



1. Application details

1.1. Permit application details

Permit application No.: 1795/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: City of Wanneroo

1.3. Property details

Property: LOT 4 ON PLAN 10087 (House No. 240 FLYNN NEERABUP 6031)

LOT 600 ON PLAN 302260 (House No. 959 PINJAR NEERABUP 6031)

Local Government Area: City Of Wanneroo

Colloquial name: Part Lot 2692

1.4. Application

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

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 6: Medium woodland; tuart and jarrah. (Hopkins et al, 2001; Shepherd 2006)	The clearing as proposed comprises four areas under application (total area of 175ha). Three areas (approximately 4ha, 33ha and 129ha) are located within Lot 4 (Zoned Industrial), which is a 203ha property; and one area (approximately 9ha) is located within Lot 600 (Zoned Industrial), which is a 47ha property. The clearing is for Industrial Development, which will be a major component of the Neerabup Industrial Area.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The condition of the native vegetation under application was sourced from the Site Inspection (2007). The condition ranged from degraded to excellent, with an overall condition of Very Good.
Heddle vegetation complexes: Cottesloe Complex - Central and South: predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species.			
Karrakatta Complex - Central and South: Mosaic of woodland of E. gomphocephala and open forest of E. gomphocephala - E. marginata - E. calophylla; closed heath on the Limestone outcrops. (Heddle et al, 1980)	ATA Environmental (2007) identified three vegetation habitat types within the areas under application: - Jarrah (Eucalyptus marginata) and Banksia sp. Woodland over mixed Low Shrubland (south-eastern and north-eastern areas of Lot 4), area of ~100ha. - Prickly Bark (Eucalyptus todtiana), Flooded Gum (Eucalyptus rudis) and Marri (Corymbia calophylla) Open Woodland over degraded pasture (western area of Lot 4 and Lot 600), area of ~72ha. - Tuart (Eucalyptus gomphocephala) Woodland over mixed Open Shrubland (north-western area of Lot 4), area of ~3ha.		

A site inspection (2007) identified the four areas under application to include areas dominated by Banksia spp. and Eucalyptus marginata in very good to excellent condition (~100ha); areas dominated by Eucalyptus calophylla and Allocasuarina fraseriana in degraded to good condition (~72ha); and an area dominated by Eucalyptus gomphocephala and Jacksonia furcellata in good to very good condition (~3ha) (Site inspection 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 clearing as proposed comprises four areas under application (total area of 175ha), all zoned industrial. Three areas (approximately 4ha, 33ha and 129ha) are located within Lot 4, which is a 203ha property; and one area (approximately 9ha) is located within Lot 600, which is a 47ha property.

The condition of the vegetation under application varies from degraded to excellent (Site inspection 2007). The areas dominated by Banksia spp. and Eucalyptus marginata are in very good to excellent condition (~100ha); the areas dominated by Eucalyptus calophylla and Allocasuarina fraseriana are in degraded to good condition (~72ha); and the area dominated by Eucalyptus gomphocephala and Jacksonia furcellata is in good to very good condition (~3ha) (Site inspection, 2007). Further, aerial mapping of the areas under application shows a predominantly densely vegetated landscape (>50%).

A flora survey conducted in October and November 2006 by ATA Environmental (2007) identified 68 species of native flora and 10 species of introduced flora within Lot 4, Part Lot 1002 and Part Lot 2692 (also known as Lot 600). In addition, fauna surveys conducted in November 2006 by ATA Environmental (2007) trapped a total of 20 vertebrate fauna species comprising 195 individual reptiles and mammals within Lot 4 and observed 42 species of birds and 2096 individual birds near the trap sites.

Given the number of flora and fauna species identified and the large areas of structurally intact native vegetation (4ha to 129 ha) in very good condition, the vegetation applied to be cleared (175ha) is likely to comprise high biological diversity.

Methodology

References:

- ATA Environmental (2007)
- Site inspection (2007)

GIS Database:

- Swan Coastal Plain North 20cm Orthomosaic - DLI06

(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**

ATA Environmental (2007) advises that fauna surveys were conducted in November 2006 within Lot 1, Lot 4, Lot 5, Lot 1002 and Lot 2477 (total area of 195ha). A total of 20 vertebrate fauna species comprising 195 individual reptiles and mammals were trapped within Lot 4 (ATA Environmental, 2007). In addition, 42 species of birds and 2096 individual birds were observed near the trap sites (ATA Environmental, 2007).

ATA Environmental (2007) advises that within the areas under application nine fauna species of conservation significance could potentially occur. Of these, Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*); Peregrine Falcon (*Dasyurus geoffroii*); and Rainbow Bee-eater (*Merops ornatus*) were observed during the fauna surveys in November 2006 (ATA Environmental, 2007).

Carnaby's Black-Cockatoo occurs within the Perth metropolitan area and is seen in the urban fringe areas on a seasonal basis (ATA Environmental, 2007). This species 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 preferred habitat of Carnaby's Black-Cockatoo is woodlands where it preferentially feeds on plants of the Proteaceae family (ATA Environmental, 2007). The Black-Cockatoo is known to also feed on *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus gomphocephala* (Birds Australia WA, 2006). The Jarrah and Banksia woodland habitat, which occurs within Lot 4, provides a feeding site for Carnaby's Black-Cockatoo (ATA Environmental, 2007).

Garnett and Cowley (2000) identify that while individual areas of feeding habitat can only support a number of birds for short periods of time, the progressive loss of such areas is an on-going concern for this species.

Further, 17 trees containing hollows suitable for breeding were identified within Lot 4 (ATA Environmental, 2007). ATA Environmental (2007) has advised that the clearing as proposed is likely to result in a loss of habitat and foraging sites for this species. Department of the Environment and Water Resources (2007) concurs that the proposed action has the potential to have a significant impact on Carnaby's Black-Cockatoos by clearing some high quality foraging habitat and trees that contain suitable nesting hollows.

Given the large scale of the areas applied to be cleared (175ha); and the occurrence of approximately 100ha of Jarrah and Banksia woodland and numerous trees containing hollows, the clearing as proposed is at variance to this Principle.

- Methodology** **References:**
- ATA Environmental (2007)
 - Birds Australia WA (2006)
 - Department of the Environment and Water Resources (2007)
 - Garnett and Cowley (2000)
- GIS Database:
- SAC Bio Datasets 200707

(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

There are nine known records of Declared Rare Flora (DRF), *Eucalyptus argutifolia*, within the local area (5km radius). The nearest record of *Eucalyptus argutifolia* is located approximately 2.06km north-west of the areas under application, on the same soils and within the same Heddle vegetation complex (Cottesloe Central & South only), but within a different Beard vegetation type as those under application.

Eucalyptus argutifolia typically occurs in shallow sand on limestone ridges and slopes, where it emerges from heath and thicket of parrot bush (*Dryandra sessilis*) and chenille honey-myrtle (*Melaleuca huegellii*) (Brown et al, 1998). The three habitat types identified within the areas under application are Jarrah and Banksia sp. Woodland over mixed Low Shrubland; Prickly Bark, Flooded Gum and Marri Open Woodland over degraded pasture; and Tuart Woodland over mixed Open Shrubland (ATA Environmental, 2007), which are not typical habitat for *Eucalyptus argutifolia*.

There are 13 known records of ten species of Priority flora recorded within 5km radius, with the closest record being approximately 2.1km south-east of the areas under application.

A flora survey conducted in October and November 2006 by ATA Environmental (2007) identified 68 species of native flora and 10 species of introduced flora within Lot 4, Part Lot 1002 and Part Lot 2692 (also known as Lot 600). No DRF and no Priority species were identified during the flora survey (ATA Environmental, 2007).

Given the above, it is considered unlikely that the vegetation to be cleared includes, or is necessary for the continued existence of, rare flora. Therefore, the clearing as proposed is unlikely to be at variance to this Principle.

- Methodology** **References:**
- ATA Environmental (2007)
 - Brown et al (1998)
- GIS Databases:
- SAC Bio Datasets 200707
 - Pre-European Vegetation - DA 01/01
 - Heddle Vegetation Complexes - DEP 21/06/95
 - Soils, Statewide - DA 11/99

(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 at variance to this Principle

DEC Species and Communities Branch (2007; TRIM Ref ED1952) has advised that the southern quadrant of Lot 4 supports a TEC. This identification was based on data held in 'Flora and Vegetation report Lots 4, 40, 41,

and 1002 Neerabup Industrial Estate' (RPS, 2006a). This TEC has been identified as being community type 20a 'Banksia attenuata woodlands over species rich dense shrublands' (Gibson et al, 1994). The southern quadrant of Lot 4 that supports this TEC is not included in the clearing proposal (ATA Environmental, 2007). It is also noted, however, that two of the areas under application (4ha and 33ha) surround the TEC identified within Lot 4. DEC Species and Community Branch (2007; TRIM Ref ED2043) recommends a TEC buffer of 50-100m. Therefore, approximately 10 hectares of native vegetation under application is within the recommended buffer.

Community type 20a is listed as an 'endangered' ecological community in Western Australia (CALM, 2004). An endangered ecological community is found to be facing a very high risk of total destruction in the immediate future (CALM, 2001). The current distribution of community type 20a is limited and there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes (CALM, 2001).

There are four occurrences of the endangered Threatened Ecological Community (TEC) known as 'Melaleuca huegelii - M. acerosa (currently M. systema) shrublands of limestone ridges located within the local area (5km radius). The nearest recorded occurrences of this TEC are located approximately 1.3km north-west of the areas under application. The 'Flora and Vegetation report - proposed road reserves Neerabup Industrial Estate' (RPS, 2006b) indicates that this limestone community has also been identified in some road reserves in other parts of the proposed Neerabup Industrial Area.

The three habitat types identified within the areas under application are Jarrah and Banksia sp. Woodland over mixed Low Shrubland; Prickly Bark, Flooded Gum and Marri Open Woodland over degraded pasture; and Tuart Woodland over mixed Open Shrubland (ATA Environmental, 2007). Given these habitat types, it is considered unlikely that the vegetation under application comprises the TEC: Melaleuca huegelii - M. acerosa shrublands of limestone ridges.

Given two of the areas under application border and are therefore immediately adjacent to the mapped TEC, Community type 20a (RPS, 2006a), the vegetation to be cleared may be necessary for the maintenance of this TEC. Further, approximately 10 hectares of native vegetation under application is within the recommended TEC buffer. Therefore, the clearing as proposed is at variance to this Principle.

- Methodology** References:
- ATA Environmental (2007)
 - CALM (2001)
 - CALM (2004)
 - Gibson et al. (1994)
 - RPS (2006a)
 - RPS (2006b)
- GIS Databases:
- Environmentally Sensitive Areas - DOE 08/03/05
 - SAC Bio Datasets 200707

(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 may be at variance to this Principle

The vegetation within the areas under application is identified as a component of Beard vegetation type 6 (Hopkins et al, 2001) and Heddle vegetation complexes: Cottesloe Central & South and Karrakatta Central & South (Heddle et al, 1980), of which there is 26.6%, 41.1% and 29.5% of Pre-European extent remaining respectively (Shepherd, 2006 and EPA, 2006).

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present Pre-European settlement (Commonwealth of Australia, 2001). Two of the vegetation types within the area under application (Beard Unit 6 and Heddle Karrakatta Central and South) are below the recommended minimum of 30% representation.

Although the identified Beard vegetation association and Heddle vegetation complex has less than the recommended 30% minimum of Pre-European extent remaining, the applied area is considered to be within a constrained area. 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.

Additionally a further 15.05ha of native vegetation is proposed to be cleared (CPS 1791/1) within the proposed Industrial Area. The vegetation subject of this application is located within Lot 1002, which is adjacent to Lot 4. The vegetation within the 15.05 ha is identified as being within the same Heddle vegetation complexes as those under this application. Further, there is an additional 190ha of native vegetation under application in the local area (3km radius).

Given the above, the vegetation applied to be cleared is considered to may be significant as a remnant of native

vegetation, being representative of vegetation associations that have been extensively cleared.

It is noted that the Heddle vegetation complexes: Cottesloe Complex Central & South and Karrakatta Complex Central & South are poorly represented in secure tenure (8.8% and 2.5%).

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregion - Swan Coastal Plain*	1,501,456	571,758	38.1	
City of Wanneroo**	78,809	45,361	57.6	
Vegetation type: Beard: Unit 6*	56,534	15,013	26.6	33.6
Heddle: Cottesloe Central & Sth***	44,995	18,474	41.1	8.8
Karrakatta Central & Sth***	44,912	14,729	29.5	2.5

* (Shepherd 2006)

** (Shepherd et al. 2001)

*** (EPA 2006)

Methodology

References:

- Commonwealth of Australia (2001)
 - EPA (2006)
 - Shepherd et al (2001)
 - Shepherd (2006)
 - Heddle et al (1980)
- GIS Databases:
- Pre-European Vegetation - DA 01/01
 - 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 not likely to be at variance to this Principle

There are three Resource Enhancement Wetlands (REWs) and five Conservation Category Wetlands (CCWs) within the local area (3km radius). There is a CCW - Lake Pinjar (also mapped as a EPP Lake) located 370m east; a CCW - Little Coogee Flat located 2.8km east south-east; a REW - Neerabup Lake (also mapped as a EPP lake) located 2.8km west; a REW - Camel Swamp located 2.9km north north-west; and a CCW - Lake Adams (also mapped as a EPP lake) located 2.9km south-east of the areas under application. Further, there are no watercourses within the local area.

Given the distance to the surrounding waterbodies it is considered unlikely that the vegetation under application is growing in, or associated with, an environment associated with a watercourse or wetland.

Methodology

GIS Databases:

- EPP, Lakes - DEP 1/12/92
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Hydrogology, linear - DOE 01/02/04

(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 Acid Sulphate Soil (ASS) risk mapping indicates the areas under application are mapped as having a Class 3 risk. This classification is defined as having no known risk of ASS or potential ASS.

The landscape of the areas under application and surrounds can be described as undulating dune landscape underlain by aeolianite which is frequently exposed and small swales of estuarine deposits (Northcote et al, 1960). The chief soils are siliceous sands with smaller areas of brown sands and leached sands in the wetter sites (Northcote et al, 1960).

There is a potential risk for land degradation through wind erosion, as the sandy soils within the areas under application are considered to be highly erodible. DAFWA (2007) advice confirms that the soils are potentially erodible and that clearing the large area is likely to cause wind erosion.

Given the large area to be cleared (175ha of native vegetation) and the potential risk of wind erosion, the clearing as proposed is likely to cause appreciable land degradation.

- Methodology** References:
- DAFWA (2007)
 - Northcote et al (1960)
- GIS Databases:
- Acid Sulphate Soil risk map, Swan Coastal Plain - DEC
 - 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 at variance to this Principle

There are three conservation reserves in the local area (5km radius) including State Forest 65 (Gnangara-Moore River State Forest) (which also includes Bush Forever Sites 139, 140, 293, 446 and 455) located 500m north and 2.5km south-east; Neerabup National Park (also identified as Bush Forever Site 383 and a System 6 Conservation Reserve) located 3.6km south-west; and Lake Joondalup Nature Reserve (also identified as an ANCA wetland, Conservation Category Wetland and System 6 Conservation Reserve) located 4.4km south-west.

Bush Forever Site 428 abuts one of the areas under application (northern boundary of Lot 4); and Site 295 is adjacent to two of the areas under application (southern portion of Lot 4). In addition, Bush Forever Site 382 (also identified as Lake Pinjar and a System 6 Conservation Reserve) is located 370m east of one of the areas under application (Lot 600); and Site 384 is located approximately 1.7km west of Lot 4. Further, aerial mapping of the local area shows vegetated connectivity, which is likely to provide an ecological linkage from the areas under application to the surrounding conservation areas.

Given the large area proposed to be cleared (175ha) and the connectivity to the nearby conservation areas it is likely that the clearing as proposed will impact on the environmental values of these conservation areas.

The proposed clearing also has the potential to indirectly impact the environmental values of the adjacent reserves through the spread or introduction of weed species, and especially dieback, by machinery. This has the potential to spread dieback into areas adjacent to Bush Forever Site 428. There are serious consequences associated with the spread of such diseases and exotic species into areas reserved for conservation, including the potential local extinction of species.

- Methodology** GIS databases:
- ANCA, Wetlands - CALM 08/01
 - Bushforever - MFP 07/01
 - DEC Managed Lands and Waters - CALM 1/06/04
 - Geomorphic wetlands (Mgt Categories)- Swan Coastal Plain - DEC
 - System 6 Conservation Reserves - DEP 06/95
 - Swan Coastal Plain North 20cm Orthomosaic - DLI06

(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

There are three Resource Enhancement Wetlands (REWs) and five Conservation Category Wetlands (CCWs) within the local area (3km radius). There is a CCW - Lake Pinjar (also mapped as a EPP Lake) located 370m east; a CCW - Little Coogee Flat located 2.8km east south-east; a REW - Neerabup Lake (also mapped as a EPP lake) located 2.8km west; a REW - Camel Swamp located 2.9km north north-west; and a CCW - Lake Adams (also mapped as a EPP lake) located 2.9km south-east of the areas under application.

The areas under application are not located in a Public Drinking Water Source Area or surface water catchment area.

There is a risk of eutrophication occurring, due to sandy soils contained within the applied area having low phosphorus retention ability, and the removal of deep-rooted perennials will increase the potential for nutrients to leach from the soil and draining into nearby waterbodies. The Perth Groundwater Atlas (Department of Environment 2004) shows groundwater flow in the local area to be from east (Lake Pinjar and the EPP area) to west (Neerabup Lake). DAFWA (2007) advised that given the length of flow path and depth to groundwater the risk to Neerabup Lake (located 2.8km west of the area under application) is low.

Topographic contours identify Lake Pinjar as being down-gradient of the areas under application. The clearing as proposed may increase the risk of eutrophication from surface water run off. However, DAFWA (2007) have advised that as there are no clearly defined drainage lines running from the areas under application and Lake Pinjar and therefore the risk from eutrophication is low.

Given the distance to the nearest wetlands and the low eutrophication risk, the clearing as proposed is considered unlikely to cause deterioration in the quality of surface and ground water.

- Methodology** References:
- Department of Environment (2004)
 - DAFWA (2007)
- GIS Databases:
- EPP, Areas - DEP 06/95
 - EPP, Lakes - DEP 1/12/92
 - Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
 - Public Drinking Water Source Areas (PDWSAs) - 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 at variance to this Principle**

There are no wetlands mapped within the areas under application with the nearest wetland, being a conservation category wetland, located approximately 370m east of the areas under application. Further, there are no watercourses mapped within the local area (3km radius). Given the distance to the nearest wetland or watercourse from the areas under application, the clearing as proposed is considered unlikely to cause or increase the incidence or intensity of localised flooding.

- Methodology** GIS Databases:
- Hydrography, linear - DOE 01/02/04
 - Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain DEC

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

Comments

The Department of Planning and Infrastructure (DPI) (2007) has advised that the clearing of the transitional zone between the two Heddlu vegetation complexes, and the native vegetation of complex Karrakatta Central & South would not be supported. This is due to under-representation on the Swan Coastal Plain (DPI, 2007). Further, DPI (2007) has advised that for vegetation complexes Cottesloe Central & South, and Karrakatta Central & South, 18% and 8% are proposed for protection within the Bush Forever study area, respectively.

Recent discussions between Landcorp and DPI Strategic Biodiversity Planning in relation to the Neerabup Industrial Estate, of which the application area forms part of, indicates that the southern quadrant of Lot 4 supports a TEC (Community 20a) and an a section of Bush Forever Site 295, which requires further investigation and negotiation of the Bush Forever boundary (DPI, 2007). Therefore, clearing in this quadrant is not supported (DPI, 2007).

DAFWA (2007) advised that the soils are potentially erodible and that clearing the large area is likely to cause wind erosion. This should not in itself be regarded as a fatal flaw of the proposal as erosion is quite manageable with existing technology and given the high land values they could be required to stabilise the areas cleared.

The areas proposed to be cleared are part of the proposed Neerabup Industrial Area within the City of Wanneroo. A Structure Plan (Structure Plan No. 17) for the new industrial subdivision was adopted by the Western Australian Planning Commission (WAPC) in January 2005. Stage 1 of the industrial area (32ha - 80 lots) at Lot 22 Flynn Drive, west of the areas under application, is currently being assessed by the WAPC.

The areas proposed to be cleared are part of a joint venture between City of Wanneroo (CPS 1795/1 -175ha) and LandCorp (CPS 1791/1 -15.05ha) within land to be subdivided in the future (ATA Environmental, 2007). It is intended to develop the area as an industrial estate for general industrial uses (ATA Environmental, 2007). The establishment of an industrial estate may result in the increase of surface run-off and pollutants, and increase the risk of eutrophication, which may impact recharge levels and water quality of Lake Pinjar, located approximately 370m east.

Subdivision Approval from the WAPC remains outstanding for this clearing proposal.

Carnaby's Black-Cockatoo is classified as Endangered under the EPBC Act 1999. Given that the clearing as proposed will result in a loss of habitat and foraging sites for this species (ATA Environmental, 2007), the proposed Neerabup Industrial Area (NIA) [in which the areas under application are a part of] is likely to require referral to the Commonwealth Department of Environment and Heritage (DEH) under the EPBC Act 1999 for Carnaby's Black Cockatoo. The DEH is likely to consider that the extent of the proposed clearing will have a significant impact on the feeding habitat of the species and is expected to deem the proposal a Controlled Action.

The areas under application are within the Proclaimed Groundwater Area of Wanneroo. Therefore any abstraction of groundwater would require a licence.

The areas proposed to be cleared are zoned Industrial under the Metropolitan Regional Scheme.

Lot 4 on Plan 10087 and Lot 600 on Plan 302260 are Freehold Land.

The City of Wanneroo (2008) sent a response to the 30-day letter, which the Department sent on 15 November 2007. The response only addressed the issues of flora and fauna. In regards to the subdivision approval, the City of Wanneroo has not yet submitted an application to the WAPC.

On 3 July 2007 the Department of the Environment and Water Resources determined that the proposed to clear 195ha (12ha on Lot 1002, 12ha on 2692 or Lot 600, and 171ha on Lot 4) of remnant habitat to develop an industrial estate was a controlled action and required assessment through preliminary documentation. A decision on whether to approve the action is still outstanding.

Methodology

References:

- ATA Environmental (2007)
 - City of Wanneroo (2008)
 - DAFWA (2007)
 - Department of the Environment and Water Resources (2007)
 - DPI (2007)
- GIS databases:
- Metropolitan Regional Scheme - DPI 07/10/05
 - RIWI Act, Groundwater Areas - DOW
 - RIWI Act, Surface Water Areas - DOW

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Industrial	Mechanical Removal	175	The clearing as proposed is at variance to Principles (a), (b), (d), (g) and (h), may be at variance to Principle (e); and not likely to be at variance to the remaining Principles.

5. References

- ATA Environmental (2007) Consultant's Report: City of Wanneroo and Landcorp - Flora, Vegetation and Vertebrate Fauna Assessment; Lot 4, Part Lots 1002 and 2692, Neerabup. ATA Environmental. TRIM Ref DOC25421
- Birds Australia WA (2006). Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. Carnaby's Black-Cockatoo Recovery Project (<http://www.hotgecko.com/carnabys/Carnabys.htm>). Accessed on Friday, 13 July 2007.
- CALM (2001) Definitions, categories and criteria for Threatened and Priority Ecological Communities, Department of Conservation and Land Management.
- CALM (2004) List of Threatened Ecology Communities on the Department of Conservation and Land Management's Threatened Ecological (TEC) Database endorsed by the Minister for the Environment; WA Threatened Species and Communities Unit, Department of Conservation and Land Management (Correct to January 2004).
- City of Wanneroo (2008) Response to 30-day letter from the City of Wanneroo. TRIM Ref DOC46964
- Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DAFWA (2007) Land degradation advice. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia. TRIM Ref ED1913.
- Department of Environment (2004) Perth Groundwater Atlas, Second Edition 2004, Department of Environment, Perth, Western Australia.
- Department of the Environment and Water Resources (2007) Controlled action; Request for additional information; Department of the Environment and Water Resources, Canberra, ACT. TRIM Ref DOC45902
- 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.
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- 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.
- 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.
- 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.
- RPS (2006a) Flora and Vegetation Report: Lots 4, 40, 41 and 1002 - Neerabup Industrial Estate; Version A, March 2006; RPS Bowman, Bishaw and Gorham; Subiaco, Western Australia. TRIM Ref ED1948
- RPS (2006b) Flora and Vegetation Report: Proposed Road Reserves - Neerabup Industrial Estate; Version A, February 2006; RPS Bowman, Bishaw and Gorham; Subiaco, Western Australia. TRIM Ref ED1952

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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)

