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 9296/1
Permit type:	Purpose permit
Applicant name:	World Range Pty Ltd
Application received:	19 May 2021
Application area:	8.6 hectares of native vegetation
Purpose of clearing:	Sand extraction
Method of clearing:	Mechanical Removal
Property:	Lot 2 on Deposited Plan 14927
Location (LGA area/s):	Shire of Harvey
Localities (suburb/s):	Uduc

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The application is divided into two areas (see Appendix F). Area 1A to re-clear trees and shrubs that have regrown from previous clearing under CPS 7978/1 and Area 1B which has not been previously cleared. The application is to clear re-grown vegetation to allow for sand extraction.

1.3. Decision on application

Decision:	Granted
Decision date:	23 December 2021
Decision area:	8.6 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 one submission was received. Consideration of matters raised in the public submission is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix H.1), the provided photographs (see Appendix F), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing would result in:

- The potential to cause localised wind erosion,

- The potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely have long-term adverse impacts on environmental values and can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

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

- Undertake the clearing within three months of undertaking extractive industry activities to minimise the risk of soil erosion,
- Avoid, minimise to reduce the impacts and extent of clearing,
- Take hygiene steps to minimise the risk of the introduction and spread of weeds,
- Revegetate areas cleared for temporary clearing.

1.5. Site map

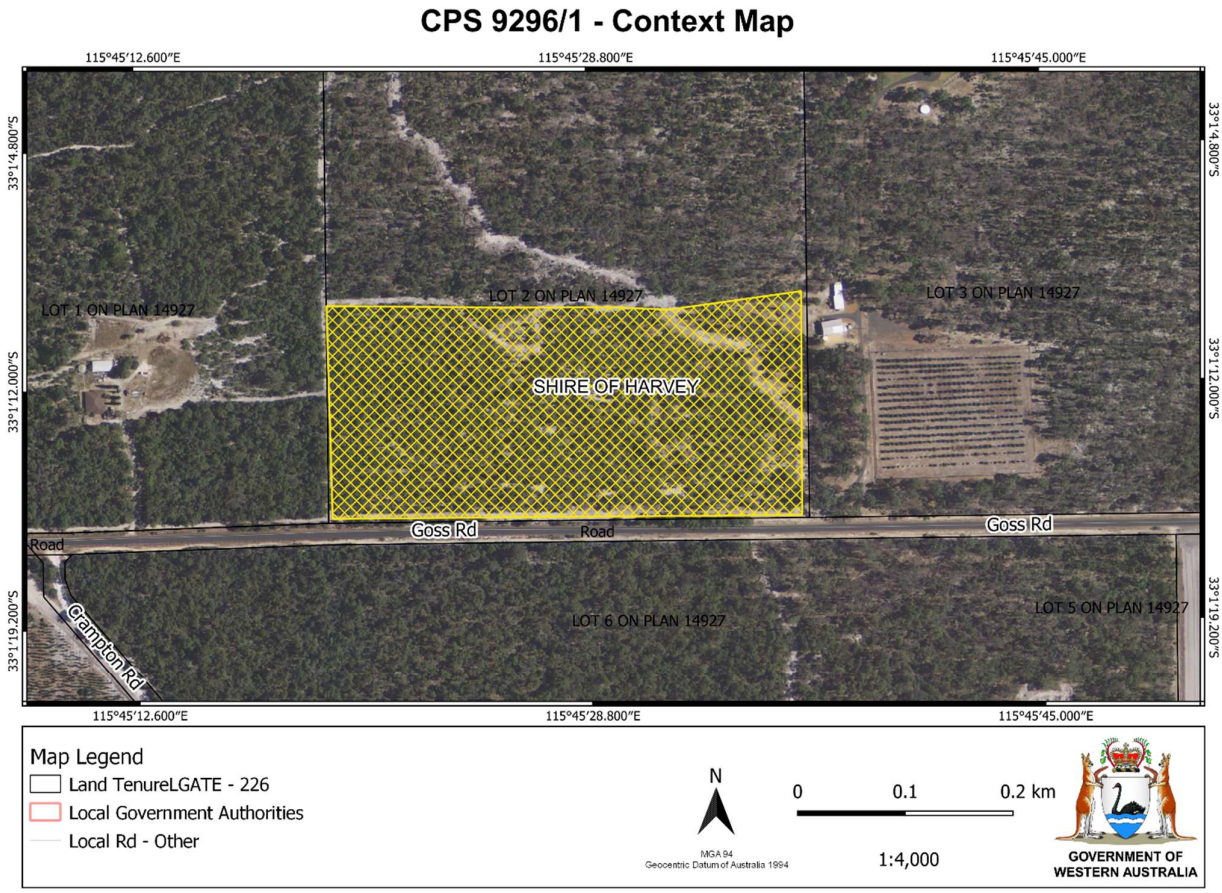

Figure 1 Map of the application area

The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.
Legislative context

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

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

Evidence was submitted by the applicant, demonstrating that area 1A to be cleared was previously cleared in August 2019 under CPS 7978/1. This area requires light clearing due to early regrowth of scattered vegetation. Area 1B has not previously been cleared however aerial imagery and evidence provided by the applicant suggest the 0.53 hectare area of vegetation is in good to degraded condition.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) 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 D) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimize, and erosion management conditions.

3.2.1. Environmental value: Biological values (fauna) - Clearing Principles (b)

Assessment

Within the local area (10 km radius of the application area), eight terrestrial fauna species listed as specially protected under the *Biodiversity Conservation Act 2016* have been recorded within the local area, being; *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Numenius madagascariensis* (eastern curlew), *Phascogale tapoatafa* subsp. *wambenger* (south-western brush-tailed phascogale) and *Pseudocheirus occidentalis* (western ringtail possum), *Dasyurus geoffroii* (chuditch). The application area contains sparse vegetation which has regrown from being cleared in August 2019. The vegetation present is not considered to provide permanent habitat for ground dwelling or arboreal species due to its highly degraded characteristics.

The most recorded species within the local area was *Calyptorhynchus latirostris* (Carnaby's cockatoo*)* at 119 records, although the most recent record was from 2016 with three records. There are four confirmed black cockatoo roosts within the local area, the closest roost being 2.8 km north of the application area. The other three roost are south of the application area and over 7 km away. The application area is not mapped within the black cockatoo feeding area however, feeding areas surround the application area and is within the mapped buffered black cockatoo feeding area. The application is within the mapped area where Carnaby's cockatoos breeding is likely to occur and within both Baudins and forest red tail modelled distribution areas (Commonwealth of Australia 2012).

A site inspection of the application area completed in September 2018 for CPS 7978/1 did not identify any trees suitable for breeding by the black cockatoo species (DWER, 2018). The provided photographs of application area 1A also indicates historical clearing and little to no trees with the regrown vegetation consisting mostly of sparse, juvenile shrubs. Area 1B of the application may provide foraging habitat for Carnaby's cockatoo however given the quality of vegetation present withing the 1B area and the surrounding remnant vegetation, the area is unlikely to represent a significant resource for Carnaby's cockatoo.

Within the local area the *Pseudocheirus occidentalis* (western ringtail possum) was recorded nine times, with the most recent record being in 2019.The current known distribution of the western ringtail possum is largely within the

Swan Coastal Plain and within the south coast areas, with smaller population densities being found within the inland forest areas (DAWE, 2017). Foraging for the western ringtail possum comprises of mainly peppermint, marri and jarrah, however within urban areas the species may also forage on introduced garden species. Refuge areas for this species include dreys, tree and log hollows, forest debris, balga (*Xanthorrhoea spp*.) skirts and disused rabbit warrens (DAWE, 2017). A low number of peppermint trees were identified previously within the eastern portion of the application area (DWER, 2018). Photographs provided (see Appendix F) indicate little to no trees within area 1A and a limited number of trees within area 1B. Given the limited tree availability and degraded vegetation condition, it is unlikely the vegetation within the application area provides significant habitat for the western ringtail possum. The surrounding vegetation, outside of the application area, may however provide habitat for this species.

Conclusion

Based on the above assessment, the vegetation proposed to be cleared would unlikely be utilised by Carnaby's cockatoos and the western ringtail possum and that any potential loss of habitat vegetation does not represent a significant residual impact. Given the area was cleared in August 2019 and the amount of intact remanent vegetation within close proximity, it is unlikely that any ecological linkage function will be impacted.

Conditions

No fauna management conditions required. The applicant is also required to revegetate areas cleared for temporary works (extractive industry).

3.2.2. Biological values (vegetation) - Clearing Principles (d)

Assessment

A small portion of the application area to the eastern side is located within a mapped Threatened Ecological Community (TEC), Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia woodlands TEC). The remainder of the proposed clearing area is not located within the Banksia woodlands TEC however, is surrounded by the Banksia woodlands TEC. The Banksia woodlands TEC is listed as endangered under the EPBC Act (DAWE, 2016). The Banksia woodlands ecological community is associated to areas in and immediately adjacent to the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. Banksia woodlands composition of species and structure varies across regions in which they occur. Generally, a dominant Banksia component unites the woodlands despite the variations that may occur over small distances. *Banksia attenuata* (candlestick banksia), *B. menziesii* (firewood banksia), *B. prionotes* (acorn banksia) and/or *B. ilicifolia* (holly-leaved banksia) are the four key banksia species, where at least one of the four banksia species requires to be dominant to be considered as Banksia Woodland of the Swan Coastal Plain ecological community (DAWE, 2016).

The previous site inspection undertaken by DWER (September 2018) for expired permit CPS 7978/1, identified that the application area consists of mostly juvenile jarrah within the overstorey. *Banksia sp*. were present throughout the application area however were not dominant. Despite this, the photographs provided (see Appendix F) suggest little to no representation of the Banksia woodlands TEC or Banksia species within the application area. Historical clearing would also result in limited representation, if any, of the Banksia woodlands TEC within the application area.

The proposed clearing may indirectly impact the TEC through the removal of the 0.01 hectare area that overlaps with the mapped Banksia woodlands and through edge effects, including spread of weeds and dieback. However, given the surrounding intact vegetation is mapped as being representative of the Banksia woodlands TEC, the proposed clearing is not likely to have a significant impact on this TEC.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in impacts on the mapped Banksia woodlands TEC. For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed by taking steps to minimise the risk of the introduction and spread of weeds, and dieback.

Conditions

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

- Weeds and dieback management is required to mitigate and minimise their introduction and spread into adjacent vegetation.

3.2.3. Environmental value: Land degradation - Clearing Principles (g)

Assessment
The close proximity to the coastline and sandy nature of the land system of the region indicate that the soils within the application area may be prone to wind erosion. More than 70 per cent of the region is mapped as high to extreme wind erosion risk.

Risk categories	Spearwood S1c Phase
Wind erosion	H2 : >70% of the map unit has a high to extreme wind erosion risk
Water erosion	L1: <3% of the map unit has a very high to extreme water erosion
Salinity	L1: <3% of the map unit has a moderate or high salinity risk or is presently saline
Subsurface Acidification	H1: 50-70% of the map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high flood risk
Water logging	L1: <3% of the map unit has a moderate to very high waterlogging risk
Phosphorus export risk	H1: 50-70% of the map unit has a high to extreme phosphorus export risk

Conclusion
Based on the above assessment, it is determined that the proposed clearing is likely to lead to land degradation in the form of localised wind erosion.

Conditions
Land degradation impacts can be minimised by a condition on the permit to undertake the clearing within 3 months of the extractive industry activities commencing.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include:

- Development approval under the *Planning and Development Act 2005* (issued by the Shire of Harvey).
- Extractive Industry Licence (issued by the Shire of Harvey).
- Licence to abstract water under the *Rights in Water and Irrigation Act 1914* (RIWI Act).

The Shire of Harvey advised DWER that local government approvals (Extractive Industry/Development Approval) have been acquired and that the proposed clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the proposed clearing for sand extraction and advised that granting of a clearing permit ahead of the Extractive Industry Licence being issued was minimum. The wind erosion management condition (condition 7) will ensure that clearing does not commence until all necessary approvals for the proposed extractive operations have been obtained.

It is noted that the original application was to undertake sand extraction, followed by horticulture. However, the Shire of Harvey advised that the applicant will require Development Approval from the Shire for the proposed horticulture. Noting the applicant does not have this approval and has not applied for such approvals, the clearing permit has been granted only for the purpose of extractive industry.

The application area is located with the South West Coastal Groundwater area, proclaimed under the *Rights in Water and Irrigation Act 1914*. A Licence to Construct or Alter a Well and a Licence to Take Water was issued with the previous clearing permit (7978/1) in October 2018. Current Advice from the RIWI department indicates that the previous licence is still valid.

End

Appendix A. Additional information provided by applicant

Additional information was request and received from the applicant regarding the following:

- Revision of the application's proposed clearing areas to exclude Areas 2 and 3 (access track and dwelling). Area 1 remaining for sand extraction and avocado planting (final land use)
- Request for a copy of the Extractive Industry Licence

Appendix B. Details of public submissions

Summary of comments	Consideration of comment
Instead of an avocado plantation after the sand extraction has finalised, the area should be revegetated and restored to its natural state as much as possible. If avocados will be planted, a substantial area of clearing should be restored back to good condition.	The previous clearing permit approval within the same area was for avocado planting and was granted in November 2018. Noting most of the clearing under the previous application had been done but avocados hadn't been planted, this application assessed the clearing based on its current environmental values, the regrowth vegetation within the application area. Noting the applicants does not have the necessary approvals for the proposed end land use for an avocado plantation, this purpose has been removed from the clearing permit application. Noting the revised purpose is for a temporary land use (extractive industry), a revegetation condition has been imposed on this permit. However, once the applicant obtains the necessary approvals to undertake horticulture within the area, noting the Shire of Harvey will assess the revised land use when an application for horticulture is received, the permit has been conditioned to allow for the applicant to request that revegetation is no longer required, once such approvals have been obtained.

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is a 8.6 hectare part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. It is surrounded by large rural holdings and is near to a state forest. Spatial data indicates the local area (10 km radius from the centre of the area proposed to be cleared) retains approximately 32 per cent of the original native vegetation cover.
Ecological linkage	The area proposed to be cleared is not part of any mapped ecological linkage and is not considered to contribute to any local linkages.
Conservation areas	The area proposed to be cleared is within one kilometre of Campton nature reserve.
Vegetation description	A site inspection for CPS 7978/1, within the same area, was undertaken by the Department of Water and Environmental Regulation (DWER) Officer's in 2018. The site inspection determined that the application area's overstorey predominantly consisted of juvenile *Eucalyptus marginata* (jarrah). The midstorey consisted of *Myrtaceae* sp. with some areas dominant and dense with this species. *Melaleuca* sp., *Xylomelum occidentale* and *Banksia* sp. were scattered throughout the application area with some juvenile *Banksia* sp. emerging. The understorey included *Conostephium preissii,*

Characteristic	Details
	Acacia pulchella, Stirlingia latifolia and *Allocasuarina humilis. Agonis flexuosa* was identified within the eastern portion of the application area by the site inspection officers (DWER, 2018). Photographs provided by the applicant suggest juvenile regrowth of *Xylomelum occidentale, Acacia pulchella.* and *Banksia sp.* are currently present since the clearing in 2019. This is consistent with the Karrakatta Complex-Central and South which is described as tuart, jarrah, marri open forest including *B. attenuate*, *B. grandis*, *A. fraseriana* and to a lesser extent *Agonis flexuosa.* Approximately 16 per cent of the application area is mapped as the Bassendean Complex-Central and South, which is described to range from jarrah, *Allocasuraina fraseriana* (sheoak), and Banskia species to low woodlands of Melaleuca species (moister areas) (Heddle, 1980). The mapped vegetation types retain approximately 23.5 per cent (Karrakatta complex-central and south) and 27 per cent (Bassendean complex-central and south) of the original extent *(Government of Western Australia, 2019).*
Vegetation condition	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area 1B is in good (Keighery, 1994) condition, described as: • 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. 1A is in degraded (Keighery, 1994) condition, described as: • 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. The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos are available in Appendix F.
Climate and landform	The application area is 10 km north east from Myalup and 14 km north west of Harvey town site. The annual mean rainfall for the area is estimated to be 760.8 millimetres (BOM, 2020)
Soil description	The soil is mapped as 'Spearwood S1c Phase' which is described as dune ridges with deep bleached grey sands with yellow-brown subsoils, and slopes up to 15 per cent.
Land degradation risk	Flood risk L1: <three per cent of the map unit has a moderate to high flood risk Salinity Risk L1: <three per cent of map unit has a moderate to high salinity risk or is presently saline Phosphorus export risk H1: 50-70 per cent of map unit has a high to extreme phosphorus export risk Subsurface Acidification risk H1: 50-70 per cent of map unit has a high subsurface acidification risk or is presently acid Surface compaction risk L1: <three per cent of the map unit has a high subsurface compaction risk Water erosion risk L1: <three per cent of map unit has a high to extreme water erosion risk Water repellence risk H2: >70 per cent of map unit has a high water repellence risk Water logging risk L1: <three per cent of map unit has a moderate to very high waterlogging risk Wind erosion risk H2: >70 per cent of map unit has a high to extreme wind erosion risk
Waterbodies	The desktop assessment and aerial imagery indicated that the area proposed to be cleared does not intersect wetlands or water bodies. The proposed area is within the Harvey River hydrographic catchment.

Characteristic	Details
Hydrogeography	The proposed clearing area is within the South West Coastal Groundwater Area (RIWI Act 1914).
Flora	There are 22 flora records within the local area (10 km). *Caladenia speciosa* (priority 4) is the nearest record, within 1.1 km. The closest threatened flora record, *Diuris purdiei,* is within 3.1 km.
Ecological communities	There are a total of five types of PEC/TEC records in local area (10 km), with the nearest record being the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia woodlands TEC) which surrounds the proposed clearing area. Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain (Tuart woodlands) is also within 1 km of the project area. The remaining three types of PEC/TEC are associated with water bodies and are over 6 km away from the application area.
Fauna	There are 326 fauna records in local area (10 km). The nearest recorded species is Carnaby's cockatoo which is within 2 km and with a total of 119 records within thelocal area. A black cockatoo roost is recorded within 3 km of the proposed clearing area. The surrounding bushland is also mapped as a black cockatoo feeding area.

C.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	1,501,222	579,814	39	222,917	14.9
Vegetation complex					
Karrakatta Complex-Central and South (49)	53,081	12,467	23.5	4,283	8
Bassendean Complex-Central and South (31)	87,476	23,509	27	4,377	5
Local area					
10km radius (Area covered by water is 4,084 ha)	28,619	7,056	25	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1) and impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Acacia horridula	P3	Y	Y	N	4.93	1

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Acacia semitrullata	P4	N	Y	Y	6.15 (WA.H: 3.62)	2 (WA.H: 10)
Boronia capitata subsp. Gracilis	P3	N	Y	N	3.74 (WA.H: 4.52)	3 (WA.H: 6)
Caladenia speciosa	P4	Y	Y	Y	1.11	3 (WA.H: 3)
Dillwynia dillwynioides	P3	N	Y	Y	8.33 (WA.H: 3.82)	1
Diuris drummondii	T	N	Y	Y	4.49	1
Diuris purdiei	T	N	Y	Y	3.14	1
Drakaea elastica	T	Y	Y	Y	4.76	1
Drakaea micrantha	T	Y	Y	Y	9.37 (WA.H: 5.27)	1
Lasiopetalum membranaceum	P3	Y	Y	Y	7.41	2
(WA.H) Haloragis aculeolata	P2	N	Y	N	2.33 (TPFL: 6.58)	2 (TPFL: 1)
Pterostylis frenchii	P2	N	Y (TPF: N)	Y	2.92 (TPFL: 9.01)	4 (TPFL: 1)
Sphaerolobium calcicola	P3	N	Y	Y	1.11	2
Stylidium paludicola	P3	N	Y	Y	3.61	4
Stylidium trudgenii	P3	N	Y	Y	6.99	1
Styphelia filifolia	P3	Y	Y	Y	9.43	1
Tripterococcus sp. Brachylobus (A.S. George 14234)	P4	Y	Y	Y	6.99	1

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, WA.H: WA herb, TPFL: threatened and priority flora

C.4. 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)
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	Y	7.53	4
Calyptorhynchus baudinii (Baudin's cockatoo)	EN	Y	Y	7.99	2
Calyptorhynchus latirostris (Carnaby's cockatoo)	EN	Y	Y	1.35	119
Calyptorhynchus sp. 'white-tailed black cockatoo' (white-tailed black cockatoo)	EN	Y	Y	6.77	10
Ctenotus ora (coastal plains skink)	P3	N	Y	4.62	4
Dasyurus geoffroii (chuditch)	VU	Y	Y	7.16	1
Falsistrellus mackenziei (western false pipistrelle)	P4	N	Y	7.05	9
Hydromys chrysogaster (water-rat)	P4	N	Y	7.16	2
Isoodon fusciventer (quenda)	P4	Y	Y	3.55	65
Notamacropus irma (western brush wallaby)	P4	Y	Y	3	2
Numenius madagascariensis (eastern curlew)	CR	N	Y	7.27	1

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)
Phascogale tapoatafa wambenger (south-western brush-tailed phascogale)	CD	Y	Y	4.76	14
Thalassarche cauta cauta (shy albatross)	VU	N	N	6.77	1
Pseudocheirus occidentalis (western ringtail possum)	CR	N	Y	2.67	9

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, WA.H: WA herb, TPFL: threatened and priority flora

C.5. Ecological community analysis table

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (BANKSIA WL SCP)	P3	Y	Y	Y	0	749
SCP09 - Dense shrublands on clay flats	VU	N	N	N	6.12	2
PAMELUP POND- Living microbial mats in hypersaline ponds	P2	N	N	N	6.66	1
SCP18 - Living microbial mats in hypersaline ponds	VU	N	N	N	7.60	1
Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain (TUART WOODLANDS)	P3	Y	Y	Y	0.85	148

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, WA.H: WA herb, TPFL: threatened and priority flora

C.6. Land degradation risk table

Risk categories	Spearwood S1c Phase
Wind erosion	H2 : >70% of the map unit has a high to extreme wind erosion risk
Water erosion	L1: <3% of the map unit has a very high to extreme water erosion
Salinity	L1: <3% of the map unit has a moderate or high salinity risk or is presently saline
Subsurface Acidification	H1: 50-70% of the map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high flood risk
Water logging	L1: <3% of the map unit has a moderate to very high waterlogging risk
Phosphorus export risk	H1: 50-70% of the map unit has a high to extreme phosphorus export risk

Appendix D. 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:	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
The application is to clear 8.6 ha of native vegetation within Lot 2 on Plan 14927, Goss Road, Uduc for the purpose of sand extraction and then the planting of avocado trees. The application area has previously been cleared (under CPS 7978/1) and is now predominately in a degraded condition (Keighery 1994). According to available databases, there are four threatened flora and 18 priority flora records within the local area (10 km radius). Based on the mapped soil type and hydrography within the application area one priority species is likely to occur within the application area, Caladenia Speciosa. The species is found on white, grey or black sand (Western Australian Herbarium, 1998-). Three populations of the species are within 10 km of the application area, with the closest recorded within 1.1 km. This species is known for both Bassendean and Karrakatta landforms and to occur within marri, jarrah, Banksia sp., Tuart and/or Melaleuca woodlands over low dense scrub of herbs, including Daviesia spp., Kunzra sp., and Leidosperma sp. Considering the historical disturbance to the application area, the previous assessment under CPS 7978/1 indicated that the application area is not likely to contain priority flora. Noting the application area was previously cleared in 2019 and the proposed clearing predominantly includes regrowth since then, the application area is not likely to contain conservation significant flora.		
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 is not likely to contain significant habitat for fauna indigenous to Western Australia.	Not likely to 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: According to available databases, four threatened flora species have been recorded within the local area, being *Diuris drummondii, Diuris purdiei, Drakaea elastica* and *Drakaea micrantha*. *Diuris drummondii, Diuris purdiei* and *Drakaea elastica* were recorded over 3 km away from the application area. Based on the preferred species habitat types, the degraded vegetation, and historical clearing of the proposed clearing area, suitable habitat for this species is not likely to be present within the application area. *Drakaea micrantha* inhabits infertile grey sands in common sheoak and jarrah woodland or forest. The species usually grows on old firebreaks and in disturbed sites where competition from other plants has been removed (Brown et al., 1998). This species is typically on the Bassendean landform (DBCA, 2018b). The nearest population of this species is approximately 10 km from the application area (DBCA, 2018b). Given the above, the application area is not likely to contain threatened flora.	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: A small portion (0.01 hectares) of the application area to the eastern side is located within a mapped Threatened Ecological Community (TEC), Banksia	Not likely to be at variance	Yes *Refer to Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Woodlands of the Swan Coastal Plain. The surrounding vegetation is also mapped as Banksia woodlands. Given the area is in good to degraded condition and historically cleared it is unlikely that the vegetation within the application area is representative of the Banksia woodlands ecological community.		
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 application area is located within the Swan Coastal Plain IBRA bioregion, which retains 39 per cent of its pre-European vegetation extent. The vegetation within the application area is mapped as Heddle vegetation complexes 'Karrakatta Complex-Central and South' and 'Bassendean Complex-Central And South' which retain approximately 24 and 27 per cent of their pre-European vegetation extent within the Swan Coastal Plain IBRA bioregion respectively. The local area retains approximately 25 per cent of its pre-European vegetation extent. The extent of the mapped vegetation type in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area. Given the vegetation representations outlined above, the application area is located within an extensively cleared area. While the vegetation prior to being cleared in 2019 was consistent with the mapped vegetation types, the regrowth vegetation being assessed under this application is not representative of the mapped vegetation types. Given the majority of the application is in a degraded (Keighery, 1994) condition, is unlikely to contain threatened or priority flora or significant habitat for indigenous fauna, the application area is not considered to be a significant remnant.	Not likely to be at variance	No
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: According to available databases, the closest conservation area is Myalup State Forest located approximately 330 metres west of the application area and is separated from this conservation area by other vegetated land and roads. Given the distance to this conservation area and the historical clearing, the proposed clearing is unlikely to impact upon the environmental values of this area.	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: No watercourses or wetlands have been recorded within the application area. A multiple use wetland is mapped approximately 800 metres from the application area. Given the distance to this wetland, the application area is not likely to be growing in association with a wetland or watercourse. Clearing of the	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
application area is also unlikely to impact on- or off-site hydrology and water quality.		
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: As discussed in Section 2, the soils within the application area have been mapped at a regional scale as the Spearwood S1c Phase. The soils mapped over the application area are susceptible to subsurface acidification, wind erosion and phosphorus export. These soils have a low risk of water erosion, salinity, flood and waterlogging.	May be at variance	Yes *Refer to Section 3.2.3, above.*
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: No watercourses or wetlands have been recorded within the application area. A multiple use wetland is mapped approximately 800 metres from the application area. Given the distance to this wetland the proposed clearing is not likely to cause deterioration in the quality of surface water. The application area intersects with the South West Coastal Groundwater Area however given the extent of the clearing, a valid Licence to Construct or Alter a Well and a Licence to Take Water, it is unlikely that the proposed clearing will cause significant impact to the quality of the groundwater.	Not likely to be at variance	No
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: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. The sandy soils identified over the application area are highly permeable and not prone to flooding. The land sub systems covering the application area have been mapped as 'less than three per cent of the map unit has a moderate to high flood risk', which is the lowest risk category (Table 2; DPIRD, 2017). Given no wetlands are recorded within 0.7 kilometres of the application area, the proposed clearing is unlikely to contribute to waterlogging. The proposed clearing is also not likely to cause or exacerbate the incidence or intensity of flooding.	Not likely to be at variance	No

Appendix E. 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 F. Photographs of the vegetation

Figure 2: Map of the application area showing Area 1A and Area 1B (World Range Pty Ltd, 2021a)

Figure 3: Vegetation within Area 1A (World Range Pty Ltd, 2021a)

Figure 4: Vegetation within Area 1A (World Range Pty Ltd, 2021a)

Figure 5: Vegetation within Area 1A (World Range Pty Ltd, 2021a)

Figure 6: Vegetation within Area 1A (World Range Pty Ltd, 2021a)

Figure 7: Vegetation within Area 1A (World Range Pty Ltd, 2021a)

Figure 8: Vegetation within Area 1A (World Range Pty Ltd, 2021a)

Figure 9: Vegetation within Area 1B (World Range Pty Ltd, 2021a)

Figure 10: Vegetation within Area 1B (World Range Pty Ltd, 2021a)

Figure 11: Vegetation within Area 1B (World Range Pty Ltd, 2021a)

Figure 12: Vegetation within Area 1B (World Range Pty Ltd, 2021a)

Figure 13: Vegetation within Area 1B (World Range Pty Ltd, 2021a)

Figure 14: Vegetation within Area 1B (World Range Pty Ltd, 2021a)

Appendix H. Sources of information

H.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- 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)

H.2. References

World Range Pty Ltd (2021a) *Clearing permit application CPS 9296/1*, received 19 May 2021 (DWER Ref: DWERDT454281).

World Range Pty Ltd (2021b) *Supporting information for clearing permit application CPS 9296/1,* received 15 October 2021 (DWER Ref: A2056356).

Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.

Commissioner of Soil and Land Conservation (CSLC) (2018) *Land Degradation Advice and Assessment Report for clearing permit application CPS 7978/1,* received 17 April 2018, Department of Primary Industries and Regional Development, Western Australia (DWER Ref: A1654800).

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

Commonwealth of Australia (2012) *EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (Endangered) Calyptorhynchus latirostris, Baudin's cockatoo (Vulnerable) Calyptorhynchus baudinii, Forest red-tailed black cockatoo (Vulnerable) Calyptohynchus banksii naso. Commonwealth of Australia. Department of Sustainability, Environment, Water, Population and Communities* (now the Department of Agriculture, Water, and Environment), Canberra.

Department of Agriculture, Water and the Environment (DAWE) (2017) *Western Ringrail Possum (Pseudocheirus occidentalis) Recovery Plan 2017*. Government of Western Australia. Available from: Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan - DAWE

Department of Agriculture, Water and the Environment (DAWE) (2016) *Banksia Woodlands of the Swan Coastal Plain: a nationally proteted ecological community*. Government of Western Australia. Available from: Banksia Woodlands of the Swan Coastal Plain: a nationally-protected ecological community - DAWE

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

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed November 2021).

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

Department of Water and Environmental Regulation (DWER) (2018) *Site Inspection Report for Clearing Permit Application CPS 7978/1,* 20 September 2018. Department of Water and Environmental Regulation, Western Australia (DWER Ref: A1725614).

Department of Water and Environmental Regulation (DWER) (Regulatory Services – Water) (2020) *Rights in Water and Irrigation Act 1914 advice for clearing permit application CPS 9296/1*, received 18 June 2021 (DWER Ref: A2019369).

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

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) *Vegetation Complexes of the Darling System, Western Australia*. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Shire of Harvey (2021) *Advice for clearing permit application CPS 9296/1*, received 12 July 2021 (DWER Ref: A2026478).

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

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Submission (2021) *Public submission in relation to clearing permit application CPS 9296/1,* received 10 June 2021 (DWER Ref: A2016729).

Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed November 2021)