



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10751/1
Permit Holder:	City of Canning
Duration of Permit:	From 10 March 2025 to 10 March 2035

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of removing *Typha orientalis* and improving drainage infrastructure.

2. Land on which clearing is to be done

Lot 501 on Deposited Plan 422119 (Crown Reserve 29130), Rossmoyne
 Lot 500 on Deposited Plan 422119 (Crown Reserve 29130), Rossmoyne

3. Clearing authorised

The permit holder must not clear more than 1.31 hectares of *native vegetation* within the areas cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 10 March 2030.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of *native vegetation*;
- (b) minimise the amount of *native vegetation* to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

6. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Directional clearing

The permit holder must:

- (a) conduct *clearing* activities in a slow, progressive manner towards adjacent *native vegetation*; and
- (b) allow a reasonable time for fauna present within the area being cleared to move into adjacent *native vegetation* ahead of the *clearing* activity.

8. Fauna Management

- (a) Prior to undertaking any clearing authorised under this permit, the permit holder must inspect the area authorised to be cleared under this permit prior to works commencing and for the duration of the clearing for any native fauna that may be present.
- (b) Where fauna have been identified under condition 8(a), works must cease until the fauna have escaped into adjacent habitat ahead of the clearing activity or translocated into *native vegetation*.

9. Weed Management- Chemical

Undertake spraying of chemical solution during the driest period of the year when the water level is at its lowest and during calm conditions.

10. Revegetation and rehabilitation

- (a) Within 12 months of undertaking clearing authorised under this permit and no later than 10 March 2030, the permit holder must *revegetate* cleared areas within the areas cross-hatched red in Figure 2 of Schedule 1 by:
 - (i) *planting* and/or *direct seeding* native vegetation that will result in a species composition, structure and density that is representative of the mapped Swan Coastal Plain vegetation complex: *Bassendean Complex-Central and South* as described by Heddle et al. (1980);
 - (ii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate*;
 - (iii) ensuring *planting* is undertaken at the *optimal time*; and
 - (iv) undertaking *weed* control and watering of *plantings* for at least two years post *planting*, if required

- (b) Within 24 months of undertaking *revegetation* in accordance with condition 10(a) of this permit, the permit holder must;
- (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated*;
 - (ii) where, in the opinion of the *environmental specialist*, the composition, structure and density of the area *revegetated* determined under condition 10(b)(i) will not result in a species composition, structure and density that is representative of the mapped Swan Coastal Plain vegetation complex: *Bassendean Complex-Central and South* as described by Heddle et al. (1980), the permit holder must undertake additional *planting* and/or *direct seeding* of native vegetation that will result in a species composition, structure and density that is representative of the mapped Swan Coastal Plain vegetation complex: *Bassendean Complex-Central and South* as described by Heddle et al. (1980) persisting within the area *revegetated*; and
 - (iii) where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 10(b)(ii), the permit holder must repeat the activities required by conditions 10(a)(i-iv) and 10(b)(i-ii) of this permit.

PART III - RECORD KEEPING AND REPORTING

11. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; (f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 6; (g) fauna management actions undertaken in accordance with condition 8; and (h) the date(s) that chemical <i>weed</i> control occurred and associated wind conditions in accordance with condition 9.

No.	Relevant matter	Specifications
2.	In relation to <i>revegetation</i> pursuant to condition 10	<p>(a) the date(s) in which the <i>revegetation</i> was undertaken;</p> <p>(b) the boundaries of the <i>revegetated</i> area recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings;</p> <p>(c) a description of the <i>revegetation</i> activities undertaken pursuant to condition 10(a), including <i>planted</i> species composition and density, and actions taken to implement watering and <i>weed</i> control;</p> <p>(d) a copy of the <i>environmental specialist's</i> monitoring report and determination; and</p> <p>(e) a description of any <i>remedial actions</i> undertaken pursuant to conditions 10(b)(ii)-(iii). Where monitoring indicates that the <i>planted</i> native vegetation will not survive.</p>

12. Reporting

The permit holder must provide to the *CEO* the records required under condition 11 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
Bassendean Complex-Central and South	means vegetation ranging from woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Allocasuarina fraseriana</i> (Sheoak) - <i>Banksia</i> species to low woodland of <i>Melaleuca</i> species, and sedgelands on the moister sites. This area includes the transition of <i>Eucalyptus marginata</i> (Jarrah) to <i>Eucalyptus todtiana</i> (Pricklybark) in the vicinity of Perth (Hedde et al., 1980).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the

Term	Definition
	desired plant species.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of 2 years work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
fill	means material used to increase the ground level, or to fill a depression.
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion 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.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimum time	means the period from May to June for undertaking planting or seeding
planting/s/ed	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
rehabilitate/ed/ing/ion	means the re-establishment of a cover of <i>local provenance</i> native vegetation in an area using methods such as natural regeneration, direct seeding and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
remedial action/s	means for the purpose of this permit, any activity that is required to ensure successful re-establishment and survival of planted native <i>riparian vegetation</i> .
revegetate/ed/ing/ion	means actively managing an area containing native vegetation in order to improve the ecological function of the area
weeds	means any plant – <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Digitally signed by
Temika Mathieson
Date: 2025.02.14
16:47:18 +08'00'

Temika Mathieson
A/MANAGER
NATIVE VEGETATION REGULATION

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

14 February 2025

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).



Figure 1: Map of the boundary of the area within which clearing may occur

The boundary of the area where rehabilitation planting must occur is shown in the map below (Figure 2).

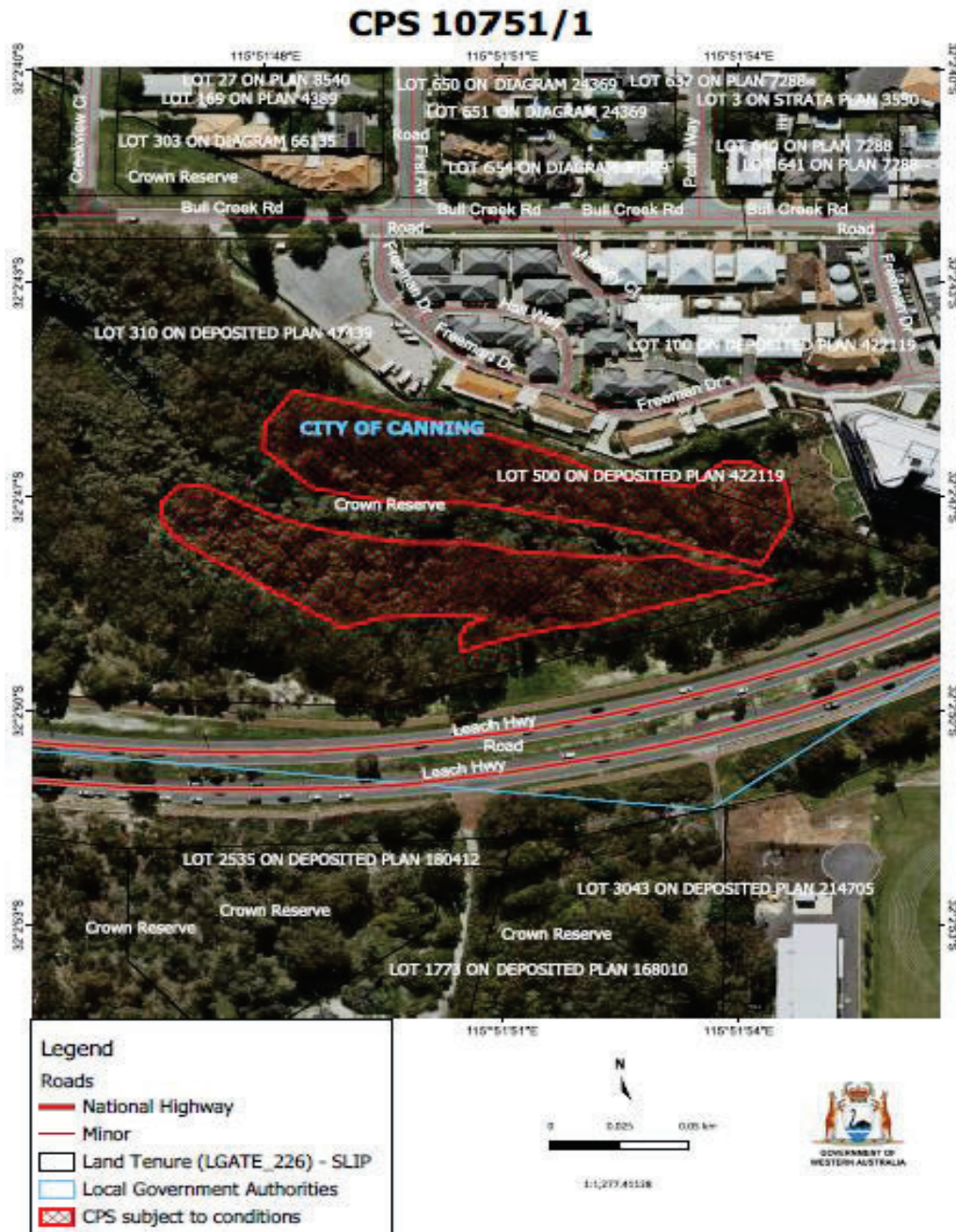


Figure 2: Map of the boundary of the area within which specific revegetation and rehabilitation conditions apply



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10751/1
Permit type:	Purpose permit
Applicant name:	City of Canning
Application received:	10 September 2024
Application area:	1.31 hectares of native vegetation
Purpose of clearing:	Removing <i>Typha orientalis</i> and improving drainage infrastructure
Method of clearing:	Cutting
Property:	Lot 501 on Deposited Plan 422119 (Crown Reserve 29130) Lot 500 on Deposited Plan 422119 (Crown Reserve 29130)
Location (LGA area/s):	City of Canning
Localities (suburb/s):	Rossmoyne

1.2. Description of clearing activities

The City of Canning (the City) is proposing to clear 1.31 hectares of native vegetation, consisting of only *Typha orientalis* (*Typha*) at Yagan Wetland, within Lot 500 on Deposited Plan 422119 and Lot 501 on Deposited Plan 422119, Rossmoyne. The proposed clearing will facilitate the removal of the existing *Typha* infestation and the planting of native riparian vegetation to stabilise the *Typha* affected areas and to improve drainage infrastructure (City of Canning, 2024). The vegetation proposed to be cleared is distributed across two separate areas (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	14 February 2025
Decision area:	1.31 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix BB), relevant datasets (see Appendix F.1), the clearing principles set out in Schedule 5 of the EP Act (see Appendix CC), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing is to remove *Typha* species, minimise disruption to wetland ecology, and to maintain biodiversity, drainage and water flow.

The assessment identified that the proposed clearing will result in:

- the loss of native vegetation that may provide suitable habitat for conservation significant fauna,
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values,
- the potential to increase sedimentation and turbidity within the application area, thereby possibly impacting surface water quality, and
- the removal of vegetation within the Swan Canning Development Control Area.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation, impact significant fauna habitat, or degrade adjacent habitat values, provided management measures are in place.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise, and reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake spraying of Glyphosate during the driest time of the year when the water level is at its lowest and during calm conditions,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity,
- undertake pre-clearing site inspections prior to works commencing and ongoing during works for any fauna that may be present. If found and are not able to escape into adjacent habitat, the City is to cease works until the identified fauna has been translocated, and
- revegetate cleared areas that will result in a species composition, structure and density that is representative of the mapped Swan Coastal Plain vegetation complex: Bassendean Complex- Central and South as described by Heddles et al (1980) within Lot 501 on Deposited Plan 422119 and Lot 500 on Deposited Plan 422119, Rossmoyne, as a rehabilitation measure for the clearing of native vegetation that provides habitat value and the stabilisation of the wetland reserve.

1.5. Site map



Figure 1 Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Swan and Canning Rivers Management Act 2006* (WA)
- *Swan and Canning Rivers Management Regulations 2007* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2021*

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The City has provided a *Typha* Management Plan in support of their application. The City has advised that only *Typha* would be cleared as part of the application, and that the proposal will not completely eradicate *Typha* but will instead use an approach that balances the wetland ecosystem. The applicant has proposed to only spray herbicide using specific and controlled hand application during the summer months when the water levels are at their lowest and the *Typha* is within the plant's active growth phase (City of Canning, 2024).

The City has proposed three methods of *Typha* removal:

- Cutting shoots 15 centimetres below the water surface two to three times during the plants season of active growth,
- Cutting shoots above water and wiping or spraying with Glyphosate Biactive, and
- Brush cutting may take place after the herbicide application, providing the area is not inundated with water.

The City has also advised the following management objectives for the proposed clearing:

- Minimise the spread of *Typha* within the wetland system,
- Protection of other aquatic vegetation and maintain biodiversity,
- Maintain sufficient drainage and ensure hydrology is unmodified by *Typha*,
- To complete track stabilisation works, and
- Dead biomass will be removed and disposed of within six weeks of spraying to avoid the loss of water quality.

The City has also committed to revegetate cleared areas that will result in a species composition, structure and density that is representative of the mapped Swan Coastal Plain vegetation complex: Bassendean Complex- Central and South as described by Heddles et al (1980) within Lot 501 on Deposited Plan 422119 and Lot 500 on Deposited Plan 422119, Rossmoyne, to reduce impacts to wetland values within the Swan Canning Development Control Area and stabilise the wetland banks (City of Canning, 2025).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B), supporting information (City of Canning, 2024) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see **Error! Reference source not found.C**) identified that the impacts of the proposed clearing present a risk to biological values (fauna and vegetation), conservation areas, and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (ecological community) - Clearing Principles (a) and (d)

Assessment

The application is located within a mapped occurrence of the Banksia Woodlands of the Swan Coastal Plain ecological community which is listed as Endangered under the Commonwealth EPBC Act and is considered a Priority 3 Priority Ecological Community (PEC) by DBCA in Western Australia. The key diagnostic criteria for the Threatened Ecological Community (TEC) include the presence of at least one of the four *Banksia* species, and distinct low woodland to forest structure comprising canopy co-dominated by *Banksia attenuata* or *Banksia menziesii*, where the emergent tree layer often includes marri, jarrah or tuart over a diverse shrub or herbaceous understorey (DoEE, 2016). While the proposed clearing area may occur within a patch of the Banksia Woodlands TEC, it is highly unlikely that the application area itself is representative of this community, given the application comprises *Typha* on the banks of a wetland.

Typha is not a species typically associated with the Banksia Woodlands TEC and, as the proposed clearing will only target *Typha*, the proposed clearing is not expected to have any adverse impacts on the surrounding native vegetation that may be representative of the Banksia Woodlands TEC. As *Typha* is known to colonise and dominate ecosystems, the proposed clearing and subsequent revegetation may be beneficial to the adjacent occurrence of Banksia Woodlands TEC.

Conclusion

Based on the above assessment, the proposed clearing will not result in a significant impact to the Banksia Woodlands TEC. However, the adjacent vegetation which may be representative of the Banksia Woodlands TEC is susceptible to weed and dieback invasion, which the clearing process may exacerbate. A weed and dieback management condition will be imposed on this permit to prevent indirect impacts to the quality of adjacent vegetation.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Clearing of only *Typha*, and
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback into adjacent native vegetation.

3.2.2. Biological values (fauna) - Clearing Principles (a) and (b)

Assessment

The application is located within the Swan Coastal Plain IBRA bioregion. According to available databases a total of 75 conservation significant fauna species have been recorded within the local area (10-kilometre radius of the application area). Of the conservation significant fauna species recorded within the local area, the application area may provide habitat for 12 conservation significant fauna species.

The application area may provide habitat for the following eight migratory or wetland bird species, these species are as follows:

- *Calidris acuminata* (sharp-tailed sandpiper)
- *Calidris ruficollis* (red-necked stint)
- *Calidris tenuirostris* (great knot)
- *Limosa lapponica* (bar-tailed godwit)
- *Pluvialis squatarola* (grey plover)
- *Thalasseus bergii* (crested tern)
- *Tringa glareola* (wood sandpiper)
- *Tringa nebularia* (common greenshank)

Whilst these species may temporarily utilise the application area, it is unlikely to comprise significant habitat to these migratory species due to the lack of suitable breeding habitat. Therefore, impacts on these species are likely to be minimal.

The four remaining conservation significant fauna species recorded within the local area that require further consideration include:

- *Hydromys chrysogaster* (water rat)
- *Isoodon fusciventer* (quenda)
- *Oxyura australis* (blue-billed duck)
- *Westralunio carteri* (Carter's freshwater mussel)

Water rat

Water rat are semiaquatic mammals reaching up to 70 centimetres in length (from nose to end of the tail), feeding largely underwater, on a wide range of prey including large insects, crustaceans, mussels and fishes, and even frogs, lizards, small mammals and water birds. Although dependent on water for foraging, water rats live on land, in burrows on low banks of rivers, lakes, wetlands, and estuaries including coastal areas. Intact riparian vegetation and associated bank stability is critical to their survival (DWER, 2021). While water rat have not been recorded in the application area, they may be transient, through the area as ranging territory can be up to four kilometres of riverbank (DWER, 2021). However, as *Typha* does not form a critical component of its habitat, it is unlikely the proposed clearing will significantly impact this species.

Quenda

Quenda inhabit areas of dense vegetation including wetland fringes and heathlands. They have been observed in areas of native bushland and where exotic shrub species are prevalent. Quenda rarely venture from cover and will feed by digging in leaf litter and soil to find food and will construct nests under vegetation (DEC, 2012). Given the purpose of the clearing to target *Typha*, it is unlikely that the application area will comprise of significant habitat for the species. It is possible that the quenda may occur within the application area, while moving through the landscape. However, the implementation of slow, directional clearing will allow any individuals present at the time of clearing to move into adjacent suitable habitat in the local area.

Blue-billed duck

This species can breed from August to March, mostly between October to January (DBCA, 2021). Breeding habitat is typically secluded densely vegetated situations, with the next constructed in *Typha* beds or other vegetation, in permanent water. Nests are usually constructed from dead *Typha* leaves and sometimes thinly lined with down (Birdlife Australia, 2020). Given the purpose of the clearing is to clear *Typha*, the proposed clearing may impact the breeding habitat of this species. A fauna management condition will be implemented on this permit to mitigate impacts to Blue-billed duck if present at the time of clearing.

Carter's freshwater mussel (CFM)

Habitat for CFM is associated with riparian vegetation including *Eucalyptus rudis* (flooded gum), *Melaleuca* spp., *Casuarina* spp., *Acacia* spp., *Triglochin* spp., amongst many others. Relative abundance of adults are greatest amongst submerged, exposed tree roots along river banks (TSSC, 2017). CFM inhabits sandy/muddy sediments of freshwater lakes, rivers and streams and retreat to shallow pools or damp mud with most moist leaf litter in times of drought (Klunzinger et al. 2015). CFM is known to reside within Bull Creek in Crown Reserve 29130. Advice from DBCA noted that, as bivalves are particularly susceptible to toxicants, any risk of overspray reaching the water is to be mitigated (DBCA, 2024). Furthermore, dead plant material should be collected from the water to avoid loss of water quality by anaerobic decomposition (DBCA, 2024). The applicant has stated in their management plan that chemical treatment of *Typha* will be limited to the summer months when water levels are low and that, in order to avoid impacts to water quality by anaerobic decomposition, dead biomass will be removed and disposed of within six weeks of spraying (City of Canning, 2024). Due to the nature of the proposed clearing and the City's management plan in place, the proposed clearing is unlikely to have any adverse impacts to CFM.

Ecological linkage

The application area may function as an ecological linkage for fauna to move between larger remnants of native vegetation within the local area. The ecological linkage values will not likely be severed by the proposed clearing, noting native vegetation will remain within the application area. Notwithstanding the above, given that native vegetation remains surrounding the application area, a weed and dieback management condition will be required to assist in mitigating impacts to surrounding vegetation and maintaining ecological linkages values.

Conclusion

Based on the above assessment, stands of *Typha* comprising the application area may provide breeding habitat and a source of nest building material for Blue billed duck. There is a low probability that water rat, quenda and CFM may temporarily utilise the wetland. The remaining wetland species in the local area are not likely to be significantly impacted by the proposed clearing.

The mitigation measures provided by the applicant including re-planting of native vegetation within the Lot post-clearing, is considered to minimise the potential impacts of the proposed clearing on fauna habitat and ensure a significant residual impact does not remain following the rehabilitation planting.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Directional clearing, which requires slow progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur at the time of clearing,
- Weed and dieback hygiene measures as a condition on the permit will mitigate the impacts to adjacent vegetation and fauna habitat.

3.2.3. Significant remnant vegetation and Conservation areas - Clearing Principles (e) and (h)

Assessment

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). The application area is located within the Perth Metropolitan Region Scheme boundary, which the EPA recognises to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The current vegetation extent for the Swan Coastal Plain IBRA bioregion, Bassendean Complex- Central and South and the local area are all above the 10 per cent threshold, noting that the proposed clearing is to remove *Typha* and rehabilitate the area, it is not likely that the clearing will represent a significant residual impact to remnant vegetation.

The application area is located with Bush Forever Site 338 - Yagan Wetland Reserve. The subject area is also a Conservation Category Wetland (CCW) identified as UFI 6643 which is within Crown Reserve 29130 and vested for Conservation. As the clearing is for *Typha* management and aims to improve the health of the wetland, reduce the risk of flooding, allow for works to reduce bank erosion and support habitat for the Banksia Woodland TEC, it is unlikely that the selective clearing of *Typha* will impact on the Bush Forever Site or its habitat values (DPLH, 2024).

The City have advised that they will undertake revegetation works of *Typha* impacted areas with local native species to assist in minimising impacts to the adjoining wetland and adjacent vegetation within Crown Reser 29130 (City of Canning, 2024).

Conclusion

Given the nature of the clearing, *Typha* removal will be beneficial to the maintenance of species composition and structure of the fauna and flora habitats of conservation areas adjacent to the proposed clearing. Weed dieback management practices will mitigate against any potential impacts to the adjacent native vegetation.

The mitigation measures provided by the applicant including re-planting the native vegetation within the Lot, is considered to minimise the potential impacts of the proposed clearing on remnant vegetation within a conservation area.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- weed and dieback hygiene measures as a condition on the permit will mitigate the impacts to adjacent vegetation and fauna habitat, and
- revegetate cleared areas that will result in a species composition, structure and density that is representative of the mapped Swan Coastal Plain vegetation complex: Bassendean Complex- Central and South as described by Heddles et al (1980) within Lot 501 on Deposited Plan 422119 and Lot 500 on Deposited Plan 422119, Rossmoyne, to reduce the significant residual impact to habitat value and the stabilisation of the wetland reserve.

3.2.4. Land and water resources - Clearing Principles (f), (i) and (j)

Assessment

The application area is located adjacent to CCW Yagan Wetland identified as UFI 6643. The proposed clearing is for the purpose of controlling the occurrence of *Typha* due to its invasive nature and adverse impacts on wetlands in the absence of management. Given the proposed clearing will target *Typha*, the proposed clearing is not likely to results in any long-term impact to the ecological values of riparian vegetation communities and associated wetlands within the application area.

Typha was previously reclassified as native in Western Australia, however, is recognised as having weedy tendencies with potential to impact wetland ecosystems unless actively managed (DBCA, 2024). The removal of *Typha* has the potential to increase sedimentation and turbidity of the water within the application area, thereby possibly impacting surface water quality. DBCA (2024) have recommended that revegetation be undertaken post-clearing to stabilise the banks of the wetland, and advised ongoing site maintenance, monitoring and reporting, will be required as part of a permit required under the *Swan and Canning Rivers Management Regulations 2007*. However, due to the relatively small scale of clearing and management measures in place, it is not likely to cause long term deterioration in the quality of the surface water. Given the invasiveness of *Typha*, the proposed clearing may improve drainage of water and reduce the incidence or intensity of flooding.

Given the extent and targeted nature of the proposed clearing, and surrounding land uses, the proposed clearing is not likely to result in any significant or long-term impacts to the ecological values of the riparian communities associated with the mapped wetland within and nearby the application area. Similarly, the proposed clearing is not likely to significantly impact on the CCW subject to measures to control the spread of weeds and dieback into adjacent vegetation. The proposed clearing is also not likely to result in any significant impacts to surface water quality should any of these wetland areas hold water during winter months, noting that the applicant has committed to undertaking clearing during spring and summer months, when the mapped wetland areas are expected to be dry, reducing the potential risk of sedimentation.

Conclusion

Based on the above assessment, the proposed clearing will not significantly impact the ecological values of riparian communities associated with the CCW, it is expected to enhance wetland habitats within the application area.

The mitigation measures provided by the applicant including re-planting the native riparian vegetation within the Lot, is considered to minimise the potential impacts of the proposed clearing on wetland habitat and ensure a significant residual impact does not remain following the rehabilitation planting.

Conditions

No management conditions are required in relation to this environmental value.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on DWER's website on 16 November 2024, inviting submissions from the public within a for 21-day period. No submissions were received.

The application area was originally applied for under Clearing Permit CPS 9946/1, however due to accessibility issues and the requirement to obtain a Form 7 permit under the *Swan and Canning Rivers Management Regulations 2007* to conduct the works, the area was removed.

The application area falls within the Swan River Trust Development Control Area managed by DBCA. DBCA have advised that the City will be required to obtain a Form 7 permit under the *Swan and Canning Rivers Management Regulations 2007* to conduct the works (DBCA, 2024). The City have advised that they are now applying for the Form 7 Permit from DBCA (City of Canning, 2024).

The Department of Planning, Lands and Heritage (DPLH) had no objections to the land use planning or management for the proposal to remove Typha from Yagan Wetland with respect to *State Planning Policy (SPP) 2.8 Bushland Policy for the Perth Metropolitan Region and Bush Forever* (DPLH, 2024).

DBCA (2024) have advised that the applicant must comply with the legal requirements for the use of pesticides as outlined by the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2021). Furthermore, applying the Glyphosate when the wind is calm and the water is low will mitigate the potential risk to adjacent vegetation and fauna.

Several Aboriginal sites of significance have been mapped within the local area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Additional photos provided by the applicant, as requested by DWER on the 16 October 2024.	The photos provided were considered in Appendix E.
A Typha Management Plan was submitted by the applicant on the 19 November 2024.	The provisions of the Typha Management Plan are summarised under <i>Avoidance and mitigation measures</i> (See Section 3.1).

Appendix B. Site characteristics

B.1. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of a patch of native vegetation along a tributary of the Canning River in the intensive land use zone of Western Australia. It is surrounded by riparian vegetation, road infrastructure, and residential dwellings. Clearing will be restricted to the removal of <i>Typha</i> from riparian vegetation.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 10.11 per cent of the original native vegetation cover.</p>
Ecological linkage	The application area does not intersect any formal ecological linkages. The closest linkage is the Perth Regional Linkage 35 which is located approximately 0.9 kilometres north of the application area.
Conservation areas	The application area is within Bush Forever Site 338. It adjoins CCW Yagan Wetland and is located 1.5 kilometres east from Beelie Regional Park.
Vegetation description	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of <i>Typha</i> species, within a mapped <i>Banksia</i> Woodlands of the Swan Coastal Plain ecological community.</p> <p>Representative photos are available in Appendix E.</p> <p>This is relatively consistent with the mapped vegetation type:</p> <ul style="list-style-type: none"> Bassendean Central and South, which is described as vegetation ranges from woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Allocasuarina fraseriana</i> (Sheoak) - <i>Banksia</i> species to low woodland of <i>Melaleuca</i> species, and sedgelands on the moister sites. This area includes the transition of <i>Eucalyptus marginata</i> (Jarrah) to <i>Eucalyptus todtiana</i> (Pricklybark) in the vicinity of Perth. <p>The mapped vegetation type retains approximately 26.87 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in Good to Degraded (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix D.</p> <p>Representative photos are available in Appendix E.</p>

Characteristic	Details
Climate and landform	The region experiences a Mediterranean climate with cool winters and hot summers with a mean annual rainfall of 780-790 mm.
Soil description	The soil is mapped as EnvGeol C1 Phase (211Va_C1) which is described as clay - mid to dark grey, soft, saturated, prominent 0.2 m thick oyster shell bed near surface of alluvial origin. Variable organic content.
Land degradation risk	The mapped soil types within the application area are mapped as having a low risk of land degradation (DPIRD, 2024).
Waterbodies and hydrogeography	<p>The desktop assessment and aerial imagery indicated that CCW Yagan Wetland is located adjacent to the proposed clearing area.</p> <p>The application area is mapped within the Swan River Trust – Development Control Area and the Perth Groundwater Area, proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act).</p> <p>Groundwater salinity within the application area is mapped at <500 milligrams per litre total dissolved solids.</p>
Flora	<p>The desktop assessment identified that 109 conservation significant flora species have been recorded within the local area, comprising 20 threatened flora species, 87 priority flora species and two extinct flora species (Western Australian Herbarium, 1998-). None of these existing records occur within the application area, with the closest record being an occurrence of <i>Amanita cretaceaverruca</i> approximately 168 metres south of the application area.</p> <p>With consideration of the site characteristics set out above, relevant datasets (see Appendix F), photos provided by the applicant (City of Canning, 2024), and the habitat preferences of the aforementioned species, the application area is not considered to provide significant habitat for conservation significant flora species did not require further consideration.</p>
Ecological communities	<p>The desktop assessment identified that the application area is mapped with an occurrence of Banksia Woodlands TEC, which is listed as Endangered under the Commonwealth EPBC Act and is considered a Priority 3 PEC by DBCA in Western Australia.</p> <p>With consideration for the site characteristics, purpose of the clearing and relevant datasets (see Appendix F.1), the clearing is not expected to impact on this community.</p>
Fauna	<p>The desktop assessment identified that 75 conservation significant fauna species have been recorded within the local area including 24 threatened species, 19 priority species, 31 migratory species and one other specially protected fauna species. None of these existing records occur within the application area, with the closest being an occurrence of <i>Thalasseus bergii</i> approximately 100 metres west of the application area.</p> <p>With consideration of the site characteristics set out above, relevant datasets (see Appendix F), photos provided by the applicant (City of Canning, 2024), and the habitat preferences of the aforementioned species, the application area is considered to provide significant habitat for conservation significant fauna species and impacts to these fauna species have been detailed under Section 3.2.1.</p>

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1501221.93	579813.47	38.62	222916.97	14.85
Vegetation complex					
Bassendean Complex- Central and South*	87476.26	23508.66	26.87	4377.36	5
Local area					
10km radius	27989.29	2831.83	10.11	-	-

*Government of Western Australia (2019a)

B.3. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Calidris acuminata</i> (sharp-tailed sandpiper)	MI	Y	Y	1.8	50	N/A
<i>Calidris ruficollis</i> (red-necked stint)	MI	Y	Y	3.3	185	N/A
<i>Calidris tenuirostris</i> (great knot)	CR	Y	Y	4.5	51	N/A
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	N	0.9	224	N/A
<i>Hydromys chrysogaster</i> (water rat)	P4	Y	Y	0.4	29	N/A
<i>Isoodon fusciventer</i> (quenda)	P4	Y	N	0.1	1303	N/A
<i>Limosa lapponica</i> (bar-tailed godwit)	MI	Y	Y	2.7	51	N/A
<i>Oxyura australis</i> (blue-billed duck)	P4	Y	Y	1.1	546	N/A
<i>Pluvialis squatarola</i> (grey plover)	MI	Y	Y	4.5	192	N/A
<i>Thalasseus bergii</i> (crested tern)	MI	Y	Y	0.1	310	N/A
<i>Tringa glareola</i> (wood sandpiper)	MI	Y	Y	1.7	27	N/A
<i>Tringa nebularia</i> (common greenshank)	MI	Y	Y	1.7	274	N/A
<i>Westralunio carteri</i> (Carter's freshwater mussel)	VU	Y	Y	1.4	27	N/A
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	N	0.1	1970	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

B.4. Ecological community analysis table

Community name	Conservation status WA	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Banksia</i> Woodlands of the Swan Coastal Plain Ecological Community	P3	Y	N	Y	Intersects	920	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p>Principle (a): <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p>Assessment: The proposed clearing will target stands of <i>Typha</i>. This species is capable of aggressive invasions that can transform ecosystems unless it is actively managed (Western Australian Herbarium, 2019). Given the application will only target <i>Typha</i>, it is not anticipated that the proposed clearing will significantly impact fauna habitat or conservation significant assemblages of plants.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1,2, above.</i>
<p>Principle (b): <i>“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.”</i></p> <p>Assessment: The area proposed to be cleared may contain significant habitat for conservation significant fauna.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p>Principle (c): <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p>Assessment: The area proposed to be cleared is unlikely to contain flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p>Principle (d): <i>“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.”</i></p> <p>Assessment: The area proposed to be cleared is located within <i>Banksia</i> Woodlands of the Swan Coastal Plain Ecological Community (Priority 3) PEC and EPBC TEC, however, as the clearing will target only <i>Typha</i>, it is not likely to have an impact on the environmental values of the TEC.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
Environmental value: significant remnant vegetation and conservation areas		
<p>Principle (e): <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p>Assessment: The extent of the mapped vegetation type is inconsistent with the national objectives and targets for biodiversity conservation in Australia. Considering the targeted nature of <i>Typha</i> removal, the proposed clearing is unlikely to further degrade remnants of native vegetation in an area that has been extensively cleared. The application area is not considered to be significant as a remnant of native vegetation within an extensively cleared area.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p>Principle (h): <i>“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.”</i></p> <p>Assessment: The application area overlaps with a Bush forever site 338-Yagan Wetland, however, as the purpose of the clearing is to improve wetland habitat, it is not likely to have an impact on the environmental values of conservation areas within the local area.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (f)</u>: “Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</p> <p><u>Assessment</u>: Noting the definition of the principle, the proposed clearing is at variance with this principle. <i>Typha</i> forms a natural component of native wetland and watercourse vegetation. However, <i>Typha</i> can dominate wetland ecosystems. Given the nature of the proposed clearing, it is unlikely to significantly impact wetlands or watercourses.</p>	At variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (g)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</p> <p><u>Assessment</u>: The mapped soils are not susceptible to land degradation. Noting the extent of the application area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i)</u>: “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.”</p> <p><u>Assessment</u>: Given the application area is adjacent to the Yagan Wetland, the proposed clearing may impact surface or ground water quality and increase water turbidity, however, impacts are likely to be minimal and short term.</p>	May be at variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment</u>: The purpose of the clearing is to remove <i>Typha</i> and reduce the likelihood, incidence and intensity of flooding in the area.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4, above.</i>

Appendix D. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation’s ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.

Condition	Description
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Photographs of the vegetation (City of Canning, 2024)



Figure 2. Extent of *Typha orientalis* in Yagan Wetland (City of Canning, 2024)



Figure 3. Extent of *Typha orientalis* in Yagan Wetland (City of Canning, 2024)



Figure 4. Map of northern section of the application area, showing GPS photo points (City of Canning, 2024)



Figure 5. Photo 1 of northern section of the application area (City of Canning, 2024)



Figure 6. Photo 2 of northern section of the application area (City of Canning, 2024).



Figure 7. Photo 3 of the northern section of the application area (City of Canning, 2024).



Figure 8. Photo 4 of the northern section of the application area (City of Canning, 2024)



Figure 9. Photo 5 of the northern section of the application area (City of Canning, 2024).



Figure 10. Photo 6 of the northern section of the application area (City of Canning, 2024)

Appendix F. Sources of information

F.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)

- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

F.2. References

Birdlife Australia (2020) <https://www.birdlife.org.au/bird-profile/blue-billed-duck>, accessed November 2024.

City of Canning (2024) *Clearing permit application and supporting information for CPS 10751/1*, received 10 September 2024 (DWER Ref: DWERT16215).

City of Canning (2025) *Response to REVISED Draft Clearing Permit Conditions for CPS 10751/1*, received 3 February 2025 (DWER Ref DWERT1070914).

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

Department of Biodiversity, Conservation and Attractions (DBCA) (2021) *Species and Communities Branch Fauna advice for Clearing Permit Application CPS 9071.1*, received 15 April 2021. Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: A1997386).

Department of Biodiversity, Conservation and Attractions (DBCA) (2024) *Swan River Trust- Development Control Area Advice for Clearing Permit 10751/1*, received 25 November 2024. Department of Biodiversity, Conservation and Attractions, Western Australia. DWERT104120.

Department of Environment Conservation (DEC) (2012). *Fauna profiles: Quenda, Isoodon obesulus fusciventer*. Department of Environment and Conservation, Western Australia

Department of the Environment and Energy (DoEE) (2016) *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community*. Department of the

Environment and Energy, Canberra. Available from
<http://environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf>.

Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Planning, Lands and Heritage (DPLH)(2024). *Advice for Clearing Permit CPS 10751/1*, received 13 November 2024 (DWERDT1035078)

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed 5 November 2024).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

Department of Water and Environmental Regulation Rivers (DWER) (2021) Available from: <https://rivers.dwer.wa.gov.au/species/hydromys-chrysogaster/>

Environmental Protection Authority (EPA) (2008) *Environmental Guidance for Planning and Development Guidance Statement No 33*. Environmental Protection Authority, Western Australia.

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>

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.

Klunzinger M. W., Beatty S.J., Morgan D. L., Pinder A. M., and Lymbery A. J. (2015). Range decline and conservation status of *Westralunio carteri* Iredale, 1934 (Bivalvia:Hyriidae) from southwestern Australia.

Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia*. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs* Resource Management Technical Report No. 280. Department of Agriculture.

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.

Threatened Species Scientific Committee (TSSC) (2017) Conservation advice for *Westralunio carteri* (Carter's freshwater mussel) Retrieved from: <https://www.environment.gov.au/biodiversity/threatened/species/pubs/86266-conservation-advice-15022018.pdf>

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 6 November 2024)