

Native Vegetation Clearing Permit Application [Purpose Permit]- Supporting Documentation

Darling Chase, Wandi

Prepared for Satterley Property Group by Strategen

August 2015



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1. Introduction

1.1 Purpose

This Native Vegetation Clearing Permit (NVCP) application for a purpose permit has been prepared for assessment and approval to clear vegetation at Darling Chase, Wandi. The proposed clearing is to occur within the road reserve of Darling Chase. The NVCP application relates to an area of approximately 0.0593 ha native vegetation proposed to be removed by the Satterley Property Group (Satterley) to enable drainage controls associated with the development of the Wandi South residential estate.

1.2 Proposal

As part of the ongoing development of the Wandi South residential development, Satterley is proposing to clear 0.0593 ha native vegetation within the Darling Chase road reserve bordering the development site (Figure 1). The technical specifications are provided in Figure 2 and Figure 3.

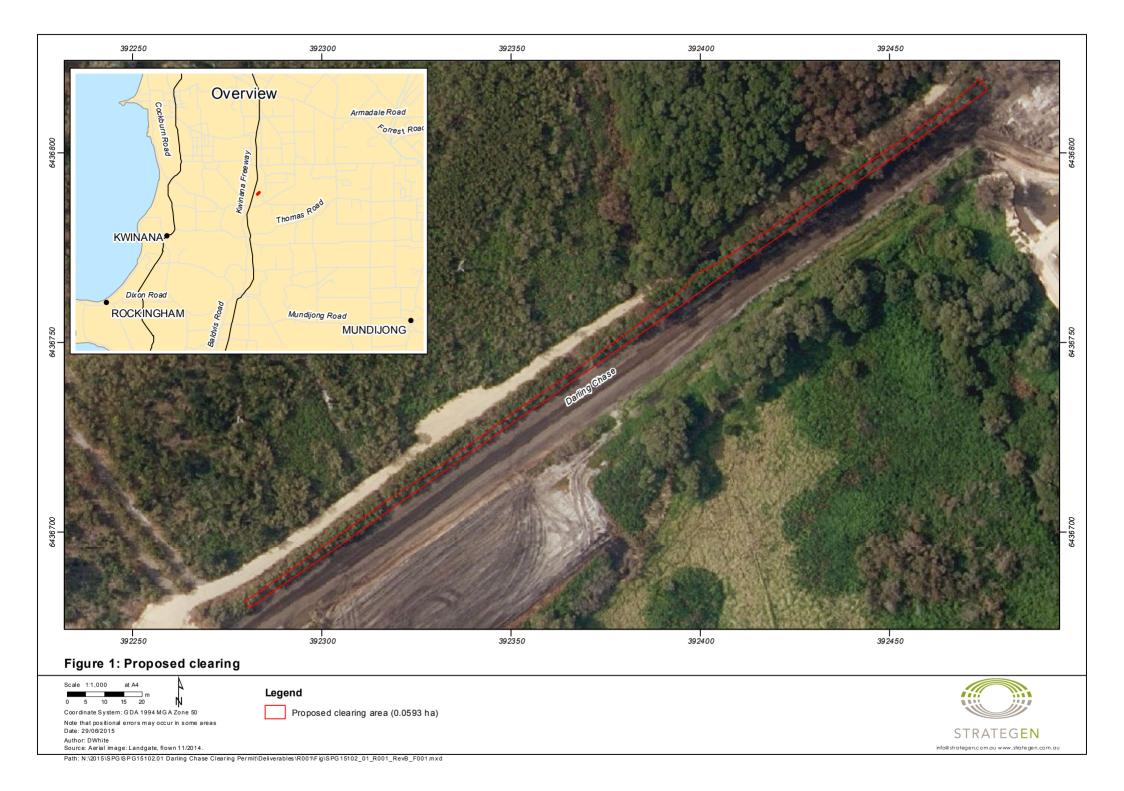
Vegetation on the northern side of Darling Chase is located within an Environmentally Sensitive Area (ESA) and is associated with a Conservation Category Wetland (CCW); as such, no exemptions are available for the removal of native vegetation to enable the installation of drainage controls along Darling Chase. However, vegetation within the Proposal Area is associated with a spoon drain and is situated within City of Kwinana (CoK) road reserve.

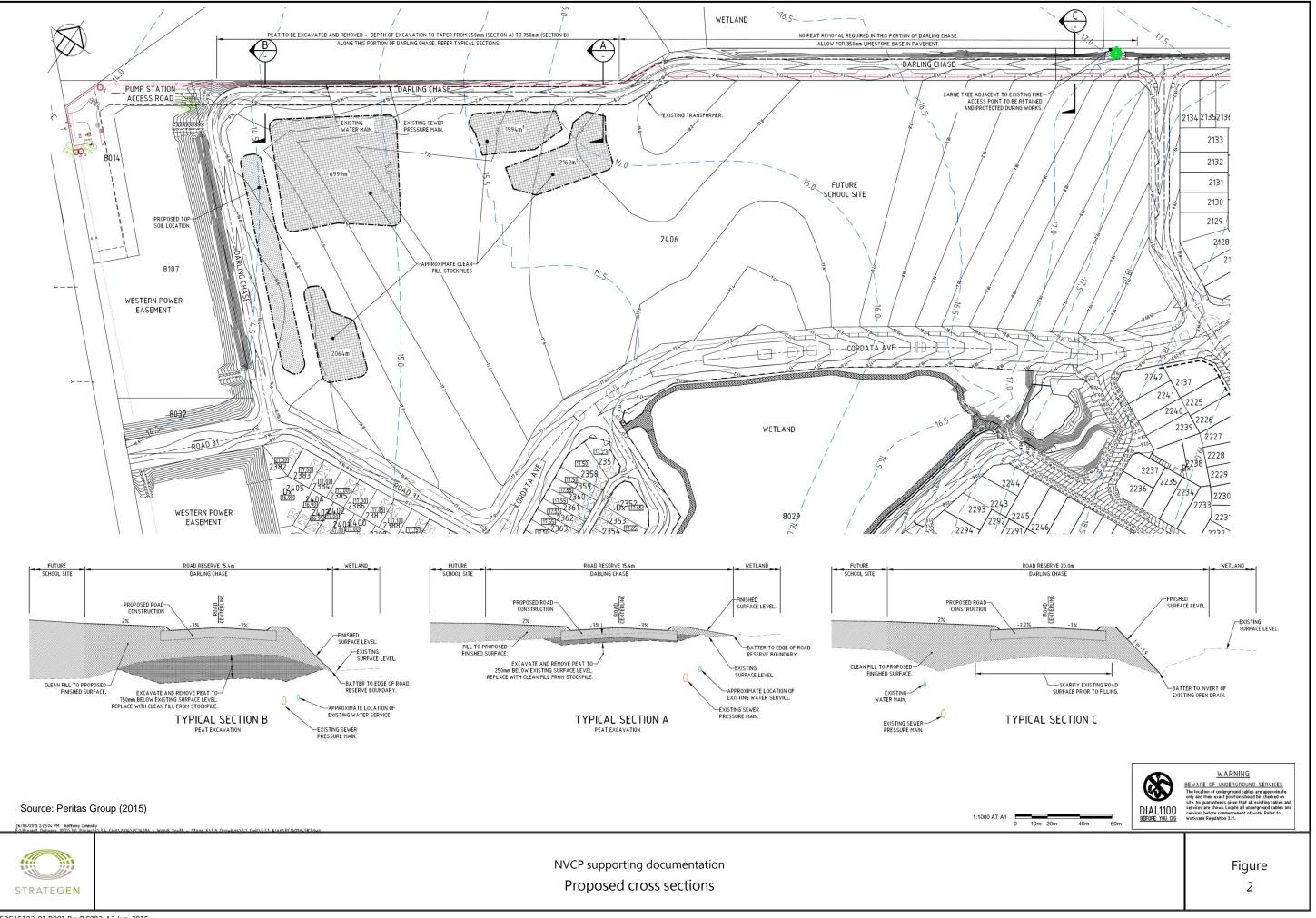
For the purposes of this NVCP application, the 'clearing area' refers the area of clearing where 0.0593 ha of native vegetation will be cleared.

1.3 Ownership of land

Land within which clearing is proposed is all within the road reserve of gazetted road – Darling Chase, management of which is vested to CoK.







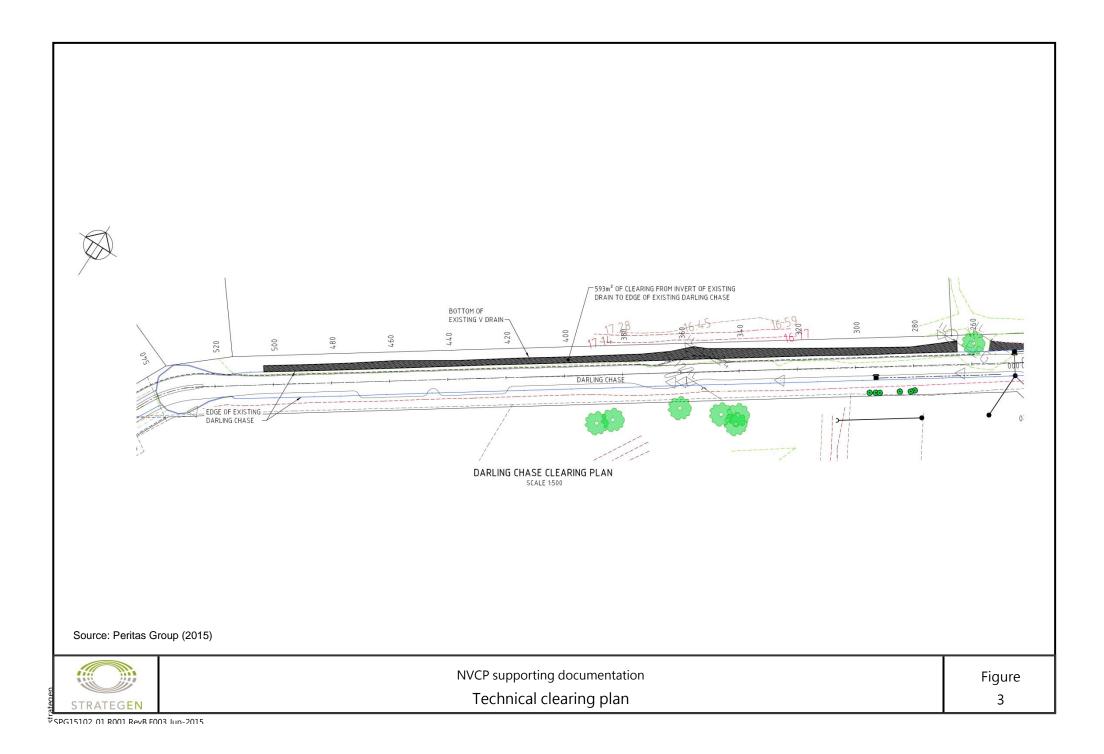
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2. Overview of existing environment

2.1 Vegetation

A vegetation survey was conducted by RPS within the broader Wandi/Mandogalup proposed urban development area, bounded by Rowley Road and Darling Chase, north of Anketell Road and adjacent to Kwinana Freeway, in March 2007 (RPS 2007). The proposed clearing area is located within the vegetation type defined as *Eucalyptus rudis* Woodland to Open Woodland over *Kunzea glabrescens* Closed to Open Tall Scrub, with *Melaleuca teretifolia, Pteridium esculentum, Pennisetum clandestinum* and *Cortaderia selloana* and with *Baumea articulata* and other native sedges (ErWKg) (*Pennisetum clandestinum* and *Cortaderia selloana* are introduced species). This vegetation type was considered to be in Good – Completely Degraded condition (RPS 2007, Keighery 1994).

The proposed clearing area is mapped as occurring within a CCW identified as UFI 12980 in the Geomorphic Wetland Database established by the former Department of Environment and Conservation. RPS (2007) noted that all CCWs within the area surveyed were degraded as a result of previous land use, reflected in the Multiple Use management category assigned to the majority of the wetland system. The boundary of CCW 12980 has been amended following approval (by CoK in consultation with the former Department of Environment and Conservation [DEC], now the Department of Environment Regulation [DER]) of wetland management plans prepared for the Honeywood Estate, the mapping on the Geomorphic Wetland Database established by the former DEC does not yet reflect this amendment.

Further, the installation of a regional drainage network has affected natural patterns of fluctuation within these wetlands, which has also affected the original vegetation composition (RPS 2007). UFI 12980 has been heavily disturbed by fencing, roads, firebreaks and weed invasion (RPS 2007).

It is noted that RPS (2007) did not place a quadrat in the ErWKg vegetation type within the proposed clearing area or the area of the CCW immediately to its north; as such, neither the proposed clearing area or the area of wetland immediately adjacent, were ground-truthed in the RPS (2007) survey. Strategen (2014) subsequently undertook a site visit to specifically assess vegetation within the immediately adjacent wetland.

Strategen undertook an inspection on 14 April 2015 to confirm flora and vegetation values (of the proposed clearing area). Vegetation within the proposed clearing area was observed to be comprised of *Eucalyptus rudis, Melaleuca preissiana* and *Kunzea glabrescens* over *Hypocalymma angustifolium* and *Acacia saligna* over introduced grasses and herbs including *Cortaderia selloana* (Plate 1), while the CCW adjacent to the proposed clearing area actually contained *Melaleuca preissiana* over *Pteridium esculentum,* rather than the ErWKg vegetation type described by RPS (2007). Vegetation of the proposed clearing area is in Good condition (Keighery 1994).





Plate 1: Proposed clearing area (*Eucalyptus rudis, Melaleuca preissiana* over *Kunzea glabrescens* and *Cortaderia selloana*)

2.2 Flora

A Naturemap search of a 3 km radius of the proposed clearing area was undertaken to determine the likelihood of any Threatened or Priority Flora species occurring therein (DPaW 2015).

Observations of an adjacent clearing area (Strategen 2014) indicated that remnant native species were largely restricted to overstorey species (trees and tall shrubs of *Eucalyptus rudis, Kunzea glabrescens* and *Acacia saligna*) while the understorey was heavily degraded with invasive weed species, indicating species sensitive to disturbance, such as orchids, were unlikely to be present. Only occasional individual native plants of low shrub and herb species were observed in the understorey, including *Hypocalymma angustifolium, Schoenus curvifolius* and *Pteridium esculentum* (Strategen 2014). No Threatened Flora species were observed during the site visit undertaken on 14 April 2015.

No Threatened Flora were recorded by RPS (2007) in a survey of the overall Wandi South residential development area, although one Priority 3 species (*Cyathochaeta teretifolia*) was recorded in the northwest of the proposal area in open forest of *Eucalyptus rudis* in Excellent condition (RPS 2007).

The likelihood of each Threatened/Priority Flora species occurring within the proposed clearing area is summarised in Table 1.



Species	Conservation status	Habitat requirements/known threats	Likelihood of occurrence in proposed clearing area
<i>Caladenia huegelii</i> (Grand Spider Orchid)	Т	Known habitat is jarrah-banksia woodland over dense understorey. Unlikely to be present in heavily degraded areas where supporting mycorrhizae are unlikely to be present (DEC 2009a).	Unlikely due to unsuitable vegetation type and level of degradation of understorey.
Cyathochaeta teretifolia	Ρ3	Known habitat is on grey sand and sandy clay in swamps and at creek edges (DPaW 2014). This species was recorded in one location, in vegetation type ErOF to the northwest of the proposal area; however, vegetation in this area was considered to be in Excellent condition (RPS 2007) while the proposed clearing area was in notably poorer condition due to the level of disturbance by road infrastructure and invasive weeds (Strategen 2014, RPS 2007).	
Diuris micrantha	Т	Known habitat for this species occurs within clay-loam substrates in winter-wet depressions or swamps (DPaW 2015). While this habitat type occurs adjacent to the proposed clearing area within the CCW (UFI 12980); it does not extend to the proposed clearing area.	Unlikely due to unsuitable vegetation type.
<i>Dodonaea hackettiana</i> (Hackett's Hopbush)	P4	Known habitat for this species occurs in sand containing limestone outcrops (DPaW 2015). This habitat type does not occur within the proposed clearing area and the species was not observed during the site inspection undertaken on 14 April 2015.	Does not occur – not observed during site inspection.
<i>Drakaea elastica</i> (Glossy-leaved Hammer Orchid)	Т	Known habitat is on bare areas of grey- white sand within dense vegetation in low- lying areas alongside winter-wet swamps and flats, typically in banksia woodland or thickets of <i>Kunzea glabrescens</i> (DEC 2009b). Not recorded in survey of broader residential development area during <i>D.</i> <i>elastica</i> flowering season (RPS 2007).	Unlikely as known populations do not coincide with the proposed clearing area, and native understorey is heavily degraded with very few native species.
<i>Pithocarpa corymbulosa</i> (Corymbose Pithocarpa)	P3	Known habitat is on gravelly or sandy loam, amongst granite outcrops (DPaW 2014). Not recorded in spring survey of broader residential development area (RPS 2007). Known distribution does not coincide with broader Wandi South residential development area (RPS 2007).	Unlikely as known populations do not coincide with the proposed clearing area, and native understorey is heavily degraded with very few native species.
Stylidium paludicola	P3	Known habitat is peaty sand over clay, winter wet habitats, marri and <i>Melaleuca</i> woodland/shrubland (DPaW 2014). Not recorded in spring survey of broader residential development area (RPS 2007). Known distribution does not coincide with broader Wandi South residential development area (RPS 2007).	Unlikely as known populations do not coincide with the proposed clearing area, and native understorey is heavily degraded with very few native species.

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Table 1: Likelihood of Threatened	i ana i nonty i lora spo	solos occurring in pre	posed oleaning area

T - Threatened, P - Priority

One *Eucalyptus rudis* tree with a diameter at breast height (DBH) greater than 500 mm is located within the proposed clearing area (Plate 2). While this tree does not have any nesting hollows at present, it meets the criteria for potentially significant trees for Threatened species of black cockatoos as identified in *EPBC Act referral guidelines for three threatened black cockatoo species* (DSEWPaC 2012).

This tree will be retained as part of this clearing permit application.





Plate 2: Eucalyptus rudis

2.3 Fauna

A Naturemap search of a 3 km radius of the proposed clearing area was undertaken to determine Threatened and Priority Fauna species known to occur in the broader area (DPaW 2015). The likelihood of these species occurring within the proposed clearing area is presented in Table 2.

Species	Conservation status	Habitat requirements/known threats	Likelihood of occurrence in proposed clearing area
Eastern Great Egret (<i>Ardea modesta</i>)	IA	Known habitat covers a wide range of wetland habitats throughout Australia (DotE 2015). While this habitat type occurs adjacent to the proposed clearing area within the CCW (UFI 12980); it does not extend to the proposed clearing area.	Unlikely due to absence of preferred habitat.
Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii subsp. naso)	т	Known habitat includes dense jarrah, marri and karri forests of southwest WA, though the species can be found foraging in the eastern portion of the Swan Coastal Plain (DotE 2014a).	Unlikely as current known distribution does not coincide with the proposed clearing area.
Carnaby's Black Cockatoo (<i>Calyptorhynchus</i> latirostris)	т	Known habitat includes remnant eucalypt woodlands, and shrubland or kwongan heathland dominated by proteaceous species. The species is also known from the Perth metropolitan area and in remnant patches of native vegetation on land cleared for agriculture (DotE 2014b). Known to utilise <i>Acacia saligna</i> as a foraging plant and <i>Eucalyptus rudis</i> as roosting habitat (DEC 2011).	Possible due to the presence of known foraging (<i>Acacia saligna</i>) and roosting (E. rudis) habitat species in the proposed clearing area.

Table 2: Likelihood of Threatened and Priority Fauna species occurring in proposed clearing area



Species	Conservation status	Habitat requirements/known threats	Likelihood of occurrence in proposed clearing area
Chuditch, Western Quoll (<i>Dasyurus</i> <i>geoffroii</i>)	т	Current habitat largely restricted to the southwest forests. The distribution of the species is limited by land clearing and predation by feral cats and foxes (DotE 2014c).	Unlikely as current known distribution does not coincide with the proposed clearing area, and highly modified landscape within the proposed clearing area.
Quenda, Southern Brown Bandicoot (<i>Isoodon</i> <i>obesulus</i> subsp. <i>fusciventer</i>)	Ρ5	Broad habitat requirements ranging from dense scrubby vegetation and forests, to cropland/pastures containing or adjacent to dense native vegetation. Quenda are often associated with wetlands on the Swan Coastal Plain (DEC 2012).	Possible due to broad habitat requirements and the species' adaptability to modified landscapes.
Perth Slider, Lined Skink (<i>Lerista lineata</i>)	P3	Known habitat includes heathlands and shrublands on pale sands (Western Wildlife 2007). Considered likely to occur in areas of upland vegetation within the overall Wandi South residential development area (Western Wildlife 2007).	Unlikely due to absence of preferred habitat, though the species may inhabit nearby areas of upland vegetation.
Rainbow Bee- eater (<i>Merops ornatus</i>)	IA	Known habitat is within sandy, disturbed areas throughout Australia (DotE 2015). Majority of the proposed clearing area is vegetated and thus does not represent suitable habitat for the species.	Unlikely due to absence of preferred habitat.
Graceful Sun- moth (<i>Synemon</i> <i>gratiosa</i>)	P4	Host plants are <i>Lomandra maritima</i> in coastal heathland and <i>L. hermaphrodita</i> in banksia woodland (TSSC 2013). A targeted survey was conducted of the entire Wandi South residential development area to determine whether host plants were present (RPS 2009).	Unlikely due to absence of host plants and preferred vegetation type in proposed clearing area. No <i>L. hermaphrodita</i> was recorded in the southern section of the development area (RPS 2009).

 $T-Threatened, \ P-Priority, \ IA-Protected \ under \ international \ agreement$



3. Assessment against the ten clearing principles

An assessment of the proposed clearing against the ten clearing principles outlined in Schedule 5 of the EP Act is provided in Table 3. This assessment demonstrates that the proposed removal of 0.0593 ha of native vegetation is not at variance with the any of the clearing principles. And on this basis, Satterley anticipates that the proposed clearing of 0.0593 ha of native vegetation can occur.

Prin	ciple	Assessment	Implications if cleared
(a)	Native vegetation should not be cleared if it comprises a high level of biological diversity.	Vegetation in UFI 12980, including the proposed clearing area, is highly disturbed by roads, fencing, drainage and invasive weeds (RPS 2007) and does not constitute a site with a high level of biological diversity. The understorey of the proposed clearing area consisted largely of introduced grass species such as <i>Cortaderia selloana, Avena</i> <i>barbata, Briza maxima</i> and <i>Conyza</i> <i>bonariensis</i> with occasional individuals of native species.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle as it will not result in the removal of vegetation comprising a high level of biological diversity.
(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.	Vegetation in UFI 12980 is highly disturbed by roads, fencing, drainage and invasive weeds (RPS 2007) and is situated in a CoK road reserve alongside an existing sealed road. The proposed clearing area contains approximately 15 <i>Eucalyptus rudis</i> trees, which are suitable as roosting species for Carnaby's Black Cockatoo. No suitable nesting tree species were present (Strategen 2014). One species suitable for foraging by Carnaby's Black Cockatoo (<i>Acacia saligna</i>) was present (Strategen 2014).	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle. Although the proposed clearing area contains known habitat species for Carnaby's Black Cockatoo, removal of vegetation will result in the loss of a negligible amount of foraging and potential roosting habitat. Additionally, clearing will not result in further habitat fragmentation due to the location of the proposed clearing area between an existing road and vegetation of the CCW, which is to be retained as part of Satterley development occurring to the north of Darling Chase.
(c)	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	No Threatened Flora species are known from the proposed clearing area (RPS 2007). The understorey within the proposed clearing area is highly degraded, consisting largely of introduced grass species such as <i>Cortaderia selloana, Avena barbata, Briza</i> <i>maxima</i> and <i>Conyza bonariensis</i> , with only occasional individuals of native species observed (Strategen 2014).	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle, as it is unlikely that any Threatened or Priority Flora species are present. As such, removal of vegetation will not result in the removal of individuals or habitat of these species.
(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.	No Threatened or Priority Ecological Communities are known from within the proposed clearing area (RPS 2007, DPaW 2013a, DPaW 2013b).	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle as it will not directly impact, or affect the function of, any Threatened or Priority Ecological Community.

Table 3: Assessment against the ten clearing principles



Prin	Principle Assessment Implications if cleared				
(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.	A total of 0.0593 ha of vegetation is proposed to be cleared within an area that has been disturbed for the construction of a spoon drain.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle as it will not result in the removal of a significant remnant of vegetation. Rather, the proposed clearing area represents a small amount of heavily disturbed vegetation adjacent to a larger area of remnant vegetation that is to be retained in perpetuity.		
(f)	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	The site inspection undertaken by Strategen on 14 April 2015 indicated that the proposed clearing area comprised a vegetation type different to that of the adjacent CCW; as such, the vegetation to be cleared is not part of the core CCW. Further, the vegetation to be cleared has been disturbed for the construction of a spoon drain and is adjacent to an existing sealed road. As such, the proposed clearing will not result in any additional fragmentation of remnant vegetation.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle as the proposed clearing will result in the loss of a negligible amount of roadside vegetation. While the vegetation is adjacent to a CCW, the vegetation of the proposed clearing area is of a different vegetation type to that of the core wetland and has already been separated from the CCW by the construction of an historical spoon drain and associated road infrastructure.		
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The proposed clearing will affect a small amount of vegetation, has previously been disturbed for the construction of a spoon drain, and is alongside existing road infrastructure.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle, as the small amount of vegetation to be cleared is unlikely to cause any appreciable land degradation.		
(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.	The proposed clearing will affect a small amount of vegetation in an area that is already highly modified. The proposed land use (fire protection buffer) is benign and will not result in any further degradation of the adjacent CCW.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle, as the small amount of proposed clearing, and its position directly adjacent to an existing sealed road, is unlikely to cause any appreciable additional impact on the environmental values of the adjacent CCW.		
(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.	The amount of vegetation proposed to be cleared is minimal. Additionally, the proposed land use subsequent to clearing is as a bushfire protection buffer and thus relatively benign.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle, as the proposed clearing of native vegetation will affect a relatively small area and is for a benign land use. Furthermore, the proposed clearing is unlikely to have any additional impact on the quality of surface water or groundwater.		
(j)	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	The proposed clearing will affect a small amount of vegetation, has previously been disturbed for the construction of a spoon drain, and is alongside existing infrastructure.	Removal of vegetation within the proposed clearing area is not considered to be at variance with this principle, as the area to be cleared is negligible, and is not expected to cause or exacerbate flooding in the area.		



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