Government of South Australia
Department for Environment and Water

81-95 Waymouth Street
Adelaide SA 5000

GPO Box 1047
Adelaide SA 5001
Australia

Ph: +61 8463 6625

www.environment.sa.gov.au

Reference Number: NVC FOI 21/01

Dear

I refer to your application pursuant to the *Freedom of Information Act 1991* (the Act) received by the Department for Environment and Water (DEW) on 03 November 2021, seeking access to:

> *"Documents concerning the Native Vegetation Council assessment of the Waterloo wind farm native vegetation clearance application including relevant Minutes of Native Veg Council and NVAP meetings.*
> *Timeline: 01 January 2005 to 01 January 2011"*

As the documents sought relate directly to the Native Vegetation Council, this Freedom of Information (FOI) application was transferred to the Native Vegetation Council to execute.

As the agency did not determine the application within 30 days of receiving it, by the operation of section 19(2)(b) of the FOI Act, the agency is taken to have determined the application by refusing access. Section 19(2a) of the FOI Act provides that an agency may give access to a document on an application after the period within which it was required to deal with the application (and any such determination is to be taken to have been made under this Act).

DETERMINATION

Searches of the Native Vegetation Council's records have found nine (9) documents (inclusive of attachments) held by this agency within scope of your request.

As an Accredited FOI Officer, I have determined to grant you full access to eight (8) documents and partial access to one (1) document.

Section 20 of the Act provides that an agency may refuse access to a document if it is an exempt document under the Act. The documents, or parts of the document to which I am refusing access, the reasons for the refusal and the public interest test are summarised in the attached document schedule. The FOI Act exemption clauses relevant to this determination are listed below for your reference.

Schedule 1, Clause 4(2)(a)(iii)&(b) of the Act states:

4— Documents affecting law enforcement and public safety

(2) A document is an exempt document if it contains matter the disclosure of which—

(a) could reasonably be expected—

(iii) to prejudice the effectiveness of any lawful method or procedure for preventing, detecting, investigating or dealing with any contravention or possible contravention of the law (including any revenue law); and

(b) would, on balance, be contrary to the public interest.

Schedule 1, Clause 6(1) of the Act states:

6—Documents affecting personal affairs

(1) A document is an exempt document if it contains matter the disclosure of which would involve the unreasonable disclosure of information concerning the personal affairs of any person (living or dead).

The Council will provide the determination electronically.

In accordance with PC045 – *Disclosure logs for Non-personal information* once a determination has been provided, the agency is required to make available on our website information and documents that have been disclosed. Information will be publicised online at https://www.environment.sa.gov.au/about-us/boards-and-committees/native-vegetation-council/nvc-foi-disclosure-log.

FEES AND CHARGES

There will be no further charges to process this application.

YOUR APPEAL RIGHTS

If you are dissatisfied with this determination, you have the right to apply for an external review. All applications for an external review should be made to the Ombudsman SA.
An external review must be done within 30 calendar days after being notified of the determination. The Ombudsman SA can extend this time limit at their discretion. There is no fee or charge for external reviews undertaken by the Ombudsman. Contact details for the Ombudsman are:

Ombudsman SA
Phone: 8226 8699
Toll Free: 1800 182 150 (outside metro SA)
Email: ombudsman@ombudsman.sa.gov.au

Should an FOI applicant believe an agency has failed to identify all of the documents within the scope of their FOI application, they can make a complaint to the Ombudsman under the Ombudsman Act 1972. Attachment 4 of this determination outlines this process. You can also visit: www.ombudsman.sa.gov.au.

If you have any queries in relation to the above please contact the Native Vegetation Council on telephone (08) 8303 9777 or email nvc@sa.gov.au.

Yours sincerely

Vaughan Levitzke PSM
Principal Officer, Freedom of Information
Native Vegetation Council

17/10/2022

Encl:
1. Document Schedule
2. Release Documents
3. FOI Fact Sheet – Your Rights to Review and Appeal
4. Sufficiency of Search – Factsheet – Ombudsman SA

Freedom of Information application: NVC 21-01 [redacted]

Scope: "Documents concerning the Native Vegetation Council assessment of the Waterloo wind farm native vegetation clearance application including relevant Minutes of Native Veg Council and NVAP meetings."
Timeline: Between 1/01/2005 to 1/01/2011

Number	Date	Author	Description	Page number	No of Pages	Determination	Clause	Reason	Public Interest Test - Contrary to release	Public Interest Test - In favour of release
1	31/01/2005	Native Vegetation Council	Extract of Minutes of NVC meeting 31-01-2005	1	1	*Release in Full*				
2	16/02/2005	Native Vegetation Council	Internal NVC Briefing	2	7	*Release in Full*				
3	7/04/2005	Native Vegetation Council	Letter	9	6	*Release in Full*				
4	19/04/2005	Hydro Tasmania	Letter	15	13	*Partial Release*	*S4(2)(a)(iii)&(b)*	*Location of rare/vulnerable/endangered species withheld to protect from possible theft or damage.*	*Releasing the location of rare and endangered species may result in unauthorised collection of remaining specimens. The withholding of this information does not detract from the readability of the requested information.*	
5	10/06/2005	Hydro Tasmania	Application letter	28	3	*Release in Full*				
5.1	9/05/2005	Clare & Gilbert Valleys Council	Minutes of Special Meeting	31	10	*Release in Full*				
5.2	1/11/2004	Hydro Tasmania Consulting	Report	41	22	*Partial Release*	*S6(1)*	*Names and property locations of prospective Agreement holders withheld, with the property assessments released in line with applicant's request for native vegetation clearance assessments.*	*Heritage Agreements are negotiated in confidence with the landholders.*	
							S4(2)(a)(iii)&(b)	*Location of rare/vulnerable/endangered species withheld to protect from possible theft or damage.*	*Releasing the location of rare and endangered species may result in unauthorised collection of remaining specimens. The withholding of this information does not detract from the readability of the requested information.*	

5.3	1/04/2005	EBS Ecology	Report	63	40	*Partial release*	*S6(1)*	*Names and property locations of prospective Agreement holders withheld, with the property assessments released in line with applicant's request for native vegetation clearance assessments.*	*Heritage Agreements are negotiated in confidence with the landholders.*	
							S4(2)(a)(iii)&(b)	*Location of rare/vulnerable/endangered species withheld to protect from possible theft or damage*	*Releasing the location of rare and endangered species may result in unauthorised collection of remaining specimens.* *The withholding of this information does not detract from the readability of the requested information.*	
5.4	14/03/2005	DEH Australian Government	Letter	103	2	*Release in Full*				
6	10/07/2005	Native Vegetation Council	Letter	105	2	*Release in Full*				
7	20/07/2005	Hydro Tasmania	Letter	107	1	*Release in Full*				
8	29/05/2009	Roaring 40s	Letter	108	1	*Release in Full*				
8.1	1/05/2009	EBS Ecology	Report	109	7	*Release in Full*				
9	29/07/2009	Native Vegetation Council	Letter	116	4	*Release in Full*				

2.2 Action List of Matters to be Dealt with from December Meeting

ITEM 6.5 - HYDRO TASMANIA / WATERLOO WIND FARM
During discussion of this item, Mr Whisson informed Members that the Hydro Tasmania / Waterloo Wind Farm application (Item 6.5, presentation given at October meeting) was being inspected that week, that the company had previously supplied a vegetation survey carried out by their own consultants, and that the company was keen to progress. He asked Members to consider delegating approval of this application to the Presiding Member.

Motion A Ben Kahn / G Smith:

That Council delegate authority to the Presiding Member to approve the Hydro Tasmania / Waterloo Wind Farm application if no issues are identified following the field inspection.

Carried

Members noted the Action List.

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

TO: **PRESIDING MEMBER, NATIVE VEGETATION COUNCIL**

FROM: **ACTING EXECUTIVE OFFICER, NVC**

SUBJECT: **WATERLOO WINDFARM - HYDRO TASMANIA**

DATE: **16 FEBRUARY 2005**

PURPOSE

Hydro Tasmania are seeking the approval of the Native Vegetation Council to use Exemption 5(1) (d) to clear native vegetation incidental to construction of a windfarm near Waterloo in the mid north of South Australia. Clearance of native vegetation is required for wind turbine sites, roads and underground cables.

BACKGROUND

At its meeting of 6 December 2004 the Native Vegetation Council considered a preliminary submission from Hydro Tasmania on the proposal. The NVC resolved to request that the Native Vegetation Group provide an assessment of the proposal and sought information on the status of the development application.

Location:

Hydro Tasmania propose to construct a windfarm with 39 turbines along about 20 km of the Apoinga Range located east of Waterloo in the mid north of South Australia. The proposal is located on numerous allotments mostly in the Hundred of Waterloo, plus some allotments in Hd Apoinga and Stanley (the subject land). In addition, a high voltage transmission line is proposed to link the windfarm to a substation at Waterloo (to be confirmed).

To the east (about 5km) of the Apoinga Range is the Tothill Range. This range has higher quatztitic outcrops with exceptional conservation significance, and contains several Heritage Agreement areas. A lagoon known as Apoinga or Black Springs Lagoon that covers over 100 ha when full is located on the flats between the ranges and within 1km of the subject land.

Exemption 5(1) (d) relating to building or infrastructure in the public interest. This exemption allows for the clearance of intact native vegetation provided:

(i) (A) the clearance is incidental to the construction of a building or infrastructure and the Council is satisfied that the clearance is in the public interest; or

(B) the clearance is required in connection with the provision of infrastructure or services to a building or proposed building, or to any place; and

(ii) any development authorisation required by or under the *Development Act 1993* has been obtained; and

(iii) the Council is satisfied that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available; and

(iv) there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and

(v) the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State, or the owner of the land (or a person acting on his or her behalf) has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

DISCUSSION:

Biological Assessment

The applicants have provided flora and fauna assessments of the subject land conducted in autumn and spring 2004. The Native Vegetation Group inspected the subject land on 1 February 2005. In addition, two Biological Survey of South Australia vegetation survey sites are located on the subject land.

Vegetation types:

Four main types of native vegetation occur on the subject land, namely:

1. Kangaroo Thorn *Acacia paradoxa* and Downy Mintbush *Prostanthera behriana* shrubland on quartzitic outcrops - limited occurrence at the northern end of the subject land. This vegetation type is subject to relatively heavy grazing impacts.
2. Peppermint Box *Eucalyptus odorata* woodland with a grassy understorey on red-brown loams with quartzitic rubble. This vegetation type is relatively intact with few weed species present and low grazing impacts.
3. Peppermint Box and Drooping Sheoak *Allocasuarina verticillata* low open woodland on shallow loams with quartzitic rubble. This vegetation type has a patchy native understorey with widepread weed species and moderate grazing impacts.
4. Wild oat *Avena* sp. and Speargrass *Stipa* spp. grassland on shallow loams. Much of this area probably results from fieback and clearance of 3 above. Introduced species comprise about half the understorey cover.

In addition, extensive areas of Wild oat grassland with few native species occur on the subject land.

Plant species diversity:

The plant species surveys show that the subject land has a high plant species diversity, with 104 species recorded. Within this area the actual construction and roadworks are confined mostly to the ridgetops. These areas have a lesser diversity with 30 native species recorded.

Wildlife Habitat

Bird surveys have been conducted on the subject land for the proponents in March 2004 (four days) and November 2004 (4 days). These surveys found 50 species of birds, including 45 native species. Of these, several are of particular conservation significance (Table 2 - marked *). Two other species of conservation significance are also likely to occur on the subject land.

Species	SA	MN	MLR	Comment
Peregrine Falcon*	R	R	R	Pair thought to nest near centre of subject land
Elegant Parrot*	U	K	K	
Brown Treecreeper*	C	U	V	Temperate woodlands
Superb Fairy-wren*	C	V	C	
Buff-rumped Thornbill*	C	V	C	
Yellow Thornbill*	U	U	U	
Southern Whiteface*	C	U	V	
Hooded Robin*	C	U	V	
Grey Currawong*	U	U	U	
White-winged Chough*	U	V	V	Temperate woodlands
Diamond Firetail	V	V	V	Grassy temperate woodlands
Painted Button-quail	V	V	V	Temperate woodlands

Note - the boundary of the MLR and MN avifaunal regions follows along the Apoinga Range

The bird reports provided by the proponent do not adequately state the limitations of the reports. The spring of 2004 was a poor year for spring visitors, so the bird reports do not adequately assess the value of the area as a habitat and corridor for migratory bush birds such as woodswallows, budgerigars, etc. Further, no surveys were undertaken when the Peppermint Box was flowering (winter). This species produces a heavy nectar load and is therefore likely to attract migrating flocks of honeyeaters and lorikeets at this time. The surveys were also undertaken when the

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

Apoinga Lagoon was dry. This lagoon has been known to attract thousands of waterbirds when filled, including the vulnerable Freckled Duck.

The bird surveys have identified a relatively high use by raptors, with 7 species recorded. Observations of raptors were concentrated at the northern cluster of the proposed windfarm. At least one pair of Wedge-tailed Eagles and Peregrine Falcons (near Quinn Gap) is believed to nest on the subject land.

The *Eucalyptus odorata* woodlands on the subject land provide habitat for a range of temperate woodland birds that are declining and under threat throughout south-eastern Australia. Several of these were recorded during the bird surveys. The subject land is also located at the boundary of the Mount Lofty and Mid North avifaunal regions where north-south trending ranges provide important links between the Bassian faunas of the Mount Lofty Ranges and the Southern Flinders Ranges.

Rare and threatened plant species:
The flora surveys have found that the subject land supports many plant species of particular conservation significance. These include five species listed as rare or theatened in South Australia (Table 1). In addition, there are eleven species listed as uncommon in the region that could be affected. Areas proposed to be cleared for construction and roadworks contain several of these species.

Species	Common name	SA	NL	Location	Clearance
Eryngium rostraum	Blue Devil	V	V	Within 30m of centre of Site 17	?yes
Cryptandra amara var. longiflora	Long-flower Cryptandra	R	R	Road access to Site 1	Yes
Eriostemon angustifolius ssp. angustifolius #	Narrow-leaf Wax-flower	R	R	Confined to *Acacia paradoxa* shrubland near Site 1	No
Pultenaea kraehenbuehlii	Tothill Bush-pea	R	R	Confined to *Acacia paradoxa* shrubland near Site 1	No
Stipa breviglumis	Cane Spear-grass	R	R	Several widepread occurrences in *E. odorata* woodland	?yes
Stipa gibbosa	Swollen Spear-grass	R	T	Several widepread occurrences in *E. odorata* woodland	Yes
Amphipogon caricinus	Long Grey-beard Grass		R	?	?no
Correa glabra	Rock Correa		R	Limited occurrence on rock outcrops	No
Cymbonotus preissianus	Austral Bear's-ear		R	?	?
Danthonia linkii	Leafy Wallaby-grass		K	Widespread on Road reserves on flats	?
Daviesia leptophylla	Narrow-leaf Bitter-pea		R	Road reserves	?no
Goodenia blackiana	Native Primrose		R	?	?
Millotia muelleri	Common Bow-flower		K	Road reserves	?no
Prostanthera behriana	Downy Mint-bush		R	Confined to *Acacia paradoxa* shrubland near Site 1	No

Note # = probably wrongly identified as *Boronia inornata* in proponent's Flora report

The flora surveys show that the proposed development is located within a district that contains many plant species of conservation significance. Of particular significance is vegetation type 1, where several species of high conservation significance occur. The occurrence on the subject land of *Pultenaea kraehenbuehlii* represents a new locality for the species (Lang 1998). In addition, areas of road reserves (that contain mostly vegetation type 2) where stock grazing has largely been excluded contain concentrations of significant plants.

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

The proponents have endeavoured to confine clearance to the areas that lack plant species of high conservation significance. Even though, populations of four species of state significance are likely to be cleared.

Rare and threatened vegetation types:
Much of the subject land (about 200 ha) comprises Peppermint Box *Eucalyptus odorata* woodland with a grassy understorey. Neagle (1995) classifies this vegetation type as Priority 3 for conservation in South Australia, being poorly conserved and with remaining examples small and/or degraded and/or atypical. This vegetation type is well represented on the subject land, although its condition varies widely reflecting past clearance and ongoing grazing activities. Some of the proposed construction and roadworks run through the centre of blocks supporting this vegetation type. In particular, turbine locations 9-12 are contained within a relatively dense area of woodland, albeit within limited open areas. The proponents have however endeavoured to confine clearance to the most degraded areas.

Remnancy:
The proposal is located mainly within the Hundred of Waterloo that is estimated to retain 8.4% native vegetation. The Hds Apoinga and Stanley have 15 and 2.6%. The proposal is also within the Apoinga EA that retains 19% native vegetation.

These figures indicate that the proposed development is located within a relatively well-vegetated part of an extensively cleared region. Native vegetation in this region is confined mainly to the rocky ranges such as the Apoinga and Tothill Range.

Other issues- Weeds
Road construction through the subject land has the potential to spread invasive introduced species throughout the region. For example, Horehound *Marrubium vulgare* occurs in and around a possible rubble source at the quarry at the northern end of the subject land. This and other weed species could easily be spread throughout the subject land unless stringent quarantine procedures are followed.

Clearance proposal
Clearance of native vegetation is required for hardstand areas for turbines (34 turbines of 50m x 30m = 5.1 ha, 5 turbines at 50m x 50m = 1.25 ha), new roads (14 km) and powerlines (underground and overhead). Initial road widths are 15 m, of which about 10 m will be allowed to regenerate after construction. Turbine hardstands have been "micro-sited" so that tree clearance is minimal.

The proponents estimate that a total of 14.6 ha of native vegetation will be cleared (Table 3). Of this, about 7.3 ha will be allowed to regenerate. The proponents consider that in effect therefore, only 7.3 ha will be cleared. However, there is no evidence that the cleared areas will regenerate back to anything other than introduced species unless actively managed (stock excluded, weed species controlled). The proposed power transmission line has been located to avoid most native vegetation, particularly that along road reserves.

Table 3. Details of proposed vegetation clearance.

Vegetation type	Total area on subject land (ha)	Area to be cleared	Area allowed to regrow
E. odorata woodland	206	2.1	1.0
E. odorata - A.verticillata low open woodland	219	9.3	4.6
Avena - Stipa grassland	73	2.8	1.4
Acacia paradoxa shrubland	9	0.4	0.3
TOTAL	508	14.6	7.3

The proponents propose to protect an area of native vegetation approximately equivalent to 10 x the area cleared. Several blocks of relatively undisturbed native vegetation (particularly *E. odorata*

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

woodlands) occur on the subject land that would be suitable for this purpose. In addition, a small area of *Acacia paradoxa - Prostanthera behriana* shrubland at the northern end of the subject land (north of Turbine 1 - see plan) would be significantly improved if stock could be excluded. Heritage Agreements would be the most appropriate form of long-term conservation for these areas.

Hydro Tasmania is currently negotiating with landholders on this issue.

CONCLUSION

Hydro Tasmania has provided a submission to address the requirements of Exemption 5(1) (d) (attached). In summary:

1. Hydro Tasmania considers that the windfarm qualifies as being in the public interest because it will supply renewable energy and reduce carbon dioxide emissions.

2. A development application (433/395/04) has been submitted by the proponents to the Clare and Gilbert Valleys Council (January 2005). This application is due to be considered by the District Council in early March.

3. Hydro Tasmania considers that the turbines are located within areas that were selected on the basis of low impact on flora and fauna (including using existing tracks, avoiding larger areas of remnant vegetation).
4. Hydro Tasmania has offered to offset the proposed clearance by protecting about 100 ha of native vegetation on the subject land. This would involve fencing to exclude stock and the preparation and execution of a vegetation managment plan for the areas.

The assessment indicates that the subject land supports highly significant native vegetation that supports a high diversity of native species, provides habitat for birds of particular conservation significance (especially those of temperate woodlands), has populations of several plant species of high conservation significance, is dominated by a threatened vegetation type and has high value as a remnant in an extensively cleared region. In particular, there are concerns over the location of turbines 9-12 in an area of relatively intact *E. odorata* woodland.

The proposed development is located mostly within the most degraded parts of this area, although it is inevitable that some significant vegetation would be cleared. In relation to Part (iv) of Exemption 5(1)(d), it could reasonably be argued that there are alternative sites (other ranges) with suitable wind resources in this region where a wind farm could be developed that would result in less or no clearance of native vegetation.

There is also a potential that construction and maintenance of the transmission line associated with the proposal could result in clearance of significant native vegetation, particularly that growing along road reserves. The inspections have shown that road reserves in this district are of particular biological significance.

Subject to addressing the above concerns, the protection of about 100 ha of native vegetation elsewhere on the subject land (to be endorsed by the Native Vegetation Group) would be considered a reasonable offset. However, until these areas are confirmed it is not possible to assess whether there is likely to be a significant environmental benefit associated with the proposal.

G. Carpenter

Assessment Officer
Native Vegetation Group

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

References:

Lang, P.J. (1998) *Pultenaea kraehenbuehlii*, a new species endemic to the northern Mount Lofty Ranges, South Australia. *Journal of the Adelaide Botanical Gardens* 18: 25-32.

Robinson, D. (1991) Threatened birds in Victoria: their distributions, ecology and future. *Victorian Naturalist* 3: 67-77.

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

View south along route of proposed road to turbine 1 (at vehicle). Rock outcrop on right supports *Acacia paradoxa* and *Prostanthera behriana* shrubland. Foreground has scattered *Cryptandra amara var longiflora*.

Proposed location of turbine 9 in open area among *E. odorata* woodland.

E. odorata woodland in proposed offset area.

Proposed turbine location 37 (avoiding sheoaks) located along ridgetop

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

Date: 7 April 2005

Mr. Dean Haley
Project Manager
Renewable Energy Group
Hydro Tasmania
Location: 176 Fullarton Rd
Dulwich 5065

Dear Mr Haley,

I refer to your phone conversation today regarding the proposed windfarm near Waterloo in the mid north.

I understand that Hydro Tasmania is seeking the approval of the Native Vegetation Council to use the *Native Vegetation Regulations 2003*, and in particular Regulation (exemption) 5(1)(d) to clear native vegetation incidental for the construction of a windfarm near Waterloo in the mid north of South Australia. Clearance of native vegetation is required for wind turbine sites, roads and underground cables.

Exemption 5(1) (d) of the Native Vegetation Act Regulations relates to building or infrastructure in the public interest. This exemption allows for the clearance of intact native vegetation provided:

(i) (A) *the clearance is incidental to the construction of a building or infrastructure and the Council is satisfied that the clearance is in the public interest; or*

(B) *the clearance is required in connection with the provision of infrastructure or services to a building or proposed building, or to any place; and*

(ii) *any development authorisation required by or under the Development Act 1993 has been obtained; and*

(iii) *the Council is satisfied that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available; and*

(iv) *there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and*

(v) *the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State, or the owner of the land (or a person acting on his or her behalf) has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.*

At its meeting of 6 December 2004 the Native Vegetation Council considered a preliminary submission from Hydro Tasmania on the proposal. The NVC resolved to request that the Native Vegetation Group provide an assessment of the proposal and sought information on the status of the development application. Further, at its meeting of 31 January 2005 the Council resolved to delegate authority to the Presiding Member to approve the application if no issues are identified following the field inspection by the Native Vegetation Group.

The following is a discussion of the biodiversity values of the native vegetation on the subject land based on the field assessment of the Native Vegetation Group.

Biodiversity values
Hydro Tasmania has provided flora and fauna assessments of the subject land conducted in autumn and spring 2004. The Native Vegetation Group inspected the subject land on 1 February 2005. In addition, two Biological Survey of South Australia vegetation survey sites are located on the subject land.

Vegetation types:
Four main types of native vegetation occur on the subject land, namely:

1. Kangaroo Thorn *Acacia paradoxa* and Downy Mintbush *Prostanthera behriana* shrubland on quartzitic outcrops - limited occurrence at the northern end of the subject land. This vegetation type is subject to relatively heavy grazing impacts.
2. Peppermint Box *Eucalyptus odorata* woodland with a grassy understorey on red-brown loams with quartzitic rubble. This vegetation type is relatively intact with few weed species present and low grazing impacts.
3. Peppermint Box and Drooping Sheoak *Allocasuarina verticillata* low open woodland on shallow loams with quartzitic rubble. This vegetation type has a patchy native understorey with widespread weed species and moderate grazing impacts.
4. Wild oat *Avena* sp. and Speargrass *Stipa* spp. grassland on shallow loams. Much of this area probably results from dieback and clearance of 3 above. Introduced species comprise about half the understorey cover.

In addition, extensive areas of Wild oat grassland with few native species occur on the subject land.

Plant species diversity:
The plant species surveys show that the subject land has a high plant species diversity, with 104 species recorded. Within this area the actual construction and roadworks are confined mostly to the ridgetops. These areas have a lesser diversity with 30 native species recorded.

Wildlife Habitat
Bird surveys have been conducted on the subject land for Hydro Tasmania in March 2004 (four days) and November 2004 (4 days). These surveys found 50 species of birds, including 45 native

species. Of these, several are of particular conservation significance (Table 1 - marked *). Two other species of conservation significance are also likely to occur on the subject land.

***Table 1*: Threatened Bird Species Associated with Waterloo Windfarm**

Species	SA	MN	MLR	Comment
Peregrine Falcon*	R	R	R	Pair thought to nest near centre of subject land
Elegant Parrot*	U	K	K	
Brown Treecreeper*	C	U	V	Temperate woodlands
Superb Fairy-wren*	C	V	C	
Buff-rumped Thornbill*	C	V	C	
Yellow Thornbill*	U	U	U	
Southern Whiteface*	C	U	V	
Hooded Robin*	C	U	V	
Grey Currawong*	U	U	U	
White-winged Chough*	U	V	V	Temperate woodlands
Diamond Firetail	V	V	V	Grassy temperate woodlands
Painted Button-quail	V	V	V	Temperate woodlands

Note - the boundary of the MLR and MN avifaunal regions follows along the Apoinga Range

The bird reports provided by Hydro Tasmania do not adequately state the limitations of the reports. The spring of 2004 was a poor year for spring visitors, so the bird reports do not adequately assess the value of the area as a habitat and corridor for migratory bush birds such as woodswallows, budgerigars, etc. Further, no surveys were undertaken when the Peppermint Box was flowering (winter). This species produces a heavy nectar load and is therefore likely to attract migrating flocks of honeyeaters and lorikeets at this time. The surveys were also undertaken when the Apoinga Lagoon was dry. This lagoon has been known to attract thousands of waterbirds when filled, including the vulnerable Freckled Duck.

The bird surveys have identified a relatively high use by raptors, with 7 species recorded. Observations of raptors were concentrated at the northern cluster of the proposed windfarm. At least one pair of Wedge-tailed Eagles and Peregrine Falcons (near Quinn Gap) is believed to nest on the subject land.

The *Eucalyptus odorata* woodlands on the subject land provide habitat for a range of temperate woodland birds that are declining and under threat throughout south-eastern Australia. Several of these were recorded during the bird surveys. The subject land is also located at the boundary of the Mount Lofty and Mid North avifaunal regions where north-south trending ranges provide important links between the Bassian faunas of the Mount Lofty Ranges and the Southern Flinders Ranges.

Rare and threatened plant species:
The flora surveys have found that the subject land supports many plant species of particular conservation significance. These include five species listed as rare or threatened in South Australia (Table 2). In addition, there are eleven species listed as uncommon in the region that could be affected. Areas proposed to be cleared for construction and roadworks contain several of these species.

2: Threatened Plant Species associated with Waterloo Windfarm

Species	Common name	SA	NL	Location	Clearance
Eryngium rostraum	Blue Devil	V	V	Within 30m of centre of Site 17	?yes
Cryptandra amara var. longiflora	Long-flower Cryptandra	R	R	Road access to Site 1	Yes
Eriostemon angustifolius ssp. angustifolius #	Narrow-leaf Wax-flower	R	R	Confined to *Acacia paradoxa* shrubland near Site 1	No
Pultenaea kraehenbuehlii	Tothill Bush-pea	R	R	Confined to *Acacia paradoxa* shrubland near Site 1	No
Stipa breviglumis	Cane Spear-grass	R	R	Several widepread occurrences in *E. odorata* woodland	?yes
Stipa gibbosa	Swollen Spear-grass	R	T	Several widepread occurrences in *E. odorata* woodland	Yes
Amphipogon caricinus	Long Grey-beard Grass		R	?	?no
Correa glabra	Rock Correa		R	Limited occurrence on rock outcrops	No
Cymbonotus preissianus	Austral Bear's-ear		R	?	?
Danthonia linkii	Leafy Wallaby-grass		K	Widespread on Road reserves on flats	?
Daviesia leptophylla	Narrow-leaf Bitter-pea		R	Road reserves	?no
Goodenia blackiana	Native Primrose		R	?	?
Millotia muelleri	Common Bow-flower		K	Road reserves	?no
Prostanthera behriana	Downy Mint-bush		R	Confined to *Acacia paradoxa* shrubland near Site 1	No

Note # = probably wrongly identified as *Boronia inornata* in proponent's Flora report

The flora surveys show that the proposed development is located within a district that contains many plant species of conservation significance. Of particular significance is vegetation type 1, where several species of high conservation significance occur. The occurrence on the subject land of *Pultenaea kraehenbuehlii* represents a new locality for the species (Lang 1998). In addition, areas of road reserves (that contain mostly vegetation type 2) where stock grazing has largely been excluded contain concentrations of significant plants.

Hydro Tasmania has endeavoured to confine clearance to the areas that lack plant species of high conservation significance. Even though, populations of four species of state significance are likely to be cleared.

Rare and threatened vegetation types:
Much of the subject land (about 200 ha) comprises Peppermint Box *Eucalyptus odorata* woodland with a grassy understorey. Neagle (1995) classifies this vegetation type as Priority 3 for conservation in South Australia, being poorly conserved and with remaining examples small and/or degraded and/or atypical. This vegetation type is well represented on the subject land, although its condition varies widely reflecting past clearance and ongoing grazing activities. Some of the proposed construction and roadworks run through the centre of blocks supporting this vegetation type. In particular, turbine locations 9-12 are contained within a relatively dense area of woodland, albeit within limited open areas. Hydro Tasmania has however endeavoured to confine clearance to the most degraded areas.

Remnancy:
The proposal is located mainly within the Hundred of Waterloo that is estimated to retain 8.4% native vegetation. The Hds Apoinga and Stanley have 15 and 2.6%. The proposal is also within the Apoinga Environmental Association that retains 19% native vegetation.

These figures indicate that the proposed development is located within a relatively well-vegetated part of an extensively cleared region. Native vegetation in this region is confined mainly to the rocky ranges such as the Apoinga and Tothill Range.

Other issues- Weeds
Road construction through the subject land has the potential to spread invasive introduced species throughout the region. For example, Horehound *Marrubium vulgare* occurs in and around a possible rubble source at the quarry at the northern end of the subject land. This and other weed species could easily be spread throughout the subject land unless stringent quarantine procedures are followed.

Clearance proposal
Clearance of native vegetation is required for hardstand areas for turbines (34 turbines of 50m x 30m = 5.1 ha, 5 turbines at 50m x 50m = 1.25 ha), new roads (14 km) and powerlines (underground and overhead). Initial road widths are 15 m, of which about 10 m will be allowed to regenerate after construction. Turbine hardstands have been "micro-sited" so that tree clearance is minimal.

Hydro Tasmania estimate that a total of 14.6 ha of native vegetation will be cleared (Table 3). Of this, about 7.3 ha will be allowed to regenerate. Hydro Tasmania consider that in effect therefore, only 7.3 ha will be cleared. However, there is no evidence that the cleared areas will regenerate back to anything other than introduced species unless actively managed (stock excluded, weed species controlled). The proposed power transmission line has been located to avoid most native vegetation, particularly that along road reserves.

Table 3. Details of proposed vegetation clearance.

Vegetation type	Total area on subject land (ha)	Area to be cleared	Area allowed to regrow
E. odorata woodland	206	2.1	1.0
E. odorata - A. verticillata low open woodland	219	9.3	4.6
Avena - Stipa grassland	73	2.8	1.4
Acacia paradoxa shrubland	9	0.4	0.3
TOTAL	508	14.6	7.3

It is understood that Hydro Tasmania proposes to protect an area of native vegetation approximately equivalent to 10 x the area cleared. Several blocks of relatively undisturbed native vegetation (particularly *E. odorata* woodlands) occur on the subject land that would be suitable for this purpose. In addition, a small area of *Acacia paradoxa - Prostanthera behriana* shrubland at the northern end of the subject land (north of Turbine 1 - see plan) would be significantly improved if stock could be excluded. Heritage Agreements would be the most appropriate form of long-term conservation for these areas.

Again it is understood that Hydro Tasmania is currently negotiating with landholders on this issue.

CONCLUSION

Hydro Tasmania has provided a submission to address the requirements of Exemption 5(1) (d) (attached). In summary:

1. Hydro Tasmania considers that the windfarm qualifies as being in the public interest because it will supply renewable energy and reduce carbon dioxide emissions.

2. A development application (433/395/04) has been submitted by the proponents to the Clare and Gilbert Valleys Council (January 2005). This application is due to be considered by the local district council in early March.

3. Hydro Tasmania considers that the turbines are located within areas that were selected on the basis of low impact on flora and fauna (including using existing tracks, avoiding larger areas of remnant vegetation).

4. Hydro Tasmania has offered to offset the proposed clearance by protecting about 100 ha of native vegetation on the subject land. This would involve fencing to exclude stock and the preparation and execution of a vegetation management plan for the areas.

The assessment indicates that the subject land supports highly significant native vegetation that supports a high diversity of native species, provides habitat for birds of particular conservation significance (especially those of temperate woodlands), has populations of several plant species of high conservation significance, is dominated by a threatened vegetation type and has high value as a remnant in an extensively cleared region. In particular, there are concerns over the location of turbines 9-12 in an area of relatively intact Peppermint Box (*Eucalyptus odorata*) woodland.

The proposed development is located mostly within the most degraded parts of this area, although it is inevitable that some significant vegetation would be cleared. In relation to Part (iv) of Exemption 5(1)(d), it could reasonably be argued that there are alternative sites (other ranges) with suitable wind resources in this region where a wind farm could be developed that would result in less or no clearance of native vegetation.

There is also a potential that construction and maintenance of the transmission line associated with the proposal could result in clearance of significant native vegetation, particularly that growing along road reserves. The inspections have shown that road reserves in this district are of particular biological significance.

Subject to addressing the above concerns, the protection of about 100 ha of native vegetation elsewhere on the subject land would be considered a reasonable offset. It is understood that Hydro Tasmania are currently assessing areas of potential set-aside and negotiating their protection under the terms of Heritage Agreements. As part of this process, the initial fencing costs (if required) would also be borne by Hydro Tasmania.

Please contact me if you have any queries.

Yours sincerely,

Craig Whisson
Executive Officer
Native Vegetation Council

Rec'd 26 / 4 / 05
Reg No OSWLB04140
File No
Action Officer Whisson
Response Due By:

26 APR 2005
NATIVE VEGETATION COUNCIL

Hydro Tasmania
the renewable energy business

Craig Whisson
Executive Officer
Native Vegetation Council
Level 2
1 Richmond Rd
Keswick, South Australia 5035

19 April 2005

Dear Craig,

Please find attached Hydro Tasmania's response to the concerns raised in your letter of 7 April outlining the Native Vegetation Group's field assessment of the biodiversity values of the native vegetation on the land affected by the proposed Waterloo Wind Farm.

If you have any queries or require additional information please contact me.

Yours sincerely

Dean Haley

Dean Haley
Project Manager
Waterloo Wind Farm
ph: (03) 6230 5131
mobile: 0407 515 447
fax: (03) 6230 5344

Email: dean.haley@hydro.com.au

Enclosed:

- Hydro Response to NVC letter dated 7 April
- Waterloo Wind Farm Turbine 1 – 2 micrositing photo
- Waterloo Wind Farm Turbine 9 – 16 micrositing photo
- Waterloo Wind Farm Turbine 33 – 39 micrositing photo

Documents released by the Native Vegetation Council under the Freedom of Information Act 1991

The Department of
Water, Land and
Biodiversity
Conservation

1Richmond Road
Keswick
South Australia 5035

GPO Box 2834 Adelaide
South Australia 5001
Australia

Telephone (08) 8124 4755
Facsimile (08) 8124 4745
Email whisson.craig@saugov.sa.gov.au

Native Vegetation Council Secretariat

Date: 7 April 2005

Mr. Dean Haley
Project Manager
Renewable Energy Group
Hydro Tasmania
Location: 176 Fullarton Rd
Dulwich 5065

Dear Mr Haley,

I refer to your phone conversation today regarding the proposed windfarm near Waterloo in the mid north.

I understand that Hydro Tasmania is seeking the approval of the Native Vegetation Council to use the *Native Vegetation Regulations 2003*, and in particular Regulation (exemption) 5(1)(d) to clear native vegetation incidental for the construction of a windfarm near Waterloo in the mid north of South Australia. Clearance of native vegetation is required for wind turbine sites, roads and underground cables.

Exemption 5(1) (d) of the Native Vegetation Act Regulations relates to building or infrastructure in the public interest. This exemption allows for the clearance of intact native vegetation provided:

(i) (A) *the clearance is incidental to the construction of a building or infrastructure and the Council is satisfied that the clearance is in the public interest; or*

(B) *the clearance is required in connection with the provision of infrastructure or services to a building or proposed building, or to any place; and*

(ii) *any development authorisation required by or under the Development Act 1993 has been obtained; and*

(iii) *the Council is satisfied that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available; and*

(iv) *there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and*

(v) *the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State, or the owner of the land (or a person acting on his or her behalf) has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.*

At its meeting of 6 December 2004 the Native Vegetation Council considered a preliminary submission from Hydro Tasmania on the proposal. The NVC resolved to request that the Native Vegetation Group provide an assessment of the proposal and sought information on the status of the development application. Further, at its meeting of 31 January 2005 the Council resolved to delegate authority to the Presiding Member to approve the application if no issues are identified following the field inspection by the Native Vegetation Group.

The following is a discussion of the biodiversity values of the native vegetation on the subject land based on the field assessment of the Native Vegetation Group.

Biodiversity values
Hydro Tasmania has provided flora and fauna assessments of the subject land conducted in autumn and spring 2004. The Native Vegetation Group inspected the subject land on 1 February 2005. In addition, two Biological Survey of South Australia vegetation survey sites are located on the subject land.

Vegetation types:
Four main types of native vegetation occur on the subject land, namely:

1. Kangaroo Thorn *Acacia paradoxa* and Downy Mintbush *Prostanthera behriana* shrubland on quartzitic outcrops - limited occurrence at the northern end of the subject land. This vegetation type is subject to relatively heavy grazing impacts.
2. Peppermint Box *Eucalyptus odorata* woodland with a grassy understorey on red-brown loams with quartzitic rubble. This vegetation type is relatively intact with few weed species present and low grazing impacts.
3. Peppermint Box and Drooping Sheoak *Allocasuarina verticillata* low open woodland on shallow loams with quartzitic rubble. This vegetation type has a patchy native understorey with widespread weed species and moderate grazing impacts.
4. Wild oat *Avena* sp. and Speargrass *Stipa* spp. grassland on shallow loams. Much of this area probably results from dieback and clearance of 3 above. Introduced species comprise about half the understorey cover.

In addition, extensive areas of Wild oat grassland with few native species occur on the subject land.

Plant species diversity:
The plant species surveys show that the subject land has a high plant species diversity, with 104 species recorded. Within this area the actual construction and roadworks are confined mostly to the ridgetops. These areas have a lesser diversity with 30 native species recorded.

Wildlife Habitat
Bird surveys have been conducted on the subject land for Hydro Tasmania in March 2004 (four days) and November 2004 (4 days). These surveys found 50 species of birds, including 45 native

species. Of these, several are of particular conservation significance (Table 1 - marked *). Two other species of conservation significance are also likely to occur on the subject land.

***Table 1*: Threatened Bird Species Associated with Waterloo Windfarm**

Species	SA	MN	MLR	Comment
Peregrine Falcon*	R	R	R	Pair thought to nest near centre of subject land
Elegant Parrot*	U	K	K	
Brown Treecreeper*	C	U	V	Temperate woodlands
Superb Fairy-wren*	C	V	C	
Buff-rumped Thornbill*	C	V	C	
Yellow Thornbill*	U	U	U	
Southern Whiteface*	C	U	V	
Hooded Robin*	C	U	V	
Grey Currawong*	U	U	U	
White-winged Chough*	U	V	V	Temperate woodlands
Diamond Firetail	V	V	V	Grassy temperate woodlands
Painted Button-quail	V	V	V	Temperate woodlands

Note - the boundary of the MLR and MN avifaunal regions follows along the Apoinga Range

The bird reports provided by Hydro Tasmania do not adequately state the limitations of the reports. The spring of 2004 was a poor year for spring visitors, so the bird reports do not adequately assess the value of the area as a habitat and corridor for migratory bush birds such as woodswallows, budgerigars, etc. Further, no surveys were undertaken when the Peppermint Box was flowering (winter). This species produces a heavy nectar load and is therefore likely to attract migrating flocks of honeyeaters and lorikeets at this time. The surveys were also undertaken when the Apoinga Lagoon was dry. This lagoon has been known to attract thousands of waterbirds when filled, including the vulnerable Freckled Duck.

Hydro Tasmania - Response from Bird Consultant to comments on Apoinga Lagoon
The Apoinga lagoon would occasionally hold water and be partly or completely filled. In view of this, each visit included an inspection of the lake. During the visits the lake was found to be dry. The lake would hold waterbirds during periods when it held water. The numbers would vary depending on the availability of wetland habitat elsewhere in southern and eastern Australia. In the 2-3 years following large flood events in inland rivers and lakes, extensive waterbird breeding means that larger numbers of waterbirds occur in southern and eastern Australia during dry times. After a prolonged dry spell, with no inland flooding, numbers of waterbirds in these areas are correspondingly low. Therefore, the numbers of waterbirds in this part of Australia varies significantly. For short periods, Apoinga Lagoon would hold waterbirds. We don't dispute the numbers submitted and have no basis for determining how many use the area over time.

Notwithstanding this, work undertaken by Brett Lane & Associates Pty Ltd (unpubl. data) elsewhere in southern Australia shows that for most of the time, waterbirds in a wetland confine their activities to the wetland itself, and, when disturbed by a raptor or when moving about, remain within about 400m of the wetland. Movements of waterbirds across the windfarm site from Apoinga Lagoon would occur when birds are moving into or out of the wetland as it fills and dries. Such movements are less frequent than daily feeding or roosting movements within a wetland or between wetlands that are very close together. Therefore, the frequency of waterbird movements over the wind farm site is likely to be low, particularly as there is no extensive habitat on the west side of the ridge. Because no wind generator is proposed to be located within 400m of the Apoinga Lagoon, and in view of the likely low frequency of movements of waterbirds across the site, even when they are present at the lagoon, the proposed wind farm is unlikely to cause significant waterbird mortality.

The bird surveys have identified a relatively high use by raptors, with 7 species recorded. Observations of raptors were concentrated at the northern cluster of the proposed windfarm. At

least one pair of Wedge-tailed Eagles and Peregrine Falcons (near Quinn Gap) is believed to nest on the subject land.

The *Eucalyptus odorata* woodlands on the subject land provide habitat for a range of temperate woodland birds that are declining and under threat throughout south-eastern Australia. Several of these were recorded during the bird surveys. The subject land is also located at the boundary of the Mount Lofty and Mid North avifaunal regions where north-south trending ranges provide important links between the Bassian faunas of the Mount Lofty Ranges and the Southern Flinders Ranges.

Rare and threatened plant species:
The flora surveys have found that the subject land supports many plant species of particular conservation significance. These include five species listed as rare or threatened in South Australia (Table 2). In addition, there are eleven species listed as uncommon in the region that could be affected. Areas proposed to be cleared for construction and roadworks contain several of these species.

2. Threatened Plant Species associated with Waterloo Windfarm

S4(2)(a)(iii)&(b)

[redacted]

Note # = probably wrongly identified as *Boronia inornata* in proponent's Flora report

The flora surveys show that the proposed development is located within a district that contains many plant species of conservation significance. Of particular significance is vegetation type 1, where several species of high conservation significance occur. The occurrence on the subject land of *Pultenaea kraehenbuehlii* represents a new locality for the species (Lang 1998). In addition, areas of road reserves (that contain mostly vegetation type 2) where stock grazing has largely been excluded contain concentrations of significant plants.

Hydro Tasmania has endeavoured to confine clearance to the areas that lack plant species of high conservation significance. Even though, populations of four species of state significance are likely to be cleared.

Hydro Tasmania Response
Efforts have been made to minimise impacts on threatened species populations by:

- aligning the road that passes through the area where *Pultenaea kraehenbuehlii* occurs so that it avoids individual plants (see attached map – turbines 1 - 2). Hydro Tasmania that recognise this species is of conservation significance at this site. Given its limited distribution Hydro Tasmania is offering to fence off the two identified rocky hilltop areas adjacent turbine 1 and 2 subject to land owner agreement. This area will also be included in the Weed Management Strategy for the site (see below).
- restricting the works associated with turbine 34 (roads and hardstands) to the main ridge line so that there is minimal impact on the *Austrostipa breviglumis* population which mainly occurs on the western side of the ridge (see attached map - turbines 33 - 39)
- restricting the works associated with turbines 9, 10 and 11 (roads and hardstands) to defined works areas (these will be surveyed and marked) to avoid unplanned clearing of *Austrostipa gibbosa* and *Austrostipa curticoma* plants (see attached map – turbines 9 – 16)

Hydro Tasmania has committed in the Development Application to the preparation of a Vegetation Management Plan which will include an approved construction and environmental management plan prior to any works on-site the (Construction and Environmental Management Plan, CEMP). The Plan will detail strategies to avoid, minimise and manage impacts on all native vegetation including threatened species during construction. Other measures will be implemented to ensure that there will be no unplanned clearing including:

- Undertaking **micro-siting surveys** prior to final design to ensure the above commitments to avoid and minimise impacts on threatened species are complied with.

- **Sub-contracts** written to include compliance with permit conditions
- Nominated **Responsible Officer** on-site with delegated authority to enforce the CEMP and other environmental permit conditions
- **Survey** and **marking** to comply with approved design
- Signed **work permit** issued prior to any clearing
- **Audit** of works to ensure compliance

The Vegetation Management Plan will detail other strategies to avoid, minimise and manage impacts during construction and operational phases. These include:

- additional measures to avoid habitat disturbance temporary facilities such as; locating the batching plant, site office and amenities, central storage and equipment holding area and waste transfer facilities on areas of pasture to avoid additional native vegetation clearance, following existing tracks and roads where possible; not storing overburden in areas of native vegetation.
- implementing erosion and sedimentation control measures