Main Roads Western Australia

Report for Lancelin Road Passing Lanes

(37.5-39.1 SLK) and (36.0-37.2 SLK)

Preliminary Environmental Impact Assessment

January 2008

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Appendices

Executive Summary

Main Roads Western Australia (Main Roads WA) commissioned GHD Pty Ltd to complete a Preliminary Environmental Impact Assessment (PEIA) associated with the construction of north bound and south bound passing lanes on Lancelin Road between 36.0 SLK and 39.1 SLK.

A number of desktop assessments were undertaken to determine the potential environmental impacts of the proposed works. These include identification and reporting of:

- climate;
- geology, landform and soils;
- vegetation;
- weed management;
- significant fauna;
- indigenous heritage;
- non-indigenous heritage;
- land use; and
- construction phase impacts

These assessments indicate potential environmental impacts associated with the project are minimal. No issues identified during the development of this PEIA are considered to require referral to the Environmental Protection Authority or the Commonwealth.

It is estimated that approximately 3.8 hectares of vegetation will be required to be cleared. The proposed project is unlikely to be at variance with the Ten Clearing Principles. The conditions stipulated in Main Roads state-wide vegetation clearing permit (Purpose Permit CPS 818/4) should be adhered to.

1. Introduction

Main Roads West Australia (Main Roads WA) commissioned GHD Pty Ltd (GHD) to complete a Preliminary Environmental Impact Assessment (PEIA). The project involves the construction of north bound and south bound passing lanes on Lancelin Road between 36.0 SLK and 39.1 SLK.

The project area is shown in Figure 1, Appendix A. Photographs of the project area are contained in Appendix B.

1.1 Scope of report

This PEIA has been prepared to conform to Main Roads WA Consultant Brief. It:

- Identifies and reviews existing relevant environmental reports;
- Conducts an initial assessment to determine the key environmental aspects for the road proposal;
- Assesses the project against the *Environmental Protection Act's* (1986) Ten Clearing Principles (Schedule 5);
- Assesses all environmental aspects likely to require referral of the project and advises whether the project should be referred to the Environmental Protection Authority (EPA);
- Assesses all Matters of National Environmental Significance likely to require referral of the project to the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) under the *EPBC Act 1999*;
- Determines (but does not apply for) clearances required under other legislative provisions, including (but not limited to) those required under the following Acts:
  - *Conservation and Land Management Act (1984);*
  - *Wildlife Conservation Act (1950);*
  - *Environmental Protection Act (1986);*
  - *Rights in Water and Irrigation Act (1914);*
  - *Heritage of Western Australia Act (1990);*
  - *Aboriginal Heritage Act (1972).*
- Based on the information provided by Main Roads WA and database/literature reviews, the environmental and social aspects considered and discussed in this PEIA include:
  - climate;
  - geology and soils;
  - topography and hydrology;
  - vegetation i.e. clearing and presence of Declared Rare or Priority Flora (DRF), Threatened Ecological Communities and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed species;
  - weed management;

- fauna;
- reserves and conservation areas;
- indigenous heritage;
- non-indigenous heritage;
- contaminated sites;
- land use; and
- construction phase impacts.

1.2 Structure of Report

This PEIA has been structured as follows:

- Section 2: Outlines the project
- Section 3: Environmental and social issues considered relevant to this Project are outlined on a topic-by-topic basis. Each of the topics includes a baseline environmental description, and where appropriate this is followed by a preliminary assessment of potential environmental constraints and GHD's recommendation to Main Roads WA.
- Section 4: Discusses the need for referral, to EPA and the commonwealth, and approvals that may be required by the proposed project.
- Section 5: Draws conclusions from the PEIA and reiterates the management recommendations provided in Section 3.

2. Project Description and Justification

The project involves the construction of north bound and south bound passing lanes on Lancelin Road between 36.0 SLK and 39.1 SLK in the Shire of Gingin. The project area is shown in Figure 1, Appendix A. Photographs of the project area are shown in Appendix B.

Once the final link road of Indian Ocean Drive is constructed between Lancelin and Cervantes, the traffic volume on the Lancelin Road will increase by approximately 2000 vehicles per day. Main Roads WA has indicated “this increase of traffic will warrant the need for overtaking lanes to be constructed between Yanchep and Lancelin to improve the level of service and road safety”.

3. Environmental Aspects and Management

The environmental and social issues considered relevant to this Project are outlined on a topic-by-topic basis in the following section. Each of the topics include a baseline environmental description, where appropriate this is followed by a preliminary assessment of potential environmental constraints and GHD's recommendation to Main Roads WA.

3.1 Climate

The project area has a climate that is broadly described as Mediterranean, experiencing warm dry summers and cool wet winters. The closest weather recording station to the project area is Lancelin. Recorded historical climate data for Lancelin has been summarised below:

- Mean Annual Maximum Temperature Range – 29.7°C (February) to 19.1°C (July/August)
- Mean Annual Minimum Temperature Range – 17.9°C (February) to 9.9°C (August)
- Mean Annual Rainfall – 611.2 mm
- Mean Annual Rain days per year – 82.5 days

(Source: Bureau of Meteorology – Climate Averages for Australian Sites: Averages for Lancelin, 2007)

Climate is not a significant constraint for this project. During the summer months dust control could be an issue. Run-off management should be considered during the winter months.

3.2 Geology, Landform and Soils

The project area is located within the Perth Basin on the Swan Coastal Plain. The Australian Soil Resource Information System (2007) describes the landforms of this region as low dissected plateaus; dune fields; alluvial plains in the south. The project area lies within the Spearwood Dune System. The Spearwood dunes comprise the eolian parts of the Tamala Limestone – medium-to coarse-grained calcarenite, composed largely of broken fossil shell fragments and various amounts of quartz sand (Gozzard, 2007).

The landform of the project area is characterised by gently undulating land. The land surface within the Study area ranges from 15 m to 35 m Australian Height Datum (AHD) (Department of Water, 2007).

The urban geology map series 1:50,000 (Department of Industry and Resources, 1977) was referred to, to determine specific geology and soil characteristics of the survey area. The project area and surrounding lands are Tamala Limestone. The majority of the project area is predominantly sand with only a small area described as predominantly limestone.

Fractures and caverns known to occur within the strata of Swan Coastal Plain limestone may present a potential safety hazard through structural failure. The coastal

karst systems of the Swan Coastal Plain also provide a unique ecosystem for many poorly known subterranean fauna.

3.3 Hydrology

3.3.1 Groundwater

Reference to the Department of Water (DoW) *Geographic Data Atlas* indicates the project area is within the Gingin Groundwater Area, sub area Guilderton. The salinity of the groundwater is marginal at 500 – 1000 mg/L TDS (Department of Water, 2007).

The project area is not within a Public Drinking Water Source Area (PDWSA). A Priority 3 PDWSA is located approximate 1km northeast of the alignment.

3.3.2 Surface Water

There are no major streams, lakes, or drainage lines within the project area. The closest water source is Moore River, which is approximately 3 km south east of the project area. The proposed works will not impact the Moore River.

3.4 Vegetation and Flora

3.4.1 Vegetation Types

The Vegetation of the Perth area, Western Australia: Map and Explanatory Memoir 1:250 000 Series, Beard (1973), was referred to, to obtain general information on the vegetation for the area.

The project area is located within the Darling Botanical District, Drummond Sub District and is on the border of the Guilderton and Jurien Vegetation Systems.

The Guilderton system is graded from the first colonizers of sand above high-water mark through sand binders to more mature communities of stabalised dunes (Beard 1973). On the windward slopes of the stable dunes a low (1.25m) dense thicket vegetation with an even canopy, dominant species are *Acacia lasiocarpa* and *Melaleuca acerosa*. On sheltered slopes of the dunes taller thicket, occasionally low forests develop.

Beard describes the Jurien system as the same vegetation as the Spearwood Dune system but under reduced rainfall. The general vegetation is *Banksia* low woodland with scrub-heath on limestone ridges and occasional small patches of stunted eucalypts.

Beard indicates the project area is within Vegetation Association 949 low woodland Banksia.

3.4.2 Vegetation Extents

A vegetation type is considered underrepresented if there is less than 30 percent of its original distribution remaining. From a purely biodiversity perspective, and not taking into account any other land degradation issues, there are several key criteria now

being applied to vegetation in States where clearing is still occurring (Environmental Protection Authority, 2000)

- The “threshold level”, below which species loss appears to accelerate exponentially at an ecosystem level, is regarded as being at 30% of the pre-European/ pre-1750 extent
- A level of 10% of the original extent is regarded as being a level representing *Endangered*; and
- Clearing which would put the threat level into the class below should be avoided.

Such status can be delineated into five (5) classes, where:

- *Presumed Extinct*: Probably no longer present in the bioregion
- *Endangered**: <10% of pre-European extent remains
- *Vulnerable**: 10-30% of pre-European extent exists
- *Depleted**: >30% and up to 50% of pre-European extent exists
- *Least Concern*: >50% pre-European extent exists and subject to little or no degradation over a majority of this area.

* or a combination of depletion, loss of quality, current threats and rarity gives a comparable status

Native vegetation types represented in the study area, their regional extent and reservation status are generally drawn from Shepherd, *et al*. (2002), and Shepherd *pers. comm.* (2005), which are in turn based on broad scale mapping undertaken by Beard (1973). These are shown in Table 1.

Table 1 Vegetation extent and status for Beard (1973) Vegetation associations within the project area

Vegetation Association	Vegetation Description	Pre-European Extent (ha) in Swan Coastal Plain IBRA region	Current Extent (ha) in Swan Coastal Plain IBRA region	% Remaining	% Pre-European Extent in IUCN Class I-IV Reserves
949	Low woodland; banksia	209999.96	122388.368	58.3	13.4

Source: Shepherd et al (2002), Shepherd pers com (2005)

Based upon the current extent of vegetation associations 949, in the Swan Coastal Plain IBRA region, the community type is classified as *Least Concern.*

3.4.3 Threatened Ecological Communities

A search was undertaken of the DEC’s TEC database and found no known occurrences within 5km of the project area.

3.4.4 Declared Rare and Priority Flora

Species of significant flora are protected under both State and Commonwealth legislation. Any activities that are deemed to have a significant impact on species that are recognised by the *EPBC Act*, and the *Wildlife Conservation Act (1950)* can trigger referral to the DEWHA and/or the EPA.

A description of Conservation Categories delineated under the *EPBC Act* is detailed in Appendix C**.** These are applicable to threatened flora and fauna species.

A search of the *EPBC Act* Protected Matters Search Tool identified two Commonwealth protected flora species likely to occur within 2km of the project area, the endangered Narrow curved-leaf Grevillea (*Grevillea curviloba subsp incurva)* and Beaked Lepidosperma, (*Lepidosperma rostratum).*

In addition to the *EPBC Act,* significant flora in Western Australia is protected by the *Wildlife Conservation Act (1950)*. This Act, which is administered by the DEC, protects Declared Rare Flora (DRF) species. The DEC also maintains a list of Priority Listed Flora (PLF) species. Conservation codes for flora species are assigned by the DEC to define the level of conservation significance. PLF are not currently protected under the *Wildlife Conservation Act (1950)*. PLF may be rare or threatened, but cannot be considered for declaration as rare flora until adequate surveys have been undertaken of known sites and the degree of threat to these populations clarified. Special consideration is often given to sites that contain PLF, despite them not having formal legislatory protection. A description of the DEC's Conservation Codes that relate to flora species is provided in **Appendix C**.

A search of the DEC's Rare Flora Databases and the Western Australian Herbarium (WAHERB) records was performed for a 5km buffer around the project area. These species are detailed in Table 2.

The *EPBC Act* Protected Matters Search Tool provides a broad indication of what could potentially occur in the area. The DEC and WA Herbarium databases provide a more reliable record of significant flora based upon known occurrences. The two species recorded on the EPBC database were not recorded on the DEC or WA Herbarium databases.

Table 2 Significant Flora Records within 5km of the project area.

Species	Conservation Code	Description
Chorizema varium	Declared Rare	Spreading shrub, ca 0.3 m high. Fl. orange, yellow, red, pink, Jun/Sep–Oct. Sand. Coastal limestone hills & outcrops.
Conostylis bracteata	Priority 3	Rhizomatous, tufted or shortly proliferous perennial, grass-like or herb, 0.2–0.45 m high. Fl. yellow, Aug–Sep. Sand, limestone. Consolidated sand dunes.
Conostylis pauciflora subsp. *euryrhipis*	Priority 3	Rhizomatous, stoloniferous perennial, grass-like or herb, 0.06–0.18 m high. Fl. yellow, Aug–Oct. White, grey or yellow sand. Consolidated dunes.
Grevillea thelemanniana	Priority 4	Spreading, lignotuberous shrub, 0.3–1.5 m high. Fl. pink, red, May–Nov. Sand, sandy clay. Winter-wet low-lying flats.
Hibbertia spicata subsp. *leptotheca*	Priority 3	Erect or spreading shrub, 0.2–0.5 m high. Fl. yellow, Jul–Oct. Sand. Near-coastal limestone ridges, outcrops & cliffs.

Source: The DEC's Rare Flora Databases.

No declared rare or priority species occur within 1km of the project area.

3.4.5 Clearing of Native Vegetation

It is estimated that approximately 3.8ha of native vegetation will be required to be removed in the Project area.

Main Roads WA was issued with a statewide vegetation clearing permit (Purpose Permit CPS 818/4) granted under section 51E of the *Environmental Protection Act 1986* on the 1st February 2006 by the Department of Environment and Conservation. The Purpose Permit allows Main Roads to clear native vegetation for project activities. Any clearing of native vegetation must be assessed against the Ten Clearing Principles.

An examination of the Ten Clearing Principles associated with the project is shown in Table 3. The project does not appear to be at variance with the Ten Clearing Principles.

Recommendation 1

The conditions stipulated in Main Roads WA state-wide vegetation clearing permit (Purpose Permit CPS 818/4) should be adhered to.

Table 3 Assessment against the Ten Clearing Principles

Principle Number	Principle	Assessment	Outcome
(a)	Native vegetation should not be cleared if it comprises a high level of biological diversity	The Swan Coastal Plain region within which the project area lies is not listed as a National Biodiversity Hotspot. Unless surveys have already been performed in a similar area to the project site a flora survey would need to be performed to gain a reliable estimate of biodiversity.	The proposal is unlikely to be at variance with this 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.	An EPBC Protected Matters search and a DEC search have reported a number of significant fauna in the general vicinity of the project area. Vegetation within the project area is limited to a narrow strip adjacent to the roadside. Though it is not possible to eliminate the possibility of significant fauna occurring in the project area without a fauna survey the limited amount of vegetation within the project area and the large areas of remnant vegetation present west of the project area makes it unlikely that the vegetation to be cleared is significant for fauna indigenous to Western Australia.	The proposal is unlikely to be at variance with this principle.
(c)	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	The DEC has no record of Declared Rare or Priority flora within 1km of the project area. It should be noted however that five Declared Rare or Priority flora are located within 5km of the project area.	The proposal is unlikely to be at variance with this 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.	There are no known records of TECS within, or in the vicinity, of the project area.	The proposal is not at variance with the Principle.

Principle Number	Principle	Assessment	Outcome
(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.	The amount of clearing required for this project is minimal. Additionally, there are large areas of remnant vegetation to the west of the Site. The extent and status of vegetation identified for the study area (Beard, 1973; Shepherd *pers. comm.*, 2005) has indicated that the vegetation association Vegetation Association 949 low woodland Banksia has 58.3% remaining in the Swan Coastal Plain IBRA region and is classed *Least Concern.*	The proposal is not at variance with the Principle.
(f)	Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland.	There are no watercourses or wetlands within the site.	The proposal is not at variance with the Principle.
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Clearing of native vegetation may cause slight, but not considerable, land degradation. Runoff, sedimentation, and weed dispersal are likely to increase. Appropriate management plans including a weed and a dieback plan will aid in mitigating these potential impacts.	The proposal is not at variance with the 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.	There are no reserves or conservation areas within or in close proximity to the project area.	The proposal is not at variance with the Principle.

Principle Number	Principle	Assessment	Outcome
(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.	Vegetation clearing is not likely to cause increased deterioration in the quality of surface or underground water. Soil and groundwater salinity are not likely to increase. Any impacts from run-off etc would already be present due to the existing road. Appropriate management plans should mitigate potential impacts	The proposal is not at variance with the Principle.
(i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding.	The clearing of native vegetation is not expected to cause, or exacerbate the incidence or intensity of flooding. The increased road surface from the passing lanes lane may increase run-off immediately adjacent to the highway but this will not be significant.	The proposal is not at variance with the Principle.

3.5 Weed and Dieback Management

Consultation with Main Roads WA suggests weeds are prevalent throughout the project area. Weeds threaten the survival of many native plants and animals through out-competing, resulting in a negative effect on biodiversity.

The study area can be considered to be in an area susceptible to the development of the pathogen, *Phytophthora cinnamomi,* commonly known as Dieback. Dieback is found throughout the southern extent of Western Australia in areas with susceptible plant species that receive rainfall in excess of 400 mm/year (Dieback Working Group, 2005).

Dieback infestations spread through bushland either naturally, through soil water movement, or artificially through vector movement of soil on vehicles, during fencing or firebreak track maintenance and occasionally via foot traffic.

Construction works in the project area have the potential to introduce or spread dieback.

Recommendation 2

Weed management stratagys should be applied during construction to prevent spread. Weeds should also be monitored post construction to ensure they're adequately controlled.

Recommendation 3

Dieback hygiene measures should be applied during construction to prevent the introduction or spread of this pathogen.

3.6 Fauna

A search of the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999* (EPBC*)* Protection Matters Database identified 3 Threatened species and 5 Listed Marine Species that may occur in within a 2 km radius of the Project area. These are listed in Table 4.

Table 4 *EPBC Act* Threatened and Listed Species within 2km of the Project area

Species	Classification
Baudins Black-Cockatoo	Threatened Species: Vulnerable
Carnaby's Black Cockatoo	Threatened Species: Endangered
Chuditch, Western Quoll	Threatened Species: Vulnerable
White-bellied Sea Eagle	Listed Marine Species
Great Egret, White Egret	Listed Marine Species

Cattle Egret	Listed Marine Species
Fork-tailed Swift	Listed Marine Species
Rainbow Bee-eater	Listed Marine Species

Source: Commonwealth Department of Environment and Water Resources, 2007

The Department of Environment and Conservation (DEC) was consulted to determine the presence of any threatened fauna within the general Guilderton vicinity. These are listed in Table 5

Table 5 DEC Threatened Fauna Species within the Guilderton vicinity

Species	Classification
Carnaby's Black-Cockatoo	Schedule 1
Peregrine Falcon	Schedule 4
Bothriembryon perobesus	Priority 1
Hooded Plover	Priority 4
Quenda	Priority 5

Vegetation within the project area is limited to a narrow strip adjacent to the roadside (Figure 2). Given the limited amount of vegetation within the project area and the large areas of remnant vegetation present west of the project area this project should not have a significant impact on fauna. Main Roads WA Project Manager confirms that there are no habitat trees that may be used by Carnabys Black Cockatoo in the project area.

3.7 Reserves and Conservation Areas

There are no reserves or conservation areas within or in close proximity to the project area. The project area is located outside the Perth Metropolitan Region Scheme, therefore is not within the Bush Forever Study Area.

3.8 Australian Heritage

3.8.1 Non-Indigenous Heritage

An *Environment Protection and Biodiversity Conservation Act 1999* Protection Matters search was conducted and did not identify any Commonwealth lands, Commonwealth Heritage Places or Registered National Estate places within an area that may be affected by the proposed project. A search of the Australian Heritage Database and the WA Heritage Council database identified no heritage sites within or adjacent to the project area.

3.8.2 Indigenous Heritage

A search of the Department of Indigenous Affairs Aboriginal Heritage Register has not identified any sites within or directly adjacent to the project area. Eleven Sites are present within 3km of the project area and are all associated with the Moore River. Table 6 summarises the details of these sites.

Table 6 Aboriginal heritage sites located within 3km of project area

Site Name	Type	Additional Info
Guilderton Bridge	Artefacts/Scatter	Camp
Wetlands and Watercourses Moore River to Bullsbrook	Mythological	-
Red Gully Creek	Mythological	Plant Resource
Gingin Brook Waggyl Site	Mythological, Historical	Plant Resource, Camp, Hunting Place, Water Source
Moor River Waugal	Mythological	-
Lennard Brook	Mythological	-
Boonanarring Brook	Mythological	-
Wallering Brook	Mythological	-
Nullilla Brook	Mythological	-
Breera Brook	Mythological	-
Chandala Brook	Mythological	-

Source: Department of Indigenous Affairs Aboriginal Heritage Register

Given the distance of these sites from the project area they are unlikely to be impacted.

It should be noted that a search under the DIA database does not comprise of a full assessment under the *Aboriginal Heritage Act* (1972). This would require consultation with Aboriginal people with knowledge of the area (usually, but not necessarily Native Title Claimants), and an archaeological survey.

Under the *Aboriginal Heritage Act* (1972), it is an offence to disturb an Aboriginal heritage site whether it is registered or not. The proponent should be made aware of this in any decision making with respect to whether they should proceed to a full Aboriginal ethnographic and archaeological survey.

3.8.3 Native Title

A search of the Native Title Tribunal, Western Australian Native Title Claim Map identified two Native Title claims over the project area. Table 7 summarises the details of these claims.

Table 7 Native title claims existing over the project area

Native Title Claimant	Federal Court Reference	NNTT no.	Status of application
Single Noongar Claim (Area 1)	WAD6006/03	WC03/6	Registered - Active
Yued	WAD6192/98	WC97/71	Registered - Active

Recommendation 4

The Main Roads WA Indigenous Heritage officer should be consulted regarding Native Title.

3.9 Surrounding Land Use

The land use of the areas adjacent to the project area is predominately farming for cropping and grazing purposes. Two new housing estates are situated north and south east of the project area. The nearest residential property boundary is within 100m of the project area, the nearest building is within 150 m of the project area, and the nearest likely dwelling is within 250 m of the project area.

Reference to the Shire of Gingin Town Planning Scheme indicates that the area surrounding the project is classified as Rural. The two housing estates are classified Rural Residential.

3.10 Environmentally Sensitive Areas

The DEC's online Native Vegetation Viewer was searched to determine the location of any Environmentally Sensitive Areas (ESAs) within the vicinity of the project area, as declared by a Notice under Section 51B of the *Environmental Protection Act 1986*.

The search confirmed that there are no ESA's within or in close proximity to the project area.

3.11 Acid Sulphate Soils

Acid Sulphate Soils (ASS) are naturally occurring soils containing iron sulphides. These soils are typically benign within the anaerobic environment of their formation. When these soils become oxidised through various disturbances, acidic soil, surface water and groundwater can result. The sulphuric acid also breaks heavy metal bonds, releasing metals such as aluminium, iron, and arsenic into groundwater.

The Western Australian Planning Commission (WAPC) Planning Bulletin, Number 64 *Acid Sulfate Soils* (WAPC, 2003) contains maps of Acid Sulphate Soil (ASS) risk areas

for several regions of Western Australia, providing a broad-scale indication of the areas where ASS are most likely to exist. Reference to these maps indicates the project area has no known risk of ASS occurring within 3m of natural soil surface, or deeper.

3.12 Contaminated Sites

A search of DEC's Contaminated Sites Database indicates no contaminated sites within or in close proximity to the project area. The current land uses of the project area do not involve potentially contaminating activities.

3.13 Construction Phase Impacts

The sandy soils of the survey area may create a potential for the generation of dust during construction and rehabilitation.

Given that the project is to be undertaken within 250m of a residential dwelling it is perceived that visual amenity, noise and dust control will require management during construction.

Provided traffic management and signage is employed to Main Roads standards, none of the proposed works present any significant hazards to public safety.

Recommendation 5
Visual amenity, noise and dust control procedures should be formulated and included in the Construction Environmental Management Plan (CEMP) and standard MRWA Contract documentation.

4. Environmental Approvals

4.1 Commonwealth Approvals

There are no environmental impacts or issues considered as having a significant impact on matters of national environmental significance, which would trigger the Commonwealth's *EPBC Act 1999.*

4.2 Government of Western Australia

4.2.1 Referral to the Environmental Protection Authority

This PEIA has found the project unlikely to cause a significant impact on any matters requiring referral to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*. It is anticipated that this project will not require referral to the EPA.

4.2.2 Clearing Permit

This desktop PEIA has found the project unlikely to be at variance with the Ten Clearing Principles. The conditions stipulated in Main Roads statewide vegetation-clearing permit (Purpose Permit CPS 818/4) should be adhered to.

5. Conclusions and Recommendations

The desktop assessment and review undertaken as part of this PEIA indicates that there is a minimum level of potential environmental impacts associated with the Lancelin road reconstruction and realignment.

GHD advises Main Roads WA of the following recommendations to ensure that the proposed works occur with least possible impact on the immediate and surrounding areas.

Recommendation 1

The conditions stipulated in Main Roads statewide vegetation-clearing permit (Purpose Permit CPS 818/4) should be adhered to.

Recommendation 2

Weed management stratagys should be applied during construction to prevent spread. Weeds should also be monitored post construction to ensure they’re adequately controlled.

Recommendation 3

Dieback hygiene measures should be applied during construction to prevent the introduction or spread of this pathogen.

Recommendation 4

The Main Roads WA Indigenous Heritage officer should be consulted regarding Native Title.

Recommendation 5

Visual amenity, noise and dust control procedures should be formulated and included in the Construction Environmental Management Plan (CEMP) and standard MRWA Contract documentation.

6. References

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Appendix A

Figures

Figure 1 – Locality

Figure 2 – Environmental Constraints

LEGEND

36.6 to 39.1 SLK - MRWA - 20071012

NOTE THAT POSITIONAL ERRORS CAN BE > 5M IN SOME AREAS
DATASET NAMES INCLUDE PUBLISHED DATE WHERE AVAILABLE

SCALE

1 0 1 2 3Km

1:100,000 at A3

LOCALITY MAP

LANCELIN REGION

CREATED BY	CHECKED	APPROVED
KI	MD	

HORIZONTAL DATUM: GDA 94 **PROJECTION:** MGA ZONE 50
HEIGHT DATUM: NA **METADATA RECORDED:** 100%

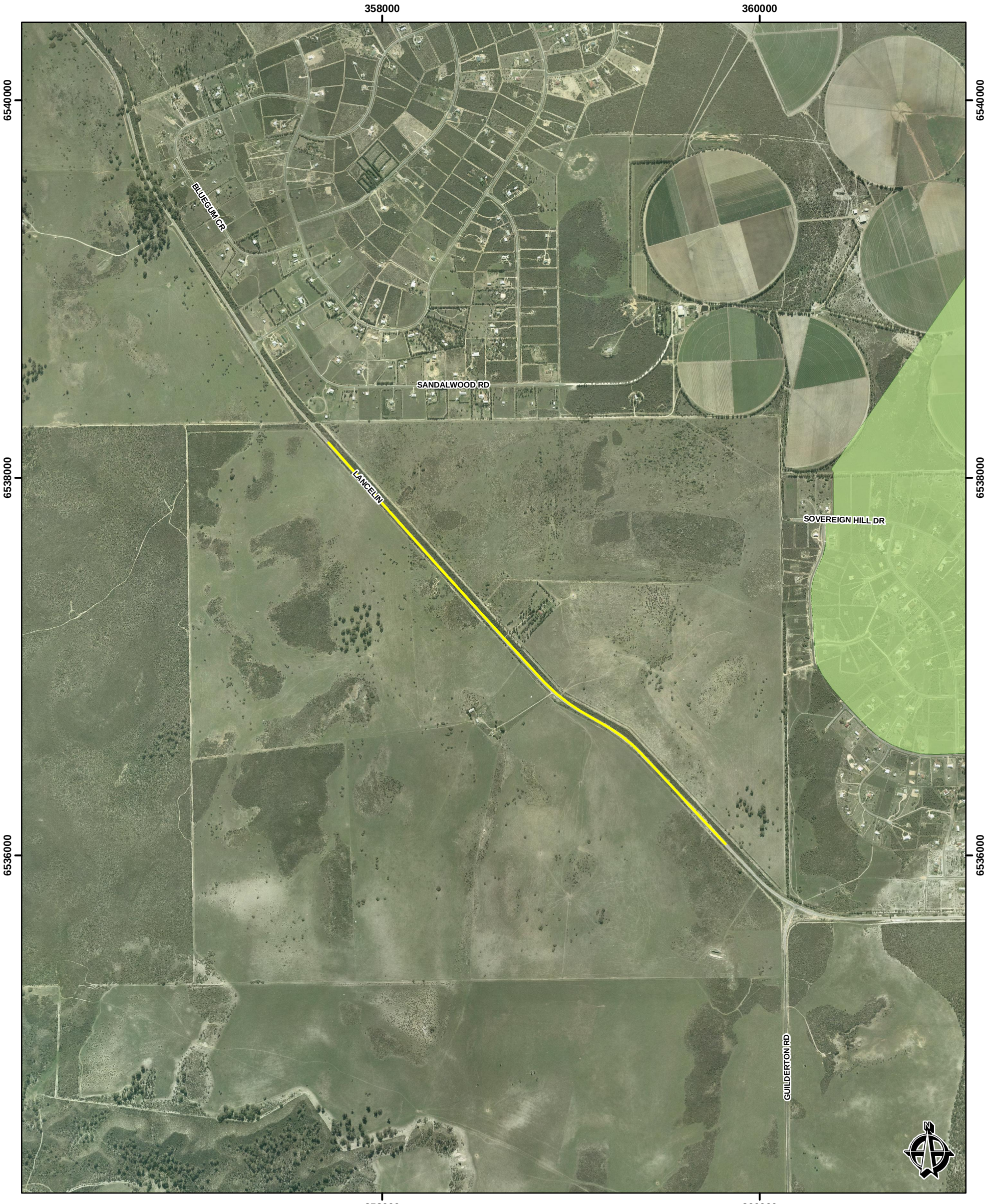
DATE	FILE LOCATION
12.10.2007	G:\61\21338\GIS\MXDS\6121338-G2.MXD
REVISION	**DRAWING NO**
0	6121338-G2

mainroads WESTERN AUSTRALIA

GHD CLIENTS|PEOPLE|PERFORMANCE

Lancelin Road Reconstruction (36.6-39.1 SLK)
Preliminary Environmental Impact Assessment

Figure 1
Locality



LEGEND

- Lancelin Rd (36.6 - 39.1 SLK) - MRWA - 20071012

PDWSA - DoW - 20070515

- Policy Use - P1
- Policy Use - P2
- Policy Use - P3
- Policy Use - Not Assigned

NOTE THAT POSITIONAL ERRORS CAN BE > 5M IN SOME AREAS
DATASET NAMES INCLUDE PUBLISHED DATE WHERE AVAILABLE
LANDGATE AERIAL PHOTOGRAPHY LEDGE POINT - GINGIN MOSAIC DATED JUL 2005
SOURCED FROM MAIN ROADS WESTERN AUSTRALIA - OCT 2007

SCALE

200 0 200 400 600m

1:20,000 at A3

LOCALITY MAP

LANCELIN REGION

CREATED BY	CHECKED	APPROVED
KI	WD	

HORIZONTAL DATUM: GDA 94 **PROJECTION:** MGA ZONE 50
HEIGHT DATUM: NA **METADATA RECORDED:** 100%

DATE	FILE LOCATION
08.01.2008	G:\61\21338\GIS\MXDS\6121338-G4_Rev1.MXD
REVISION	**DRAWING NO**
1	6121338-G4

mainroads WESTERN AUSTRALIA

GHD CLIENTS|PEOPLE|PERFORMANCE

Lancelin Road Reconstruction (36.6-39.1 SLK)
Preliminary Environmental Impact Assessment

Figure 2
Environmental Constraints

Appendix B

Photographs of the Project Area

Site Photos

36.6 SLK, (Left Hand Side) - facing North

37.0 SLK, (Left Hand Side) - facing North

37.5 SLK, (Right Hand Side) - facing South

38.0 SLK, (Left Hand Side) - facing North

Appendix C

Conservation Codes and Descriptions

Table 8 Conservation Categories and Definitions for *EPBC Act* Listed Flora and Fauna Species.

Conservation Category	Definition
Extinct	Taxa not definitely located in the wild during the past 50 years
Extinct in the Wild	Taxa known to survive only in captivity
Critically Endangered	Taxa facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Taxa facing a very high risk of extinction in the wild in the near future
Vulnerable	Taxa facing a high risk of extinction in the wild in the medium-term
Near Threatened	Taxa that risk becoming Vulnerable in the wild
Conservation Dependent	Taxa whose survival depends upon ongoing conservation measures. Without these measures, a conservation dependent taxon would be classified as Vulnerable or more severely threatened.
Data Deficient (Insufficiently Known)	Taxa suspected of being Rare, Vulnerable or Endangered, but whose true status cannot be determined without more information.
Least Concern	Taxa that are not considered Threatened

Table 9 Conservation Codes and Descriptions for DEC Declared Rare and Priority Flora Species.

Conservation Code	Description
R: Declared Rare Flora – Extant Taxa	Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
P1: Priority One – Poorly Known Taxa	Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2: Priority Two – Poorly Known Taxa	Taxa which are known from one or a few (generally<5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3: Priority Three – Poorly Known Taxa	Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.
P4: Priority Four – Taxa in need of monitoring	Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5 – 10 years.

EPBC Act Fauna Conservation Categories

Listed threatened species and ecological communities

An action will require approval from the Environment Minister if the action has, will have, or is likely to have a significant impact on a species listed in any of the following categories:

- extinct in the wild,
- critically endangered,
- endangered, or
- vulnerable.

Critically endangered and endangered species

An action has, will have, or is likely to have a significant impact on a critically endangered or endangered species if it does, will, or is likely to:

- lead to a long-term decrease in the size of a population, or
- reduce the area of occupancy of the species, or
- fragment an existing population into two or more populations, or
- adversely affect habitat critical to the survival of a species, or
- disrupt the breeding cycle of a population, or
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or
- interfere with the recovery of the species.

**Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a critically endangered or endangered species by direct competition, modification of habitat, or predation.*

Vulnerable species

An action has, will have, or is likely to have a significant impact on a vulnerable species if it does, will, or is likely to:

- lead to a long-term decrease in the size of an important population of a species, or
- reduce the area of occupancy of an important population, or
- fragment an existing important population into two or more populations, or
- adversely affect habitat critical to the survival of a species, or
- disrupt the breeding cycle of an important population, or
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or

- result in invasive species that are harmful a vulnerable species becoming established in the vulnerable species' habitat*, or
- interferes substantially with the recovery of the species.

An important population is one that is necessary for a species' long-term survival and recovery. This may include populations that are:

- key source populations either for breeding or dispersal,
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range.

*Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a vulnerable species by direct competition, modification of habitat, or predation.

Listed migratory species

An action will require approval from the Environment Minister if the action has, will have, or is likely to have a significant impact on a listed migratory species. Note that some migratory species are also listed as threatened species. The criteria below are relevant to migratory species that are not threatened.

An action has, will have, or is likely to have a significant impact on a migratory species if it does, will, or is likely to:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat of the migratory species, or
- result in invasive species that is harmful to the migratory species becoming established* in an area of important habitat of the migratory species, or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of thespecies.

An area of important habitat is:

1. habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, or
2. habitat utilised by a migratory species which is at the limit of the species range, or
3. habitat within an area where the species is declining.

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, what is an ecologically significant proportion of the population varies with the species (each circumstance will need to be evaluated).

*Introducing an invasive species into the habitat may result in that species becoming established. An invasive species may harm a migratory species by direct competition, modification of habitat, or predation.

The Commonwealth marine environment

An action will require approval from the Environment Minister if:

- the action is taken in a Commonwealth marine area and the action has, will have, or is likely to have a significant effect on the environment, or
- the action is taken outside a Commonwealth marine area and the action has, will have, or is likely to have a significant effect on the environment in a Commonwealth marine area.

An action has, will have or is likely to have a significant impact on the environment in a Commonwealth marine area if it does, will, or is likely to:

- result in a known or potential pest species becoming established in the Commonwealth marine area*, or
- modify, destroy, fragment, isolate or disturb an important or substantial area of habitat such that an adverse impact on marine ecosystem functioning or integrity in a Commonwealth marine area results, or
- have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (eg breeding, feeding, migration behaviour, and life expectancy) and spatial distribution, or
- result in a substantial change in air quality** or water quality (including temperature) which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or
- result in persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that biodiversity, ecological integrity, social amenity or human health may be adversely affected.

*Translocating or introducing a pest species may result in that species becoming established.

**The Commonwealth marine area includes any airspace over Commonwealth waters.

Table 10 *Western Australian Wildlife Conservation Act 1950* Conservation Codes

Conservation Code	Description
Schedule 1	"…fauna that is rare or likely to become extinct, are declared to be fauna that is in need of special protection."
Schedule 2	"…fauna that is presumed to be extinct, are declared to be fauna that is in need of special protection."
Schedule 3	"…birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is in need of special protection."
Schedule 4	"…fauna that is in need of special protection, otherwise than for the reasons mentioned [in Schedule 1 – 3]"

Table 11 DEC Priority Fauna Codes.

(Species not listed under the *Wildlife Conservation Act 1950*, but for which there is some concern).

Conservation Code	Description
Priority 1	Taxa with few, poorly known populations on threatened lands.
Priority 2	Taxa with few, poorly known populations on conservation lands. Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown Land, water reserves, etc.
Priority 3	Taxa which are known from few specimens or sight records, some of which are on lands not under immediate threat of habitat destruction or degradation.
Priority 4	Rare taxa. Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5 – 10 years.
Priority 5	Taxa in need of monitoring. Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

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