GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 1773/4
Permit Holder:	Department of Health
Duration of Permit:	26 August 2007 – 26 August 2022

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 developing the Fiona Stanley Hospital and Health Precinct.

2. **Land on which clearing is to be done**
   LOT 1 ON PLAN 19489
   LOT 2 ON PLAN 19489
   LOT 50 ON PLAN 06977
   LOT 500 ON PLAN 59337
   LOT 501 ON PLAN 59337
   LOT 4718 ON PLAN 26844
   LOT 4994 ON PLAN 40291

3. **Area of Clearing**
   The Permit Holder must not clear more than 25 hectares of native vegetation within the area hatched yellow on attached Plan 1773/4.

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 *Local Government Act 1995* 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. Dieback and weed control

(a) When undertaking any clearing, the Permit Holder must take the following steps to minimise the risk of introduction and/or spread of *dieback*:
  (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
  (ii) avoid the movement of soil in wet conditions;
  (iii) ensure that no *dieback*-affected *road building materials*, *mulches* or *fill* are brought into the area; and
  (iv) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(a) When undertaking any clearing, or other activity pursuant to 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;
  (v) ensure that no *weed*-affected *road building materials*, *mulch*, *fill* or other material is brought into the area to be cleared; and
  (vi) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

9. Fauna management

(a) Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the area shall be inspected by a *fauna specialist* who shall identify the presence of *Isoodon obesulus fusciventer* (Quenda).

(b) The Permit Holder shall ensure that any fauna identified in condition 9(a) shall only be removed and relocated by a *fauna clearing person*, in accordance with a licence issued by the Department of Environment and Conservation.

10. Offsets

(a) Determination of offsets
  (i) If part or all of the clearing to be done is or may be at variance with one or more of the clearing principles, then the permit holder must implement an *offset* in accordance with Conditions 10(a) and 10(b) of this Permit with respect to that native vegetation.
  (ii) In determining the *offset* to be implemented with respect to a particular area of native vegetation proposed to be cleared under this Permit, the permit holder must have regard to the offset principles contained in condition 10(b) of this Permit.
  (iii) Once the permit holder has developed an *offset* proposal, the permit holder must provide that *offset* proposal to the CEO for the CEO's approval prior to undertaking any clearing to which the *offset* relates, and prior to implementing the *offset*.
  (iv) Clearing may not commence until the CEO has approved the *offset* proposal.
  (v) The permit holder shall implement the *offset* proposal approved under condition 10(a)(iii).
  (vi) Each *offset* proposal shall include a direct *offset*, timing for implementation of the *offset* proposal and may additionally include *contributing offsets*.

(b) For the purpose of this Part, the *offset* principles are as follows:
  (i) *direct offsets* should directly counterbalance the loss of the native vegetation;
  (ii) *contributing offsets* should complement and enhance the direct *offset*;

(iii) offsets are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
(iv) the environmental values, habitat, species, *ecological community*, physical area, ecosystem, landscape, and hydrology of the *offset* should be the same as, or better than, that of the area of native vegetation being *offset*;
(v) a ratio greater than 1:1 should be applied to the size of the area of native vegetation that is *offset* to compensate for the risk that the *offset* may fail;
(vi) offsets must entail a robust and consistent assessment process;
(vii) in determining an appropriate *offset*, consideration should be given to ecosystem function, rarity and type of *ecological community*, vegetation condition, habitat quality and area of native vegetation cleared;
(viii) the *offset* should either result in no net loss of native vegetation, or lead to a net gain in native vegetation and improve the condition of the natural environment;
(ix) offsets must satisfy all statutory requirements;
(x) offsets must be clearly defined, documented and audited;
(xi) offsets must ensure a long-term (10-30 year) benefit; and
(xii) an *environmental specialist* must be involved in the design, assessment and monitoring of offsets.

PART III - RECORD KEEPING AND REPORTING

11. Records must be kept

(a) The Permit Holder must maintain the following records for activities done pursuant to this Permit 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) The Permit Holder must maintain the following records in relation to Fauna Management pursuant to condition 9:
(i) the number of the species identified, and that have been observed utilising the area;
(ii) the number of each species relocated; and
(iii) the location and date where relocated fauna was released, using Geocentric Datum Australia 1994 (GDA94).

(c) In relation to the offsets of areas pursuant to condition 10:
(i) the location of any area of offsets recorded using Geocentric Datum Australia 1994 (GDA94);
(ii) a description of the offset activities undertaken; and
(iii) the size of the offset area (in hectares).

12. Reporting

(a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 11 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.

(b) Prior to 26 May 2022, the Permit Holder must provide to the CEO a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(a) of this Permit.

Definitions

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

condition means the rating given to native vegetation using the Keighery scale and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

contributing offsets has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9 Environmental Offsets*, January 2006;

dieback means the effect of *Phytophthora* species on native vegetation;

direct offsets has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9 Environmental Offsets*, January 2006;

ecological community means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999). The scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified.

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;

EP Act means the *Environmental Protection Act 1986;*

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

fauna clearing person means a person who has obtained a licence from the Department of Environment and Conservation, issued pursuant to the *Wildlife Conservation Regulations 1970* (as amended) authorising them to take fauna in order to carry out the approved clearing associated with this permit.

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

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;

offset means an offset required to be implemented under Condition 8 of this Permit;

road building materials means rock, gravel, soil, stone, timber, boulders and water;

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

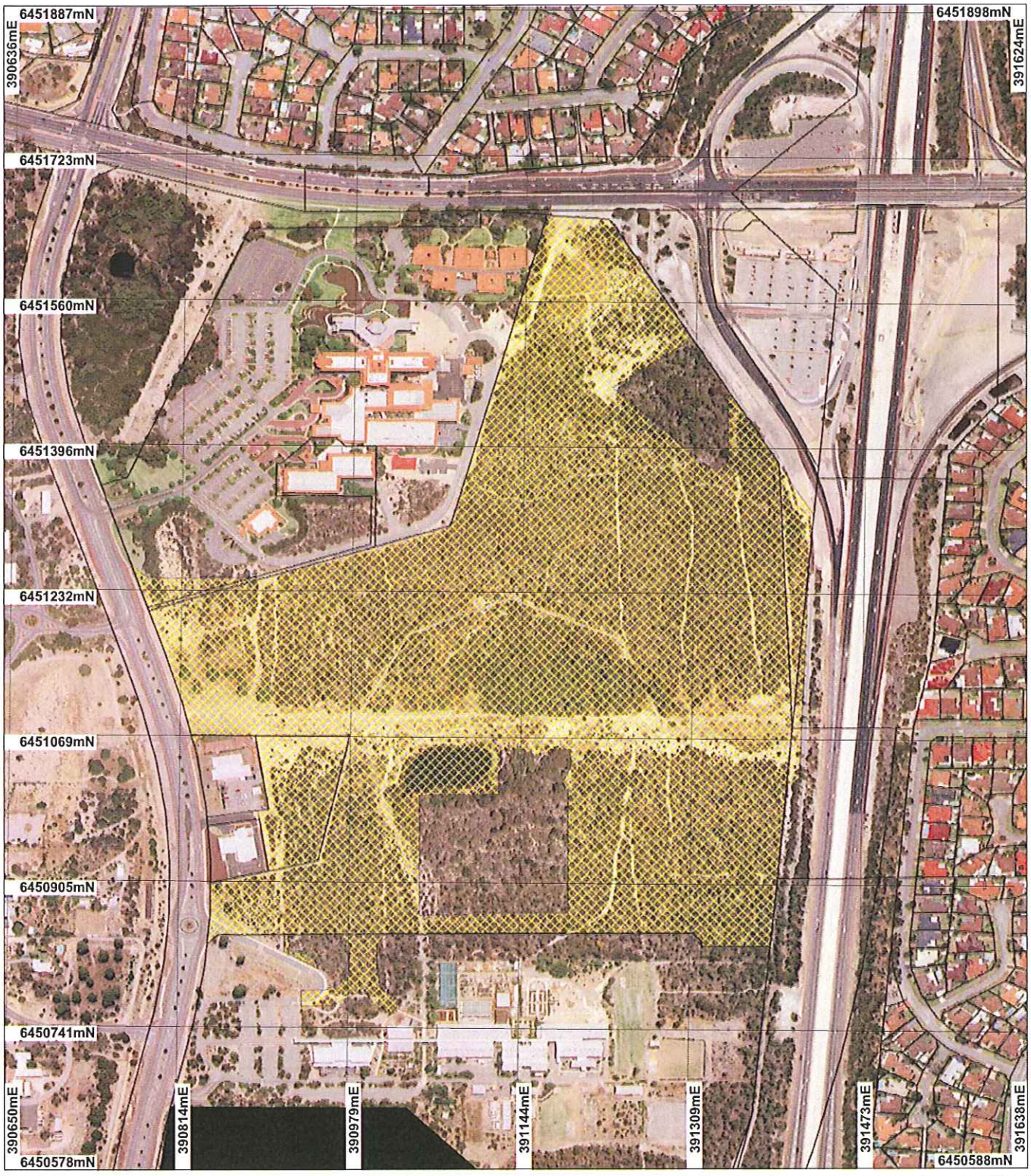
weed means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Environment and Conservation (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976.*

Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

29 October 2009

Plan 1773/4



LEGEND

Clearing Instruments

- Areas Approved to Clear
- Cadastre

- Coverage

Fremantle Melville 20cm Orthomosaic - Landgate 2004

N

0 ~150 m

Scale 1:5791

(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 29/10/09

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 acknowleged by the agency acronym in the legend.

Department of Environment and Conservation

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Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1773/4

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Department of Health**

1.3. Property details

Property:
LOT 501 ON PLAN 59337 (MURDOCH 6150)
LOT 500 ON PLAN 59337 (MURDOCH 6150)
LOT 4994 ON PLAN 40291 (House No. 122 MURDOCH MURDOCH 6150)
LOT 2 ON PLAN 19489 (House No. 100 MURDOCH MURDOCH 6150)
LOT 50 ON PLAN 6977 (MURDOCH 6150)
LOT 51 ON PLAN 6977 (LEEMING 6149)
LOT 4379 ON PLAN 193548 (House No. 120 MURDOCH MURDOCH 6150)
LOT 1 ON PLAN 19489 (House No. 100 MURDOCH MURDOCH 6150)

Local Government Area:

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
25		Mechanical Removal	Building or Structure

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
The site comprises three vegetation communities of predominantly Jarrah-Banksia woodland bounded by South Street to the north, Kwinana Freeway to the east, Farrington Road to the south and Murdoch Drive to the west. It forms an island of native vegetation among residential housing, medical and educational buildings and cleared lands. The Jarrah-Banksia woodland has a canopy of Banksia attenuata, B. menziesii with scattered Jarrah, Nuytsia floribunda and Allocasuarina fraseriana over A. Humilis, Adenanthos cygnorum, Melaleuca thymoides, M. systena, Beaufortia elegans and Hibbertia hypercoides with an understorey of mixed shrubs, sedges and herbs. Two pockets of Marri-Banksia-Melaleuca woodland have an overstorey of Marri and B. attenuata with scattered B. menziesii and M. preissiana over Xanthorrhoea preissii, Hibbertia hypercoides, Patersonia and various herbs. A centrally located post-mature Banksia littoralis and Melaleuca preissiana woodland contained scattered Pinus over Acacia saligna and B. ilicifolia (GHD 2006, DEC 2007).	The proposal will remove 25 ha of native vegetation, the majority of which is Jarrah-Banksia native vegetation in very good condition.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Most of the vegetation to be cleared is in very good condition. Part of the Marri-Banksia-Melaleuca woodland had been burnt in the recent past, but there is little weed invasion or rubbish dumping beyond the edge effect. (GHD 2006, DEC 2007).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is at variance to this Principle

The application is to amend clearing permit CPS 1773/3 to modify the proposal footprint. The proposed clearing is of 25 ha of native vegetation within a 60 ha remnant to allow for the construction of the Fiona Stanley Hospital and Medical Centre at Murdoch. The majority of the block is zoned Public Purposes (Hospital and University) with the remaining section in the south west corner zoned urban. It is bounded to the south, east and north by major roads and housing - and to the west by a major road.

The bushland within the site contains mainly Jarrah-Banksia woodland on sandy slopes and ridges in very good to excellent condition (DEC 2007, GHD 2006). The vegetation comprises five vegetation types: Melaleuca-Banksia low woodland; Marri-Banksia-Melaleuca woodland; Jarrah-Banksia woodland; degraded Jarrah-Banksia woodland and; degraded Jarrah-Banksia woodland with understorey weed dominated (GHD 2006). These vegetation types are considered significant habitat for Quenda (Isoodon obesulus fusciventer) and a significant feeding site for Carnaby's Black Cockatoo (Calyptorhynchus latirostris) (DEC Species And Communities (SAC) advice 18/04/07 & 15/05/07). Many Quenda diggings were evident during the Site Inspection (DEC 2007).

The site was a nominated Bush Forever site; however the landowners withdrew the nomination. A brief flora survey of the area recorded more than 200 native plant species at the site (GHD 2006).

Whilst the area has a high level of biodiversity, the proposed area to be cleared encompasses three main vegetation types as described by Gibson et al (1994)), and all are considered to be 'well reserved' with a 'low risk' conservation status. They are all represented within Ken Hurst Park located approximately 3 km to the east-south-east.

Given that the majority of the vegetation proposed to be cleared is considered to be in very good to excellent condition, the clearing is considered to be at variance to this principle. Conditions dieback and weed, and offset conditions will be imposed on the permit.

Methodology

Bush Forever (2000)
GHD Flora & Vegetation Assessment (2006)
DEC (2007)
Gibson et al (1994)
DEC SAC advice 18/04/07 & 15/05/07

GIS databases:
- Orthomosaic Swan Coastal Plain Central 06

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is at variance to this Principle

The proposal is to clear 25 ha of native vegetation within a 60 ha remnant.

The vegetation proposed to be cleared provides significant habitat for fauna species in the local area. Threatened and priority fauna have been confirmed inhabiting and foraging on the site - including Carnaby's Black Cockatoo and Quenda (DEC 2007, GHD 2006).

A spring fauna survey was conducted (GHD 2006) which included mammalian overnight Cage and Elliott trapping, and daytime reptilian pit-trapping over a 5 day period. Opportunistic visual and aural surveys were also conducted in spring over a total of 12 days. The survey was conducted in one year and did not sample invertebrates or fish.

Chewed Marri nuts and Banksia flowers, observed during site visits and surveys, were consistent with the feeding signs of Carnaby's Black Cockatoo. Flocks were sighted overhead on a number of occasions. Advice from DEC SAC Branch (2007) confirmed the area as a feeding site for Carnaby's Cockatoo, and that the proposed clearing could significantly impact on this species through loss of feeding habitat and disturbance.

Carnaby's Black Cockatoo is listed as a Schedule 1 species under the Wildlife Conservation (Specially Protected Fauna) Notice 2006. Fauna listed as Schedule 1 fauna are rare or likely to become extinct and are declared to be fauna in need of special protection. This species is also listed as Endangered under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 as a matter of national environmental significance.

The area proposed to be cleared is also significant habitat for Priority 5 listed Quenda, providing direct linkages to other conservation category areas including the Quenda Wetland. During the fauna survey, Quenda were trapped throughout the study site. Diggings were regularly observed during fauna surveys and site visits (DEC 2007, GHD 2006).

Individuals of the Priority 3 listed Lerista lineata skink were also found in the pitfall traps on several trapping days. Individuals of both Quenda and Lerista skink have been recorded within Ken Hurst Park located approximately 3 km to the east-south-east.

To reduce the impacts of the proposed clearing on indigenous fauna, the proponents intend to develop comprehensive management strategies - in consultation with local government, DEC and relevant interest groups - and to optimise habitat and food sources for native fauna by retaining areas of native vegetation on site and using native vegetation for landscaping.

Given that the vegetation under application is considered to be a significant feeding site for Carnaby's Black Cockatoo and habitat for the Quenda, the permit includes management conditions to avoid and minimise the clearing of native vegetation, translocation of the Quenda and an offset.

Methodology DEC SAC advice 18/04/07, 23/04/07 & 15/05/07
DEC (2007)
GHD Fauna Survey (2006)

GIS databases
DPI & DOH (2007)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments **Proposal may be at variance to this Principle**
Six species of vascular plants listed on the CALM Rare Flora database and five species from WA Herbarium records are known to occur in the vicinity of the proposed clearing. Six populations of DRF Caladenia huegelii are known to occur in the same vegetation types between 250m and 3km of the proposed site to be cleared.

A flora survey undertaken by GHD between 6th and 10th October 2005 identified no rare or priority flora at the site. Photo's of two Caladenia orchids were sent to DEC SAC for identification and found to be of the closely related species Caladenia arenicola. A further seven Caladenia specimens observed were identified by GHD as not being C. huegelii.

DEC SAC (2007) considered that the duration of the survey was too short to confidently capture the flowering period of rare flora species Caladenia huegelii, and that regular surveys over a two month period from September to November would be necessary - and even that may not be conclusive because the species does not always flower every year.

Expert advice from DEC SAC (2007) also confirmed that the area of pristine Jarrah-Banksia woodland proposed to be cleared would be ideal habitat for Caladenia huegelii.

Methodology DEC (2007)
GHD (2006)
SAC Branch DEC 1/04/07 & 23/04/07
GIS databases

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments **Proposal is not likely to be at variance to this Principle**
There are no records of Threatened Ecological Communities (TEC's) within a 5km radius of the proposed site. The proposed clearing is not likely to affect any known TEC's.

Methodology DEC (2007)
GHD (2006)
SAC Biodatasets

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments **Proposal is not likely to be at variance to this Principle**
The native vegetation under assessment consists of Bassendean Complex - Central and South (Heddle et al 1980) which has 24% remaining vegetation.

The proposed hospital site is within the Perth metropolitan area and zoned public purposes (Hospital and University) and is surrounded by hospitals, freeway and residential housing. The objective for environmental protection and biodiversity conservation, (EPA 2002) is to retain 30% or more of the pre-European clearing extent of each vegetation community.

The proposed area to be cleared is on the Swan Coastal Plain within the constrained area of the Perth metropolitan area and zoned public purposes (Hospital and University) and is surrounded by medical and educational facilities, freeway and residential housing.

In constrained areas a benchmark of 10% retention is applied. The native vegetation under assessment comprises Bassendean Complex - Central and South (Heddle et al 1980) which has 24% remaining vegetation.

	Pre-European (ha)*	Current Extent (ha)*	Remaining (%)*	% in Reserves/CALM managed land
IBRA Bioregion:				

Swan Coastal Plain	4657,450	657,450	43.0	41.8
Beard unit 1949: Low woodland Banksia on low sandhills swamps in swales tea tree & paperbark	132,958	34,012	25.6	24.4
Beard unit 27: Low woodland paperbark	161,222	106,631	66.1	39.9
Beard unit 23: Low woodland Jarrah-Banksia	50,127	33,700	67.2	57.4

* (Shepherd et al. 2001)

Although depleted, the vegetation types to be cleared have an extent in excess of the 10% benchmark and are also well represented in nearby Ken Hurst Park. It is unlikely that the proposed clearing will be at variance to this principle.

Methodology

Heddle et al (1990)
Beard (2004)
GHD (2006)
EPA (2002)
DPI Murdoch Acitivity Centre Structure Plan (2007)
DEC (2007)
Shepherd et al (2001)

GIS databases:
- Pre-European Vegetation
- Heddle Vegetation Complexes
- Swan Coastal Plain Central 20cm Orthomosaic - DLI06

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal may be at variance to this Principle

The native vegetation proposed to be cleared is associated with the Quenda and Melaleuca Swamp Conservation Category Wetlands.

The proponents state that changes to the hydrology and water balance of the site from stormwater runoff could impact on vegetation associated with the Quenda and Melaleuca Swamp Wetlands.

The stormwater management strategy provided by the proponents advises it will address the risk of impacts by: developing stormwater infiltration areas in two proposed parks that could accommodate all stormwater generated on site; maximising the productive reuse of locally sourced groundwater; adopt best practise to ensure storm water percolating is of good quality, and manage recharge to minimise potential negative impacts.

The application area includes an artificial wetland, constructed by Challenger TAFE, which stores abstracted groundwater for the purposes of irrigation. The wetland will also be used to assist with on-site stormwater management. The proponent plans to rehabilitate the wetland, reduce weed species and use it to buffer development impacts on native vegetation to the south of the wetland. However, the wetland is a constructed system and the vegetation around the wetland has been intentionally planted.

Methodology

DEC (2007)
GHD (2006)
DPI Murdoch Activity Centre Structure Plan (March 2007)

GIS databases:
- Hydrography, linear
- Geomorphic wetlands (Swan Coastal Plain)
- ANCA wetlands
- Clearing Regulation, Environmentally Sensitive Areas

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal is not likely to be at variance to this Principle

The proposed area to be cleared lies within an area of urban development. The proponents advise that the next phase of the project design is to provide comprehensive management strategies, in consultation with interested stakeholders (SJOGH, Murdoch University, rail, road, local authorities and DEC) to mitigate impacts (GHD 2006).

The site has a moderate to low risk of acid sulphate soils occurring to a depth of less than 3m from the soil surface. DPI advises that there are no plans to carry out deeper excavations because infrastructure such as sewerage and water supply mains are already in place on site.

Given the above, the proposed clearing is unlikely to cause appreciable land degradation.

Methodology GHD (2006)
DPI Murdoch Activity Centre Structure Plan (2007)

GIS databases:
- Acid Sulphate Soil Risk Map Swan Coastal Plain DEC

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal may be at variance to this Principle**
The proposed area to be cleared was a nominated Bush Forever site but the nomination has been withdrawn.

The site provides a buffer to Quenda Wetland which is managed by the City of Melville for conservation purposes. The Wetland is likely to be affected by reduction of surrounding fauna habitat.

The supporting Structure Plan states that a possible increase in seepage to groundwater from stormwater could also impact on this Wetland.

Methodology GHD (2006)
DPI Murdoch Activity Centre Structure Plan (2007)

GIS databases:
- Geomorphic Wetlands (Swan Coastal Plain)
- EPP areas: ANCA wetlands
- Clearing Regulations, Environmentally Sensitive Areas

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposal may be at variance to this Principle**
The proponents advise that the clearing, and subsequent increased stormwater runoff, may alter the water regimes of groundwater dependant ecosystems (GDE's) on or off site. The supporting Structure Plan (DPI 2007) states that the clearing, and subsequent increased stormwater runoff, may alter the water regimes of groundwater dependant ecosystems (GDE's) on or off site.

The Structure Plan states that 100% of stormwater generated will be disposed of on-site and this may impact on the quality of groundwater.

Methodology DPI Murdoch Acitivty Centre Structure Plan (2007)

GIS databases:
- Groundwater Salinity, Statewide
- Hydrography, linear (hierarchy)
- Rainfall, Mean Annual
- EPP Areas

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments **Proposal is not likely to be at variance to this Principle**
The area under application comprises sandy soils and groundwater up to 18m below ground level in the elevated southern parts, providing good potential for infiltration and subsequent reuse for irrigation (DPI 2007).

The supporting Structure Plan has identified possible impacts which will be addressed by: developing stormwater infiltration areas in two proposed parks on site; maximising the productive reuse of locally sourced groundwater; adopting best practise to ensure storm water percolating is of good quality, and: managing recharge to minimise potential negative impacts.

Methodology DPI Murdoch Activity Centre Structure Plan (2007)
DEC (2007)

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

Comments

There is an Aboriginal Site of Significance on the nearby Murdoch Drive University Campus, but none in the proposed area for clearing.

There is a Native Title over the area under application. The Department of Environment and Conservation's advertising of the application in the West Australian newspaper constitutes legal notification of the native title representative body for the purpose of the future act procedures under the Native Title Act 1993. No response was received from the representative body.

The Jarrah-Banksia woodland is considered a significant feeding habitat for Carnaby's Black Cockatoo which is listed as being endangered, and a matter of national environmental significance, under the Environmental Protection Biodiversity Conservation Act 1999.

Methodology

DEC (2007)
DEC SAC advice 18/04/07, 23/04/07 & 15/05/07

GIS databases:
- Abroiginal Sites of significance
- Environmental Impact Assessments_1
- EPP

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing is at variance to Principles (a) and (b), may be at variance to Principle (C), (f), (h) and (i), and is not likely to be at variance to the remaining clearing Principles.

5. References

ANCA (1996) A Directory of Important Wetlands in Australia. Second Edition. Australian Nature Conservation Agency, Canberra

City of Melville (2004) Internal Publication, Quenda Wetland Management Plan.

DEC (2006) Biodiversity advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received DATE. Biodiversity Coordination Section, Department of Environment and Conservation, Western Australia.

DEP (2002) Remnant vegetation of the Swan Coastal Plain Bioregion within the System 6 and System 1. Department of Environmental Protection, Perth.

EPA (2002) Terrestrial Biological Surveys as an element of biodiversity protection. Position Statement No. 3. March 2002. Environmental Protection Authority, Western Australia.

Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.

Havel, J.J. and Mattiske Consulting Pty Ltd (2002) Review of management options for poorly represented vegetation complexes, Conservation Commission.

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Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

6. 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)