



1. Application details

1.1. Permit application details

Permit application No.: 1855/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: David Wills & Associates on behalf of Shire of Kalamunda

1.3. Property details

Property:
 Local Government Area: Shire Of Kalamunda
 Colloquial name: Road Reserve - Cnr Waterfall & Hartfield Rds, Forrestfield

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.028		Mechanical Removal	Infrastructure Maintenance

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
Beard Vegetation Association: 3: Medium woodland; Tuart and Jarrah (Shepherd 2006).	The area under application is required for the installation of a water main extension and dissects a highly modified and degraded creek line.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Description and condition of the vegetation under application was determined from a Site Inspection (2007).
Heddle Vegetation Complex: Forrestfield Complex: Vegetation ranges from open forest of E. calophylla - E. wandoo - E. marginata to open forest of E. marginata - E. calophylla - C. fraseriana - Banksia species. Fringing woodland of E. rudis in the gullies that dissect this landform (Hedde et al. 1980).	Within the area under application the area occupied by the creek is heavily overgrown with Couch grass (Cynodon dactylon) and African Lovegrass (Eragrostis curvula). Other weeds occurring within the area under application include Queensland Silver Wattle (Acacia podalyriifolia) and Coast Teatree (Leptospermum laevigatum).		
Mattiske Vegetation Complex: Forrestfield Complex (Fo): Mosaic of open forest of Corymbia calophylla-Eucalyptus wandoo-Eucalyptus marginata subsp. elegantella and open forest of Eucalyptus marginata subsp. marginata (Mattiske Consulting 1998).	Native flora occurring within the area under application includes: Upper storey species, Corymbia calophylla and Eucalyptus marginata. Middle storey species Thomasia macrocarpa, Hakea trifurcata and lower story species Hibbertia hypericoides, Calothamnus quadrifidus, and Darwinia sp.		

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 not likely to be at variance to this Principle**
 During Site Inspection (2007) vegetation within the area under application was identified as being in 'degraded'

condition with low floristic diversity and comprising primarily of Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) over a weed dominated understorey of Couch grass (*Cynodon dactylon*) and African Lovegrass (*Eragrostis curvula*). The creek that runs through the area under application is highly modified, having been cleared of native vegetation on the bordering property to the east and having had a culvert installed where the creek passes under Waterfall Road to the west.

Given the 'degraded' condition of the vegetation and small size (0.028 ha) of the application site, the area is considered to represent poor quality habitat for native fauna.

As the area under application supports low floristic diversity and does not present suitable habitat for fauna it is not considered likely to comprise a high level of biological diversity and is thus unlikely to be at variance to this principle.

Methodology Reference:
- Site Inspection (2007)
GIS Databases:
- Pre-European Vegetation - DA 01/01
- Heddle Vegetation Complexes - DEP 21/06/95
- Hydrography, linear - DOE 1/2/04

(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 not likely to be at variance to this Principle**
Sixteen indigenous fauna taxa of significance are recorded within a 10 km radius of the area under application. These taxa include Schedule 1 species:
- Western Swamp Tortoise (*Pseudemydura umbrina*) (critically endangered)
- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (endangered)
- Native bee *Neopasiphe simplicior* (endangered)
- Native bee *Leioproctus douglasiellus* (endangered)
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*) (vulnerable)
- Chuditch (*Dasyurus geoffroyi*) (vulnerable)
- Brush-tailed Phascogale (*Phascogale tapoatafa*) (vulnerable)

and Priority species:

- cricket *Kawaniphila pachomai* (P1)
- scorpionfly *Austromerope poultoni* (P1)
- native bee *Leioproctus bilobatus* (P2)
- Western Brush Wallaby (*Macropus irma*) (P4)
- Water Rat (*Hydromys chrysogaster*) (P4)
- Carpet Python (*Morelia spilota* subsp. *imbricata*) (P4)
- Bush Stonecurlew (*Burhinus grallarius*) (P4)

and Specially Protect fauna the Peregrine Falcon.

Considering the relatively small size (0.028 ha) and degraded condition of the area under application it is unlikely to comprise significant habitat for conservation significant or non-conservation significant fauna indigenous to Western Australia (Site Inspection 2007).

Methodology References:
- Site Inspection (2007)
GIS Databases:
- SAC Bio datasets 09/07/2007

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

Comments **Proposal is not likely to be at variance to this Principle**
Ten taxa of Declared Rare Flora (DRF), one species of Priority 1 flora, three species of Priority 2 flora, eight species of Priority 3 flora and eleven taxa of Priority 4 flora occur within a 10 km radius of the area under application, with the closest DRF, being *Thelymitra stellata*, occurring approximately 130 m west and the nearest Priority flora, being *Haemodorum loratum*, occurring approximately 140 m north west of the area under application.

During Site Inspection (2007) soils were observed to be brown clays surrounding a minor perennial creek, and supporting native vegetation comprising *Corymbia calophylla*, *Eucalyptus marginata*, *Thomasia macrocarpa*, *Hakea trifurcata*, *Hibbertia hypericoides* and *Calothamnus quadrifidus*.

Considering this, and the habitat requirements of the DRF and Priority flora occurring within a 10 km radius of

the application site, the area is considered unsuitable for all of these taxa (Western Australian Herbarium 1998; Brown et al. 1998).

Methodology References:
 - Western Australian Herbarium (1998-)
 - Brown et al. (1998)
 - Site Inspection (2007)
 GIS Databases:
 - Declared Rare and Priority Flora List - CALM 01/07/05

(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**
 Within a 10 km radius of the area under application there are occurrences of ten Threatened Ecological Communities (TECs). The closest being an occurrence of SCP 20a which occurs 300 m from the area under application placing the area under application within the buffer for this TEC.

 However, when floristic composition, soil and landform types observed during the Site Inspection (2007) are compared with those in Gibson et al. (1994) all TECs within a 10 km radius of the applied site differ in species composition and/or occur on different soil or landform types to the site under application. Therefore the vegetation present on site is considered unlikely to represent an occurrence of these TECs.

Methodology References:
 - Gibson et al. (1994)
 - Site Inspection (2007)

 GIS Databases:
 - SAC Bio datasets 09/07/2007

(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 State government is committed to the National Objective Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Commonwealth of Australia 2001).

 Although only 17.5% (3518 ha) of Heddle Vegetation Complex - Forrestfield Complex remains, and less than the recommended 10% is protected in secure tenure the EPA (2006) recognises the Perth Metropolitan Region as a 'constrained area', providing for the reduction of vegetation complexes to a minimum of 10% of the Pre-European extent. Given this clearing is considered unlikely to be at variance to this principle.

	Pre-European area (ha)	Current extent (ha)	Remaining %	Conservation status****	% in reserves/DEC- managed land
Swan Coastal Plain	1,501,456	571,758	38.1**	Depleted	-
Shire of Kalamunda	32,354	24,140	74.6 *	Least concern	-
Beard vegetation association - 3	2,661,514	1,863,982	70.0 **	Least concern	58.3
Heddle vegetation complex - Forrestfield Complex	20,052	3,518	17.5***	Vulnerable	0.3
Mattiske Vegetation Complex - Forrestfield (Fo)	37,106	11,371	30.6	Depleted	-

* (Shepherd et al. 2001)
 ** (Shepherd, 2006)
 *** (EPA, 2006)
 **** (Department of Natural Resources and Environment 2002)

Methodology References:
 - Shepherd et al. (2001)
 - Shepherd (2006)
 - EPA (2006)
 - Commonwealth of Australia (2001)
 - Department of Natural Resources and Environment (2002)
 - Site Inspection (2007)
 GIS Databases:

- Pre-European Vegetation - DA 01/01
- Heddle Vegetation Complexes - DEP 21/06/95
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00

(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 is at variance to this Principle

The area under application is located 1.6 km east of an extensive wetland system which has been largely cleared and supports Multiple Use Wetland (approximately 1.6 km west of the area under application) and Resource Enhancement Wetland (approximately 2 km west of the area under application) with a portion of Conservation Category Wetland which is also an Environmental Protection Policy (EPP) Lake located approximately 1.6 km west of the area under application. A minor perennial water course runs through the area under application and runs into a major river tributary being Yule Brook which is located approximately 110 m north west of the area under application.

During Site Inspection (2008) the area under application was observed to support wetland dependent vegetation including *Thomasia macrocarpa*. The creek line was observed to be heavily overgrown with Couch grass (*Cynodon dactylon*) and African Lovegrass (*Eragrostis curvula*) with other weeds including Queensland Silver Wattle (*Acacia podalyriifolia*) and Coast Teatree (*Leptospermum laevigatum*) also occurring.

Despite the size of the area (being 0.028 ha) and condition of the vegetation and creek line, the area supports a watercourse and associated vegetation and is this considered to be at variance to this principle.

A permit to obstruct or interfere with beds and banks has been issued by Department of Water for the proposed works.

Methodology References:

- Site Inspection (2007)
 - Department of Water (2007b)
- GIS Databases:
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
 - Hydrography, linear - DOE 1/2/04
 - EPP, Wetlands 2004 (DRAFT)

(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 vegetation under application lies within soils associated with sandy dunes with intervening sandy and clayey swamp flats, chief soils are leached sands (Northcote et al. 1960-68).

During Site Inspection (2007) the area under application was observed to support brown clays and dissects a minor perennial watercourse. Clearing, therefore, may cause water erosion of soils, however the area under application is small (0.028 ha) and clays have greater resistance to water erosion than other soils. Considering this, water born soil erosion is likely to be minimal and clearing is not considered likely to be at variance to this principle.

Methodology References:

- Site Inspection (2007)
 - Northcote et al. (1960-68)
- GIS Databases:
- Soils, Statewide - DA 11/99

(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 is not likely to be at variance to this Principle

The area under application is located 290 m north of Bush Forever site 50: Welshpool Road Bushland, Wattle Grove and is 950 m from the Lesmurdie Falls National Park.

The area under application does not form part of a buffer for either of these conservation areas and clearing is not likely to have an impact on the environmental values of these areas. Thus clearing is considered not likely to be at variance to this principle.

Methodology GIS Databases:

- CALM Managed Lands and Waters - CALM 1/07/05
- Bushforever - MFP 07/01

(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 is not likely to be at variance to this Principle

The area under application is within the Swan Avon - Canning River Catchment, in an area identified as being subject to a moderate to low risk of salinity. The area under application is not within a Public Drinking Water Source Area.

The area under application is dissected by a minor perennial watercourse, which flows into Yule Brook. The proposed clearing and works interferes directly with this watercourse, however clearing of the area under application is unlikely to significantly increase sedimentation in the watercourse as the area under application is small (0.028 ha) and the area of works in the creek bed itself forms a small proportion of the larger area under application. Site Inspection (2007) also shows the area to support brown clays which have greater resistance to erosion than other soils.

Given that the potential for significant sedimentation of downstream watercourses is low the proposed clearing is considered not likely to be at variance to this principle.

Methodology

References:

- Site Inspection (2007)

GIS Databases:

- Groundwater Salinity, Statewide - DOW

- Salinity Risk LM 25m - DOLA 00

- Public Drinking Water Source Areas (PDWSAs) - DOW

- Hydrographic Catchments - Subcatchments - DOW

- Hydrography, linear - DOE 1/2/04

- Hydrography, linear (hierarchy) - DOW

(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

While vegetation under application is associated with a minor non-perennial watercourse, the applied area is relatively limited in extent (0.028 ha), and it is considered unlikely that clearing could exacerbate the incidence of flooding within the area under application or within the local area. Thus clearing is not likely to be at variance to this principle.

Methodology

GIS Databases:

- Topographic Contours, Statewide - DOLA 12/09/02

- Hydrography, linear - DOE 1/2/04

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

Comments

Shire of Kalamunda issued Development Approval on the 6 December 2007 for installation of the proposed pipeline in the road reserve on the corner of Waterfall and Hartfield Roads, Forrestfield. The Development Approval has three conditions attached, these being that: notification of the start of works must be given to the adjoining property owner 14 days before commencement; tagged trees must not be removed, and; DEC must follow through with the issue of a permit to clear native vegetation (Shire of Kalamunda 2008).

A licence is required under the RIWI Act as the area under application interferes with the banks of a watercourse within a Proclaimed area (Department of Water 2007a). This permit to obstruct or interfere (S21A) with beds and banks has been issued by the Water and Rivers Commission (Department of Water 2007b).

David Wills and Associates have stated that the creek banks will be returned to their previous contour post installation of the water main with no long term modifications to the beds and banks of the creek (David Wills and Associates 2007).

There are no Registered Sites of Aboriginal Significance recorded within the area under application (Department of Indigenous Affairs 2007). The area under application is not within a Native Title Claim Area.

The area under application is located on soils with a Class 3 Acid Sulphate Soil (ASS) Risk. This Class is defined as having no known risk of ASS occurring within 3m of the natural soil surface that could be disturbed by the proposed development activities.

There is no required Works Approval or EPA Act Licence that affects the area under application.

Methodology

References:

- Department of Indigenous Affairs (2007)

- Department of Water (2007a)

- Department of Water (2007b)

- David Wills and Associates (2007)
- Shire of Kalamunda (2008)
- GIS Databases:
- Native Title Claims
- Acid Sulphate Soil risk map, Swan Coastal Plain, DEC

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Infrastructure Maintenance	Mechanical Removal	0.028	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 principle (f) and is not or not likely to be at variance to the principles.

5. References

- Brown, A., Thompson-Dans, C. and Marchant, N. (1998). Western Australia's Threatened Flora. Department of Conservation and Land Management. Western Australia.
- Commonwealth of Australia. (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- David Wills and Associates. (2007). Clearing permit for Waterfall Road road reserve, Forrestfield. TRIM Ref. DOC34742.
- Department of Indigenous Affairs. (2007). Aboriginal Heritage Inquiry System. Perth, Western Australia. <http://www.dia.wa.gov.au/Heritage/Inquiry/>. Accessed 09 July 2007. TRIM Ref. DOC28110.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Department of Water. (2007a). Personal Communication. TRIM Ref. DOC30815.
- Department of Water. (2007b). Issue of a Permit to obstruct or interfere PMC165118(1) Property: Road Reserve ? Waterfall Road, Forrestfield. TRIM Ref. DOC40574.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.
- Gibson, N., Keighery, B., Keighery, G., Burbidge, A. and Lyons, M. (1994). A Floristic Survey of the southern Swan Coastal Plain. Department of Conservation and Land Management. Perth, Western Australia. Unpublished report for the Australian Heritage Commission.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2006). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- 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.
- Shire of Kalamunda. (2008). Water Main Extension Waterfall Road: Development Approval and conditions. TRIM Ref. DOC49193.
- Site Inspection. (2007). Site Inspection Report, Department of Environment and Conservation (DEC). Perth, Western Australia. TRIM Ref. DOC26485.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 02 July 2007).

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)

