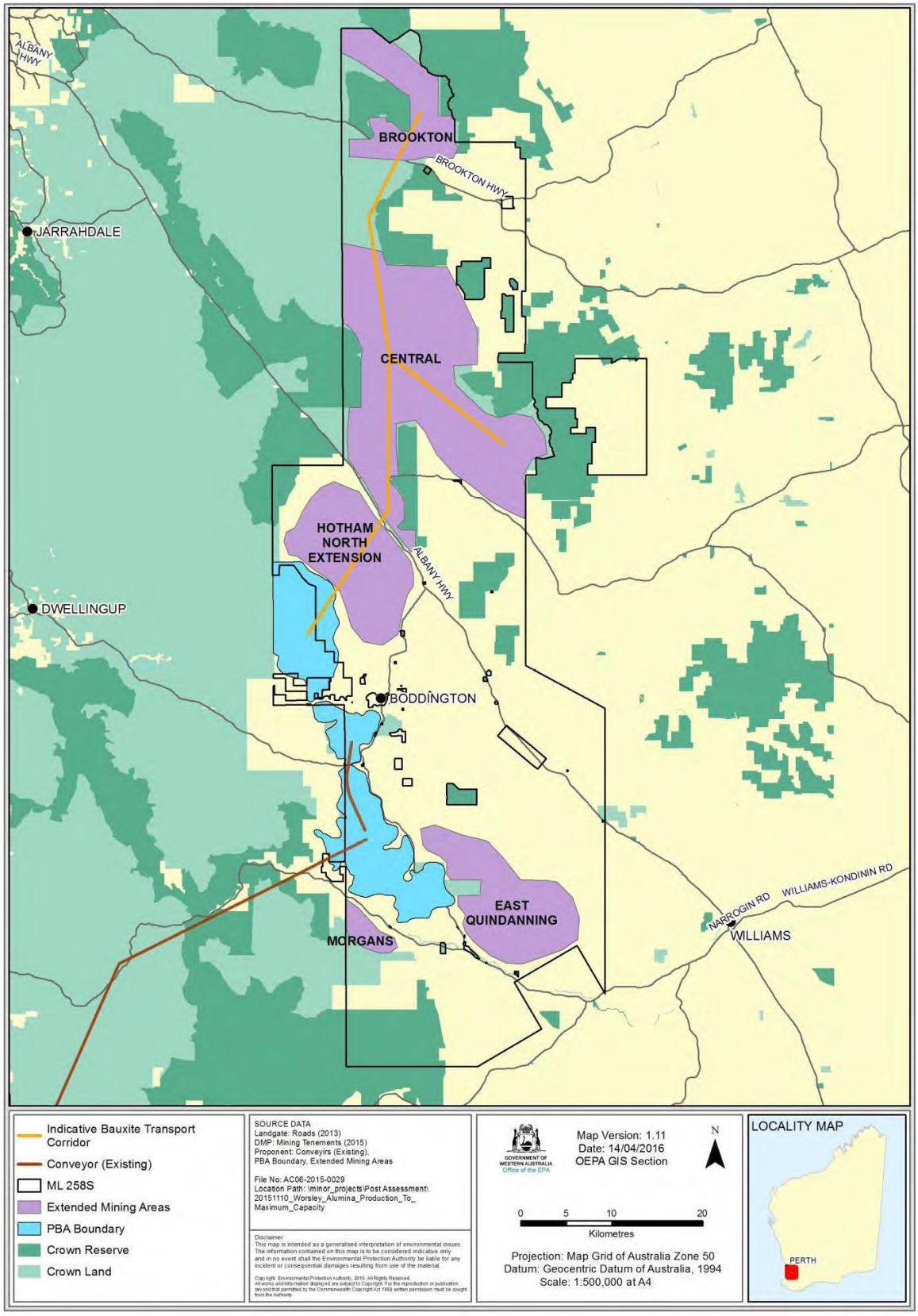

Figure 2: Mining Envelopes within the Primary Bauxite Area (PBA)

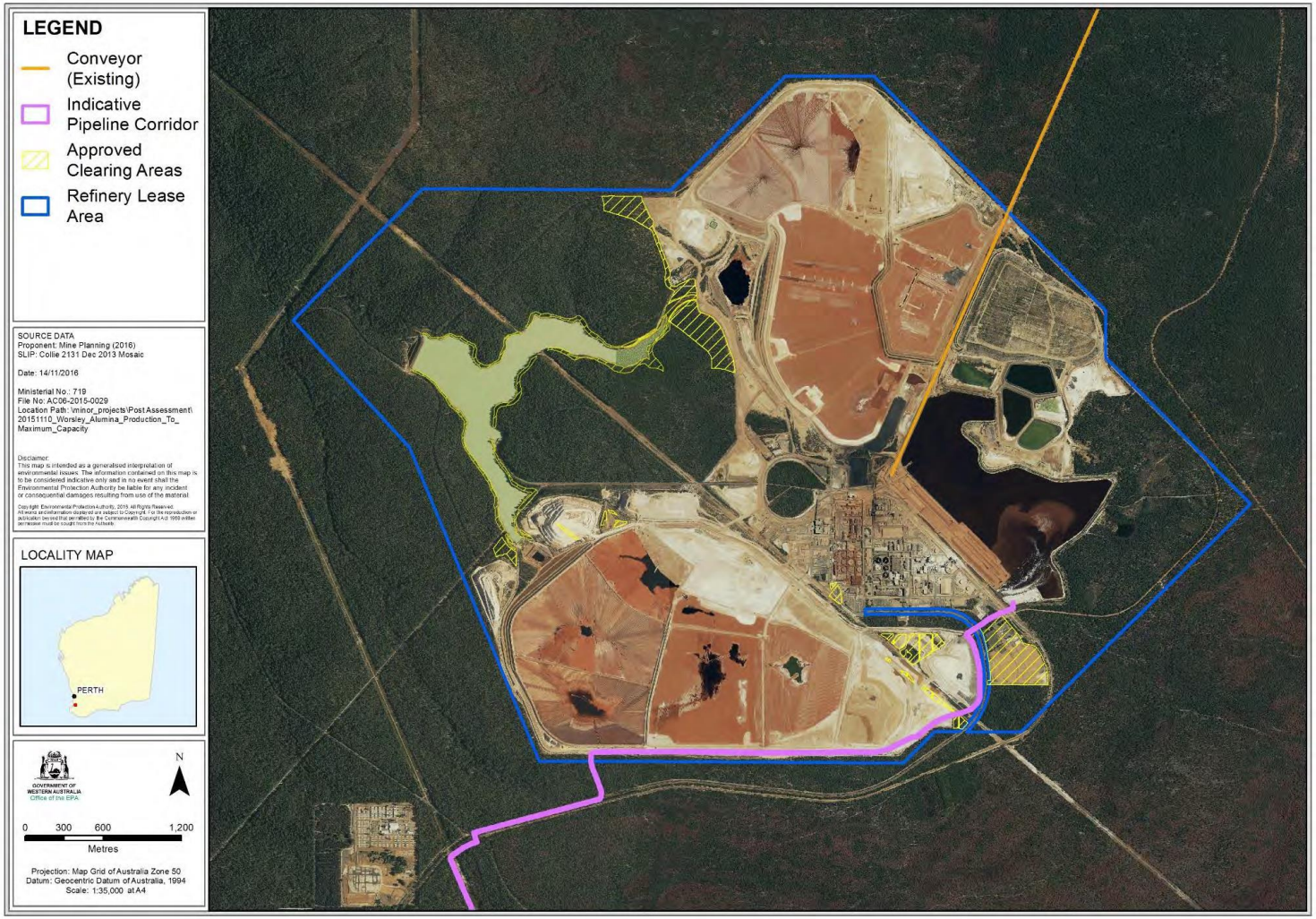

Figure 3: Clearing Area within the Refinery Lease Area (RLA)

Figure 4: Indicative Wellington Dam Pipeline Corridor

Table 4: Coordinates for Refinery Lease Area – Map Grid of Australia (MGA) Zone 50 coordinates.

ID	Easting (MGA)	Northing (MGA)
1	409437.96	6324404.51
2	409571.52	6324540.08
3	409715.07	6324685.78
4	410192.54	6324683.41
5	410304.10	6324682.86
6	410670.01	6324681.04
7	411147.49	6324678.66
8	411624.96	6324676.29
9	411919.77	6324968.21
10	412214.57	6325260.12
11	412509.38	6325552.03
12	412849.23	6325550.36
13	413189.08	6325548.70
14	413524.38	6325210.09
15	413859.68	6324871.49
16	414194.98	6324532.89
17	414225.14	6324502.43
18	414473.46	6324251.66
19	414721.78	6324000.89
20	414970.11	6323750.12
21	414968.34	6323390.25
22	415184.85	6323171.59
23	415246.88	6323108.95
24	415525.43	6322827.65
25	415803.97	6322546.35
26	416082.51	6322265.05
27	415728.80	6321914.82
28	415375.10	6321564.60
29	415184.85	6321376.24
30	415021.38	6321214.38
31	414667.68	6320864.16
32	414313.97	6320513.93
33	413898.22	6320516.01

ID	Easting (MGA)	Northing (MGA)
34	413930.79	6320545.40
35	413960.34	6320581.80
36	413988.92	6320617.01
37	413996.14	6320630.08
38	414033.66	6320697.97
39	414063.17	6320785.61
40	414076.75	6320876.81
41	414075.71	6320968.46
42	414046.81	6321172.67
43	414020.04	6321262.73
44	413969.64	6321343.58
45	413898.13	6321405.83
46	413809.98	6321444.78
47	413718.13	6321458.36
48	413495.74	6321458.16
49	413479.83	6321458.16
50	413445.05	6321458.15
51	413429.06	6321458.15
52	413275.34	6321458.27
53	413119.16	6321458.24
54	413119.17	6321418.25
55	413119.85	6321418.25
56	413275.35	6321418.28
57	413375.99	6321418.18
58	413395.83	6321418.18
59	413430.83	6321418.19
60	413455.00	6321418.19
61	413462.88	6321418.19
62	413715.20	6321418.38
63	413798.76	6321406.02
64	413876.43	6321371.70
65	413938.87	6321317.34
66	413983.25	6321246.16

ID	Easting (MGA)	Northing (MGA)
67	414007.64	6321164.12
68	414035.76	6320965.42
69	414036.74	6320879.55
70	414024.15	6320795.01
71	413996.92	6320714.15
72	413965.01	6320656.42
73	413955.64	6320639.46
74	413929.81	6320607.63
75	413901.70	6320573.01
76	413838.87	6320516.31
77	413654.22	6320517.23
78	413412.69	6320278.10
79	412946.11	6320280.45
80	412479.52	6320282.80
81	412012.94	6320285.14
82	411546.35	6320287.49
83	411079.77	6320289.83
84	410613.18	6320292.18
85	410446.90	6320693.06
86	410280.63	6321093.94
87	410247.23	6321174.46
88	410114.35	6321494.82
89	409948.07	6321895.69
90	409781.80	6322296.57
91	409615.52	6322697.45
92	409317.08	6323023.62
93	409018.64	6323349.79
94	408720.20	6323675.96
95	408959.46	6323918.81
96	409198.71	6324161.66
97	409437.96	6324404.51

Coordinates defining Wellington Dam Pipeline Corridor are held by the Office of the Environmental Protection Authority (Document Reference Number 2016-1479192137865).