



1. Application details

1.1. Permit application details

Permit application No.: 473/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Water Corporation

1.3. Property details

Property: SWAN LOCATION 5342
LOT 253 ON PLAN 4634
LOT 254 ON PLAN 4634
LOT 255 ON PLAN 4634
LOT 256 ON PLAN 4634
LOT 257 ON PLAN 4634
LOT 582 ON PLAN 189893
GREENMOUNT TOWNSITE LOT 216
GREENMOUNT TOWNSITE LOT 215
GREENMOUNT TOWNSITE LOT 214
LOT 258 ON PLAN 4634
Local Government Area: Shire Of Kalamunda & Shire Of Mundaring
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2		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
Beard vegetation association 4: medium woodland, marri (<i>Corymbia calophylla</i>) and wandoo (<i>Eucalyptus wandoo</i>) (Shepherd et al 2001, Hopkins et al 2001).	The areas under application consist of three separate long, narrow sections approximately 30m wide with the longest section having a length of approximately 1km. The sections are adjacent to the Helena Valley and Victor Roads in an effort to reduce the amount of 'new' clearing. A total of 33 weed species have been identified within the areas under application (Mattiske Consulting 2004).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation description of the areas under application was sourced from a flora survey conducted by Mattiske Consulting (2004). The vegetation condition of 'Very good' is used as the vegetation retains its community structure, however 33 weed species were identified (Mattiske Consulting 2004).
Hedde vegetation complex - Swan Complex: fringing woodland of <i>Eucalyptus rudis</i> , <i>Melaleuca raphiophylla</i> , with localised occurrence of low open forest of <i>Casuarina obesa</i> and <i>Melaleuca cuticularis</i> .	Vegetation communities identified within the areas under application: - Open forest of <i>Eucalyptus marginata</i> subsp <i>marginata</i> , <i>Corymbia calophylla</i> with the occasional <i>Allocasuarina fraseriana</i> ;		
Hedde vegetation complex - Darling Scarp Complex: low open woodland to lichens, <i>E. calophylla</i> , <i>E. marginata</i> , <i>Grevillea</i> and <i>Hakea</i> species, <i>Haemodorum</i> species, <i>Drosera</i> species and <i>Stylidium</i> species.	- Open woodland of <i>E. rudis</i> , <i>Melaleuca raphiophylla</i> ;		
Hedde vegetation complex - Helena Complex: open forest and woodland to heath and herblands to lichens. (Hedde et al 1980)	- Open woodland of <i>Corymbia calophylla</i> over dense understorey of <i>Myrtaceae</i> - <i>Proteaceae</i> species;		
Mattiske vegetation complex - Guildford: mosaic of open forest of <i>Corymbia calophylla</i> , <i>E. wandoo</i> , <i>E. marginata</i> subsp <i>marginata</i> and woodland of <i>E. wandoo</i> .	- Open woodland of <i>E. wandoo</i> ; and		
Mattiske vegetation complex - Helena 2: mosaic of open forest of <i>E.</i>			

marginata subsp thalassica, Corymbia calophylla and woodland of E. wandoo with some E. accedens and E. rudis on deeper soils ranging to closed heath and lithic complex on shallow soils associated with granite on steep slopes of valleys in semiarid and arid zones.

Mattiske vegetation complex - Darling Scarp: mosaic of open forest of E. marginata subsp marginata, Corymbia calophylla, with some admixtures with E. laeliae in the north (subhumid zone) with occasional E. marginata subsp. elongantella (mainly in subhumid zone) and Corymbia haematoxylon in the south (humid zone) on deeper soils adjacent to outcrops, woodland on E. wandoo (subhumid and semi-arid zones), low woodland of Allocasuarina heugeliana on shallow soils over granite outcrops, closed heath of Myrtaceae-Proteaceae species and lithic complex on or near granite outcrops in all climate zones. (Mattiske Consulting 1998)

- Open to closed heath of Myrtaceae-Proteaceae species (Mattiske Consulting 2004).

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**

The area under application and the surrounding environment is known to support a range of vertebrate fauna species, some of which are of conservation significance (Mattiske Consulting 2004). The vegetation within the area under application is species diverse (over 199 vascular plant species identified), however a number of these species (33) are introduced taxa and include some aggressive weed species (Mattiske Consulting 2004). Although Phytophthora (dieback) is not within the areas under application at present, the presence of soil moisture indicates that there is potential for dieback to become established (Mattiske Consulting 2004).

CALM (2005) advises that the potential biodiversity impacts associated with the proposed clearing are manageable provided that the Contract Environmental Management System is adhered to and that consideration is given to Phytophthora management, post site rehabilitation, weed control and minimal disturbance to granite outcrop habitats. As part of Condition Approval from the BushForever office (areas under application are located within a BushForever site), a weed management strategy was developed and is currently being implemented (John Waters pers comms, 20 May 2005). The other considerations are addressed in the Contractor Environmental Management System (Water Corporation 2003).

Methodology Mattiske Consulting (2004) (DoE Trim No. IN20146)
CALM (2005) Land Clearing Proposal Advice (DoE Trim No. EI1770)
Water Corporation (2003) (DoE Trim No. IN20146)

(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 may be at variance to this Principle**

The following Specially Protected fauna species are known to occur in the local area (10km radius):
Chuditch (*Dasyurus geoffroii*, S1);
Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*, S1);
Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*, S1);
Peregrine Falcon (*Falco peregrinus*, S1); and
Quokka (*Setonix brachyurus*, S1)
(CALM 2005).

The following Priority listed fauna species are known to occur in the local area (10km radius):
Scorpion Fly (*Austromerope poultoni*, P1);
Dell's Skink (*Ctenotus delli*, P4);
Quenda (*Isoodon obesulus fusciventer*, P5);
Western Brush Wallaby (*Macropus irma*, P4); and
Woylie (*Bettongia penicillata ogilbyi*, P5)
(CALM 2005).

It is considered that the clearing as proposed is unlikely to cause any appreciable long-term impact on fauna habitat provided appropriate management steps are taken (CALM 2005). A number of management strategies are outlined in the Contract Environmental Management System and include choosing a pipeline line route beyond dense riparian vegetation; pipelines laid across granite outcrops should provide a gap underneath to allow the movement of fauna underneath; the rate of trenching should not outstrip the rate of pipeline laying; and trenches are checked daily for trapped fauna (Water Corporation 2003). Provided that these and other strategies outlined in the Contractor Environmental Management System are adhered to, and given the relatively small, long, narrow nature of the areas under application, the proposal is not likely to be at variance to this Principle.

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim No E11770)
Water Corporation (2003) (DoE Trim No IN20146)

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

Comments Proposal is not likely to be at variance to this Principle

The following Declared Rare Flora are known to occur in the local area (10km radius):

Acacia anomala;
Acacia aphylla;
Anthocercis gracilis;
Conospermum undulatum;
Darwinia apiculata; and
Thekymitra stellata
(CALM 2005).

The following Priority Flora are known to occur in the local area (10km radius):

Thelymitra sp. Crystal Brook Star Orchid (P1);
Diplilaena andrewsii (P2);
Pithocarpa corymbulosa (P2);
Acacia oncinophylla subsp. oncinophylla (P3);
Aotus cordifolia (P3);
Halgania corymbosa (P3);
Boronia tenius (P4);
Darwinia pimelioides (P4);
Grevillea pimeleoides (P4);
Senecio leucoglossus (P4); and
Tetratheca sp Granite (S Patrick 1224) (aff. Hirsuta) (P3)
(CALM 2005).

All of the Declared Rare and Priority Flora species are found within the same broad vegetation association. However two flora surveys of the areas under application, conducted at the appropriate time of year, did not identify any of these species (Mattiske Consulting 2004, Mattiske Consulting 2002 within Water Corporation 2003).

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim No. E11770)
Mattiske Consulting 2004 (DoE Trim No. IN20146)
Water Corporation (2003) (DoE Trim No. IN20146)

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

Comments Proposal is not likely to be at variance to this Principle

No Threatened Ecological Communities (TECs) are recorded in the local area that are associated with the same landscape types and habitat characteristics as the areas under assessment (CALM 2005). In addition no TECs were identified during the flora survey of the areas under application (Mattiske Consulting 2004).

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim No. E11770)
Mattiske Consulting (2004) (DoE Trim No. IN20146)

(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 at variance to this Principle

The vegetation under application consists of the Heddle vegetation complexes Swan, Darling Scarp and Helena as well as the Mattiske vegetation associations of Guildford (Gu), Helena 2 (He2) and Darling Scarp (DS) (Heddle et al 1980, Mattiske Consulting 1998). The representations for all of these vegetation complexes, except for the Heddle Darling Scarp and the Mattiske Darling Scarp and Helena complexes, are below the 30% minimum biodiversity target (Heddle et al 1980, Mattiske Consulting 1998). The State Government is committed to the National

Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment 2002, EPA 2000). However, given the number of vegetation representations, the small, long, linear shapes of the areas under application and the degraded condition of some of the areas under application, it is considered unlikely that the clearing as proposed would have a significant impact of the conservation status of the vegetation complexes.

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status*	% in reserves/CALM-managed land
**IBRA Bioregion:					
Jarrah Forest	4,544,335	2,665,480	58.7	Least concern	
Shire:					
Kalamunda	No information available				
Mundaring	No information available				
**Beard vegetation association:					
4	1,247,834	292,993	23.5	Vulnerable	14.8
Hedde vegetation complexes:					
Darling Scarp	49,338	18,227	36.9	Depleted	
Helena	No information available				
Swan	15,783	2,454	15.6	Vulnerable	
Mattiske vegetation associations:					
Darling Scarp	291,043	126,045	43.3	Depleted	
Guildford	68,546	8,441	12.3	Vulnerable	
Helena 2	163,414	119,424	73.1	Least concern	

* Department of Natural Resources and Environment (2002)

** Shepherd et al (2001)

Methodology Hedde et al (1980)
 Mattiske Consulting (1998)
 Shepherd et al (2001)
 Department of Natural Resources and Environment (2002)
 EPA (2000)

(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**
 There are no wetlands or waterbodies within the areas under application. However, the south eastern area under application, located closest to the Helena pumphouse, incorporates a 200m (approximately) strip of fringing vegetation along the Helena River. According to the flora survey (Mattiske Consulting 2004), this strip of vegetation is degraded from previous pipeline works, tracks and access routes and infested with the aggressive weed species *Watsonia*. It is considered that the Weed Management Strategy the proponent has committed to and is currently implementing, applicable to this fringing vegetation and throughout the areas under application, will benefit biodiversity outcomes (Mattiske Consulting 2004).

Methodology Mattiske Consulting (2004) (DoE Trim No IN20146)
 Mattiske Consulting response to request for additional information (DoE Trim No. EI1821)

GIS Databases:
 - Clearing Regulations - Environmentally Sensitive Areas - DOE 08/03/05
 - Hydrography, linear - DOE 01/02/04
 - Geomorphic wetlands (Mgmt Categories), Swan Coastal Plain - DOE 15/09/04

(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 areas under application have a Class 3 (No known risk) Acid Sulphate Soil risk. The clearing as proposed could potentially increase the risk of water erosion due to the high mean annual rainfall (900-1000mm) and location in a valley. However due to the size and shape (long and narrow) of the areas under application, it is unlikely that the clearing as proposed would cause appreciable land degradation.

Methodology GIS Databases:
 - Acid Sulphate Soil risk map, SCP - DOE 01/02/04
 - Topographic Contours, Statewide - DOLA 12/09/02

(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 at variance to this Principle

There are a number of conservation estates within the local area (10km radius) and include Greenmount State Forest, Mundaring State Forest, Zamia State Forest, Jarrahdale State Forest, John Forest National Park, Gooseberry Hill National Park, Greenmount National Park, Lesmurdie Falls National Park, Kalamunda National Park, Parkerville Nature Reserve and the proposed Mundaring National Park (CALM 2005). The closest of these conservation estates is approximately 1km. CALM (2005) advises that if the proponent adheres to the Contract Environmental Management System, the potential impacts associated with the proposed clearing are considered to be manageable.

The clearing as proposed is located within the Swan River Trust Management Areas, with the proponent having applied and obtained Approval with Conditions for development within this Management Area (Swan River Trust 2005). The conditions attached to the Approval relate to management of hazardous materials, adhering to water quality management guidelines, dewatering and the development of a Emergency Management Response Plan (Swan River Trust 2005).

Two of the three areas under application are located within a Bush Forever site. The proponent has negotiated Conditional Approval with the Bush Forever to allow the development to go ahead providing that a weed management strategy is developed and implemented (this is currently being implemented, John Waters pers comms 20 May 2005) and that the Contract Environmental Management System is adhered to.

Methodology CALM (2005) Land Clearing Proposal Advice (DoE Trim No. EI1770)
Swan River Trust (2005)
Direct interest submission - Bush Forever (DoE Trim No EI1772)

(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 clearing as proposed may increase surface water run-off into the Helena River and may also increase sedimentation levels of the River. However, given the small size and the three separate long, narrow shapes of the areas under application, it is unlikely that the clearing as proposed will have a significant effect on surface water or groundwater quality.

Methodology GIS Databases:
- Hydrography, linear - DOE 01/02/04

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

Comments Proposal is not likely to be at variance to this Principle

The areas under application are located in a valley and have a high mean annual rainfall (900-1000mm). However, the long, narrow shape of the areas under application are not likely to cause or exacerbate an increase in the incidence of flooding or peak flood height.

Methodology GIS Databases:
- Rainfall, Mean Annual - BOM 30/09/04
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

Direct interest submission received from Shire of Mundaring outlining that they have no objections to the proposed clearing subject to: use of existing cleared areas to maximise retention of significant vegetation; submission and implementation of a Dieback Management Plan; submission of details indicating the estimated area of remnant vegetation to be removed and rehabilitation plan for cleared areas. These are conditions sent to WA Planning Commission in relation to Water Corporations Lower Helena Water Supply Upgrade. Dieback management has been included and addressed in the Contract Environmental Management System (Water Corporation 2003).

The proponent has entered into negotiations with Bush Forever, Department of Planning and Infrastructure, and has been given Conditional Approval in which the proponent is to submit and implement a weed management strategy. In addition the development should be undertaken in accordance with the Contract Environmental Management System.

Conditional Consent for the development has been granted by the Minister for Indigenous Affairs with the following conditions of consent:

That the proponent will avoid specific rock outcrops and formations and that the proponent provide a report to Register of Aboriginal Sites outlining the specific areas; and

Methodology To what degree development has taken place in relation to sites or objects of Aboriginal significance.
 Direct interest submission - Shire of Mundaring (DoE Trim No. EI1046)
 Carissa Bathgate, Senior Environmental Planner, Bush Forever, DPI (DoE Trim No. EI1772)
 Letter from Minister of Indigenous Affairs (Information provided by the proponent with the application, DoE Trim No IN20164)
 Water Corporation (DoE Trim No IN20164)

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Building or Structure	Mechanical Removal	2	Grant	<p>The assessable criteria have been addressed and the clearing as proposed is at variance to Principle e and f and h and may be at variance to Principle b.</p> <p>For Principle e, a number of the vegetation representations within the area under application are below the 30% minimum the State Government has committed to within the National Objectives and Targets for Biodiversity Conservation (Department of Natural Resources and Environment 2002, EPA 2000). However, given the small, narrow, linear nature of the area under application, and the varying condition of the vegetation in these areas (e.g. from very good to degraded), it is considered that the clearing as proposed is unlikely to significantly impact on the conservation status of the vegetation complexes.</p> <p>For Principle f, the south eastern area under application contains a 200m strip of riparian vegetation. However this riparian vegetation is considered to be in a degraded condition due to disturbances from previous pipeline construction, tracks and access routes and the infestation of the aggressive weed species <i>Watsonia</i> (Mattiske Consulting 2004). The proponent has committed and is currently implementing a Weed Management Strategy to target <i>Watsonia</i> and a number of other aggressive weed species within the areas under application (Mattiske Consulting 2004).</p> <p>For Principle h, approval from the respective management agencies (Swan River Trust and Bush Forever) have been obtained and the conditions of approval are in the process of being implemented.</p> <p>For Principle b, a number of fauna species of conservation significance are known to occur in the local area (10km radius) (CALM 2005). It is considered however, that the impact on fauna species would not be significant given the small, narrow and linear nature of the areas under application. Further the proponent is committed to adhere to their Contract Environmental Management System.</p> <p>Therefore, the assessing officer recommends that the permit be granted with the following advice, that the Weed Management Strategy continue to be implemented and that the Contract Environmental Management System is adhered to.</p>

5. References

CALM (2005) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref EI1770.

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.

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.

Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, BJ (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.

Mattiske Consulting (2004) Flora and Vegetation on Lower Helena Valley Pipeline Route. Report prepared for Water Corporation of Western Australia. DoE Trim No. IN20146

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.

Water Corporation (2003) Lower Helena DN760 Main Upgrade: Environmental Impact Assessment Referral Document C-W01410. DoE Trim No. IN20146 (Contains the Mattiske Consulting (2002) Flora Survey and the Contract Environmental Management System)