



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7091/1
Permit Holder:	City of Bunbury
Duration of Permit:	From 27 August 2016 to 27 August 2021

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

- 1. Purpose for which clearing may be done**
Clearing for the purpose of mosquito runnels maintenance.
- 2. Land on which clearing is to be done**
Lot 460 on Deposited Plan 209864, Bunbury
Unallocated Crown land (PIN 494458), Bunbury
- 3. Area of Clearing**
The Permit Holder must not clear more than 0.182 hectares of native vegetation within the areas cross hatched yellow on attached Plan 7091/1.
- 4. Application**
This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.
- 5. Type of clearing authorised**
This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II – MANAGEMENT CONDITIONS

- 6. Flora Management**
The Permit Holder shall ensure that no clearing of the priority flora *Puccinellia vassica* (P1) occurs, unless first approved by the CEO.


Emma Bramwell
A/ MANAGER
CLEARING REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

28 July 2016

Plan 7091/1



Legend

-  Areas approved to clear
-  LGA
-  Cadastre



1:1,200

MGA 94
Geocentric Datum of Australia 1994


Emma Bramwell

Date: 28/07/16

Officer with delegated authority under Section 20
of the Environmental Protection Act 1986

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GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 7091/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: City of Bunbury

1.3. Property details

Property: LOT 460 ON PLAN 209864, BUNBURY
UNALLOCATED CROWN LAND, BUNBURY

Colloquial name:
Local Government Authority: BUNBURY, CITY OF

DER Region: Greater Swan
DPaW District: WELLINGTON

LCDC:
Localities: BUNBURY

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.182		Mechanical Removal	Infrastructure maintenance

1.5. Decision on application

Decision on Permit: Granted

Decision Date: 28 July 2016

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing is at variance to principles (d) and (f), may be at variance to principles (a), (b) and (h) and is not likely to be at variance to the remaining principles.

The Delegated Officer determined that the proposed clearing is unlikely to have any significant environmental impacts. State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit. The Delegated Officer noted that the proposed clearing is for public benefit in the interest of human health.

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
The application area is mapped as Beard vegetation association 43 which consists of low forest; mangroves (Kimberley) or thicket; mangroves (Pilbara) (Shepherd et al., 2001); and Heddle Vegetation Vasse Complex which consists of closed scrub fringing woodland and open forest (Heddle et al., 1980).	The application is to clear 0.182 hectares of native vegetation within Lot 460 on Deposited Plan 209864 and unallocated crown land (PIN 494458), Bunbury, for the purpose of maintaining mosquito runnels.	Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	The condition of the vegetation within the application area was determined by supporting information provided by the applicant (City of Bunbury, 2016) The applicant advised the application area was cleared in 1987 during the construction of the runnels for mosquito management. Parts of the runnels have become silted over and overgrown with samphire (City of Bunbury, 2016).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposed clearing may be at variance to this Principle

The applicant proposes to clear up to 0.182 hectares of native vegetation on Lot 460 on Deposited Plan 209864 and unallocated crown land (PIN 494458), Bunbury, for the purpose of maintaining mosquito runnels. The applicant advised that the mosquito runnels were originally constructed in 1987 and have progressively silted up and become over grown with samphire vegetation (City of Bunbury, 2016). The runnels are shallow spoon shaped drains designed to enhance tidal flushing and encourage increased predation on mosquito larvae.

The application area contains a coastal saltmarsh wetland in a good (Keighery, 1994) condition, and is part of the Leschenault Inlet (estuary peripheral) which is classified as a conservation category wetland (DoW, 2016). The applicant proposes to clear 0.182 hectares of native vegetation within the mapped 75.7 hectare wetland.

The application area is located within the mapped boundary of the ecological community 'Subtropical and temperate coastal saltmarsh', which is listed as a threatened ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* and as a priority ecological community (P3) by the Department of Parks and Wildlife. The application area is also located within the mapped boundary of the priority ecological community 'Relictual white mangrove community (Leschenault Inlet)' (P1).

One priority flora species (P1) is known from a number of records in close proximity to the application area. The Department of Parks and Wildlife advised that given the low number of plants known for this species it should be considered for declared rare flora listing. The environmental impacts of the proposed clearing on this species are expected to be minimal if plants are clearly demarcated and protected from impacts (Parks and Wildlife, 2016).

The application area is mapped as a system six conservation reserve.

A total of 53 conservation significant indigenous fauna are known from the local area (10 kilometre radius). The application area is mapped as unconfirmed feeding and breeding habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*). The applicant indicated that the application area may include habitat for the Eastern Curlew (*Numenius madagascariensis*) (City of Bunbury, 2016).

Given the above, the proposed clearing may be at variance to this Principle.

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to biodiversity values:

- white mangrove (*Avicennia marina*) vegetation colonising the runnels will not be cleared;
- priority flora locations will be demarcated and excluded from the project works;
- boardwalks will be installed from the edge of the site to the runnel to minimise trampling of vegetation; and
- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols (City of Bunbury, 2016).

Noting the extent and linear shape of the proposed clearing, that the application area is part of a larger remnant in similar condition, and the applicant's proposed management measures, it is considered that the impacts on biodiversity values are unlikely to be significant.

Methodology

References:

City of Bunbury (2016)
Government of Western Australia (2015)
Parks and Wildlife (2016)

GIS databases:

- SAC Biodatasets (Accessed 10 June 2016)
- Heddl Vegetation Complexes - DEP 22/06/95
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06
- Pre European Vegetation - DA 01/01

(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

Proposed clearing may be at variance to this Principle

The application area contains a coastal saltmarsh wetland in a good (Keighery 1994) condition and is part of the Leschenault Inlet (estuary peripheral) which is classified as a conservation category wetland (DoW, 2016). The application area is located within the City of Bunbury, which retains approximately 24 per cent of its pre-European extent of native vegetation cover. The application area is mapped as a system six conservation reserve.

The application area is located within the mapped boundary of the ecological community 'Subtropical and temperate coastal saltmarsh', which is listed as a threatened ecological community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Conservation advice for this TEC states that 'the Coastal Saltmarsh ecological community is recognised as an important feeding, roosting and refuge habitat for resident and migratory shorebirds (including colonial water birds), as well as foraging habitat for insectivorous bats and terrestrial birds of prey, seed eaters and insectivorous birds', and that 'insects (terrestrial and aquatic, including nuisance mosquitoes and midges) are abundant and an important food source for other fauna' (DotE, 2013).

A total of 53 conservation significant indigenous fauna are known from the local area (10 kilometre radius). The application area is mapped as unconfirmed feeding and breeding habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*). The applicant indicated that the application area may include habitat for the Eastern Curlew (*Numenius madagascariensis*) (City of Bunbury, 2016).

On the basis of the above it is considered that the application area may comprise significant habitat for indigenous fauna, including species of conservation significance.

Given the above, the proposed clearing may be at variance to this Principle.

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to fauna habitat:

- the proposed clearing will be undertaken by hand and no machinery or vehicles will be used;
- spoil and cleared vegetation resulting from the proposed clearing will be removed;
- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols (City of Bunbury, 2016).

Noting the extent and linear shape of the proposed clearing, that the application area is part of a larger remnant in similar condition, and the applicant's proposed management measures, it is considered that the impacts on fauna habitat are unlikely to be significant.

Methodology References:
City of Bunbury (2016)
DotE (2013)
DoW (2016)

GIS databases:
- SAC Biodatasets (Accessed 10 June 2016)
- Heddl Vegetation Complexes - DEP 22/06/95
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06
- Pre European Vegetation - DA 01/01

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments Proposed clearing not likely to be at variance to this Principle

Two rare flora species have been recorded within the local area (10 kilometre radius). Both species are orchids.

The first rare flora species is known from well-drained, deep sandy soils in low mixed woodlands of candle banksia (*Banksia attenuata*), firewood banksia (*B. menziesii*), holly-leaved banksia (*Banksia illicifolia*), western sheoak (*Allocasuarina fraseriana*) and jarrah (*Eucalyptus marginata*) (DotE, 2016). Noting the vegetation and soil types within the application area, it is considered that the application area is unlikely to contain suitable habitat for this species.

The second rare flora species is known from winter wet depressions and swamps. Conservation advice for this species states that its distribution does not overlap with any EPBC Act listed threatened ecological community (TEC) (DotE, 2016). The conservation advice states that one of the key threats to this species is changes to water tables over time. Noting that the application area contains a Commonwealth-listed TEC, and the history of water table changes within the application area, it is considered that the application area is unlikely to contain suitable habitat for this species.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
DotE (2016)

GIS databases:
- SAC Biodatasets (Accessed 10 June 2016)
- Heddl Vegetation Complexes - DEP 22/06/95
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06

- Pre European Vegetation - DA 01/01
- Soils, Statewide DA 11/99

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposed clearing is at variance to this Principle

The application area is located within the mapped boundary of the ecological community 'Subtropical and temperate coastal saltmarsh', which is listed as a threatened ecological community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as a priority ecological community (P3) by the Department of Parks and Wildlife. In August 2013, this ecological community was listed as vulnerable TEC under the EPBC Act.

Conservation advice for this TEC (DotE, 2013) states 'the Coastal Saltmarsh ecological community is recognised as an important feeding, roosting and refuge habitat for resident and migratory shorebirds (including colonial water birds), as well as foraging habitat for insectivorous bats and terrestrial birds of prey, seed eaters and insectivorous birds', and that 'insects (terrestrial and aquatic, including nuisance mosquitoes and midges) are abundant and an important food source for other fauna'.

The Department of Parks and Wildlife advised that the application area is an example of this TEC, and noted the applicant's intention to construct boardwalks to access the site and to transport material to minimise impacts to the TEC from incidental trampling (Parks and Wildlife, 2016).

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

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to TECs:

- the proposed clearing will be undertaken by hand and no machinery or vehicles will be used;
- spoil and cleared vegetation resulting from the proposed clearing will be removed;
- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols; and
- a silt curtain will be placed at the mouth of the main runnel/runnel outlet to prevent silt dispersal (City of Bunbury, 2016).

Noting the extent and linear shape of the proposed clearing, that the application area is part of a larger remnant in similar condition, and the applicant's proposed management measures, it is considered that the impacts on the TEC are unlikely to be significant.

Methodology

References:

City of Bunbury (2016)
 DotE (2016)
 DoW (2016)
 Parks and Wildlife (2016)

GIS databases:

- SAC Biodatasets (Accessed 10 June 2016)
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06
- Soils, Statewide DA 11/99

(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

Proposed clearing not likely to be at variance to this Principle

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). Within constrained areas on the Swan Coastal Plain, the target for representation of the pre-clearing extent of a particular native vegetation complex is 10 per cent (EPA, 2006). The application area is zoned as 'regional open space' within the Greater Bunbury Region Scheme and is therefore considered to be located within a constrained area.

The application area is located within the City of Bunbury, which retains approximately 24 per cent of its pre-European extent of native vegetation cover (Government of Western Australia, 2015). The application area is mapped as Beard vegetation association 43, of which approximately 22 per cent pre-European extent remains within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion (Government of Western Australia, 2015). The vegetation extents applicable to the application area are greater than the recommended 10 per cent threshold for constrained areas.

Noting that the application area is part of a larger remnant (9.78 hectares) containing vegetation in similar condition as found within the application area, it is considered that the application area is not likely to be significant as a remnant locally or regionally.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,222	580,697	39	37
Local government*				
Bunbury, City of	6,219	1,472	24	1
Beard Vegetation Association in Bioregion*				
43	88	19	22	0
Heddle Vegetation Complex**				
Vasse Complex	11,196	3,580	32	14

*Government of Western Australia (2014)

** Heddle et al. (1980)

Methodology

References:

City of Bunbury (2016)
 Government of Western Australia (2015)
 Heddle et al. (1980)
 Shepherd et al. (2001)

GIS databases:

- Heddle Vegetation Complexes - DEP 22/06/95
- IBRA Bioregion boundaries
- Pre European Vegetation - DA 01/01
- Local Government Authority boundaries

(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

Proposed clearing is at variance to this Principle

The application area contains a coastal saltmarsh wetland in a good (Keighery, 1994) condition and is part of the Leschenault Inlet (estuary peripheral) which is classified as a conservation category wetland (DoW, 2016). The applicant proposes to clear 0.182 hectares of native vegetation within the 75.7 hectare mapped wetland.

The application area is located within the mapped boundary of the ecological community 'Subtropical and temperate coastal saltmarsh', which is listed as a threatened ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* and as a priority ecological community (P3) by the Department of Parks and Wildlife. The application area is also located within the mapped boundary of the priority ecological community 'Relictual white mangrove community (Leschenault Inlet)' (P1).

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

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to wetland vegetation:

- the proposed clearing will be undertaken by hand and no machinery or vehicles will be used;
- spoil and cleared vegetation resulting from the proposed clearing will be removed;
- white mangrove (*Avicennia marina*) vegetation colonising the runnels will not be cleared;
- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols; and
- a silt curtain will be placed at the mouth of the main runnel/runnel outlet to prevent silt dispersal (City of Bunbury, 2016).

Methodology

References:

City of Bunbury (2016)
 DoW (2016)
 Keighery (1994)

GIS databases:

- Hydrography, Linear - DOE 1/2/04
- ANCA Wetlands - CALM 06/95
- EPP Area - DEP 06/95
- EPP Lakes - DEP 1/12/92
- RAMSAR, Wetlands - CALM 14/02/03

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

Comments

Proposed clearing is not likely to be at variance to this Principle

The application to clear up to 0.182 hectares of native vegetation within coastal saltmarsh wetlands is limited to existing runnels which have become clogged with silt. Clearing will be done by hand and no machinery or vehicles will be brought onto the site to minimise incidental trampling and soil disturbance.

The application area is estimated to have soils of moderate to high risk of acid sulphate soils. The applicant advised that the application area has been tested for acid sulphate soils.

Noting the extent and linear shape of the application area, it is considered that the proposed clearing is unlikely to cause appreciable land degradation.

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to the risk of land degradation:

- the proposed clearing will be undertaken by hand and no machinery or vehicles will be used;
- a silt curtain will be placed at the mouth of the main runnel/runnel outlet to prevent silt dispersal;
- prior to works being carried out testing for acid sulphate soils will be conducted, and if testing indicates potential for acid sulphate soils Ag-lime will be incorporated into the soil prior to excavation; and
- the curved profile of the runnels will be maintained, the average width of the runnels will be 700 millimetres, and the depth of the runnels will be to a maximum of 300 millimetres from the ground surface within the clay layer (City of Bunbury, 2016).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:

City of Bunbury (2016)

GIS databases:

- Average Annual Rainfall Isohyets - WRC 29/09/98
- Annual Evaporation Contours (Isopleths) - WRC 29/09/98
- Hydrogeology, statewide DOW 13/07/06
- Hydrography, linear - DOW 13/7/06
- Salinity Risk LM 25m - DOLA 00
- Soils, Statewide DA 11/99
- Topographic contours statewide - DOLA and ARMY 12/09/02
- Hydrogeology, Statewide 05 Feb 2002

(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

Proposed clearing may be at variance to this Principle

The application area contains a coastal saltmarsh wetland in a good (Keighery 1994) condition and is part of the Leschenault Inlet (estuary peripheral) which is classified as a conservation category wetland (DoW, 2016). The applicant proposes to clear 0.182 hectares of native vegetation within the overall 75.7 hectare mapped wetland.

The application area is located within the mapped boundaries of the Commonwealth-listed threatened ecological community 'Subtropical and temperate coastal saltmarsh' and the priority ecological community 'Relictual white mangrove community (Leschenault Inlet)' (P1).

The application area is mapped as a system six conservation reserve, and estimated to have soils of moderate to high risk of acid sulphate soils. Exposure of acid sulphate soils by clearing of native vegetation may degrade the environmental values of these conservation areas.

On this basis it is considered that the application area contains environmental values associated with conservation areas.

Given the above, the proposed clearing may be at variance to this Principle.

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to the environmental values of conservation areas:

- the proposed clearing will be undertaken by hand and no machinery or vehicles will be used;
- spoil and cleared vegetation resulting from the proposed clearing will be removed;
- white mangrove (*Avicennia marina*) vegetation colonising the runnels will not be cleared;
- priority flora locations will be demarcated and excluded from the project works;
- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols;
- a silt curtain will be placed at the mouth of the main runnel/runnel outlet to prevent silt dispersal; and
- prior to works being carried out testing for acid sulphate soils will be conducted, and if testing indicates

potential for acid sulphate soils Ag-lime will be incorporated into the soil prior to excavation (City of Bunbury, 2016).

Methodology **References:**
City of Bunbury (2016)
DoW (2016)
Keighery (1994)

GIS databases:
- Parks and Wildlife Tenure
- Hydrography, linear - DOW 13/7/06
- System six conservation 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 **Proposed clearing is not likely to be at variance to this Principle**
The application to clear up to 0.182 hectares of native vegetation within coastal saltmarsh wetlands is limited to existing runnels which have become clogged with silt.

The applicant advised that the application area has been tested for acid sulphate soils.

Noting the extent and linear shape of the application area, it is considered that the proposed clearing is unlikely to significantly impact on underground or surface water flows or quality.

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following relevant to the risk of water quality deterioration:

- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols;
- a silt curtain will be placed at the mouth of the main runnel/runnel outlet to prevent silt dispersal;
- prior to works being carried out testing for acid sulphate soils will be conducted, and if testing indicates potential for acid sulphate soils Ag-lime will be incorporated into the soil prior to excavation; and
- the curved profile of the runnels will be maintained, the average width of the runnels will be 700 millimetres, and the depth of the runnels will be to a maximum of 300 millimetres from the ground surface within the clay layer (City of Bunbury, 2016).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology **References:**
City of Bunbury (2016)

GIS databases:
- Hydrographic Catchments - Catchments - DOE 23/03/05
- Rainfall, Mean Annual - BOM 30/09/01
- Groundwater Salinity, Statewide - 22/02/00
- Evapotranspiration Areal Actual - BOM 30/09/01

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
The application is for the purpose of maintaining mosquito runnels.

Noting the extent and linear shape of the application area, it is considered that the proposed clearing is unlikely to increase or exacerbate the incidence or intensity of flooding in the local area (10 kilometre radius).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology **GIS databases:**
- Hydrographic Catchments - Catchments - DOE 23/03/05
- Rainfall, Mean Annual - BOM 30/09/01
- Groundwater Salinity, Statewide - 22/02/00
- Evapotranspiration Areal Actual - BOM 30/09/01
- Topographic Contours, Statewide - DOLA 12/09/02

Planning instruments and other relevant matters.

Comments

The application is for the purpose of maintaining mosquito runnels. The Department of Health advised that an abundance of mosquitoes in close proximity to human habitat can lead to an increase of mosquito born virus (DoH, 2016)

The application outlines a number of management measures aimed at minimising the impacts of the proposed clearing, including the following:

- the proposed clearing will be undertaken by hand and no machinery or vehicles will be used;
- spoil and cleared vegetation resulting from the proposed clearing will be removed;
- white mangrove (*Avicennia marina*) vegetation colonising the runnels will not be cleared;
- priority flora locations will be demarcated and excluded from the project works;
- contractors will be required to adhere to the applicant's dieback hygiene and weed management protocols;
- a silt curtain will be placed at the mouth of the main runnel/runnel outlet to prevent silt dispersal;
- prior to works being carried out testing for acid sulphate soils will be conducted, and if testing indicates potential for acid sulphate soils Ag-lime will be incorporated into the soil prior to excavation; and
- the curved profile of the runnels will be maintained, the average width of the runnels will be 700 millimetres, and the depth of the runnels will be to a maximum of 300 millimetres from the ground surface within the clay layer (City of Bunbury, 2016).

The application area is zoned as 'regional open space' within the Greater Bunbury Region Scheme.

The proposal to clear runnels within the Leschenault Inlet Management Area is subject to the *Waterways Conservation Act 1976*. The applicant is required, and has obtained, a Licence to Dredge and/or Reclaim from the Department of Water (WWC12/16). This licence includes special conditions designed to mitigate potential environmental impacts to water resources in the immediate vicinity of the application area (DoW, 2016).

The application was advertised in *The West Australian* newspaper on 15 June 2016 for a 21-day submission period. No public submissions were received.

Methodology

References:
DoH (2016)
DoW (2016)

GIS databases:
- Greater Bunbury Region Scheme boundary

4. References

- City of Bunbury (2016) Application for a clearing permit and supporting information received 23 May 2016. (DER ref. A1102139.)
- Department of Health (2016) Letter of support from the Department of Health to the applicant for maintenance of runnels for mosquito control at Blunders Wetland area. 16 May 2016. (DER ref. A1102139.)
- Department of Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. (Accessed 10 June 2016)
- Department of Parks and Wildlife (2016) Advice from the Department of Parks and Wildlife in relation to clearing permit application CPS 7091/1, received 1 July 2016. (DER ref. A1123636)
- Department of the Environment (2013) Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (s266B) Conservation Advice for Subtropical and Temperate Coastal Saltmarsh. Department of the Environment.
- Department of the Environment (2016). *Caladenia huegelii* in Species Profile and Threats Database, Department of the Environment, Canberra. (Accessed 18 Jul 2016)
- Department of Water (2016) Advice from the Department of Water in relation to clearing permit application CPS 7091/1, received 4 July 2016. (DER ref. A1125417)
- Government of Western Australia (2015) 2015 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2015. WA Department of Environment and Conservation, Perth.
- 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.
- 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.