



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8886/1
Permit Holder:	Hazer Group Limited
Duration of Permit:	20 September 2020 – 20 September 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of the installation and operation of a Hydrogen Commercial Demonstration Plant

2. Land on which clearing is to be done

Lot 9 on Diagram 31097, Munster

3. Area of Clearing

The Permit Holder must not clear more than 0.53 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8886/1.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II – MANAGEMENT CONDITIONS

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

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

6. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

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

7. Wind Erosion Management

The Permit Holder must commence construction activities associated with the purpose for which the clearing may be done within two (2) month of clearing being undertaken to reduce the potential for wind erosion.

8. Directional Clearing

The Permit Holder must conduct clearing activities in a slow, progressive manner from east to west to allow fauna to move into adjacent native vegetation.

PART III - RECORD KEEPING AND REPORTING

9. Record keeping

The Permit Holder must maintain the following records in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date(s) that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 6 of this Permit.

10. Reporting

The Permit Holder must produce the records required under condition 9 of this Permit when required by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;


dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

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

28 August 2020

Plan 8886/1

115°46'12.000"E

115°46'15.600"E

32°8'13.200"S

32°8'13.200"S







LOT 9 ON DIAGRAM 31097

115°46'12.000"E

115°46'15.600"E

Map Layers

-  CPS areas approved to clear
-  Land TenureLGATE - 226
-  Local Government Authorities
- Road Centrelines
-  Local Rd - Sealed




0 10 20 30 40 m



1:700

MGA Zone 50
Geocentric Datum of Australia 1994


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Officer delegated under section 20 of the
Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8886/1
Permit type:	Purpose permit
Applicant name:	Hazer Group Limited
Application received:	21 April 2020
Application area:	0.53 hectares (ha) of native vegetation
Purpose of clearing:	Building or structure
Method of clearing:	Mechanical removal
Property:	Lot 9 on Diagram 31097, Munster
Location (LGA area/s):	City of Cockburn
Localities (suburb/s):	Munster

1.2. Description of clearing activities

The purpose of the proposed clearing is to develop a Hydrogen Commercial Demonstration Plant utilising biogas from the Waste Water Treatment Plant (WWTP) for the production of fuel grade hydrogen with a graphite by-product. The majority of the vegetation applied to be cleared is contained within a single contiguous area, with an additional linear strip proposed to be cleared for the installation of a pipeline (see Figure 1, Section 1.5). The total amount of vegetation proposed to be cleared is 0.53 ha.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	28 August 2020
Decision area:	0.53 hectares (ha) of native vegetation as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 21 April 2020. DWER advertised the application for public comment, with no submissions were received.

In undertaking their assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (see Section 3).

In particular, the Delegated Officer has determined that:

- the clearing of 0.0587 ha of vegetation consistent with *Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands threatened ecological community (TEC), listed as Vulnerable under the *Biodiversity Conservation Act 2016* (BC Act), is not likely to significantly impact the viability of the community present, or the conservation of the community as a whole (see Section 3.2.1).
- the implementation of a suitable weed and dieback management condition is appropriate to mitigate the impact of spreading weeds and dieback into adjacent vegetation (see Section 3.2.1).

- a directional clearing condition be imposed to reduce the impacts of clearing on fauna present within the application area, as per the recommendations made by the City of Cockburn.
- the implementation of a condition setting of a maximum period in which the area can remain cleared before construction commences will reduce the risk of wind erosion (Section 3.2.2).
- the applicant has suitably demonstrated avoidance and minimisation measures (see Section 3.1)

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map



Figure 1. Map of the application area. The areas cross-hatched yellow indicates the areas authorised to be cleared under the granted clearing permit.

2. Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity;
3. the principle of the conservation of biological diversity and ecological integrity; and
4. the polluter pays principle

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* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

In the design and development phase of the project, Hazer considered the presence of the TEC and good quality native vegetation and chose the location that balances the projects objectives including minimising the environmental impacts associated with the development footprint, as well as the visual amenity impacts associated with the plant.

The ability to develop the structure in other locations within this area of the Lot, in close enough proximity to the feed gas has been considered, but due to other restrictions, such as European Heritage, Aboriginal Heritage and Water Corporation proposed developments, the existing location is the only feasible location.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix B) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix C.

This assessment identified that the clearing may pose a risk to biological values, and land and water resources, and that these required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1. Environmental value: biological values (flora) – Clearing Principle (d)

Assessment: The proposed clearing will impact on 0.0587 ha (587m²) of *Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands (Swan Coastal Plain community type 30a – Gibson *et al.*, 1994)(SCP30a), listed as Vulnerable under the BC Act (AECOM, 2020). This vegetation was determined to be in Good (Keighery, 1994) condition (AECOM, 2020). It is noted that this has been reduced from 0.356 ha (3,560 m²) in the initial application due to the exclusion of the asset protection zone (APZ) from the proposed clearing area. It was determined that due to the small area of SCP30a within the application area, the proposed clearing is not considered significant to the conservation of this ecological community. The Department of Biodiversity, Conservation and Attractions have supported this determination (DBCA, 2020) The viability of the occurrence of SCP30a in this location is not likely to be compromised based on the small scale of impact, also noting the low impact clearing techniques to be applied within the APZ.

The proposed clearing may have an impact on the remaining SCP30a adjacent to the application area through the introduction of weeds and risk of land degradation impacting adjacent vegetation (addressed in Section 3.2.2).

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable subject to relevant conditions (see below)** in relation to this environmental value.

Conditions: To address the above impacts, the following conditions will be added to the permit:

- Weed and dieback management conditions to minimise the risk of impacts to adjacent native vegetation.

3.2.2. Environmental value: land and water resources – Clearing Principle (g)

Assessment: Based on the mapped soil type, distance from the coast and topography, the proposed clearing may cause wind erosion unless managed appropriately. Although the risk of wind erosion is high, due to the small size of the application area the potential impacts are low. The retention of vegetation to the west of the application area will likely act to reduce the wind speeds from the coast, and it was determined that the residual risk could be suitably managed through permit conditions.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable subject to relevant conditions (see below)** in relation to this environmental value.

Conditions: To address the above impacts, the following conditions will be added to the permit:

- No clearing of native vegetation unless construction activities commence within two months of the authorised clearing being undertaken to minimise wind erosion risk.

3.3. Relevant planning instruments and other matters

The application was revised during the assessment process in response to further information being provided regarding the end land use and the exemptions that apply. In conjunction with the approved development approval for the project, the vegetation proposed to be cleared within the asset protection zone (APZ) of the original application area is required to be cleared under Section 33 of *Bush Fires Act 1954*, and is therefore exempt under Schedule 6 Clause 1 of the *Environmental Protection Act 1986*: Clearing that is required under other laws. The removal of the APZ reduced the area applied to be cleared from 0.86 ha to 0.53 ha.

A direct interest letter was sent to the City of Cockburn, inviting any comments on the proposed clearing and associated land use. The City note the following (City of Cockburn, 2020):

- planning approval is required for the structure, the application has been received on 5 May 2020 and will be determined by the Joint Development Assessment Panel, with a meeting planned for late June or early July;
- ideally, a less vegetated area would be used for the development;
- a fauna Management Plan/trapping and relocation program should be considered, with a minimum of directional clearing towards existing vegetation conditioned;
- the retention of mature trees should be considered; and
- erosion mitigation strategies to minimise the negative impacts to surrounding vegetation implemented.

DWER has been provided with the development approval for the proposed development issued by the Joint Development Assessment Panel (DAP20/003) (Australasian Environmental Solutions, 2020).

A works approval for the proposed development has been issued under Part V Division 3 of the EP Act (W6402/2020/1).

One registered Aboriginal site of significance has been recorded within the application area; Cockburn Road (15840), a Mythological site. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Additional information provided by applicant

Summary of comments	Consideration of comment
Reduction in the application area due to clarification that APZ is required to be cleared under another law.	Application area was amended, and assessment of environmental values was undertaken based on this reduced area.

Appendix B – Site characteristics

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

1. Site characteristics

Site characteristic	Details
Local context	The proposed clearing area comprises part of a predominately highly modified landscape, with European and Aboriginal Heritage sites located in adjacent land and significant historical and industrial development. The proposed clearing area is on a secondary dune system between Woodman Point and Lake Coogee.
Vegetation description	<p>A vegetation survey of the application area (AECOM, 2020) and a DWER site inspection (DWER, 2020a) indicates the vegetation within the proposed clearing area consists of three vegetation communities:</p> <ul style="list-style-type: none"> • <i>Melaleuca lanceolata</i>, <i>Callitris preissii</i>, <i>Eucalyptus lehmannii</i> (Planted) low woodland over <i>Xanthorrhoea preissii</i>, <i>Calothamnus sanguineus</i> and <i>Rhagodia baccata</i> mid sparse shrubland over <i>*Briza maxima</i>, <i>*Lagurus ovatus</i> and <i>*Ehrharta longiflora</i> low open grassland. <ul style="list-style-type: none"> ○ The vegetation community represents the WA TEC SCP30a <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forest or woodlands. • <i>Xanthorrhoea preissii</i>, <i>Banksia sessilis</i> var. <i>cygnorum</i> and <i>Leucopogon propinquus</i> mid shrubland over <i>*Lagurus ovatus</i>, <i>*Avena barbata</i> and <i>*Cenchrus setaceus</i> low to tall open grassland over <i>*Lotus angustissimus</i>, <i>Lomandra micrantha</i> and <i>Tricoryne elatior</i> low open forbland. • <i>*Leptospermum laevigatum</i>, <i>Agonis flexuosa</i> and <i>Banksia sessilis</i> var. <i>cygnorum</i> mid to tall shrubland over <i>*Avena barbata</i>, <i>*Lagurus ovatus</i> and <i>*Briza maxima</i> mid grassland over <i>*Lotus angustissimus</i>, <i>*Wahlenbergia capensis</i> and <i>Tricoryne elatior</i> low open forbland. Mid storey density varies from sparse to closed shrubland. <p>The full survey descriptions and mapping are available in Appendix E</p> <p>This is inconsistent with the mapped vegetation type: Cottesloe Complex-Central and South, which is characterised by a mosaic woodland of <i>Eucalyptus gomphocephala</i> (Tuart) and open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri); closed heath on the Limestone outcrops (Hedde <i>et al.</i> 1980).</p>
Vegetation condition	<p>A vegetation survey of the application area (AECOM, 2020) and a DWER site inspection (DWER, 2020a) indicate the vegetation within the proposed clearing area is in Completely Degraded to Good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • 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. • 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.

Site characteristic	Details
	The full Keighery condition rating scale is provided in Appendix D, below. The full survey descriptions and mapping are available in Appendix E.
Soil description	<p>The mapped soil type within the proposed clearing area is Spearwood Limestone (211Sp_LS1), characterised by limestone, light, yellowish brown, fine to coarse-grained, sub-angular to well rounded, quartz, trace of feldspar, shell debris, variably lithified, surface kankar, of eolian origin. Minor heavy minerals (Schoknecht <i>et al.</i> 2004).</p> <p>Advice received from contaminated sites indicate that no records of contaminated soils are present within the application area (DWER, 2020b).</p>
Land degradation risk	The soil is mapped as having a high to extreme risk of wind erosion and, based on the topography between the application area and the coastline, is likely to experience high wind speeds.
Waterbodies	<p>The closest waterbody to the proposed clearing is Lake Coogee, located approximately 385 metres east of the application area. The desktop assessment and aerial imagery indicated that the vegetation is not consistent with wetlands or watercourses.</p> <p>Advice received from DWER's contaminated sites branch indicates that the proposed clearing is unlikely to impact upon the groundwater quality (DWER, 2020b).</p>
Conservation areas	Two conservation areas are located in proximity to the proposed clearing area: Lake Coogee, a conservation category wetland located 385 m east of application area and Woodman Point, Bush Forever Site 341, located 200 m west of the application area.
Vegetation extent	<p>The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).</p> <p>Within constrained areas (areas of urban development in cities and major towns) on the Swan Coastal Plain, the threshold for representation of the pre-clearing extent of a particular native vegetation complex is 10 per cent (EPA, 2008). The application area is classified as a constrained area.</p> <p>Remnant vegetation within the Swan Coastal Plain Bioregion and the mapped vegetation complex remain above the Commonwealth objective of 30 per cent (see Appendix B – 3). Remnant vegetation within the City of Cockburn and within the local area (10 km radius of the proposed clearing area) retain coverage below the Commonwealth object, but above the EPA's modified threshold (see Appendix B – 3).</p>

2. Flora, fauna and ecosystem analysis

With consideration for the site characteristics set out above, relevant datasets (see Appendix E), and biological survey information, the following conservation significant flora and fauna species, and ecological communities may, or will be impacted by the clearing. Although the habitat was determined to be potentially suitable for additional flora and fauna species, given the survey information and vegetation condition, the presence of these species was considered to be unlikely.

Species / Ecological Community	Comments	Are surveys adequate to identify? (Y, N, N/A)
Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>).	Evidence of foraging was noted during site inspection, however on a non-native <i>Pinus</i> sp. Although surveying indicated foraging	Y

Species / Ecological Community	Comments	Are surveys adequate to identify? (Y, N, N/A)
	<p>potential of Woodlands and Shrublands, of which the application area comprises 0.39 ha, it was not quantified. DWER site inspection indicated that the foraging potential of native vegetation within the application area is very low (DWER, 2020a; DEE, 2017).</p> <p>One tree outside of the proposed clearing area was recorded with a diameter at breast height (DBH) over 50 centimetres. It was identified as a non-native <i>Eucalyptus saligna</i> during a DWER site inspection. The applicant has advised that this tree will be retained.</p>	
SCP30a <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forest or woodlands.	0.0587 ha (587m ²) of vegetation consistent with this community is within the application area.	Y

3. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
IBRA bioregion					
Swan Coastal Plain	1,501,209.19	587,889.09	39.2	195,834.88	33.3
Vegetation complex					
Cottesloe Central and South	45,299.61	14,567.87	32.16	6,606.12	14.58
Vegetation within the City of Cockburn					
Spearwood	4,464.34	845.02	18.93	354.99	6.49
Local Area					
10 kilometre radius	17,406.76	3,541.955	20.35	-	-

Appendix C – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> Based on the survey information, including vegetation type and vegetation condition, the proposed clearing area does not contain high biodiversity values.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> “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.”</p> <p><u>Assessment:</u> The proposed clearing area does not contain vegetation considered to be significant habitat for fauna.</p>	Not likely to be at variance	No
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u> The proposed clearing area is unlikely to represent habitat which supports threatened flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u> A portion of the proposed clearing area was mapped as SCP30a <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forest or woodlands. This community is listed as ‘Vulnerable’ under the BC Act 2016.</p>	At variance	Yes Refer to Section 3.2.1 above
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> Given the size and vegetation condition of the application clearing area and the proportion of which is a Threatened Ecological Community, the proposed clearing area was determined to not comprise significant remnant vegetation. Given the extent of native vegetation in the local area, and considering the modified objective for vegetation retention within constrained areas in which the application area is located, the proposed clearing was determined to not be in an extensively cleared landscape.</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> “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.”</p> <p><u>Assessment:</u> Given the distance to the nearest conservation area, and the size of the application area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental values: land and water resources		

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Given the distance to the nearest wetland, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are highly susceptible to wind erosion. Noting the position in the landscape and distance from the coastline, the proposed clearing may have an appreciable impact on land degradation.</p>	May be at variance	Yes Refer to Section 3.2.2 above
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> Given the size of the application area and drainage into the ocean, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> Given the size and location of the application area the proposed clearing is not likely to contribute to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix D – Vegetation condition rating scale

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


Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)



Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E – Biological survey information excerpts / photographs of the vegetation

Hazer Ecological Surveys – Woodman Point WWTP (2020)

Vegetation types and condition:




Description	Additional Detail	Photograph
<p>Shrubland - LIAbLa</p> <p><i>Leptospermum laevigatum</i>, <i>Agonis flexuosa</i> and <i>Banksia sessilis</i> var. <i>cygnorum</i> mid to tall shrubland over <i>Avena barbata</i>, <i>Lagurus ovatus</i> and <i>Briza maxima</i> mid grassland over <i>Lotus angustissimus</i>, <i>Wahlenbergia capensis</i> and <i>Tricoryne elatior</i> low open forbland.</p> <p>Mid storey density varies from sparse to closed shrubland.</p>	<p>Survey effort: quadrat H03 and relevé H05</p> <p>Extent: 0.93 ha</p> <p>Species richness: 19 native and 16 weed species</p> <p>Condition: Good to Degraded</p>	

Description	Additional Detail	Photograph
<p>Heath - XpLoLa</p> <p><i>Xanthorrhoea preissii</i>, <i>Banksia sessilis</i> var. <i>cygnorum</i> and <i>Leucopogon propinquus</i> mid shrubland over *<i>Lagurus ovatus</i>, *<i>Avena barbata</i> and *<i>Cenchrus setaceus</i> low to tall open grassland over *<i>Lotus angustissimus</i>, <i>Lomandra micrantha</i> and <i>Tricoryne elatior</i> low open forbland.</p>	<p>Survey effort: quadrat H04</p> <p>Extent: 0.09 ha</p> <p>Species richness: 17 native and ten weed species</p> <p>Condition: Good</p>	
<p>Woodland - MIXpBm</p> <p><i>Melaleuca lanceolata</i>, <i>Callitris preissii</i>, <i>Eucalyptus lehmannii</i> (PL) low woodland over <i>Xanthorrhoea preissii</i>, <i>Calothamnus sanguineus</i> and <i>Rhagodia baccata</i> mid sparse shrubland over *<i>Briza maxima</i>, *<i>Lagurus ovatus</i> and *<i>Ehrharta longiflora</i> low open grassland.</p> <p>Represents the WA TEC SCP30a <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forest or woodlands.</p>	<p>Survey effort: quadrat H01 and H02</p> <p>Extent: 0.35 ha</p> <p>Species richness: 16 native and 13 weed species</p> <p>Condition: Good</p>	



PROJECT ID: 00017511 CREATED BY: KW APPROVED BY: FOW LAST MODIFIED: 26 DEC 2019 		LEGEND Survey Area Vegetation Communities LIAbLa MIXpBm Weeds XpLoLa Cleared SCP30a: WA TEC <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands, Swan Coastal Plain Vegetation Condition Good Degraded Completely Degraded Cleared	Vegetation Community & Vegetation Condition <hr/> HAZER GROUP <hr/> HAZER ECOLOGICAL SURVEY	Figure 4
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Fauna habitat values:

Habitat	Description	Conservation Significant Species Potentially Utilising Habitat	Area (ha)	Photos
Woodland	<p>This habitat contains low woodland of <i>Melaleuca lanceolata</i>, <i>Callitris preissii</i> and <i>Eucalyptus lehmannii</i> over a sparse understorey shrubs and weedy grasses on sandy soils. Minimum litter cover.</p> <p>The habitat is considered moderate quality due to its complexity and variability, but reduced due to the presence of weeds and little understorey or litter cover.</p>	<ul style="list-style-type: none"> Foraging habitat for Forest Red-tailed Black Cockatoo and Carnaby's Cockatoo Habitat for the Quenda Habitat for the Rainbow Bee-eater Habitat for the Perth Slider 	0.35	
Shrubland	<p>This habitat contains a varied density tall shrubland from thicket to open shrubland. Groundcover comprises weedy grasses and herbs.</p> <p>This habitat is considered of moderate quality due to its variability and complexity, but reduced due to presence of weeds.</p>	<ul style="list-style-type: none"> Low quality foraging habitat for Carnaby's Cockatoo Habitat for Quenda Habitat for the Rainbow Bee-eater Habitat for the Perth Slider 	0.98	
Habitat	Description	Conservation Significant Species Potentially Utilising Habitat	Area (ha)	Photos
Grassland	<p>Habitat generally comprises of bare soil and / or weeds (may contain the occasional shrub / tree).</p> <p>Habitat is considered very low quality.</p>	<ul style="list-style-type: none"> Habitat for the Rainbow Bee-eater 	0.33	



<p>PROJECT ID: 5067511 CREATED BY: KW APPROVED BY: FOW LAST MODIFIED: 20 DEC 2019</p> <p>AECOM www.aecom.com</p> <p>DATUM: GDA 1984 MGA Zone 50 1:1,500 (When printed at A3) See source</p> <p><small>Best Case (1) based on information provided to us with the permission of the Western Land Use and Information Authority (WLIA) on 14/01/2020. WLIA is a Crown Entity.</small></p>	<p>LEGEND</p> <ul style="list-style-type: none"> Survey Area Potential Black Cockatoo Breeding Tree Fauna Habitat Woodland Grassland Shrubland Hardstand <p>Carnaby Foraging Quality</p> <ul style="list-style-type: none"> Quality 	<p>Black Cockatoo Foraging and Breeding Habitat</p> <hr/> <p>HAZER GROUP</p> <hr/> <p>HAZER ECOLOGICAL SURVEY</p>
		<p>Figure 6</p>

Appendix F – References and databases

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Contours (DPIRD-073)
- Bush Forever (Regional Scheme – DPLH-022)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

- Black Cockatoo roosting locations
- Black Cockatoo breeding locations
- ICMS (Incident Complaints Management System) – Points and Polygons
- Remnant vegetation
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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