GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 10875/1

File Number: DWERVT17326

Duration of Permit: From 21/06/2025 to 21/06/2027

PERMIT HOLDER

Town of Cambridge

LAND ON WHICH CLEARING IS TO BE DONE

Lot 12663 on Deposited Plan 220075 (Crown Reserve R8731), Wembley

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.25 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. 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.

2. 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, and other equipment used to undertake the *clearing*, 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.

3. 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.

4. 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 4(a), works must cease until the fauna have escaped into adjacent habitat ahead of the clearing activity or translocated into *native vegetation.*

5. 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.

6. 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	(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 Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared;

No.	Relevant matter	Specifications
		(d) the size of the area cleared (in hectares); and (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; and (f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 2. (g) fauna management actions undertaken in accordance with condition 4; and (h) the date(s) that chemical *weed* control occurred and associated wind conditions in accordance with condition 5.

7. Reporting

The permit holder must provide to the *CEO* the records required under condition 6 of this permit when requested by the *CEO*.

DEFINITIONS

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

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
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.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
fill	means material used to increase the ground level, or to fill a depression
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.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness

Term	Definition
	ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

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Caitlin Conway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20 of the Environmental Protection Act 1986

29 May 2025

SCHEDULE 1

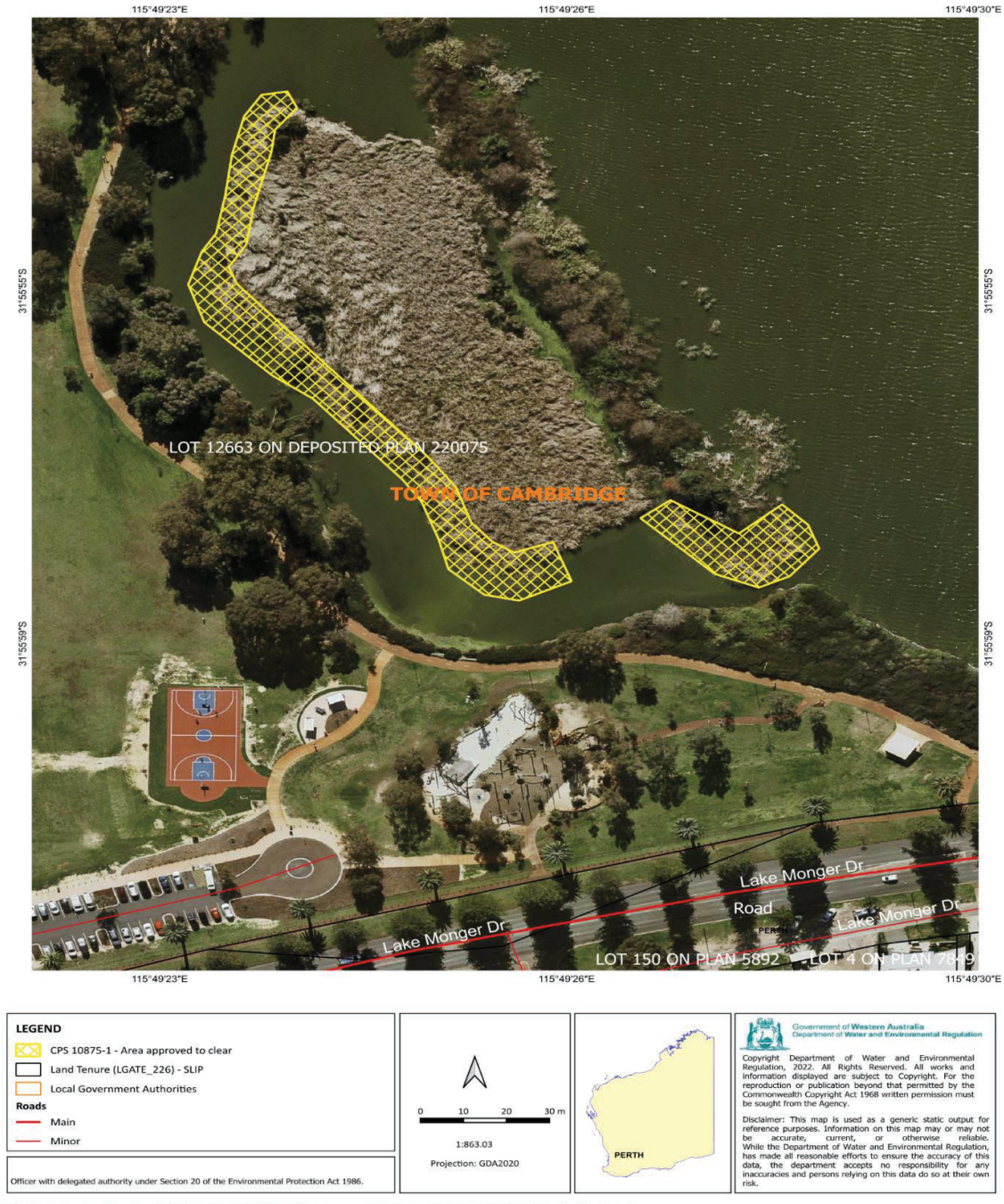

Figure 1: Map of the boundaries of the areas within which clearing may occur (yellow cross-hatched areas)

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10875/1
Permit type:	Area permit
Applicant name:	Town of Cambridge
Application received:	6 December 2024
Application area:	0.25 hectares of native vegetation
Purpose of clearing:	Thinning Typha
Method of clearing:	Chemical / Mechanical
Property:	Lot 12663 on Deposited Plan 220075 (Crown Reserve R 8731)
Location (LGA area/s):	Town of Cambridge
Localities (suburb/s):	Wembley

1.2. Description of clearing activities

The Town of Cambridge is proposing to clear *Typha orientalis* (Typha) at Lake Monger (Galup) (see Figure 1, Section 1.5).

The proposed clearing will involve:

- Cutting and removing Typha in the dry season, below the winter waterline
- Combination of wiping with glyphosate and
- Cutting and painting with glyphosate (Town of Cambridge, 2024).

Dense stands of Typha will be controlled by cutting the stalks below the water line and treating the regrowth three weeks after slashing, using Roundup Biactive, as specified on Florabase (Western Australian Herbarium 1998-).

The applicant advised the range of Typha at Lake Monger has expanded and Typha is outcompeting other sedges (Town of Cambridge, 2024). The purpose of the Typha thinning is to contain the spread of Typha, to allow other sedges to grow and to re-open the gap between the island and the edge of the lake.

1.3. Decision on application

Decision:	Granted
Decision date:	29 May 2025
Decision area:	0.25 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 B),
- relevant datasets (see Appendix F.1),
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix C),
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3.3).

The Delegated Officer also took into consideration the purpose of the clearing is for an environmental benefit, as removing Typha is likely to improve ecological function and biodiversity within Lake Monger.

The assessment identified that the proposed clearing will result in:

- provide breeding habitat and a source of nest building material for blue billed duck, and may also provide habitat for water rat, Australasian Bittern, Australian painted snipe and four migratory bird species;
- clearing of vegetation within an extensively cleared landscape, although the vegetation proposed to be cleared is not considered to be a significant remnant of vegetation, and the proposed clearing will allow other native vegetation species to reinstate;
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values, and
- the potential to increase turbidity within the application area, however impacts are likely to be minor and short term.

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 above impacts can be appropriately managed through conditions on the clearing permit to prevent unacceptable risks to the environment, and that the applicant has demonstrated appropriate consideration of avoidance and mitigation measures.

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

- avoidance and minimisation to reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- 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 permit holder is to cease works until the identified fauna has left the clearing area; and
- undertake spraying of Glyphosate during the driest time of the year when the water level is at its lowest and during calm conditions, to limit unintended impacts to flora and fauna other than Typha.

1.5. Site map

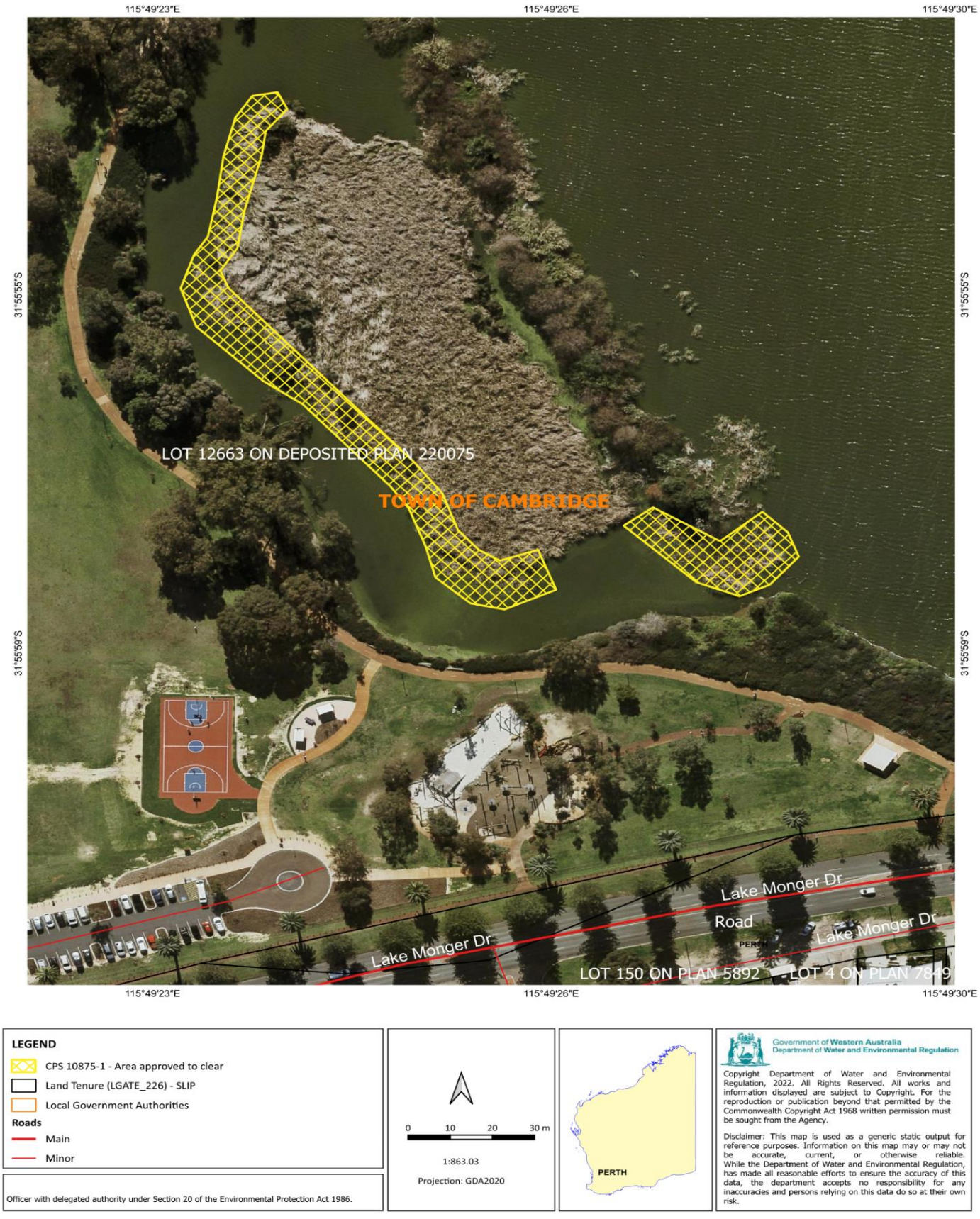

Figure 1. Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Soil and Land Conservation Act 1945* (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)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant submitted supporting information (Town of Cambridge, 2024) demonstrating the actions they will take to avoid and minimise the impacts of the proposed clearing, including:

- employing qualified contractors to undertake the clearing to ensure best practice is followed.
- undertaking clearing by mechanical control first and only using Glyphosate where mechanical control is not effective,
- using appropriate signage to notify the public when Glyphosate is used.

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 (photos) 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 Appendix 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 (fauna and biodiversity) - Clearing Principles (a) and (b)

Assessment

Fauna

According to available databases a total of 80 conservation significant fauna species have been recorded within the local area (10-kilometre radius of the application area). In forming a view on the likelihood of each species occurring in the application area, the following was considered:

- the preferred habitat and vegetation types of the species;
- their recorded proximity to the application; and

- date of record (see Table B.3).

The likelihood analysis identified 11 conservation significant fauna species may occur in the application area. Of these, four conservation significant fauna species required further consideration:

- *Oxyura australis* (blue-billed duck) (P4)
- *Hydromys chrysogaster* (water rat) (P4)
- *Botaurus poiciloptilus* (Australasian bittern) (EN)
- *Rostratula australis* (Australian painted snipe) (EN)

The application area may also provide habitat for seven migratory wetland bird species (see Table B.3).

Blue-billed duck

*Oxyura australis (*blue-billed duck) has been recorded in the application area. Blue billed duck can breed from August to March, mostly between October to January. Their breeding habitat is typically secluded dense vegetation with nests constructed in Typha beds or other vegetation in permanent water (Australian Museum, 2024). Nests are usually constructed from dead Typha leaves (Australian Museum, 2024). The blue-billed duck feeds on aquatic insects (Australian Museum, 2024).

Given the purpose of the clearing is to remove Typha, the proposed clearing may impact breeding individuals of this species. Fauna management conditions on the permit will mitigate potential impacts to individuals of this species. Noting the foraging habits of this species, the proposed clearing is considered unlikely to impact significantly to foraging habitat of this species.

Water rat

*Hydromys chrysogaster (*Water rat) largely feeds underwater on a wide range of prey including large insects, crustaceans, mussels and fishes, and even frogs, lizards, small mammals and water birds (DWER, 2025). Although dependent on water for foraging, water rat lives on land, in burrows on low banks of rivers, lakes, wetlands, and estuaries including coastal areas and intact riparian vegetation and associated bank stability is critical to their survival. (DWER, 2025).

While water rat has been recorded in the application area, it is noted that ranging territory for this species can be up to four kilometres of riverbank (DWER, 2025). Given similar habitat is available around the lake and the small extent of proposed clearing in the context of the ranging territory extent for this species, it is unlikely the proposed clearing will significantly impact this species. Fauna management conditions on the permit will mitigate potential impacts to individuals of this species.

Australasian Bittern

Botaurus poiciloptilus (Australasian bittern) forages in wetlands, favouring tall dense vegetation, dominated by sedges, rushes and reeds or cutting grass growing over a muddy or peaty substrate. Australasian bittern nests adjacent to relatively deep, densely vegetated freshwater swamps and pools, building its nests under dense cover over shallow water (DCCEEW, 2025). The species is known to breed from October to February.

The application area provides suitable habitat for Australasian bittern. Given similar habitat is available around the lake and the small extent of proposed clearing, impacts to this species are not likely to be significant. Fauna management conditions on the permit will mitigate potential impacts to individuals of this species.

Australian painted snipe

Rostratula australis (Australian painted snipe) is usually found in freshwater or brackish permanent or temporary shallow inland wetlands in all Australian states (Commonwealth of Australia, 2022). The species breeds in shallow wetlands with areas of bare wet mud and mixed heights of low vegetation, with almost all nest records from or near small islands in freshwater wetlands (Commonwealth of Australia, 2022).

As Lake Monger falls within the above habitat types, it is possible this species may occur and breed within the application area, however noting there is only one record for Australian painted snipe from Lake Monger (1.53 kilometres away) from 2002, the species is considered unlikely to regularly inhabit the application area. Noting this, and given similar habitat is available around the lake and the small extent of proposed clearing, impacts to this species are not likely to be significant. If present, fauna management conditions on the permit will mitigate potential impacts to individuals of this species.

Migratory birds

Multiple species of migratory birds may be transient visitors to the application area (see Appendix B.3). Whilst these species may temporarily utilise the application area, it is unlikely to provide significant habitat to these migratory species due to the lack of suitable breeding habitat and the extent of clearing proposed in the context of the range of these species. Fauna management conditions on the permit will mitigate potential impacts to individuals of this species.

Ecological linkage

The application area may be part of an ecological linkage for fauna to move between larger remnants of native vegetation within the local area. However, the ecological linkage values will not likely be severed by the proposed clearing, noting native vegetation will remain within the application area.

Biodiversity

Typha is capable of aggressive invasions that can transform ecosystems unless it is actively managed (Western Australian Herbarium 1998-). Without management, Typha can develop quickly into a monoculture and cover an entire water body. The proposed clearing is to reduce the rate of spread of Typha, which will allow other sedge species to reinstate. As such, the proposed clearing may improve vegetation biodiversity within the application area.

Glyphosate is a general herbicide and has the potential to impact adjacent fauna and flora. The short-term and long-term impact on aquatic wildlife from Glyphosate use is not entirely clear (DBCA, 2019). Conditions on the permit to ensure that Glyphosate will only impact Typha as intended will prevent significant impacts to flora species other than Typha during the clearing. These conditions will also prevent inadvertent impacts to wetland fauna from Glyphosate. Although the proposed clearing has the potential to result in the spread of weeds and dieback, weed and dieback management practices will mitigate against any potential impacts to the adjacent native vegetation.

Conclusion

Based on the above assessment the application area may provide breeding habitat and a source of nest building material for blue billed duck, and may also provide habitat for water rat, Australasian Bittern, Australian painted snipe and four migratory bird species. However, impacts to these species are not likely to be significant.

Fauna management conditions, including requirement for fauna inspections to be undertaken prior to works commencing and ongoing during works and a requirement to undertake slow directional clearing, will minimise impacts to individuals.

The applicant will be required to obtain an authorisation from the Minister for Environment under section 40 of the *Biodiversity Conservation Act 2016* obtained from the Department of Biodiversity, Conservation and Attractions (DBCA) for the translocation of any threatened fauna species.

The clearing is not considered likely to negatively impact biodiversity, and may improve biodiversity by allowing other flora species to reinstate within the application area.

Conditions

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

- avoidance and minimisation to reduce the impacts and extent of clearing,
- slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback to adjacent vegetation.
- undertake spraying of Glyphosate during the driest period of the year when the water level is at its lowest, and during calm conditions.
- 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 permit holder is to cease works until the identified fauna has left the clearing area.

3.2.2. Significant remnant vegetation - Clearing Principle (e)

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, Karrakatta Complex- Central and South and the local area is below 10 per cent threshold.

However, noting the proposed clearing is to selectively remove Typha, the vegetation proposed to be cleared is not considered to be a significant remnant of vegetation. Furthermore, given the nature of the clearing, Typha removal will allow other native vegetation species to reinstate, and species diversity in the area is likely to improve. Although the proposed clearing has the potential to result in the spread of weeds and dieback, weed and dieback management practices will mitigate against any potential impacts to the adjacent native vegetation.

Conclusion

Although the extent of native vegetation within the local area is less than the national objectives and targets for biodiversity conservation in Australia, the vegetation proposed to be cleared is not considered to be a significant remnant of vegetation, and the proposed clearing will allow other native vegetation species to reinstate.

Conditions

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

- avoidance and minimisation to reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback to adjacent vegetation.

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

Assessment

The application area is located within Lake Monger Wetland. 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, allowing other native vegetation species to reinstate, the proposed clearing is not likely to results in any long-term impact to the ecological values of riparian vegetation communities of Lake Monger, subject to conditions being placed on the permit to limit impacts to Typha only.

During the clearing, workers accessing and removing the Typha may create some minor disturbance of the lake floor, leading to minor turbidity within the water, which may have other subsequent impacts to surface water quality. However, these impacts are likely to be minor and short-term, noting the clearing methodology will not disturb the ground directly.

Conclusion

Based on the above assessment, the proposed clearing will not significantly impact ecological values of riparian communities or water quality of Lake Monger. The proposed clearing may result in increased turbidity and subsequent impacts to water quality, however these impacts are likely to be short term and minor.

Conditions

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

- avoidance and minimisation to reduce the impacts and extent of clearing,
- undertake spraying of Glyphosate during the driest time of the year when the water level is at its lowest and during calm conditions.

3.3. Relevant planning instruments and other matters

The application area intersects a Contaminated Site classified under the *Contaminated Sites Act 2003*. DWER's Contaminated Sites branch advised that applicant should consider risks associated with potential interception of landfill wastes and appropriate disposal (DWER, 2025). An Environmental Management Plan (EMP) – Ground Disturbing Works has been developed by the Town of Cambridge to inform management at the site. Prior to clearing, it is recommended the EMP is reviewed to ensure it suitably addresses risks to site workers and on-going site users associated with potential for exposure to soil contamination during clearing. If contaminated soil is removed when

cutting below the water line, then analysis may be required to ensure this is disposed to an appropriate landfill (DWER, 2025).

DBCA (2019) advised that the use of Glyphosate can be contentious near human populations and that the short-term and long-term impact on aquatic wildlife from Glyphosate use is not entirely clear. Within Australia, the regulation of pesticides is undertaken by the Australian Pesticides and Veterinary Medicine Authority. There are legal penalties in place for using pesticides outside of label directions. The applicant is advised to ensure their use of Glyphosate and any other pesticides during this clearing activities complies with all legal requirements concerning the use of these pesticides. Furthermore, applying the Glyphosate when the wind is calm and directing the spray carefully to each individual stalk will mitigate potential risk to adjacent vegetation and fauna.

One Aboriginal site of significance has been mapped within the application 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
Information about chemical use	See Section 1.1
Information on disturbance of soil	See Appendix B.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	The area proposed to be cleared is part of a patch of native vegetation within Lake Monger in the intensive land use zone of Western Australia. It is surrounded by water and other riparian vegetation. Beyond Lake Monger is parkland and recreational facilities. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 7.3 per cent of the original native vegetation cover.
Ecological linkage	The application area does not intersect a formal ecological linkage. The closest linkage is the Gnangara Ecological Linkages (145) located approximately one kilometre northwest of the application area.
Conservation areas	The application area does not intersect a formal conservation area. The closest conservation area is Herdsman Lake (Bush Forever area 281), one kilometre from the application area.
Vegetation description	Photographs supplied by the applicant (Town of Cambridge, 2024) indicate the vegetation within the application area consists of Typha species. Representative photos are available in Appendix E. This is inconsistent with the mapped vegetation type: Karrakatta Complex-Central and South, which is described as Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (Jarrah) - Banksia species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River. The mapped vegetation type retains approximately 23.49 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	Photographs supplied by the applicant (Town of Cambridge, 2024) indicate the vegetation within the application area is in Good to Degraded (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos are available in Appendix E.
Climate and landform	The climate is classified as Mediterranean climate characterised with dry, hot summers and wet and cool winters and with a mean annual rainfall of 780-790 mm.
Soil description	The soil is mapped as: • Spearwood wet, lake Phase (211SpW_LAKE): Lake, and • EnvGeol P Phase (211Sp__P): PEAT - black, clayey in part, saturated fibrous organic soil (DPIRD, 2019).
Land degradation risk	The application area has a moderate amount of variability in the land degradation risk between the two soil types.

Characteristic	Details
	• The Spearwood wet, lake Phase have more than 70 per cent of the mapped soil unit a moderate to very high waterlogging risk and high to extreme phosphorus export risk. • The EnvGeol P Phase soil unit have 70 of the mapped soil unit a moderate to very high waterlogging risk and high to extreme phosphorus export risk and moderate Acid Sulfate Soil disturbance risk 3 m from surface. See the table in Appendix B.4 for a full analysis soil risk.
Waterbodies	The desktop assessment and aerial imagery indicate the application area is within Lake Monger, a conservation category basin. Herdsman Lake, a conservation category basin, is mapped one kilometre from the application area.
Hydrogeography	The application area is within Perth Groundwater Area, as proclaimed under the *Rights in Water and Irrigation Act 1914* (RiWI Act). Groundwater salinity within the application area is mapped at 500 - 1000 milligrams per litre total dissolved solids.
Flora	There are 120 conservation significant flora species recorded in the local area. The nearest record is of Priority 3 *Hibbertia leptotheca* located 800 metres from the application area. A review of the habitat requirements for these species indicates that they are unlikely to be present in the application area, noting it is within a wetland.
Ecological communities	There are no conservation significant ecological communities recorded in the application area. There is occurrence of the endangered Priority 3 Banksia Woodlands of the Swan Coastal Plain threatened ecological community (TEC) two kilometres from the application area.
Fauna	There are 79 conservation significant fauna species recorded in the local area. The nearest record is of Priority 4 *Oxyura australis* (blue-billed duck) located 5 metres from the application area.

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	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Karrakatta Complex-Central and South**	53,080.99	12,467.20	23.49	4,282.73	8.07
Local area					
10 km radius	25893.56	1904.578	7.3	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

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)
Calidris acuminata (sharp-tailed sandpiper)	MI	Y	Y	2.2	8
Calidris ruficollis (red-necked stint)	MI	Y	Y	3.5	76
Pandion haliaetus (osprey)	MI	Y	Y	3	17
Plegadis falcinellus (glossy ibis)	MI	Y	Y	0.5	153
Thalasseus bergii (crested tern)	MI	Y	Y	1.9	288
Tringa glareola (wood sandpiper)	MI	Y	Y	1.2	15
Tringa nebularia (common greenshank)	MI	Y	Y	0.5	63
Oxyura australis (blue-billed duck)	P4	Y	Y	0.01	718
Hydromys chrysogaster (water rat)	P4	Y	Y	3.1	28
Botaurus poiciloptilus (Australasian bittern)	EN	Y	Y	0.8	12
Rostratula australis (Australian painted snipe)	EN	Y	Y	1.5	1

EN: endangered, P: priority, MI: migratory

B.4. Land degradation risk table

Risk categories	***Spearwood wet Lake Phase***	***EnvGeol P Phase***
Percentage of mapped soil unit		
Subsurface Acidification	0	H1: 50-70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	H2: >70% of the map unit has a moderate to high flood risk	0
Water logging	H2: >70% of map unit has a moderate to very high waterlogging risk	H1: 50-70% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	H2: >70% of map unit has a high to extreme phosphorus export risk	H1: 50-70% of map unit has a high to extreme phosphorus export risk

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: Noting that the proposed clearing will only target Typha, it is not anticipated that the proposed clearing will significantly impact conservation significant flora, fauna habitat or assemblages of plants, and may improve biodiversity by allowing flora species to reinstate.	Not likely to be at variance	Yes Refer to Section 3.2.1, above.
Principle (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."* Assessment: The application area may contain suitable habitat for conservation significant fauna. Given the minimal area to be removed, the proposed clearing is unlikely to have a significant impact on fauna habitat.	May be at variance	Yes Refer to Section 3.2.1, above.
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: None of the threatened flora species recorded within the local are known to occur in wetland habitats or stands of Typha (Western Australian Herbarium, 1998-). As such, and as the proposed clearing will only target Typha, it is unlikely any conservation significant flora will be negatively impacted by the clearing.	Not likely to be at variance	No
Principle (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."* Assessment: According to available spatial data, the proposed area to be cleared does not contains species that indicate threatened ecological communities (TEC). The proposed clearing area is not a representative of Priority 3 endangered Banksia dominated Woodlands of the Swan Coastal Plain IBRA Region. Given this, the targeted removal of Typha is unlikely to impact a TEC.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The extent of vegetation in the local area falls below national objectives and targets for biodiversity conservation in Australia. However, noting the proposed clearing is to selectively remove Typha, the vegetation proposed to be cleared is not considered to be a significant remnant of vegetation, and the proposed clearing will allow other native vegetation species to reinstate.	May be at variance	Yes Refer to Section 3.2.2, above.

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (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."* Assessment: The application area is one kilometre away from Bush forever site 281 and Herdsman Lake. Given the purpose of clearing is to improve wetland habitat and the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of adjacent conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The application area is within a mapped wetland.	At variance	Yes *Refer to Section 3.2.3, above.*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are highly susceptible to water logging. The soil unit Spearwood wet, lake Phase is recorded as having a high potential for Phosphorus export which is above 70 percent of the mapped soil unit. The control method of Typha proposed by applicant includes cutting the plant below the water line and chemical control, which is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	No
Principle (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."* Assessment: The proposed clearing may increase water turbidity, however noting the extent and methodology of the proposed clearing, impacts are likely to be minimal and short term. The proposed clearing is unlikely to impact ground water quality.	May be at variance	Yes *Refer to Section 3.2.3, above.*
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: Noting the extent of clearing and that it is within the a lake, the proposed clearing is unlikely to increase the likelihood, incidence or intensity of flooding in the local area.	Not likely to be at variance	No

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.
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 (Town of Cambridge, 2024)

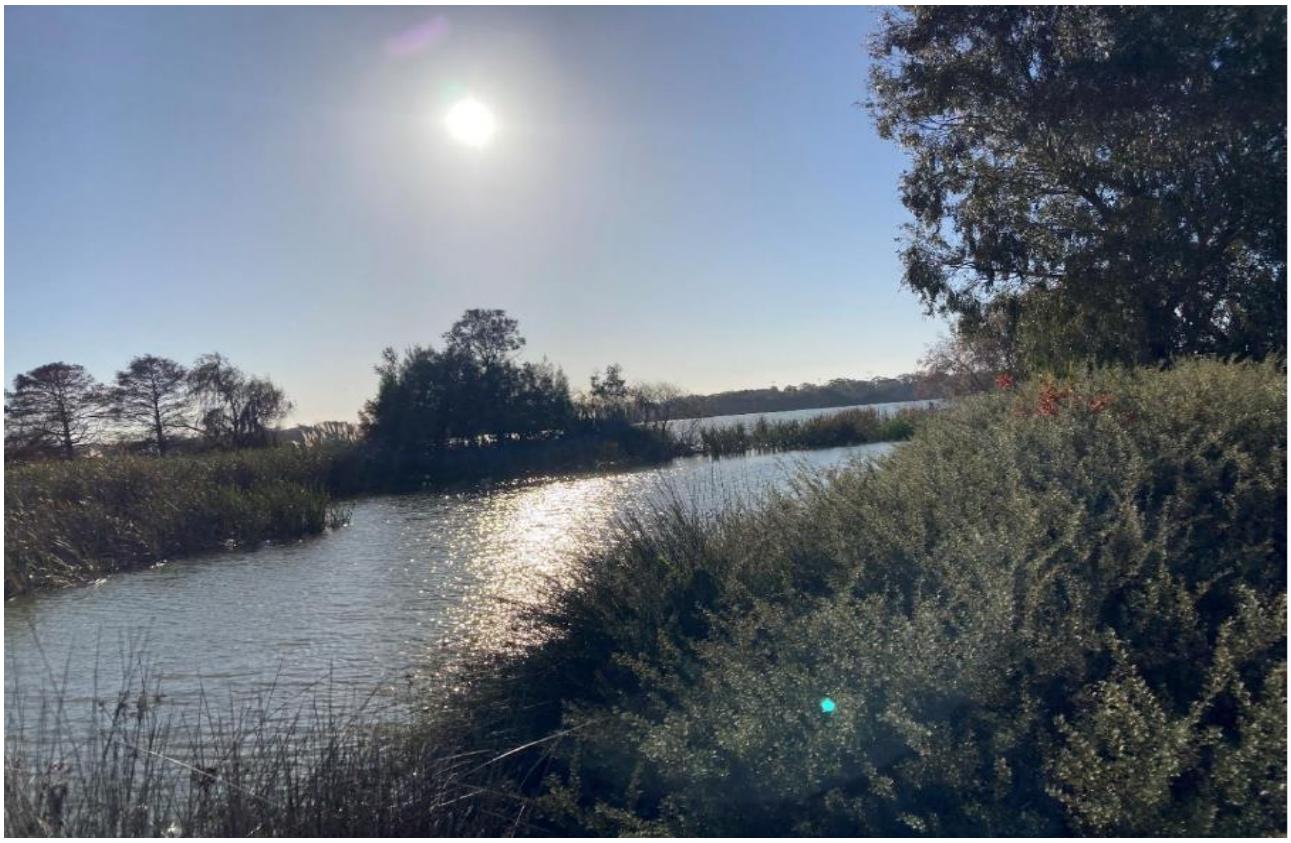

Figure 1: Southern end of island Lake Monger

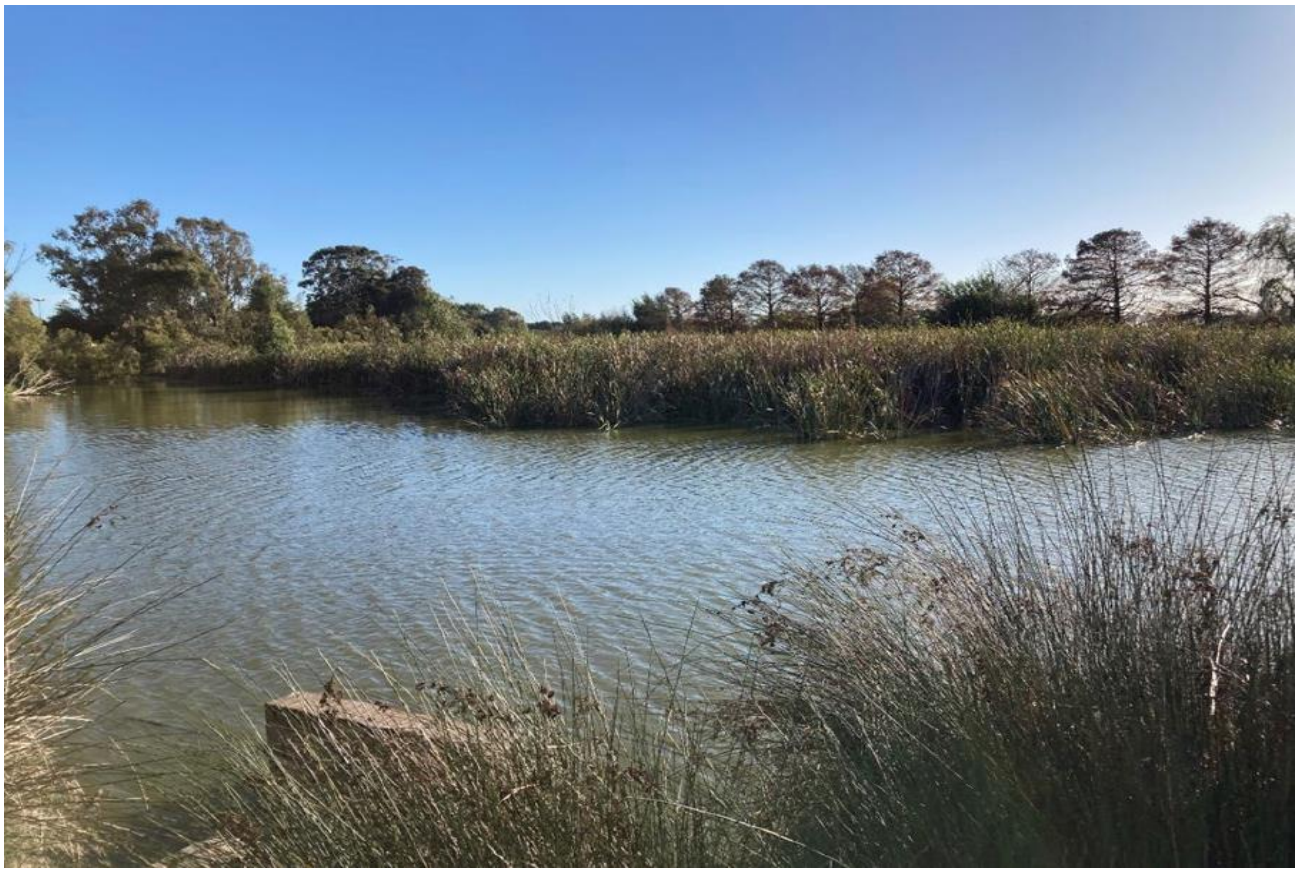

Figure 2: Western side of island Lake Monger (Drone view of southwest corner of Lake Monger)

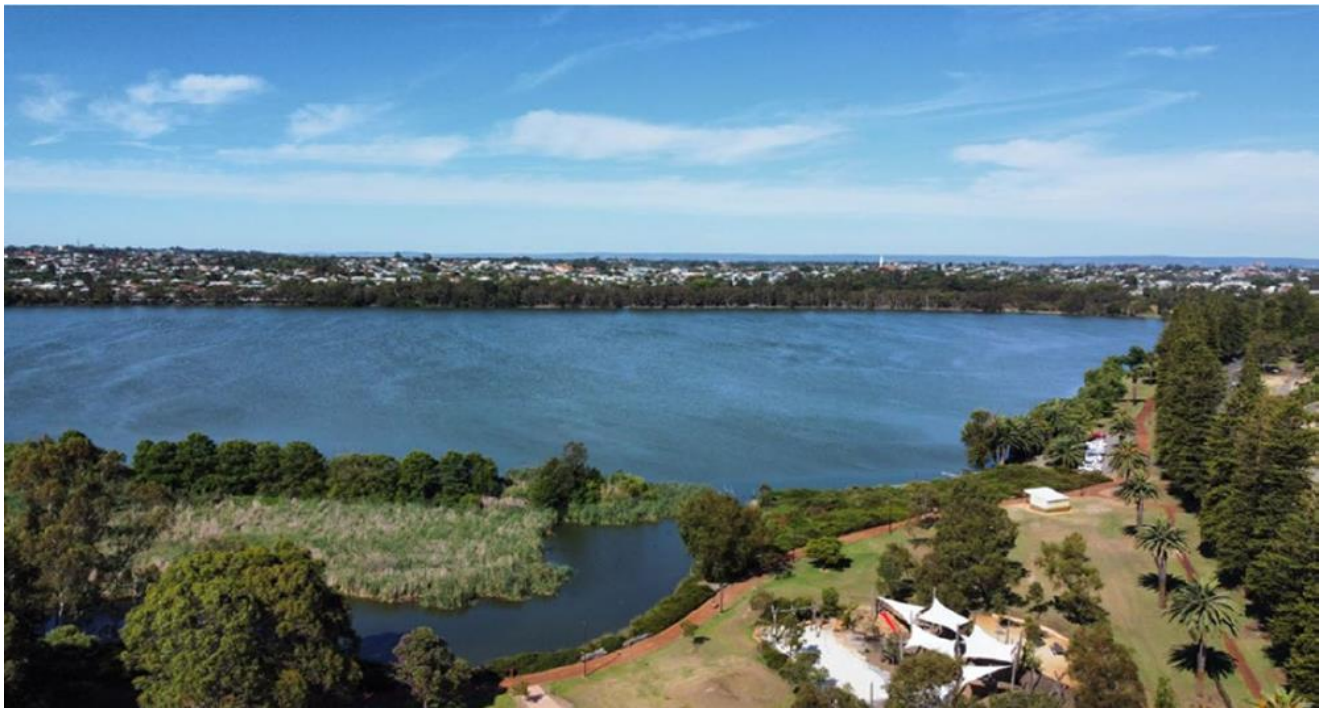

Figure 3: Drone view of site

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)
- 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)
- Offsets Register – Offsets (DWER-078)
- 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)

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