



WILDFLOWER SOCIETY OF WESTERN AUSTRALIA (Inc)

28 August 2023

Chief Executive Officer
City of Gosnells
2120 Albany Highway
Gosnells WA 6110

By email: council@gosnells.wa.gov.au

Re: **Maddington Kenwick Strategic Employment Area Precinct 2 & 3B**

The Wildflower Society of Western Australia (hereafter referred to as “the Society”) has prepared this submission in response to the advertised request for comment made by the City of Gosnells in reference to the Maddington Kenwick Strategic Employment Area Precincts 2 and 3B. The Society contends that Precincts 2 and 3B as described in the proposed planning scheme amendments should not proceed on environmental grounds, including its impact on the Greater Brixton Street Wetlands.

The Society has identified several issues that are not fully addressed, discounted or not addressed in the Environmental Review Document (ERD) (Emerge, 2023). These include:

- **The failure of the authors to use contemporary knowledge in the ERD and its Appendices.** For example, Appendix L on the Aboriginal Cultural Heritage was prepared in 2009 and there has been a significant increase in the level and detail of knowledge of the heritage of this area, and the Swan Coastal Plain more generally and heritage linkages within it, since that report was prepared. Similarly, there has been substantial surveys of the Brixton Street Wetlands, Alison Baird Reserve and Yule Brook which has increased the knowledge of the flora and its inter-relationship with the hydrology of the area that is not reported (for example, Lambers (ed), 2019) in Appendix H.

The following documents should also be reviewed and the principles announced in them addressed within the ERD and its Appendices:

- EPA (2015) Perth and Peel @ 3.5 million Environmental impacts, risks and remedies Interim strategic advice of the Environmental Protection Authority to the Minister for Environment under section 16(e) of the Environmental Protection Act 1986
<https://www.epa.wa.gov.au/sites/default/files/Publications/Perth-Peel-s16e-interim-advice-2015-web.pdf>
- Environmental Protection Authority 2022, Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain. Advice in accordance with section 16(j) of the Environmental Protection Act 1986, EPA, Western Australia.
[Environmental Values and Pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain.pdf \(PDF, 1.31 MB\)](#)



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- **Failure to intentionally plan and deliver the precautionary principle, intergenerational equity, conservation of biological integrity and waste minimisation**, as described in the Environmental Protection Act (as amended 2021). Achievement of these principles requires observance of the requirements of the following legislation, policies, commitments and advice:
 - International Union for the Conservation of Nature IUCN (2022) [Global Biodiversity Framework](#)
 - Govt of WA (2022) WA Native Vegetation Policy (eg no net loss) [Native vegetation policy for Western Australia](#)
 - [Environment Protection and Biodiversity Conservation \(EPBC\) Act 1999](#) (eg Matters of National Significance like Carnaby's Black Cockatoos)
 - Govt of WA (1997) Wetlands Conservation Policy <https://library.dbca.wa.gov.au/static/FullTextFiles/017818.pdf>
 - WA Local Government Assn (2013) [Policy-Advice-and-Advocacy/Environment/Local-Biodiversity-Program/Guidance-for-the-Integration-of-Biodiversity-into-LPSs.pdf](#).
- **The alteration of surface hydrology** as proposed changes the pathway in which water flows through the conservation areas and modifies the timeframe in which water flows from the catchment above and below the development area. These changes occur because the pathways through the development area are modified to accommodate the payout within precincts and the point at which water is collected to pass through the precinct and the location in which it is released.

The water entering the conservation areas, outside Yule Brook, does not arrive at those areas at specific locations but tends to meander through the low depressions and feed areas covered in vegetation that is adapted to those flows. The specificity of the drainage exiting the precincts will concentrate that flow then release it at fixed locations which will flood some parts of the vegetation and starve other parts.

The Society believes the City of Gosnells (CoG) should commission a nationally recognised authority to conduct an independent, scientific, peer-reviewed and publicly transparent WSUD audit of the current LWMSs and to DESIGN a new, best practice water management strategy and Structure Plan that will truly protect the GBSW and Yule Brook. The current proposal will not provide appropriate on-lot water management to ensure that the GBSW are not impacted. It should comply with latest version of WA Government 'Decision Process for Stormwater Management in WA', updated 2017, <https://www.wa.gov.au/government/publications/decision-process-stormwater-management-western-australia>. It is particularly important for the GBSW that the State Government's guidance for planning and designing stormwater management systems for urban developments be fully implemented. The first 15mm of any rainfall event needs to be managed on-lot, with estate wide management options also installed.

The use of a LWMSs such as Source Control Stormwater Management (SCSM) negates the requirement of surface detention systems like the Multiple Use Corridor (MUC) and the 'nominal drainage basins' being proposed for the MKSEA P2 and P3B developments in the



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CoG Draft Structure Plan. A revised design for LWMSs would also ensure improved environmental outcomes for the groundwater fed GBSW. By maximising triple-bottom-line benefits, SCSM counters the effects of traditional drainage systems that often result in harm to groundwater dependent ecosystems and critical habitat of Threatened wildlife.

The installation of detention basins by excavation, or other means, in the clay soils of the lowest lying parts of Precincts 2 and 3B is known to be risky when combined with the serious impacts associated with acid sulphate soils in such settings.

- **The alteration of groundwater hydrology and quality** through the development of the MKSEA. The groundwater hydrology in this area is driven by the recharge from the adjacent Darling Scarp and Ridge Hill Shelf. Development within the MKSEA is likely to hinder groundwater flows as the depth to groundwater is shallow (in some places less than 2 m) and compaction and surcharging of development sites is likely to compact sub-surface soils and slow the movement of groundwater through the precinct development areas.

The Yule Brook's natural water cycle is a testament to nature's brilliance. It supports significant ecosystem diversity, complex and multiple water cycle pathways, distributed depression storage and facilitates passive infiltration, both crucial for the sustenance of groundwater-dependent ecosystems. Groundwater, after its prolonged journey through varied geological formations, finds its way into lower depressions and elevations.

However, during the development of Precincts 3A and 3B, a stark deviation from this natural blueprint was evident. While my proposal to the developer highlighted sustainable water practices, the final civil subdivision design was a far cry from the biomimicry needed to preserve the biological environment.

The deviations in these subdivisions can be attributed to the capitalist inclinations of the developers supported by the City of Gosnells. The reliance on conventional pit and pipe conveyance 'drainage' methods is a global concern. Such methods, which include drainage, pits, pipes, swales, and detention basins, are fundamentally flawed in replicating the natural water cycle. The term "drainage" itself implies the removal of water, leading to water centralisation in basins, a phenomenon alien to the natural landscape.

The current submission references inflows from upstream catchments. Historically, such inflows were non-existent. Pre-development flood modelling indicated minimal surface water connectivity. Some consultants argue against the feasibility of infiltration. Yet, passive infiltration has been a natural process for millions of years across diverse soils and geological structures. The speed of infiltration varies, but centralising flows makes it nearly impossible, as evidenced by the Hantush equation of groundwater mounding.

True replication of the natural water cycle is only achievable through source control approaches. Numerous examples from Australia to the sandy soils of Dubai and the less porous terrains of Southwest Victoria can be cited. In these regions, bespoke solutions that respect the unique water pathways have proven successful. However, a capitalist mindset and a one-size-fits-all approach stifle diversity. Such conventional methods have even led to flooding in areas like Dubai, resulting in tragic losses.



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The Society fears for the future of Yule Brook. The once ephemeral nature of this water body is at risk of becoming a permanent standing water feature upon the full development of the MKSEA site. Once these delicate ecosystem services are disrupted, restoration becomes an almost impossible herculean task.

Loss of groundwater quality could arise from two (2) significant sources. Excavation below ground could generate acid drainage because of exposure and excavation of acid sulphate soils. This would result in acidification of the groundwater which in turn changes the water chemistry (mobilises metals) and leads to plant death in areas beyond where the excavation occurs.

The Society understands that there is no proposal to install deep sewerage in the development area. As the groundwater flows from the precinct development area toward the conservation areas of Brixton Stret Wetlands and Yule Brook the nutrients produced by septic tanks installed in lieu of deep sewerage will flow in the groundwater toward the conservation areas. This will an increase in phosphate levels in the groundwater which will have a negative impact on the vegetation as many of the species that comprise the vegetation are phosphate sensitive (Lambers, 2019). The increase phosphate will see a decline in vegetation condition and diversity.

- **Fragmentation of conservation areas.** The current proposal, as shown in Figure 1, creates a very high edge/area ratio because of seeking maximum return on investment for the developed land. Reduction of this fragmentation requires a consolidation of land through a minimal sacrifice of land to be developed. This would result in a two-fold increase of the area of conservation lands with a loss of 27% of the development area. It would also set aside land for the Yule Brook Regional Park that will ultimately connect the hills to the river and allow protection of waterways and wetlands, while enabling recreational access. The proposed land classification changes are shown at Figure 2. This corridor provides an exceptional opportunity for leisure, recreational and education purposes, if the link and the wetlands-Yule Brook relationship can be preserved.

The proposed revision of the land classifications would minimise the length of edge associated with the conservation zone, thus increasing its viability and lessening the management requirements to maintain and conserve the values within it.

The Society believes CoG should discuss with State Government agencies to use funds from the Offsets Trust Fund to acquire the additional land through negotiation with existing landholders to enable this broader area to be placed under management for conservation purposes.

We urge the City of Gosnells (CoG), Dept. Planning, Lands & Heritage (DPLH) and the EPA to NOT re-zone the 9 blocks to 'industrial' or 'composite zone' (or 'nominal drainage basin' adjacent to Yule Brook). Figure 3 identifies the nine (9) blocks.

By removing the identified nine blocks in Brook and Boundary Roads from the MKSEA and/or from the other zonings indicated in Draft Structure Plan, there would be a doubling



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of the conservation/green area for a 27% reduction in the MKSEA (as described in Figure 1). This would reduce the boundary to area ratio of the conservation/green zone, form a critical buffer to keeping the hydrology intact (thus reduce impacts on vegetation and fauna), improve ecological connectivity to the Yule Brook and reduce the impacts of non-compatible land uses within the GBSW.

To minimise fragmentation all roads crossing the conservation area should be closed and precinct access designed to originate from the accesses available from the existing road network around the development area, such as Welshpool Road for Precinct 3 and Kelvin Road for Precinct 2B.

The Society contends that provision for firebreaks around the conservation area should be stipulated as a requirement for development of the industrial land. Provision of those firebreaks should be a requirement within the blocks of industrial land and the firebreaks should be developed outside the conservation area to enable the control of weed invasion, dieback controls and erosion within that area.

- **Buffer zones.** Functional buffers are required for good conservation management - without these the significant natural wonders of the GBSW and adjoining proposed Yule Brook Regional Park will be eroded, degraded and ultimately lost. These buffers are required for:
 - the Greater Brixton Street Wetlands (Bush Forever Site 387)
 - Conservation Category Wetlands
 - Yule Brook
 - Crystal Brook
 - All Threatened, Priority and other Flora of conservation significance and their habitat
 - All vegetation of the Guildford and Forrestfield Vegetation Complexes
 - All Threatened, Priority and other Fauna of conservation significance (including invertebrates and Short Range Endemics) and their habitat (eg Carnabys Black Cockatoos)
 - Federal and State Threatened Ecological Communities (TECs).

The buffer zones should be set at 100 m outside the functional area of a wetland, as described in the Wetland Buffer Policy, as these areas is classed as Conservation Class Wetland. The areas should be considered as one block, although management may be joint or separate depending on arrangements to be developed when it proceeds.

Buffers should be provided in areas where significant conservation values occur. These are described in the attached Appendix A.

- **Lack of a detailed fauna assessment.** This is a significant knowledge gap for this highly diverse habitat and should have been included in the ERD. However, any survey carried out appears to have had a restricted scope limited to the areas with potential to be disturbed. This research would also clearly demonstrate the close relationships between the variety of plant community habitats and fauna, including with insects, Short Range Endemics and subterranean fauna.



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- **Cumulative impacts.** The Society believes there are a number of cumulative impacts that arise from the implementation of projects surrounding and nearby the project area which need to be taken into account when considering the environmental impact of this project. Some of these projects are outside the jurisdiction of the State in the decision-making process. They include:
 - Perth Airport
 - Tonkin Highway upgrades at Welshpool and Kelvin Roads
 - Urban development north of Welshpool Road and east of Tonkin Highway
 - Metronet projects on the Perth-Armadale rail line

Both Perth Airport and Tonkin Highway developments pose a threat to the remnant vegetation cover in areas adjacent to the Darling Scarp and Ridgehill Shelf. These have been documents by the Society in submissions to the Perth Airport and Main Roads Western Australia. Along with this development, these projects threaten both Threatened Flora, Threatened Ecological Communities and Threatened Fauna that are Listed under the Federal EPBC Act. They both also alter the surface and groundwater hydrology in the region.

While the urban development projects are not likely to threaten the flora they may well threaten fauna as much of the remnant vegetation is potentially offering food, roosting and nesting opportunities for threatened cockatoo species. They will also potentially threaten the existing hydrological regime through the increased runoff from the area.

The Metronet projects are likely to modify local drainage in the area and may have impacts beyond their area of immediate influence as a result.

Summary

The Greater Brixton Street Wetlands (Bush Forever Site 387) and associated conservation area in the vicinity of Yule Brook which combine would form part of the Yule Brook Regional Park through the proposed MKSEA host 11 EPBC (Environment Protection and Biodiversity Conservation) Act threatened plant species, over twenty priority flora species, four different TECs (Threatened Ecological Communities), plus protected fauna and birds (see Appendix A).

The Society contends that the Environmental Review Document produced for the City of Gosnells does not consider all the contemporary information available to enable a full and proper assessment of the environment within the area. It also fails to justify the impact classifications assigned to the project through the approach taken to:

- The principles of the Environmental Protection Act
- Alteration of surface water hydrology
- Alteration of groundwater hydrology and quality
- Fragmentation and clearing of areas worthy of conservation
- The discounting of the need for buffers without any scientific support
- Lack of a detailed fauna assessment to determine the flora and vegetation required to support the fauna species and populations
- Cumulative impacts associated with other projects locally and regionally that collective threaten a range of environmental features.



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The Society supports the proposal to expand the area set aside for conservation in the project area two-fold to provide a continuous corridor for through the MKSEA area with a loss of only 27% of the proposed precinct areas. The Society believes much of this area could be funded from money set aside for the purchase of offsets through the implementation of this and other projects. Requirements, such as fire management and drainage should be fully investigated and not included in the determination of the areas put aside for conservation, but be provided within the industrial estate.

The Society believes the diversity of the Greater Brixton Street Wetlands within such a small portion of the Swan Coastal Plain warrants the sacrifice of a minor portion of this industrial development and the implementation of actions to conserve its integrity. This is an area of unique diversity of global significance and should be provided with a conservation status that reflects its importance.

We would request that a complete independent review of the environmental impact of the MKSEA is completed before the finalisation of the planning scheme is completed and that this review is carried out using the most recent data available on this site in consultation with the experts who have participated in its data collection and interpretation.



<http://www.wildflowersocietywa.org.au/>

References:


Emerge and Associates (Emerge), 2023. Environmental Review, City of Gosnells Town Planning Scheme No. 6 Amendments 166 and 169; EPA Assessment No: 2176 and 2177, Version J; Prepared for the City of Gosnells; May 2023.



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EPA (2015) Perth and Peel @ 3.5 million Environmental impacts, risks and remedies Interim strategic advice of the Environmental Protection Authority to the Minister for Environment under section 16(e) of the Environmental Protection Act 1986

<https://www.epa.wa.gov.au/sites/default/files/Publications/Perth-Peel-s16e-interim-advice-2015-web.pdf>

EPA, (2022). Environmental Values and Pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain', in accordance with Section 16(j) of the *Environmental Protection Act 1986* 
[Environmental Values and Pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain.pdf \(PDF, 1.31 MB\)](#)

Lambers H (ed), (2019). A Jewel in the Crown of a Global Biodiversity Hotspot. Kwongan Foundation and the Western Australian Naturalists Club Inc, Perth.

V & C Semeniuk Research Group (2001) Hydrological Study of the Greater Brixton Street Wetlands: Report prepared for the Friends of Brixton Street Inc.

CC: Environmental Protection Authority



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FIGURES



Figure 1 – Current Planning Proposal (red areas indicate development area and grey indicates conservation zone)



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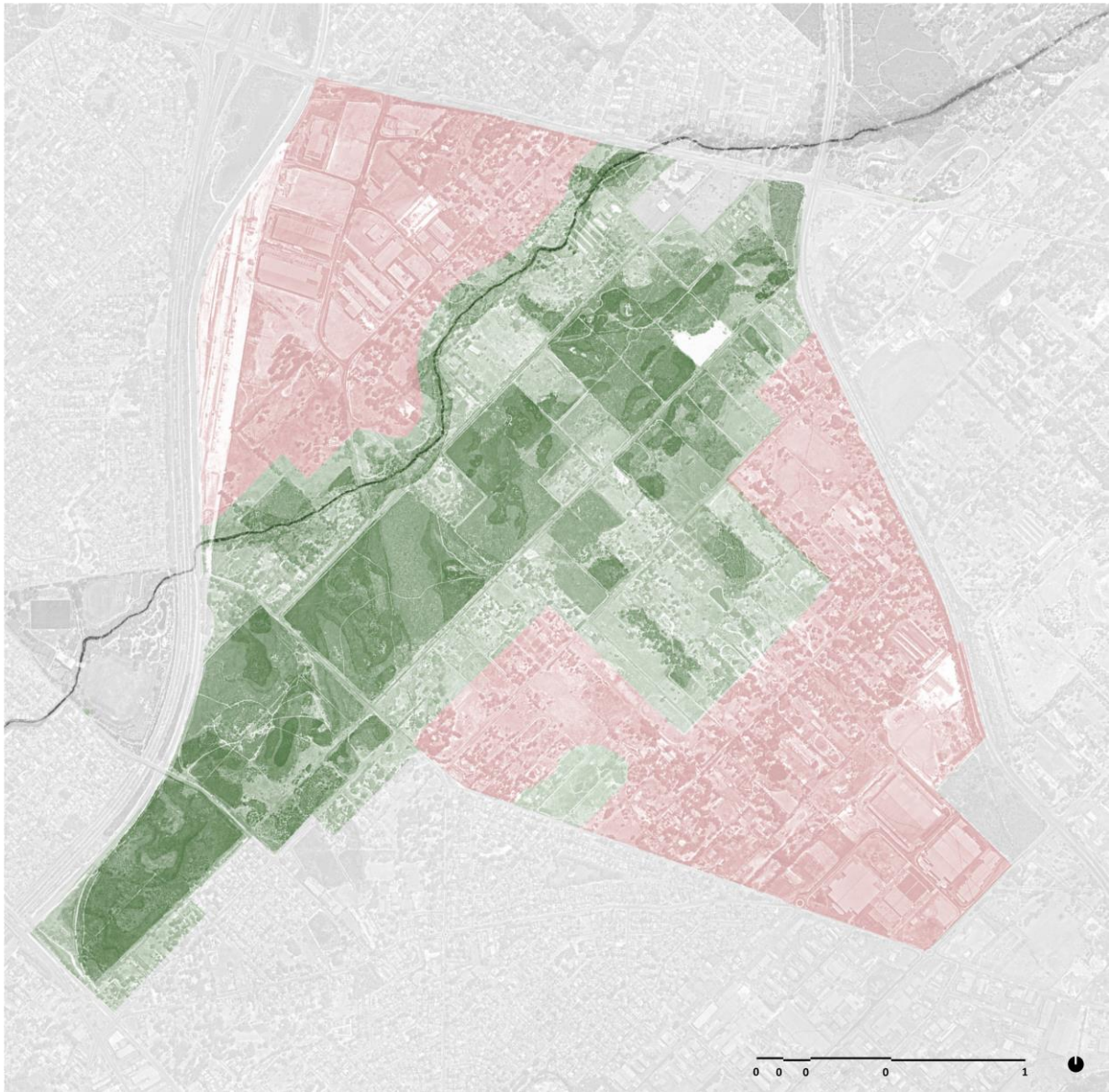


Figure 2 – Conservation Planning Proposal as defined by The Beeliar Group



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The draft Structure Plan for Precincts 2 and 3B for the MKSEA is shown below:



Figure 3 – Identified Blocks for incorporation into the Conservation areas

Figures Reference: The Beeliar Group, 2023. The Vision for a future Yule Brook Regional Park. The Beeliar Group of Professors for Environmental Responsibility as cited at <https://thebeeliargroup.files.wordpress.com/2023/08/the-beeliar-groups-vision-for-a-future-yule-brook-regional-park-1.pdf>



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APPENDICES

APPENDIX A: The listed flora, vegetation and fauna values of Conservation Significance in the Greater Brixton St Wetlands (GBSW) and in the proposed Maddington Kenwick Strategic employment Area (MKSEA) industrial area. (Updated 12.08.17)

Table 1: THREATENED FLORA

Cons. Status	Name	GBSW	MKSEA	Statutory Protection
Endangered	<i>Andersonia gracilis</i> DC.	*		EPBC Act
Endangered	<i>Austrostipa bronwenae</i> A.R.Williams	*		WA Biodiversity Act
Endangered	<i>Calytrix breviseta</i> Lindl. subsp. <i>breviseta</i>	*	*	EPBC Act
Vulnerable	<i>Conospermum undulatum</i> Lindl.	*	*	EPBC Act
Endangered	<i>Diuris purdei</i> Diels	*		EPBC Act
Vulnerable	<i>Eleocharis keigheryi</i> K.L.Wilson	*		EPBC Act
Endangered	<i>Eremophila glabra</i> subsp. <i>chlorella</i> (Gand.) Chinnock	*	*	WA Biodiversity Act
Critically Endangered	<i>Grevillea thelemanniana</i> Endl. subsp. <i>thelemanniana</i>	*	*	WA Biodiversity Act
Endangered	<i>Lepidosperma rostratum</i> S.T.Blake	*	*	EPBC Act
Critically Endangered	<i>Ptilotus pyramidatus</i> (Moq.) F.Muell.	*		EPBC Act
Critically Endangered	<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	*		EPBC Act
Total Threatened Flora		11	5	



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Table 2: PRIORITY FLORA (including fungi) (no statutory protection, DBCA list only)

Cons. Status	Name	GBSW	MKSEA
Priority 1	<i>Amanita quenda</i> EM Davison	*	not surveyed
Priority 1	<i>Calandrinia</i> sp. Piawaning (AC Beauglehole 12257)	*	
Priority 1	<i>Schoenus</i> sp. Beaufort (GJ Keighery 6291)	*	
Priority 2	<i>Comesperma griffinii</i> Keighery	*	
Priority 2	<i>Comesperma rhadinocarpum</i> F. Muell.	*	
Priority 2	<i>Isotropis cuneifolia</i> subsp. <i>glabra</i> Keighery	*	
Priority 2	<i>Lepyrodia curvescens</i> BG.Briggs & LAS Johnson	*	*
Priority 2	<i>Schoenus loliaceus</i> Kuek.	*	
Priority 3	<i>Amanita wadjukiorum</i> EM Davison	*	not surveyed
Priority 3	<i>Babingtonia urbana</i> Rye	*	
Priority 3	<i>Byblis gigantea</i> Lindl.	*	
Priority 3	<i>Chamaescilla gibsonii</i> Keighery	*	
Priority 3	<i>Cyathochaeta teretifolia</i> W.Fitzg.	*	*
Priority 3	<i>Eryngium pinnatifidum</i> subsp. <i>palustre</i> (GJKeighery 13459)	*	
Priority 3	<i>Eryngium subdecumbens</i> (GJ Keighery 5390)	*	
Priority 3	<i>Isopogon drummondii</i> Benth.	*	*
Priority 3	<i>Myriophyllum echinatum</i> Orchard	*	
Priority 3	<i>Schoenus benthamii</i> F.Muell.	*	
Priority 3	<i>Schoenus capillifolius</i> D.A.Cooke	*	
Priority 3	<i>Schoenus pennisetis</i> S.T.Blake	*	*
Priority 3	<i>Schoenus</i> sp. Waroona (GJ Keighery 12235)	*	
Priority 3	<i>Stylidium aceratum</i> Lowrie & Kenneally	*	
Priority 3	<i>Stylidium longitubum</i> Benth.	*	
Priority 4	<i>Aponogeton hexatepalus</i> H.Bruggen	*	



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Priority 4	<i>Centrolepis caespitosa</i> D.A.Cooke	*	
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Table 2 (cont.): PRIORITY FLORA (including fungi) (no statutory protection, DBCA list only)

Cons. Status	Name	GBSW	MKSEA
Priority 4	<i>Drosera occidentalis</i> Morrison subsp. <i>occidentalis</i>	*	
Priority 4	<i>Hydrocotyle lemnoides</i> Benth.	*	
Priority 4	<i>Ornduffia submersa</i> (Aston) Tippery & Les	*	
Priority 4	<i>Verticordia lindleyi</i> Schauer subsp. <i>lindleyi</i>	*	*
Total Priority Species		30	5

Table 5: LISTED FAUNA

Cons. Status	Name	Greater Brixton St Wetlands	MKSEA	Statutory Protection
Critically Endangered	<i>Leioproctus douglasiellus</i> (a native bee)	*	No detailed field survey	EPBC Act
Endangered	<i>Calyptorhynchus latirostris</i> (Carnabys Black Cockatoo)	* (foraging habitat)	* (foraging habitat)	EPBC Act
Vulnerable	<i>Calyptorhynchus banksii naso</i> (Forest Red Tailed Black Cockatoo)	* (foraging habitat)	* (foraging habitat and a major roost, Bird Life WA, 2017)	EPBC Act



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Migratory Bird IA	<i>Ardea modesta</i> (Great Egret)	*	No detailed field survey	International Agreement
Priority 2	<i>Leioproctus bilobatus</i> (a native bee)	*	No detailed field survey	Nil, DCBA list only
Priority 5	<i>Isoodon obesulus fusciventer</i> (Quenda)	*	*	Nil, DCBA list only

Table 3: THREATENED ECOLOGICAL COMMUNITIES (TECs) Listed under the EPBC Act

Cons. Status	Name of TEC	GBSW	MKSEA
Critically Endangered	Claypans of the Swan Coastal Plain	*	*
Endangered	<i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils of the Swan Coastal Plain	*	*
Endangered	Shrublands and Woodlands on Muchea Limestone of the Swan Coastal Plain	*	*
Endangered	Banksia Woodlands of the Swan Coastal Plain	*	*
Total in GBSW		4	4

Table 4: SUMMARY OF FLORA AND VEGETATION VALUES [Note: area estimates include only native vegetation areas mapped in good or better condition]

Location	Total native flora taxa	Total area est. (ha)	Total Threatened Flora Species and (EPBC listed T species only)	DBCA Priority Flora Species	EPBC listed TECs
Total Greater Brixton St Wetlands (BFA 387)	>560	≈143.11	11(8)	30	4
Total MKSEA	315	≈28.08	5(3)	5	4