



1. Application details

1.1. Permit application details

Permit application No.: 1943/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Western Power

1.3. Property details

Property: ROAD RESERVE (SOUTHERN RIVER 6110)
 LOT 100 ON PLAN 42005 (SOUTHERN RIVER 6110)
 LOT 1768 ON PLAN 3315 (Lot No. 1768 FURLEY SOUTHERN RIVER 6110)
 LOT 21 ON DIAGRAM 41667 (Lot No. 21 FURLEY SOUTHERN RIVER 6110)
 LOT 1769 ON PLAN 3315 (Lot No. 1769 FURLEY SOUTHERN RIVER 6110)
 LOT 1770 ON PLAN 3315 (Lot No. 1770 SOUTHERN RIVER SOUTHERN RIVER 6110)
 LOT 69 ON PLAN 226007 (FORRESTDALE 6112)
 LOT 67 ON PLAN 226007 (FORRESTDALE 6112)

Local Government Area: City Of Armadale & City Of Gosnells
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.2		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
One Beard (1980) vegetation association is represented within the area under application. This is type 1001 - medium very sparse woodland; Jarrah (<i>Eucalyptus marginata</i>), with low woodland; <i>Banksia</i> and <i>Casuarina</i> (<i>Allocasuarina</i>).	Vegetation comprising predominantly trees and shrubs over degraded understorey comprising mainly introduced pasture plants. Vegetation within the area under application not consistent with the Beard vegetation association mapped for this area, however consistent with Southern River Vegetation Complex.	Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	A brief site inspection undertaken on 23 July 2007 determined that the vegetation within the area under application is in predominantly degraded condition, comprising mainly trees and shrubs over an understorey dominated by introduced paddock plants, on grey sandy soil (consistent with Guildford soil complex).
Hedde at al (1980) describes the vegetation represented within the area under application as Southern River Complex.			Native species identified during the site inspection include (but are not limited to) <i>Adenanthos cygnorum</i> (Woollybush), <i>Kunzea ericifolia</i> (Spearwood), <i>Eucalyptus todtiana</i> (Coastal Blackbutt / Pricklybark), <i>Melaleuca raphiophylla</i> (Paperbark), <i>Melaleuca teretifolia</i> (Banbar) and <i>Acacia</i> (?) <i>saligna</i> (Wattle).
			Within the area under application that section of road reserve along Southern River Road has essentially been cleared for hard-shoulder construction, and the sections along Ranford Road and Skeet Road are heavily infested with introduced plants. The adjacent land contains intact bushland, although along the edges within the area under application this vegetation shows impact of 'edge effect' with weed invasion and clearing for firebreaks.

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 proposed clearing involves the removal of up to 0.2 hectares of native vegetation being mainly large trees and shrubs along approximately 2.3 kilometres of road reserves and the edges of 7 adjacent properties (some comprising Bush Forever sites 413 and 342) to facilitate the construction of a double circuit 132kV transmission line.

The vegetation associations represented within the area under application (being Beard (1980) type 1001, Hedde et al (1980) type Southern River Complex) have less than 30% of their original extent remaining, with less than 10% in secure tenure. However within the local area (10 kilometre radius) there is approximately 30% vegetation cover (as determined from 2004 aerial photography) contained within large contiguous vegetated areas around Jandakot Airport, within Jandakot Regional Park, and within several Bush Forever sites.

A site inspection undertaken on 23 July 2007 by DEC staff determined that the vegetation within the area under application has a lower floristic diversity than adjacent intact bushland, and is in predominantly degraded condition (Keighery 1994), comprising mainly of trees and shrubs over a cleared understorey or an understorey dominated by introduced paddock plants. While some terrestrial and avian fauna may utilise this vegetation for movement through the area, about 80% of the area under application is adjacent Bush Forever sites 413 and 342 which contain vegetation in good or better condition with high floristic diversity.

Given the above, the vegetation within the area under application is not considered to be representative of an area of outstanding biodiversity in the bioregion, nor is it considered to have a higher ecosystem diversity than other native vegetation within the local area (10 kilometre radius). Thus the proposed clearing of 0.2 hectares of predominantly degraded vegetation is unlikely to be at variance to this principle.

Methodology Beard 1980
Hedde et al 1980
DAFWA 2006 (veg stats)
DEC site visit 23 July 2007
GIS dataset
- Pre-European Vegetation DA 2001
- Interim Biogeographic Regionalisation of Australia 2000
- Swan Coastal Plain Central 20cm Orthomosaic - DLI06 (image)

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

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

The proposed clearing involves the removal of trees and shrubs along approximately 2.3 kilometres of road reserve and edges of adjacent land to facilitate the installation of a transmission line.

There are approximately 55 records of threatened and priority fauna within a 10 kilometre radius of the area under application, about a third of these being for threatened species. The Quenda (*Isodon obesulus fusciventer*, priority 5) has been recorded approximately 240 metres northwest of the area under application. The Western Brush Wallaby (*Macropus irma*, priority 5) has been recorded approximately 2370 metres northwest of the area under application. Although no formal recorded occurrences have been made, Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*, endangered) is known to forage in the general area. There may be other threatened or priority species that are known to occur within similar vegetation but which have not been recorded from within a 10 kilometre radius of the area under application, however their possibility cannot be discounted.

Non-threatened but locally-significant and other indigenous fauna are likely to use the vegetation in the area under application as habitat. The presence of Common Woollybush (*Adenanthos cygnorum*) within the area under application may provide habitat for the unusual Blue-banded Bee (*Amegilla* sp.). However given the degraded condition (Keighery 1994) of the vegetation within the area under application, and the presence of large adjacent expanses of better-quality vegetation, it is unlikely that these fauna would depend on the vegetation within the area under application as their primary habitat.

No large hollow-bearing trees were noted during the site inspection on 23 July 2007. One mature specimen of *Eucalyptus tottiana* was noted on within the road reserve of Skeet Road, in close proximity to dense shrubs. It is likely that this tree provides nesting habitat for avian fauna, however the tree is adjacent to a large area of remnant vegetation on private property (also a Bush Forever site) and if this tree is required to be removed to facilitate the installation of a transmission line it is unlikely to have a significant detrimental impact on the survival of local fauna populations.

Given that the 0.2 hectares of vegetation within the area under application is in predominantly degraded condition (Keighery 1994, and confirmed during a site inspection on 23 July 2007), and given the presence of better-quality vegetation adjacent to about 80% of the area under application, it is considered that the proposed clearing is not likely to have a significant impact on connectivity between areas of vegetation, and is not considered to comprise significant habitat for indigenous fauna, thus this proposal is unlikely to be at variance to this principle.

Methodology DEC site visit 23 July 2007
GIS dataset
- Swan Coastal Plain Central 20cm Orthomosaic - DLI06 (image)
SAC Bio dataset
- Fauna July 2007

(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

Over 140 records of rare and priority flora occur within a 10 kilometre radius of the area under application, approximately half of which are considered to be rare.

The nearest record of rare flora is for *Caladenia huegelii* (Grand Spider Orchid), which occurs approximately 850 metres west of the area under application within Bush Forever site 413. This species grows in grey or brown sand or clay loam soil, similar to that found within the area under application. Given the proximity of the record to the area under application, there is a possibility that this species occurs within or immediately adjacent the area under application. However, given the predominantly degraded condition (Keighery 1994) of the vegetation within the area under application the likelihood of its occurrence is not significant.

There are eight priority species recorded within 2 kilometres of the area under application, the nearest being *Rhodanthe pyrethrum* (priority 3) approximately 940 metres southeast of the area under application. Other priority species within close proximity to the area under application are *Tripterococcus paniculatus* (priority 1), *Jacksonia sericea* (priority 4), *Byblis gigantea* (priority 2), *Stylidium longitubum* (priority 3), *Villarsia submersa* (priority 4), *Verticordia lindleyi* subsp. *lindleyi* (priority 4). Most of these species are associated with sandy soils and winter-wet areas, similar to that found within the area under application. However, given the predominantly degraded condition (Keighery 1994) of the vegetation within the area under application the likelihood of their occurrence is not significant.

A site inspection undertaken by DEC staff on 23 July 2007 found that the vegetation within the 2.3 kilometres of road reserve and edges of adjacent land comprising the area under application is in predominantly degraded condition (Keighery 1994). The section of road reserve along Southern River Road has previously been cleared as a hard shoulder, and the sections along Ranford Road and Skeet Road have an understorey dominated by introduced paddock plants. The edges of adjacent land are demonstrating "edge effect" with invasion by introduced plants and clearing for firebreaks. The site visit was unable to determine if there was a native herbaceous ground cover or natural recruitment of native species along Ranford Road and Skeet Road due to the density of the introduced plants.

One mature specimen of *Eucalyptus tottiana* (Prickly-bark, Coastal Blackbutt) was noted on Skeet Road during the visit. The suburbs south of Perth represent the southern range extension of this species, and are the transitional zone between this species and Jarrah (*Eucalyptus marginata*). Large areas of contiguous bushland present adjacent to the area under application are likely to contain specimens of this species. Thus if this individual tree is required to be removed to facilitate the installation of a transmission line it is unlikely to have a significant detrimental impact on the survival of the local population.

It is unlikely that the area under application would provide suitable habitat for rare or priority flora, however it cannot be discounted. For this reason, the proposed clearing may be at variance to this principle.

Conditions have been imposed on the clearing permit to avoid and minimise impact wherever possible, and to undertake weed control and revegetation if necessary to mitigate any loss of vegetation during the construction of the transmission line. A flora survey has not been imposed due to the small scale (0.2 hectares) of the clearing and the disturbed nature of the area under application. The road reserves are in degraded condition (Keighery 1994), and it is expected that damage to vegetation along edges of adjacent land as a result of "one-off" disturbance during construction will recover naturally provided that weeds are managed.

Methodology DEC site visit 23 July 2007
GIS dataset
- Soils Statewide DAWA 1999
SAC Bio dataset
- DeFI June 2007
- WAHerb June 2007
FloraBase

(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

Two threatened ecological communities (TECs) occur within a 10 kilometre radius of the area under application. These are:

- *Muchea Limestone* (passmore01), described as "shrublands and woodlands on *Muchea Limestone*", located approximately 850 metres southeast of the area under application within Bush Forever site 465; and
- SCP10a (anstey01-06), described as "shrublands on dry clay flats", located approximately 950 metres south of the area under application within Bush Forever site 342.

Given that the TECs occur within intact bushland and several hundred metres from the area under application, and given that the proposed clearing of 0.2 hectares is to occur within predominantly degraded vegetation along the edges of developed linear transport corridors, it is unlikely that there will be any impact on these TECs.

Thus the proposed clearing is unlikely to be at variance to this principle.

Methodology SAC Bio dataset
- TEC July 2007

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

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

One Beard (1980) vegetation association is represented within the area under application. This is type 1001 - medium very sparse woodland; Jarrah (*Eucalyptus marginata*), with low woodland; Banksia and Casuarina (*Allocasuarina*). Heddle et al (1980) describe the vegetation represented within the area under application to be Southern River Complex. The area under application occurs within the Swan Coastal Plain (Perth) IBRA region.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	Conservation status **	Pre-European % in reserve/DEC
IBRA Bioregions: *					
- Swan Coastal Plain (Perth)	1 525 639	571 758	37.4	Depleted	
		(Determined by summing current extent of all veg associations.)			
City of Armadale #	Figures not available				
City of Gosnells #	Figures not available				
Beard vegetation assoc: *					
- type 1001	57 412	15 241	26.5	Vulnerable	4.5
Heddle vegetation assoc:					
- Southern River	57 979	11 501	19.8	Vulnerable	1.5

(Note that a spreadsheet titled Table 4: Remnant Vegetation of the Swan Coastal Plain Bioregion within the System 6 and System 1 (DEP 2002) indicates that 8% of the remaining vegetation within this type is within secure tenure.)

statistics from Shepherd et al 2001 (Technical Report 249)

* statistics from DAFWA 2006 (Shepherd et al)

** Department of Natural Resources and Environment 2002

Given the extent, condition and tenure of native vegetation in the local context (particularly in the immediate vicinity of the area under application), it is unlikely that the removal of 0.2 hectares of vegetation in predominantly degraded condition (Keighery 1994) will have a significant impact on the extent of the vegetation associations affected. For this reason, this proposal is not likely to be at variance to this principle.

Methodology Beard 1980
Heddle et al 1980
DEP 2002 (spreadsheet)
DAWA TR249 2001
DAFWA 2006
Department of Natural Resources and Environment 2002
GIS dataset
- Pre-European Vegetation DA 2001

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments Proposal is at variance to this Principle

The presence of *Melaleuca raphiophylla* and certain other species within the area under application (determined on a site inspection undertaken by DEC staff on 23 July 2007) indicates the presence of vegetation associated with a watercourse or wetland.

An area within the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (and an area within the non-approved draft Environmental Protection (Swan Coastal Plain Wetlands) Policy 2004) occurs approximately 70 metres west of the area under application, within Balannup Nature Reserve. A watercourse feeding this lake occurs approximately 100 metres northwest of the area under application.

About two-thirds of the area under application is subject to inundation. Just over half of the area under application is within an area identified within the draft EPP for wetlands (not approved). Approximately half of the area under application occurs within an area classified as a sumpland, and another quarter occurs within an area classified as a dampland.

Given the presence of vegetation associated with watercourse and wetlands, and given the classification of the area as sumpland and dampland, the proposed clearing is associated with vegetation growing in, or in association with, an environment with a watercourse or wetland, therefore this proposal is at variance to this principle.

The area under application is situated along the edges of a developed linear transport corridors, and the vegetation within the area under application is of low floristic diversity (trees and shrubs over understorey dominated by introduced paddock plants) and in predominantly degraded condition (Keighery 1994). While the proposed clearing is at variance to this principle, it is unlikely that the removal of scattered Melaleucas within a total proposed clearing of 0.2 hectares over 2.3 kilometres will have significant long-term impacts on the condition or survival of adjacent wetland vegetation.

Methodology DEC site visit 23 July 2007
GIS dataset:
- ANCA, Wetlands - CALM 08/01
- EPP, Wetlands 2004 (draft) - DOE 21/7/04
- EPP, Lakes - DEP 1/12/92
- Hydrography, linear - DOE 1/2/04
- Geomorphic Wetlands (classification), Swan Coastal Plain - DEC

(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 Department of Agriculture and Food Western Australia (DAFWA) have not undertaken a comprehensive assessment of the land degradation risks associated with the proposed clearing.

The soil within the area under application is type Cb38, characterised by sandy dunes with intervening sandy and clayey swamp flats (DAWA 2001). This is consistent with the Southern River Aeolian over alluvial soil complex which has been mapped for the area (Atlas of Natural Resources 1980). Bare sandy soils are likely to have a medium to high potential for wind erosion (Schoknecht 2002).

Approximately half of the section of the area under application along Skeet Road has been mapped as having a high to moderate risk of acid sulphate soils, and the remainder of the area under application has been mapped as having a moderate to low risk of acid sulphate soils. It is noted that this dataset is for broadscale planning and not necessarily accurate at a property scale. From the DEC website: "Acid sulphate soils are naturally occurring soils and sediments containing sulphide minerals, predominantly pyrite (an iron sulphide). In an undisturbed state below the watertable, these soils are benign and not acidic. However if the soils are drained, excavated or exposed by lowering of the water table, the sulphides will react with oxygen to form sulphuric acid." Disturbance to the soil through clearing and subsequent installation of transmission lines may result in acid sulphate soils and thereby cause appreciable land degradation. Advice sought from DOW indicates that large scale operations such as sand mining are likely to have a significant impact on soil acidity and water quality where an area has sulphides within the soil. Thus even with a high to moderate risk of acid sulphate soils, it can be determined that the impact from the drilling of holes at intervals for the construction of a transmission line is expected to be minimal in the long-term.

In the short-term the clearing may have an impact on localised flooding and soil erosion during works. Previous transmission line construction has occurred on the opposite road reserves to the area under application without apparent long-term issues regarding land degradation. Given that the proposed clearing is to occur along the edges of existing transport corridors, it is not expected that the removal of 0.2 hectares of native vegetation in degraded condition (Keighery 1994) over a 2.3 kilometre extent will result in appreciable land degradation in terms of erosion, salinisation or waterlogging.

Given that the proposed clearing is to facilitate the drilling of holes to depth at intervals, it is determined that this proposal is not likely to be at variance to this principle.

However the potential for the construction of the transmission line to result in the oxidising of sulphides in the soil to create acid sulphate soils, or exacerbating an existing issue in the local area with respect to acid sulphate soils, cannot be discounted.

Conditions imposed on the clearing permit requiring weed control and revegetation if necessary to mitigate any loss of vegetation within Bush Forever sites 413 and 342 should address any potential land degradation issues with respect to increased surface runoff or erosion.

The potential for creating acid sulphate soils can be minimised by ensuring that only minimal soil at depth required to be removed for the installation of the transmission line supporting poles is disturbed, and ensuring that any water abstraction from these soils at depth is not permitted to enter adjacent bushland.

Methodology Atlas of Natural Resources 1980
DAWA 2001

Schoknecht 2002
DOW advice (pers comm) 30/07/07
GIS dataset
- Salinity Mapping LM (25m) DOLA 2000
- Salinity Risk LM (25m) DOLA 2000
- Topographic Contours Statewide DOLA 2002
- Acid Sulfate Soil Risk Swan Coastal Plain Map - DEC

(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 may be at variance to this Principle

There are several Bush Forever sites within a 10 kilometre radius of the area under application. The closest are Bush Forever sites 413 and 342, the edges of which will be impacted by the proposed clearing. A large portion of Bush Forever site 342 is comprised within Jandakot Regional Park.

There are 6 DEC-managed reserves within a 10 kilometre radius of the area under application. Of these, three are within 3.1 kilometres of the area under application.

Balannup Lake Nature Reserve, which is also part of Bush Forever site 413, an area within the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (and an area within the non-approved draft Environmental Protection (Swan Coastal Plain Wetlands) Policy 2004), and part of Jandakot Regional Park, is located approximately 40 metres northwest of the area under application.

Piara Nature Reserve, which is also Bush Forever site 262, an area within the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (and an area within the non-approved draft Environmental Protection (Swan Coastal Plain Wetlands) Policy 2004), and part of Jandakot Regional Park, is located approximately 2.5 kilometres southwest of the area under application. Given the distance from the area under application, and the presence of vegetated Regional Park cleared rural land and current extensive urban development in between, it is unlikely that the clearing of 0.2 hectares of native vegetation alongside an existing road will impact on this reserve.

Forrestdale Lake Nature Reserve, which is also a Ramsar wetland, part of Bush Forever site 346, an area within the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (and an area within the non-approved draft Environmental Protection (Swan Coastal Plain Wetlands) Policy 2004), and a System 6 conservation reserve, is located approximately 3.1 kilometres southwest of the area under application. Given the distance from the area under application, and the presence of vegetated Regional Park and cleared rural land in between, it is unlikely that the clearing of 0.2 hectares of native vegetation alongside an existing road will impact on this reserve.

Pickering Brook National Park is located approximately 9.3 kilometres northeast of the area under application. It is unlikely that there will be any impact on this conservation area from the proposed clearing.

The predominantly degraded condition (Keighery 1994) of the vegetation within the area under application indicates that it does not appear to contribute significantly to the environmental values of a conservation area, although it does have value as a buffer between the transport corridors and adjacent Regional Park / Bush Forever sites.

The area proposed to be cleared includes the edges of Bush Forever sites 413 and 342. For this reason, this proposal may be at variance to this principle.

The potential for the construction of the transmission line to result in the oxidising of sulphides in the soil to create acid sulphate soils, or exacerbating an existing issue in the local area with respect to acid sulphate soils, and the potential for acid sulphate soils impacting on adjacent Bush Forever sites and nearby Balannup Nature Reserve cannot be discounted.

Methodology GIS database
- CALM Managed Lands and Waters CALM 2005
- Register of National Estate EA 2003
- Clearing Regulations - Environmentally Sensitive Areas DOE 2005
- CALM Regional Parks - CALM 12/04/02
- ANCA, Wetlands - CALM 08/01
- EPP, Wetlands 2004 (draft) - DOE 21/7/04
- EPP, Lakes - DEP 1/12/92

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

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

The area under application is located primarily on road reserves and will impact on the edges of adjacent land,

and the proposal will involve the clearing of predominantly degraded vegetation (Keighery 1994) to enable the construction of a transmission line.

Approximately half of the section of the area under application along Skeet Road has been mapped as having a high to moderate risk of acid sulphate soils, and the remainder of the area under application has been mapped as having a moderate to low risk of acid sulphate soils. It is noted that this dataset is for broadscale planning and not necessarily accurate at a property scale. From the DEC website: "Acid sulphate soils are naturally occurring soils and sediments containing sulphide minerals, predominantly pyrite (an iron sulphide). In an undisturbed state below the watertable, these soils are benign and not acidic. However if the soils are drained, excavated or exposed by lowering of the water table, the sulphides will react with oxygen to form sulphuric acid." Disturbance to the soil through clearing and subsequent installation of transmission lines may result in acid sulphate soils and thereby cause appreciable land degradation. Advice sought from DOW indicates that large scale operations such as sand mining are likely to have a significant impact on soil acidity and water quality where an area has sulphides within the soil. Thus even with a high to moderate risk of acid sulphate soils, it can be determined that the impact from the drilling of holes at intervals for the construction of a transmission line is expected to be minimal in the long-term.

In the short-term the clearing may have an impact on localised flooding and soil erosion during works. Previous transmission line construction has occurred on the opposite road reserves to the area under application without apparent long-term issues regarding water quality. Given that the proposed clearing is to occur along the edges of existing transport corridors, it is not expected that the removal of 0.2 hectares of native vegetation in degraded condition (Keighery 1994) over a 2.3 kilometre extent will result in deterioration of surface or underground water quality in terms of sedimentation, eutrophication, erosion, salinity or turbidity.

Given that the proposed clearing is to facilitate the drilling of holes to depth at intervals, it is determined that this proposal is not likely to be at variance to this principle.

However the potential for the construction of the transmission line to result in the oxidising of sulphides in the soil to create acid sulphate soils, or exacerbating an existing issue in the local area with respect to acid sulphate soils, which would result in lowering of water pH cannot be discounted.

Conditions imposed on the clearing permit requiring weed control and revegetation if necessary to mitigate any loss of vegetation within Bush Forever sites 413 and 342 should address any potential land degradation issues with respect to increased surface runoff or erosion.

The potential for creating acid sulphate soils can be minimised by ensuring that only minimal soil at depth required to be removed for the installation of the transmission line supporting poles is disturbed, and ensuring that any water abstraction from these soils at depth is not permitted to enter adjacent bushland.

Methodology DOW advice 30/07/07
GIS dataset
- Salinity Mapping LM (25m) DOLA 2000
- Salinity Risk LM (25m) DOLA 2000
- Acid Sulfate Soil Risk Swan Coastal Plain Map - DEC
- RIWI Act, Groundwater Areas - DOW
- RIWI Act, Surface Water Areas - DOW

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

Comments **Proposal is not likely to be at variance to this Principle**
The area under application is subject to moderate rainfall (approximately 850 - 900mm/annum) and approximately matching evaporation rate (approximately 800mm/annum).

It is unlikely that the proposed clearing of 0.2 hectares of vegetation in predominantly degraded condition (Keighery 1994) in a linear fashion and parallel and adjacent to an existing road surface will be likely to lead to an incremental increase in peak flood height or duration. This proposal is not likely to be at variance to this principle.

Methodology GIS dataset
- Evapotranspiration Area Actual BOM 2001
- Mean Annual Rainfall Isohyets BOM 2001
- Topographic Contours Statewide DOLA 2002

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

Comments
The majority of the applied area is contained within existing road reserves that are vested in the Cities of Armadale and Gosnells. Under the Metropolitan Regional Scheme, the area under application is within an area considered to be "Rural" and adjacent to an area of "Parks and Recreation". Extensive housing developments

are in progress to the west of the area under application.

The area under application is located approximately 1.1 kilometres west of an Aboriginal site of significance. There are no known native title claims affecting the area under application. The Department of Environment and Conservation's advertising of the application in the West Australian newspaper constitutes legal notification of the native title representative body for the purpose of the future act procedures under the Native Title Act 1993. No response was received from the representative body.

- Methodology** GIS dataset
- Metropolitan Regional Scheme - DPI 07/10/05
 - NLWRA, Landuse - DA 10/01/01
 - Aboriginal Sites of Significance DIA
 - Native Title Act

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Building or Structure	Mechanical Removal	0.2	Construction of a 132kV Transmission Line

5. References

AGPS (2001) The national objective and targets for biodiversity conservation 2001-2005. Commonwealth of Australia, Canberra.

DEC site inspection 23 July 2007

DEP (2002) Remnant vegetation of the Swan Coastal Plain Bioregion within the System 6 and System 1. Department of Environmental Protection, Perth.

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Department of Water (30/07/07) provided verbal advice to the assessor in relation to causes and effects of acid sulphate soils.

Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.

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, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

McArthur, W.M. and Bettenay, E. (1974). Development and Distribution of Soils of Swan Coastal Plain. CSIRO, Melbourne.

Powell, R. (1991). Leaf and Branch, p14. Department of Conservation and Land Management, Perth.

Schoknecht N. (2002) Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Resource Management Technical Report 246. Edition 3

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.

The Atlas of Natural Resources: Darling System, W.A. (1980), Dept. of Conservation and Environment.

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)