



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 3757/3
Permit Holder:	The Pilbara Infrastructure Pty Ltd
Duration of Permit:	22 August 2010 – 22 August 2015

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of geotechnical and Hydrological investigation.

2. Land on which clearing is to be done

Licence number Lic 50313/2004_15_168 Solomon Rail Spur – Part 1 and

Licence number Lic 50213/2004_16_36 Solomon Rail Spur – Part 3

Located within the following properties:

LOT 116 ON PLAN 220191, CHICHESTER 6751

LOT 206 ON PLAN 221014, CHICHESTER 6751

LOT 207 ON PLAN 221014, CHICHESTER 6751

LOT 114 ON PLAN 220376, 114 NANUTARRA RD MULGA DOWNS 6751

LOT 10 ON PLAN 221013, WITTENOOM 6751

LOT 11 ON PLAN 221013, WITTENOOM 6751

LOT 53 ON PLAN 220376, MULGA DOWNS 6751

LOT 45 ON PLAN 238216, CHICHESTER 6751

LOT 207 ON PLAN 238216, CHICHESTER 6751

LOT 218 ON PLAN 220376, 218 GREAT NORTHERN HWY MULGA DOWNS 6751

LOT 190 ON PLAN 91708, MARBLE BAR 6760

CROWN RESERVE 23046, MARBLE BAR 6760

UNALLOCATED CROWN LAND, MARBLE BAR 6760

3. Area of Clearing

The Permit Holder must not clear more than 135 hectares of native vegetation within the area hatched yellow on attached Plan 3757/3.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the *Land Administration Act 1997* or any other written law.

6. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

7. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

8. Weed control

(a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(b) At least once in each 12 month period for the *term* of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

9. Flora management

(a) Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *botanist* to inspect that area for the presence of *priority flora*.

(b) Where *priority flora* are identified in relation to condition 9(a) of this Permit, the Permit Holder shall ensure that no clearing occurs with 10 metres of identified *priority flora*, unless approved by the CEO.

10. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

(a) Retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.

(b) within six months following clearing authorised under this permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this by:

- (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and
- (ii) ripping the ground on the contour to remove soil compaction; and
- (iii) laying the vegetative material and topsoil retained under condition 10(a) on the cleared area(s).

(c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 10(b) of this Permit:

- (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
- (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 10(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.

11. Drainage management

The Permit Holder shall not cause or permit the discharge of sediments, from within those areas permitted to be cleared under this permit, into the Fortescue Marsh.

12. Environmental management plan

- (a) The Permit Holder must prepare, implement and adhere to a Mulga Community *EMP*, if clearing within Mulga communities.
- (b) The Mulga Community *EMP* must include:
 - (i) a plan for managing the *impacts*;
 - (ii) a table setting out the Permit Holder's commitments to the Mulga Community *EMP*'s requirements; and
 - (iii) a program for monitoring compliance with the Permit Holder's commitments;
- (c) Once the Permit Holder has developed a Mulga Community *EMP*, the Permit Holder must provide that Mulga Community *EMP* to the CEO for the CEO's approval. The clearing to which the Mulga Community *EMP* relates and the implementation of the Mulga Community *EMP* shall not take place until the Permit Holder receives approval from the CEO.

PART III - RECORD KEEPING AND REPORTING

13. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to flora management pursuant to condition 9 of this Permit:
 - (i) the location of each *priority flora* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) the species name of each *priority flora* identified; and
 - (iii) a copy of the botanists flora survey report.
- (c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 10 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares); and
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*.
- (d) In relation to the drainage management of areas pursuant to condition 11 a description of the drainage management activities undertaken.
- (e) In relation to the environmental management plan of areas pursuant to condition 12 a description of the environmental management plan activities undertaken, in accordance with that environmental management plan.

14. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 13 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 22 May 2015, the Permit Holder must provide to the CEO a written report of records required under condition 13 of this Permit where these records have not already been provided under condition 14(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

botanist means a person with specific training and/or experience in the ecology and taxonomy of Western Australian flora;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

EMP means environmental management plan;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fill means material used to increase the ground level, or fill a hollow;

impacts means any impact of clearing on environmental values;

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres of the area cleared.

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

priority flora means those plant taxa described as priority flora classes 1, 2, 3 or 4 in the *Department's Declared Rare and Priority Flora List for Western Australia* (as amended);


regenerate/ed/ion means *revegetation* that can be established from in situ seed banks contained either within the topsoil or seed-bearing *mulch*;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

term means the duration of this Permit, including as amended or renewed;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

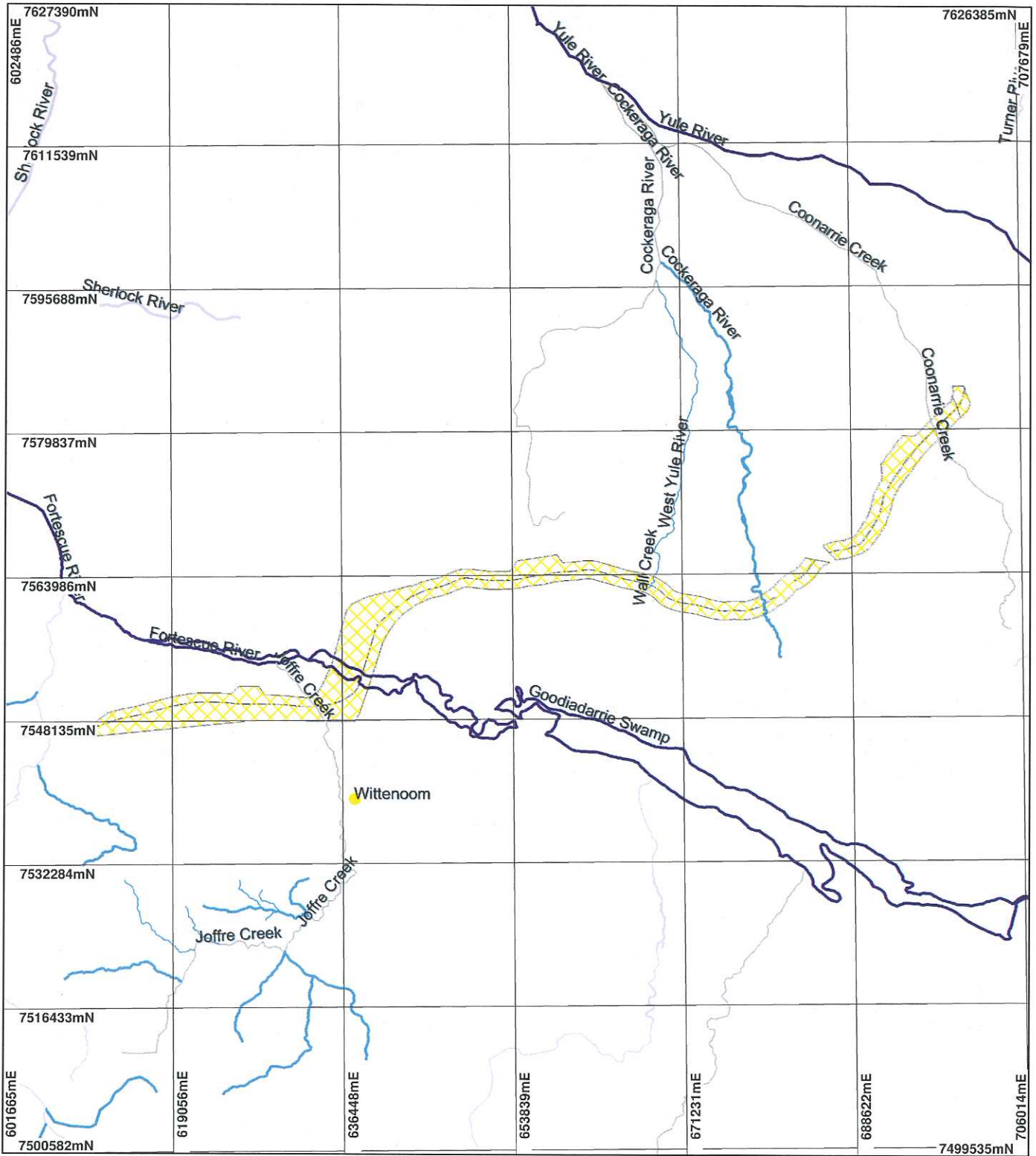
A handwritten signature in black ink, appearing to read 'K Faulkner', is written over a horizontal line.

Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

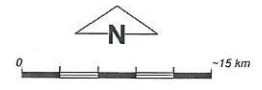
3 March 2011

Plan 3757/3



LEGEND

- | | | |
|--|--------------------|---|
| Clearing Instruments | Major River | A |
| Areas Approved to Clear | Major Trib | B |
| Hydrography, linear (hierarchy) | Minor River | C |
| Coastal Waterline | Minor Trib | |
| Mainstream (cont) | Significant Stream | |
| | Towns | |
| | (cont) | |



Scale 1:580654
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Date 3/3/11
K Faulkner

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



1. Application details

1.1. Permit application details

Permit application No.: 3757/3
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: The Pilbara Infrastructure Pty Ltd

1.3. Property details

Property:

- LOT 116 ON PLAN 220191 (CHICHESTER 6751)
- LOT 206 ON PLAN 221014 (CHICHESTER 6751)
- LOT 207 ON PLAN 221014 (CHICHESTER 6751)
- LOT 114 ON PLAN 220376 (Lot No. 114 NANUTARRA MULGA DOWNS 6751)
- LOT 10 ON PLAN 221013 (WITTENOOM 6751)
- LOT 11 ON PLAN 221013 (WITTENOOM 6751)
- LOT 53 ON PLAN 220376 (MULGA DOWNS 6751)
- LOT 45 ON PLAN 238216 (CHICHESTER 6751)
- LOT 207 ON PLAN 238216 (CHICHESTER 6751)
- LOT 218 ON PLAN 220376 (Lot No. 218 GREAT NORTHERN MULGA DOWNS 6751)
- UNALLOCATED CROWN LAND (MARBLE BAR 6760)
- LOT 190 ON PLAN 91708 (MARBLE BAR 6760)
- CROWN RESERVE 23046 (MARBLE BAR 6760)

Local Government Area:

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
135		Mechanical Removal	Geotechnical investigations

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 3 March 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
FORTESCUE VALLEY 29: Sparse low woodland; mulga, discontinuous in scattered groups,	The proposal to clear 135 hectares of native vegetation is for the purpose of geotechnical and hydrological investigations along the centre line of the proposed Solomon Rail Spur. The clearing will consist of investigation sites and access tracks to sites. All works will be undertaken and managed in accordance with Fortescue Metals Group Limited, Exploration Environmental Management Plan (Fortescue Metals Group Limited, 2008) (Fortescue Metals Group Limited, 2010).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Vegetation Condition was determined using Coffee Environments Pty Ltd (2010), Flora and Vegetation Assessment Solomon Rail Project.
ABYDOS PLAIN - CHICHESTER 93: Hummock grasslands, shrub steppe; kanji over soft spinifex,			
FORTESCUE VALLEY 111: Hummock grasslands, shrub steppe; Eucalyptus gamophylla over hard spinifex,			
CHICHESTER PLATEAU 173: Hummock grasslands, shrub steppe; kanji over soft spinifex & Triodia wiseana on basalt,			
CHICHESTER PLATEAU 175: Short bunch grassland - savanna/grass plain (Pilbara),			
FORTESCUE VALLEY 562: Mosaic: Low woodland; mulga in valleys / Hummock grasslands, open low tree-steppe; snappy gum			

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

3. Assessment of application against clearing principles

Comments

The proposed amendment of Clearing Permit CPS3757/1 is to increase the total clearing of native vegetation from 110 hectares to 135 hectares for the purpose of geotechnical and hydrological investigations along the centre line of the proposed Solomon Rail Spur. The clearing will consist of investigation sites and access tracks to sites. All works will be undertaken and managed in accordance with Fortescue Metals Group Limited, Exploration Environmental Management Plan (Fortescue Metals Group Limited, 2008) (Fortescue Metals Group Limited, 2010).

'Numerical (i.e. PATN) analysis of the floristic data collected during the 2008 and 2009 surveys was undertaken by E.A. Griffin & Associates, and M.E. Trudgen & Associates to investigate the conservation value of the vegetation of the Solomon Rail Project. The PATN analysis indicated that the Solomon Rail Project is located within an area with floristically diverse vegetation, some of which is poorly known and possibly not widely distributed. No significant vegetation types were identified within the Solomon Rail Project by the numerical (PATN) analysis' (Coffey Environmental 2010).

No recorded threatened fauna, Declared Rare Flora (DRF) or Threatened Ecological Communities (TEC) are known to occur within the area in which clearing is proposed. Approximately 99 to 100% of pre-European vegetation remains for recorded vegetation associations and the Pilbara bioregion has 99.95% of vegetation extent remaining (Shepherd, 2007).

Three recorded Priority flora species, *Aristida jerichoensis* var. *subspinulifera* (Priority 1); *Paspalidium retiglume* (Priority 2); and *Flaveria australasicus* subsp. *gilgai* (Priority 3) have been recorded within the area under application (Coffey Environmental 2010). The proponent has advised that known locations of this species will be avoided where practical (Fortescue Metals Group Limited, 2010). A condition will be imposed to ensure avoidance of priority flora where practical.

One Priority Ecological Community (PEC) (Priority 3) 'Plant assemblages of the Wona Land System' has been recorded within the area under application (Coffey Environmental 2010). The proponent has advised that approximately 23ha, which is less than 0.01% of the total 181, 500ha mapped for this land system, will be cleared (Fortescue Metals Group Limited, 2010).

A total of six Mulga dominated vegetation types were identified within the Solomon Rail Project during the 2008 and 2009 surveys (Coffey Environmental, 2010). The locations of these have been mapped on Figures 8b, 8c, 8d and 8e of Coffey Environmental (2010) Flora and Vegetation Assessment, Solomon Rail Project Report. 'The vegetation of the Pilbara region has adapted to the unpredictable water flow regime, however substantial changes to surface water flows (i.e. sheet flow), resulting in an increase or decrease of surface water can seriously impact on vegetation. Mulga (*Acacia aneura*) has roots which are adapted to taking water from thin surface soils as they have no tap roots for absorbing groundwater. Consequently, the distribution and abundance of mulga is primarily influenced by soil moisture and patterns of surface drainage. Mulga can be impacted by impedance or diversion of surface drainage. The loss of Mulga conversely results in increased soil erosion and downstream flood levels due to the extent of moisture retention which is achieved in mulga groves (Fortech, 1999). Mulga is primarily at risk from grazing, fire, climate change, alteration to surface water flow and weed ingress. Appropriate management measures should be adopted to minimise indirect impacts resulting from the Solomon Rail Project on Mulga communities.' (Coffey Environmental, 2010). A condition to manage Mulga Community impacts will be imposed.

Fortescue River, Cockeraga River and other minor water courses lie within the area in which clearing is proposed. Mulga communities, particularly those fringing the Fortescue River and Marsh are considered to be regionally significant (DEC, 2010). Sheet flow resulting from land clearing may impact on the surrounding sensitive Mulga communities within this area. Therefore there may be some disturbance to vegetation

associated with watercourses and wetlands. Conditions will be imposed to manage such impacts.

Methodology GIS Databases:
- DEC Managed Lands & Waters - DEC 28/10/09
- Pre-European vegetation - DA 01/01
- ANCA, Wetlands - 26/03/99
- Hydrogeology, statewide - DoW 13/07/06
- Hydrography, linear - DoW 13/7/06
- SAC Biodatasets - 22/06/10
Keighery, 1994
Shepherd, 2007
DEC, 2010
Fortescue Metals Group Limited, 2008
Fortescue Metals Group Limited, 2010
Coffey Environments, 2010

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

On the 4 October 2010, The Pilbara Infrastructure Pty Ltd applied to amend their clearing permit CPS 3757/1, to increase the amount of clearing to 135 hectares, but within the same footprint area.

The applicants have two Section 91 Licences under the Land Administration Act 1997 for Solomon Rail Spur Part 1 and 3. These licences cover the area under application.

Aboriginal Sites of Significance are mapped within the area under assessment. The proponent will be advised of their obligations under the Aboriginal Heritage Act 1972.

Methodology GIS Database:
- Aboriginal Sites of Significance
Fortescue Metals Group Limited, 2010

4. References

Coffey Environments Pty Ltd (2010), Flora and Vegetation Assessment Solomon Rail Project. DEC Ref: A308356
DEC (2010) Pilbara Regional Advice. Department of Environment and Conservation, DEC Ref: A318414 & A318788
Fortescue Metals Group Limited (2008) Fortescue Metals Group Limited - Exploration Environmental Management Plan. DEC Ref: A318411
Fortescue Metals Group Limited (2010) Clearing permit application - supporting information. DEC Ref: A308356
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)