Vegetation Clearing Assessment Report

SPS Round 1 Redundant Line Decommissioning – Lake Muir

March 2025



Western Power

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Document Control

Document version history

Version	Date	Amendment
Rev 0	22/10/2024	Initial version
Rev 1	07/03/2025	Publish version – Minor edits for publishing, adoption of DWER assessment



1. Project Information

Project Details			
Project name: SPS Round 1 Redund	Contract/Work Order No: 07635156		
Main purpose of clearing	Permanent/Temporary		Clearing area (ha)
Decommissioning (removal of redundant infrastructure)	Permanent 🗆		0
	Temporary 🛛		3.48
Proposed start date: 3/02/2025		Expected completi	on date: 30/06/2025
Method of clearing:		Machinery to be u	sed:
• Clearing by driving or crushing under vehicles where there is sufficient access.		ТВС	
• Mechanical clearing where vegetation prohibits access. Clearing will be to ground level, mulched and left onsite to promote regeneration.			

Project details:

The installation of pilot and stage 1 stand-alone power systems (SPS) on private properties have rendered sections of existing overhead distribution powerlines redundant. The Lake Muir Decommissioning Project (the project) involves the decommissioning of redundant distribution lines in the Lake Muir area. These lines have been de-energised, and the existing maintenance zone has become overgrown by natural regrowth. Clearing is required to establish a 5 metre (m) temporary access track along the line route and a 7 m clear area around each pole to accommodate the pole loader and equipment, and provide a safe working area to remove each pole. Up to 3.48 ha is proposed to be cleared for the project.

Works will be confined to the existing maintenance zone for these lines. Western Power routinely clears the maintenance zone to ensure vegetation does not interfere with overhead powerlines and to maintain vehicle access. After the distribution lines have been removed, the maintenance zone will be left to naturally regenerate. Cleared vegetation will be respread to reduce the risk of soil erosion and encourage regrowth.

The proposed clearing will be confined to a clearing envelope of 12.90 ha, which generally corresponds to the maintenance zone. The envelope has been designed to accommodate the winding nature of the existing maintenance access track and any discrepancies between the GPS locations of poles and their actual location on the ground. While the clearing envelope does overlap some remnant native vegetation, the project will only clear previously cleared vegetation within the maintenance zone and as such the remnant native vegetation will not be impacted.

Guardian Permit ID reference number:	Permit/Exemption number:
PER-0000954	CPS 1918/11



2. Map/photos



Figure 1 – Clearing Envelope



Figure 2 – Study Area





3. Avoid, minimise and reduce extent and impact of clearing

Alternatives to clearing considered during the development of this project are outlined in Table 1:

Alternative to Clearing	Applicable	Discussion
Directional drilling of underground cables instead of open trenching	No	Not relevant to the scope of works. The project does not involve the installation of any new assets.
existing tracks are utilised where possible	Yes	Vehicle access will be along the existing line or from Muir Hwy, therefore no new access tracks will be required.
utilising previously cleared areas where possible	Yes	Access to powerlines and poles will be via the previously cleared maintenance zone.
consideration of alternative engineering and design options	No	The objective of the project is to remove redundant powerlines, therefore there are no alternative engineering or design options. The lines require removal as it presents a safety and contamination risk.
Other	No	

Table 1 – Alternatives to clearing

The following additional measures will be implemented to minimise and reduce the impacts of clearing:

- Vehicle access will be along the existing powerline corridor, thereby avoiding remnant vegetation. Where clearing of regrowth vegetation is required, vegetation will be cleared to ground level, mulched, and respread onsite to avoid impacting the soil profile, reduce the risk of soil erosion and promote natural regeneration.
- Western Power has undertaken targeted flora surveys to identify populations of conservation significant flora within and adjacent to the clearing area. These populations will be demarcated onsite and avoided where possible. Western Power will also obtain authorisation to take Threatened flora under the *Biodiversity Conservation Act 2016* (BC Act).
- Implementation of the overarching SPS Round 1 Decommissioning Environmental Management Plan (EMP) The plan will document management measures to reduce the impacts of clearing, with particular focus on managing significant flora, wetlands and conservation areas.
- Implementation of a Dieback Hygiene Management Plan. The plan will outline hygiene management requirements for vehicles accessing the Clearing Envelope, including the designation of clean on entry/exit points and wash down areas (if required). The plan will be informed by a dieback survey, which is currently in progress. As part of the project is located within DBCA-managed lands (Lake Muir Nature Reserve), the plan will require endorsement by DBCA.

4. Site context

4.1 Land Tenure (Cadastral Information)

Property:

- 1. Unallocated Crown Land (various)
- 2. Crown Land (various)
- 3. Freehold (various)

Conservation Estates:

1. Lake Muir Nature Reserve

Local Government:

1. Shire of Manjimup

Other:

1. Road Reserve

4.2 Vegetation description

The clearing envelope has been broadly mapped as comprising the following vegetation associations (Government of WA, 2019):

3:	Medium forest; jarrah-marri	
27:	Low woodland; paperbark (Melaleuca sp.)	
126:	Bare areas; freshwater lakes	
1134:	Medium woodland; jarrah (south coast)	

Table 2 summarises the extent of each vegetation association.

Pre-European Vegetation Association	Scale	Pre-European extent (ha)	Current extent (ha)	Percent remaining	% Current Extent remaining in DBCA reserves (proportion of Current extent)
	Statewide	2,661,404.62	1,803,437.48	67.76	55.23
Vegetation	IBRA Bioregion Jarrah Forest	2,390,591.54	1,604,101.56	67.10	54.35
Association No. 3	IBRA Sub-region Southern Jarrah Forest	1,482,491.85	880,655.65	59.40	46.63



	Local Government Authority Shire of Manjimup	287,389.56	238,176.00	82.88	78.48
	Statewide	130,385.33	92,501.98	70.95	59.24
	IBRA Bioregion Jarrah Forest	49,877.73	36,735.77	73.65	59.35
Vegetation Association No. 27	IBRA Sub-region Southern Jarrah Forest	49,877.73	36,735.77	73.65	59.35
	Local Government Authority Shire of Manjimup	50,895.92	45,840.40	90.07	85.36
	Statewide	23,503.39	9,570.88	40.72	15.69
	IBRA Bioregion Jarrah Forest	9,957.28	2,526.43	25.37	15.76
Vegetation Association No. 126	IBRA Sub-region Southern Jarrah Forest	9,957.28	2,526.43	25.37	15.76
	Local Government Authority Shire of Manjimup	6,692.69	1,427.02	21.32	17.47
	Statewide	37,488.91	30,358.47	80.98	72.34
	IBRA Bioregion Jarrah Forest	23,080.17	17,829.50	77.25	69.67
Vegetation Association No. 1134	IBRA Sub-region Southern Jarrah Forest	23,080.17	17,829.50	77.25	69.67
	Local Government Authority Shire of Manjimup	25,641.70	21,410.84	83.50	76.68

Table 2: Statewide vegetation statistics (Government of WA, 2019a)

Vegetation complexes of the southwest forest region have been mapped by Mattiske and Havel (1990). The Clearing Envelope is mapped as the following vegetation complexes:

Bevan 1 (BE1):	Tall open forest of <i>Corymbia calophylla-Eucalyptus marginata</i> subsp. <i>marginata</i> on uplands in perhumid and humid zones.
Camballup (CM):	Mosaic of woodland of <i>Eucalyptus marginata</i> subsp. <i>marginata-Corymbia calophylla</i> on slopes, and woodland of <i>Eucalyptus occidentalis-Melaleuca cuticularis-Melaleuca rhaphiophylla</i> , low woodland of <i>Melaleuca preissiana-Banksia littoralis</i> and tall shrublands of <i>Melaleuca viminea</i> on broad depressions in humid to semiarid zones.
Frankland Hills (FH5):	Mosaic of low open woodland of <i>Melaleuca cuticularis</i> , tall shrubland of <i>Melaleuca densa</i> with occasional <i>Eucalyptus rudis</i> on valley floors in humid to semiarid zones.

Lakes and Open Waters (L):	Open Water, no terrestrial vegetation.
Unicup (UC2):	Low woodland of <i>Eucalyptus marginata</i> subsp. <i>marginata-Banksia ilicifolia-Nuytsia floribunda</i> on slopes and low woodland of <i>Melaleuca preissiana-Banksia littoralis</i> on lower slopes in humid and subhumid zones.
Unicup (UC3):	Open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata-Corymbia calophylla</i> on slopes in humid and subhumid zones.
Unicup (UC4):	Tall shrubland of <i>Melaleuca spp</i> . with occasional <i>Eucalyptus rudis, Eucalyptus decipiens</i> and <i>Melaleuca cuticularis</i> on broad swampy depressions in humid and subhumid zones.
Yornup (YR):	Mosaic of open woodland of <i>Eucalyptus marginata</i> subsp. <i>marginata-Corymbia calophylla</i> , open woodland of <i>Melaleuca cuticularis</i> , open woodland of <i>Melaleuca preissiana-Banksia littoralis-Banksia seminuda</i> , tall shrubland of <i>Myrtaceae spp</i> . and sedgelands on broad depressions in humid and subhumid zones.

Table 3 summarises the extent of each vegetation complex:

Vegetation Complex	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Current percentage remaining within lands for Conservation (%)
BE1	76,781.57	62,802.37	81.79	7.37
СМ	30,605.01	20,417.24	66.71	42.19
FH5	21,444.30	11,134.11	51.92	16.99
L	13,863.12	1,219.09	8.79	5.35
UC2	3,207.18	2,620.96	81.72	67.81
UC3	3,668.62	1,154.07	31.46	13.14
UC4	3,240.27	2,807.18	86.63	63.65
YR	19,258.92	11,663.44	60.56	11.85

 Table 3: South West Vegetation Complex Statistics (Government of WA, 2019b).

Vegetation community and condition mapping was undertaken over the clearing envelope and surrounding vegetation in spring 2023 (AECOM, 2024). The following native vegetation communities occur in the clearing envelope (Table 4)*:

* Approximately 0.04 ha has been extrapolated by Western Power.



Vegetation Community	Description	Area ha (% of Clearing Envelope)
CcCpLc	Jarrah/Marri upland forest	4.52 (35%)
КеНе	a Kunzea dominated shrubland	4.51 (35%)
McGmCc	<i>Melaleuca</i> wetland with standing water present, represents riparian vegetation and may be groundwater dependent.	0.16 (1%)
MrKeLl	an ephemeral <i>Melaleuca</i> wetland that represents riparian vegetation and may be groundwater dependent.	
Total native vegetation		11.84 (92%)
Cleared or non	1.03 (8%)	

 Table 4 – Vegetation communities of the clearing envelope

The remaining area of the clearing envelope comprises cleared areas or non-native vegetation such as paddocks (totalling 1.03 ha).

Vegetation condition ranges between very good to completely degraded, as summarised in Table 5:

Vegetation Condition (EPA, 2016)	Area ha (% of native vegetation)
Very Good	1.74 (15%)
Good	2.54 (21%)
Degraded	6.45 (54%)
Completely Degraded	1.11 (9%)
Total	11.84 (100%)

$\textbf{Table 5}-Vegetation\ condition\ of\ the\ clearing\ envelope$

Vegetation condition underneath the powerlines is predominantly in degraded to completely degraded condition due to historical clearing. This will make up the majority of the project clearing area.



4.3 Summary of results of surveys

A flora and vegetation assessment was conducted over the clearing envelope and surrounding vegetation in October 2023. The survey area covered a 60 m wide corridor following the line route, representing an 82.6 ha linear corridor. An additional targeted flora survey was conducted in December 2023 during the optimum flowering period for species conservation significant flora.

The results of the survey are summarised below:

- Five native vegetation communities were mapped across 58.08 ha (70%) of the survey area, four of which are mapped within the clearing envelope.
- Vegetation condition ranged from completely degraded to very good. The majority of vegetation was mapped as very good condition. Vegetation underneath the powerline (the clearing area) was primarily in degraded to completely degraded condition.
- No vegetation representing a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) was recorded.
- One population of the Declared pest *Moraea flaccida* was recorded in the survey area. This population coincides with the clearing envelope.

Five significant flora species were recorded in the survey area; *Caladenia christineae* (Threatened), *Diuris drummondii* (Threatened), *Kunzea micrantha* subsp. *hirtiflora* (Priority 3), *Stylidium lepidum* (Priority 3) and *Ornduffia submersa* (Priority 4). Table 6 summarises the total number of individuals recorded within the survey area and clearing envelope:

Species	No. within Survey Area	No. within Clearing Envelope	% Impact
Caladenia christineae	15	0	0%
Diuris drummondii	316	37	12%
Kunzea micrantha subsp. hirtiflora	351	5	1%
Ornduffia submersa	700	0	0%
Stylidium lepidum	575	0	0%

Table 6 – Conservation significant flora

Four significant flora species known to occur within the survey area from previous DBCA records were not detected during the survey. This included *Caladenia harringtoniae* (Threatened), *Astartea* sp. Lake Muir (B.L. Rye 230128 & R.W. Hearn) (Priority 2), *Stylidium roseonanum* (Priority 3) and *Stylidium rhipidium* (Priority 3). DBCA records of these species were visited to verify them in-situ.

5. Spatial assessment (SPIDA View)

Western Power's online risk GIS database was analysed, and the following layers are indicated as having the potential for clearing impacts within a local area search radius of 50 m.

DBCA managed tenure	\boxtimes	Bush Forever		CAWS Act Area		Native Vegetation Clearing Regs ESAs	\boxtimes
Conservation listed fauna		Conservation listed flora	\boxtimes	Western Power ESA sites	\boxtimes	Native vegetation remaining	\boxtimes
Threatened ecological communities		Acid Sulfate Soils		PDWSA		Ramsar or Important Wetlands	\boxtimes
Geomorphic or other mapped wetlands		Disease Risk Areas		Erosion risk		Offset areas	
Watercourses		Land Degradation					
Other Details:							



6. Assessment of vegetation clearing impacts

The proposed clearing has been assessed against each of the clearing principles in accordance with the Department of Water and Environmental Regulation guideline "A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environment Protection Act 1986" (DER, 2014).

Clearing permit principles full assessment

a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Is at variance

Assessment:

Western Power proposes to clear up to 3.48 ha of native vegetation within a clearing envelope of approximately 12.90 ha for the purpose of decommissioning a redundant powerline.

The vegetation condition in the project envelope ranges from very good to completely degraded (EPA, 2016), though clearing activities will only impact on vegetation within the existing powerline maintenance zone. This vegetation has been subject to routine maintenance activities resulting in weed invasion and prevalence of disturbance opportunists. Consequently, this vegetation is in degraded or completely degraded (EPA, 2016) condition.

Four vegetation communities have been identified within the clearing envelope (AECOM, 2024):

- CcCpLc: Jarrah/Marri upland forest.
- KeHe: a *Kunzea* dominated shrubland.
- McGmCc: *Melaleuca* wetland with standing water present, represents riparian vegetation and may be groundwater dependent.
- MrKeLI: an ephemeral *Melaleuca* wetland that represents riparian vegetation and may be groundwater dependent.

None of these vegetation communities are restricted to the clearing envelope and extend beyond the survey area, given the linear nature of the project.

The desktop assessment identified one TEC with the potential to occur in the study area; *Empodisma* peatlands of the southwestern Australia (*Empodisma* Peatlands TEC). This community is listed as Endangered under the *Environment and Biodiversity Conservation Act (1999)* (EPBC Act). The *Empodisma* Peatlands TEC is described as a sedgeland to shrubland vegetation complex on peaty substrates that almost always includes the perennial grass-like twig rush *Empodisma gracillimum* (tanglefoot) (DCCEEW, 2023). This TEC was not identified in the initial desktop assessment for the vegetation survey due to its recent listing and was not searched for during the field survey. The vegetation communities and landforms recorded in the survey have been reviewed against the key diagnostic characteristics for this community and based on the information provided in the conservation advice, none of the vegetation communities identified within the survey area represent the *Empodisma* Peatlands TEC.

No other TECs or PECs were recorded in the clearing envelope.

According to available datasets, 58 conservation significant flora species are known to occur in the study area, comprising 10 Threatened and 48 Priority species. Three of these species have been previously recorded within the clearing envelope based on DBCA records, including:

- Caladenia christineae (T)
- Diuris drummondii (T)
- Astartea sp. Lake Muir (B.L. Rye 230128 & R.W. Hearn) (P2)

According to AECOM (2024), a further 12 species are either known or have a high likelihood of occurring in the wider survey area, and the remaining species identified in the desktop assessment have a moderate, low or negligible likelihood of occurrence.

A total of 190 flora species were identified in the survey area from 53 families (AECOM, 2024). The most common families represented in the survey area are Myrtaceae, Orchidaceae and Fabaceae. Thirty-three introduced or naturalised weeds species were also recorded.

Two conservation significant flora species were recorded within the clearing envelope at the time of the survey: *Diuris drummondii* (T) and *Kunzea micrantha* subsp. *Hirtiflora* (P3).

As detailed under principle (c), AECOM recorded 316 individuals of *Diuris drummondii* from four populations, of which up to 37 individuals may be impacted by the proposed clearing.

A total of 351 *Kunzea micrantha* subsp. *hirtiflora* were recorded in the survey area, including five individuals located within the clearing envelope. The Priority 3 subspecies grows in temporary marshes and is often partly submerged when flowering. It is mostly known from the Lake Muir area, spanning a range of approximately 30 km, with two outlying records located 50 km and 180 km to the east (Florabase, 2024). The nearest historical record is approximately 200m northeast of the clearing envelope. *Kunzea micrantha* subsp. *hirtiflora* is confined to the eastern extent of the survey area in vegetation communities KeHe, McGmCc and MrKeLl, and is found in both the maintenance zone and adjacent intact vegetation (AECOM, 2024). To minimise impacts to this species, the clearing envelope has been reduced to avoid approximately 17 individuals within the maintenance zone. Given this species is represented in greater numbers outside of the clearing envelope and similar, higher-quality habitat will be avoided, the proposed clearing of up to five individuals of *Kunzea micrantha* subsp. *hirtiflora* is not likely to significantly impact this species.

Known records of *Caladenia christineae* and *Astartea* sp. Lake Muir that occur within the clearing envelope were visited during the survey. No individuals were recorded within the clearing envelope, however *Caladenia christineae* was recorded in the wider survey area. The survey also recorded *Caladenia harringtoniae* (T), *Stylidium lepidum* (P3) and *Ornduffia submersa* (P4) within or near the survey area.

Potential impacts to Caladenia christineae and Caladenia harringtoniae are discussed further under principle (c).

Astartea sp. Lake Muir is represented in the clearing envelope by a single DBCA record near the intersection of Muir Hwy and Thomson Rd. No individuals of *Astartea* sp. Lake Muir were recorded at this location or elsewhere within the survey area. A sterile *Astartea* specimen was collected at a different location for identification, but it could not be identified to species level. Following the precautionary principle, it is assumed *Astartea* sp. Lake Muir occurs in the survey area (AECOM, 2024). This species is known from nine records in the Lake Muir area and has been previously recorded on sandy clay soils in wetland or swamp habitats, or within shrublands and woodlands dominated by *Melaleuca* and *Eucalyptus* species (AECOM, 2024). Suitable habitat for *Astartea* sp. Lake Muir may occur in the clearing envelope, particularly the McGmCc and MrKeLl vegetation communities, although this habitat has been modified from historical clearing. Approximately 13.67 ha of McGmCc and MrKeLl occurs outside the clearing envelope. Given that this species is known to occur outside the clearing envelope, and considering the vegetation in the vicinity of the *Astartea* sp. records is in degraded condition (EPA, 2016) and has been subject to routine maintenance clearing, the proposed clearing is not likely to impact this species.

A total of 575 *Stylidium lepidum* were recorded in the survey area, although according to AECOM this is an estimate of the total abundance. *Stylidium lepidum* was recorded at the eastern extent of the survey area within McGmCc and MrKeLI vegetation communities, as well as in a paddock adjacent to open *Melaleuca rhaphiophylla* woodland. This species was recorded in previously cleared areas and adjacent intact vegetation. While potentially suitable habitat for this species exists within the clearing envelope, this species was not detected in the clearing envelope and is known to occur in surrounding native vegetation. Therefore, the proposed clearing is not likely to impact this species.

A total of 700 individuals of *Ornduffia submersa* were recorded across three locations in the survey area, with an additional 200 individuals estimated to occur outside of the survey area. Given this is an aquatic species, this is an estimate of total abundance. This species was found in roadside pools along Muir Hwy, within the KeHe and McGmCc vegetation communities. This species was not detected within the clearing envelope at the time of the survey, and minimal clearing is required to remove poles along Muir Hwy. Therefore, the proposed clearing is not likely to impact this species.

Other priority flora species that have the potential to occur in the clearing envelope were not detected during the survey. Considering the clearing envelope is primarily in degraded to completely degraded (EPA, 2016) condition and has been modified by historical clearing and routine maintenance activities, these species are not considered likely to occur. Based on available data, 42 conservation significant fauna species have been recorded in the 20 km study area, comprising 25 bird, 11 mammal, 4 fish and 2 invertebrate species. None of these records occur within the clearing envelope. The clearing envelope has been significantly modified from historical clearing activities and is not likely to contain a relatively high level of fauna diversity.

The clearing envelope is located in an area potentially susceptible to *phytophthora* dieback. Clearing activities have the potential to introduce or spread dieback into surrounding native vegetation. Dieback can impact on biodiversity by reducing species richness and impacting habitat for fauna. Western Power will implement a dieback hygiene management plan to minimise the risk of spreading dieback outside of the clearing area. This will include mapping dieback risk areas, designating clean on entry/exit points and measures to prevent the movement of plant material and soil into uninfested areas.

The proposed clearing involves the removal of vegetation that is predominantly in degraded to completely degraded (EPA, 2016) condition within an existing maintenance corridor. The vegetation has been significantly modified by regular maintenance clearing activities associated with the operation of the distribution line, meaning it does not support the same level of biodiversity as the adjacent, intact native vegetation. Nonetheless, given the clearing envelope contains conservation significant flora, the proposed clearing is considered at variance to this principle. However, taking into consideration the clearing envelope has been routinely cleared in the past, similar ecological values are found in adjacent intact vegetation, the clearing is temporary, linear and minor in scale, and the area is expected to naturally regenerate to a similar or better condition following the removal of the distribution line, the clearing is not expected to result in a significant residual impact. Therefore, an exemption from the requirement to prepare an offset and seek submissions will be sought.

b) Native vegetation should not be cleared if it comprises whole or part of, or is necessary for the maintenance of, a significant habitat for fauna. Not likely to be at variance

Assessment:

Based on vegetation community mapping, the clearing envelope can generally be described as comprising three fauna habitat types:

- Jarrah/Marri upland forest
- Kunzea dominated shrubland
- Melaleuca woodland.

While the vegetation and flora assessment mapped these communities across the survey area, it is noted the vegetation to be removed has been routinely cleared as part of regular maintenance activities for the operation of the distribution line. As a result, the fauna habitat within the clearing envelope has been significantly modified by past clearing activities, in particular the preferential removal of tall trees and shrubs that interfere with the overhead powerlines. According to the vegetation and flora assessment, the vegetation beneath the powerlines is in degraded to completely degraded (EPA, 2016) condition, and impacted by weeds and disturbance opportunists, such as thickets of Kunzea *ericifolia* subsp. *ericifolia*. As such, the maintenance corridor no longer provides the same habitat value as the surrounding intact native vegetation.

Based on available data, 42 conservation significant fauna species have been recorded in the 20 km study area. None of these records occur within the clearing envelope. While some of these species may forage or traverse the clearing envelope, the area primarily consists of regrowth vegetation, which is unlikely to provide significant habitat for fauna. Following the decommissioning of the distribution line, the vegetation is expected to naturally regenerate, thereby restoring or potentially enhancing the fauna habitat removed by this project. Additionally, there are extensive areas of intact native vegetation adjacent to the clearing envelope that would provide higher-quality habitat and ecological linkages for local fauna. Any potential impacts to fauna can be effectively managed through the SPS Environmental Management Plan.

Based on the above, the proposed clearing is not likely to be at variance to this principle.



c) Native vegetation should not be cleared if it includes, or is necessary for the continued Is at variance existence of, threatened flora.

Assessment:

The vegetation and flora assessment identified nine Threatened flora species within the 20 km study area, two of which have been previously recorded within the clearing envelope (*Caladenia christineae* and *Diuris drummondii*). Based on the proximity of historical records and habitat requirements, the following Threatened flora species may also occur within the clearing envelope:

- Bossiaea reptans
- Caladenia harringtoniae
- Caladenia winfieldii
- Verticordia densiflora var. pedunculata

Diuris drummondii is a donkey orchid listed as Vulnerable under the EPBC Act and Endangered under the *Biodiversity Conservation Act 2016* (BC Act). It is a tuberous, perennial herb that occurs in low-lying depressions or swamps (Florabase, 2024). The species is known from 12 populations between Perth and Walpole (DEWHA, 2008a). A total of 316 individuals were recorded in the targeted survey that align with four verified populations (1B, 18A, 19A/19B and 22A/22B). The recorded total comprises 63 in the powerline maintenance zone, 181 within the survey area but outside of the maintenance zone and 72 individuals recorded up to 50m outside of the survey area. The four populations were recorded across four native vegetation communities (CcCpLc, KeHe, McGmCc and MrKeLI), in areas where soils were wet, and both the understory and canopy were open. Although this species was recorded across several vegetation types, the majority of the population is concentrated within wetland vegetation types McGmCc and MrKeLI.

A total of 37 *Diuris drummondii* individuals across four populations occur in the clearing envelope, representing 12% of the total recorded population in the survey area. Table 6 shows the proportion of each known population that occurs within the clearing envelope:

Population	AECOM Survey (2024)	Clearing Envelope
1B	24	8
18A	141	13
19A/19B	4	3
22A/22B	147	13

 Table 6 – Diuris drummondii populations within clearing envelope

Out of the 37 plants located within the clearing envelope, 21 are situated within 6 m of a power pole and may be impacted by clearing around the base of each pole during the removal process. The remaining 16 plants are located in the larger maintenance zone that runs alongside the powerline. Clearing within these areas will be confined to existing access tracks wherever possible, thereby avoiding impacting on plants located away from the powerline and access track. However, plants located within or near the access track may be affected by clearing or vehicle traffic.

Caladenia christineae is known to occur in the clearing envelope based on one DBCA record. Aerial imagery indicates this record is located at the edge of the maintenance zone. This orchid is listed as Vulnerable under the EPBC Act and Endangered under the BC Act. The species is currently known from 28 populations within Western Australia, between Yornup and Mt Barker in the southwest (DEWHA, 2008b). It typically inhabits the margins of winter-wet flats, swamps, and freshwater lakes (Florabase, 2024). During the survey, AECOM recorded a total of 15 individuals within the same population as the DBCA record (verified population #4), including nine individuals located up to 50m outside the survey area. The population was confined to the MrKeLI community, where the understory was dominated by sedges, with a very sparse mid-storey and open overstorey. *Caladenia christineae* was not recorded in the clearing envelope at the time of the targeted survey. The nearest record is approximately 14m outside the clearing envelope. None were observed in the vicinity of the DBCA record.

Caladenia harringtoniae is not known to occur in the clearing envelope however this species has been previously recorded in the larger survey area (population 3A), and there are five other records of this species occurring within 500m of the project. This species was not recorded within the survey area at the time of the survey, despite targeted searches of the known population, however three individuals were recorded approximately 85m south of the clearing envelope outside of the survey area. *Caladenia harringtoniae* typically inhabits winter-wet flats, margins of lakes, creeklines and granite outcrops (Florabase, 2024). Wetland vegetation communities mapped in the clearing envelope (McGmCc and MrKeLI) may provide suitable habitat for this species.

Caladenia winfieldii typically inhabits winter-wet depressions and swamps (Florabase, 2024). The nearest record to the project site is approximately 20km to the west. Although this species was not observed during the survey, AECOM noted it may be inconspicuous, and therefore retains a moderate likelihood of occurring. Wetland vegetation communities McGmCc and MrKeLl may provide suitable habitat for this species.

Bossiaea reptans has previously been recorded on a low rise surrounded by broad, low-lying winter-wet flats in Jarrah and Marri forest/woodland (AECOM, 2024), while *Verticordia densiflora* var. *pedunculata* occurs in similar winter-wet, low lying areas (Florabase, 2024). The nearest known records of these species to the project site are approximately 20km to the northeast and northwest, respectively. Neither species were observed during the survey. Although wetland communities mapped in the clearing envelope may provide suitable habitat, the absence of records in the local area and the lack of observations during the survey suggest that *Bossiaea reptans* and *Verticordia densiflora* var. *pedunculata* are unlikely to occur within the clearing envelope.

The proposed clearing will directly impact on Threatened flora (*Diuris drummondii*). Although *Caladenia christineae*, *Caladenia harringtoniae* and *Caladenia winfieldii* were not recorded in the clearing envelope at the time of the survey, the clearing will remove potentially suitable habitat for these species in the form of wetland, winter-wet and swamp habitat. This is primarily represented by McGmCc, MrKeLl and KeHe vegetation communities (AECOM, 2024).

The potential removal of up to 37 *Diuris drummondii* plants is not expected to result in a significant impact to this species. *Diuris drummondii* is not restricted to the clearing envelope, with at least 316 individuals identified in the larger survey area, and several known populations surrounding Lake Muir. This species has been recorded within the powerline maintenance zone and on gravel shoulders and drains along Muir Hwy, indicating this species is tolerant of disturbance. While modified vegetation within the maintenance zone has artificially created optimum conditions for *Diuris drummondii*, the project will not result in the loss of this habitat given clearing will only be to the extent necessary to safely remove the redundant powerline. Furthermore, the clearing is temporary, and the vegetation will be allowed to naturally regenerate to a similar or better condition following the removal of the distribution line. Any potential impacts to this species can be effectively managed through the implementation of a Vegetation Management Plan. Western Power also intends to seek a precautionary authorisation to remove these plants under the BC Act.

The total area of McGmCc, MrKeLl and KeHe vegetation communities mapped in the clearing envelope is 7.34 ha, of which approximately 2.29 ha may be cleared based on the location of the infrastructure to be removed. *Melaleuca* woodlands and *Kunzea* shrublands are not restricted to the clearing envelope, with a total of 40.75 ha mapped in the survey area.

Given neither *Caladenia christineae* nor *Caladenia harringtoniae* have been recently detected in the clearing envelope, and similar, higher-quality habitat exists in surrounding vegetation, with both species also represented by other local populations, the proposed clearing is unlikely to impact on the conservation of these species.

While there is a moderate likelihood that *Caladenia winfieldii* could occur within the clearing envelope, this species was not detected during the survey and the distance to the nearest historical record is approximately 20 km. Given the minor and temporary nature of the clearing, any potential impact to this species would likely be minimal.

Based on the above, the native vegetation to be cleared includes Threatened flora, therefore the clearing is at variance to this principle. However, the vegetation is not considered necessary for the continued existence of Threatened flora given the vegetation has been routinely cleared in the past and higher-quality habitat is present outside of the clearing envelope. Potential impacts to Threatened flora can be effectively mitigated through the implementation of the SPS Environmental Management Plan, that will include supervision of the clearing by an environmental specialist, measures



to avoid significant flora where possible, and minimise the risk of indirect impacts from weeds and dieback. Additionally, Western Power will seek authorisation to remove Threatened flora under the BC Act.

Taking into consideration the above, the proposed clearing is unlikely to result in a significant residual impact to Threatened flora. Therefore, an exemption from the requirement to prepare an offset and seek submissions will be sought.

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

Assessment:

The desktop assessment identified one TEC with the potential to occur in the study area; *Empodisma* Peatlands TEC (DCCEEW, 2024). As discussed under principle (a), this community is not present within the clearing envelope.

No vegetation communities mapped within the clearing envelope represent a TEC (AECOM, 2024).

Based on the above, the proposed clearing is not likely to be at variance to this principle.

e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation Not at variance in an area that has been extensively cleared.

Assessment:

The proposed clearing is in the Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and Southern Jarrah Forest subregion, where approximately 53% and 50% of pre-European vegetation extent remains, respectively. At the local level, approximately 51% of native vegetation remains in the 20 km study area (128,229 ha).

The clearing envelope has been broadly mapped as the following vegetation associations:

- 3: Medium forest; jarrah-marri
- 27: Low woodland; paperbark (Melaleuca sp.)
- 126: Bare areas; freshwater lakes
- 1134: Medium woodland; jarrah (south coast)

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30 per cent or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected (Commonwealth of Australia, 2001). Regarding the four vegetation associations mapped within the clearing envelope, only vegetation association 126 is below the 30% threshold in the IBRA region, subregion and local government area (21-25%).

Mattiske and Havel (1990) mapped the vegetation complexes of the southwest Western Australia, with seven vegetation complexes mapped within the clearing envelope. Table 3 shows that all vegetation complexes mapped within the clearing envelope retain over 30% of the pre-European extent, except for Lakes and Open Waters (L), which has approximately 8% remaining. This complex only marginally intersects the clearing envelope at one pole location near Lake Muir, accounting for 0.02 ha of the clearing envelope. Given this vegetation complex is not described as terrestrial vegetation, the proposed clearing is unlikely to impact the Lakes and Open Waters complex.

While the clearing envelope may contain vegetation below the 30% retention threshold, this vegetation correlates to aquatic environments that will not be impacted by the project. Furthermore, the vegetation to be cleared is not representative of the broader vegetation associations mapped across the clearing envelope. This is based on the area having been previously cleared or significantly modified from overhead powerline construction and has been subject to ongoing maintenance. The biological survey indicated the vegetation beneath the powerlines is degraded to completely degraded (EPA, 2016) condition and impacted by weeds and disturbance opportunists, such as thickets of *Kunzea ericifolia* subsp. *ericifolia*.

Although conservation significant flora exists within the clearing envelope, these species have been found in adjacent intact native vegetation. After clearing and removal of powerlines and infrastructure, the area is expected to naturally

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regenerate, therefore the clearing will not result in the permanent removal of flora habitat. Based on the above, the vegetation is not considered a significant remnant of native vegetation within an extensively cleared area.

The proposed clearing is not at variance with this 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.

Is at variance

Assessment:

The clearing envelope intersects several seasonal wetlands. These wetlands are part of the RAMSAR-listed Lake Muir-Byenup Lagoon system. The clearing envelope also intersects Byenup Lagoon System and is in close proximity to Lake Muir, both of which are listed on the Directory of Important Wetlands of Australia. The Byenup Lagoon system is described as numerous lakes, swamps and flats east and north of Lake Muir, which form a natural wetland assemblage in poorly drained country between the Tone and Frankland Rivers and Lake Muir (DCCEEW, 2024).

AECOM mapped two riparian vegetation communities within the clearing envelope: Open *Melaleuca cuticularis* Woodland (McGmCc) and Open *Melaleuca rhaphiophylla* Woodland (MrKeLl). These communities are associated with ephemeral wetlands. AECOM mapped a total of 16.49 ha of riparian vegetation within the survey area, with 2.81 ha located within in the clearing envelope. Based on the location of infrastructure, it is anticipated up to 0.85 ha of riparian vegetation will be cleared.

The project will result in the clearing of vegetation growing in association with a wetland and is therefore at variance with this principle. As the vegetation occurs within an existing powerline corridor that has been routinely cleared, the vegetation is not considered important fringing vegetation to any wetland or watercourse, nor is the clearing likely to affect local hydrology and surface water quality. Furthermore, vegetation is expected to naturally regenerate to a similar or better condition following the removal of the line, therefore the proposed clearing is not likely to significantly impact any watercourses or wetlands in the vicinity of the project. An exemption from the requirement to submit an offset and seek submissions will be sought.

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

Assessment:

The clearing envelope is situated across two soil landscape systems, the Unicup System and the Manjimup Plateau System. The Unicup System is defined by poorly drained alluvial plain interspersed with lakes and swamps. Pale deep sand and wet soils (sometimes saline) with grey sandy duplex is present. The Manjimup Plateau system comprises lateritic plateau. Soils comprises sandy gravel, loamy gravel, non-saline wet soil and deep sand (DPIRD, 2022). The clearing envelope has relatively flat topography. Groundwater salinity ranges between 3000-7000 mg/L Total Dissolved Solids (TDS), which is considered moderately saline.

Risk	
Wind Erosion	>70% of map unit has a high to extreme wind erosion risk (H2) 30-50% of map unit has a high to extreme wind erosion risk (M2)
Water Erosion	<3% of map unit has a high to extreme water erosion risk (L1)
Salinity	50-70% of map unit has a moderate to high salinity risk or is presently saline (H1) <3% of map unit has a moderate to high salinity risk or is presently saline (L1)
Flooding	<3% of map unit has a moderate to high flood risk (L1)

Waterlogging	>70% of map unit has a high water repellence risk (H2)
	30-50% of map unit has a moderate to very high waterlogging risk (M2)
	3-10% of map unit has a moderate to very high waterlogging risk (L2)
	<3% of map unit has a moderate to very high waterlogging risk (L1)

DPIRD land quality mapping indicates areas of the clearing envelope have a very high risk of waterlogging, and a moderate to high risk of wind erosion and salinity. The areas most susceptible to waterlogging are situated in the eastern section of the clearing envelope, between Nabagup Rd and Cowerup Rd. According to DPIRD NRInfo, this region falls within the Unicup 4 subsystem, which is characterised by swampy terrain with semi-wet soil, pale deep sand and wet soil. Inundation at this site was observed by AECOM during both site visits. Sandy soils within the Unicup and Manjimup Plateau systems may be susceptible to wind erosion.

The clearing envelope forms a linear corridor approximately 20 metres wide and is surrounded by extensive areas of native vegetation. Given the linear nature of the clearing envelope, the risk of appreciable land degradation as a result of the proposed clearing is reduced. Furthermore, minor clearing around the base of power poles and for vehicle access within an area that has been routinely cleared is unlikely to significantly increase waterlogging or salinity. Following decommissioning of the powerlines, the area is expected to naturally regenerate to a similar or better condition, thereby reducing the risk of ongoing land degradation. Furthermore, the overarching environment management plan for the project includes management actions to minimise erosion.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an Is at variance impact on the environmental values of any adjacent or nearby conservation area.

Assessment:

There are 25 conservation areas within the local area, the closest being:

- Lake Muir Nature Reserve, located within the clearing envelope
- Lake Muir State Forest, located 500m west of the clearing envelope
- Tone-Perup Nature Reserve, located 700m west of the clearing envelope
- Cowerup Nature Reserve, located 1.7km north-east of the clearing envelope
- Pindicup Nature Reserve, located 2.2km north of the clearing envelope
- Galamup Nature Reserve, located 3.9km east of the clearing envelope.

A section of powerline is located in Lake Muir Nature Reserve (Class A Reserve, R31880). This reserve, which covers approximately 11,310 ha, is vested in the Conservation Commission of WA for the conservation of water, flora and fauna. It includes Lake Muir and several other wetlands that form part of the Muir-Byenup RAMSAR wetland system (DEC, 2012).

The clearing envelope covers 4.40 ha of Lake Muir Nature Reserve, of which approximately 1.21 ha, or 0.01% of the reserve, is expected to be cleared based on the location of infrastructure. Although situated within a conservation area, the clearing envelope has been historically managed as a powerline corridor. Consequently, this vegetation is in a degraded to completely degraded (EPA, 2016) condition (AECOM, 2024). The proposed clearing will not increase fragmentation or disrupt any ecological linkages between conservation areas. Given the clearing is temporary and no further maintenance clearing will occur after the line is removed, it is expected vegetation will naturally regenerate to a similar or better condition, thereby reducing the fragmentation caused by this section of powerline.

The proposed clearing may indirectly impact the environmental values of Lake Muir Nature Reserve by causing the spread of weeds and dieback into adjacent native vegetation. Western Power will implement the following measures to reduce the risk of spreading weeds and dieback:

• The works will follow a Dieback Management Plan and EMP. The plan will include the demarcation of dieback areas, establish clean on entry/exit points, restrict the movement of soil and vegetation material, and restrict all vehicle movement to the clearing envelope.

- All machinery and vehicles will be inspected and verified free of vegetation and soil materials prior to entering and existing the site.
- No weed-affected soil, mulch, fill or other materials will be brought into the site.

Based on the above, the proposed clearing is at variance to this principle. However, since the clearing is temporary and minor in scale, occurs within an existing powerline corridor, and affects previously cleared vegetation, the clearing is unlikely to result in significant residual impact on the environmental values of any conservation areas. Therefore, an exemption from the requirement to prepare an offset will be sought.

i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause	Not likely to be at
deterioration in the quality of surface or underground water.	variance

Assessment:

The project is not located within a Public Drinking Water Source Area (PDWSA) or *Country Area Water Supply Act 1947* area.

The clearing envelope intersects several seasonal wetlands which are associated with nationally and internationally significant wetlands. The project will result in the clearing of some riparian vegetation to provide access to remove poles. This may cause a temporary decline in water quality through increased soil erosion. However, the clearing is confined to the existing maintenance zone which has been routinely cleared in the past, therefore the clearing will not alter local hydrology. Furthermore, as the clearing is temporary and vegetation is expected to regenerate to a similar or better condition, the proposed clearing is unlikely to have a lasting effect on surface water quality.

The groundwater salinity of the local area is approximately 3000-7000 mg/L TDS, which is considered moderately saline. The proposed clearing of up to 3.48 ha across a 15 km linear clearing envelope that has been historically cleared is unlikely to affect groundwater quality.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

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

Assessment:

The project is located in the Lake Muir catchment, which is approximately 369 km². The Lake Muir region averages 1020 mm of annual rainfall (BOM Shannon station), and approximately 1,200mm in average evaporation. As detailed under principle (g), the clearing envelope has not been mapped as having a high risk of flooding, however parts of the clearing envelope are highly susceptible to waterlogging. However, the temporary clearing of regrowth to remove power poles and provide vehicle access is not likely to cause or exacerbate the incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

7. Planning instrument or other relevant matters

The clearing envelope intersects multiple registered Aboriginal heritage sites. As the works involve the removal of existing infrastructure and the areas have been previously disturbed, no sites are likely to be impacted by the works.

Sections of the project are located within DBCA-managed land. Approval will be obtained through DBCA's Disturbance Approval System (DAS).

A Threatened Flora Authorisation will be obtained prior to commencing clearing to take or disturb flora protected under the BC Act.

The project does not intersect any state planning or environmental protection policy areas.

The project does not intersect any land subject to an agreement under the Soil and Land Conservation Act 1945.

8. Clearing Permit Details

Western Power manages impacts of clearing through the implementation of an internal Vegetation Clearing Permit. The Western Power Vegetation Clearing Permit outlining the relevant clearing conditions is available in EDM: **70524214**.

SPS decommissioning projects also have an overarching Environmental Management Plan (Doc ID ID98-750882832-29922).



9. Post assessment requirements

Post assessment	Outcome	Justification / Further Action Required
Are submissions required?	Yes	Project clearing is required to be advertised on the Western Power website for comment. Submissions will also be sought from interested parties as par Condition 7 of CPS 1918/11.
Could the area be affected by dieback?	Yes	The proposed clearing is located below the 26 th parallel and averages over 400mm of annual rainfall.
Could the area be affected by other pathogens?	No	No other pathogens identified in the vegetation and flora assessment.
Is a Vegetation Management Plan required?	Yes	SPS Round 1 decommissioning projects are subject to an overarching Environmental Management Plan (EMP) (EDM 57631624). This plan includes management actions for clearing. This plan fulfills the requirement for a VMP.
Is rehabilitation/revegetation required?	Yes	Western Power has a standing exemption from the requirement to prepare a revegetation plan for SPS Round 1 decommissioning projects (EDM 57948370). An inspection will be carried out after 24 months of clearing to determine if any remedial actions are required.
Is a Dieback Management Plan required?	Yes	Works may occur in conditions other than dry conditions. As per condition 9(c) a Dieback Management Plan will be developed in consultation with DBCA for clearing within DBCA-managed lands. To avoid duplication, the plan will be implemented over the whole clearing envelope.
Is an offset required?	Yes	Given the clearing is unlikely to have a significant residual impact, DWER has approved an exemption from the requirement to submit an offset.
What is the clearing risk rating?	High	A clearing intervention by an environmental specialist is required.



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Appendix A - Stakeholder Consultation

In accordance with Condition 7 of CPS 1918/11, Western Power has published the Clearing Assessment Report on its website and invited submissions from the public. Responses to public submissions will be published on the website.

Western Power has also identified the following parties as having an interest in aspects of the proposed clearing that are at variance or may be at variance to the clearing principles.

Stakeholders	Invited to make submissions?	Date sent
Office of the Commissioner of Soil and Land	Yes 🗆	
Conservation within Department of Primary Industries and Regional Department (DPIRD)	Not required 🗹	
Department of Water and Environmental	Yes 🗹	ТВС
Regulation Drainage and Waterways Branch	Not required 🗆	
Conservation Council of WA	Yes 🗆	
	Not required 🗹	
Department of Biodiversity, Conservation	Yes 🗹	ТВС
and Attractions	Not required 🗆	
Local Government where the clearing is	Yes 🗹	ТВС
proposed	Not required 🗆	
Owner or occupier of the land on which	Yes 🗹	ТВС
clearing is proposed	Not required 🗆	
Any other party that may have an interest	Yes 🗆	
	Not required 🗹	

Responses to all submissions will be published on the Western Power website.



Appendix B - Biological Survey

AECOM

Targeted Flora and Vegetation Survey

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Executive Summary

AECOM Australia Pty Ltd (AECOM) was engaged by Western Power to conduct a flora and vegetation assessment to inform the planning and execution of removing redundant overhead powerlines in the Lake Muir area. The survey area represents an 82.6 ha linear corridor that is approximately 12 km east of Mordalup, and 283 km south of the Perth Central Business District.

A detailed desktop assessment was undertaken and identified:

- no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Biodiversity Conservation Act 2016 (BC Act) or by the Department of Biodiversity, Conservation and Attractions (DBCA) are known to occur within the survey area or within 20 km.
- 59 significant vascular flora species were identified as potentially occurring, of which seven were
 known to occur and eight had a high likelihood of occurrence.

Field surveys were undertaken in spring (09-12 Oct) and summer (06-07 Dec) to maximise detectability of significant flora that had the potential to occur. The assessment was undertaken utilising methods outlined in the *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016).

The field results are summarised below:

- five native vegetation communities were defined and mapped across 58.08 ha (70%) of the survey area. Four non-native communities were identified and mapped as Plantation, Planted Vegetation, Paddock and Cleared.
- vegetation condition ranged from Completely Degraded to Very Good. Areas under the existing
 powerline were predominately mapped as Degraded with disturbance opportunists inhibiting
 natural regeneration of other species.
- no TECs or PECs were recorded, nor were any expected to occur.
- five significant flora species were recorded including Caladenia christineae (Threatened), Diuris drummondii (Threatened), Kunzea micrantha subsp. hirtiflora (Priority 3), Ornduffia submersa (Priority 4) and Stylidium lepidum (Priority 3).

Four significant flora species known to occur were not detected during the survey. This included *Astartea* sp. Lake Muir (B.L. Rye 230128 & R.W. Hearn) (Priority 2), *Caladenia harringtoniae* (Threatened), *Stylidium roseonanum* (Priority 3) and *Stylidium rhipidium* (Priority 3). DBCA records of these species were visited to verify them in-situ.

A collection of the potential *A*. sp. Lake Muir (B.L. Rye 230128 & R.W. Hearn) was made at the known location. This specimen was sterile and not identifiable to species with any confidence (M. Hislop pers. comm. 12/12/2023 (ACC/10529)). Using the precautionary principle, we will assume that this population occurs in the survey area with accurate abundance and population extent unknown at this time.

Three individuals of *C. harringtoniae* were recorded 56 m south of the survey area, however were not observed in the survey area. It is possible that individuals will germinate in the survey area during favourable conditions, therefore it has not been excluded as known to occur at this time.

Seven samples of *Stylidium* species were collected, although none were identified as *S. roseonanum* or *S. rhipidium*. Portions of the survey area were not accessible due to inundation. Under dry conditions it is expected that the annual significant *Stylidium* species could germinate at these locations, and therefore their post-survey likelihood remains as known to occur.

Revision 0 – 24-Apr-2024 Prepared for – Western Power – ABN: 18 540 492 861



AECOM

9.0 Conclusion

A detailed flora and vegetation survey was undertaken for the Lake Muir Decommissioning Project. The project included a desktop assessment, field surveys undertaken across spring (09-12 Oct) and summer (06-07 Dec), and a reporting component.

The desktop assessment identified no significant vegetation communities (TECs/PECs) within 20 km of the survey area. However, did identify 59 significant flora species, of which seven were known to occur.

The field survey involved traversing all areas of native vegetation on foot to conduct targeted flora searches, sampling floristic data through a combination of quadrats and relevés, as well as recording general observations of vegetation communities and condition.

Five native vegetation communities were mapped across 58.08 ha (70%) of the survey area, none of which represented TECs or PECs. Vegetation condition ranged from Completely Degraded to Very Good. Areas under the existing powerline were predominately mapped as Degraded with disturbance opportunists preventing natural regeneration of other species. Thickets of *Kunzea ericifolia* subsp. *ericifolia* were common in these areas.

Flora diversity was considered high, with 190 species confidently identified to species level. This included 49 annual species and 19 orchid species. Evidence of adequate rainfall prior to the survey.

Five significant flora species were recorded during the survey. This included two species listed as Threatened under the EPBC Act and BC Act, and three species listed as Priority by the DBCA. Four species that were known to occur from the desktop assessment were not recorded.

Four significant flora species known to occur were not detected during the survey. This included *Astartea* sp. Lake Muir (B.L. Rye 230128 & R.W. Hearn) (Priority 2), *Caladenia harringtoniae* (Threatened), *Stylidium roseonanum* (Priority 3) and *Stylidium rhipidium* (Priority 3).

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Three individuals of *C. harringtoniae* were recorded 56 m south of the survey area, however were not observed in the survey area. It is possible that individuals will germinate in the survey area during favourable conditions, therefore it has not been excluded as known to occur at this time.

Seven samples of *Stylidium* species were collected, although none were identified as *S. roseonanum* or *S. rhipidium*. Portions of the survey area were not accessible due to inundation. Under dry conditions it is expected that the annual significant *Stylidium* species could germinate at these locations, and therefore their post-survey likelihood remains as known to occur.

