



Statement No.

MINISTER FOR THE ENVIRONMENT;
LABOUR RELATIONS

000489

**STATEMENT TO AMEND CONDITIONS APPLYING TO PROPOSALS
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

BODDINGTON GOLD MINE, SHIRE OF BODDINGTON

Proposals: The proposals are to mine and process oxide ore, near-surface basement ore and supergene ores at the Boddington Gold Mine approximately 12 kilometres north west of Boddington, and to provide and operate associated facilities, as documented in schedule 1 of this statement.

Proponent: Worsley Alumina Pty Ltd

Proponent Address: PO Box 48, Boddington WA 6390

Assessment Number: 1053

Previous Assessment Numbers: 156, 182, 238, 238-1, 700, 901

Previous Statement Numbers: 19 published on 15 February 1988
49 published on 8 December 1988
85 published on 22 November 1989
100 published on 8 June 1990
299 published on 21 January 1993
379 published on 25 January 1995

Report of the Environmental Protection Authority: Bulletin 850 (April 1997)

Previous Reports of the Environmental Protection Authority:
Bulletins 313, 361, 408, 430, 661 and 766

The implementation of the proposals to which the above reports of the Environmental Protection Authority relate is now subject to the following conditions and procedures which replace all previous conditions and procedures:

1 Implementation

- 1-1 Subject to these conditions and procedures, the proponent shall implement the proposals as documented in schedule 1 of this statement.
- 1-2 Where the proponent seeks to change any aspect of the proposals as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

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- 1-3 Where the proponent seeks to change any aspect of the proposals as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

2 Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment.

- 2-1 The proponent shall implement the environmental management commitments documented in schedule 2 of this statement, provided that the commitments are not inconsistent with the conditions or procedures contained in this statement. In the event of any inconsistency, the conditions and procedures shall prevail to the extent of the inconsistency.

3 Proponent

These conditions legally apply to the nominated proponent.

- 3-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

4 Hotham River

Diversion of water from the Hotham River may have an adverse impact on the Hotham/Murray River system, as well as on downstream users.

- 4-1 The proponent shall only pump water from the Hotham River when the river flow is in excess of 342 kilolitres per hour as measured at Marradong River bridge gauging station.
- 4-2 When pumping from the Hotham River, the proponent shall not cause the remaining river flow to be reduced below the level of 342 kilolitres per hour as measured at Marradong River bridge gauging station.

Note: Water is extracted from the Hotham River in accordance with licence conditions set by the Water and Rivers Commission under the provisions of the Rights in Water and Irrigation Act 1914.

5 Rehabilitation and Decommissioning

- 5-1 Within twelve months following the notification of the decision-making authorities under Section 45(7) of the Environmental Protection Act, and prior to any decommissioning, the proponent shall prepare a report which indicates rehabilitation and decommissioning objectives and performance for the project site, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

After preparation of the initial report, the proponent shall revise the above-mentioned report every five years.

- 5-2 At least twelve months prior to decommissioning, or at such later time considered appropriate by the Minister for the Environment on advice of the Department of Environmental Protection, the proponent shall prepare a decommissioning and rehabilitation plan which:

- 1 provides for the long-term management of the mined-out pits, the residue disposal areas, process water ponds, non-mineralised rock stockpiles, water supply dams, processing plant site and associated infrastructure;
- 2 outlines long-term management measures of ground and surface waters affected by the project that ensure waters discharged from the project site will not adversely affect the existing beneficial uses and ecosystems of the South Dandalup catchment, the Hotham River and the Thirty-Four Mile Brook in the vicinity of the Boddington Gold Mine project.
- 3 provides for the development of a 'walk away' solution for the decommissioned mine pits, the residue disposal areas, process water ponds, non-mineralised rock stockpiles, water supply dams, processing plant site and associated infrastructure; and
- 4 takes into consideration the findings arising from the report prepared according to the requirements of condition 5-1,

to the requirements of the Minister for the Environment on advice of the Boddington Gold Mine Environmental Management Liaison Group and the Environmental Protection Authority.

Note: A 'walk-away' solution means that the site shall either no longer require management at the time the proponent ceases mining operations, or if further management is deemed necessary, the proponent shall make adequate provision so that the required management is undertaken with no liability to the State.

- 5-3 The proponent shall implement the decommissioning and rehabilitation plan required by condition 5-2.

6 Environmental Management System

- 6-1 The proponent shall exercise all care and diligence in managing the proposals to ensure the protection of the environment.
- 6-2 The proponent shall prepare and implement an environmental management plan and environmental management procedures in order to implement the proposals, and shall manage the relevant environmental factors to ensure that the environmental objectives (in the Environmental Protection Authority Bulletins) are met.
- 6-3 The proponent shall incorporate the environmental management commitments in the environmental management plan to enable review of performance by the proposed Boddington Gold Mine Liaison Group (See condition 2 and procedure 3).
- 6-4 In preparation of the plan referred to in conditions 6-2 and 6-3, the proponent shall adopt quality assurance principles and environmental management principles consistent with Australian standards AS/NZS ISO 14000 series, with appropriate monitoring, auditing and reporting to ensure compliance with these conditions and the on-going protection of the environment.
- 6-5 If through the implementation of the environmental management procedures referred to in condition 6-2, the proponent identifies a relevant environmental factor not reported on in the Environmental Protection Authority Bulletins, the proponent shall immediately report to the Minister for the Environment on that factor, providing a proposed objective and the suggested means for managing the factor to achieve the objective.

7 Commencement

The environmental approval for the substantial commencement of the modified project is limited.

- 7-1 If the proponent has not substantially commenced the modified project within five years of the date of this statement, then the approval to implement the modified operations shall lapse and be void. The Minister for the Environment shall determine any question as to whether the modified project has been substantially commenced.

Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period to the Minister for the Environment.

Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposals have not changed significantly, then the Minister may grant an extension not exceeding five years.

8 Compliance Auditing

To help determine environmental performance and compliance with the conditions, periodic reports on the implementation of the proposals are required.

- 8-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit programme prepared by the Department of Environmental Protection in consultation with the proponent.

Procedure

- 1 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.
- 2 Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.
- 3 Boddington Gold Mine Environmental Management Liaison Group
 - 1 The proposed Boddington Gold Mine Liaison Group will comprise of representatives of state government agencies whose areas of responsibility are affected by the mining and processing operations of the proponent, and will include representatives of the Department of Environmental Protection, the Department of Minerals and Energy, the Department of Resources Development, the Department of Conservation and Land Management and the Water and Rivers Commission.
 - 2 The terms of reference will be developed by the Boddington Gold Mine Liaison Group to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority and the Department of Minerals and Energy.
 - 3 The Boddington Gold Mine Liaison Group will review the proponent's compliance with environmental conditions and commitments (in particular conditions 4 and 5) and will provide advice on compliance to the Minister for the Environment; the State Mining Engineer; and each agency responsible for assessing compliance with the environmental conditions and commitments.

Note

- 1 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.
- 2 This statement does not remove the requirements for the proponent to obtain other statutory approvals.

CHERYL EDWARDES (Mrs) MLA
MINISTER FOR THE ENVIRONMENT

24 DEC 1998

Schedule 1

The Proposals

The proposals (the project) to which this statement relates are to mine and process oxide ore, near-surface basement ore and supergene ores (now depleted), and to provide and operate associated facilities, at the Boddington Gold Mine project site, as specified in the key proposal characteristics table below.

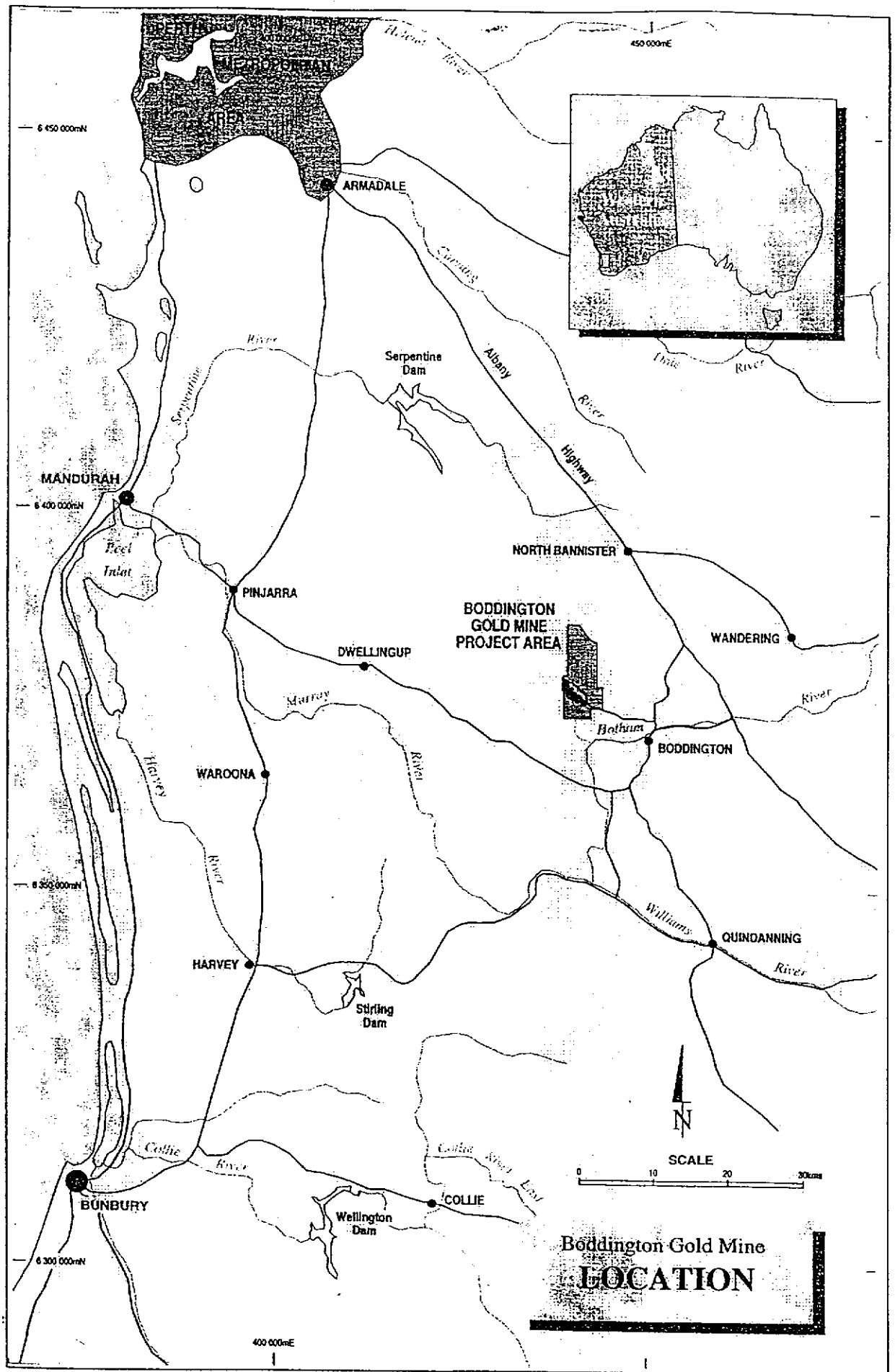
The location of the Boddington Gold Mine project site is shown at figure 1, and the locations of the main components of the project are shown at figure 2.

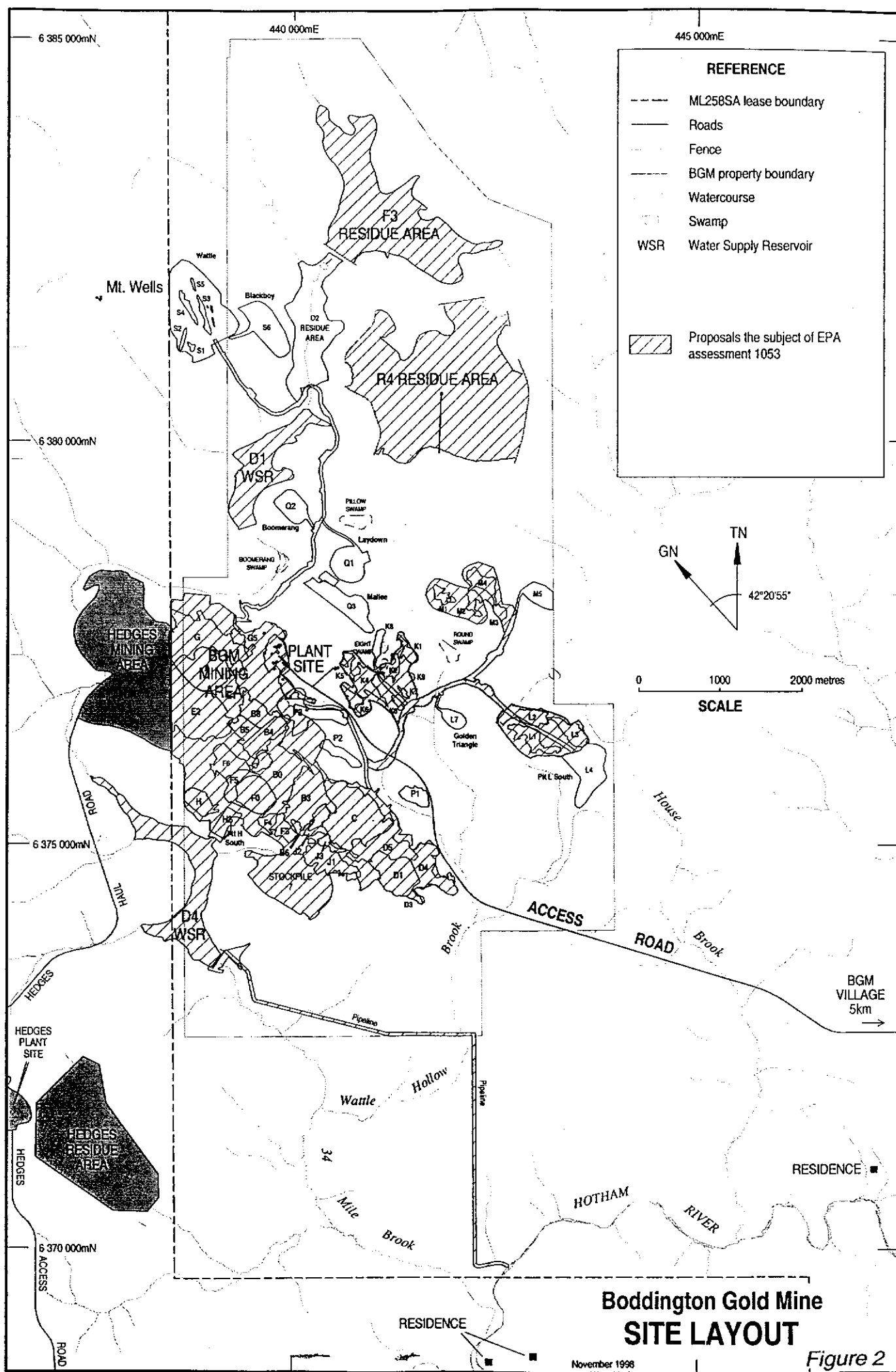
Table 1 : KEY PROPOSAL CHARACTERISTICS TABLE

Element	Description
MINING	
Life of mine production	Oxide mining and minor basement mining in areas shown on figure 2 will be complete in approximately the year 2000
Vegetation disturbance	1220 ha (excluding residue disposal areas)
Opencut mining	Mainly oxide ores and small quantities of near-surface basement ores extracted from main mining area and Eastern Anomalies pits K, L and M
Underground mining	Mining of deep quartz veins in Jarrah decline complete
Stockpiles	Bauxite stockpile Copper stockpile Non-mineralised rock stockpile
PROCESSING	
Oxide grinding and milling: Throughput Facilities	up to 9.0 Mtpa +10% whilst processing ore from pits K, L and M 2 mills 2 crushers
Oxide carbon-in-leach processing facilities	16 carbon-in-leach vessels
Basement grinding and milling facilities	Primary and secondary crushers One mill
Basement carbon-in-leach processing facilities	Flotation facility for processing of basement and supergene ores (supergene ore mining and processing complete) 8 carbon-in-leach vessels
Resource consumption: cyanide caustic viscosity modifier hydrochloric acid Storage of above	Up to 5,000 tonnes per annum (approximately) Up to 28,000 tonnes per annum (approximately) Up to 250 tonnes per annum (approximately) Up to 900 tonnes per annum (approximately) Storage and mixing areas on-site

Element	Description
Water storage reservoirs (WSR): D1 WSR D4 WSR	Capacity 3060 ML; used for storage of water pumped from Hotham River and containment of natural run-off Capacity 4940 ML
Water supply: Mine dewatering Thirty-four Mile Brook catchment Hotham River Hotham River pipeline	Pumped to water storage reservoirs for use in processing Water quality in accordance with pollution prevention license All catchment run-off directed through sumps to Thirty-four Mile Brook above D4 WSR Abstraction controlled by condition of license from the Water and Rivers Commission Used to extract water from the Hotham River to D4 WSR
Residue disposal volume Residue disposal areas: R4 residue disposal area F3 residue disposal area	Approximately 9 Mtpa residue at up to 35% solids Capacity at least 60 Mt (embankment height 330.5 m RL) and central decant collection Residue storage capacity of approximately 40 Mt and side decant collection. Embankment height (October 1998) 320.2 m RL
OTHER	
Construction camp	4 ha cleared Facilities retained until no longer required
Truck movements (2 way average daily on access road)	6-10
Product	Approximately 250,000 ounces of gold produced on site per annum Copper concentrate was produced during supergene mining phase
Rehabilitation	See condition 5 of this statement of conditions

ha hectares
 m metres
 ML megalitres
 Mt megatonnes
 Mtpa megatonnes per annum
 RL relative level





**Proponent's Environmental Management
Commitments**

March 1997

**CHANGE TO ENVIRONMENTAL CONDITIONS
BODDINGTON GOLD MINE
SHIRE OF BODDINGTON (1053)**

WORSLEY ALUMINA PTY LTD

Environmental Management Commitments relevant to the proposed changes under Section 46 of the Environmental Protection Act

(Assessment No. 1053)

1. Clearing for project activities will be kept to a minimum, consistent with safe operating practices.
2. Top soil from areas cleared for project activities will be salvaged for use in decommissioning and other rehabilitation programmes.
3. Environmentally-sensitive construction and operational practices, including stringent forest hygiene measures, will be employed throughout the project area.
4. Continue to implement a fire control plan in consultation with CALM, Bunnings and the Shire of Boddington for the BGM Project Area.
5. Prepare and submit to the BGM Liaison Group an annual environmental report.
6. Carry out regular monitoring of the abundance and distribution of flora and fauna in rehabilitation and forest areas adjacent to mined and residue disposal areas in consultation with CALM.
7. Changes to management procedures will be developed as necessary in response to monitoring results.
8. Conduct a programme which aims to establish priority flora, which occur naturally on the BGM site but which have not been recorded in rehabilitation, with the aim of establishing these species in suitable rehabilitation areas.
9. A quantified assessment of likely impacts of project clearing on streamflow and quality of Thirty-Four Mile Brook has been carried out with the Water Authority of Western Australia (see Appendix B of the April 1987 Environmental Management Programme).

In consultation with the EPA and the Water and Rivers Commission, surface and groundwater monitoring programmes will be developed and implemented to facilitate progressive planning and management of project activities, particularly mining and residue storage, to minimise adverse hydrological and hydrogeological effects.

10. If unacceptable quality is detected in groundwater monitoring bores around the Residue Disposal Area, the remedial actions described in Section 8.3.3 of the April 1987 Environmental Management Programme will be evaluated as part of the development of a response to such a situation.
11. Material from residue and reclaim pipeline leaks / breakages will be contained at low points along the residue pipeline route and transported to the Residue Disposal Area.
12. If spills are not fully contained, WAPL will carry out clean-up and rehabilitation of affected areas in consultation with the State.
13. In the unlikely event of a dam failure, including the over-topping of the Process Water Pond, the Joint Venturers will assume responsibility for clean-up and rehabilitation to the satisfaction of the State.
14. All waste and spilt materials in the Metallurgical Treatment Plant area will be contained within the process operation for reuse, or disposed of as appropriate.

15. Storm-water run-off from the cleared area of the Plant Site will flow into the Process Water Pond, which has been lined with clay and plastic to minimise leakage.
16. The pond will have sufficient capacity to accommodate rainfall run-off from a one-in-one hundred year storm event.
17. Drainage will be installed around mine pits, haul-roads and stockpiles, water (other than acidic mine drainage) from these will either be used for dust suppression, or will drain via silt traps into natural watercourses.
18. The objective of the management of run-off from the mining operations will be to minimise the potential spread of forest disease and to reduce the long-term salinity and turbidity on Thirty-Four Mile Brook.
19. Shallow mine pits will be contoured to slopes generally consistent with natural landforms.
20. Deeper pits will be rehabilitated if, at the time of completion of mining the weathered profile, no decision to mine bedrock has been made.
21. Should a decision to mine bedrock to be [sic] made, detailed plans will be submitted to the State for approval.
22. Final rehabilitation will ensure that run-off will drain to natural watercourses or into the deeper pits.
23. Prepare and submit to the BGM Liaison Group, in annual environmental reports, life of project land use plans prepared in consultation with the BGMLG.
24. Develop rehabilitation and decommissioning plans for the BGM Project Area in consultation with the BGM Liaison Group.
25. Continue field trials for rehabilitation of residue disposal areas in consultation with the BGMLG.
26. Undertake a research and development programme to identify alternative techniques for residue rehabilitation in consultation with the BGMLG.
27. Undertake detailed studies to determine management options for the lake(s) in consultation with the BGM Liaison Group.
28. Detailed rehabilitation prescriptions for the mining area will be developed with the primary objectives of stabilising surfaces, minimising erosion, minimising risk of saline groundwater seepage, and providing a sustainable vegetation system.
29. Local provenance native species will be used where possible, although other species may be used where they provide advantages in meeting the primary objectives.
30. In the event of mine dewatering being necessary, BGM will ensure that the salinities of water bodies and water courses receiving discharges do not exceed 5,000 mg/L TDS as a result of those discharges; and
31. will monitor and report impacts of such release on downstream vegetation, and
32. adjust procedures as appropriate.
33. BGM will continue to monitor surface and groundwater in the area, as part of the regional programme established in the early 1980s.