Native Vegetation Clearing Permit

Shire of Narembeen

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1.0	6 November 2024	M. Dillon	G. Abolis	F. Bell
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Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Shire of Narembeen. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1.0 Introduction

1.1 Background

The Shire of Narembeen propose to widen the existing road intersection of Kondinin-Narembeen Road, Corrigin Narembeen Road and South Kumminin Road East, to increase road user safety and allow for heavy freight movement (referred within as the Project''). The Project is located within the Shire of Narembeen, approximately 16 km south of Narembeen town centre (Figure 1).

The Application Area (referred within as the Disturbance Footprint) covers 0.32 ha, comprising 0.085 ha of bitumen road and already cleared land and 0.235 ha of native vegetation (SLR Consulting, 2023). The Disturbance Footprint intersects the following land parcels (Landgate, 2023):

- Public Road (Land ID: 3680363)
- Public Road (Land ID: 3677809)
- Public Road (Land ID: 3680364)
- Public Road (Land ID: 3679711)
- Rail Way (Land ID: 3160232)
- Rail Way (Land ID: 3160233).

Under Section 51C of the *Environmental Protection Act 1986* (EP Act), clearing of any native vegetation requires an approved clearing permit under Part V of the EP Act, unless an exemption applies.

The data and information supporting this report include the following:

- Combined database search and an in-season reconnaissance flora and vegetation survey, basic vertebrate fauna survey and Black Cockatoo Habitat assessment undertaken by SLR Consulting in 2023 (Appendix A).
- Black Cockatoo Habitat Tree Survey of Kondinin-Narembeen Road undertaken by Greg Harewood in 2024 (Appendix B).

1.2 Purpose of Document

The purpose of this document is to present the assessment of the proposed clearing for the Project against the ten clearing principles as defined in Schedule 5 of the EP Act and outlined in the (then) Department of Environment Regulation's (DER) *A guide to the assessment of applications to clear native vegetation* (2014) under Part V Division 2 of the EP Act.

1.3 Proposed Timeframe

Clearing associated with this application is proposed to commence in August 2025.

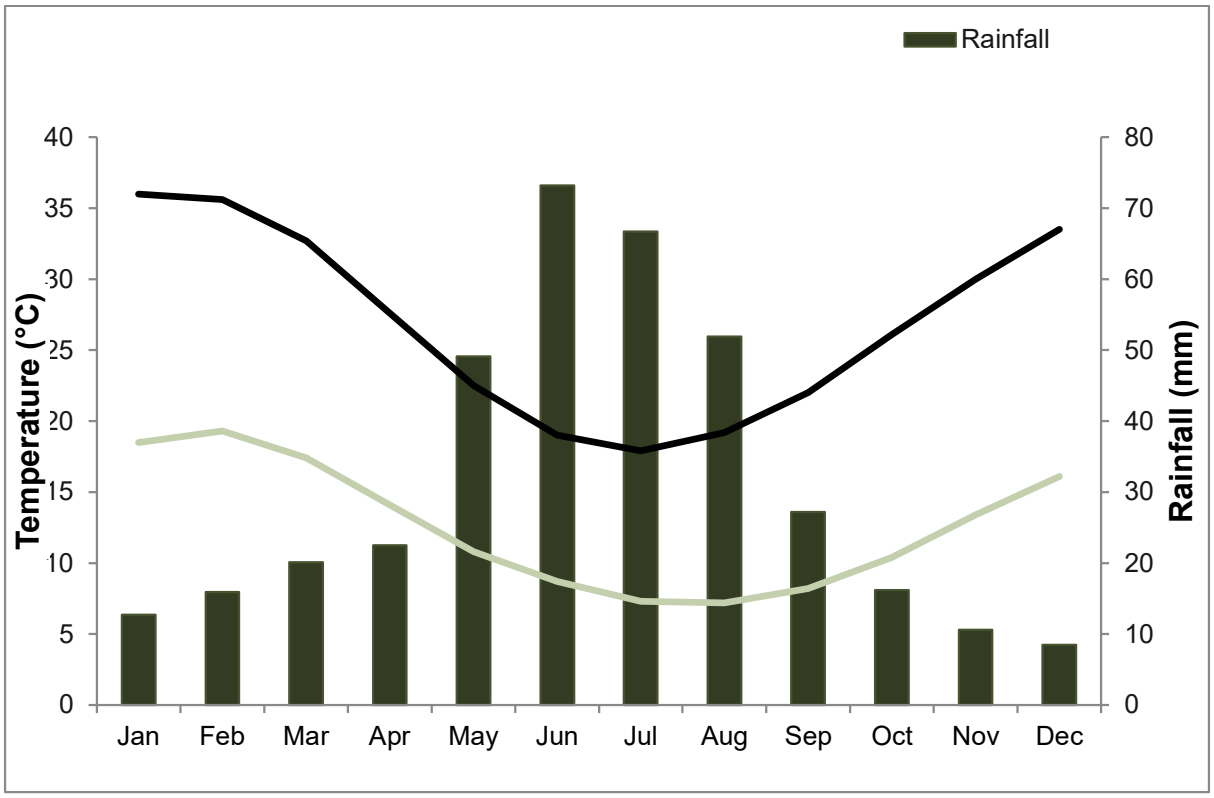
The proposed clearing of the Disturbance Footprint is expected to be cleared within 60 workdays post-commencement. The full Project is expected to be complete by June 2026.

2.0 Receiving Environment

2.1 Climate

The nearest Bureau of Meteorology (BoM) weather station to the Narembeen Weather Station (Station 010612) located approximately 4 km east from the Disturbance Footprint. Data statistics have been collected from 1927 to 2024.

The long-term mean minimum temperature for Narembeen Weather Station ranges from 5.4°C (August) to 16.9°C (February). The long-term mean maximum temperature ranges from 16.6°C (July) to 34.1°C (January) (Bureau of Meteorology, 2024). Narembeen receives rainfall 52.9 days annually with an average annual mean rain of 335.7 mm (Graph 1).



Graph 1: Climate Statistics for Narembeen Weather Station (Station 010612) (BoM, 2024).

2.2 Topography

The topography ranges from 287 m AHD to 289 m AHD with the highest elevation on the northern point and lowest elevation on the southern portion of the Disturbance Footprint. (Google Earth Pro, 2015).

2.3 Interim Biogeographical Regionalisation of Australia

The Interim Biographic Regionalisation of Australia (IBRA) (Department of the Environment and Energy, 2016) categorised the Australian continent into 89 bioregions of similar geology, landforms, vegetation, fauna, and climate. The Disturbance Footprint lies within the Mallee

IBRA region and the Western Mallee (MAL02) subregion, which is characterised as gently undulating landscape with partially occluded drainage (Beecham, 2001).

The MAL02 subregion is described as "*mallee over myrtaceous-proteaceous heaths on duplex (sand over clay) soils are common. Melaleuca shrublands characterise alluvia, and Halosarcia low shrublands occur on saline alluvium. A mosaic of mixed eucalypt woodlands and mallee occur on calcareous earth plains and sandplains overlying Eocene limestone strata in the east. The landscape is fragmented with particular surface-types almost completely cleared as wheat fields*" (Beecham, 2001).

2.4 Broad Vegetation Types

Mapping of pre-European broad vegetation within Western Australia was completed on a broad scale (1:1,000,000) by Beard (1976). These vegetation types were later re-assessed by Shepherd et. al (2002) with some larger vegetation units divided into smaller units. Together, this pre-European database contains a total of 819 vegetation types within Western Australia.

The Disturbance Footprint occurs within the Hyden 131 vegetation system association, which is described as woodland / mallee (DPIRD, 2019). Representation of this vegetation system association is further detailed in Table 1.

Table 1: Representation at the State, Regional and Local Level of the Hyden 131 Vegetation System

Pre-European Extent (ha)	Current Extent (ha)	Remaining (%)	Proportion of Current Extent in DBCA Managed Lands (%)
Representation across Western Australia			
181,154.83	14,875.75	8.21	11.81
Representation across the Mallee Bioregion			
111,511.96	10,027.08	8.99	14.54
Representation across the Western Mallee (MAL02) Subregion			
111,511.96	10,027.08	8.99	14.54
Representation across the Shire of Narembeen			
93,637.38	6,409.95	6.85	4.19

2.5 Soils

2.5.1 Acid Sulphate Soils

A review of the CSIRO Acid Sulphate Soil mapping identified the Disturbance Footprint as having Extremely Low Probability of occurrence (1-5% chance of ASS occurrence in mapping unit) (Fitzpatrick et al., 2011).

Approximately 90 m north of the Disturbance Footprint the area is mapped as having Low Probability of occurrence (6-70% chance of ASS occurrence in mapping unit). Approximately 5.9 km northwest of the Disturbance Footprint the area is mapped as having High Probability of occurrence (>70% chance of occurrence in mapping unit) (Fitzpatrick et al., 2011).

2.5.2 Soil Salinity

Soil landscape mapping identified the Disturbance Footprint as having a relatively high salinity risk (H1), where 50-70% of the map unit has a moderate to high salinity risk or is presently saline (DPIRD, 2023a). This is likely due to the agricultural land use surrounding the Disturbance Footprint.

Surface salinity mapping identifies the Disturbance Footprint as L2, where 3-10% of the map unit has a moderate to extreme surface salinity risk (DPIRD, 2023c).

2.5.3 Soil Landscape Systems

Soil landscapes and land system mapping of WA describes broad soil and landscape characteristics from regional to local scales, ranging from 1:20,000 to 1:125,000 (DPIRD, 2018). The Disturbance Footprint is within the Kellerberrin System (258Kb), which is characterised by valley floors, in the central Zone of Ancient Drainage, with alkaline red shallow loamy duplex, alkaline grey sandy duplexes mainly in branch valleys (shallow and deep), calcareous loamy earth and hard cracking clay. The vegetation is characterised by Salmon Gum-Gimlet-Wandoo (DPIRD, 2018).

The Disturbance Footprint is within the Kellerberrin 2 Non-saline Phase subsystem (258Kb_2ns), which is characterised by un-salinised broad, flat valleys of the central and eastern wheatbelt containing heavy red and grey soils (DPIRD, 2006).

2.6 Bushfire Prone Areas

The Disturbance Footprint is mapped as a bushfire prone area (DFES, 2024).

2.7 Hydrology

The Disturbance Footprint is located within the proclaimed Westonia groundwater resource area (Department of Water and Environmental Regulation [DWER], 2024). The nearest Public Drinking Water Source Area (PDWSA) is the Priority 1 and Priority 2 Brookton Happy Valley Water Reserve, located approximately 139 km west of the Disturbance Footprint (DWER, 2023).

The Disturbance Footprint lies within the Northern Zone of Ancient Drainage (HZ07_NAD) Hydrological Zone, which is described as an ancient plain of low relief and lateritic uplands on weathered granite (DPIRD, 2022). Ranges and stony plains in the northeast; no connected drainage, remnant salt lake chains occur in ancient drainage systems which now only function in very wet years (DPIRD, 2022). The Disturbance Footprint occurs within the Swan Avon Lockhart Catchment (DWER, 2018a)and within the Wakeman Creek Sub-catchment (DWER, 2018b).

2.7.1 Wetlands and Surface Hydrology

There are no wetlands within the Disturbance Footprint. The nearest wetland is a granite outcrop wetland located approximately 1.3 km south of the Disturbance Footprint (DBCA, 2017).

There are no other surface water features within the Disturbance Footprint. The Lockhart River is located approximately 19 km west of the Disturbance Footprint and intersects the Wakeman Creek approximately 19 km northwest of the Disturbance Footprint (DWER, 2018c).

Flood risk mapping shows that the Disturbance Footprint is Level 1, where <3% of the mapping unit has a moderate to high flood risk (DPIRD, 2023b). The Disturbance Footprint is also not located near any major water bodies that are likely to flood.

2.8 Conservation Features

Environmentally Sensitive areas (ESAs) are declared by the DWER to prevent the degradation of important environmental values such as Threatened flora, Threatened Ecological Communities (TECs) or significant wetlands (Government of Western Australia, 2005).

The Disturbance Footprint is not mapped within an ESA (DWER, 2021). The nearest conservation area is the South Kumminin Nature Reserve, located approximately 400 m north of the Disturbance Footprint.

2.9 Aboriginal Heritage

According to the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) data register, there are no Aboriginal cultural heritage sites within the Disturbance Footprint or within a 5 km radius of the Disturbance Footprint (DPLH, 2024).

The Disturbance Footprint is within the South West Settlement Native Title Determination (WCD2021/010) and within the Ballardong People Indigenous Land Use Agreement (WI2017/012) (DPLH, 2024).

3.0 Flora and Vegetation

The flora and vegetation survey was undertaken in July 2023 and included a desktop assessment and field survey (SLR Consulting, 2023). The survey area covered two sites, however the Disturbance Footprint covers the ‘Southern Survey Area’ (Figure 2).

The ‘survey area’ in this document refers to the “Southern Survey Area” in the biological survey report (SLR Consulting, 2023) (Appendix A).

3.1.1 Desktop Assessment

Database searches identified 67 significant flora species occurring within 40 km of the survey area (SLR Consulting, 2023). No significant flora taxa from the database searches were recorded in the survey area (SLR Consulting, 2023). A post-survey likelihood of occurrence assessment of these species determined:

- No significant flora taxa were considered to have a High likelihood of occurrence
- No significant flora taxa were considered to have a Medium likelihood of occurrence
- All 67 significant flora taxa were considered to have a Low likelihood of occurrence.

One (1) Commonwealth TEC, which is also a State-listed Priority Ecological Community (PEC), has been identified in the database searches as occurring within the survey area (SLR Consulting, 2023):

- Eucalypt Woodlands of the Western Australian Wheatbelt (DBCA: Priority 3) (EPBC Act: Critically Endangered).

3.1.2 Vegetation Types

Four (4) vegetation types were mapped across the survey area (Figure 3) (SLR Consulting, 2023). Additionally two mapping units were also identified including Cleared Areas (CL) and Bitumen Roads (RD) (Figure 3).

The vegetation types are described as:

- **EsEsCh –** *Eucalyptus salmonophloia, E. eremophila, E. salubris* (*E. wandoo subsp. wandoo*) woodland over *Marieana brevifolia, Daviesia aphylla* and *Sclerolaeana diacantha* low sparse shrubland over *Eriachne ovata* and *Austrostipa elegantissima* low sparse grassland.
- **EyCh –** *Eucalyptus yilgarnensis* low woodland over *Santalum acuminatum* mid sparse shrubland over *Marieana brevifolia, M. suadifolia* and *Sclerolaeana diacantha* low sparse shrubland over *Austrostipa elegantissima* and *Eriachne ovata* low sparse grassland.
- **RE –** *Eucalyptus astringens, E. cylindriflora* and *E. torquata* woodland over *Acacia acuminata* tall sparse shrubland over *Melaleuca lanceolata* mid sparse shrubland over *A. hemiteles, Marieana brevifolia* and *Sclerolaeana diacantha* low sparse shrubland over **Poa annua* sparse low grassland.
- **PC –** Vegetation no longer intact and the area is completely or almost completely without native species. Flora comprised of crop species, mixed introduced flora with some isolated native trees and shrubs.

3.1.3 Vegetation Condition

Vegetation condition in the survey area ranged for Completely Degraded to Good, with over half the survey area (58.94%) being in Completely Degraded Condition (SLR Consulting, 2023). The extent of each vegetation condition in the survey area and Disturbance Footprint is presented in Table 2 and Figure 4.

Table 2: Vegetation Condition across the Survey Area and Disturbance Footprint (SLR Consulting, 2023)

Condition Rating	Area (ha) in the Survey Area	Area (ha) in the Disturbance Footprint
Good	0.184	0.093
Degraded	0.008	0.002
Completely Degraded	0.277	0.140
Cleared / Road	0.497	0.085
Total	**0.966**	**0.320**

3.1.4 Threatened and Priority Ecological Communities

The presence of the TEC/PEC identified in the desktop assessment, *Eucalypt Woodlands of the Western Australian Wheatbelt* (Wheatbelt Woodlands TEC/PEC), was confirmed in the field survey (SLR Consulting, 2023).

Wheatbelt Woodlands TEC/PEC

The field survey confirmed the presence of five (5) remnant vegetation patches of Wheatbelt Woodlands TEC represented by the EsEsCh vegetation type (SLR Consulting, 2023). These

patches were assessed against the key diagnostic characteristics and condition thresholds to confirm the presence of the TEC/PEC (SLR Consulting, 2023).

A total 0.118 ha of Wheatbelt Woodlands TEC/PEC is present in the survey area, of which 0.068 ha occurs within the Disturbance Footprint (Figure 5). The 0.068 ha of Wheatbelt Woodland TEC/PEC in the Disturbance Footprint is in Good condition and relates best to Category B, as per the Approved Conservation Advice (DoE, 2015; SLR Consulting, 2023).

3.1.5 Flora Composition

The biological survey recorded a total of 23 taxa from 18 genera across 9 families (SLR Consulting, 2023). The dominant families were Chenopodiaceae (6 species), Myrtaceae (5 species), and Poaceae (4 species). The most dominant genera was Eucalyptus (5 species) (SLR Consulting, 2023).

3.1.6 Threatened and Priority Flora

No Threatened flora species pursuant to the EPBC Act and/or gazetted as Threatened pursuant to the *Biodiversity Conservation Act 2016* (BC Act) were recorded during the survey (SLR Consulting, 2023).

No Priority flora species as listed by DBCA were recorded during the survey (SLR Consulting, 2023).

3.1.7 Introduced Flora

A total of five introduced species were recorded within the natural and modified vegetation remnants within the survey area, representing 21.7% of the total taxa recorded (Table 3). None of these five species are listed as Declared Pests under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) or as Weeds of National Significance (WoNS) (SLR Consulting, 2023).

Introduced species are allocated an 'Ecological Impact' and an 'Invasiveness' ranking under the DBCA Weed Prioritisation Process for the Wheatbelt Region (DBCA, 2016). Of the five introduced species encountered in the survey area, two species are ranked High for Ecological Impact and Rapid for Invasiveness.

Table 3: Introduced Flora Recorded in the Survey Area and their Ranking under DBCA Weed Prioritisation Process (DBCA, 2016)

Species	Common Name	Ecological Impact	Invasiveness	Declared BAM Act	WoNS
**Bromus rubens*	Red Brome	H	R	Permitted – s11	No
**Erigeron bonariensis*	Flax-leaf Fleabane	-	-	Permitted – s11	No
**Poa annua*	Winter Grass	U	U	Permitted – s11	No
**Raphanus raphanistrum*	Wild Radish	U	R	Permitted – s11	No
**Romulea rosea*	Guildford Grass	H	R	Permitted – s11	No

3.2 Fauna

SLR Consulting (2023) conducted a desktop assessment, including a review of the Protected Matters Search Tool (PMST) and DBCA database searches, using a 40-50 km buffer (SLR Consulting, 2023).

The basic vertebrate fauna survey was undertaken by SLR Consulting in July 2023 (Appendix A).

A further Black Cockatoo Habitat Tree Survey (Harewood, 2024) was undertaken to confirm the status of the six potential breeding trees that were recorded in the survey area (Appendix B).

3.2.1 Fauna Habitat

One (1) basic fauna habitat was mapped in the survey area (Table 4; Figure 6). This fauna habitat, trees over paddock, provides low value foraging habitat for black cockatoos (SLR Consulting, 2023).

Table 4: Fauna Habitat in the Survey Area

Fauna Habitat	Description	Extent within the Survey Area	Extent within the Disturbance Footprint
Trees over paddock	Deep sandy loam plains throughout the landscape with remnant or planted eucalypt species over cleared paddock. Microhabitats include tree hollows, leaf litter, peeling bark, and woody debris that provide shelter for a wide range of various fauna species. The most important habitats are the various tree hollows which may provide suitable nesting habitat for black cockatoos. The largest disturbance was the clearing of native understorey for paddock that is still prolific throughout large portions of the survey area, as well as litter and weeds.	0.192	0.095

3.2.2 Desktop Assessment

Database searches identified 23 significant terrestrial vertebrate fauna species potentially occurring within 40-50 km of the survey area, excluding marine species as there is no marine habitat within the survey area (SLR Consulting, 2023). The likelihood of occurrence assessment of these species determined two species to have a High likelihood of occurrence:

- Peregrine Falcon (*Falco peregrinus*), listed as Other Specially Protected under the BC Act
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*), listed as Endangered under the BC Act and EPBC Act.

The remaining 21 significant species were assessed as having a Low likelihood of occurrence (SLR Consulting, 2023).

3.2.3 Fauna Composition

The basic fauna survey recorded a total of five fauna species from four families, comprising four birds and one reptile (SLR Consulting, 2023).

3.2.4 Conservation Significant Fauna and Likelihood of Occurrence

No conservation significant fauna species, or evidence of these species, were recorded during the basic fauna survey (SLR Consulting, 2023). Further detail is provided below on the two species which are considered to have a High likelihood of occurrence.

3.2.4.1 Carnaby's Cockatoo (*Zanda latirostris*)

The Carnaby's Cockatoo is listed as Endangered under both the BC Act and EPBC Act. The DBCA database identified 31 records within 80 km of the Disturbance Footprint, including 14 km north in 2013 and 80 km north in 2018 (SLR Consulting, 2024). No black cockatoos, or evidence of, were recorded in the survey area or flying overhead during the field survey (SLR Consulting, 2023).

Carnaby's Black Cockatoos nest in the hollows of a wide range of Eucalypt trees, with a preference for smooth barked trees such as Salmon Gum (*E. salmonophloia*) and Wandoo (*E. wandoo*) but also rough barked Eucalyptus and Corymbia trees such as Red Morrell (*E. longicornis*), York Gum (*E. loxophleba*), Marri (*Corymbia calophylla*) and Tuart (*E. gomphocephala*) (Johnstone & Storr, 1998). Carnaby's Black Cockatoos feed on seeds, nuts and flowers of a variety of native and exotic plants, including *Banksia* spp., Pine trees (*Pinus* sp.), Marri, Jarrah (*E. marginata*), *Grevillea* spp., *Allocasuarina* spp., and *Hakea* spp. (Shah, 2006).

Suitable habitat is present within the Disturbance Footprint (SLR Consulting, 2023).

Foraging habitat

The results of the foraging quality scoring tool are calculated using criteria from the *Referral guideline for 3 WA threatened black cockatoo species* (DAWE, 2022). A total of 0.192 ha of low-quality foraging habitat for Carnaby's Cockatoo was recorded in the survey area, of which 0.095 ha occurs in the Disturbance Footprint (Figure 7) (SLR Consulting, 2023).

Breeding Habitat

Six (6) potential breeding trees with a diameter at breast height (DBH) greater than 500 mm were recorded during the fauna survey (SLR Consulting, 2023), comprising:

- Three (3) Salmon Gums (*Eucalyptus salmonophloia*)
- Two (2) Wandoo (*Eucalytpus wandoo subsp. wandoo*)
- One (1) Merrit (*Eucalyptus urna*).

Two of these trees contained hollows that were considered potentially suitable for use by black cockatoos (SLR Consulting, 2023). The black cockatoo habitat tree survey (Harewood, 2024) (Appendix B) confirmed the presence of the six (6) potential breeding trees, two of which contained hollows

Of the two Salmon Gums that contained hollows, one of them contained five possible hollows, all of which are not suitable for black cockatoos due to the size of the entrance and/or size of the accommodating branch (Harewood, 2024).

The second hollow-bearing Salmon Gum contained three potential hollows, all of which were concluded to be unsuitable for use by black cockatoos due to the small internal size of the hollows (Harewood, 2024).

Therefore, two of the six potential breeding trees contained hollows, however all hollows are considered unsuitable for use by black cockatoos (Harewood, 2024).

Of the six potential breeding trees recorded, four (4) occur within the Disturbance Footprint (Figure 7) (Harewood, 2024). Table 5 provides the breakdown of potential breeding trees that occur within the survey area and Disturbance Footprint.

Table 5: Black Cockatoo Potential Breeding Trees (Harewood, 2024)

Area	Number of Trees	Number of Hollows	Hollows suitable for use by black cockatoos
Survey Area	6	8	0
Disturbance Footprint	4	3	0

3.2.4.2 Peregrine Falcon (*Falco Peregrinus*)

The Peregrine Falcon is listed as Other Specially Protected under the BC Act. The DBCA database identified 31 records within 80 km of the Disturbance Footprint, including 14 km north in 2013 and 80 km north in 2018 (SLR Consulting, 2023).

The Peregrine Falcon has a wide range across Australia and mainly occurs along rivers and ranges as well as wooded watercourses and lakes (SLR Consulting, 2023). The species primarily nests on cliffs, granite outcrops and quarries, and is also known to occupy existing raptor and corvid stick nests (SLR Consulting, 2023).

There is no suitable nesting habitat in the survey area or Disturbance Footprint, however, it is possible that the Peregrine Falcon may use the survey area for hunting (SLR Consulting, 2023). Given that the Disturbance Footprint is approximately 26% cleared, is highly degraded and runs along an existing road, it is unlikely that this species would utilise the Disturbance Footprint as critical habitat.

4.0 Environmental Management Measures

To minimise the potential impacts from the activities associated with the application, the following environmental management measures will be implemented:

- Induction of all contractors and/or internal personnel undertaking the clearing in accordance with the Shire of Narembeen procedures.
- Demarcation of the Disturbance Footprint to prevent clearing beyond the approved Clearing Area.
- Vegetation clearing will be scheduled to occur immediately before planned revegetation works to minimise the potential for dust, where practicable. The use of a water cart or other means of wetting will be made available.
- Implementation of Phytophthora (Dieback) and hygiene management practices during clearing and construction.
- Implementation of weed hygiene measures to minimise the risk of spread or introduction of new weed species.
- A pre-clearing fauna inspection will be performed prior to the clearing for possible nests, and fauna relocation for species that are slow-moving by a licensed fauna handler, if deemed necessary.
- Fauna spotter on site while clearing is underway, particularly for Carnaby's Cockatoos.

5.0 Assessment Against the Ten Clearing Principles

The proposed clearing within a 0.32 ha Disturbance Footprint has been assessed against the ten clearing principles as defined in Schedule 5 of the EP Act and outlined in the (then) Department of Environment Regulation's (DER) A Guide to the assessment of applications to clear native vegetation (2014) under Part V Division 2 of the EP Act (Table 6).

Table 6: Assessment Against the Ten Clearing Principles

Principle	Assessment

Principle (a) – Native vegetation should not be cleared if it comprises a high level of biological diversity	**Assessed Outcome:** The proposed clearing **may be** at variance with this Principle.
	Flora and Vegetation
	• The proposed Disturbance Footprint is limited to 0.32 ha, of which 0.085 ha has been previously cleared. Of the remaining 0.235 ha of vegetation:
	  ○ 0.14 ha is Completely Degraded
	  ○ 0.002 ha is Degraded
	  ○ 0.093 ha is in Good condition.
	• No Threatened flora species pursuant to the EPBC Act or BC Act were recorded in the survey area or Disturbance Footprint (SLR Consulting, 2023).
	• No Priority species as listed by DBCA were recorded during the survey (SLR Consulting, 2023).
	• The Disturbance Footprint occurs within Mallee IBRA region and within the Hyden 131 vegetation association. Approximately 8.21% of the pre-European extent of Hyden 131 remains uncleared in Western Australia, 8.99% remains uncleared in the Avon Wheatbelt Bioregion, and 6.85% in the Shire of Narembeen. This is below the 30% threshold which is considered to be extensively cleared and is inconsistent with the national objectives and targets for biodiversity conservation (Commonwealth of Australia, 2001).
	Threatened Ecological Communities
	• 0.068 ha of *Eucalypt Woodlands of the Western Australian Wheatbelt* (Wheatbelt Woodlands) (Priority 3 PEC) was recorded in the Disturbance Footprint, all of which is in Good condition (SLR Consulting, 2023).
	Black Cockatoo Habitat
	• Four (4) potential black cockatoo breeding trees will be cleared, of which one tree has three hollows, however the hollows are not suitable for use by black cockatoos (Harewood, 2024).
	• 0.095 ha of low-quality black cockatoo foraging habitat occurs within the Disturbance Footprint (SLR Consulting, 2023).

Principle	Assessment
	In summary, the proposed Disturbance Footprint includes remnant vegetation, a Priority 3 PEC, black cockatoo foraging habitat and potential breeding trees. The presence of Wheatbelt Woodlands TEC/PEC and habitat for listed species indicates a higher level of biodiversity than may occur in other areas. However, within the proposed Disturbance Footprint the majority of the vegetation is in Degraded or Completely Degraded condition and the black cockatoo foraging habitat is considered to be of low value. The presence of environmental values that are in a degraded condition but include remnant vegetation indicates that the Project may be at variance with this Principle.
Principle (b) – Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia	**Assessed Outcome:** The proposed clearing **may be** at variance with this Principle. • No conservation significant fauna species, or evidence of these species, were recorded during the survey (SLR Consulting, 2023). • Critical habitat to Carnaby's Cockatoos includes eucalypt woodlands that provide nest hollows used for breeding and nearby vegetation that provides feeding, roosting and water, woodland sites known to have supported breeding in the past and which could be used in the future with nearby food and/or water resources, and vegetation that provides food resources during the non-breeding season with nearby water and night roosting (DCCEEW, 2013). • The Disturbance Footprint contains 0.095 ha of low-quality potential foraging habitat for Carnaby's Cockatoo (SLR Consulting, 2023). • Four (4) potential black cockatoo breeding trees will be cleared, of which one tree has three hollows, however the hollows are not suitable for use by black cockatoos (Harewood, 2024). The clearing of low-quality foraging habitat for black cockatoos has been limited to 0.095 ha, however, the clearing of four (4) potential breeding trees cannot be avoided. Although the Project has been designed to minimise impacts to fauna habitat, clearing of habitat that is utilised by listed Threatened species is required, thus the proposed clearing may be at variance with this Principle.
Principle (c) – Native vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.	**Assessed Outcome:** The proposed clearing is **not** at variance with this Principle. • No Threatened flora species pursuant to the EPBC Act or BC Act were recorded in the survey area or Disturbance Footprint, nor are any likely to occur (SLR Consulting, 2023). • No Priority species as listed by DBCA were recorded during the survey (SLR Consulting, 2023).
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 (TEC).	**Assessed Outcome:** The proposed clearing **is** at variance with this Principle. • A total of 0.068 ha of Wheatbelt Woodlands TEC/PEC occurs within the Disturbance Footprint, all of which is in Good condition and relates best to Category B, as per the Approved Conservation Advice (SLR Consulting, 2023).

Principle	Assessment
	The proposed clearing includes 0.068 ha of Wheatbelt Woodlands TEC/PEC and is therefore at variance with this Principle.
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.	**Assessed Outcome:** The proposed clearing **is likely to be** at variance with this Principle. • The Disturbance Footprint occurs within Mallee IBRA region and within the Hyden 131 vegetation association. Approximately 8.21% of the pre-European extent of Hyden 131 remains uncleared in Western Australia, 8.99% remains uncleared in the Avon Wheatbelt Bioregion, and 6.85% in the Shire of Narembeen. This is below the 30% threshold which is considered to be extensively cleared and is inconsistent with the national objectives and targets for biodiversity conservation (Commonwealth of Australia, 2001). • A total of 0.118 ha of Wheatbelt Woodlands TEC/PEC was recorded in the survey area, of which 0.068 ha occurs within the Disturbance Footprint, therefore the proposed clearing equates to 57.6% of the TEC recorded in the survey area. • A total of 0.192 ha of low-quality foraging habitat for Carnaby's Cockatoo was recorded in the survey area, of which 0.095 ha occurs within the Disturbance Footprint. • The proposed clearing also includes four (4) potential black cockatoo breeding trees (Harewood, 2024). The local area contains less than 30% of the Hyden 131 vegetation association. The proposed clearing is, therefore, inconsistent with the national objectives and targets for biodiversity conservation (Commonwealth of Australia, 2001) which aims to retain at least 30% of each ecological community. The vegetation proposed for clearing is considered a remnant within an extensively cleared area. The highly disturbed condition of the vegetation due to the Disturbance Footprint being roadside, reduces the significance of the vegetation but given the low remaining proportion of the Hyden 131 vegetation association, the vegetation in the Disturbance Footprint may be a significant remnant and the proposed clearing is, therefore, likely to be at variance with this Principle.
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.	**Assessed Outcome:** The proposed clearing is **not** at variance with this Principle. There are no watercourses or wetlands within the Disturbance Footprint. There are no other significant surface water bodies or hydrological characteristics within or near the Disturbance Footprint. Therefore, the proposed clearing is not at variance with this Principle.
Principle (g) – Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	**Assessed Outcome:** The proposed clearing is **unlikely to be** at variance with this Principle. • Land degradation includes soil erosion, salinity, nutrient export, acidification and waterlogging/flooding (Department of Environment Regulation, 2014). • Implementation of the Project is unlikely to result in soil erosion as the Disturbance Footprint is limited to 0.32 ha, of which 0.085 ha has been previously cleared, and a Construction Environmental Management Plan

Principle	Assessment
	(CEMP) will be implemented to ensure management measures are in place to control potential erosion association with the clearing of native vegetation. • The long-term annual mean rainfall recorded at Narembeen Weather Station is 335.7 mm (BoM, 2024). The month with the highest long-term mean rainfall recorded at Narembeen Weather Station is June (50.4 mm) (BoM, 2024). This is considered to be very dry when rainfall percentiles are compared with the rest of Australia (BoM, 2024). • Soil landscape mapping identified the Disturbance Footprint as having a relatively high salinity risk (H1, 50-70% of map unit has a moderate to high salinity risk or is presently saline) (DPIRD, 2023a). This is likely due to the agricultural land use surrounding the Disturbance Footprint. • A review of the CSIRO Acid Sulphate Soil mapping identified the Disturbance Footprint as having Extremely Low Probability of occurrence (1-5% chance of ASS occurrence in mapping unit) (Fitzpatrick et al., 2011). Given the low rainfall in the area, low ASS risks, the small extent of proposed clearing, and the management measures that will be in place, it is unlikely the proposed clearing will cause appreciable land degradation and is, therefore, unlikely to be at variance with this Principle.
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.	**Assessed Outcome:** The proposed clearing is **not** at variance with this Principle. • There are no conservation areas within the Disturbance Footprint. • The South Kumminin Nature Reserve is location approximately 400 m north of the Disturbance Footprint. • The 0.32 ha Disturbance Footprint runs along a road and the South Kumminin Nature Reserve is already surrounded by agricultural land and roads. The proposed clearing is unlikely to cause any further fragmentation to vegetation between the Disturbance Footprint and nearest nature reserve. Management controls will be in place to manage potential impacts to flora, vegetation and fauna during construction. The proposed clearing is unlikely to impact the nearest conservation area, and is therefore, not at variance with this Principle.
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	**Assessed Outcome:** The proposed clearing is **not** at variance with this Principle. • The Disturbance Footprint is located within the proclaimed Westonia groundwater resource area and does not overlap with any PDWSAs. • The Disturbance Footprint lies within the Northern Zone of Ancient Drainage (HZ07_NAD) Hydrological Zone and within the Swan Avon Mortlock Catchment (DPIRD, 2022 & DWER, 2018a). • There are no wetlands within the Disturbance Footprint. The nearest wetland is a granite outcrop wetland located approximately 1.3 km south of the Disturbance Footprint (DBCA, 2017).

Principle	Assessment
	The proposed clearing will not interfere with any surface or groundwater features or wetlands and, therefore, will not be at variance with this Principle.
Principle (j) – Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	**Assessed Outcome:** The proposed clearing is **not** at variance with this Principle. • Rainfall at the nearest BoM station has recorded an average of 335.7 mm of rain annually, which is very low (BoM, 2024). • Flood risk mapping shows that the Disturbance Footprint is Level 1, where <3% of the mapping unit has a moderate to high flood risk (DPIRD, 2023b). • The Disturbance Footprint is also not located near any major water bodies that are likely to flood. • Topographic contours indicate that the Disturbance Footprint is located at a higher elevation in the landscape, where the gradient is relatively flat (Google Earth Pro, 2015). Given that there is low risk of flooding, annual rainfall is low and the Disturbance Footprint is limited to 0.32 ha and is not located near any major water bodies, the proposed clearing is not at variance with this Principle.

6.0 Summary of Assessment

The assessment of the proposed clearing within a 0.32 ha Disturbance Footprint indicates the clearing is not at variance with five (5) Principles, unlikely to be at variance with one (1) Principle, may be at variance with two (2) Principles, likely to be at variance with one (1) Principle and is at variance with one (1) Principle as summarised below:

Not at variance with:

- Principle (c) – Native vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.
- 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.
- 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.
- 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
- Principle (j) – Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

Unlikely to be at variance with:

- Principle (g) – Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

May be at variance with:

- Principle (a) – Native vegetation should not be cleared if it comprises a high level of biological diversity
- Principle (b) – Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.

Likely to be at variance with:

- 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.

Is at variance with:

- 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 TEC.

The proposed clearing has been assessed as at variance with Principle (d) as approximately 0.068 ha of Wheatbelt Woodlands TEC/PEC in Good condition will be cleared. Given the small scale of this clearing, the fragmented nature of the vegetation due to the roadside location, and that 26.5% of the Disturbance Footprint is already cleared or road, it is considered unlikely the clearing will have a significant detrimental impact to the ecological community.

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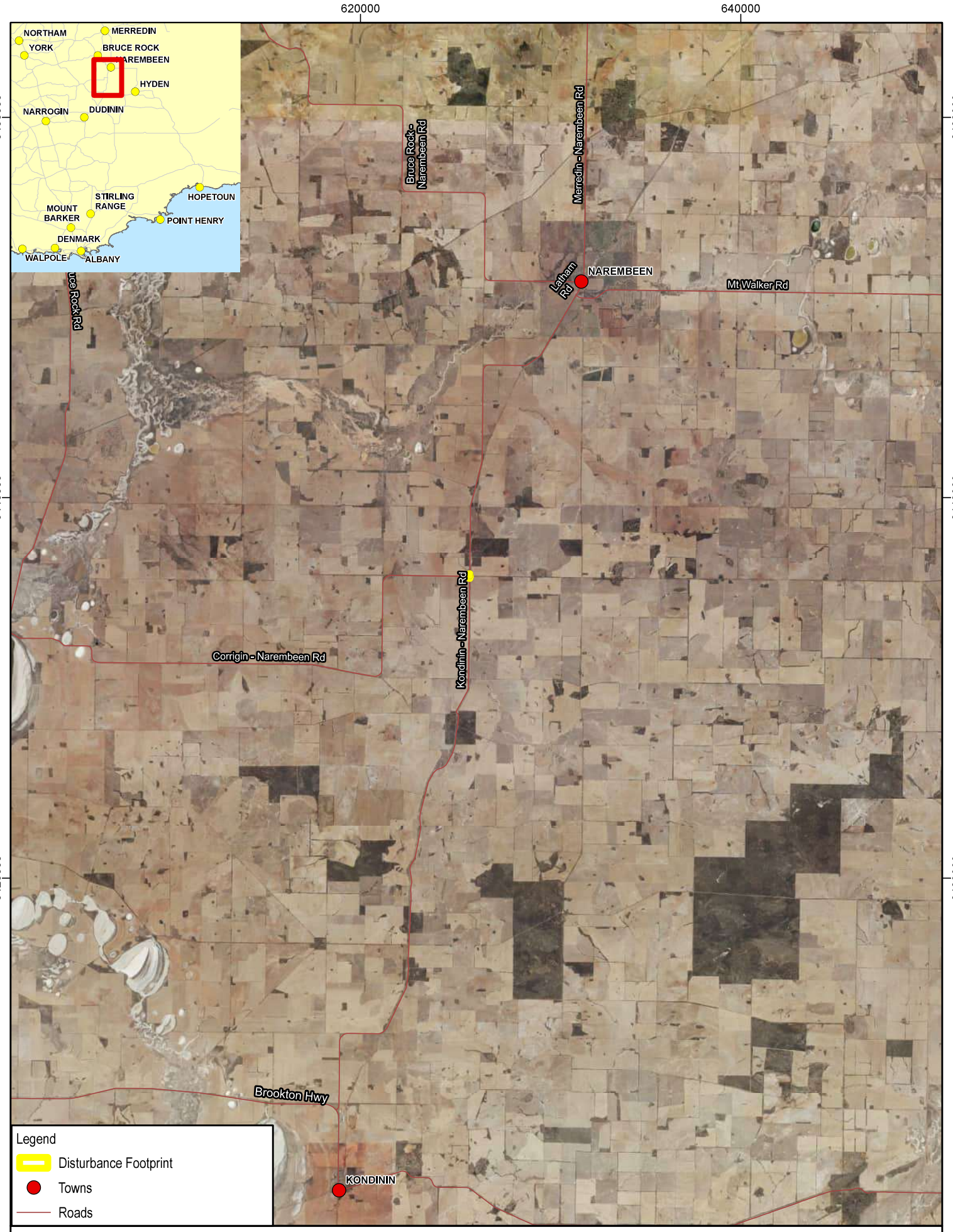
Figures



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Drawn by:	JH
Reviewed by:	MD

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Shire of Narembeen

NVCP Application – Shire of Narembeen

Regional Location

FIGURE 1

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Project Number:	675.VX5781.00001
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SLR

Shire of Narembeen

NVCP Application – Shire of Narembeen

Disturbance Footprint and Survey Area

FIGURE 2

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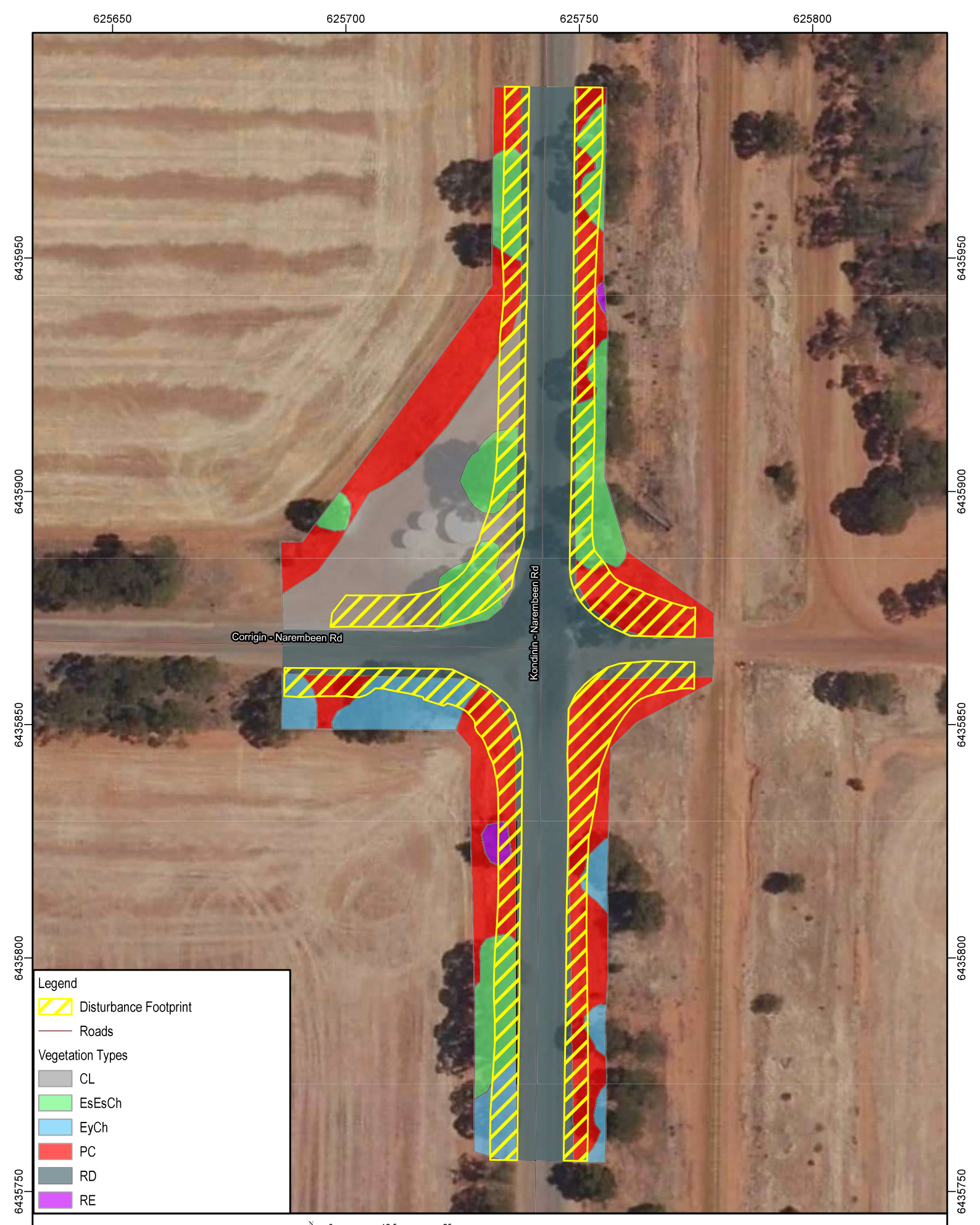

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Shire of Narembeen

NVCP Application – Shire of Narembeen

Vegetation Types

FIGURE 3

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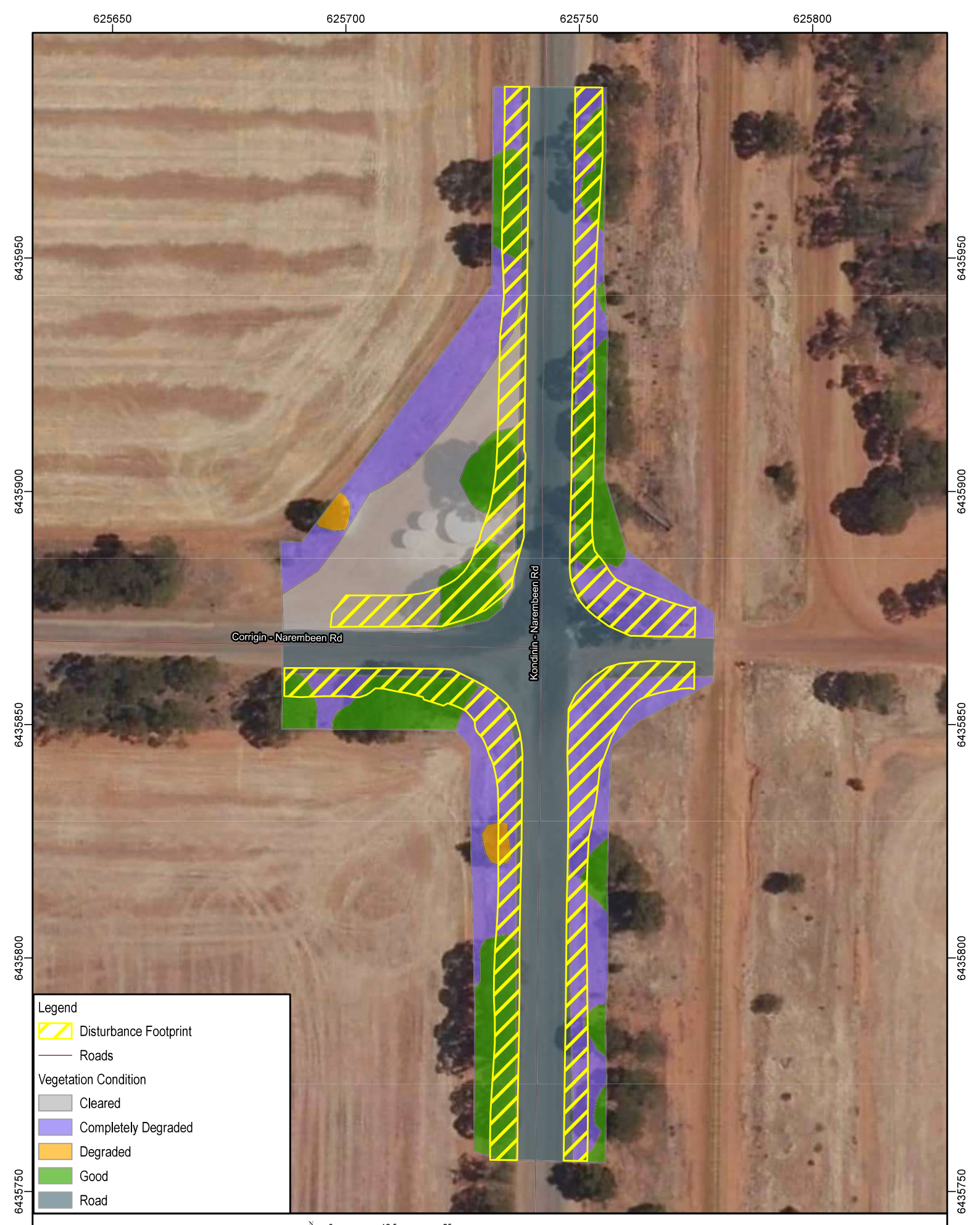

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Shire of Narembeen

NVCP Application – Shire of Narembeen

Vegetation Condition

FIGURE 4

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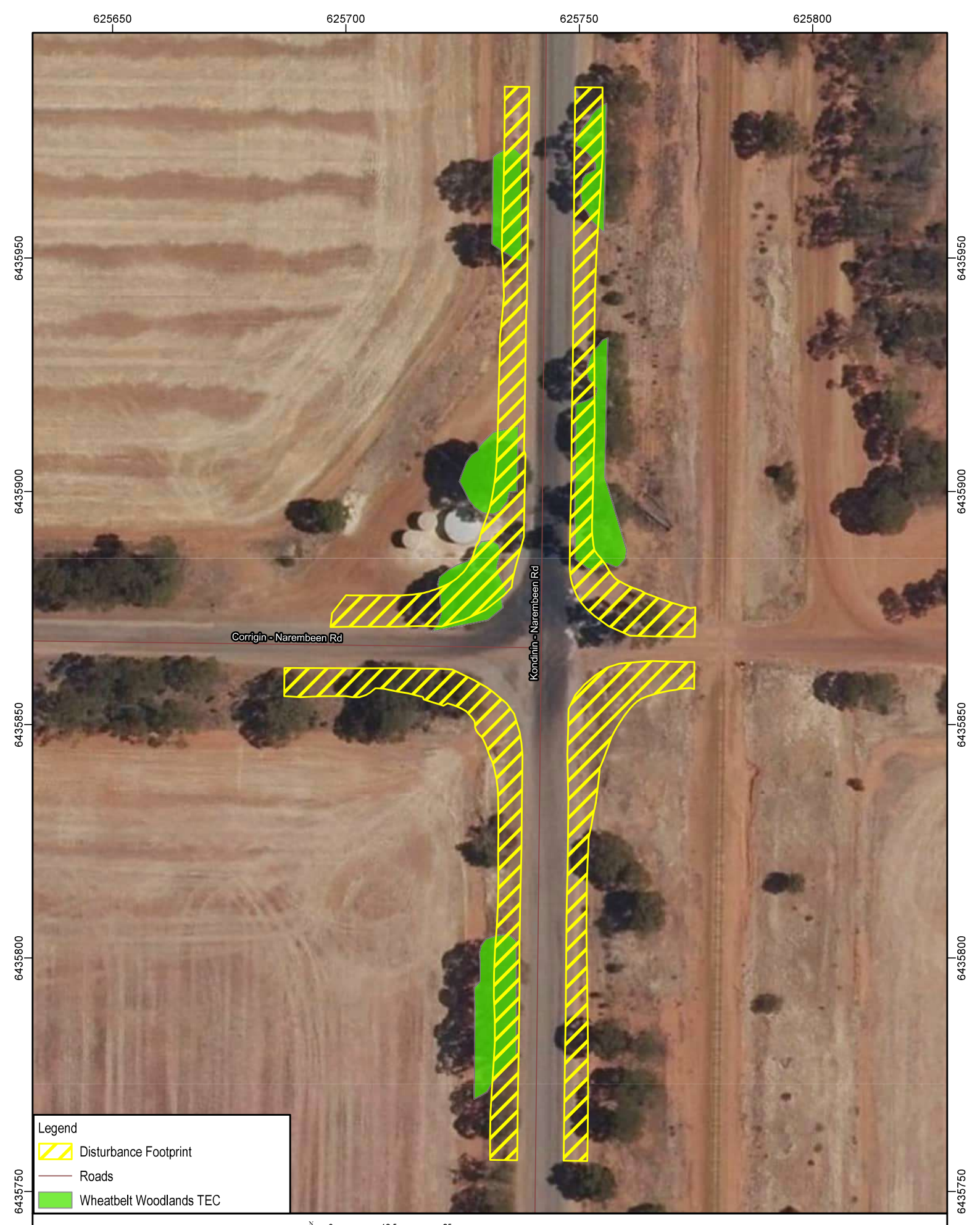

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Shire of Narembeen

NVCP Application – Shire of Narembeen

Wheatbelt Woodlands TEC

FIGURE 5

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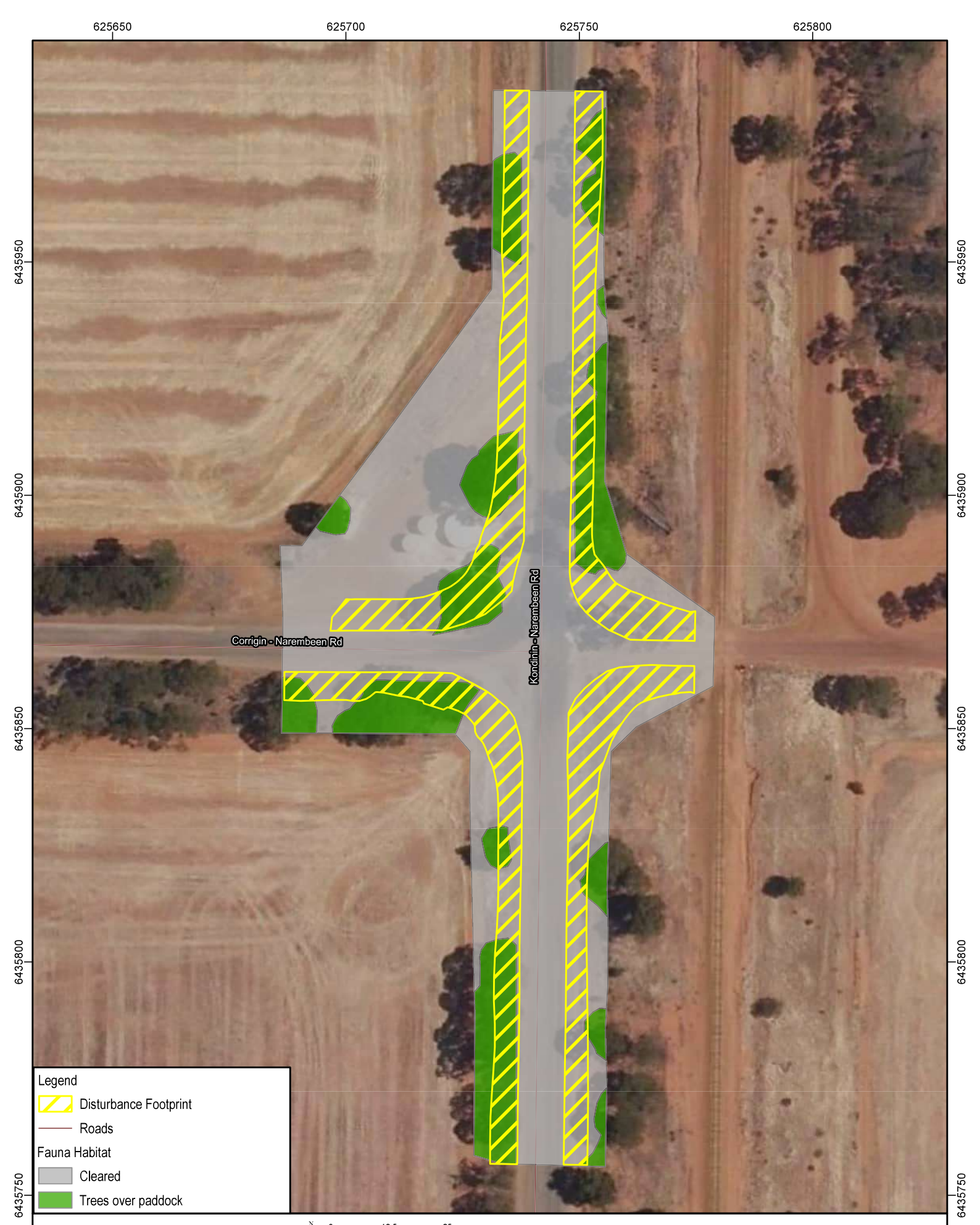

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Shire of Narembeen

NVCP Application – Shire of Narembeen

Fauna Habitat

FIGURE 6

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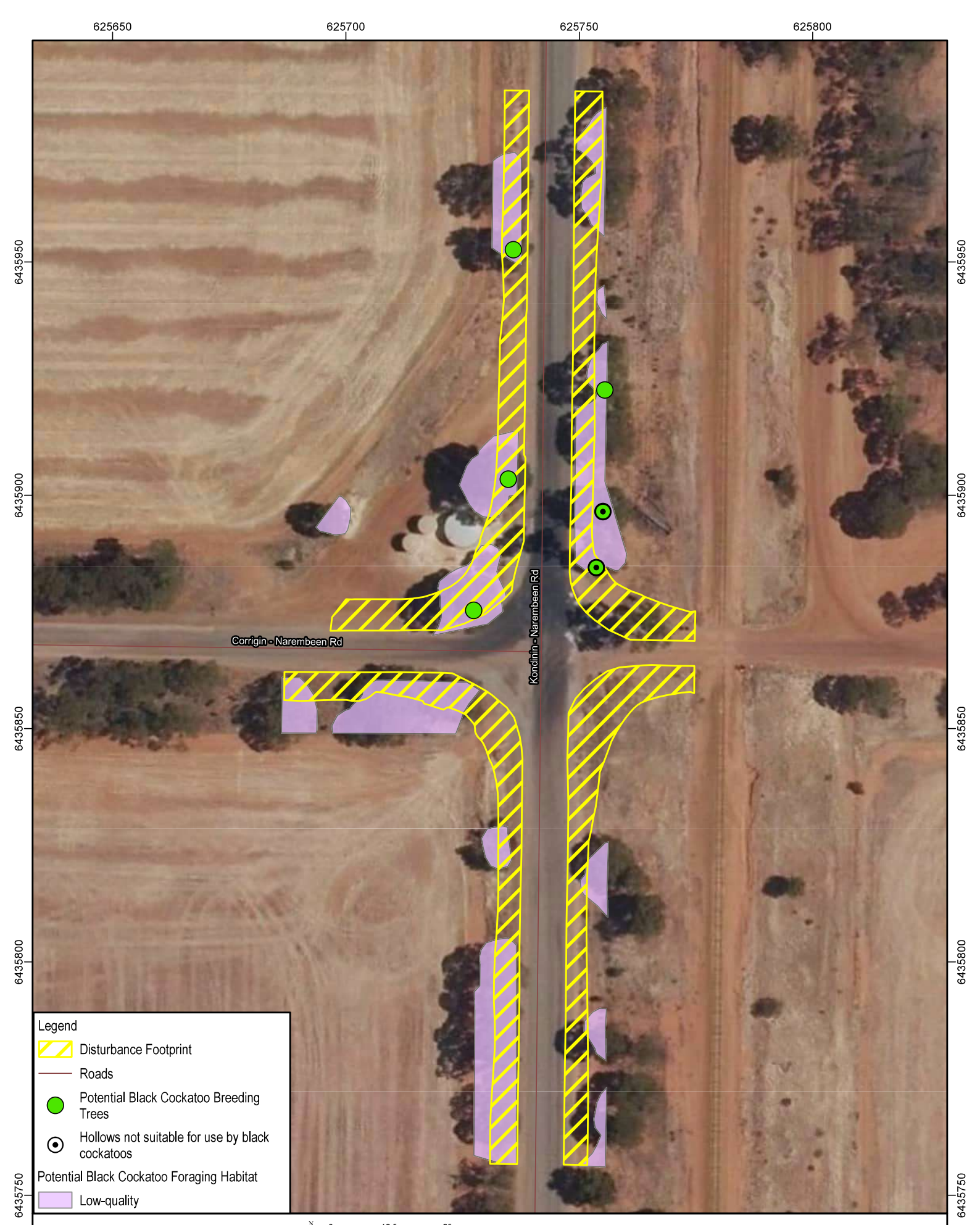

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Shire of Narembeen

NVCP Application – Shire of Narembeen

Black Cockatoo Habitat

FIGURE 7

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