



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8571/2
Permit Holder:	Shire of Ngaanyatjarraku
Duration of Permit:	2 January 2020 – 2 January 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 road construction and upgrades

2. Land on which clearing is to be done

Lot 9 on Plan 91722, Ngaanyatjarra-Giles

3. Area of clearing

The Permit Holder must not clear more than 22 hectares of native vegetation within the area hatched yellow on attached Plan 8571/2a.

4. Clearing not authorised

Clearing within the area hatched red on attached Plan 8571/2b, corresponding to the boundaries of the following coordinates, shall not exceed 20 metres in width.

Longitude	Latitude
127.66628	-25.87008
127.66622	-25.87054
127.67262	-25.87096
127.67266	-25.87051

5. 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.

6. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II –MANAGEMENT CONDITIONS

7. 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:

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

8. 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*:

- (a) clean any earth-moving machinery and other clearing equipment of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *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 area to be cleared.

PART III - RECORD KEEPING AND REPORTING

9. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, 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 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 7 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 8 of this Permit.

10. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 9 of this Permit, when requested 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*;

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; and

weed/s means any plant -

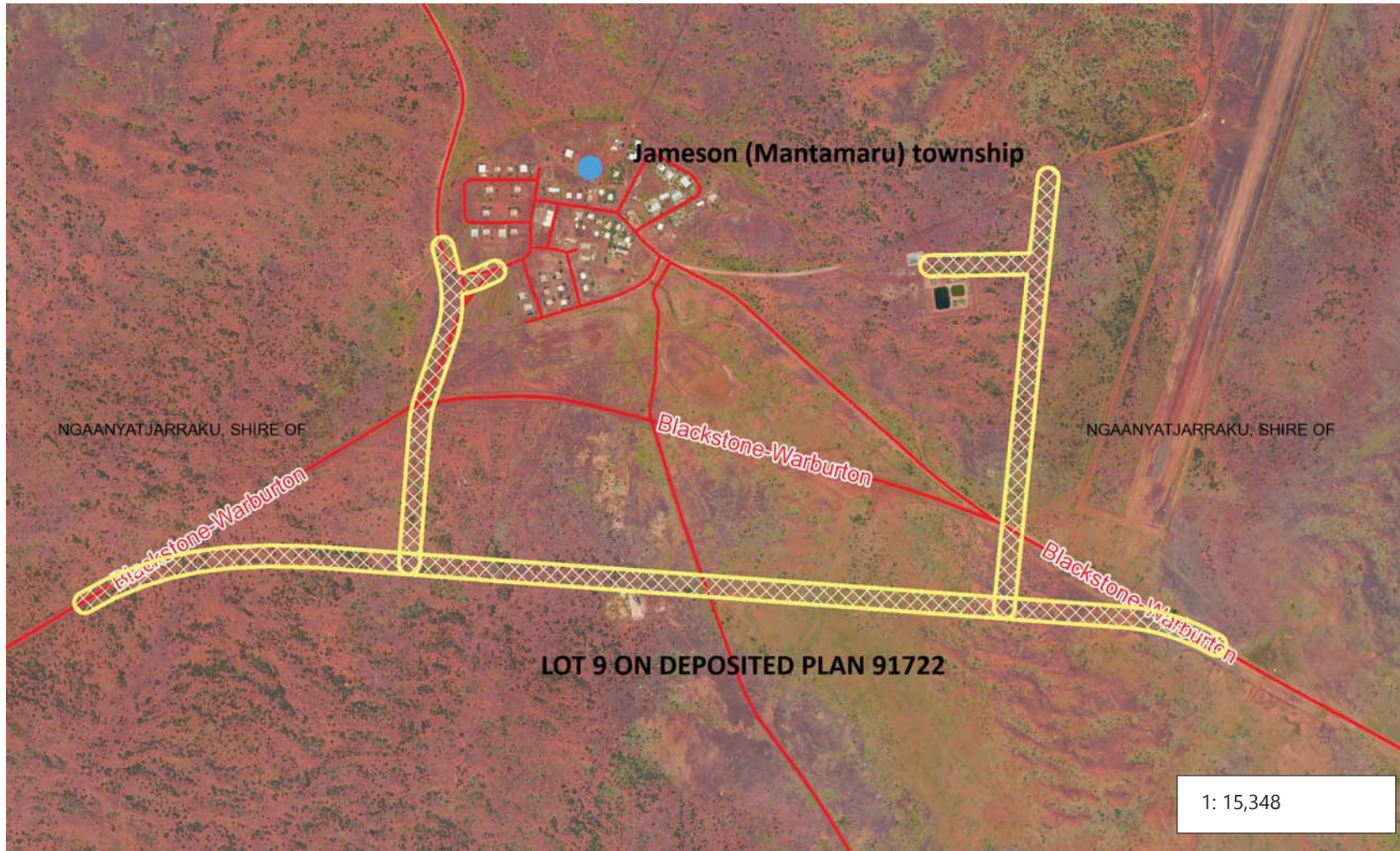
- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;
or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Samara Rogers
MANAGER
NATIVE VEGETATION REGULATION

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

3 April 2020



Legend

- CPS areas approved to clear
- Local Government Authorities
- Roads - State Roads
- Roads - Major Roads
- Roads - Minor Roads
- Cadastre

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Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

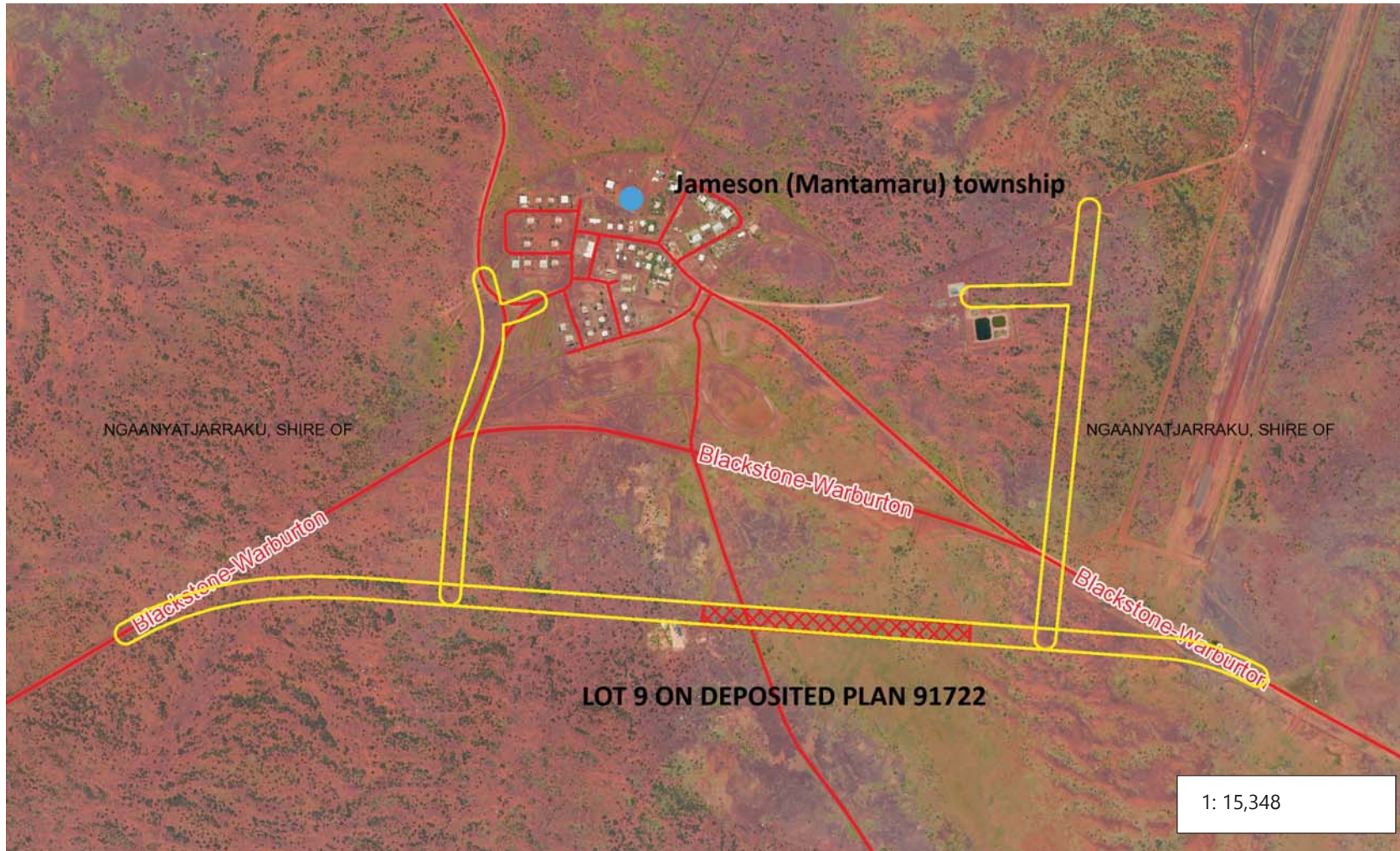
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Legend

- CPS areas approved to clear
- CPS subject to conditions
- Local Government Authorities
- Roads - State Roads
- Roads - Major Roads
- Roads - Minor Roads
- Cadastre

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1. Application details

1.1. Permit application details

Permit application No.: 8571/2
Permit type: Purpose Permit

1.2. Proponent details

Applicant's name: Shire of Ngaanyatjarraku

1.3. Property details

Property: Lot 9 on Deposited Plan 91722
Local Government Authority: Ngaanyatjarraku, Shire of
Localities: Ngaanyatjarra-Giles

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
22		Mechanical Removal	Road construction and upgrades

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 3 April 2020
Reasons for Decision: This is an administrative amendment to correct an error in the amount of clearing allowed under clearing permit CPS 8571/1, which was granted on 3 December 2019.

Considering the amount of clearing being sought has increased, the clearing has been re-assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing may be at variance with Principle (a) and is not likely to be at variance with the remaining clearing principles.

It has been determined that the proposed clearing will result in the following impacts:

- Clearing of up to 150 individuals and approximately 1.2 hectares of habitat for locally abundant Priority 3 flora species *Aristida jerichoensis* var. *subspinulifera* along an approximately 640 metre section of the Claypan Grassland vegetation type; and
- Potential to spread a weed of national significance, buffel grass (*Cenchrus ciliaris*), into the surrounding area.

The Delegated Officer determined that the clearing is not likely to have a significant impact on the local population or conservation status of *A. jerichoensis* var. *subspinulifera* and that the implementation of a condition that restricts the clearing width to 20 metres in the area supporting its habitat is appropriate to minimise the impact of clearing on this species.

The Delegated Officer considered that the implementation of a suitable weed management condition is appropriate to mitigate the impact of spreading weeds into adjacent vegetation.

The Delegated Officer also took into consideration the purpose of the clearing is to improve community safety by diverting the passage of heavy vehicles around the Jameson (Mantamaru) community. The Delegated Officer also had regard that this project is funded by a 'fixed' grant from the Federal Government.

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.

2. Site Information

Clearing Description: Currently, all fuel and other truck transports traverse through the Jameson (Mantamaru) community, including B Triple Road Trains associated with nearby mining activities (Shire of Ngaanyatjarraku 2019; Ngaanyatjarra Council Land and Culture Unit, 2019a). This poses a public safety risk (Shire of Ngaanyatjarraku 2020). The proposed Southern Bypass will join up with the newly constructed Western Bypass, allowing trucks coming from the east, including those associated with a mine near the South Australia border, to bypass the township (Shire of Ngaanyatjarraku 2020).

Clearing permit CPS 8571/1 allows 2.55 hectares of clearing within a 24 hectare footprint on Lot 9 on Deposited Plan 91722, Ngaanyatjarra-Giles, for the purpose of constructing a Southern Bypass to the community of Jameson (Mantamaru) (Figure 1, below).

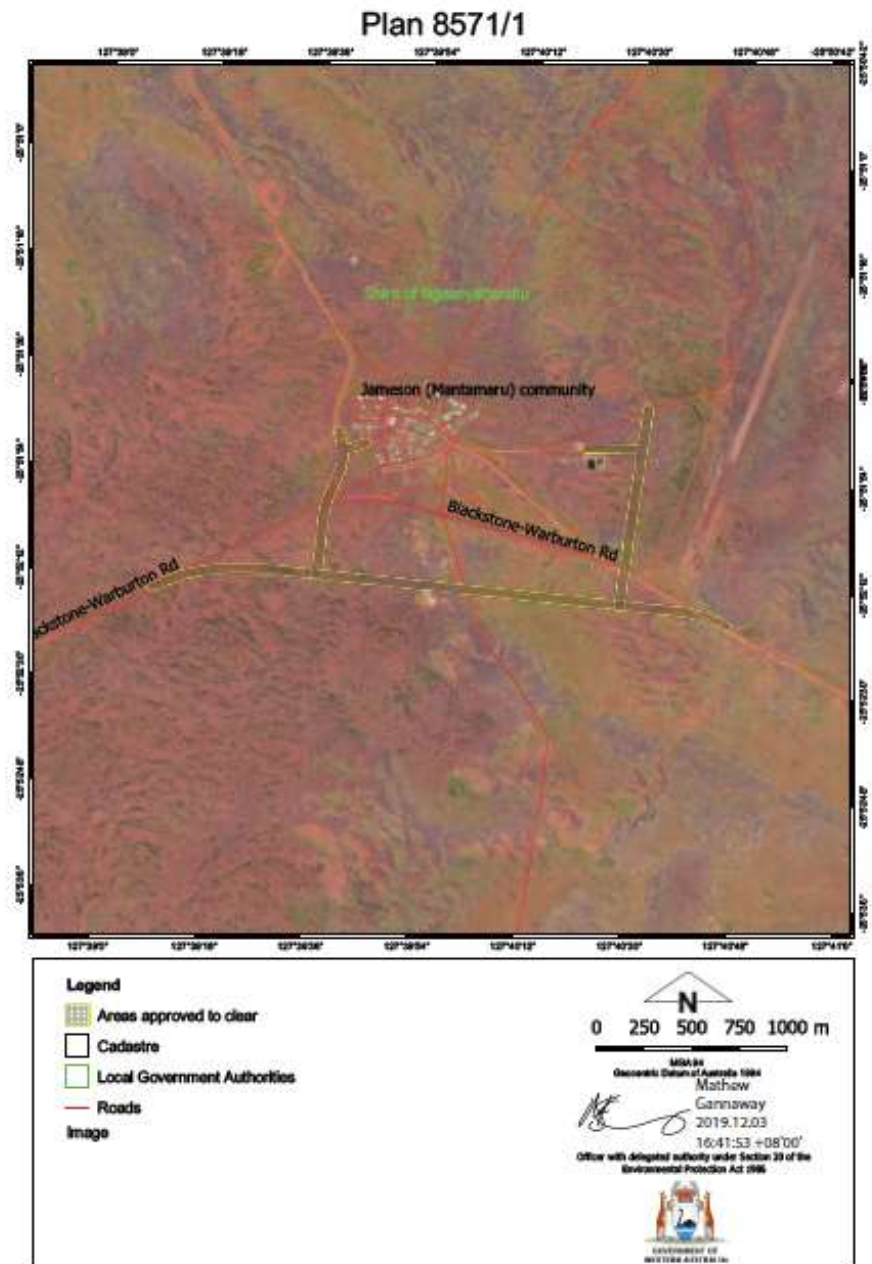


Figure 1. Clearing permit CPS 8571/1 authorises 2.55 hectares of clearing within the 24 hectare footprint area hatched yellow in Plan 8571/1

The Shire attempted to alter the amount of clearing during the assessment of CPS 8571/1 because the amount of clearing originally applied for was calculated in error and it intended to seek approval to clear the whole footprint (Shire of Ngaanyatjarraku, 2020). The area applied to be cleared is unchanged and is shown in Figure 2, below.

The proposed bypass works include three new sections of road close to the Jameson (Mantamaru) community:

- the proposed Southern Bypass road connecting Warburton through to Blackstone;
- access from the bypass to the western end of the community; and
- access from the bypass to the community power generator site and airstrip, to the east of the community (Ngaanyatjarra Council Land and Culture Unit, 2019a).

The Shire advised it receives no funding from rates and is reliant on funding from grant applications to pay for works (Shire of Ngaanyatjarraku, 2020). Formal road design and engineering works have not been completed however the Shire advised the application area needs to be wide enough to incorporate includes areas required to be cleared for:

- an unsealed road surface that is proposed to be 9 to 10 metres in width (which is similar to that in an urban environment)
- drains of 10 to 20 metres in length (to drain water away from the road surface and keep it useable in the relatively flat terrain)
- truck turn around areas
- emergency stopping areas
- sight line requirements (Shire of Ngaanyatjarraku, 2020).

The Southern Bypass road is approximately 3 kilometres long and the access roads are approximately 800 metres and 1 kilometre long, respectively. The area proposed to be cleared is approximately 50 metres wide.

Vegetation and Site Description:

The application area is mapped as Beard vegetation association 18, which is described as Low Woodland; mulga (*Acacia aneura*) (Shepherd et al., 2001).

A flora and vegetation survey was conducted over the area within 500 metres of the proposed roads by Ngaanyatjarra Council's Land and Culture Unit in April 2019. The survey identified seven vegetation associations within the application area (Ngaanyatjarra Council Land and Culture Unit, 2019b):

- **Hardpan Mulga Woodland;** *Acacia aneura* (to 3.5m), *Hakea lorea* (wirtjinti; to 1.5m), *Corymbia opaca* (tjuta murrmurpa; to 0.5 m), *Eragrostis eriopoda* (tjanpi), *Euphorbia drummondii*, *Dissocarpus paradoxa* (tjilka tjilka), *Acacia tetragonophylla* (kultupuka; to 0.75 m), *Enchylaena tomentosa* var. *tomentosa*, *Atriplex vesicaria* and *Eremophila latrobei* subsp. *glabra* (narangkura) (Figure 3).
- **Hardpan Mulga Woodland-Drainage;** comprising *Acacia aneura*, *Hakea lorea*, *Atriplex vesicaria*, *Eragrostis eriopoda*, *Dissocarpus paradoxa*, *Enchylaena tomentosa* var. *tomentosa*, *Acacia tetragonophylla*, *Rulingia loxophylla*, *Sclerolaena cornishiana* and *Alternanthera angustifolia* (Figure 4).
- **Mulga Woodland;** comprising *Acacia aneura*, *Acacia pteraneura*, *Grevillea stenobotrya* (nyintilpa), *Hakea lorea*, *Acacia ligulata* (watarrka), *Senna artemisioides* (punti), *Eragrostis eriopoda* (tjanpi), *Eremophila latrobei* subsp. *glabra* (narangka), *Sclerolaena cornishiana* (tjilka tjilka) and *Rhagodia eremaea* (Figure 5).
- **Mulga over *Maireana triptera* Shrubland;** Species included *Maireana triptera* (kunawiltu), *Eremophila longifolia*, *Acacia aneura*, *Eremophila serrulata*, (pirru pirru), *Rhyncharrhena linearis* (puya), **Cenchrus ciliaris* (buffel grass), *Solanum lasiophyllum* (rangki rangki), *Acacia ligulata* (watarrka), *Eremophila latrobei* subsp. *glabra* (narangka), *Dissocarpus paradoxus*, *Sclerolaena cornishiana* (tjilka tjilka), *Rhagodia eremaea* and *Grevillea stenobotrya* (nyintilpa) (Figure 6).
- **Mulga Wandarrie over *Eremophila* spp./ *Senna* spp./ *Atriplex vesicaria* low shrubland;** Species include *Anthobolus leptomerioides*, *Acacia pteraneura* (pilytalypa), *Bonamia erecta*, **Cenchrus ciliaris* (buffel grass), *Rhagodia eremaea*, *Acacia pruinocarpa*, *Acacia aneura*, *Corymbia opaca*, *Anthobolus leptomerioides*, *Atriplex vesicaria*, *Bonamia erecta*, and *Aristida jerichoensis* var. *subspinulifera* (P3) (Figure 7).
- **Claypan Grassland;** comprising graminoid species with frequent chenopods *Dissocarpus paradoxa* and *Sclerolaena cornishiana* as well as sparse shrubs of *Senna artemisioides*, *Acacia aneura*, *Maireana triptera* and *Eremophila* spp. **Cenchrus ciliaris* (buffel grass) is present in varying densities in this vegetation type (Figure 8).
- **Wandarrie Woodland;** no description included (Figure 9).

* denotes a weed species

Vegetation Condition:

The survey indicated the vegetation within 500 metres of the proposed clearing area ranges from completely degraded to excellent (Keighery, 1994) condition (Ngaanyatjarra Council Land and Culture Unit, 2019b). In review, the majority of the vegetation proposed to be cleared appears to be in degraded to very good (Keighery, 1994) condition using the Keighery (1994) scale.

Vegetation condition ratings are defined as follows:

- **Pristine:** Pristine or nearly so, no obvious signs of disturbance (Keighery, 1994).
- **Excellent:** Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species (Keighery, 1994).
- **Very Good:** Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
- **Good:** Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery, 1994).
- **Degraded:** Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching Good condition without intensive management (Keighery, 1994).
- **Completely Degraded:** The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (Keighery, 1994).

The survey area included cleared municipal areas including the community of Jameson, residences, public buildings, power generator and airfield. The majority of the remaining surveyed areas is subject to intensive periodic pressures associated with ephemeral campgrounds, such as firewood collection, compaction by off-road vehicles and incineration of rubbish (Ngaanyatjarra Council Land and Culture Unit, 2019b). Vehicle tracks of varying permanence, intensity and age were observed throughout the area almost without exception. Disturbance due to herbivore grazing was also noted and some areas within the surveyed footprint included areas of waste disposal, power generation and other infrastructure (Ngaanyatjarra Council Land and Culture Unit, 2019b).

Soil and Landform Type: The application area is located within the Musgrave Range Zone (Department of Primary Industries and Regional Development, 2019), which is described as 'Sandplain and dunes with hills, ranges, plains and some wash plains on Musgrave Complex granite and gneiss (with some volcanic and sedimentary rocks). Red sandy earths with red deep sands, red loamy earths and some stony soils and self-mulching cracking clays' (Tille, 2006).

Comment: The vegetation condition was derived from the flora and vegetation survey conducted by the Ngaanyatjarra Council Land and Culture Unit (2019b), and converted to the Keighery (1994) scale.

The local area referred to in the below assessment is defined as the area within a 40 kilometre radius of the application area.



Figure 2. Application area for CPS 8571/2 (shaded blue) is unchanged from CPS 8571/1



Figure 3. Hardpan Mulga Woodland (Ngaanyatjarra Council Land and Culture Unit, 2019b)



Figure 4. Hardpan Mulga Woodlands - Drainage (Ngaanyatjarra Council Land and Culture Unit, 2019c)



Figure 5. Mulga Woodland (Ngaanyatjarra Council Land and Culture Unit, 2019b)



Figure 6. Mulga over *Maireana triptera* Shrubland (Ngaanyatjarra Council Land and Culture Unit, 2019b)



Figure 7. Mulga Wandarrie over *Eremophila spp./ Senna spp./ Atriplex vesicaria* low shrubland (Ngaanyatjarra Council Land and Culture Unit, 2019b)



Figure 8. Claypan grassland (Ngaanyatjarra Council Land and Culture Unit, 2019b)



Figure 9. Mulga Warranderie Woodland (Ngaanyatjarra Council Land and Culture Unit, 2019b)

3. Minimisation and mitigation measures

The Shire of Ngaanyatjarraku (2019, 2020) advised:

- It reduced the amount of clearing sought from 30.98 hectares to 24 hectares.
- The proposed alignment utilises areas that are subject to existing disturbance due to vehicle usage, litter and grazing stock and the proposed road formalisation is expected to reduce pressures on other areas from informal usage.
- Alternative bypass routes were considered, however the proposed alignment was determined by a Heritage survey.
- The amount of clearing required is expected to be significantly less than that applied for, as with CPS 8343/1 for which approximately 10.9 hectares was cleared of the 32.66 hectares approved to enable the Western Bypass of these trucks for the Jameson South mine project.
- The Shire is willing to accept a condition on the permit that limits the width of the clearing in the Claypan Grassland vegetation type (area hatched red in the image below) to minimise impacts to *Aristida jerichoensis* var. *subspinulifera*
- It is not feasible to further reduce the amount of clearing sought because this project is funded by a 'fixed' grant from the Federal Government and cost over-runs are to be borne by the Shire. The Shire's construction crew mobilises equipment from Kalgoorlie (1,100 kilometres to site) and the crew costs \$11,000 per day. If the Shire were to stand down the crew while amending the clearing permit once works have commenced, it would go bankrupt before this is received.

The Shire has accepted a condition on the clearing permit that restricts clearing to 20 metres in width in the area supporting *A. jerichoensis* var. *subspinulifera*.

4. Assessment of application against clearing principles

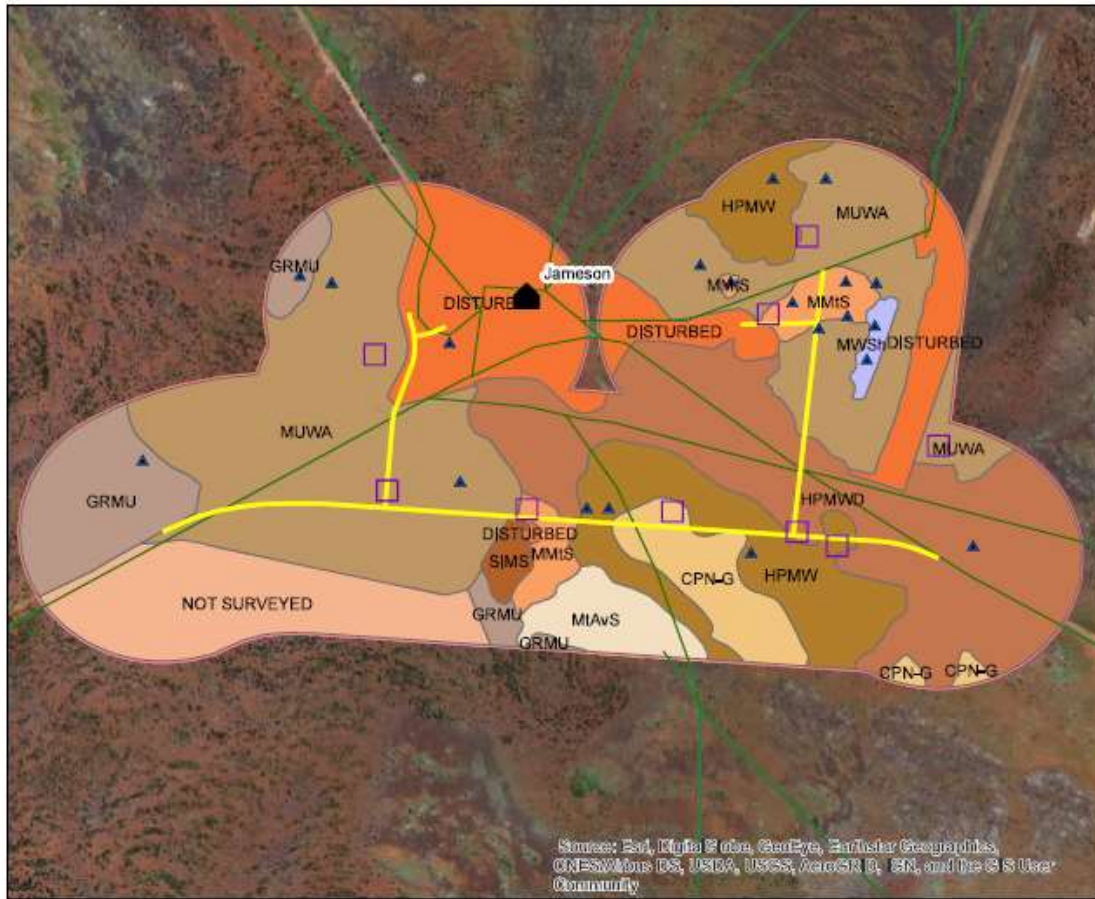
The application area is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Central Ranges Bioregion, which is described as high proportion of Proterozoic ranges and derived soil plains, interspersed with red Quaternary sandplains. The sandplains support low open woodlands of either desert oak or mulga over *Triodia basedowii* hummock grasslands. Low open woodlands of ironwood (*Acacia estrophiolata*) and corkwoods (*Hakea spp.*) over tussock and hummock grasses often fringe ranges. The ranges support mixed wattle scrub or *Callitris glaucophylla* woodlands over hummock and tussock grasslands (Thackway and Cresswell, 1995).

The closest mapped record of a conservation significant flora species is *Goodenia hirsuta* (listed as Priority 3 by the Department of Biodiversity, Conservation and Attractions), approximately 16.3 kilometres from the application area. The Ngaanyatjarra Council Land and Culture Unit's pre-survey review identified 21 flora species of conservation significance with the potential to occur within the survey area. *Indigofera warburtonensis* (Priority 1), *Tephrosia* sp. Central (P.K. Latz 17037) (Priority 3) and *Aristida jerichoensis* var. *subspinulifera* (Priority 3) were considered to have high likelihood of occurrence based on the availability of suitable habitat (Ngaanyatjarra Council Land and Culture Unit, 2019b). In addition, *A. jerichoensis* var. *subspinulifera* (Priority 3) and *Chrysocephalum apiculatum* subsp. *racemosum* (Priority 3) have been previously found within the survey area (Ngaanyatjarra Council Land and Culture Unit, 2019b).

The April 2019 survey recorded *A. jerichoensis* var. *subspinulifera* (Priority 3) in eight locations within and around the surveyed area and an additional population 300 metres north of the Jameson Community (Figure 10, below; Ngaanyatjarra Council Land and Culture Unit, 2019b). This species was recorded in the Claypan Grassland vegetation type (Ngaanyatjarra Council Land and Culture Unit, 2019b) which covers approximately 37 hectares of the surveyed area (Figure 11, below; Ngaanyatjarra Council Land and Culture Unit, 2019b). The Claypan Grassland vegetation type is calculated to cover approximately 3.2 hectares of the 24 hectare application area, along an approximately 640 metre section of the proposed Southern Bypass. In some areas south of the proposed road *A. jerichoensis* var. *subspinulifera* is reported to be the dominant grass species (Ngaanyatjarra Council Land and Culture Unit, 2019b).

The proposed clearing within the Claypan Grassland vegetation type is likely to include a number of *A. jerichoensis* var. *subspinulifera* individuals, with the survey estimating up to 150 individuals may be impacted (Ngaanyatjarra Council Land and Culture Unit, 2019b). However, the survey reported that, given the density and extent of the *A. jerichoensis* var. *subspinulifera* population is concentrated further south of the proposed road alignment and there exist multiple other evidently robust populations in the locality, the proposed clearing is not likely to have a significant negative impact on the persistence of this species in the area (Ngaanyatjarra Council Land and Culture Unit, 2019b). The Shire has agreed to restrict the clearing width to 20 metres in the Claypan Grassland vegetation type, reducing the area of impact on this species from 3.2 hectares to 1.2 hectares (and the total amount of clearing to 22 hectares).

The proposed clearing is not expected to have a significant impact on the population viability or conservation status of *A. jerichoensis* var. *subspinulifera*. The remaining conservation significant flora species identified in the pre-survey review were not identified within the surveyed area (Ngaanyatjarra Council Land and Culture Unit, 2019b). Noting the presence of priority flora within the application area, the proposed clearing may be at variance with Principle (a). The clearing permit contains a condition that restricts the clearing width to 20 metres in the area supporting *A. jerichoensis* var. *subspinulifera* to mitigate significant impacts to this priority flora species.



Legend

- Jameson (Mantamaru) Community
 - Existing Roads
 - Proposed Road Realignment
 - 500 m buffer around proposed road realignment
- Vegetation Description**
- Claypan - Grassland CPN-G
 - Mulga over *Maireana triptera* Shrubland MMS

Figure 11. Vegetation mapping within the survey area, showing the extent of the Claypan Grassland vegetation type south of the proposed road alignment (Ngaanyatjarra Council Land and Culture Unit, 2019b).

The survey report noted that the Mulga over *Maireana triptera* shrubland vegetation community, occurring on raised landforms within the surveyed area (Figure 11, above), is understood not to be widespread in the local context (Ngaanyatjarra Council Land and Culture Unit, 2019b). The survey reported fuel load reduction activities, the municipal landfill and vehicular traffic have resulted in relatively intensive prior impacts throughout ground, shrub and tree layers of the *Maireana triptera* shrublands areas compared with the surrounding landscape (Figure 6 in Section 2, above). The report also states the proposed road corridor footprint will not directly encroach on extant *Maireana triptera* shrublands (Ngaanyatjarra Council Land and Culture Unit, 2019b).

Clearing activities have the potential to facilitate the spread of weeds into adjacent native vegetation. Buffel grass (**Cenchrus ciliaris*) is a weed of national significance and was identified throughout the surveyed area in varying densities (Ngaanyatjarra Council Land and Culture Unit, 2019b). Weed species can decrease the biodiversity value of an area, as they out-compete native vegetation for available resources, contribute to land degradation and increase the frequency and intensity of fires. Potential impacts to biodiversity within and nearby the application area as a result of the proposed clearing may be minimised by the implementation of weed management practices.

According to available databases, 51 terrestrial fauna species have been recorded within a 40 kilometre radius of the application area, including four species of conservation significance; brush-tailed mulgara (*Dasyercus blythi*, Priority 4), greater stick-nest rat (*Leporillus conditor*, Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)) and Vulnerable under the *Biodiversity Conservation Act 2019* (BC Act)), black-flanked rock-wallaby (*Petrogale lateralis* subsp. *lateralis*, Endangered under the EPBC Act and BC Act), and malleefowl (*Leipoa ocellata*, Vulnerable under the EPBC Act and BC Act). Whilst the application area contains suitable habitat for the greater stick-nest rat and malleefowl, given the relatively small extent of the proposed clearing within a local area that contains approximately 95 per cent remnant native vegetation, the proposed clearing is not likely to be necessary for the maintenance of significant fauna habitat.

No threatened ecological communities (TEC) or priority ecological communities (PEC) occur within the Central Ranges IBRA bioregion. The closest PEC is located over 500 kilometres from the application area. The application area is not likely to comprise, or be necessary for the maintenance of any TEC or PEC.

The closest conservation area is the Gibson Desert National Reserve located approximately 140 kilometres northwest from the application area. Given the distance between the application area and the nearest conservation area, the application area is not likely to have an impact on the environmental values of any adjacent or nearby conservation areas.

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). Both the IBRA Central Ranges Bioregion and the mapped Beard vegetation association retains approximately 99 per cent of their pre-European extent (Government of Western Australia, 2018). Aerial imagery indicates the local area retains approximately 95 per cent remnant native vegetation. Given the above, the vegetation proposed to be cleared is not considered to be a significant remnant of native vegetation in an area that has been extensively cleared.

There are no watercourses and wetlands mapped within the area proposed to be cleared. No wetland or watercourses were identified within the application area during the 2019 survey (Ngaanyatjarra Council Land and Culture Unit, 2019b). The proposed clearing will not impact vegetation growing in, or in association with, an environment associated with a watercourse or wetland.

There are no public drinking water source areas located within the application area. The application area is located within the East Murchison Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1947*. A review of available databases determined the groundwater resources in the vicinity of the application area has been mapped at a total dissolved solids content of 1,000 - 3,000 milligrams per litre, which is considered to be brackish. Considering the relatively small extent of clearing proposed, no adverse impacts to the quality of groundwater is anticipated to result from the proposed clearing.

Inundation may occur following significant rainfall events within the application area and surrounding environment. However, given the relatively low annual average rainfall of 293 millimetres and high annual average pan evaporation rates of 3,400 millimetres, the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

As described within Section 2 of this report, the application area is located within the Musgrave Range Zone (Department of Primary Industries and Regional Development, 2019). Based on the images provided by the applicant (Ngaanyatjarra Council Land and Culture Unit, 2019b), the soil within the application area is consistent with the described red sandy earths and stony soils. Considering the extent of native vegetation remaining in the local area and the condition and composition of the vegetation proposed to be cleared, no appreciable land degradation impacts are expected to result from the proposed clearing activities.

Given the above, the proposed clearing may be at variance with Principle (a) and is not likely to be at variance with the remaining clearing principles.

Planning instruments and other relevant matters.

The area proposed to be cleared is within the Shire of Ngaanyatjarraku and in the Indigenous Protected Area managed by Ngaanyatjarra Council Aboriginal Corporation (Ngaanyatjarra Council Land and Culture Unit, 2019b). The Ngaanyatjarra Council Aboriginal Corporation is the lessee of Lot 9 on Deposited Plan 91722, Ngaanyatjarra-Giles, and has provided a letter of support for the Shire of Ngaanyatjarraku to construct the southern Bypass road for the Jameson Community (Ngaanyatjarra Council Aboriginal Corporation, 2019).

There are no registered Aboriginal Sites of Significance mapped within the area proposed to be cleared. It is the applicant's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

A heritage survey was conducted over the application area by the Ngaanyatjarra Council Land and Culture Unit on 27 and 28 November 2018 and 29 March 2019. The area proposed to be cleared for the Jameson bypass road was confirmed acceptable by the heritage survey team (Ngaanyatjarra Council Land and Culture Unit, 2019a).

The clearing permit application was advertised on 10 December 2019 with a 7 day submission period. One submission was received, opposing the application on the grounds that 30.98 hectares of clearing is excessive, unjustified and the proposed road works should not require more than a third of this amount (Submission, 2019). These concerns have been addressed in the clearing description (Section 2), mitigation and minimisation measures (Section 3) and the assessment against the clearing principles, above.

5. References

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- Department of Primary Industries and Regional Development (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 March 2019).
- Government of Western Australia (2018). 2017 State-wide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of February 2018. WA Department of Parks and Wildlife, Perth.
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Ngaanyatjarra Council Land and Culture Unit (2019b). Terrestrial Flora and Vegetation Impact Assessment, Ngaanyatjarra-Giles, Western Australia, 10 June 2019, (DWER Ref: A1801686).

Ngaanyatjarra Council Land and Culture Unit (2019c). Terrestrial Flora and Vegetation Impact Assessment, Ngaanyatjarra-Giles, Western Australia. (DWER Ref: A1775076).

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Shire of Ngaanyatjarraku (2020). Supporting information for Clearing Permit amendment CPS 8571/2. Received 11 February 2020. (DWER Ref: A1869988)

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GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity Conservation and Attractions, Tenure
- Hydrography, linear
- Hydrography, hierarchy
- IBRA Australia
- Remnant vegetation
- SAC bio datasets (accessed December 2019)
- Soils, statewide