



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 4786/1
File Number: 2011/011689-1
Duration of Permit: From 13 July 2012 to 13 July 2021

PERMIT HOLDER

Golden River Developments Pty Ltd on behalf of the Western Australian Turf Club

LAND ON WHICH CLEARING IS TO BE DONE

Lot 102 on Deposited Plan 72026, Burswood 6100
Lot 9000 on Deposited Plan 72026, Burswood 6100

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 1.98 hectares of native vegetation within the area hatched yellow on attached Plan 4786/1.

CONDITIONS

1. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 13 July 2014

2. Weed control

- (a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
 - (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
 - (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.
- (b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

3. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (a) Within 36 months following clearing authorised under this permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit by:
- (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land;
 - (ii) ripping the ground on the contour to remove soil compaction;
 - (iii) deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area; and
 - (iv) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.

- (b) Within 18 months of *planting* and/or *direct seeding* native vegetation on the area(s) that are no longer required for the purpose for which they were cleared in accordance with condition 3(a) of this Permit:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 3(b)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
- (c) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 3(b)(ii) of this permit, the Permit Holder shall repeat condition 3(b)(i) and 3(b)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (d) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 3(b)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 3(b)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 3(b)(ii).

4. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 3 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*, and
 - (v) a copy of the environmental specialist's report.

5. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 3 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 13 April 2021, the Permit Holder must provide to the CEO a written report of records required under condition 4 of this Permit where these records have not already been provided under condition 5(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fill means material used to increase the ground level, or fill a hollow;

local provenance means native vegetation seeds and propagating material from natural sources within 10 kilometres of the area cleared;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing mulch;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.



Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

21 June 2012

Plan 4786/1



LEGEND

- Clearing Instruments
- Areas Approved to Clear
- Road Centrolines
- Cadastral for labelling
- Local Government Authorities
- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011

* Project Data is denoted by asterisk.
This data has not been quality assured.
Please contact map author for details.



0 250.0m

Scale 1:8541
(Approximate when reproduced at A4)

Geocentric Datum Australia 1984

Note: All data in this map have not been
checked. They may result in geometric
distortions or measurement inaccuracies.

[Signature] Date 21/8/12

K Faulkner
Office with delegated authority under Section 20 of
the Environmental Protection Act 1986

Information derived from this map should be
confirmed with the data custodian acknowledged
by the agency acronyms in the legend.



Department of
Environment and Conservation
Our environment. our future
WA Coor: 08 9494 2822



1. Application details

1.1. Permit application details

Permit application No.: 4786/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Golden River Developments on behalf of the Western Australian Turf Club

1.3. Property details

Property: LOT 102 ON PLAN 72026 (Lot No. 102 GOODWOOD BURSWOOD 6100)
LOT 9000 ON PLAN 72026 (House No. 1 GRAHAM FARMER BURSWOOD 6100)
Local Government Area: Town of Victoria Park
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.98		Mechanical Removal	Stockpile / Bulk earthworks

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 21 June 2012

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
Mapped Beard vegetation association 1009 is described as Medium woodland; marri & river gum (Shepherd 2009).	The application proposes to clear up to 1.98 hectares of native vegetation within Lot 102 and Lot 9000 on Deposited Plan 72026, Burswood for the purpose of sand fill for residential development. The vegetation ranges from a 'completely degraded' to 'very good' (Keighery 1994) condition.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	The condition of the vegetation was determined through a site visit conducted 19 January 2012 (DEC 2012) and aerial imagery (Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011).
Hedde vegetation complex - SWAN COMPLEX : Fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca raphiophylla (Swamp Paperbark) with localised occurrence of low open forest of Casuarina obesa (Swamp Sheoak) and Melaleuca cuticularis (Saltwater Paperbark) (Hedde et al 1980).	The native vegetation within the applied area consists predominantly of Juncus Kraussii sp., Eucalyptus rudis and Casuarina obesa with the wetland areas consisting of Sarcocornia quinquevenria and Tecticornia indica (DEC 2012).	To Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	

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 original application proposed to clear up to 2.17 hectares of native vegetation within Lot 102 and Lot 9000 on Deposited Plan 72026, Burswood, for the purpose of sand fill for residential development. The application is part of the Belmont Park Racecourse Redevelopment for future residential, commercial and mixed use development.

In response to the Department of Environment and Conservation's (DEC) letter dated 6 March 2012, the application area has been reduced to 1.98 hectares and modified to remove the majority of vegetation considered to be in 'very good' (Keighery, 1994) condition (Emerge Associates 2012b). The removal of this vegetation and additional information as provided by the applicant's consultants, Emerge Associates (2012b) has led to a reassessment of the application area.

Within the local area (10km radius) 34 fauna species of conservation significance have been recorded. The closest records are the Black Striped Snake (Neelaps calonotos) (Priority 3 under the Wildlife Conservation Act 1950), and Carnaby's cockatoo (Calyptorhynchus latirostris) (Endangered, Wildlife Conservation Act 1950; Endangered, Environment Protection and Biodiversity Conservation Act 1999), which were both recorded within 1km from the application area (DEC 2007-).

It is noted that the majority of the area under application is in a 'degraded to completely degraded' (Keighery, 1994) condition and the fauna habitat is very limited. There is approximately 0.016 hectare of 'very good' (Keighery 1994) condition wetland vegetation and approximately 0.316 hectares of 'good' (Keighery 1994) condition wetland vegetation within the application area (Emerge Associates 2012b). The riparian vegetation present around the river foreshore is in a condition more likely to be utilised by fauna species and facilitate fauna movement between habitats.

The application area is within the buffer of the Swan - Canning River, which is mapped as Conservation Category wetland (CCW)(Estuary-Waterbody) and environmentally sensitive area and it is also on the Directory of Important Wetlands in Australia. Only 20 per cent of wetlands on the swan coastal plain are assigned a conservation category.

Although the application is within the buffer to a CCW, as the application area consists of vegetation in predominately 'degraded to completely degraded' (Keighery, 1994) condition and is surrounded by riparian vegetation in similar or better condition, the proposed clearing is not likely to be at variance to this Principle. The revegetation of temporary cleared areas of vegetation in 'very good' to 'good' (Keighery, 1994) condition will assist in mitigating environmental harm.

Methodology

References:

DEC (2007-)
Emerge Associates (2012b)
Environment of Australia (2001)
Keighery (1994)

GIS Databases:

- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011
- Pre-European vegetation

(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

In response to the Department of Environment and Conservation's letter dated 6 March 2012, the application area has been reduced to 1.98 hectares and modified to remove the majority of vegetation considered to be in 'very good' (Keighery, 1994) condition (Emerge Associates 2012b). The removal of this vegetation and additional information as provided by the applicant's consultants Emerge Associates (2012b) has led to a reassessment of the application area.

The native vegetation within the applied area consists predominantly of *Juncus Kraussii* sp., *Eucalyptus rudis* and *Casuarina obesa* with the wetland areas consisting of *Sarcocornia quinquevenia* and *Tecticornia indica* (DEC 2012).

Within the local area (10km radius) 34 fauna species of conservation significance have been recorded (DEC 2007-). The closest records are the Black Striped Snake (*Neelaps calonotos*) (Priority 3 under the Wildlife Conservation Act 1950), and the Carnaby's cockatoo (*Calyptorhynchus latirostris*) (Endangered, Wildlife Conservation Act 1950; Endangered, Environment Protection and Biodiversity Conservation Act 1999), which were both recorded within 1km from the application area (DEC 2007-). The application area does not contain suitable habitat for either of these species.

During a site inspection a fauna handler was onsite relocating native animals to other reserves in the local area. The handler mentioned that he had caught numerous tiger snakes and native rats in the application area and moved them off site (DEC 2012).

It is noted that the majority of the area under application is in a 'degraded to completely degraded' (Keighery, 1994) condition and the fauna habitat is very limited. There is approximately 0.016 hectare of 'very good' (Keighery 1994) condition wetland vegetation and approximately 0.316 hectares of 'good' (Keighery 1994) condition wetland vegetation within the application area (Emerge Associates 2012b). The riparian vegetation present around the river foreshore is in a condition more likely to be utilised by fauna species and facilitate fauna movement between habitats.

The 0.33 hectares of riparian vegetation under application in 'very good' and 'good' (Keighery, 1994) condition is representative of remaining riparian vegetation along the foreshore and therefore not considered significant habitat.

As the application area consists of vegetation in predominately 'degraded to completely degraded' (Keighery, 1994) condition and is surrounded by riparian vegetation in similar or better condition, the proposed clearing is not likely to be at variance to this Principle. The revegetation of temporary cleared areas of vegetation in 'very good' to 'good' (Keighery, 1994) condition will assist in mitigating environmental harm.

Methodology

References:

DEC (2007-)
DEC (2012)

Emerge Associates (2012b)
Keighery (1994)

GIS Databases:
- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011
- Pre-European vegetation

(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**
Eight species of declared rare flora have been recorded within the local area (10km radius).

Emerge Associates (2012a) advised that the site has a history of clearing and imported fill material and therefore, the vegetation is unlikely to contain suitable habitat to support flora species of conservation significance.

The proposed clearing is not likely to be variance to this principle.

Methodology References:
Emerge Associates (2012a)
GIS Databases:
- Pre-European vegetation
- SAC Biodatasets - accessed January 2012

(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 three known records of threatened ecological communities (TEC) within the local area (10 km radius), with the closest being 9km from the application area. All three TEC's are recorded on different soil and vegetation types than the application area. Therefore the proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases
- SAC Biodatasets - accessed January 2012

(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 has been identified as Beard vegetation association 1009 of which there is approximately 16 per cent (2, 914 hectares) of it pre-European extent remaining within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (Shepherd 2009).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). Both of the mapped vegetation complexes associated within the area under application are below the State Governments target of 30 per cent. However, the EPA (2006) recognises the Perth Metropolitan Region as a constrained area, providing for the reduction of vegetation complexes to a minimum of 10 per cent of the pre-European extent.

The application area is also mapped as Heddle Vegetation Complex's - Swan Complex, of which 13.4 per cent (2,209 hectares) of its pre-European extent remains. This is above the 10 per cent threshold within a constrained area. However the local area (10km radius) is extensively cleared and has approximately 5-10 per cent of native vegetation remaining with 0.8 per cent (14.7 hectares) vegetation remaining in the Town of Victoria Park. Therefore, the vegetation under application is considered to be within an extensively cleared area.

The majority of the vegetation within the application area is in a 'completely degraded' to 'degraded' (Keighery 1994) condition and is not significant as a remnant. Approximately 0.33 hectares of the vegetation under application is in 'good' to 'very good' (Keighery, 1994) condition, containing of riparian vegetation.

Given the extent of vegetation remaining on the local government scale in the regional landscape this vegetation contributes to the significance of the surrounding remnant riparian vegetation on the Swan River. Therefore the 0.33 hectares in 'good' to 'very good' (Keighery, 1994) condition is considered to be a significant remnant of native vegetation. Areas of vegetation in 'good' to 'very good' (Keighery, 1994) condition proposed to be cleared temporarily will be revegetated. Weed control measures will also limit impacts of clearing on surrounding vegetation.

Given the above, the clearing as proposed is at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,209	587,889	39.1	33.3
Shire*				
Town of Victoria Park	1 783	14.7	0.8	0
Beard Vegetation Association in Bioregion*				
1009	18 184	2 914	16	1.8
Hedde Vegetation Complex **				
Swan Complex	16 490	2 209	13.4	0.17

* Shepherd 2009

** Shepherd 2007

Methodology

References:

Commonwealth of Australia (2001)

EPA (2006)

Keighery (1994)

Shepherd (2007)

Shepherd (2009)

GIS Database:

- Hedde Vegetation Complexes

- Local Government Authorities

- Pre European Vegetation

- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011

- SAC Biodatasets - accessed January 2012

(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 application area is within the buffer of the Swan - Canning River, which is mapped as Conservation Category wetland (CCW)(Estuary-Waterbody) an environmentally sensitive area and it is also on the Directory of Important Wetlands in Australia. Only 20 per cent of wetlands on the swan coastal plain are assigned a conservation category.

There is approximately 0.016 hectares of 'very good' (Keighery 1994) condition wetland vegetation and approximately 0.316 hectares of 'good' (Keighery 1994) condition wetland vegetation within the application area (Emerge Associates, 2012b). The vegetation in these areas consisted of *Juncus kraussii* sp. with *Suaeda australis*, *Tecticornia indica* and *Sarcocornia quinqueflora* (DEC, 2012).

Given the application area consists of wetland dependant vegetation, the proposed clearing is at variance to this Principle. Revegetation of temporarily cleared areas will minimise impacts to riparian vegetation.

Methodology

References:

DEC (2012)

Emerge Associates (2012b)

Keighery (1994)

GIS Database:

- Geomorphic Wetlands (Mt Categories), Swan Coastal Plain

- Hydrogeology, Linear

(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 mapped soil type for the application area is described as River terraces: chief soils are neutral red earths and neutral yellow earths on the higher terrace (Northcote et al 1960-98).

Given the application area is within the buffer of the Swan-Canning River and there is roughly 0.33 hectares of wetland vegetation, the removal of this riparian vegetation is likely to cause land degradation issues. Specifically, the removal of wetland vegetation will increase the risk of nitrification and sedimentation of the Swan River, as the filtration mechanism of the vegetation will be highly impacted.

Riparian vegetation along the Swan River plays an important role in stabilising the river banks; the removal of this vegetation is likely to cause appreciable land degradation through bank morphological changes causing soil erosion and sedimentation. The removal of this riparian vegetation will disrupt the surface soils, allowing soil to erode into the river causing sedimentation. It will also impact the natural surface flows and drainage patterns, impacting the natural hydrological regime.

Given the above, the application is at variance with principle (g).

Emerge Associates (2012a) has advised that wind-break fencing, battering of the fill edges and jute matting will be employed to ensure the fill material is appropriately secured. Drainage will also be managed to prevent surface water runoff straight into the Swan River. Water will be captured, re-directed and detained onsite to slow water flow and allow sediment to settle before it flows into the Swan River.

Emerge Associates (2012b) further advise that an environment management plan has been produced and risk management strategies will be implemented to reduce impacts to the Swan River and the condition of the soil.

Methodology References:
Northcote et al 1960-68
Emerge Associates (2011)
GIS database:
- Hydrography, linear
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain

(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

The application area is adjacent to the Swan-Canning River which is a conservation reserve vested with the Swan River trust and it is also an environmentally sensitive area. The vegetation under application is connected to this reserve and the removal of riparian vegetation surrounding the Swan River is likely to impact on the environmental values of this area.

There are also two DEC conservation areas in the local area (10 kilometre radius), reserves R49363 and R47244 which are located 9km away from the application area which are also on the register of national estate. Bush Forever 314 is located on the opposite side of the river and there are also multiple other Bush forever sites within the local area.

Given the above, the proposed clearing may be at variance to this Principle. Weed control measures will minimise impacts on the adjacent conservation reserve.

Methodology GIS Databases:
- DEC Tenure
- Register of National Estate
- Cadastre
- Environmentally Sensitive Areas

(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 application area is within the buffer of the Swan River, an environmentally sensitive area, which is on the Directory of Important Wetlands in Australia. This directory describes wetlands that have qualified as nationally important against criteria for inclusion (Environment Australia 2001).

A site visit (DEC 2012) determined there is 'very good' and 'good' (Keighery 1994) condition wetland vegetation within the application area. The vegetation in these areas consisted of *Juncus kraussii* sp. with *Suaeda australis*, *Tecticornia indica* and *Sarcocornia quinqueflora*. The removal of riparian vegetation surrounding the Swan River is likely to cause sedimentation, soil erosion and water logging. It is also likely to cause eutrophication in the Swan river as the vegetation will no longer be present to absorb the nutrients, and as a result the excess nutrients will leech into the waterway.

The application is located 25m from a Conservation Category wetland (CCW), categorised as an Estuary-Waterbody for the Swan River. CCWs support a high level of ecological attributes and functions and are the highest priority wetlands. The management objective for CCWs is to preserve and enhance the existing conservation values of the wetlands through various mechanisms. No development or clearing is considered appropriate. These are the most valuable wetlands and any activity that may lead to further loss or degradation is inappropriate (EPA 2008).

The riparian vegetation within the application area may also play a valuable role in maintaining the wetlands hydrological status, and other benefits. Wetlands that are to be conserved require a buffer to protect them from

potential adverse impacts and, maintain ecological processes and functions within the wetland. The width of the buffer should be determined based on the values of the wetland to be protected and the threats posed by the adjacent land use.

There were drainage works observed during the site visit (DEC 2012). The site is currently drained through a series of open and piped drains that flow straight in the Swan River. Altering the landform and removing riparian vegetation will impact surface flows and drainage patterns, which also potentially impacts the existing hydrology regime. Altering the hydrological regime can impact wetland values by:

- Reducing the vegetation condition
- Reducing biodiversity
- Impacting fauna habitat
- Disrupting fauna life cycles (e.g. birds, frogs and invertebrates)
- Modifying soil chemical processes (e.g. acid sulphate soils).

Clearing of riparian vegetation may also reduce environmental values of the Swan River through erosion, edge effects and weed invasion. Therefore, it is considered the proposed clearing is at variance to this Principle.

Emerge Associates (2012a) has advised drainage will be managed to prevent surface water runoff straight into the Swan River. EmERGE Associates (2012b) further advise that a flood level assessment was undertaken by Golder Associates on behalf of the applicant, which found that there is unlikely to be any significant impacts on adjacent or upstream flood levels or flow. A construction environment management plan has been produced and risk management strategies will be implemented to reduce impacts to the Swan River and the condition of the soil (Emerge Associates 2012b).

Methodology References:
DEC (2012)
EPA (2008)
Emerge Associates (2012a)
Emerge Associates (2012b)
Environment Australia (2001)
Keighery (1994)
GIS Database:
- Groundwater Salinity Statewide
- Hydrography, linear

(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

In response to the Department of Environment and Conservation's letter dated 6 March 2012, the application area has been reduced to 1.98 hectares and modified to remove the majority of vegetation considered to be in 'very good' (Keighery, 1994) condition (Emerge Associates 2012b). The removal of this vegetation and additional information as provided by the applicant's consultants EmERGE Associates (2012b) has led to a reassessment of the application area.

As the application area is adjacent to Swan River estuary and the application involves clearing of roughly 0.33 hectares of vegetation growing in association with a wetland. The 0.016 hectares of 'very good' (Keighery) condition wetland is a low lying area which is regularly inundated with water. Therefore the clearing of this riparian vegetation may exacerbate the intensity of flooding.

Emerge Associates (2012a) advised that as part of the compression process, some fill material will be placed within the 1-100 year ARI Floodway limit. The Department of Water requires that an analysis is undertaken to quantify the effects of placing fill within the floodway limit. EmERGE Associates (2012b) further advise that a flood level assessment was undertaken by Golder Associates on behalf of the applicant and found that there is unlikely to be any significant impacts on adjacent or upstream flood levels or flow.

Given the above information, the proposed clearing is unlikely to be at variance to this principle.

Methodology References
Emerge Associates (2012a)
Emerge Associates (2012b)
GIS Database:
- Hydrography linear

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

Comments

The original application proposed to clear up to 2.17 hectares of native vegetation within Lot 102 and Lot 9000 on Deposited Plan 72026, Burswood for the purpose of sand fill for residential development. In response to the Department of Environment and Conservation's letter dated 6 March 2012, the application area has been reduced to 1.98 hectares and modified to remove the majority of vegetation considered to be in 'very

been reduced to 1.98 hectares and modified to remove the majority of vegetation considered to be in 'very good' (Keighery, 1994) condition (Emerge 2012b). The removal of this vegetation and additional information as provided by the applicant's consultants Emmerge (2012b) has led to a reassessment of the application area. The following Clearing Principle variances have been modified to reflect this change:

- * Principle (a) was at variance, now not likely to be at variance. The applicant has removed all but 0.016 hectares of native vegetation in 'very good' (Keighery, 1994) condition. The vegetation in 'good' (Keighery, 1994) condition will be predominately revegetated.
- * Principle (b) was at variance, now not likely to be at variance. The riparian vegetation under application in 'good' (Keighery, 1994) condition is representative of the remaining riparian vegetation along the foreshore not under application, and not considered significant.
- * Principle (j) was at variance, now not likely to be at variance. A flood level assessment was undertaken by Golder Associates on behalf of the applicant and found that there is unlikely to be any significant impacts on adjacent or upstream flood levels or flow.

The application is part of the Belmont Park Racecourse Redevelopment which is a proposal for future residential, commercial and mixed use development. A Local Structure Plan (LSP) has been prepared and submitted to the Town of Victoria Park. As part of the LSP a Foreshore Landscape Master Plan has been prepared which outlines Golden River developments future vision and management objectives for the Foreshore reserve. The Master Plan includes revegetation and restoration works along the river edge (Emerge Associates 2012a).

Approval to Commence Development has been granted by both the Western Australian Planning Commission (WAPC, 2012) and the City of Victoria Park (2012).

The area under application falls within the groundwater 'Perth' area covered by the Rights in Water and Irrigation Act 1914.

There are two known Aboriginal Sites of Significance within the application area.

Given the purpose of the application is for sand fill and the close proximity to the Swan-canning River, there is some risk of nutrification and sedimentation of surface water from contaminated soils and there is also a potential for wind erosion given the fill will remain for more than a year. The application area has been filled with various fill material previously including river spoil, fly ash and uncontrolled fill and therefore the site is already highly degraded and there is a possibility of potential contamination.

Emerge Associates (2012a) has advised that to prevent dust and sediment movement the fill material will be treated with double strength hydro-mulch. In addition wind-break fencing, battering of the fill edges and jute matting will be employed to ensure the fill material is appropriately secured. Water will be captured, re-directed and detained onsite to slow water flow and allow sediment settlement to occur before it flows into the Swan River. Emmerge Associates (2012b) further advise that a construction environment management plan has been produced and risk management strategies will be put in place.

Public Submissions

Two public submissions were received. The environmental impact issues raised have been addressed in the assessment against clearing principles and in the information above.

One submission raises the concern that the proposal will significantly impact on the riparian ecology of the Swan River.

- * The submission outlines the clearing of an environmentally sensitive area adjacent to the Swan River will impact on indigenous fauna as the native vegetation provides habitat for breeding, feeding and refuge for native birds, reptiles, mammals, amphibians and invertebrates;
- * The submission outlines that the riparian vegetation is a significant corridor, especially for native bird species and has special natural and cultural values;
- * The submission states that the application area is a source of potential contamination and the existing vegetation may help in holding the contaminated deposits in place;
- * The submission is of the view that the fringing native vegetation is a significant remnant in an extensively cleared area;
- * The application area consists of vegetation growing in association of a significant watercourse; and
- * The application will impact indirectly on Bush Forever site 314.

The other submission supports the clearing application and is gratified by the partnership between the applicants and the Aboriginal community. They support the Foreshore plan developed by Golden River Developments (GRD) and advised the foreshore reserve will feature examples of Noongar heritage and artworks. The aboriginal community has also been involved in heritage monitoring and will ensure that earthworks and clearing will recognize heritage conditions are preserved.

Methodology

References

Emerge Associates (2012a)
Emerge Associates (2012b)
Town of Victoria Park (2012)
WAPC (2012)

GIS Databases:

- RIWI Act, Groundwater Areas -

- Town Planning Scheme Zones
- Aboriginal Sites of Significance

4. References

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- Submission (2012b). Public submission received 29 January 2012. DEC Ref: A469503
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- Swan River Trust (2012) Belmont Park Racecourse Redevelopment - clearing Permit. DEC ref: A477905
- Town of Victoria Park (2012) Approval to Commence Development, DA No: 12/0001. DEC ref: A514361
- WAPC (2012) Approval to Commence Development. Western Australian Planning Commission. DEC ref: A514323

5. Glossary

Term	Meaning
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DRF	Declared Rare Flora
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community