BROCKMAN RESOURCES LTD

MARILLANA IRON ORE PROPOSAL
EPA ASSESSMENT No. 1781
OFFSET PLAN

October 2010

This page has been left blank intentionally

Document Status						
Rev	Author	Reviewer/s	Date	Approved for Issue		
				Name	Distributed To	Date
A	K. van der Beeke	G. Connell	01/09/10	J. Grieve	N. Woolfrey (DEC)	02/09/10
B	K. van der Beeke	G. Connell	22/10/10	J. Grieve	N. Woolfrey (DEC)	25/10/10
0	K. van der Beeke	G. Connell	28/10/10	J. Grieve	N. Woolfrey (DEC)	29/10/10

Restrictions on Use

This document has been prepared specifically for the Brockman Iron Pty Ltd Marillana Iron Ore Project. Neither the report nor its contents may be referred to or quoted in any statement, study, report, application, prospectus, loan, or other agreement document, without the express approval of Brockman Iron Pty Ltd and/or *ecologia* Environment.

ecologia Environment
1025 Wellington Street
WEST PERTH WA 6005
Phone: 08 9322 1944
Fax: 08 9322 1599
Email: admin@ecologia.com.au

This page has been left blank intentionally

1.0 MARILLANA IRON ORE PROJECT OVERVIEW

The proposal nominated by Brockman Iron Pty Ltd (Brockman) for which approval is sought from the Minister for the Environment is the Marillana Iron Ore Project (the Project) which consists of a 700-750 Mt iron ore mine, processing facility and associated infrastructure located within the Pilbara of Western Australia. It is anticipated that traditional open pit mining methods of excavating, load and haul will be utilised for the pit development, and that the mine will produce 17-19 Mt of beneficiated ore per annum.

The Project is located within mining leases M47/1414 and M47/1419 which have been granted. The Project area (encompassed by E47/1408) is located approximately 100 km north west of the township of Newman, covers 96 km^2 of the Fortescue Valley, borders the Hamersley Range and lies approximately 15 km south of the Fortescue Marsh. It is intersected by distributaries of the Weeli Wolli Creek delta.

The Marillana Project will comprise:

- An open cut iron ore mine producing 17-19 Mt of beneficiated ore per annum.
- Above ground overburden and fines rejects storage facilities.
- In-pit disposal of mine waste after year two of operation.
- In-pit disposal of fines rejects after year seven of operations.
- Crushing, screening and processing facilities.
- A train loading facility.
- An accommodation camp for 550 personnel.
- A borefield to supply potable water to the accommodation and offices.
- Offices, workshops, a laboratory and supporting infrastructure including an explosives facility, landfill, water treatment plant and bulk fuel storage.

Brockman have undertaken significant environmental and social investigations to establish the potential risks of the Project and to inform appropriate management strategies for key aspects such as native flora and fauna, ground and surface water, heritage values and the local community.

In accordance with the *Environmental Protection Act 1986* (WA), a Public Environmental Review (PER) has been prepared which describes the Project and its likely effects on the environment. The PER was available for public review for a period of 4 weeks between 10th May and 8th June 2010 (EPA Assessment No. 1781).

This Offset Plan documents the environmental implications associated with the Project and outlines the proponent's proposed package to offset significant environmental impacts. This plan has been prepared to address the recommendations outlined in the EPA Guidance Statement No. 19 Environmental Offsets - Biodiversity (EPA, 2008) and Position Statement No. 9 *Environmental Offsets* (EPA, 2006).

2.0 ENVIRONMENTAL SUSTAINABILITY

Brockman Resources Limited has embraced the EPA's principles of environmental protection as part of Project engineering and design. The environmental objective of the Project's design, in order of priority, is to:

- Completely avoid the impact if possible;
- Substitute with a lesser impact;
- Design rehabilitation and engineering solutions to reduce the degree and risk of impact;
- Design operational controls and emergency response around reduction of impact consequences; and
- Provide for environmental offsets for the impact.

Investigations have been conducted by Brockman for all aspects of the Project to gather baseline data and to determine the types and degree of environmental impacts of the Project. Agreement from relevant agencies was obtained for the investigation methods as part of the proposal's consultation process. Advice has been sought by Brockman from DEC EM Branch regarding offset opportunities relating to the risk and impacts of the Project, and incorporated into this offset plan. Copies of meeting minutes is included in Appendix 1.

Brockman have undertaken a qualitative environmental risk assessment (ERA) based upon the methodology in AS/NZS 4360 and HB 203:2000. The full results of the risk assessment are presented within the PEMP (PER Appendix F). Importantly, this process will be undertaken on at least an annual basis as Project activities change and new legislation and/or biological information is developed or identified.

The risk assessment process involved:

- identification of the key environmental aspects of the Project;
- identification of the potential sources of risk, risk events and potential impacts for each of the environmental aspect;
- an estimation of the likelihood of each risk event occurring, the potential environmental consequences if it did occur and the subsequent determination of an inherent risk rating for each event; and
- development of appropriate controls and a re-rating of residual risk.

Significance was determined as a function of the sensitivity of the receiving environment and the magnitude of the impact. In assessing the significance of environmental impacts potentially resulting from this proposal, Brockman considered the following:

- relevant legislation, standards and guidelines;
- biological assessments of the Project area;
- the EPA's Principle's of Environmental Protection; and
- input from government and community-based stakeholders.

The potential residual environmental impacts (after implementation of the proposed on-site management measures) addressed by this offset plan are:

- Clearing of native vegetation; and
- Direct and indirect loss of troglofauna habitat.

Several opportunities for impact avoidance and minimisation have been identified and implemented to various degrees as part of the proposal's design phase. The potentially significant environmental impacts, proposed alternatives and on site management measures are outlined in the following sections.

2.1 CLEARING OF NATIVE VEGETATION

2.1.1 Potential Significant Impact and Asset Value

The Marillana Proposal will require land clearing involving the removal of vegetation and topsoil for pre-defined areas including the mine pit area, stockpiles, fine rejects storage facility (FRS), processing area and other infrastructure. It is estimated that 2,985 ha of native vegetation, the majority being in moderate to significantly disturbed condition, will be cleared for mining activities over the 20 year life of the mine at Marillana. The vegetation condition assessment (see PER section 6.7.3) noted within the survey area 45% in poor condition (significant disturbance); 44% in good condition (moderate disturbance) and 11% in excellent condition (minimal disturbance).

There were no flora species or threatened ecological communities of national or state significance recorded during the 2008 surveys. All other vegetation types in the area are not considered to be regionally or locally significant implying that at a regional scale impact to most of the vegetation associations, habitat types and landforms found in the survey area will not constitute a significant loss to biodiversity. Therefore, the clearing does not represent an adverse impact on a critical asset. However, the clearing of 2,985 ha represents a residual impact to a low to medium value asset which cannot be avoided or minimised.

2.1.2 Avoidance and Management Strategies

- Minimisation of project footprint through progressive backfilling of pit void.
- Location of mine infrastructure to avoid known location of the Priority flora species, *Goodenia nuda.*
- Selection of project footprint to avoid clearing or disturbance of PEC vegetation units 6 and 7. This vegetation will be demarcated as a 'no go' area on site maps and access restrictions communicated to site staff and contractors through inductions throughout the life of the Project. Signage will be erected between the rail and the dunes to notify employees and contractors that the sand dunes are a 'no go' area. No tracks will be created to allow access to the dunes and vehicles are prohibited off tracks.
- The extent of vegetation to be cleared for construction and operational activities will be minimised as much as possible, and staged clearing will minimise the time between clearing and rehabilitation.
- Standard clearing procedures will be implemented (see PER Appendix F) and employee and contractor training programs will be implemented to ensure clearing procedures are adhered to (PER Appendix G).

2.2 LOSS OF TROGLOFAUNA HABITAT

2.2.1 Potential Impact and Asset Value

Subterranean fauna are protected at a State level under the *Wildlife Conservation Act 1950* and are also protected at a Federal level under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Minimum requirements for environmental management with respect to subterranean fauna are outlined in EPA Guidance Statement 54: *Consideration of Subterranean Fauna in Groundwater and Caves during Environmental Impact Assessment 2003.*

The six phases of sampling carried out during *ecologia*'s survey of the Project area in 2008 and 2009 produced a total of six definitive (unambiguous) troglobite species. The low capture rate, along with an unsuccessful attempt to sample off the tenement, made gaining an understanding of

the habitat constraints of the troglofauna community difficult. A detailed assessment of the subterranean geology of the Project area and regional surrounds was undertaken to explore the likely extent of habitat available to troglofauna off-tenement utilising drill core samples and historical exploration drill data.

The results of the risk assessment indicated that direct impact as a result of excavation of the mine pits is 1,648 ha or, approximately 8.2 % of the inferred troglofauna distribution (20,203 ha). Secondary impacts resulting from the clearing of vegetation for mine infrastructure (such as the waste dumps, plant and stockpiles) total 936 ha, or 4.6 % of the inferred troglofauna distribution. It is not anticipated that this degree of impact will significantly affect the connectivity of the troglofauna community nor its viability. The direct and indirect impacts are likely to equate to a moderate (12.8%) impact on the inferred distribution to this high value asset which cannot be avoided or minimised.

2.2.2 Avoidance and Management Strategies

- The Project will require minimal blasting, as much of the target material is unconsolidated rock. Blasting that does occur will be carried out during daylight hours and strictly controlled to minimise air blast and ground vibration issues.
- Site disturbance and excavation will be minimised to only those areas required and applied for with a Site Disturbance Permit (PER Appendix G). Pit excavation will be staged over the 20 year mine life and areas of the pit backfilled to above the pre-existing water table progressively and rehabilitated.
- Impacts to troglofauna as a result of clearing that may lead to nutrient starvation will be managed by minimising the footprint of infrastructure such as waste dumps and stockpiles. These landforms have been designed to minimise the area required for their construction while conforming to the appropriate standards (such as Safe Design and Operating Standards for Tailings Storage, 1999 and Environmental Notes on Mining Waste Rock Dumps, 2001). Additionally, waste will be stored in-pit after year five of operations further reducing the overall Project footprint.
- All areas impacted by mining will be contoured and rehabilitated in accordance with Section 7.7 of the PER document and the PEMP (PER Appendix F) as soon as they are decommissioned to restore conditions suitable for troglofauna.
- Dewatering operations will be managed in line with PER Section 7.4 and the GWMP (PER Appendix E). Modelling of the proposed closure strategy suggests that water levels within the mine path will not be significantly impacted by the closure strategy with little to no impact predicted outside of the mine path. Further detail is presented in PER Appendix E and PER Appendix T.
- There is some precedence for the concept that subterranean fauna habitat can be rehabilitated after the completion of mining (i.e. Mesa K). Owing to the unique geology that these subterranean fauna are located within (loose, unconsolidated gravels), it is possible that reinstating key habitat requirements through pit backfilling, rehabilitating waste dumps and revegetation may effectively reinstate subterranean fauna habitat over the medium to long term. As this theory has not yet been tested to any significant extent, and certainly not within this geology, Brockman proposes to investigate the potential for habitat restoration and rehabilitation in liaison with the DEC.
- The design of an appropriate monitoring program will be discussed with the DEC and may incorporate the following:

- Investigation into effects of dewatering on the subterranean environment / habitat humidity surrounding the pit.
- Investigation into effects of revegetation and rehabilitation of waste dumps and backfilling of the pit with respect to replacing subterranean habitat.
- Additional regional sampling for species found within the impact zone.
- Contribution of pertinent data and collaboration with the DEC to ascertain the range of species found within the impact area.

3.0 OFFSETS

The Offset Plan proposed by Brockman is outlined in Table 3.1 below. The plan includes contributing offsets for residual impacts to clearing of native vegetation and loss of troglofauna habitat.

The EPA Position Statement No. 9 (2006) states that contributing offsets can in some cases be preferable (to direct offsets) because they would lead to a better environmental outcome, or where direct offsets are not possible. The contributing offsets presented in this plan have been developed in liaison with the DEC and are considered to deliver the maximum long-term environmental benefit by delivering valuable information and knowledge and informing long-term management.

Contributing, rather than direct offsets relating to the Fortescue Marsh are considered appropriate in view of the agreement of the State Government for the area to be excluded from the Pastoral lease renewal for a public purpose (as per s143 6(d) of the *Land Administration Act (1997)*) and to formally reserve the land as a conservation reserve. This process of acquisition by the State Government ensures the Fortescue Marsh ecosystem will be included into conservation estate and will provide security of tenure, purpose and management, beyond which could be achieved on private property. Contributions outlined in this offsets plan to the protection, new research and management of the Fortescue Marsh ecosystem will assist in securing long term benefits to the environment.

Management of the Fortescue Marsh

In recognition of the conservation importance of the Fortescue Marsh to the State of Western Australia and the potential for this area to be listed as a Ramsar wetland in the future, Brockman will commit to the measures outlined in Table 3.1. Brockman will provide an annual, ongoing contribution the DEC which are to be used to fund the programs deemed to be important in the long term conservation of the Marsh. The funds will be provided after the Project's first operational year.

Research Projects

Outlined in Table 3.1 below is the range of research projects suggested by the DEC as being the most appropriate to the residual impacts of the Marillana Proposal. The funds will be provided after the Project's first operational year.

Contributions to Fortescue Marsh subterranean fauna knowledge has the direct benefit of establishing a process and platform which would facilitate the ability to expand the dataset to the Hamersley Range and wider Pilbara, which would inform future management of the Fortescue Marsh.

Contributions to hydrological knowledge and floristics of significant communities are a short term projects, but will deliver valuable information and inform long-term management.

Fencing

Brockman recognises that a key pressure on Fortescue Marsh native vegetation is the impacts associated with grazing activity. Brockman will commit to providing funding to the DEC to contribute towards fencing areas that the DEC acquires for conservation purposes through the Pastoral Lease excision in 2015. The funds will be provided after the Project's first operational year and formal documentation as to the DEC's management of the area provided.

Table 3.1 Proposed Offsets.

Residual Environmental Impacts	Asset Value	Offset	Direct or Contributing?	Monetary Value
Clearing of 2,985 ha of native vegetation.	low to medium value asset – native vegetation	Contributing to the management and protection of native vegetation within the Fortescue Marsh by provision of $30,000 to DEC after the first year of operation to contribute to boundary fencing of the Fortescue Marsh 2015 pastoral lease exclusion area proposed for inclusion in the State conservation reserve system. This could be achieved either by providing direct funding and equipment or by directly undertaking the work under the supervision of the coordinator of the Fortescue Marsh management project.	Contributing	$30,000
		Contributing $100,000 after the first year of operation to the following research project which is directly relevant to the Brockman Marillana Project. The research project has been chosen on the basis of advice from the DEC as to regional priority and potential environmental benefits with respect to informing management decisions: • Floristics of the Fortescue Valley Sand Dunes ecological community (Priority 3) and thus delimitation of the biodiversity values, condition and conservation status of this community Brockman will also provide in-kind support to the DEC personnel carrying out this research project by provision of the following: • accommodation and meals at Marillana as required (nominally 30 man days per annum);	Contributing	$100,000 plus in-kind support

		• Vacant seats on charter flights from Perth to the Project for the research project personnel; • Communications, transportation and Health and Safety support where necessary.		
		Ongoing, annual contribution to the management of the Fortescue Marsh, by provision of an annual amount of $400,000 over 20 years (pro rata, indexed annually to CPI) after the first year of operation to the DEC for the ongoing management of Fortescue Marsh. In addition to this monetary contribution, Brockman will take an active, supportive interest in the DEC's management activities and commit to showing goodwill to the DEC in this regard.	Contributing	$400,000 (indexed annually to CPI)
Loss of Troglofauna Habitat	High value asset - 12.8% of the inferred Troglofauna community distribution	Provide funding of $50,000 after the first year of operation to the following research project. The research project has been chosen on the basis of advice from the DEC as to priority and potential environmental benefits with respect to informing management decisions: • In keeping with the Fortescue Marsh management initiative, facilitate the development of a Fortescue Marsh subterranean fauna atlas in NatureMap. This project would involve compiling, collating and reconciling all the records for subterranean fauna known within the Fortescue Marsh study area and facilitating the development of an atlas (theme) within NatureMap for the delivery of this data.	Contributing	$50,000

APPENDIX 1 Meeting Minutes

1025 WELLINGTON STREET WEST PERTH WA 6005 • PH: 9322 1944 • FAX: 9322 1599 • ACN 088 821 425 • ABN 63 088 821 425
www.ecologia.com.au

Marillana Iron Ore Project EIA
Brockman Resources

Attention: **Colin Paterson; Jason Grieve**

MEMO

Meeting Minutes: Marillana PER Conservation Offsets DEC Meeting

Date: 23-Mar-2010

Time: 14:00 hours

Location: DEC Kensington

Subject: Discussion of potential conservation offsets relating to the Marillana PER

Attendees: (Initials)NW (DEC), AJ (DEC), HV [via telephone] (DEC), GC (Eco), KvdB (Eco), CP (BR)

NO	ITEM		Actions	Responsibility
1	Ecologia outlined the key residual impacts at end of mine life, as presented within the PER: - clearing footprint of the mine pit and infrastructure; - alteration to landscape; and - loss of Troglofauna habitat in some mine pit areas. It was noted that no significant residual impacts on surface water and groundwater balance are likely to occur (pit would be backfilled to above water table). Ecologia also confirmed there would be no impact to the Sand Dune PEC community.		Noted	
2	Several potential options for inclusion in an offsets package were discussed, and further details listed below:			
	2.a.	Co-contribution towards an existing study into hydrology at Fortescue Marsh - currently being run by UWA and inlcudes Rio Tinto.	DEC will investigate and advise whether this would be worthwhile consideration.	NW/AJ
	2.b.	Contributing data on troglofauna towards a regional database	DEC have been working on developing a regional database, work is ongoing.	

	2.c.	Instigating a Management Program to control weeds, feral animals and fencing in areas included in the relevant 2015 pastoral lease exclusion areas	DEC and Ecologia noted that, for this option, BR is limited to the areas which fall under their direct management control. Also noted that the project area is not directly affected by the 2015 exclusion area.	
	2.d.	A Management Programme for the PEC sand dune which addresses specifically feral animal control.	Ecologia noted that the PEC does not fall into any of the 2015 pastoral lease exclusion areas. BRM may be able to pursue an MOU with the station owner (BHP) to allow management programme to be implemented.	
	2.e.	Contributing towards an SRE taxonomy research project to clarify areas of current ambiguity		
3	There was general agreement that a suitable offsets package would be developed further over the coming months and further consultation with Stephen van Leeuwen will be beneficial to capture any other potential options.		DEC will consult internally and provide feedback to Ecologia/BR.	NW/AJ

Best regards,
Kate van der Beeke
Senior Environmental Advisor

31/03/2010