

CLIFFS ASIA PACIFIC IRON ORE PTY LTD ABN 46 001 892 995 Level 12, 1 William Street, Perth, Western Australia, 6000 P 61.8.9426.3333 F 61.8.9426.3344 cliffsnaturalresources.com Postal Address: GPO Box W2017, Perth, WA 6846

16<sup>th</sup> July 2014

Dr Paul Vogel Chairman Environmental Protection Authority Locked Bag 10 EAST PERTH WA 6892

Dear Dr Vogel,

# REFERRAL UNDER SECTION 38 OF THE *ENVIRONMENTAL PROTECTION ACT 1986* (WA): YILGARN OPERATIONS – KOOLYANOBBING RANGE F DEPOSIT.

Cliffs Asia Pacific Iron Ore Pty Ltd (Cliffs) is a supplier of Western Australian iron ore, with mine operations in the Yilgarn Region at the Koolyanobbing Range, Windarling Range, Mt Jackson Range and the Deception Deposit. Cliffs proposes to extend its existing operations to include the Koolyanobbing Range F Deposit, located approximately 50km north-east of the town of Southern Cross. Iron ore mining at the Koolyanobbing Range has a history spanning approximately 50 years, having commenced in 1967.

The Proposal will allow access to an estimated 5.2 million tonnes of high-grade hematite iron ore having a direct economic value of approximately A\$500million. The Proposal will function as a southerly extension to Cliffs' existing Koolyanobbing Range mine operations.

The Proposal will be implemented within an area of 211 hectares comprising the following mine infrastructure components:

- (a) Mine Pits;
- (b) Waste Rock Landform; and
- (c) Support Infrastructure.

Cliffs considers that the Proposal should be subject to an environmental assessment by the Environmental Protection Authority (EPA) in accordance with the *Environmental Protection Act 1986* (WA). Accordingly, in accordance with Section 38 of the *Environmental Protection Act 1986* (WA), Cliffs hereby refers the Proposal to EPA for consideration. A completed referral form is appended to this letter. A digital copy of the completed referral form (including the supporting documentation) and spatial data for the Proposal is also appended.

As outlined within the completed referral form, Cliffs considers the key environmental factor relevant to this Proposal to be "Flora and Vegetation", and specifically, the effect to *Tetratheca erubescens*; a flora taxon declared as "Rare Flora" under the *Wildlife Conservation Act 1950* (WA). The effect of the Proposal to *Tetratheca erubescens* can be

subject to detailed consideration as part of the environmental impact assessment processes under the *Environmental Protection Act 1986* (WA).

The other potential environmental effects of the Proposal are not expected to be environmentally significant.

Cliffs considers that the potential environmental effects of the Proposal can be appropriately managed in accordance with the environmental management plans and procedures contained within Cliffs' ISO 14001:2004-certified Environmental Management System (EMS) used throughout Cliffs' Yilgarn Operations. Cliffs has a strong environmental performance record, with Cliffs' remaining in compliance with all previous environmental approvals granted under the *Environmental Protection Act 1986* (WA) over a period of more than 10 years of mine operations.

Cliffs considers the Proposal could be appropriately assessed by EPA at the level of "Assessment on Proponent Information - Category A", in that the Proposal:

- (a) raises a limited number of key environmental factors (i.e. Flora and Vegetation for the effect to *Tetratheca erubescens*) that can be readily managed through implementation of Cliffs' EMS, and with EPA having an established condition setting framework (including offsets) for Rare Flora taxa;
- (b) is consistent with EPA's environmental policies, guidelines and standards;
- (c) has been subject to appropriate and effective stakeholder consultation; and
- (d) is of limited public concern about the effect on the environment.

The completed referral form (including attachments) provides information to address the above criteria in order to assist EPA in determining the appropriate assessment approach.

Cliffs acknowledges that EPA may alternatively elect to assess the environmental effects of the Proposal at the level of "Public Environmental Review".

If you have any questions or require further information on the referral of this Proposal, I encourage you to contact me by email at Rob.Howard@CliffsNR.com or by telephone on 9426 3393.

Yours sincerely

Dr Robert Howard MANAGER ENVIRONMENT APIO CLIFFS ASIA PACIFIC IRON ORE PTY LTD

#### Attachments:

(1) Completed Referral Form (including CD containing the referral, spatial data and references)

#### Copy to:

- Director General
   Department of Mines and Petroleum
   100 Plain Street
   EAST PERTH WA 6004
   ATTN: Mr Ian Mitchell
   Team Leader, Environment Operations
- (2) Director General Department of Environment and Conservation Locked Bag 104 BENTLEY DELIVERY CENTRE WA 6983 ATTN: Mr Daniel Coffey Area Manager South, Environmental Management Branch
- (3) Ms Vivienne Piccoli
   Chief Executive Officer
   Shire of Yilgarn
   PO Box 86
   SOUTHERN CROSS WA 6426



#### Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.



#### PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

#### CHECKLIST

Before you submit this form, please check that you have:

	Yes	No
Completed all the questions in Part A (essential).	✓	
Completed all applicable questions in Part B.		
Included Attachment 1 – location maps.		
Included Attachment 2 – additional document(s) the proponent		
wishes to provide (if applicable).		
Included Attachment 3 – confidential information (if applicable).		N/A
Enclosed an electronic copy of all referral information, including		
spatial data and contextual mapping but excluding confidential		
information.		

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?		
✓ Yes No Not sure		
If yes, what level of assessment?		
Assessment on Proponent Information		
Cliffs considers the Proposal could be appropriately assessed by EPA at the level of "Assessment on Proponent Information - Category A", in that the Proposal:		
(a) raises a limited number of key environmental factors (i.e. Flora and Vegetation for the effect to Tetratheca erubescens) that can be readily managed through implementation of Cliffs' ISO 14001:4001-certified Environmental Management System, and with EPA having an established condition setting framework (including offsets) for Rare Flora taxa;		
(b) is consistent with EPA's environmental policies, guidelines and standards;		
(c) has been subject to appropriate and effective stakeholder consultation; and		
(d) is of limited public concern about the effect on the environment.		
The completed referral form (including attachments) provides information to address the above criteria in order to assist EPA in determining the appropriate assessment approach.		

#### **PROPONENT DECLARATION** (to be completed by the proponent)

I, Dr Robert Keith Howard, *(full name)* declare that I am authorised on behalf of Cliffs Asia Pacific Iron Ore Pty Ltd (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature	Name (print)
Ato 1	Dr Robert Keith Howard
Position	Company
Manager Environment Asia Pacific Iron Ore	Cliffs Asia Pacific Iron Ore Pty Ltd

#### **PART A - PROPONENT AND PROPOSAL INFORMATION**

(All fields of Part A must be completed for this document to be treated as a referral)

#### 1 PROPONENT AND PROPOSAL INFORMATION

#### 1.1 Proponent

Name	Cliffs Asia Pacific Iron Ore Pty Ltd (Cliffs)
Joint Venture parties (if applicable)	Not applicable
Australian Company Number (if applicable)	001 892 995
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	Physical address: Cliffs Asia Pacific Iron Ore Pty Ltd Level 12 1 William Street PERTH WA 6000 Postal address for all correspondence: Manager Environment APIO Cliffs Asia Pacific Iron Ore Pty Ltd GPO Box W2017 PERTH WA 6984
Key proponent contact for the proposal: • name • address • phone • email	Dr Robert Howard Manager Environment APIO Cliffs Asia Pacific Iron Ore Pty Ltd Phone: 9426 3393 / 0438 990 704 Email: Rob.Howard@CliffsNR.com
Consultant for the proposal (if applicable): • name • address • phone • email	Mr Stuart Hawkins Director / Consulting Scientist Globe Environments Australia Pty Ltd Phone: 0400 455 554 Email: Stuart.Hawkins@CliffsNR.com Stuart.Hawkins@GlobeEnvironments.com.au

#### 1.2 Proposal

Title	Yilgarn Operations – Koolyanobbing Range F Deposit
Description	The Proposal is for the mining of the Koolyanobbing Range F Deposit, located at the Koolyanobbing Range approximately 50km north- east of the town of Southern Cross in the Shire of Yilgarn, Western Australia.
	The Proposal will allow access to an estimated 5.2 million tonnes of high-grade hematite iron ore from the Koolyanobbing Range F Deposit. The Proposal represents a southerly extension to Cliffs' existing Koolyanobbing Range mine operations.
	The Proposal includes the following mine
	<ul><li>(a) Mine Pits for the excavation of the iron ore resource;</li></ul>
	(b) Waste Rock Landform for the disposal of the excavated waste rock; and
	<ul> <li>(c) Support Infrastructure including ore stockpiles, rehabilitation stockpiles (vegetation, topsoil and subsoil), gravel pits, administration facilities, water storage dams, power generation facilities, chemical and hydrocarbon and explosive storage facilities, and mine roads.</li> </ul>
	The above infrastructure components will be positioned within an area of 211 hectares (ha).
	Mapping identifying the location of the Proposal are provided at Attachment 1 (Figures 1 to 4).
	The key characteristics of the Proposal are summarised at Attachment 3.
	The ore resource will be mined through the conventional open-cut mining techniques of drilling, blasting, loading and transport.
	Development of the Proposal has been scheduled to commence from Q1 2016, with productive mining expected to occur until Q2 2019.
	To clarify, the Proposal does not include (i.e. exclusions) surveys and/or investigations of a geological or geotechnical or environmental or hydrological or planning or heritage nature

	(including any potential impacts associated with
	such surveys and/or investigations).
Extent (area) of proposed ground disturbance.	211ha
Timeframe in which the activity or	Q1 2016 to Q2 2019
development is proposed to occur	
applicable).	
Details of any staging of the proposal.	Not applicable
Is the proposal a strategic proposal?	Not applicable
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified: • title of the strategic assessment; and • Ministerial Statement number	Not applicable
Please indicate whether, and in what	
way, the proposal is related to other proposals in the region.	The Proposal will function as a southerly extension to Cliffs' existing Koolyanobbing Range mine operations, which forms part of the broader Yilgarn Operations. Iron ore mining at the Koolyanobbing Range has a history spanning approximately 50 years.
	The existing infrastructures and facilities at the Koolyanobbing Range mine operations includes mine pits (A, B, C, D and K Deposits), waste rock landforms, stockpiles, administration and workshop facilities, water and wastewater treatment facilities, water dams, power generation facilities, chemical and hydrocarbon and explosive storage facilities, waste management facilities, an airstrip and a mine camp. These existing infrastructures and facilities will be used to the extent necessary under their existing statutory approvals to support the development of this Proposal. Reassessment or re-approval of these existing infrastructures and facilities is not required.
Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	The Proposal will be implemented within land areas defined by Tenements M77/607-1, M77/989-1, M77/990-1 and E77/1004-1 granted to Cliffs under the Mining Act 1978 (WA).

What is the current land use on the property, and the extent (area in hectares) of the property?	The current land use of the Proposal area is mineral exploration and mining operations on Tenements M77/607-I, M77/989-I, M77/990-I and E77/1004-I granted to Cliffs under the <i>Mining Act</i> 1978 (WA). There are no other land uses of the Proposal area, noting the Koolyanobbing Range area has been subject to active iron ore mine operations since 1967. The spatial extent of Tenements M77/607-I, M77/989-I, M77/990-I and E77/1004-I is approximately 6,060ha.
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#### 1.3 Location

Name of the Shire in which the proposal	Shire of Yilgarn
For urban areas:	
FOI UIDAII Aleas.	Not applicable
• street address,	
• Suburb, and	
Tearest road intersection.	
For remote localities.	The Proposal will be implemented within land
• fieldest town, and	areas defined by Tenements M77/607-I, M77/989-I,
town to the proposal site	M77/990-I and E77/1004-I granted to Cliffs under
	the Mining Act 1978 (WA), located at the
	Koolyanobbing Range approximately 50km north-
	Vilger Western Australia
	nigam, western Australia.
Electronic copy of spatial data - GIS or	
CAD, geo-referenced and conforming to	Enclosed?: 🗹 Yes / No
the following parameters:	
GIS: polygons representing all	
activities and named;	
CAD: simple closed polygons	
nomod:	
a datum: GDA94:	
• datum. GDA34,	
(latitude/longitude) or Man Grid of	
Australia (MGA).	
• format: Arcview shapefule Arcinto	
<ul> <li>format: Arcview shapefile, Arcinto coverages. Microstation or</li> </ul>	

#### **1.4 Confidential Information**

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	Yes / No 🗹
If yes, is confidential information attached as a separate document in hard copy?	Yes / No Not applicable

#### 1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		Yes / No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal?		☑ Yes /	No
Agency/ Approval required Authority		App'n lodged Yes / No	Agency/Local Authority contact(s) for proposal
Department of the Environment (C'th)	* Action approval or "Not a controlled action" decision under the Environment Protection and Biodiversity Conservation Act 1999 (C'th)	Yes	Ms Victoria Press Director Referrals Gateway Section Phone: (02) 6274 2122 Email: Victoria.Press@environment.gov.au
Department of Mines and Petroleum (DMP)	Mining Proposal approval under s82A(2) of the Mining Act 1978 (WA) Mining Lease (conversion from E77/1004-I) grant under s71 and s75 of the Mining Act 1978 (WA) Project Management Plan approval under r3.13 of the Mines Safety and Inspection Regulations 1995 (WA)	No	Mr Ian Mitchell Team Leader Operations, Environment Phone: 9222 3441 Email: Ian.Mitchell@dmp.wa.gov.au
Department of Parks and Wildlife (DPaW)	Licence to Take Rare Flora under s23F of the Wildlife Conservation Act 1950 (WA)	No	Mr Daniel Coffey Area Manager South Env. Management Branch Phone: 9334 0102 Email: Daniel.Coffey@dpaw.wa.gov.au
Department of Water (DoW)	Licence to Construct or Alter Wells under s26D of the Rights in Water and Irrigation Act 1914 (WA). Amendment to Licence	No	Mr Bala Balakumar Natural Resource Mgt. Officer Swan Avon Region Phone: 6250 8034 Email:

GWL154459 (DoW 2012	2) Bala.Balakumar@water.wa.gov.au
under s5C of the Rights	s in
Water and Irrigation Ac	ct 1914
(WA) to include additio	onal
groundwater wells (no	
change to groundwate	er
allocation).	

\* indicates that consultation is required to determine if approval is required (or not required).

#### PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

#### 2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

- 2.1 flora and vegetation;
- 2.2 fauna;
- 2.3 rivers, creeks, wetlands and estuaries;
- 2.4 significant areas and/ or land features;
- 2.5 coastal zone areas;
- 2.6 marine areas and biota;
- 2.7 water supply and drainage catchments;
- 2.8 pollution;
- 2.9 greenhouse gas emissions;
- 2.10 contamination; and
- 2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.

#### 2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

please tick)	🗹 Yes	If yes, complete the rest of this section.
	🗌 No	If no, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

The Proposal will be implemented within an area of 211ha which contains native vegetation. The native vegetation will require clearing to allow for implementation of the Proposal.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

🗌 Yes

🗹 No

**If yes**, on what date and to which office was the application submitted of the DEC?

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

□ No

🗹 Yes

**If yes**, please <u>attach</u> a copy of any related survey reports and <u>provide</u> the date and name of persons / companies involved in the survey(s).

**If no**, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

The flora and vegetation values of the southern Koolyanobbing Range, including the area of the Proposal, are described in the following documents (in alphabetical order):

- (a) Maia Environmental Consultancy Pty Ltd (2013) Southern Koolyanobbing Range Tetratheca erubescens Census. Report prepared by Haycock R, Hitchcock S and Cox C of Maia Environmental Consultancy Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. Revision 2. August 2013.
- (b) Woodman Environmental Consulting Pty Ltd (2014) Southern Koolyanobbing Range Flora and Vegetation Assessment. Report prepared by Coultas D of Woodman Environmental Consulting Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. Revision 0. February 2014.

Mapping identifying the recorded locations of flora and vegetation values from the above documents is provided at Attachment 1. Copies of the above documents are provided on the compact disc appended to this completed referral form at Attachment 2.

- 2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?
  - Yes If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

A search of DPaW records was completed as part of the Woodman (2014) flora and vegetation survey.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

Yes Invo If yes, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

Flora and vegetation surveys undertaken in the area of the southern Koolyanobbing Range (Woodman 2014; Maia 2013) have identified the following conservation significant flora taxa declared as either "Rare Flora" under the *Wildlife Conservation Act 1950* (WA) (WA Minister for Environment 2013a) or classified by DPaW as "priority":

- (a) Tetratheca erubescens (Rare Flora);
- (b) Beyeria rostellata (P1);
- (c) Acacia haematites (P1)<sup>1</sup>;
- (d) Acacia dissona var. indoloria (P3);
- (e) Austrostipa blackii (P3);
- (f) Hibbertia lepidocalyx ssp. tuberculata (P3);
- (g) Lepidium genistoides (P3);
- (h) Lepidosperma ferricola (P3);
- (i) Spartothamnella sp. Helena and Aurora Range (P3);
- (j) Stenanthemum newbeyi (P3);
- (k) Styphelia sp. Bullfinch (P3); and
- (I) Banksia arborea (P4).

The flora and vegetation survey (Woodman 2014) identified 16 vegetation units across the southern Koolyanobbing Range. The flora survey also noted the listing of a DPaW-classified "Priority Ecological Community" (PEC) (Woodman 2014; DPaW 2013a).

No listed "Threatened Species" of flora under the Environment Protection and Biodiversity Conservation Act 1999 (C'th) were recorded in the area of the southern Koolyanobbing Range (Woodman 2014). No Threatened Ecological Communities listed under the Environment Protection and Biodiversity Conservation Act 1999 (C'th) were recorded in the area of the southern Koolyanobbing Range (Woodman 2014).

Mapping identifying the recorded locations of flora and vegetation values in the vicinity of the southern Koolyanobbing Range are provided at Attachment 1 (Figures 5 to 10).

Of the above listed flora and vegetation values, the Proposal area coincides with:

- (a) Tetratheca erubescens (Rare Flora);
- (b) Beyeria rostellata (P1);
- (c) Acacia dissona var. indoloria (P3);
- (d) Hibbertia lepidocalyx ssp. tuberculata (P3);
- (e) Lepidosperma ferricola (P3);
- (f) Spartothamnella sp. Helena and Aurora Range (P3);
- (g) Stenanthemum newbeyi (P3);
- (h) Banksia arborea (P4);
- (i) 9 vegetation units; and
- (j) DPaW-classified PEC.

The Proposal is expected to impact (remove) approximately 20% of the Tetratheca erubescens population. The remaining approximately 80% of the Tetratheca erubescens population will remain within non-impact areas of the southern Koolyanobbing Range.

<sup>&</sup>lt;sup>1</sup> Acacia haematites (P1) was referred to as Acacia aff. acuaria in Woodman (2014). Acacia haematites has been recommended to be listed at P1 as outlined by Maslin (2014), however consideration for listing by DPaW is currently pending. To be consistent with the recommendation of Maslin (2014), Acacia haematites has been identified as P1 within this referral form.

A preliminary assessment indicates that the effect of the Proposal is not expected to change the threat category of "Vulnerable" currently applying to *Tetratheca erubescens* under the criteria of the International Union for Conservation of Nature (IUCN 2012; DPaW 2004).

The effect of the Proposal is expected to result in negligible impact on the genetic variation and spatial structuring of *Tetratheca* erubescens (BGPA 2014 in prep.).

Cliffs' existing Windarling Range mine operations occur in close proximity to the related flora taxon *Tetratheca paynterae* ssp. *paynterae*, with approximately 30% of the population approved for removal. Since the Windarling range mine operations commenced in 2004, Cliffs has demonstrated effective and responsible management of its mining activities in proximity to this *Tetratheca* taxon, with no significant adverse effect to the retained *Tetratheca* population.

Having regard to:

- (a) The expected impact of the proposal to Tetratheca erubescens;
- (b) the preliminary assessment indicating the effect of the Proposal is not expected to change the threat category of "Vulnerable" currently applying to Tetratheca erubescens;
- (c) Genetic assessment indicating that the effect of the Proposal will have negligible impact on genetic variation and spatial structuring of the Tetratheca erubescens population;
- (d) Cliffs' experience in the management of Rare Flora taxa for the existing Yilgarn Operations; and
- (e) an existing condition setting framework (including environmental offsets) for Rare Flora,

the effect of the Proposal to *Tetratheca erubescens*, whilst environmentally significant, is expected to be readily manageable by Cliffs in accordance with EPA's established condition setting framework.

The effect of the Proposal to Tetratheca erubescens, including the applicability of environmental offsets, will be subject to detailed consideration as part of the environmental impact assessment processes under the Environmental Protection Act 1986 (WA). The environmental impact assessment process will allow Cliffs to demonstrate that the EPA's objectives for this environmental factor can be achieved.

To note, the impact to Tetratheca erubescens will also be subject to environmental regulation under the Wildlife Conservation Act 1950 (WA).

Having regard to:

- (a) the confined area of the Proposal; and
- (b) the spatial distribution of the other recorded flora and vegetation values (i.e. DPaW-classified "priority" flora, vegetation units) across the southern Koolyanobbing Range and the broader region,

the effect of the Proposal to the other recorded flora and vegetation values is not expected to be environmentally significant. The effect of the Proposal to the other recorded flora and vegetation values will also be subject to further consideration as part of the environmental impact assessment processes under the *Environmental Protection Act 1986* (WA). The environmental impact assessment process will allow Cliffs to demonstrate that the EPA's objectives for this environmental factor can be achieved.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

appropriate).

Yes No **If yes**, please indicate which Bush Forever Site is affected (site number and name of site where

Not applicable

#### 2.1.8 What is the condition of the vegetation at the site?

As outlined in Woodman (2014), the vegetation condition at the southern Koolyanobbing Range is generally in an "excellent" condition, however, several areas across the southern Koolyanobbing Range, including the area of the Proposal, were recorded as ranging from "very good" to "cleared land" resulting from previously approved mining and mineral exploration activities.

#### 2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick)✓ YesIf yes, complete the rest of this section.□ NoIf no, go to the next section.

2.2.2 Describe the nature and extent of the expected impact.

The Proposal will be implemented within an area of 211ha which contains native vegetation. The native vegetation to be cleared for implementation of the Proposal provides habitat for a variety of fauna taxa.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

☑ Yes 🗌 No

**If yes**, please <u>attach</u> a copy of any related survey reports and <u>provide</u> the date and name of persons / companies involved in the survey(s).

**If no**, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

The fauna values of the southern Koolyanobbing Range, including the area of the Proposal, are described in the following documents (in alphabetical order):

(a) Bamford Consulting Ecologists (2009) Investigations into the Distribution and Abundance of the Tree-stem Trapdoor Spider in the

Koolyanobbing Area, December 2008. Report prepared by Bamford M, Smith S and Smith P of Bamford Consulting Ecologists for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2009.

- (b) Bamford Consulting Ecologists (c.2009) Preliminary Summary of Level 2 Fauna Survey Koolyanobbing, F Deposit. Report prepared by Huang N of Bamford Consulting Ecologists for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2009.
- (c) Bennelongia Pty Ltd (2009) Troglofauna Survey at Koolyanobbing. Report prepared by Trotter A of Bennelongia Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd (formerly as Portman Iron Ore Ltd). November 2009.
- (d) Bennelongia Pty Ltd (2014) Troglofauna Survey at Southern Koolyanobbing Range. Report prepared by Trotter A and Halse S of Bennelongia Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2014.
- (e) Biota Environmental Sciences Pty Ltd (2012) A Short Range Endemic Invertebrate Fauna Survey of the Southern Koolyanobbing Range. Report prepared by Watson N and Hamilton Z of Biota Environmental Sciences Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2012.
- (f) Biota Environmental Sciences Pty Ltd (2014a) Southern Koolyanobbing Range Vertebrate Fauna Survey. Report prepared by Cartledge V, King J, Keirle D and Eckermann B of Biota Environmental Sciences Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. Revision 2.2. February 2014.
- (g) Biota Environmental Sciences Pty Ltd (2014b) Results of Supplementary Short-Range Endemic Invertebrate Fauna Survey of the Southern Koolyanobbing Range. Report prepared by Teale R of Biota Environmental Sciences Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2014.

Mapping identifying the recorded locations of fauna values from the above documents is provided at Attachment 1. Copies of the above documents are provided on the compact disc appended to this completed referral form at Attachment 2.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

✓ Yes □ No (please tick)

A search of DPaW records was completed as part of the Biota (2014a) fauna survey referred to above.

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

Yes Invo If yes, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

Fauna surveys undertaken in the area of the southern Koolyanobbing Range (BCE 2009; BCE c.2009; Biota 2012; Biota 2014a; Biota 2014b) have identified the following

conservation significant fauna taxa declared as either "Specially Protected Fauna" under the *Wildlife Conservation Act 1950* (WA) (WA Minister for Environment 2013b) or classified by DPaW as "priority" (DPaW 2013b):

- (a) Leipoa ocellata (Malleefowl) (Specially Protected Fauna);
- (a) Merops ornatus (Rainbow Bee-eater) (Specially Protected Fauna)
- (b) Falco peregrinus (Peregrine Falcon) (Specially Protected Fauna);
- (c) Cacatua leadbeateri (Major Mitchell's Cockatoo) (Specially Protected Fauna); and
- (d) Aganippe castellum (Tree-stem Trapdoor Spider) (Priority 4).

To note, Leipoa ocellata and Merops ornatus are also listed as a "Threatened Species" of fauna and as a "Migratory Species", respectively, under the Environment Protection and Biodiversity Conservation Act 1999 (C'th).

For context, the above conservation significant fauna have broad distributions extending across large parts of the Yilgarn region and beyond, with some of these taxa also having distributions extending to other States and Territories of Australia.

Surveys for troglobitic subterranean fauna (Bennelongia 2014) and potential shortrange endemic invertebrate fauna (Biota 2014b) have also been undertaken at the southern Koolyanobbing Range. The troglobitic subterranean fauna and the potential short-range endemic invertebrate fauna recorded are not of listed conservation significance.

Mapping identifying the recorded locations of fauna values in the vicinity of the Proposal is provided at Attachment 1 (Figures 11 to 14).

Of the above listed fauna values, the Proposal area coincides with records of:

- (a) Leipoa ocellata (Specially Protected Fauna);
- (b) Merops ornatus (Specially Protected Fauna);
- (c) Cacatua leadbeateri (Specially Protected Fauna);
- (d) Aganippe castellum (Priority 4);
- (e) Troglobitic subterranean fauna; and
- (f) Potential short-range endemic invertebrate fauna.

Having regard to:

- (a) the confined area of the Proposal;
- (b) the spatial distribution of the vertebrate fauna values across the southern Koolyanobbing Range and the broader region; and
- (c) the connectivity of terrestrial and subterranean habitats for invertebrate fauna across the southern Koolyanobbing Range,

the effect of the Proposal to fauna values is not expected to be environmentally significant.

#### 2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estu	ary?
---	------

	(please tick)	🗌 Yes	If yes, complete the rest of this section.
		🗹 No	If no, go to the next section.
	The nearest surface water approximately 1.5km to the containing surface water to	r source to he east of following si	the Proposal is Lake Seabrook, a salt lake located the Proposal. Lake Seabrook is typically dry, only gnificant rainfall events.
2.3.2	Will the development re	sult in the	e clearing of vegetation within the 200 metre zone?
	Yes	] No	If yes, please describe the extent of the expected impact.
233	Will the development re	sult in th	e filling or exception of a river creek wetland or

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

] Yes	🗌 No	If yes, please describe the extent of the expected impact.
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2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

Yes No **If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

Yes	🗌 No	If yes, please describe the extent of the expected
		impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	🗌 Yes	🗌 No	Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	Yes	🗌 No	Unsure
Perth's Bush Forever site	🗌 Yes	🗌 No	Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	Yes	🗌 No	Unsure
The management area as defined in s4(1) of the Swan River Trust Act 1988	Yes	🗌 No	Unsure
Which is subject to an international agreement,	🗌 Yes	🗌 No	Unsure

#### 2.4 Significant Areas and/ or Land Features

- 2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?
  - $\Box$  Yes  $\Box$  No **If yes**, please provide details.
- 2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

 $\checkmark$  Yes  $\square$  No **If yes**, please provide details.

The Proposal includes vegetation within 50m of the "Rare Flora" taxon Tetratheca erubescens declared under the Wildlife Conservation Act 1950 (WA). Vegetation within 50m of "Rare Flora" is classified as an "Environmentally Sensitive Area" under s51B of the Environmental Protection Act 1986 (WA) and r6 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (WA).

# 2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

 $\checkmark$  Yes  $\square$  No **If yes**, please provide details.

The Proposal coincides with part of the southern Koolyanobbing Range. The Koolyanobbing Range extends for approximately 30km in length, comprising both the northern Koolyanobbing Range and the southern Koolyanobbing Range.

Mining at the southern Koolyanobbing Range has a history spanning approximately 50 years, with iron ore mining at the southern Koolyanobbing Range having commenced in 1967. The Proposal area itself has been subject to several exploration programs over the past decade which has resulted in existing land disturbance through the construction of access tracks and drilling pads.

The currently approved Koolyanobbing Range mine operations occupy a spatial area of approximately 810ha, with the Proposal to increase this spatial area to approximately 1,020ha.

Consistent with the existing Koolyanobbing Range mine operations, the Proposal will alter part of the southern Koolyanobbing Range through the construction of a Mine Pit (a depression) and an adjacent Waste Rock Landform (an elevated land mass).

The effect of the Proposal to the Koolyanobbing Range has been minimised through the mine planning process, with the Waste Rock Landform and the Support Infrastructure both positioned off the Koolyanobbing Range ridge. The effect of the Proposal to the Koolyanobbing Range will further be minimised through rehabilitation of the Waste Rock Landform and Support Infrastructure areas.

Whilst the Koolyanobbing Range (to 510mAHD) is a prominent landform in the local area, it is of lower elevation than other ranges in the local region e.g. Windarling Range (to 560mAHD), Mt Jackson Range (to 615mAHD), Mt Manning Range (to 640mAHD), Die Hardy Range (to 640mAHD) and the Helena and Aurora Range (to 680mAHD).

Having regard to the existing land use and disturbance at the Koolyanobbing Range, the effect of the Proposal on landforms is not expected to be significant.

#### 2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick)	Yes	If yes, complete the rest of this section.		
	🗹 No	If no, go to the next section.		

- 2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?
- 2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cuspate headland, coastal dunes or karst?

☐ Yes

If yes, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

No No

Yes No **If yes**, please describe the extent of the expected impact.

#### 2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

No **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

 $\Box$  Yes  $\blacksquare$  No If yes, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

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🗌 Yes
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No If yes, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

#### 2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

 $\checkmark$  Yes  $\square$  No **If yes**, please describe what category of area.

The Proposal coincides with the Goldfields Groundwater Management Area (Deborah Sub-Area) proclaimed under the *Rights in Water and Irrigation Act* 1914 (WA).

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes Volume No If yes, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

☐ Yes ☑ No If yes, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

Yes No (please tick)

Cliffs has been granted Licence GWL154459 under s5C of the *Rights in Water and Irrigation Act* 1914 (WA) by DoW for groundwater supplies for the Yilgarn Operations (DoW 2012). Licence GWL154459 includes the area of the Proposal. Licence GWL154459 provides sufficient water allocation for development of the Proposal.

2.7.5 Will the proposal require drainage of the land?

☐ Yes ☑ No

**If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick)  $\bigvee$  Yes If yes, complete the rest of this section.

□ No **If no**, go to the next section.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

Groundwater will be required by the Proposal for dust suppression. The volume of groundwater required for dust suppression has not been estimated for this Proposal, however, per hectare, the required volume is expected to be comparable to the requirements of the existing Koolyanobbing Range mine operations. Licence GWL154459 provides sufficient water allocation for development of the Proposal.

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Ground water supply for the Proposal will be provided through groundwater wells to be established within the Proposal area. Approval to establish the groundwater wells will be sought from DoW in accordance with s26D of the *Rights in Water and Irrigation Act* 1914 (WA), with the existing Licence GWL154459 under s5C of the *Rights in Water and Irrigation Act* 1914 (WA) to be amended to authorise groundwater abstraction from the constructed groundwater wells.

#### 2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick)  $\checkmark$  Yes If yes, complete the rest of this section.

No No

If no, go to the next section.

Discharges to the environment from the Proposal are expected to include the following:

- (a) noise use of mining equipment and blasting;
- (b) vibration use of mining equipment and blasting;
- (c) gaseous emissions burning of hydrocarbon fuels used in mining equipment and power generation;
- (d) dust generated by activities including land clearing, drilling, blasting, excavation, loading and unloading of ore and waste rock, vehicle movements on unsealed roads, and from wind passing over cleared land areas;

- (e) liquid effluent wastewaters from administration facilities and ablutions, and saline groundwater used in dust suppression activities; and
- (f) solid waste excavated waste rock from the Mine Pits to be disposed of to the Waste Rock Landform, and putrescible wastes from administration facilities to be disposed of to the existing landfills at the Koolyanobbing Range mine operations.

The above discharge types are consistent with the discharge types from the existing Koolyanobbing Range mine operations, from which no significant environmental impact has been recorded to date. Similarly, the discharges to the environment from the Proposal are not expected to be environmentally significant.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986 for more information)

Yes 
✓ No 
If yes, please describe what category of prescribed premise.

2.8.3 Will the proposal result in gaseous emissions to air?

🗹 Yes 🗌 No	If yes, please briefly describe
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The Proposal is expected to result in gaseous emissions to air from the burning of hydrocarbon fuels in mining equipment and power generation facilities. The mass of gaseous emissions from the Proposal is not expected to be environmentally significant.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

- If yes, please briefly describe.
- 2.8.5 Will the proposal result in liquid effluent discharge?

Yes No **If yes**, please briefly describe the nature, concentrations and receiving environment.

The Proposal is expected to result in liquid effluent discharges to land in the form of wastewater from administration facilities and ablutions, and groundwater water used in dust suppression. The volume of wastewater discharge is expected to be negligible (<5m<sup>3</sup>/day) and managed through standard onsite disposal (e.g. septic tank and leach drain), with no measurable impact to the environment. The volume of groundwater used in dust suppression is expected to be consistent with the volumes used per hectare at the existing Koolyanobbing Range mine operations, with no measurable impact to the environment.

Yes V No

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

□ Y	es [	No	If yes,	please	describe
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Not applicable

2.8.7 Will the proposal produce or result in solid wastes?

Yes No **If yes**, please briefly describe the nature, concentrations and disposal location/ method.

Solid waste discharges to the environment from the Proposal will include waste rock from the Mine Pit to be disposed of to the Waste Rock Landform, and putrescible wastes from administration facilities to be disposed of to the existing landfills at the Koolyanobbing Range mine operations.

The Waste Rock Landform has been engineered with sufficient capacity for all excavated waste rock from the Mine Pit. As a standard practice, geochemical characterisation of the waste rock will be undertaken to define any requirements for the disposal of waste rock that may pose a risk of acid or metaliferous drainage (if such materials are present). Assessment of the waste rock at Cliffs' existing Koolyanobbing Range mine operations has demonstrated a minimal risk of acid or metaliferous drainage.

Putrescible wastes generated from the administration facilities will be disposed of to the existing landfills of the existing Koolyanobbing Range mine operations approved by DER through Licence 5850 under the *Environmental Protection Act* 1986 (WA) (DER 2013). The disposal of the putrescible wastes from the Proposal will comply with the conditions of the Licence 5850 approval. The disposal of solid wastes to the existing landfills at the Koolyanobbing Range mine operations has not resulted in a significant impact to the environment.

2.8.8 Will the proposal result in significant off-site noise emissions?

☐ Yes 🗹 No

- If yes, please briefly describe.
- 2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

☑ Yes □ No

**If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

Noise emissions from the Proposal will be subject to the provisions of the Environmental Protection (Noise) Regulations 1997 (WA). As the noise emissions from the Proposal are expected to be consistent with the noise emissions from the existing Koolyanobbing

Range mine operations, an analysis of the noise emissions from the Proposal has not been considered necessary. The noise emissions from the existing Koolyanobbing Range mine operations have not resulted in a significant environmental impact.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

2.8.11 If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

🗌 No

☐ Yes

✓ Not Applicable

**If yes**, please describe and provide the distance to the potential pollution source

#### 2.9 Greenhouse Gas Emissions

- 2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?
  - Yes ☑ No If yes, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.
- 2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

#### 2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

🗌 Yes

If yes, please describe.

Yes No If yes, please describe and provide the distance to residences and other "sensitive premises".

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

#### 2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

 $\Box$  Yes  $\blacksquare$  No  $\Box$  Unsure **If yes**, please describe.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

 $\Box$  Yes  $\bigtriangledown$  No If yes, please describe.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

 $\Box$  Yes  $\nabla$  No If yes, please describe.

#### 3. PROPOSED MANAGEMENT

#### **Environmental Management**

Cliffs proposes to manage the potential environmental effects of the Proposal in accordance with its International Standards Organisation (ISO) 14001:4004-certified Environmental Management System (EMS) applying to the existing Koolyanobbing Range mine operations (NCSI 2013). Cliffs has a strong environmental performance record, with Cliffs' remaining in compliance with all conditions of environmental approvals granted under the Environmental Protection Act 1986 (WA) over a period of more than 10 years of mine operations.

Cliffs' EMS contains a series of Environmental Management Plans (EMPs) to ensure the potential environmental risks and impacts of mine operations are controlled and monitored to an acceptable standard, and includes:

- (a) Flora Management Plan (Cliffs 2013a);
- (b) Fauna Management Plan (Cliffs 2013b);
- (c) Land Clearing Management Plan (Cliffs 2013c);
- (d) Dust Management Plan (Cliffs 2013d);
- (e) Fire Management Plan (Cliffs 2013e);
- (f) Weed Management Plan (Cliffs 2013f);
- (g) Groundwater Management Plan (Cliffs 2012a); and
- (h) Mine Closure Plan (Cliffs 2012b).

The above EMPs have previously been subject to review by EPA, DPaW, DMP, DoW and DoE (as appropriate) through the various government assessment and approvals processes applying to the existing Yilgarn Operations.

As the Proposal represents an extension to Cliffs' existing Koolyanobbing Range mine operations, these EMPs are considered an effective basis on which to manage the environmental risks associated with the Proposal.

In addition to the above, Cliffs also proactively contributes towards regional environmental initiatives in cooperation with DPaW, which includes introduced fauna control baiting/trapping, targeted regional surveys for restricted flora taxa, and wildfire threat mapping and control measures.

#### **Environmental Offsets**

As identified in Section 2.1.6 and at Attachment 4, and in consideration of relevant EPA guidance (EPA 2013a; EPA 2013b), the key environmental factor relevant to this Proposal is considered to be "Flora and Vegetation", and specifically, the impact to the "Rare Flora" taxon *Tetratheca erubescens* (as described within Section 2.1.6 above).

Whilst the effect of the Proposal is not expected to change the threat category ranking of "Vulnerable" currently applying to *Tetratheca erubescens* under the IUCN (2012) criteria, the impact of the Proposal to the *Tetratheca erubescens* population may be considered environmentally significant. The EPA (2013a) key integrating factor of "Offsets" may therefore be applicable.

Having regard to the existing environmental offsets framework previously agreed for impacts to Rare Flora for Cliffs' Yilgarn Operations (i.e. Tetratheca paynterae spp. paynterae and Ricinocarpos brevis), offsets for Tetratheca erubescens may potentially include:

- (a) Financial contribution to DPaW to assist with the preparation and implementation of a Recovery Plan for Tetratheca erubescens; and
- (b) Financial contribution to research the restoration ecology of *Tetratheca erubescens*.

The application of the above environmental offsets, consistent with the existing offsets frameworks, may be considered appropriate for development of the Proposal. During the assessment process, alternative potential offset arrangements could be considered and agreed between EPA and Cliffs, and in consultation with DPaW.

The offsets implemented under the existing environmental offsets framework have contributed substantially to the knowledge of the restoration ecology of each taxon, with this knowledge then used to inform recovery actions applicable to each taxon. A similar approach for *Tetratheca erubescens* could be expected to similarly contribute to the knowledge of this taxon to inform the management actions within a future Recovery Plan.

#### 3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

1. The precautionary principle.	🗹 Yes	🗌 No
2. The principle of intergenerational equity.	🗹 Yes	🗌 No
3. The principle of the conservation of biological diversity and ecological integrity.	🗹 Yes	🗌 No
<ol> <li>Principles relating to improved valuation, pricing and incentive mechanisms.</li> </ol>	🗹 Yes	🗌 No
5. The principle of waste minimisation.	🗹 Yes	🗌 No

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

☑ Yes □ No

#### 3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?



No If yes, please list those consulted and attach comments or summarise response on a separate sheet.

Stakeholder consultation on the Proposal has been undertaken with the following organisations/groups:

- (a) Office of the Environmental Protection Authority (March/April 2013, May 2014);
- (b) Department of Parks and Wildlife (March/April 2013, May 2014);
- (c) Department of Mines and Petroleum (March 2013, May 2014);
- (d) Department of the Environment (C'th) (June 2014); and
- (e) Cliffs' Community Reference Group (Community Stakeholders) (September 2013, March 2014 [minuted meetings]), which includes representatives of:
  - (i) Shire of Yilgarn;
  - (ii) Wildflower Society of Western Australia;
  - (iii) Malleefowl Preservation Group;
  - (iv) Yilgarn Land Conservation District Committee;
  - (v) Windarling Preservation Group;
  - (vi) Toodyay Naturalists Club;
  - (vii) Pastoral Representatives; and
  - (viii) Community Representatives.

The above listed organisations/groups are considered to represent the key stakeholders that are likely to have an interest in the Proposal, with each having had a long-term involvement with Cliffs' existing Yilgarn Operations. Cliffs anticipates that any public concern of the Proposal will be limited, with the stakeholders identified above expected to provide an appropriate representation of the range of stakeholder views.

Consultation with the above stakeholders has been undertaken in the form of meetings and written correspondence, covering the environmental surveys proposed/undertaken as well as the anticipated government assessment and approvals processes.

The key environmental aspect identified by the above stakeholders was the impact to the "Rare Flora" taxon Tetratheca erubescens. The discussions with stakeholders on impacts to Tetratheca erubescens included both direct impacts (removal) and the potential for indirect impacts (e.g. dust). The potential for environmental offsets for the impact to Tetratheca erubescens were also discussed.

Other matters identified by stakeholders included fauna values, mine closure and landscape values, however, the overriding environmental aspect of consideration by the stakeholders was the impact to flora and vegetation, and specifically, *Tetratheca erubescens*.

If required, Cliffs would be happy to provide EPA with copies of the meeting documentation/minutes for each of the consultations described above to demonstrate that Cliffs has undertaken appropriate and effective stakeholder consultation.

Further consultation with the above stakeholders is expected to be ongoing through the environmental impact assessment processes under the *Environmental Protection Act* 1986 (WA), with consultation also continuing during Proposal implementation.

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# **ATTACHMENT 1**

**Location Maps** 





Figure 1 Regional Location of the Yilgarn Operations. The regional location of the Koolyanobbing Range mine operations, and the broader Yilgarn Operations, is identified.



**Figure 2 Regional Location of the Proposal.** The general regional location of the Proposal is identified in yellow. The existing components of the Yilgarn Operations at the Koolyanobbing Range, Windarling Range, Mt Jackson Range, Deception Deposit and the connecting haul roads are identified in blue.



**Figure 3 Location of the Proposal.** The location of the Proposal (as referred under Section 38 of the *Environmental Protection Act 1986* (WA)) is identified in yellow. The existing development areas for the approved Koolyanobbing Range mine operations are also visible.



Figure 4 Location of Proposal Infrastructure Components. The location of the Proposal infrastructure components is identified. The existing development areas for the approved Koolyanobbing Range mine operations are also visible.



**Figure 5a Recorded Locations of Rare Flora Taxa.** The location of the Proposal is identified in yellow. The recorded locations of the Rare Flora (R) taxon *Tetratheca erubescens* in the vicinity of the Proposal are identified. Data Source: Maia (2013) and Cliffs (unpublished).



**Figure 5b Recorded Locations of Rare Flora Taxa.** The location of the Proposal is identified in yellow. The recorded locations of the Rare Flora (R) taxon *Tetratheca erubescens* in the vicinity of the Proposal are identified. Data Source: Maia (2013) and Cliffs (unpublished).



Figure 6 Recorded Locations of Department of Parks and Wildlife-classified "Priority 1" Flora Taxa. The location of the Proposal is identified in yellow. The recorded locations of the Department of Parks and Wildlife-classified "Priority 1" flora taxa Beyeria rostellata (P1) and Acacia haematites (P1) in the vicinity of the Proposal are identified. Data Source: Woodman (2014).







**Figure 8 Recorded Locations of Department of Parks and Wildlife-classified "Priority 4" Flora Taxa.** The location of the Proposal is identified in yellow. The recorded locations of the Department of Parks and Wildlife-classified "Priority 4" flora taxon Banksia arborea (P4) in the vicinity of the Proposal are identified. Data Source: Woodman (2014).



Figure 9a Recorded Locations of Vegetation Units. The location of the Proposal is identified in yellow. The recorded locations of Vegetation Units in the vicinity of the Proposal are identified. Data Source: Woodman (2014).

<form></form>			
<ul> <li>a. In the distribution of the dis</li></ul>		1	Mid woodland of mixed species including Eucalyptus salmonophloia, Eucalyptus corrugata, Eucalyptus salubris, Eucalyptus longicornis and Eucalyptus vittata over tall to mid sparse shrubland dominated by Atriplex nummularia, Exocarpos aphyllus, Eremophila scoparia, Scaevola spinescens and Senna artemisioides subsp. filifolia over Iow sparse shrubland dominated by Atriplex vesicaria, Maireana trichoptera, Olearia muelleri, Sclerolaena diacantha and Rhagodia drummondii on red, brown, orange or red-brown clay, clay loam and sandy
<ul> <li>a. Main addited dominated by <i>Euclophics biological constants of Euclophics which over how open induces working of the properties in the euclophic operation of the euclided operation of the euclophic operation of the euclophic operation of the euclophic operation of the euclided op</i></li></ul>		2	loam with dolerite, quartz and ironstone stones on plains, flats and low rises. Mid to low woodland dominated by <i>Eucalyptus ravida</i> and <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> over tall to mid sparse shrubland dominated by <i>Atriplex nummularia</i> and <i>Eremophila scoparia</i> over low sparse shrubland dominated by <i>Atriplex vesicaria</i> , <i>Sclerolaena diacantha</i> , <i>Maireana trichoptera</i> , <i>Maireana georgei</i> and <i>Rhagodia</i> <i>drummondii</i> on red, brown, orange or red-brown clay with dolerite, quartz and ironstone stones on plains and flats
<ul> <li>A Mixed and derivated by <i>Exclusion of Exclusion and Exclusion and advances</i> over that the start of the start</li></ul>		3	Mid woodland dominated by <i>Eucalyptus longicornis</i> and <i>Eucalyptus vittata</i> over low open mallee woodland dominated by <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> over tall to mid sparse shrubland dominated by <i>Atriplex nummularia, Eremophila scoparia, Exocarpos aphyllus, Eremophila interstans</i> subsp. <i>interstans</i> and <i>Halgania andromedifolia</i> over low sparse shrubland dominated by <i>Atriplex vesicaria</i> and <i>Olearia muelleri</i> on red, brown, orange or red-brown claw with dolerite and quartz stones on low rises.
<ul> <li>M do low woodland of <i>Euclaylius within over mid sparse shubbind connecting sparse shubbind of model sparses including (Desam mediat, Acade elimophic acquering) and Pilitois advants and observations of the sparse shubbind of model sparses including (Desam mediat, Acade elimophic acquering) with a word to low sparse shubbind of model sparses including (Desam mediat, Acade elimosc). Charlos and shubbind of model sparses are advantable and for Euclaylius converts with a word to have a sparse and the s</i></li></ul>		4	Mid woodland dominated by Eucalyptus capillosa or Eucalyptus salubris over tall to mid sparse shrubland dominated by Eremophila oppositifolia subsp. angustifolia, Alyxia buxifolia, Acacia tetragonophylla and Exocarpos aphyllus over low sparse shrubland of mixed species including Grevillea acuaria, Acacia erinacea, Olearia muelleri, Rhagodia drummondii and Acacia andrewsii on red, brown or red-brown clay with laterised ironstone stones and occasionally with laterised ironstone outcropping on slopes adjacent to lateritic breakaways and cliffs.
<ul> <li>Mid to low maliee woodfand of <i>Euclophysics corrugata</i> and/or <i>Euclophysics within cover tail to mid open shrubland dominated by <i>Clearin numberin. Acade antacens, Doctonees</i> strongys, and <i>Physics Openational Science (Clearing Science)</i> (Middente stones and science). <i>Clearing and the Physics Openational Clearing Physic</i></i></li></ul>		5	Mid to low woodland of <i>Eucalyptus vittata</i> over mid sparse shrubland dominated by <i>Atriplex nummularia,</i> <i>Eremophila appositifolia</i> subsp. <i>angustifolia</i> and <i>Eremophila caperata</i> over low sparse shrubland of mixed species including Olearia muelleri, Acacia erinacea, Maireana georgei and Ptilotus obovatus var. obovatus on red or red-brown clay with ironstone and quartz stones on lower slopes of ranges and low rises.
<ul> <li>7 Low open males woodand of <i>Euclyptus compate and Euclyptus longistum over</i> tail shruband dominated by <i>Achaises and the state and the analysis of the analysis and the analysis over male should and the analysis of the analys</i></li></ul>		6	Mid to low mallee woodland of <i>Eucalyptus corrugata</i> and/or <i>Eucalyptus vittata</i> over tall to mid open shrubland dominated by <i>Exocarpos aphyllus</i> , <i>Senna artemisioides</i> subsp. filifolia and <i>Eremophila interstans</i> subsp. <i>interstans</i> over low sparse shrubland dominated by <i>Olearia muelleri</i> , <i>Acacia erinacea</i> , <i>Dodonaea stenozyga</i> , and <i>Ptilotus obovatus</i> var. <i>obovatus</i> on brown or red-brown clay loam with dolerite stones and occasionally dolerite outcropping on lower slopes of ranges and low rises.
<ul> <li>Low isolated malless of <i>Eucalyptics longistims ar Eucalyptics longibles</i> and <i>Sciencell Landical Intergraphylicy oer mid open shrubland dominated by <i>Locais</i> (<i>B.</i>, Masini 7831) and occasionally <i>Locais lenganophylic oer mid open shrubland dominated by <i>Eucalyptics longibles</i> and <i>Sciencell as pacies and the second lenganophylic and lenga</i></i></i></li></ul>		7	Low open mallee woodland of <i>Eucalyptus corrugata</i> and <i>Eucalyptus longissima</i> over tall shrubland dominated by Allocasuarina helmsii over mid sparse shrubland dominated by <i>Dodonaea stenozyga</i> and <i>Acacia dissona</i> var. <i>indoloria</i> over low isolated shrubs of mixed species on brown clay loam with dolerite stones and some dolerite outcropping on low rises.
<ul> <li>Low open maliee woodland dominated by <i>Eucalyptus loxophiebs ausbep, listophica over</i> that lopen to sparse structured of the structure structure of the structure o</li></ul>		8	Low isolated mallees of <i>Eucalyptus longissima</i> or <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> over tall shrubland dominated by <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831) and occasionally <i>Acacia tetragonophylla</i> over mid open shrubland dominated by <i>Dodonaea inaequifolia</i> and <i>Scaevola spinescens</i> over low isolated shrubs of mixed species on red-brown clay with ironstone stones on low rises.
<ul> <li>10 Tall open shrubland dominated by Acacia's pp. ML-akson (B. Ryan 176). Acacia tetragonophylla and occasionally Sartalum spicetum over mid open shrubland dominated by Defound dominated by Petitotus obviatus (acabiar phinolicity and PERigodia duminated by Petitotus obviatus (acabiar phinolicity and PERigodia duminated by Acacia's pp. ML aksian dhores and Brachychilon gregorii over tall shrubland dominated by Acacia's pp. ML aksian dhores and Brachychilon gregorii over tall shrubland to ensiste stores, often with banded ironstone outcropping, on mido lower slopes of ranges.</li> <li>11 Lovi isolated trees and mallese of Lucalyptus busp, acutivality over mid dpen to sparse shrubland dominated by Acacia's pp. ML aksian dhores and Brachychilon gregorii over tall shrubland to ensiste slope. Drive I all shrubland to pen shrubland dominated by Acacia's pp. ML aksian dhores and Brachychilon gregorii over tall shrubland to pen shubland dominated by Locacia pp. Science slope, Drive I all shrubland to pen sparse shrubland dominated by Acacia's pp. Altrofe, Hubberla acasparsta and Dianela revoluta va. Juvariacia on red, red-brown or brown clay or clay-loam with ironstone stones, usually with banded ironstone outcropping, on the creats and slopes of ranges.</li> <li>12 Tall shrubland dominated by Acacia sp. narrow phyllode (B.R. Maslin 7831) and occasionally Acacia acesaneura (anarow phyllode variant) over mito to low sparse shrubland dominated by Locacia pp. Sci (MH (MA. Burgman 1207)). Prostanthera semiteres subsp. Semiteres. Mitcelia microphyllia, Philotheca burce's of ranges.</li> <li>13 Tall shrubland dominated by Alcosausina erichlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 7831) and occasionally Acacia subsp. Sci (MH (MA. Burgman 1207) on red- or range-brown clay or clay loams with laterte, ironstone and quarts tones on lower slopes of ranges.</li> <li>14 Tall shrubland dominated by Alcosausina eriochlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 78</li></ul>		9	Low open mallee woodland dominated by <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> over tall open to sparse shrubland of mixed species dominated by <i>Acacia</i> sp. Mt Jackson (B. Ryan 176), <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831), <i>Acacia tetragonophylla</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> over mid open shrubland dominated by <i>Scaevola spinescens</i> , <i>Eremophila oppositifolia</i> subsp. <i>angustifolia, Grevillea zygoloba,</i> <i>Dodonaea inaequifolia</i> and <i>Philotheca brucei</i> subsp. <i>brucei</i> over low sparse shrubland dominated by <i>Dodonaea</i> <i>microzyga</i> var. <i>acrolobata, Olearia pinelioides, Prostanthera semiteres</i> subsp. semiteres and <i>Olearia muelleri</i> on red, red-brown, orange-brown or brown clay or clay-loam with ironstone stones, occasionally with banded ironstone outcropping, on mid to lower slopes of ranges and low rises.
<ul> <li>Low isolated trees and malaes of Eucalyptus longissime, Banksia anborea and Brachychiton gregori over fall shrubland dominated by Acacia sp. MI Jackson (B. Ryan 176) and Allocasuarina encirchalamys subsp. eriorhulmsy or Allocasuarina encirchalivitis subsp. autivalvis over mid open to sparse shrubland dominated by Philotheca brucei subsp. brucei, Grevillea zygoloba, Eremophile clarki, Scaevola spinescens and Leucopogon sp. Clyde Hill (M. A. Burgman 1207) over low sparse shrubland of mixed species including Olearia humilis. Prostanthera althofari subsp. athofen, Hibbertia exasperata and Dianella revoluta var. divaricata on red, red-torwon chrown Cay or clavy-loam with ironstone stones, usually with banded ironstone outcropping, on the crests and slopes of ranges.</li> <li>Tall shrubland dominated by Acacia sp. narrow phyllode (B.R. Maslin 7831) and occasionally Acacia caesaneura (narrow phyllodes variant) over mid to low open shrubland dominated by Leucopogon sp. Clyde Hill (M.A. Burgman 1207), Prostanthera semilteres subsp. semiteres. Mirielia miricophylla and occasionally Philotheca brucei subsp. Jourcei on red or red-brown clay or clay or clay or clay solar zygoloba, Hemigenia brachyphylla, Hibbertia eatopogon sp. Clyde Hill (M.A. Burgman 1207), Prostanthera semiteres subsp. enichlamys subsp. eriochlamys, Melaleuca hamata and occasionally Acacia sibina over mid to low sparse shrubland dominated by Carvillea zygoloba, Hemigenia brachyphylla, Hibbertia eatopogon sp. Clyde Hill (M.A. Burgman 1207) on red or or ange-brown clay or clay to mixed species indicasuarina eriochlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 7831), Acacia sp. MI Jackson (B. Ryan 176) and Melaleuca hamata over mid to low sparse shrubland dominated by Alocasuarina eriochlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 7831), Acacia sp. MI Jackson (B. Ryan 176) and Melaleuca hamata over mid to low sparse shrubland dominated by Alocasia sp. narrow phyllode (B.R. Maslin 7831), Acacia sp. MI</li></ul>		10	Tall open shrubland dominated by Acacia sp. Mt Jackson (B. Ryan 176), Acacia tetragonophylla and occasionally Santalum spicatum over mid open shrubland dominated by Dodonaea inaequifolia, Scaevola spinescens, Philotheca brucei subsp. brucei and Eremophila clarkei over low sparse shrubland dominated by Piliotus obovatus var. obovatus, Olearia pimelioides and Rhagodia drummondii on red, red-brown or brown clay or clav.leam with innstruent stores of the nutron ping on mid to lower slones of ranges.
<ul> <li>12 Tail shrubland dominated by Acacia sp. narrow phyllode (B.R. Maslin 7831) and occasionally Acacia caesaneura (narrow phyllodes variant) over mid to low open shrubland dominated by Leucopogon sp. Clyde Hill (M.A. Burgman 1207), Prostanthera semiteres subsp. semiteres, Mirbelia microphylla and occasionally Philotheca brucei subsp. brucei on red or red-brown clay or clay loams with quartz and ironstone stones on lower slopes of ranges and low rises.</li> <li>13 Tail shrubland dominated by Allocasuarina eriochlamys subsp. eriochlamys, Melaleuca hamata and occasionally Acacia sibina over mid to low sparse shrubland dominated by Grevillea zygoloba, Hemigenia brachyphylla, Hibbertia eatoniae and Leucopogon sp. Clyde Hill (M.A. Burgman 1207) on red- or orange-brown clay or clay loams with laterite, ironstone and quartz stones on lower slopes of ranges.</li> <li>14 Tail shrubland dominated by Allocasuarina eriochlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 7831), Acacia sp. Mt Jackson (B. Ryan 176) and Melaleuca hamata over mid to low sparse shrubland dominated by Alocasuarina eriochlamys subsp. semitteres on red or red-brown clay or clay loams with dolerite, ironstone and quartz stones on mid and lower slopes of ranges.</li> <li>15 Low open mallee woodland of <i>Euclybus ewartina</i> over tail shrubland dominated by Alyxia buxifolia, Xerolirion ared-brown clay with dolerite and quartz pebbles on low rises.</li> <li>16 Tail open shrubland dominated by Allocasuarina activalvis subsp. acutivalvis, Caliltris columellaris, Melaleuca hamata and Melaleuca hamata or era lish fublication dominated by Allocasuarina activalvis subsp. touerotaby Acacia sp. narrow phyllode (B.R. Maslin 7831) over low sparse shrubland dominated by Allocasuarina activalvis, Subsp. cluvialvis, Caliltris columellaris, Melaleuca hamata and Melaleuca leiocarpa over mid to low sparse shrubland dominated by Allocasuarina activ</li></ul>		11	Low isolated trees and mallees of <i>Lexalptus</i> forgissima, Banksia arborea and Brachychiton gregori over fall shrubland to open shrubland dominated by Acacia sp. Mt Jackson (B. Ryan 176) and Allocasuarina eriochlamys subsp. eriochlamys or Allocasuarina acutivalvis subsp. acutivalvis over mid open to sparse shrubland dominated by Philotheca brucei subsp. brucei, Grevillea zygoloba, Eremophila clarkei, Scaevola spinescens and Leucopogon sp. Clyde Hill (M.A. Burgman 1207) over low sparse shrubland of mixed species including Olearia humilis, Prostanthera althoferi subsp. althoferi, Hibbertia exasperata and Dianella revoluta var. divaricata on red, red-brown or brown clay or clay-loam with ironstone stones, usually with banded ironstone outcropping, on the crests and slopes of ranges.
<ul> <li>Tall shrubland dominated by Allocasuarina eriochlamys subsp. eriochlamys, Melaleuca hamata and occasionally Acacia sibina over mid to low sparse shrubland dominated by Grevillea zygoloba, Hemigenia brachyphylla, Hibbertia eatoniae and Leucopogon sp. Clyde Hill (M. A. Burgman 1207) on red- or orange-brown clay or clay loams with lateritic, ironstone and quartz stones on lower slopes of ranges.</li> <li>14 Tall shrubland dominated by Allocasuarina eriochlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 7831), Acacia sp. Mt Jackson (B. Ryan 176) and Melaleuca hamata over mid to low sparse shrubland of mixed species often dominated by Prostanthera semiteres subsp. semiteres on red or red-brown clay or clay loams with dolerite, ironstone and quartz stones on nid and lower slopes of ranges.</li> <li>15 Low open mallee woodland of <i>Eucalyptus ewartinan</i> over tall shrubland dominated by Acacia sp. narrow phyllode (B.R. Maslin 7831) over low sparse shrubland dominated by Hybanthus floribundus subsp. curvitolius on red-brown clay with dolerite and quartz pebbles on low rises.</li> <li>16 Tall open shrubland dominated by Allocasuarina ever tall shrubland dominated by Alyxia buxifolia, Xerolirion divaricata, Hibbertia lepidocalyx subsp. Uberculata, Philotheca brucei subsp. brucei and Styphelia sp. Bullfinch (M. Hislop 3574) on light brown clay with laterised ironstone stones over laterised ironstone outcropping on breakaways.</li> <li>C C Cleared Land</li> </ul>		12	Tall shrubad dominated by <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831) and occasionally <i>Acacia caesaneura</i> (narrow phyllodes variant) over mid to low open shrubland dominated by <i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207), <i>Prostanthera semiteres</i> subsp. <i>semiteres</i> , <i>Mirbelia microphylla</i> and occasionally <i>Philotheca brucei</i> subsp. <i>brucei</i> on red or red-brown clay or clay loams with quartz and ironstone stones on lower slopes of
<ul> <li>14 Tall shrubland dominated by Allocasuarina eriochlamys subsp. eriochlamys, Acacia sp. narrow phyllode (B.R. Maslin 7831), Acacia sp. Mt Jackson (B. Ryan 176) and Melaleuca hamata over mid to low sparse shrubland of mixed species often dominated by Prostanthera semiteres subsp. semiteres on red or red-brown clay or clay loams with dolerite, ironstone and quartz stones on mid and lower slopes of ranges.</li> <li>15 Low open mallee woodland of <i>Eucalyptus ewartinan</i> over tall shrubland dominated by Acacia sp. narrow phyllode (B.R. Maslin 7831) over low sparse shrubland dominated by Hybanthus floribundus subsp. curvifolius on red-brown clay with dolerite and quartz pebbles on low rises.</li> <li>16 Tall open shrubland dominated by Allocasuarina acutivalvis subsp. acutivalvis. Callitris columellaris. Melaleuca hamata and Melaleuca leiocarpa over mid to low sparse shrubland dominated by Alyxia buxifolia, Xerolirion divaricata, Hibbertia lepidocalyx subsp. tuber. tuber subsp. brucei and Styphelia sp. Bullfinch (M. Hislop 3574) on light brown clay with laterised ironstone stones over laterised ironstone outcropping on breakaways.</li> <li>C Cleared Land</li> <li>YILGARRN OPERATIONS Koolyanobbing Range F Deposit Vegetation Units Legend Author: S. Hawkins Date: June 2014</li> </ul>		13	ranges and iow nses. Tall shrubland dominated by Allocasuarina eriochlamys subsp. eriochlamys, Melaleuca hamata and occasionally Acacia sibina over mid to low sparse shrubland dominated by Grevillea zygoloba, Hemigenia brachyphylla, Hibbertia eatoniae and Leucopogon sp. Clyde Hill (M.A. Burgman 1207) on red- or orange-brown clay or clay loams with laterite, ironstone and quartz stones on lower slopes of rances.
<ul> <li>15 Low open mallee woodland of <i>Eucalyptus ewartiana</i> over tall shrubland dominated by <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831) over low sparse shrubland dominated by <i>Hybanthus floribundus</i> subsp. <i>curvifolius</i> on red-brown clay with dolerite and quartz pebbles on low rises.</li> <li>16 Tall open shrubland dominated by <i>Allocasuarina acuitivalis</i> subsp. <i>acuitivalis</i>. <i>Callitris columellaris, Melaleuca hamata</i> and <i>Melaleuca leiocarpa</i> over mid to low sparse shrubland dominated by <i>Allycia Duxifolia, Xerolirion divaricata, Hibbertia lepidocalyx</i> subsp. <i>tuberculata, Philotheca brucei</i> subsp. <i>brucei</i> and Styphella sp. Bullfinch (M. Hislop 3574) on light brown clay with laterised ironstone stones over laterised ironstone outcropping on breakaways.</li> <li>C C Cleared Land</li> <li>YILGARN OPERATIONS Koolyanobbing Range F Deposit Vegetation Units Legend Author: S. Hawkins Date: June 2014</li> </ul>		14	Tall shrubland dominated by <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys, Acacia</i> sp. narrow phyllode (B.R. Maslin 7831), <i>Acacia</i> sp. Mt Jackson (B. Ryan 176) and <i>Melaleuca hamata</i> over mid to low sparse shrubland of mixed species often dominated by <i>Prostanthera semiteres</i> subsp. <i>semiteres</i> on red or red-brown clay or clay loams with dolerite, ironstone and quartz stones on mid and lower slopes of ranges.
C     C		15 16	Low open mallee woodland of <i>Eucalyptus ewartiana</i> over tall shrubland dominated by <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831) over low sparse shrubland dominated by <i>Hybanthus floribundus</i> subsp. <i>curvifolius</i> on red-brown clay with dolerite and quartz pebbles on low rises. Tall open shrubland dominated by <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> , <i>Callitris columellaris</i> , <i>Melaleuca</i>
YILGARN OPERATIONS Koolyanobbing Range F Deposit Vegetation Units Legend Author: S. Hawkins Date: June 2014	_	с	nermata and wielateuca leiocarpa over mid to low sparse shrubland dominated by Alyxia buxifolia, Xerolirion divaricata, Hibbertia lepidocalyx subsp. tuberculata, Philotheca brucei subsp. brucei and Styphelia sp. Bullfinch (M. Hislop 3574) on light brown clay with laterised ironstone stones over laterised ironstone outcropping on breakaways. Cleared Land
Koolyanobbing Range F Deposit         Vegetation Units Legend         Author: S. Hawkins       Date: June 2014		-	YILGARN OPERATIONS
Vegetation Units Legend         Author: S. Hawkins       Date: June 2014			Koolyanobbing Range F Deposit
Author: S. Hawkins Date: June 2014			Vegetation Units Legend
			Author: S. Hawkins Date: June 2014

Figure 9b Recorded Locations of Vegetation Units (Legend). A description of the Vegetation Units recorded locations is provided. Data Source: Woodman (2014).

Author: S. Hawkins ~ Drawn: CAD Resources ~ Tel 9246 3242 ~ URL www.cadresources.com.au ~ Date June 2014 ~ A4 ~ CAD Ref 9836mI088\_36\_01.dgn



**Figure 10 Location of Department of Parks and Wildlife-classified "Priority Ecological Community".** The location of the Proposal is identified in yellow. The spatial extent of the approximately 2,500ha Department of Parks and Wildlife-classified "Priority Ecological Community" is identified. Data Source: Department of Parks and Wildlife (2013a).



**Figure 11 Location of Specially Protected Fauna Taxa**. The location of the Proposal is identified in yellow. The recorded locations of the Specially Protected Fauna (SP) taxa Leipoa ocellata, Merops ornatus, Falco peregrinus and Cacatua leadbeateri in the vicinity of the Proposal are identified. Data Source: Biota (2014a), BCE (c.2009).



Figure 12 Location of Department of Parks and Wildlife-classified "Priority 4" Fauna Taxa. The location of the Proposal is identified in yellow. The mapped habitat for the DPaW-classified "Priority 4" fauna taxon Aganippe castellum (P4) in the vicinity of the Proposal is identified. Data Source: BCE (2009).



**Figure 13 Location of Fauna Taxa – Short-Range Endemic Invertebrate Fauna.** The location of the Proposal is identified in yellow. The recorded locations of potential Short-Range Endemic Invertebrate Fauna taxa in the vicinity of the Proposal are identified. Data Source: Biota (2012; 2014b).



**Figure 14 Location of Fauna Taxa – Subterranean Fauna.** The location of the Proposal is identified in yellow. The recorded locations of Subterranean Fauna (Troglofauna) in the vicinity of the Proposal are identified. Data Source: Bennelongia (2009; 2014)

# **ATTACHMENT 2**

## **Supporting Documents**

Digital copies of the following documents are provided on the compact disc attached to the completed referral form:

- (a) Bamford Consulting Ecologists (2009) Investigations into the Distribution and Abundance of the Tree-stem Trapdoor Spider in the Koolyanobbing Area, December 2008. Report prepared by Bamford M (Dr.), Smith S and Smith P of Bamford Consulting Ecologists for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2009.
- (b) Bamford Consulting Ecologists (c.2009) Preliminary Summary of Level 2 Fauna Survey Koolyanobbing, F Deposit. Report prepared by Huang N of Bamford Consulting Ecologists for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2009.
- (c) Bennelongia Pty Ltd (2009) *Troglofauna Survey at Koolyanobbing*. Report prepared by Trotter A of Bennelongia Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd (formerly as Portman Iron Ore Ltd). November 2009.
- (d) Bennelongia Pty Ltd (2014) Troglofauna Survey at Southern Koolyanobbing Range. Report prepared by Trotter A and Halse S of Bennelongia Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2014.
- (e) Biota Environmental Sciences Pty Ltd (2012) A Short Range Endemic Invertebrate Fauna Survey of the Southern Koolyanobbing Range. Report prepared by Watson N and Hamilton Z of Biota Environmental Sciences Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. March 2012.
- (f) Biota Environmental Sciences Pty Ltd (2014a) Southern Koolyanobbing Range Vertebrate Fauna Survey. Report prepared by Cartledge V (Dr.), King J, Keirle D and Eckermann B of Biota Environmental Sciences Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. Revision 2.2. February 2014.
- (g) Biota Environmental Sciences Pty Ltd (2014b) Results of Supplementary Short-Range Endemic Invertebrate Fauna Survey of the Southern Koolyanobbing Range. Report prepared by Teale R of Biota Environmental Sciences Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. April 2014.
- (h) Maia Environmental Consultancy Pty Ltd (2013) Southern Koolyanobbing Range Tetratheca erubescens Census. Report prepared by Haycock R, Hitchcock S and Cox C (Dr.) of Maia Environmental Consultancy Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. Revision 2. August 2013.
- Woodman Environmental Consulting Pty Ltd (2014) Southern Koolyanobbing Range Flora and Vegetation Assessment. Report prepared by Coultas D of Woodman Environmental Consulting Pty Ltd for Cliffs Asia Pacific Iron Ore Pty Ltd. Revision 0. February 2014.



**ATTACHMENT 3** 

**Key Proposal Characteristics** 

(as per EPA 2012)

#### **KEY PROPOSAL CHARACTERISTICS**

#### Summary of the Proposal

Proposal title	Yilgarn Operations Koolyanobbing Range F Deposit
Proponent name	Cliffs Asia Pacific Iron Ore Pty Ltd
Short description	The Proposal is for the mining of the Koolyanobbing Range F Deposit, located at the southern Koolyanobbing Range approximately 50km north-east of the town of Southern Cross in the Shire of Yilgarn, Western Australia. The Proposal includes mine pits, a waste rock landform and support infrastructure.

#### **Physical Elements**

Element	Location	Proposed Extent Authorised
Mine Pits	Figure 1 and Figure 2	34 ha
Waste Rock Landform	Figure 1	76 ha
Support Infrastructure	Figure 1	101 ha
	Total	211 ha

#### Figures

Figure 1: Proposal Area

Figure 2: Recorded locations of the Rare Flora taxon *Tetratheca erubescens* 



Figure 1 Proposal Area.



Figure 2 Recorded locations of the Rare Flora (R) taxon Tetratheca erubescens.

## **ATTACHMENT 4**

# Significance Framework and Assessment of Environmental Factors and Objectives

(as per EPA 2013a and EPA 2013b)



THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
Sea	Benthic Communities and Habitat	To maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable	No
	Coastal Processes	To maintain the morphology of the subtidal, intertidal and supratidal zones and the local geophysical processes that shape them.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable	No
	Marine Environmental Quality	To maintain the quality of water, sediment and biota so that the environmental values, both ecological and social, are protected.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable	No
	Marine Fauna	To maintain the diversity, geographic distribution and viability of fauna at the species and population levels.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable	No
Land	Flora and Vegetation	To maintain representation, diversity, viability and ecological function at the species, population and community level.	<ul> <li>The Proposal coincides with the following flora and vegetation values:</li> <li>(a) "Rare Flora" taxon Tetratheca erubescens;</li> <li>(b) DPaW-classified "priority" flora taxa Beyeria rostellata (P1), Acacia dissona var. indoloria (P3), Hibbertia lepidocalyx ssp.</li> </ul>	<ul> <li>Cliffs proposes to manage the impact of the Proposal to flora and vegetation values through the implementation of:</li> <li>(a) Flora Management Plan (Cliffs 2013a);</li> <li>(b) Land Clearing Management Plan (Cliffs 2013c);</li> </ul>	Yes

THEME         EPA FACTOR         EPA OBJECTIVE         POTENTIAL IMPACT         MANAGE	EMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
tuberculata (P3), Lepidosperma ferricola (P3), Spartothamnella 2013 sp. Helena and Aurora Range (P3), Stenanthemum newbeyi (P3), and Banksia arborea (P4);(c) Dust 2013 (d) Fire i 2013	t Management Plan (Cliffs 3d); Management Plan (Cliffs 3e); and	
<ul> <li>(c) 9 vegetation units; and (f)</li> <li>(c) 9 vegetation units; and (d) DPaW-classified "priority ecological community".</li> <li>As Tetratheca erubescens coincides with the Mine Pits (and the ore resource is fixed), the impact to Tetratheca erubescens is unavoidable. The design of the Mine Pits has been modified as far as practicable to minimise the impact to Tetratheca erubescens, whilst also having regard to the loss of recoverable ore from such modifications.</li> <li>(b) Final research and the ore resource is implementation and spatial structuring of the Plan having regard to the loss of recoverable ore from such modifications.</li> <li>(c) 9 vegetation units; and (f) Final research and the erubescens population. The remaining approximately 20% of the Tetratheca of the rubescens population will remain within non-impact areas of the southern Koolyanobbing Range.</li> <li>A preliminary assessment has identified the effect of the Proposal is not expected to change the threat category of "Vulnerable" currently applying to Tetratheca erubescens under the IUCN (2012) criteria.</li> <li>The effect of the Proposal is expected to result in negligible impact on the genetic variation and spatial structuring of Tetratheca erubescens (BGPA 2014 in endet)</li> </ul>	ed Management Plan (Cliffs 3f). ecific regard to the impact to eca erubescens, the impact otentially be offset through the entation of: ancial contribution to DPaW to st with the preparation and lementation of a Recovery in for Tetratheca erubescens; d ancial contribution to earch the restoration ecology he taxon (consistent with the ectives of a future Recovery n). blication of the above mental offsets, consistent with the offsets frameworks, may be tred appropriate for development roposal. he environmental impact ent process, alternative potential rrangements could be tred and agreed between EPA ifs, and in consultation with	

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
			prep.). Environmental offsets for the impact to <i>Tetratheca erubescens</i> may be applicable. The Proposal is expected to impact 7 "priority" flora taxa, all of which have distributions at the Koolyanobbing range broader that then Proposal area and distributions across the broader region. Having regard to the expected impact of the Proposal and the distribution of these taxa across the Koolyanobbing Range and the broader region, the impact of the Proposal to the DPaW- classified "priority" flora taxa is not expected to be environmentally significant. The Proposal will impact 9 vegetation units, all of which have distributions at the Koolyanobbing Range broader than the Proposal area. The impact to vegetation units is not expected to be environmentally significant having regard to the proportional impact of the Proposal and the spatial extent of the Vegetation units across the	assessment and regulation under the Wildlife Conservation Act 1950 (WA). Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to flora and vegetation values are minimised and controlled to an acceptable level.	
			The Proposal coincides with a DPaW- classified PEC. Having regard to the expected impact of the Proposal and the spatial extent of the DPaW-classified PEC across both the northern and southern Koolyanobbing Range, the impact of the Proposal to the DPaW- classified PEC is not expected to be		

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
			environmentally significant.		
			The Proposal is also expected to impact a variety of other flora taxa which are not of conservation significance. The impact to these other flora taxa is not expected to be environmentally significant having regard to the broad regional distributions of such taxa.		
	Landforms	To maintain the variety, integrity, ecological functions and environmental values of landforms and soils.	The Proposal coincides with part of the Koolyanobbing Range. Mining at the Koolyanobbing Range has a history spanning approximately 50 years, with iron ore mining at the Koolyanobbing Range having commenced in 1967. The Proposal area itself has been subject to several exploration programs over the past decade which has resulted in existing land disturbance through the construction of access tracks and drilling pads. Consistent with the existing mine operations at the Koolyanobbing Range, the Proposal will alter part of the Koolyanobbing Range through the construction of a Mine Pit (a depression) and an adjacent Waste Rock Landform (an elevated land mass). Following the completion of mining, the Proposal area will require rehabilitation as part of the mine closure process. Whilst the Koolyanobbing Range (to 510mAHD) may be a prominent landform in the local area, the Koolyanobbing Range is of lower elevation than many other ranges in the local region e.g.	The effect of the Proposal to the Koolyanobbing Range has been minimised through the mine planning process, with the Waste Rock Landform and the Support Infrastructure both positioned off the Koolyanobbing Range ridge. The effect of the Proposal to the Koolyanobbing Range will further be minimised through rehabilitation of the Waste Rock Landform. Cliffs proposes to manage the impact of the Proposal to landforms through the implementation of: (a) Koolyanobbing Mine Closure Plan (Cliffs 2012b). The Mine Closure Plan for the Koolyanobbing Range mine operations will be amended to include the Proposal area. The Mine Closure Plan has previously been approved by DMP in accordance with the Mining Act 1978 (WA), and is consistent with the DMP and EPA (2011) document Guidelines for Preparing Mine Closure Plans.	No

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
			Windarling Range (to 560mAHD), Mt Jackson Range (to 615mAHD), Mt Manning Range (to 640mAHD), Die Hardy Range (to 640mAHD) and the Helena and Aurora Range (to 680mAHD).	Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to landforms is minimised and controlled to an acceptable level.	
			mining at the Koolyanobbing Range, as well as the broad area of the Koolyanobbing Range and numerous ranges across the region which are of higher elevation, the effect of the Proposal to landforms is not expected to be significant.		
	Subterranean Fauna	To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	The Proposal will impact land areas that provide habitat for troglobitic subterranean fauna. Surveys for troglobitic fauna taxa (Bennelongia 2014) have recorded several troglobitic fauna at the Koolyanobbing Range, none of which are of listed conservation significance. As identified by Bennelongia (2014), the troglobitic fauna taxa recorded are expected to have distributions extending across the southern Koolyanobbing Range (i.e. not restricted taxa). As such, that the impact of the Proposal to troglobitic subterranean fauna is unlikely to be environmentally significant. The Proposal is not expected to impact habitat for stygobitic subterranean fauna as mining will be restricted to above the groundwater table, with groundwater abstraction being restricted to minimal volumes required for dust suppression.	<ul> <li>Cliffs proposes to manage the impact of the Proposal to subterranean fauna through the implementation of:</li> <li>(a) Minimising land clearing and ground excavations to the minimum extent possible;</li> <li>(b) Restricting mine operations to above the groundwater table; and</li> <li>(c) Groundwater abstraction being undertaken in accordance with Groundwater Licence GWL15549 granted to Cliffs by DoW under the Rights in Water and Irrigation Act 1914 (WA) (DoW 2012).</li> <li>Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to subterranean fauna is minimised and controlled to an acceptable level.</li> </ul>	No

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
	Terrestrial Environmental Quality	To maintain the quality of land and soils so that the environment values, both ecological and social, are protected.	The Proposal will impact 211 ha of land (including soils) which provide habitat for a variety of flora and fauna taxa. The impact to land is not expected to be environmentally significant, having regard to the broader area of the Koolyanobbing Range and its surrounds.	<ul> <li>Cliffs proposes to manage the impact of the Proposal to terrestrial environmental quality through the implementation of:</li> <li>(a) Flora Management Plan (Cliffs (2013a);</li> <li>(b) Fauna Management Plan (Cliffs 2013b);</li> <li>(c) Land Clearing Management Plan (Cliffs 2013c);</li> <li>(d) Dust Management Plan (Cliffs 2013d);</li> <li>(e) Fire Management Plan (Cliffs 2013d);</li> <li>(f) Weed Management Plan (Cliffs 2013f); and</li> <li>(g) Koolyanobbing Mine Closure Plan (Cliffs 2012b).</li> <li>Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to terrestrial environmental quality is minimised and controlled to an acceptable level.</li> </ul>	No
	Terrestrial Fauna	To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	<ul> <li>The Proposal coincides with the following terrestrial fauna values:</li> <li>(a) Specially Protected Fauna taxa Leipoa ocellata, Merops ornatus and Cacatua leadbeateri; and</li> <li>(b) DPaW-classified 'priority' fauna taxon Aganippe castellum.</li> <li>The Proposal coincides with records of</li> </ul>	Cliffs proposes to manage the impact of the Proposal to terrestrial fauna values (including Leipoa ocellata, Merops ornatus, Cacatua leadbeateri and Aganippe castellum) through the implementation of: (a) Fauna Management Plan (Cliffs 2013b);	No

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
			Leipoa ocellata (inactive nest mounds), Merops ornatus (sightings) and Cacatua leadbeateri (sightings). These taxa have been recorded across the southern Koolyanobbing Range and the broader region. The Proposal is not expected to impact live individuals of these taxa. Whilst the Proposal will result in the clearing of habitat utilised by these taxa, the impact to fauna habitat is not expected to be environmentally significant having regard to the extent of suitable habitat for these taxa occurring across the Koolyanobbing Range and the broader region. The Proposal coincides with records of burrows for Aganippe castellum. An estimated 45,000 individuals of Aganippe castellum occur across the broader southern Koolyanobbing Range. The impact of the Proposal to Aganippe castellum is not expected to be environmentally significant, having regard to the number of burrows estimated across the area of the southern Koolyanobbing Range and the broad regional distribution of this taxon. The Proposal can also be also expected to impact a variety of other terrestrial fauna taxa which are not of conservation significance (e.g. birds, reptiles, etc). The impact to these other terrestrial fauna taxa is not expected to be environmentally significant having regard to the broad regional distributions of such taxa.	<ul> <li>(b) Land Clearing Management Plan (Cliffs 2013c); and</li> <li>(c) Fire Management Plan (Cliffs 2013e)</li> <li>To note, the impact to Leipoa ocellata will also be subject to assessment and regulation under the Wildlife Conservation Act 1950 (WA) and the Environment Protection and Biodiversity Conservation Act 1999 (C'th).</li> <li>Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to terrestrial fauna is minimised and controlled to an acceptable level.</li> </ul>	

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
Water	Hydrological Processes	To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected.	The Proposal will require the abstraction of groundwater for use in dust suppression and associated mining activities. The Proposal does not involve groundwater dewatering. The potential impact of the Proposal to groundwater hydrological processes is not expected to be environmentally significant given the low groundwater requirement. The Proposal is situated approximately 1.5km west from the nearest surface water feature, being the salt lake Lake Seabrook. Lake Seabrook is typically dry, only containing surface water following significant rainfall events. As a result of the separation distance and the physical nature of Lake Seabrook, the Proposal is not expected to impact surface water.	<ul> <li>Cliffs proposes to manage the impact of the Proposal to groundwater hydrological processes through:</li> <li>(a) Restricting mine operations to above the groundwater table; and</li> <li>(b) Groundwater abstraction being undertaken in accordance with Groundwater Licence GWL15549 granted to Cliffs by DoW under the Rights in Water and Irrigation Act 1914 (WA) (DoW 2012).</li> <li>Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to hydrological processes is minimised and controlled to an acceptable level.</li> </ul>	No
	Inland Waters Environmental Quality	To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.	The Proposal will require the abstraction of groundwater for use in dust suppression and associated mining activities. The Proposal is not expected to impact the quality of the groundwater. The Proposal is situated approximately 1.5km west from the nearest surface water feature, being the salt lake Lake Seabrook. Lake Seabrook is typically dry, only containing surface water following significant rainfall events. As a result of the separation distance and the physical nature of Lake Seabrook, the Proposal is not expected to impact surface water quality.	<ul> <li>Cliffs proposes to manage the impact of the Proposal to groundwater quality through:</li> <li>(a) Restricting mine operations to above the groundwater table; and</li> <li>(b) Groundwater abstraction being undertaken in accordance with Groundwater Licence GWL154459 granted to Cliffs by DoW under the Rights in Water and Irrigation Act 1914 (WA) (DoW 2012).</li> <li>Implementation of the above management actions is expected to</li> </ul>	No

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
				ensure that the potential for impact of the Proposal to inland waters environmental quality is minimised and controlled to an acceptable level.	
Air	Air Quality	To maintain air quality for the protection of the environment and human health and amenity.	The Proposal will result in dust emissions to air from activities including land clearing, drilling, blasting, excavation, loading and unloading of ore and waste rock, vehicle movements on unsealed roads, and from wind passing over cleared land areas. Based on observations from Cliffs' existing mine operations, the effect of the dust emissions is not expected to be environmentally significant. The Proposal will also result in gaseous emissions to air from the burning of hydrocarbon fuels in mining equipment and power generation facilities. The dust and gaseous emissions are not expected to be environmentally significant based on the emissions of Cliffs' existing mine operations, and with no regulatory limits or standards to be exceeded.	Cliffs proposes to manage the impact of the Proposal to air emissions through the implementation of: (a) Land Clearing Management Plan (Cliffs 2013c); and (b) Dust Management Plan (Cliffs 2013d). Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to air quality is minimised and controlled to an acceptable level.	No
People	Amenity	To ensure that impacts to amenity are reduced as low as reasonably practicable.	Not applicable – the Proposal is not located in proximity to the areas of human occupation.	Not applicable	No
	Heritage	To ensure that historical and cultural associations are not adversely affected.	The Proposal does not coincide within any registered Aboriginal Heritage site within the meaning of s5 of s6 of the Aboriginal Heritage Act 1972 (WA). Aboriginal heritage surveys undertaken within the Proposal area have not indicated any areas of Aboriginal heritage. Cliffs has previously received	<ul> <li>Cliffs proposes to manage the impact of the Proposal to heritage values through adherence to:</li> <li>(a) Aboriginal Heritage Act 1972 (WA); and</li> <li>(b) Compliance with the s18 consent granted by the WA Minister for</li> </ul>	No

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
			consent under s18 of the Aboriginal Heritage Act 1972 (WA) from the WA Minister for Aboriginal Affairs to undertake mine operations within part of the area of the Proposal (WA Minister for Aboriginal Affairs 2003).	Aboriginal Affairs under the Aboriginal Heritage Act 1972 (WA) (WA Minister for Aboriginal Affairs 2003). Implementation of the above management actions is expected to ensure that the potential for impact of the Proposal to heritage is minimised and controlled to an acceptable level.	
	Human Health	To ensure that human health is not adversely affected.	Not applicable – the Proposal is not located in proximity to the areas of human occupation or public recreation.	Not applicable	No
Integrating Factors	Offsets	To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.	As identified above, the Proposal is expected to impact approximately 20% of the population of the "Rare Flora" taxon Tetratheca erubescens. Whilst a preliminary assessment has identified that the effect of the Proposal is not expected to change the threat category of "Vulnerable" currently applying to Tetratheca erubescens under the IUCN (2012) criteria, the impact may still be considered environmentally significant, and for which offsets may be considered applicable.	<ul> <li>Offsets for the impact to Tetratheca erubescens may potentially include:</li> <li>(a) Financial contribution to DPaW to assist with the preparation and implementation of a Recovery Plan for Tetratheca erubescens; and</li> <li>(b) Financial contribution for research into restoration ecology of Tetratheca erubescens (consistent with the objectives of a future Tetratheca erubescens Recovery Plan).</li> <li>The above offsets are consistent with the existing offsets framework applied to Cliffs' Yilgarn Operations for impacts to other Rare Flora taxa (i.e. Tetratheca paynterae ssp. paynterae and Ricinocarpos brevis), such that the above offsets may be considered appropriate for implementation of the</li> </ul>	Yes

THEME	EPA FACTOR	EPA OBJECTIVE	POTENTIAL IMPACT	MANAGEMENT and PREDICTED OUTCOME	KEY ENV. FACTOR?
				Proposal.	
				During the environmental impact assessment process, alternative potential offset arrangements could be considered and agreed between EPA and Cliffs, and in consultation with DPaW.	
	Rehabilitation and Closure	To ensure that premises are closed, decommissioned and rehabilitated in an ecologically sustainable	The Proposal area will require rehabilitation and closure to restore environmental values, and ensure post- mining landforms are safe and stable to enable future land use. Rehabilitation	Cliffs proposes to manage the impact of the Proposal to rehabilitation and closure through: (a) Koolyanobbing Mine Closure Plan (Cliffs 2012b).	No
		manner, consistent with agreed outcomes and land uses, and without unacceptable liability to the State.	and closure for the Proposal area is not considered environmentally significant, with Proposal area to be rehabilitated and closed in accordance with the mine closure practices currently outlined in the approved Mine Closure Plan for the existing Koolyanobbing Range mine operations.	The Mine Closure Plan for the Koolyanobbing Range mine operations can be amended to include the Proposal area. The Mine Closure Plan has previously been approved by DMP in accordance with the Mining Act 1978 (WA), and is consistent with the DMP and EPA (2011) document Guidelines for Preparing Mine Closure Plans.	
				Cliffs existing mine operations have been able to demonstrate successful rehabilitation to date, with significant progress made towards achieving the completion criteria identified within the Mine Closure Plan.	
				Implementation of the above management actions is expected to ensure that the Proposal is appropriately closed and rehabilitated to an acceptable level.	