Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1341/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Superior Lawns Australia Pty. Ltd.**

1.3. Property details

Property: LOT 11 ON PLAN 30647 (MIMEGARRA 6507)
Local Government Area: Shire Of Dandaragan
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
76		Mechanical Removal	Miscellaneous

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 Associations: - 1030: Low woodland; Banksia attenuata and B. menziesii. - 1031: Mosaic; Shrublands; hakea-scrub heath / Shrublands; dryandra heath (Shepherd et al. 2001 & Hopkins et al. 2001).	The proposal is to clear 76 hectares of native vegetation for the purpose of turf farming. Site inspections undertaken in July and August 2007 determined that the vegetation under application comprises low, dense Banksia attenuata/Banksia menziesii woodland in excellent condition, with Eucalyptus todtiana and Nuytsia floribunda also common on site. The middle storey was determined to be diverse closed heath, with a number of sedges and herbs observed in the under storey. Genus/species observed in the middle and understoreys included, but were not limited to Kunzea sp., Hakea spp., Daviesia spp., Hibbertia spp., Xanthorrhoea spp., Conospermum sp., Stirlingia latifolia, Conostephium spp., Dryandra spp., Acacia spp., Allocasuarina humilis, Petrophile spp., Bossiaea spp, Mesomelaena pseudostygia, Drosera spp., Stylidium sp., Anigozanthos spp., Orchids - Leporella fimbriata and Pyrorchis nigricans, Desmocladus sp., and	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	The vegetation clearing description was determined from information obtained during DEC site inspections undertaken in July 2007 (TRIM Ref. DOC29530), August 2007 and April 2008, and from the Flora and Vegetation Survey of Regan's Ford Extension (Mattiske Consulting Pty Ltd 2007).

Conostylis spp.

The vegetation under application comprised mostly of mature vegetation, with regeneration of over and under storey species evident.

The vegetation under application ranged in condition from degraded to excellent, with an overall condition of excellent. Areas in degraded condition were limited to small local areas of disturbance.

A further site inspection conducted 3 April 2008 observed that a fire had recently burnt the entire area of vegetation under application.

Whilst the vegetation under application at this time was observed to be sparse, it is considered that the vegetation retains the ability to regenerate to the structure, diversity and composition observed before the fire.

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 vegetation under application comprised low dense Banksia woodland with a dense sclerophyll shrub understorey, in an overall excellent condition (Mattiske Consulting Pty Ltd 2007, Site Inspection 2007). A site inspection of the applied area in April 2008 observed that a fire had recently burnt through the vegetation under application.

Approximately 91 species of native vascular plants were found within the vegetation proposed to be cleared during a survey in December 2006 (Mattiske Consulting Pty Ltd 2007). The vegetation under application includes the Priority flora species Anigozanthos humilis subsp. Badgingarra (P2) and Dryandra lindleyana subsp. pollosta (P3), and may include Declared Rare Flora species found in the local area (Mattiske Consulting Pty Ltd 2007).

In addition, the vegetation under application is considered likely to have comprised habitat for a number of local native fauna species, given the high floral diversity and excellent condition of the vegetation under application.

Given that the vegetation under application had high species diversity, comprised significant fauna habitat, included Priority flora and may include DRF, it is therefore considered that the vegetation under application comprises a high level of biodiversity.

Whilst the vegetation under application has been impacted by recent fires, it is considered that the vegetation retains the ability to regenerate to a similar structure, diversity and species composition observed during the site inspection undertaken in 2007, and therefore the abovementioned biodiversity values are retained.

Methodology

References:
- Mattiske Consulting Pty Ltd (2007)
- Site Inspection (2007)

GIS Database:
- Dandaragan 50cm Orthomosaic - DLI04

(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

Six fauna species of conservation significance have been recorded within the local area (15km radius) including the following species that are known to utilise and inhabit similar vegetation to the vegetation under application:
- Chuditch (Dasyurus geoffroii) (Vulnerable),
- Carnaby's Black Cockatoo (Calyptorhynchus latirostris) (Endangered),
- Western Brush Wallaby (Macropus irma) (Priority 4),
- Crested Bellbird (southern) (Oreoica gutturalis gutturalis) (Priority 4), and
- Australian Bustard (Ardeotis australis) (Priority 4) (DEC 2007, DEC 2007a, Garnett et al. 2000).

Furthermore, a number of local native fauna species were observed on site including passerine birds, kangaroos and insects (Site Inspection 2007).

The vegetation under application comprises low, dense Banksia attenuata-Banksia menziesii woodland, and was in an overall excellent condition with a high level of biodiversity (Site Inspection 2007, Mattiske Consulting Pty Ltd 2007). The vegetation included a dense understorey that would provide suitable habitat for ground-dwelling fauna, and the Banksia species under application is likely to provide feeding habitat for Carnaby's Black Cockatoo.

A fauna survey of the Namming Nature Reserve, approximately 4.5km south west of the area revealed that the local area provides good habitat for a diverse range of bird and mammal species (Biodiversity Coordination Section 2006). BCS (2006) also advised that given the excellent condition of the applied vegetation it is likely that the area may comprise suitable habitat for small mammals and birds.

Furthermore, the vegetation under application is in close proximity (~2.5km) to the ANCA listed Guraga Lake, an important wetland for waterbirds in the south west land division (Aussie Heritage 2007). Given that the vegetation under application is linked to these areas, it is likely that the vegetation under application supports fauna utilising these conservation areas and maintains fauna movement and migration across the local landscape. Therefore, in addition to direct habitat loss, the proposed clearing of 76 hectares is considered likely to impact on the much larger and contiguous patch of adjacent remnant vegetation by displacing fauna and hindering fauna movement within the local landscape.

Given the large size of the area under application (76ha), the high floral diversity and overall excellent condition of the vegetation under application, it is considered that the vegetation under application comprises significant habitat for indigenous fauna.

A site inspection of the applied area in April 2008 observed that a fire had recently burnt through the vegetation under application. However, whilst the vegetation under application has been impacted by recent fires, it is considered that the vegetation retains the ability to regenerate to a similar structure, diversity and species composition observed during the site inspection undertaken in 2007. Therefore the above habitat values are retained in part, and have the ability to return with time.

Methodology

References:
- Aussie Heritage (2007)
- Biodiversity Coordination Section (2006)
- DEC Fauna Habitat Notes.xls - February 2007
- DEC (2007)
- DEC (2007a)
- Garnett et al. (2000)
- Mattiske Consulting Pty Ltd (2007)
- Site Inspection (2007)

GIS Databases:
- ANCA, Wetlands - CALM 08/01
- CALM Managed Lands and Waters - CALM 1/07/05
- Dandaragan 50cm Orthomosaic - DLI04
- DEC SAC Bio Datasets, Date accessed 20/07/2007
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC

(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

Within the local area (10km radius) there are three known Declared Rare Flora (DRF) species, being Drakaea elastica, Ptychosema pusillum and Chamelaucium griffinii, with the closest known population being D. elastica located approximately 1.5km from the area under application.

C. griffinii is a spreading shrub found on lateritic gravel and breakaways (Western Australian Herbarium 1998-) and is not considered likely to be found on the sandy soils found within the applied area.

D. elastica flowers in Oct-Nov, with a green leaf being obvious in August; is usually found in 'white or grey sand in low-lying situations adjoining winter-wet swamps' and is often found in association with thickets of Kunzea glabrescens (Western Australian Herbarium 1998-). The vegetation under application includes sandy soils and thickets of K. glabrescens that may provide suitable habitat for this species.

P. pusillum is a herb that flowers Aug-Oct and is found in sandy habitats and rises (Western Australia Herbarium 1998-) and suitable habitat is present within the sandy soils on site.

During a survey undertaken in December 2006 (Mattiske Consulting Pty Ltd 2007) no Declared Rare Flora species were identified, however the survey was not undertaken at an optimal time for detecting D. elastica and P. pusillum (Biodiversity Coordination Section 2006) and it is considered that these species may be present within the applied area.

In addition, during the flora survey the Priority species Anigozanthos humilis subsp. Badgingarra (P2) and Dryandra lindleyana subsp. pollosta (P3), were observed within the area under application. These species flower during Sept-Oct and Aug-Sept respectively and an appropriately timed targeted search would be required to determine their extent within the vegetation under application.

Given that the area under application contains suitable habitat for the DRF D. elastica and P. pusillum, it is considered that the vegetation under application may include, or be necessary for the continued existence of, rare flora. The area under application also supports populations of the Priority flora species A. humilis subsp. Badgingarra (P2) and D. lindleyana subsp. pollosta (P3).

The DEC Biodiversity Coordination Section (2006) advises that the proponent would have to undertake an appropriately timed flora survey to determine whether the vegetation under application includes DRF species.

Methodology

References:
- DEC Biodiversity Coordination Section (2006)
- Mattiske Consulting Pty Ltd (2007)
- Western Australian Herbarium (1998-)

GIS Databases:
- DEC SAC Bio Datasets, Date accessed 20/07/2007
- Pre-European Vegetation - DA 01/01

(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 known occurrences of Threatened Ecological Communities (TEC) within close proximity to the vegetation under application, the closest TEC being approximately 37kms south of the vegetation applied to be cleared. No TECs were identified during the flora survey (Mattiske Consulting Pty Ltd 2007).

Given the distance to the nearest TEC and that no TECs were identified during the flora survey, it is not considered likely that the vegetation under application comprises, or is necessary for the maintenance of a TEC.

Methodology

Reference:
- Mattiske Consulting Pty Ltd (2007)

GIS Database:
- DEC SAC Bio Datasets, Date accessed 24/07/2007

(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 at variance to this Principle

The vegetation under application is a component of Beard Vegetation Associations 1030 and 1031 (Hopkins et al. 2001) of which there is 65.5% and 34.9% respectively of Pre European extent remaining (Shepherd 2006). The majority of the area under application (~95%) lies within Beard Vegetation Association 1030, with the eastern edge (~5%) within Beard Vegetation Association 1031. The applied area is located in the Shire of Dandaragan, which has 48.8% of pre-European vegetation remaining (Shepherd et al. 2001), and the local area (~10km radius) has approximately 45% remaining.

The State government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents a clearance of ecological communities with an extent below 30% of that present pre-European settlement (Commonwealth of Australia 2001).

Although the Beard Vegetation associations mapped within the vegetation under application are above the 30% biodiversity conservation target, the area under application is located within the Intensive Land-use Zone (Shepherd et al. 2001) and is located in the area defined in EPA Position Statement No. 2 (EPA, 2000). Significant

clearing of native vegetation has already occurred in this area and any further reduction through clearing for agriculture is not supported (EPA 2000).

Given that the area under application comprises 76 hectares located within an extensively cleared agricultural area (EPA 2000), and the high biological diversity of the vegetation under application, it is therefore considered that the vegetation under application is significant as a remnant in an area that has been extensively cleared.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	% In reserves
Bioregion:				
Swan Coastal Plain**	1,501,456	571,758	38.1	
Local area (~10km radius)	31,400	15,072	~45	
Shire of Dandaragan*	668,507	326,283	48.8	
Beard vegetation association:				
1030**	139,020	91,058	65.5	14.6
1031**	269,505	93,975	34.9	38.1

* (Shepherd et al. 2001)
** (Shepherd 2006)

Methodology

References:
- Commonwealth of Australia (2001)
- EPA (2000)
- Hopkins et al. (2001)
- Shepherd et al. (2001)
- Shepherd (2006)

GIS Databases:
- EPA Position Paper No 2 Agriculture Region - DEP 12/00
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Pre-European Vegetation - DA 01/01

(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 not likely to be at variance to this Principle

There are no wetlands or watercourses mapped within the area under application, however several wetland areas are located nearby, and the applied area is situated adjacent to a 5km wide chain of lakes and wetlands that run northwest to southeast across the landscape. Several sumplands, damplands and lakes occur within this 5km radius, the closest being a sumpland located approximately 250m from the applied area. The closest watercourse is the Caren Caren Brook, located approximately 2.6km from the applied area.

The vegetation under application has been identified by Mattiske Consulting Pty Ltd (2007) as comprising low Banksia woodland and no wetland dependent vegetation was recorded.

Given the distance to the nearest watercourse or wetland, and that no wetland dependent vegetation was recorded within the applied area during the flora survey, it is not considered likely that the vegetation under application is growing in, or in association with a watercourse or wetland.

Methodology

Reference:
- Mattiske Consulting Pty Ltd (2007)

GIS Databases:
- ANCA, Wetlands - CALM 08/01
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Hydrography, linear - DOE 1/2/04

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

Comments

Proposal is at variance to this Principle

The area under application is located within the Bassendean subsystem 8 which comprises yellow deep sand and pale deep sand (DAFWA 2007a). Due to the high infiltration rates of the sandy soils combined with the low gradient on site, the proposed clearing is not considered likely to result in water erosion. However, DAFWA (2007) advise that the wind erosion hazard on these soils is very high, with the area likely to be exposed to high

wind events.

A hydrogeological assessment prepared for the applicants (Groundwater Consulting Services Pty Ltd 2006) identifies rising groundwater levels within the local area (10km radius of the area under application). The report states that the rise in groundwater levels is as a result of extensive clearing of native vegetation within the groundwater catchment.

In particular, all six monitoring bores located in the local area have recorded rising groundwater levels of 0.1 to 0.3 metres per year, with the lowest rate of groundwater level rise being in the two bores surrounded by native vegetation (Groundwater Consulting Services Pty Ltd 2006).

Given the deep sandy nature of the soils and depth to groundwater (~11.7m) (DAFWA 2007a) the proposed clearing is not considered likely to directly increase water logging and/or salinity on site. Extensive clearing of native vegetation has already occurred in the catchment resulting in increased groundwater recharge and rising groundwater levels (DAFWA 2007). Although the direct effects of the current proposal to remove a further 76 hectares of native vegetation may not be quantifiable, any further removal of deep rooted perennials will contribute to the long term cumulative effects of clearing including rising groundwater levels and resulting appreciable land degradation including water logging and salinity.

The soils within the applied area are also known to have a low Phosphorus Retention Index (PRI), and it is considered that the proposed clearing of 76 hectares of deep-rooted perennial vegetation is likely to result in increased nutrient loss from the soil profile (DAFWA 2006).

Given the sandy soils present within the applied area, it is considered that the proposed clearing of 76 hectares is likely to cause appreciable land degradation in the form of wind erosion and increased nutrient loss from the soil profile. In addition, given current impacts of extensive native vegetation clearing within a local and regional context, it is considered that the current proposal will contribute to the cumulative impacts of clearing including rising groundwater levels and salinity. Therefore, the proposed clearing is considered to be at variance to this Principle.

Methodology

References:
- Groundwater Consulting Services Pty Ltd (2006)
- DAFWA (2006)
- DAFWA (2007)
- DAFWA (2007a)

GIS Databases:
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Groundwater Salinity, Statewide - DOW
- Soils, Statewide - DA 11/99
- 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 not likely to be at variance to this Principle

There are three conservation areas within a 10km radius of the vegetation under application, being the Namming Nature Reserve, Eneminga Nature Reserve and an unnamed Nature Reserve located approximately 4.5km, 8km and 10km away, respectively. The ANCA listed Guraga Lake, an important wetland for waterbirds in the south west land division (Aussie Heritage 2007) and is located approximately 2.5km to the west. Given the distance to the nearby conservation reserves, it is not considered likely that the proposed clearing would have a direct impact on their environmental values.

The area under application is located on the eastern-most end of a large vegetated remnant, and is therefore not considered likely to provide a significant ecological corridor for fauna movement between the abovementioned conservation reserves. It is therefore not considered likely that the proposed clearing would have an indirect impact on the environmental values of nearby conservation areas through restricting fauna movement.

Methodology

Reference:
- Aussie Heritage (2007)

GIS Databases:
- ANCA, Wetlands - CALM 08/01
- CALM Managed Lands and Waters - CALM 1/07/05
- Register of National Estate - EA 28/01/03

(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 at variance to this Principle

The area under application is situated adjacent to a 5km wide chain of lakes and wetlands that run northwest to

southeast across the landscape, with the closest being a sumpland located approximately 250m from the area under application. The closest watercourse is the Caren Caren Brook, located approximately 2.6km from the vegetation under application.

The area under application is located within the Bassendean sands zone (DAFWA 2007a) on leached sands (Northcote et al. 1960). Due to the high infiltration rates of the sandy soils combined with the low gradient on site, and the distance to the nearest watercourse, it is not considered likely that the proposed clearing would result in water erosion causing deterioration in surface water quality through sedimentation.

The soils within the applied area have a low Phosphorus Retention Index (PRI) (DAFWA 2006), and the proposed clearing of 76 hectares of deep-rooted vegetation is considered likely to result in increased nutrient loss from the soil profile, contributing to deterioration in groundwater quality in the local area through increased nutrient levels. However, DAFWA (2007a) advise that given the low hydrological gradient in the local area and the slow groundwater movement from the northwest, the increased nutrients in the groundwater is not likely to result in deterioration in surface water quality in nearby wetlands.

A hydrogeological assessment prepared for the applicants (Groundwater Consulting Services Pty Ltd 2006) identifies rising groundwater levels within the local area (10km radius). The report states that this is as a result of extensive clearing of native vegetation. In particular, all six monitoring bores located in close proximity to the vegetation under application have recorded rising groundwater levels, with a lower rate of groundwater level rise in the two bores surrounded native vegetation (Groundwater Consulting Services Pty Ltd 2006).

Given the deep sandy nature of the soils and depth to groundwater (~11.7m) (DAFWA 2007a) the proposed clearing is not considered likely to result in increased water logging and salinity on site. The clearing of the 76 hectares under application will contribute to increased groundwater recharge (DAFWA 2007). Although the direct effects of the current proposal may not be quantifiable; any further removal of deep rooted perennials will likely contribute to the long term cumulative effects of clearing, including rising groundwater levels causing a deterioration of groundwater quality and surface water quality in wetlands through salinity.

Given the low PRI of the soils within the applied area and the increased groundwater recharge, it is considered likely that the proposed clearing will result in deterioration in the quality of underground water through increased nutrients leached from the soil profile. In addition, the proposal to remove 76 hectares of native vegetation is likely to contribute to the cumulative effects of clearing including salinity in the region, which may result in the deterioration in the quality of surface and underground water. It is therefore considered that the proposed clearing is at variance to this Principle.

Methodology

References:
- DAFWA (2006)
- DAFWA (2007)
- DAFWA (2007a)
- Groundwater Consulting Services Pty Ltd (2006)
- Northcote et al. (1960-68)

GIS Databases:
- ANCA, Wetlands - CALM 08/01
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
- Groundwater Salinity, Statewide - DOW
- Hydrography, linear - DOE 1/2/04
- Soils, Statewide - DA 11/99
- Topographic Contours, Statewide - DOLA 12/09/02

(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 is low-lying and situated adjacent to a 5km wide chain of lakes and wetlands, with the closest being a sumpland located approximately 250m from the applied area. The area under application is located within the Bassendean sands zone (DAFWA 2007a) on leached sands (Northcote et al. 1960-68), which area considered to have a low risk of water logging due to high infiltration rates.

Given the high infiltration rates of the sandy soils identified on site, it is not considered likely that the proposed clearing would cause or exacerbate the incidence or intensity of flooding.

Methodology

References:
- DAFWA (2007)
- DAFWA (2007a)
- Groundwater Consulting Services Pty Ltd (2006)
- Northcote et al. (1960-68)

GIS Databases:
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
- Soils, Statewide - DA 11/99

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

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

Comments

Site inspections undertaken in July and August 2007 determined that the vegetation under application comprised low, dense and diverse Banksia attenuata/Banksia menziesii woodland in excellent condition (Site Inspection 2007). In April 2008 a further site inspection was undertaken of the vegetation under application following the receipt of correspondence from the applicant that a fire had burnt through the area of vegetation under application.

Whilst the vegetation under application has been impacted by fire, the vegetation still retains the ability to regenerate to similar structure, diversity and composition observed before the fire. Therefore, the environmental values of the vegetation under application are considered to remain.

The vegetation is within the agricultural area defined in EPA Position Statement No. 2 (EPA 2000). EPA Position Statement No. 2 (EPA 2000) states that significant clearing of native vegetation has already occurred on agricultural land, leading to a reduction in biodiversity and increase in land salinisation, and therefore any further reduction in native vegetation through clearing for agriculture cannot be supported. The EPA (2000) recommends that all existing native vegetation be protected from passive clearing through, for example, grazing by stock or clearing by other means.

There are several Priority Flora populations mapped within and adjacent to the vegetation under application. A flora survey conducted in December 2006 identified two Priority Flora species within the vegetation under application (Mattiske Consulting Pty Ltd 2007). Two additional Priority Flora species were observed within vegetation directly north of the proposed clearing. Given the high number of populations within and adjacent to the vegetation under application, an appropriately timed flora survey should be conducted to determine the extent of these species and identify other Priority species present.

The vegetation under application occurs within a Rights in Water and Irrigation Act 1914 Proclaimed Groundwater area. The applicants have a current groundwater licence for Phase 1 of the development, which covers the existing cleared area (~83ha). The Department of Water has advised that a water licence for Phase 2 (proposed clearing) will be subject to a review of the Phase 1 monitoring results and a revised Nutrient Irrigation Management Plan (TRIM Ref. DOC29606).

In addition Development Approval from the Shire of Dandaragan is required for the proposed turf farm. Correspondence from the Shire indicates that no application for Development Approval has been submitted (TRIM Ref. DOC38923).

The vegetation under application has been mapped as a potential groundwater dependent ecosystem at a depth to groundwater of 10-20m. Vegetation to the north and west of the vegetation under application has been identified as potential groundwater dependent ecosystems at a depth to groundwater of 5-10m and 0-5m respectively. As a groundwater extraction licence is required to irrigate the proposed turf, this extraction may lead to negative impacts on nearby vegetation communities through potential draw down and a falling water table.

A draft hydrogeological assessment of the proposal prepared for the applicants (Groundwater Consulting Services Pty Ltd 2006) identifies rising groundwater levels within the local area (10km radius) resulting from extensive clearing of native vegetation. In particular, all six monitoring bores located in close proximity to the vegetation under application have recorded rising groundwater levels, with a lower rate of groundwater level rise in the two bores surrounded native vegetation (Groundwater Consulting Services Pty Ltd 2006).

The proposed clearing is considered likely to further contribute to the cumulative impacts of clearing, including increased eutrophication of wetlands and rising groundwater levels. In addition, given the low moisture and nutrient retention characteristics of the soils on site, the proposed turf farm is considered likely to further contribute to eutrophication and rising groundwater through irrigation and fertiliser application.

The applicant has been provided with the opportunity to address the issues raised above and during the report. To date no response addressing these issues has been received by the Department from the applicant.

The vegetation under application does not contain any Aboriginal Sites of Significance. The vegetation is associated with a Native Title Claim, however as the land is privately owned, the clearing as proposed does not fall under the future acts process of the Native Title Act 1993.

The applicants} commissioned Mattiske Consulting Pty Ltd to prepare a rehabilitation and offset proposal as per the guidelines in EPA Position Statement No. 9 (EPA 2006) to mitigate the proposed clearing. The proposed offset included the protection and management of 140ha of untouched remnant vegetation in the northern portion of the property, and the revegetation of ~20ha adjacent to the currently used turf pivot (Mattiske Consulting Pty Ltd (2007a). Subsequent correspondence advises that the applicants will exclude the northern portion of the property (~240ha) from any development, and will place this area under a Conservation Covenant as an offset measure for consideration (TRIM Ref. DOC38800).

Methodology References:

- EPA (2000)
- EPA (2006)
- Groundwater Consulting Services Pty Ltd (2006)
- Mattiske Consulting Pty Ltd (2007)
- Mattiske Consulting Pty Ltd (2007a)
- Site Inspection (2007)

GIS Databases:

- Aboriginal Sites of Significance - DIA
- EPA Position Paper No 2 Agriculture Region - DEP 12/00
- Native Title Claims - DLI 7/11/05
- Potential Groundwater Dependant Ecosystems - DOE 2004
- RIWI Act, Groundwater Areas - DOW
- Soils, Statewide - DA 11/99

4. Assessor's comments

Comment

The assessable criteria have been addressed and the proposed clearing is at variance to Principles (a), (b), (e), (g) and (i), and may be at variance to Principle (c).

5. References

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Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.

DAFWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia (TRIM Ref. EI6612).

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DAFWA (2007a) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia (TRIM Ref. DOC35945).

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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) Environmental offsets. Position Statement No. 9. January 2006. Environmental Protection Authority.

Garnett S.T., Crowley G.M. (2000) The Action Plan for Australian Birds 2000, pp 553-554 and pp 207-208. Environment Australia, Canberra. ISBN 0 642 54683 5.

Groundwater Consulting Services Pty Ltd (2006) Superior Lawns Australia Pty Ltd. Draft Hydrogeological Assessment, Proposed Turf Farm, Lot 11 Brand Highway Mimegarra, Dandaragan Western Australia. July 2006.

Heddle, 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.

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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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)