PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

Coolgardie-Esperance Highway (H010)
Heavy Vehicle Rest Area (SLK 57.86) and Roadside Trees (SLK 66)

Printed copies are uncontrolled unless marked otherwise

Prepared by: Main Roads Goldfields-Esperance Region
Environment Officer (EO) Simon Weighell

December 2010

CONTENTS

1 INTRODUCTION

Main Roads Goldfields-Esperance Region (Main Roads) proposes to construct a heavy vehicle rest area just north of Widgiemooltha on the Coolgardie-Esperance Highway (CEH) (H010) at SLK 57.86. The rest area will be constructed by extending and upgrading an existing parking bay to adequately accommodate road trains (for design sketches/drawings please refer to Figures 9 & 10 of Appendix A).

Main Roads also proposes to remove several roadside trees centred on approximate SLK 66 of CEH. The trees are considered a safety risk given their close proximity to the edge of seal.

In accordance with Main Roads corporate environmental assessment and approvals process, a Low Impact Environmental Screening Checklist was completed for the project (see Appendix B). A Preliminary Environmental Impact Assessment is required as the works involve:

(a) clearing of native vegetation older than 10 years old within the maintenance zone, and
(b) clearing of native vegetation outside the maintenance zone.

This report intends to fulfil this requirement. This report also intends to fulfil the requirements of Main Roads State-wide Project Purpose Clearing Permit (CPS 818/5) which is proposed for use for the project.

Please note: Gravel required for the works will be imported from existing stockpiles located at the Spargoville gravel pits approximately 16km north of the project on CEH. No assessment of the gravel source area is required given that no new clearing or ground disturbance is necessary. Access tracks are already in place and are of an acceptable standard.

2 PROJECT LOCATION

The project is located within the Shire of Coolgardie. A map showing the general location of the project areas is provided in Appendix A as Figure 1.

3 ASSESSMENT METHODOLOGY

3.1 Preliminary Desktop Study

A preliminary assessment of the project and its potential constraints has been undertaken by reviewing a number of government agency managed databases (see Appendix C), and consulting where necessary. The following sections provide a summary of the methodology used for each potential environmental aspect associated with the project.

3.1.1 Threatened Flora, Fauna and Communities

The presence of Threatened Flora and Fauna and Threatened and Priority Ecological Communities (TECs & PECs) was determined by examining Main Roads Geographic Information System (GIS) data. This data is supplied to Main Roads by the Department of Environment and Conservation's Species and Communities Branch approximately every 6 months. For the currency of data used in this report please refer to Appendix A.

3.1.2 Environmentally Sensitive Areas (ESAs) and Conservation Reserves

DEC's Native Vegetation Map Viewer was used to determine the location of any ESAs (http://www.dec.wa.gov.au/content/view/2920/1572/1/1/).

The location of any Conservation Reserves was determined by examining Main Roads GIS data and consulting with the local DEC office where necessary.

3.1.3 Vegetation Type, Extent and Status

Vegetation types and associations were determined by examining the Shared Land Information Platform (SLIP) Natural Resource Management (NRM) database (http://spatial.agric.wa.gov.au/slip/).

Vegetation extent and status data was sourced from the Main Roads file "Native Vegetation in Western Australia - Extent, Type and Status" located on the Main Roads Environment Intranet site (http://intranet/online/branches/environment/word/car_reserve_analysis_2007.xls). This data is provided to Main Roads via a license agreement with the DEC (current as of May 2007 for remnant and pre-European vegetation data and August 2007 for Local Government Authority data).

3.1.4 Air Quality

The need for a local air quality assessment was determined using the criteria outlined in the MRWA environmental guideline, Air Quality (http://intranet/online/branches/environment/word/guide_air_quality.doc).

3.1.5 Heritage

Where necessary, non-indigenous heritage was examined by searching the Australian Heritage Places Inventory (http://www.heritage.gov.au), Heritage Council of Western Australia database (http://register.heritage.wa.gov.au/) or the local Shire's Municipal Heritage Inventory.

3.1.6 Aboriginal Heritage

A Search of the Department of Indigenous Affairs' (DIA) database (http://www.dia.wa.gov.au/Site-Search/Aboriginal-Heritage-Inquiry-System.aspx) was undertaken to determine whether the project area contains or is located adjacent to any Aboriginal Heritage sites.

3.1.7 Wetlands

The location of wetlands within the project area was determined by examining DEC's Wetland Base (http://spatial.agric.wa.gov.au/wetlands/), or Main Roads GIS data.

3.1.8 Sensitive Water Resources

The Department of Water's (DoW) Geographic Data Atlas (http://www.water.wa.gov.au/Tools/Maps+and+atlases/Geographic+data+atlas/default.aspx) and/or Main Roads GIS data was examined to determine whether the project area supported, or was adjacent to, any significant lakes, rivers, wetlands or proclaimed areas including public drinking water source areas (PDWSAs).

3.1.9 Contaminated Sites

The presence of contaminated sites in the project area was determined by examining DEC's contaminated sites database where necessary (http://www.dec.wa.gov.au/content/view/5627/2295/), and evaluating the surrounding land use history.

3.1.10 Acid Sulphate Soils

The Western Australian Planning Commission's (WAPC) acid sulphate soils maps were examined where necessary (http://www.wapc.wa.gov.au/Publications/213.aspx) to determine the level of risk the project area is exposed to.

3.1.11 Weeds

Where relevant, consultation was undertaken with the Department of Agriculture and Food (DAFWA) to determine whether there are any known populations of declared plants or significant weeds in or adjacent to the project area.

3.1.12 Dieback

Dieback was only considered a potential issue for the project if both the mean annual rainfall of the area is >400mm, and if the project area resides below the 26th parallel.

3.2 Statutory Referral Decisions

The decision whether to refer the project to the Commonwealth's Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) was based upon whether the project would impact upon matters of national environmental significance (refer to Appendix C – DSEWPC's EPBC Act Protected Matters Database search). These matters of national environmental significance are assessed for impact in Section 5.

The decision whether to refer the project to the WA Environmental Protection Authority (EPA) was based upon whether the project would be a "significant proposal" as defined by the *Environmental Protection Act 1986*. As a result, all potential environmental aspects relating to the project have been examined for their level of significance (refer Section 5).

3.3 Site Investigation

A site visit was carried out by Environment Officer Simon Weighell on the 9 November 2010 to examine the general features of the area. Site photos were taken and are included in Appendix D.

4 EXISTING ENVIRONMENT

Information relating to the existing environment of the project areas has been summarised in Tables 1 & 2 below. This information has been compiled through both desktop assessments and site visits.

Table 1. Existing environment information – Heavy Vehicle Rest Area.

Factor	Value			
Vegetation Association	936			
Vegetation Association Description*	Medium woodland; salmon gum			
	Scale			
	By Association	***By IBRA Region*** *(Coolgardie)*	***By IBRA Sub-region*** *(Eastern Goldfields)*	***By Shire*** *(Coolgardie)*
Current Extent (ha)*	675,635.84	586,792.22	310,909.25	359,123.84
% Pre-European Extent Remaining*	*96.69%*	*100.00%*	*100.00%*	*100.00%*
Topography / Soil Classification^	Gently undulating to rolling terrain with some ridges and uneven slopes; and with the variable presence of lateritic mesas and buttes and granitic tors and bosses: chief soils are hard alkaline yellow mottled soils (Dy3.43) and hard alkaline red soils (Dr2.33), (Dr3.33), and (Dr2.43), either of which may be dominant locally.			
Climate[#]	*Closest Meteorological Station:* Coolgardie Post Office *Avg. Annual rainfall:* 270.7mm *Avg. Max Temp ranges*: 16.1^{0}C (Jul) to 33.3^{0}C (Jan) *Avg. Min Temp ranges*: 5.2^{0}C (Jul) to 17.0^{0}C (Jan)			
Surrounding Land Use	Unallocated Crown Land, Mining			
Weed prevalence	Low			

* Source: DEC (2007) – see Section 3.1.3
^ Source: Main Roads GIS File located at \\Kalsrv01\skyview\additional_datasets\WA_soils\ASS legend.xls
[#] Source: Bureau of Meteorology (2010)

Table 2. Existing environment information – Roadside Trees.

Factor	Value			
Vegetation Association	9			
Vegetation Association Description*	Medium woodland; coral gum (*Eucalyptus torquata*) & goldfields blackbutt (*E. lesouefii*), (also some e10,11)			
Current Extent (ha)*	Scale			
	By Association	***By IBRA Region*** *(Coolgardie)*	***By IBRA Sub-region*** *(Eastern Goldfields)*	***By Shire*** *(Coolgardie)*
	239,895.38	239,834.52	236,759.38	167,654.63
% Pre-European Extent Remaining*	*99.74%*	*99.75%*	*99.74%*	*100.00%*
Topography / Soil Classification^	Combination of: - Gently undulating slopes: chief soils are brown and grey-brown calcareous earths (Gc1.12) and (Gc1.22), some low gilgai microrelief in places. Acid clays may occur at depth. - Broad flat valleys: chief soils are hard alkaline red soils (Dr2.33) with acid clay strata below about 5-6ft depth. Associated are small areas of other soils including gilgai formations along drainage-ways.			
Climate[#]	*Closest Meteorological Station:* Coolgardie Post Office *Avg. Annual rainfall:* 270.7mm *Avg. Max Temp ranges*: 16.1^{0}C (Jul) to 33.3^{0}C (Jan) *Avg. Min Temp ranges*: 5.2^{0}C (Jul) to 17.0^{0}C (Jan)			
Surrounding Land Use	Unallocated Crown Land, Mining			
Weed prevalence	Low			

* Source: DEC (2007) – see Section 3.1.3
^ Source: Main Roads GIS File located at \\Kalsrv01\skyview\additional_datasets\WA_soils\ASS legend.xls
[#] Source: Bureau of Meteorology (2010)

5 ASSESSMENT OF ASPECTS AND IMPACTS

The following table provides a summary of all potential environmental aspects associated with the project and their subsequent assessment for environmental impact. Environmental constraints mapping is provided in Appendix A.

Please note: Project areas are defined as those areas identified as proposed clearing areas in Figures 7 & 8 of Appendix A.

Table 3. Aspects and Impacts

Aspect	Evaluation of Potential Impacts
Air quality	Likely to be a minor issue during earth works only (due to generation of dust). Implementation of the project is not expected to cause significant increases in traffic volumes in the area meaning that long term air quality levels are not expected to change. No major sensitive receivers adjacent to the project area. No significant impacts expected.
Dust	Likely to be a minor issue during earth works. No major sensitive receivers adjacent to the project area. No significant impacts expected.

Table 3. Aspects and Impacts

Aspect	Evaluation of Potential Impacts
Fauna	The following nationally (DSEWPC) protected species and/or their habitat have been identified as potentially occurring within the project areas (refer to Appendix C for further information): - Malleefowl *(Leipoa ocellata)* - Slender-billed Thornbill (western) *(Acanthiza iredalei iredalei)* - Rainbow Bee-eater *(Merops ornatus)* - Great Egret, White Egret *(Ardea alba)* - Fork-tailed Swift *(Apus pacificus)* - Cattle Egret (*Ardea ibis*) The nearest record of a State protected species is located approximately 12km away to the south. This record is a "Birds" record and is ranked as Other Specially Protected Fauna. Given the relatively small amount of clearing involved, and the large areas of intact native vegetation surrounding the project areas, no significant impacts are expected to any species of fauna. Most species should be able to relocate to adjacent habitat with the numbers of individual casualties caused by clearing activities considered highly unlikely to be significant. No active nesting sites were observed in the proposed clearing areas when carrying out the site visit despite some of the larger trees exhibiting potential signs of small hollows. The proposed clearing method involves felling of trees before reducing (cutting up) and re-spreading in adjacent areas. This should assist in maintaining some of the habitat value offered by the proposed clearing areas.
Vegetation – clearing	• A maximum of 3.85ha of clearing of native vegetation is required to complete the proposed works (for clearing boundaries please refer to Figures 7 & 8 of Appendix A). Clearing can be broken down as follows: - Up to 3.21ha for the construction of the heavy vehicle rest area - Up to 0.64ha for the removal of roadside trees The actual number of roadside trees to be removed is not expected to exceed 10 and will be limited to any trees growing within 9m of the road's nearest driving lane edge. This is consistent with Main Roads' adopted guidelines for vegetation setback distances for a road with a design speed of ≥100km/hr. Please note: No clearing is required for the sourcing of gravel as it has been stockpiled previously. • The condition of native vegetation in the project areas range from good to excellent (using the Keighery scale (Keighery, 1994)). Proposed clearing areas north and south of the existing parking bay can be considered to be in excellent condition (approx 1.5ha) as well as the northern and southern most roadside tree areas (0.28ha). Areas rated good include the existing parking bay and adjacent vegetation to the west (approx. 1.7ha). The central roadside trees area (0.36ha) can be considered to be in very good condition. Signs of disturbance were observed in all areas during the site visit, typical of that normally associated with roadside and parking bay areas (e.g. presence of litter, sparse vegetation and vehicle tracks). • The vegetation associations of the project areas are not currently considered underrepresented at any of the four regional scales (State, IBRA region, IBRA sub-region and Shire) with approximately 100% of pre-European extents remaining. No significant impacts to the status of these associations are therefore expected given the relatively small amount of clearing involved.

Table 3. Aspects and Impacts

Aspect	Evaluation of Potential Impacts
	• The native vegetation to be cleared does not occur within an ESA and no ESAs are located within 10km of the project areas (refer to Appendix C and environmental constraints mapping in Appendix A).
Significant Flora / Ecological Communities	According to various database searches, there are no records of TECs, PECs, Declared Rare Flora (DRF) or Priority Flora (PF) (see figures in Appendix A) located within the proposed clearing areas. The closest known record of threatened flora is a Priority 2 species located approximately 5km south. The closest known records of TECs / PECs are: - Fraser Range (PEC) – buffer (100km in radius) located 35km away to the south-east - Mount Belches (PEC) – buffer (12.5km in radius) located 61.5km away to the north-east The database searches did not identify any DRF or TECs within 50km of the proposed clearing areas. One nationally protected species (*Gastrolobium graniticum*) and/or its habitat was identified as potentially occurring within the project areas as a result of a protected matters database search (refer Appendix C). Given that this species has a State DRF status and that it is generally associated with granite outcrops (of which there are none in the proposed clearing areas), it is considered highly unlikely that it occurs within or in close proximity to the proposed clearing areas. No significant impacts to any significant flora or ecological communities are expected.
Vegetation – weeds	Weed prevalence within the proposed clearing areas is considered low but standard weed hygiene measures should still be applied in order to limit the risk of any further weed spread (refer to EMP at Appendix E). No declared weeds were identified in or nearby the project areas during the site visit.
Vegetation – dieback	Dieback is not considered a potential issue for the project given that the project areas receive less than 400mm of average annual rainfall (nearest meteorological station is Coolgardie Post Office with an average annual rainfall of 270.7mm).
Reserves / Conservation areas	The closest reserves / conservation areas to the project areas are the Kambalda Timber Reserve (10km north) and the Kambalda Nature Reserve (12km north). There are several other reserves and conservation areas within 100km of the proposed clearing areas. Indirect impacts to these areas (e.g. breaking of habitat linkages etc.) are considered highly unlikely though given the virtually intact surrounding environment. No significant impacts expected.
Heritage (non-indigenous)	No potential significant non-indigenous heritage sites were identified during the site visit. There is an old wheelbarrow in the existing parking bay but this can not be considered significant and can easily be avoided anyway. No significant impacts expected.
Aboriginal heritage	A search of DIA's database revealed that no known sites of Aboriginal heritage significance are located within the proposed clearing areas. The nearest site is located 3.5km to the north of the existing parking bay (Site 497 – Milbari Nidjuru – a ceremonial / mythological site). No likely items or areas of Aboriginal Heritage significance were identified during the site visit. No archaeological or ethnographic surveys are therefore considered necessary. This is especially so

Table 3. Aspects and Impacts

Aspect	Evaluation of Potential Impacts
	considering the relatively small project footprint involved. No significant impacts expected.
Native Title	Given the fact that works are confined to the road reserve and are relatively minor in nature, no actions in regards to native title are considered necessary.
Surface water/drainage	The works are considered highly unlikely to significantly disturb or interrupt any present drainage or surface run-off patterns. Only one significant drainage line was identified within the proposed clearing areas as a result of the desktop assessment (northern most roadside trees area). No trees growing within or immediately adjacent to this drainage line require removal. A significant culvert was identified in the central roadside trees area during the site visit. Several trees located adjacent to the culvert may require removal. Given that trees and other vegetation are normally kept free from these areas (for maintenance purposes), no significant impacts are expected. It is considered that enough vegetation will remain in the road reserve to maintain the integrity and functions of all drainage lines limiting the risk of direct and / or indirect impacts.
Wetlands	The closest wetland to the project areas is Lake Lefroy (2.5km east at its closest point). Given the relatively superficial nature of the works and the distances involved, no significant impacts are expected.
Groundwater	Given that no dewatering or significant drainage modifications are required, no significant changes to the current groundwater level or quality are expected. Any water required for construction purposes is likely to be minimal and will be the responsibility of the contractor delivering the works to obtain.
Noise and vibration	No major sensitive local receivers. The works are not expected to significantly contribute to noise levels at the nearest receivers.
Visual amenity	No significant impacts to visual amenity are expected.
Hazardous substances	Not considered relevant to the proposed works.
Contamination	Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues. No significant impacts expected.
Salinity	Although water required for construction activities is likely to come from a saline groundwater resource, significant impacts are not considered likely given the small amount of water required (<1,000kL), and the proposed areas of application (road surface). The proposed clearing is not considered likely to result in any significant salinity issues given the fact that the surrounding landscape is not highly cleared.
Acid Sulphate Soils	No dewatering or excavation below the water table is planned and therefore the risk of exposing or exacerbating acid sulphate soils is considered to be low. No significant impacts expected.
Environmentally Significant Landforms	No environmentally significant landforms were identified within close proximity of the project areas when carrying out the site visits. No significant impacts are expected.

Table 3. Aspects and Impacts

Aspect	Evaluation of Potential Impacts
Statutory Land Use Planning / Adjacent Land Use	Expansion of the existing road reserve is not required. No significant impacts to surrounding land uses are expected.

6 CLEARING OF NATIVE VEGETATION

Native vegetation for this project will be cleared using Main Roads State-wide Project Purpose Clearing Permit (CPS 818/5). Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

6.1 Avoiding, Minimising and Reducing the Impact of Clearing

In accordance with Condition 6 of CPS 818/5, the following measures are proposed in an effort to avoid, minimise and reduce the impact of clearing associated with the project:

- All efforts to be made during clearing activities to avoid any unnecessary impacts to native vegetation (e.g. marking of clearing lines, parking of machinery in already cleared areas etc.).
- Cleared vegetation to be cut up and respread in surrounding areas in order to help prevent weed establishment and land degradation as well as to provide habitat and encourage natural regeneration (e.g. a degraded area exists to the west of the existing parking bay and it is proposed to close off access using logs from the clearing activities and then spread the remaining vegetation over vehicle tracks and bare areas).

6.2 Assessment against the Clearing Principles

In accordance with condition 9 of CPS 818/5, the project has been assessed against the DEC's 10 clearing principles. The assessment has indicated that the project is not likely to be at variance with any of the clearing principles.

Table 4. Assessment against the 10 clearing principles.

Principle (a)	Native vegetation should not be cleared if it comprises a high level of biological diversity.
Assessment	The proposed clearing areas can not be considered to have a high level of biological diversity given their small size and the fact that extensive areas of native vegetation in good or better condition exist immediately adjacent to the project areas. No priority flora or priority ecological communities were identified in the proposed clearing areas as a result of a desktop assessment of these areas. The nearest record of priority flora is approximately 5km away and the nearest record of a PEC is approximately 35km away. The chance of the area supporting priority flora or a potential PEC is therefore considered remote.
Conclusion	*The proposal is not likely to be at variance to this principle.*
Principle (b)	**Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**
Assessment	Given the relatively small amount of clearing involved and the fact that the surrounding environment is virtually intact with its original vegetation, no significant impacts to native fauna or its habitat are expected. No active nesting sites were observed in the proposed clearing areas when carrying out the site visit.
Conclusion	*The proposal is not likely to be at variance to this principle.*

Principle (c)	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.
Assessment	No rare flora was identified within the proposed clearing areas as a result of a desktop assessment. The assessment did not identify any records of DRF within 50km of the proposed clearing areas. It is therefore considered highly unlikely that any rare flora will be impacted by the proposed works.
Conclusion	*The proposal is not likely to be at variance to this principle.*

Principle (d)	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a Threatened Ecological Community.
Assessment	No TECs were identified within the proposed clearing areas as a result of a desktop assessment. The assessment did not identify any TECs within 50km of the proposed clearing areas. It is therefore considered highly unlikely that any TECs will be impacted by the proposed works.
Conclusion	*The proposal is not likely to be at variance to 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.
Assessment	Native vegetation within the project areas can not be considered significant as a remnant as approximately 100% of the related vegetation associations currently remain at all four of the regional scales (refer Tables 1 & 2 of Section 4).
Conclusion	*The proposal is not likely to be at variance to 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.
Assessment	No wetlands are located within or immediately adjacent to (i.e. within 1km of) any of the proposed clearing areas. Two drainage lines have been identified within the boundaries of the roadside trees proposed clearing areas. No vegetation growing in, or in association with the northern most drainage line requires clearing but vegetation growing adjacent to the southern most drainage line does. This vegetation can not be considered dependent on permanently or periodically waterlogged soil however. The drainage line is also not considered significant enough to constitute a watercourse given the lack of both a defined water bed and watercourse dependent vegetation (refer photos at Appendix D).
Conclusion	*The proposal is not likely to be at variance to this principle.*

Principle (g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
Assessment	Given the relatively small amount of clearing involved, and the fact that the surrounding environment is virtually intact with its original vegetation, the clearing is considered highly unlikely to cause appreciable land degradation. Expansion of the parking bay to a heavy vehicle rest area will likely increase the use of the site but any associated impacts are considered unlikely to be significant (edge effect impacts already exist with only minor increases in litter and weed spread potential expected). The rest area surface will also be sealed limiting erosion potential. Clearing of the roadside trees will not involve wide scale topsoil disturbance leaving the area free to regenerate naturally subject to ongoing roadside maintenance practices.
Conclusion	*The proposal is not likely to be at variance to 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.
Assessment	The Kambalda Nature Reserve is the closest conservation area to the project. It is located approximately 12km to the north meaning that any potential impacts to the reserve are considered highly unlikely. Habitat linkages are not considered an issue given the virtually intact surrounding environment.
Conclusion	*The proposal is not likely to be at variance to 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.
Assessment	The clearing is considered highly unlikely to cause deterioration in the quality of surface or underground water due to the following factors: - Salinity – salinity is not considered an issue given the virtually intact surrounding environment (i.e. has not been extensively cleared). Most lakes in the area (including the nearby Lake Lefroy) are naturally salty. The small amount of clearing involved is considered highly unlikely to result in significant and long term changes in local groundwater levels & quality. Large trees will remain on the fringes of both the heavy vehicle rest area and roadside trees areas. Natural regeneration will also likely follow on the fringes allowing for uptake of any newly available groundwater caused by the clearing. - pH – the risk of exposing or exacerbating acid sulphate soils is considered low given no excavation below the water table is required. - Sedimentation, Erosion & Turbidity – Only two drainage lines exist within the boundaries of the proposed clearing areas. Neither of these can be considered to be major watercourses given their relatively small size and intermittent nature. The drainage lines only fill following significant rainfall events which naturally cause erosion, high turbidity levels and sedimentation. Given that the clearing closest to these drainage lines is targeted at large trees only and is located immediately adjacent to the existing road, only a small amount of soil will likely be exposed to an increased erosion potential. The virtually intact surrounding environment along with ongoing roadside drain maintenance practices should ensure that any sedimentation, erosion or turbidity issues are localised and minor. - Eutrophication – The clearing is not considered likely to result in significant eutrophication issues given the lack of high nutrient load material and significant drainage lines in the area. In addition the proposed clearing areas can not be considered wide scale in the context of the local area (<100m in maximum width), and do not encompass areas of species considered to have a high nutrient stripping potential (e.g. sedges).
Conclusion	*The proposal is not likely to be at variance to this principle.*

Principle (j)	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.
Assessment	No significant change to the hydrology of the area is expected given the climate and topography of the local area, and relatively superficial nature of the works. Natural surface water flow patterns will not be obstructed by the clearing meaning it is highly unlikely that the works will cause or exacerbate the incidence of flooding in the area. The extra area of impermeable seal at the heavy vehicle rest area is not considered big enough to create localised flooding issues.
Conclusion	*The proposal is not likely to be at variance to this principle.*

6.3 Project Specific Requirements Relating to CPS 818/5

Given that the project does not involve any clearing for temporary works, a revegetation plan is not required in accordance with the conditions of CPS 818/5.

No offsets or management strategies are required given that no variance with any of the ten clearing principles is considered likely to exist.

Please note: The Spargoville gravel pits where road building materials are being sourced for the project were not cleared using CPS 818. Therefore the related revegetation conditions do not apply in this case. The pits are believed to have been cleared prior to the implementation of the 2004 *Environmental Protection (Clearing of Native Vegetation) Regulations.* The pits are currently still in use and will be revegetated once exhausted.

7 STAKEHOLDER CONSULTATION

Given the minor nature of the project, no stakeholder consultation is considered necessary.

8 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) has been developed for the project (see Appendix E) taking into account the assessments carried out above. The main aim of this EMP is to provide a management plan to assist in minimising the environmental impacts of the activities associated with the proposed works, and to identify who is responsible for the implementation of any subsequent management strategies. This EMP is predominantly for the Main Roads Project Manager's reference and provides basic requirements for any Contractor produced EMP (subject to any conditions outlined in the actual Contract). It may however be used to complement the contractor's EMP.

The EMP will only address site-specific issues that were identified during the PEIA. The areas that require special management will be addressed in terms of:

- the timing of various management actions;
- the topic (e.g. vegetation);
- the objectives for each area;
- the actions that are necessary to minimise the impact;
- the responsible party for implementing the action; and
- whether the action arose from external advice or is a Main Roads requirement.

9 MONITORING

No environmental monitoring is considered necessary given the small scale of the project.

10 AUDITING

Audits against the EMP may be carried out depending on regional priorities and perceived risk. On-ground checking post-construction will be carried out as a minimum by the Main Roads Goldfields-Esperance Region Environment Officer.

11 DECISION TO REFER

Given the small scale of the project, the low significance of its impacts to the surrounding environment, and the environmental management measures proposed, it is recommended that the project does not require referral to the EPA.

It is also recommended that the project does not require referral to the DSEWPC as no items of national environmental significance were identified as likely to be significantly impacted by the proposed works.

12 REFERENCES

Bureau of Meteorology (BoM), (2010) "Climate Data Online", Commonwealth of Australia (accessed online at http://www.bom.gov.au/climate/data/ on 3/12/10).

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

Appendix A

Mapping

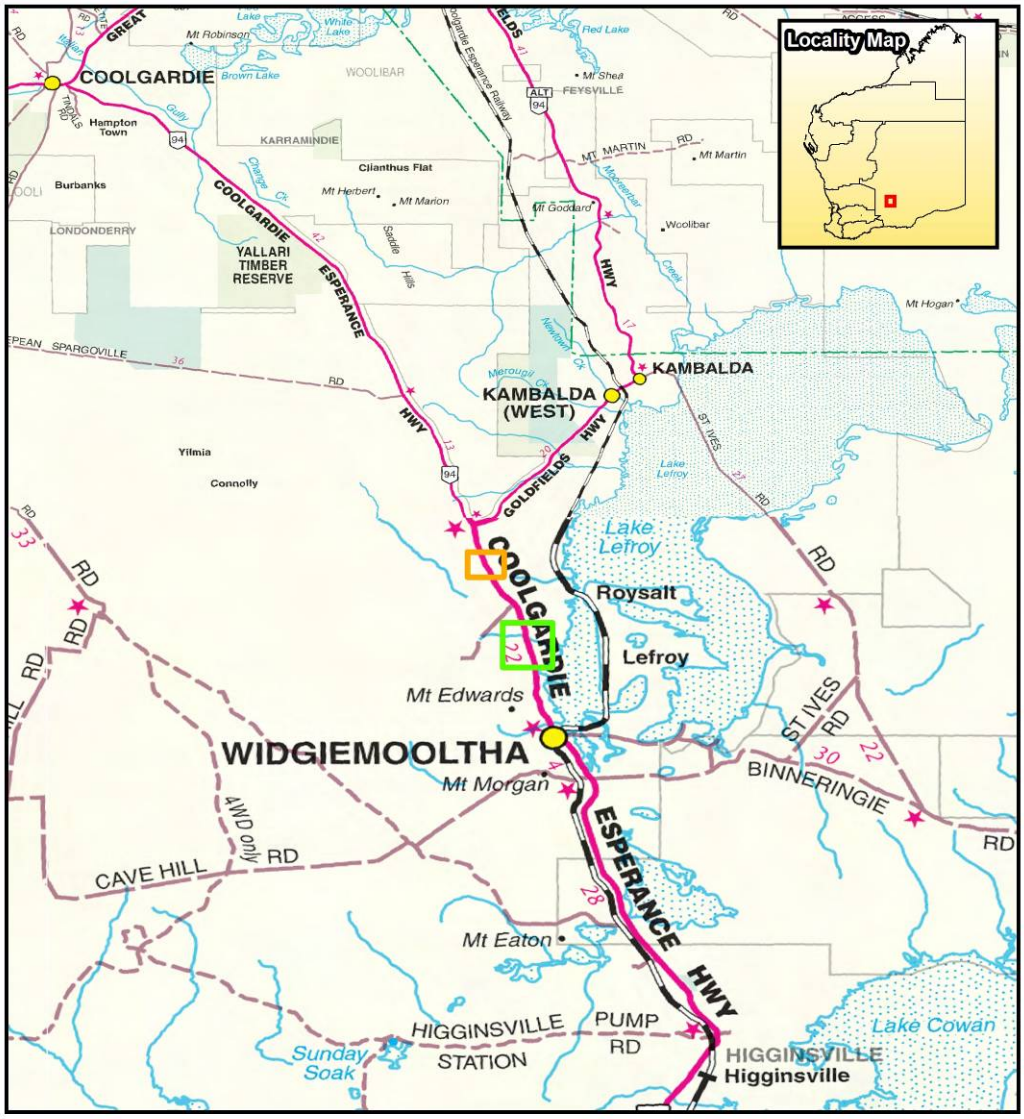


Figure 1. Project Location Map

Note: Currency of some of the data used in the following maps is as follows:

- THFL - DEFL – August 2010
- THFL - WAHerb – August 2010
- Threatened Fauna – February 2010
- TECs / PECs – August 2010
- Aboriginal Heritage Sites – January 2009

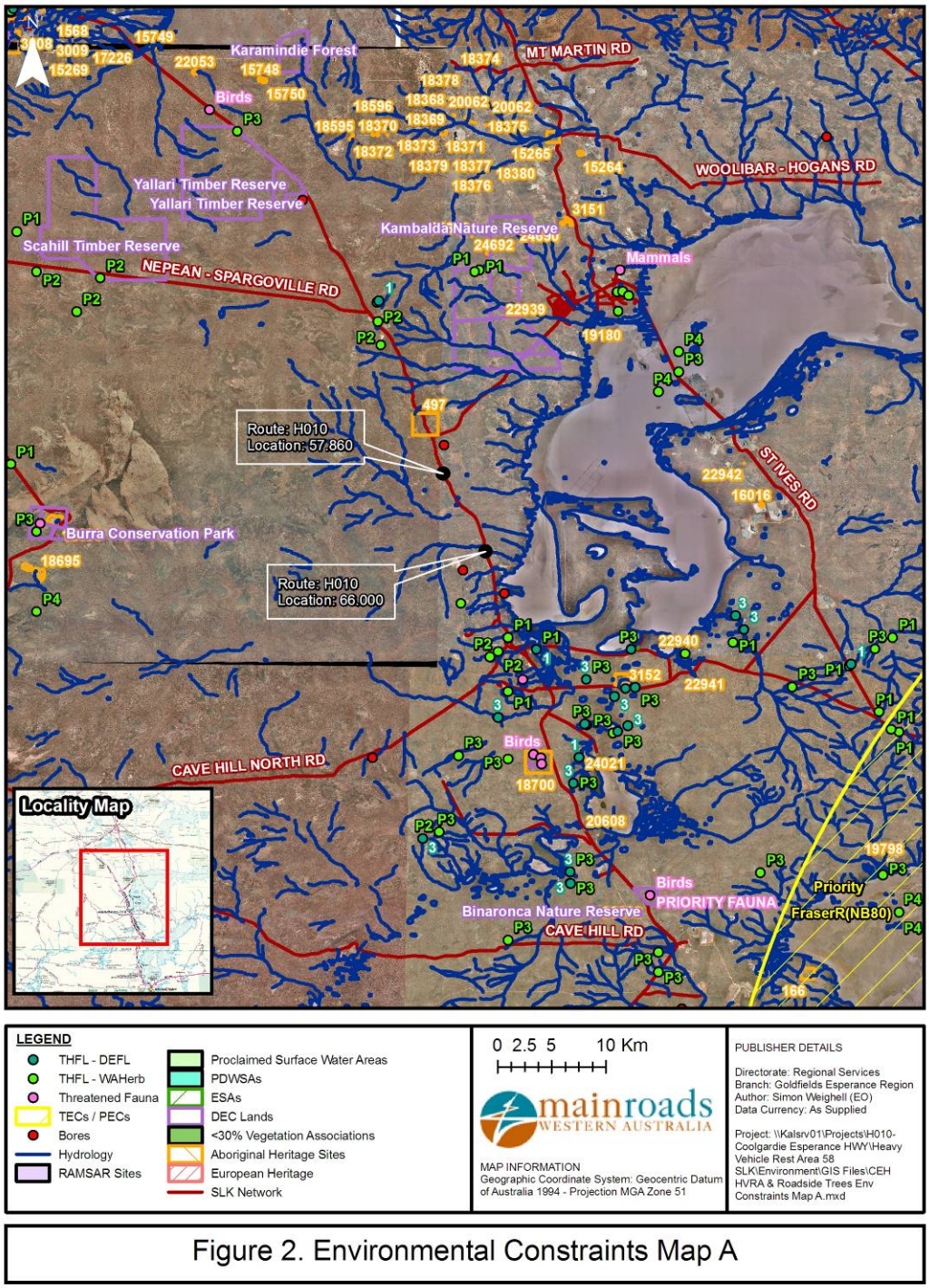
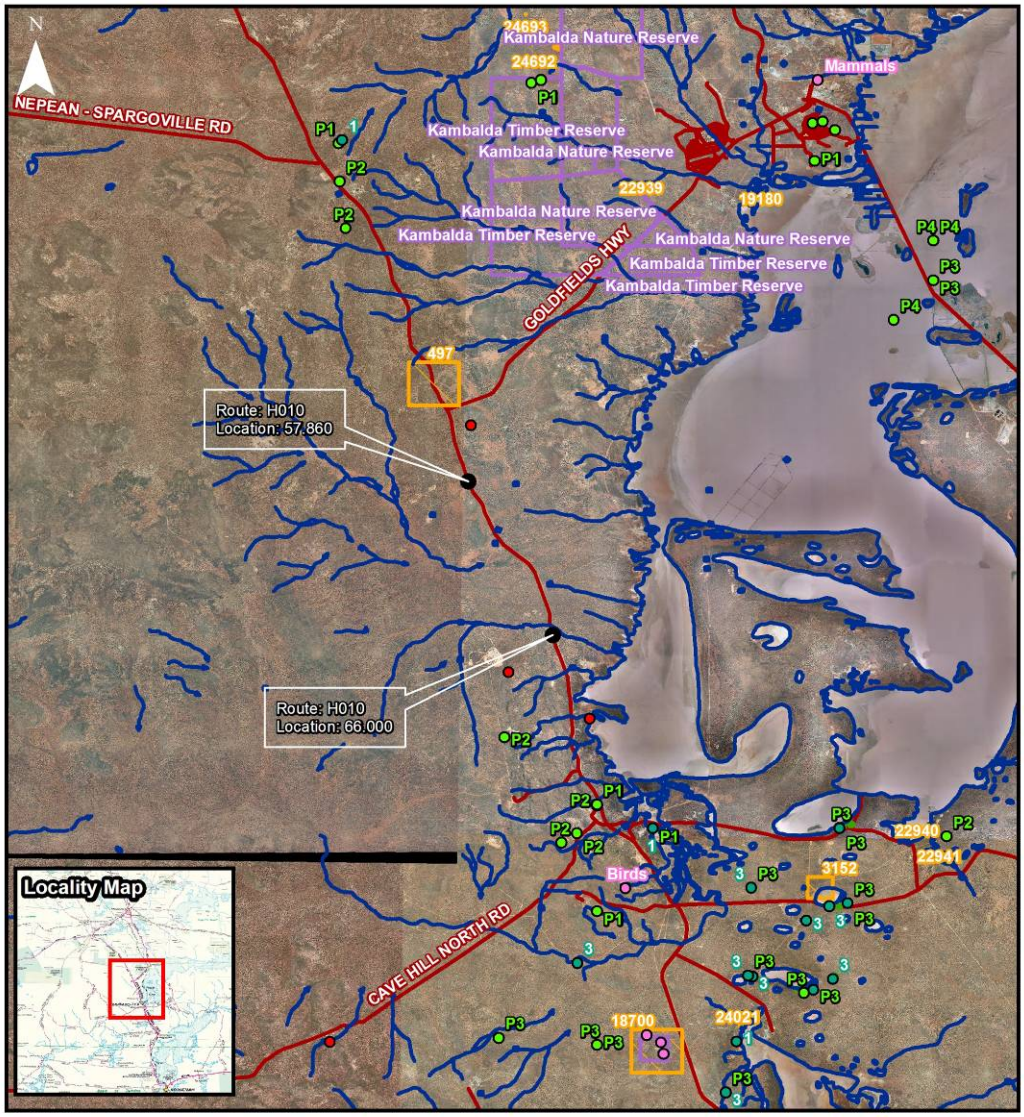


Figure 2. Environmental Constraints Map A



LEGEND

- THFL - DEFL
- THFL - WAHerb
- Threatened Fauna
- TECs / PECs
- Bores
- Hydrology
- RAMSAR Sites
- Proclaimed Surface Water Areas
- PDWSAs
- ESAs
- DEC Lands
- <30% Vegetation Associations
- Aboriginal Heritage Sites
- European Heritage
- SLK Network

0 2.5 5 10 Km

mainroads WESTERN AUSTRALIA

MAP INFORMATION
Geographic Coordinate System: Geocentric Datum of Australia 1994 - Projection MGA Zone 51

PUBLISHER DETAILS

Directorate: Regional Services
Branch: Goldfields Esperance Region
Author: Simon Weighell (EO)
Data Currency: As Supplied

Project: \\Kalsrv01\Projects\H010-Coolgardie Esperance HWY\Heavy Vehicle Rest Area 58 SLK\Environment\GIS Files\CEH HVRA & Roadside Trees Env Constraints Map B.mxd

Figure 3. Environmental Constraints Map B

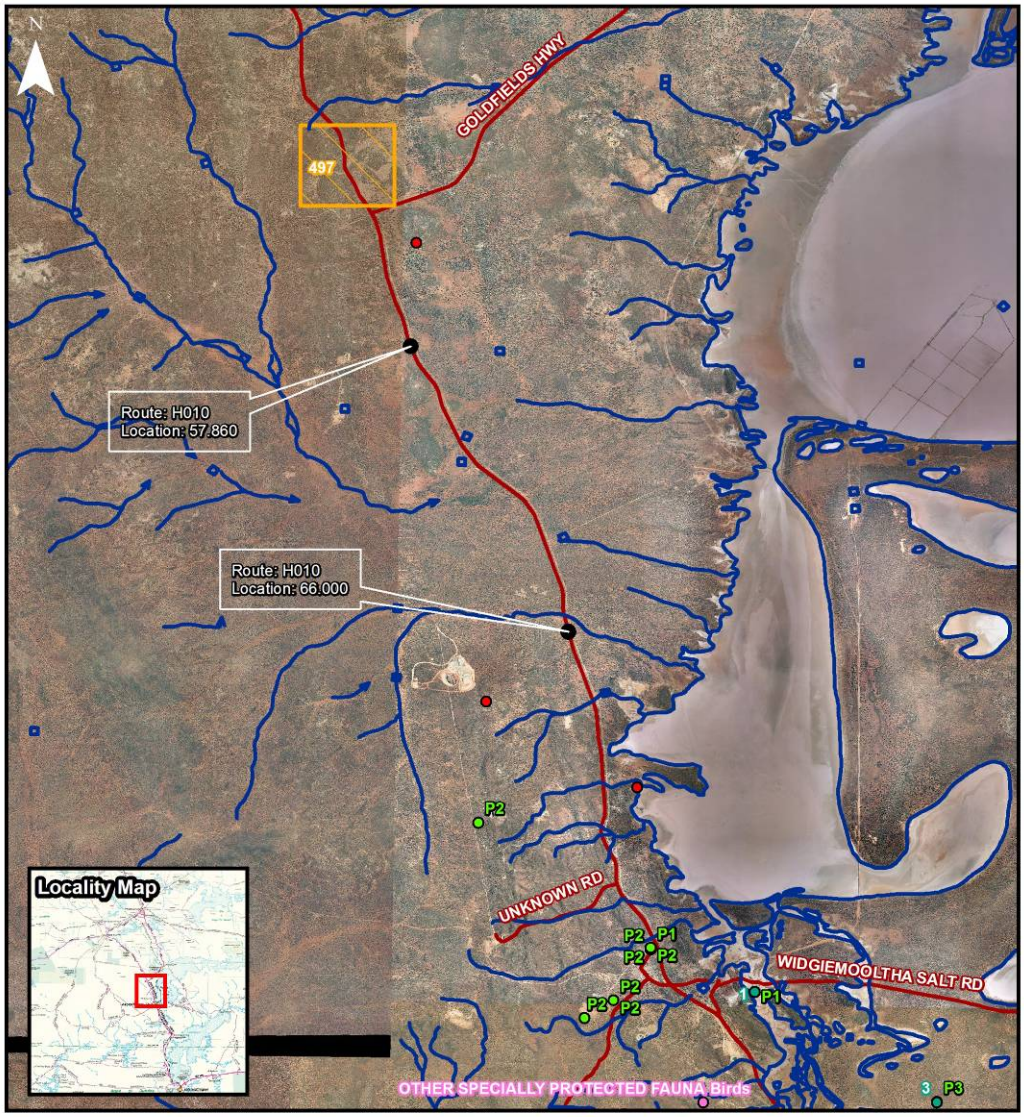


Figure 4. Environmental Constraints Map C

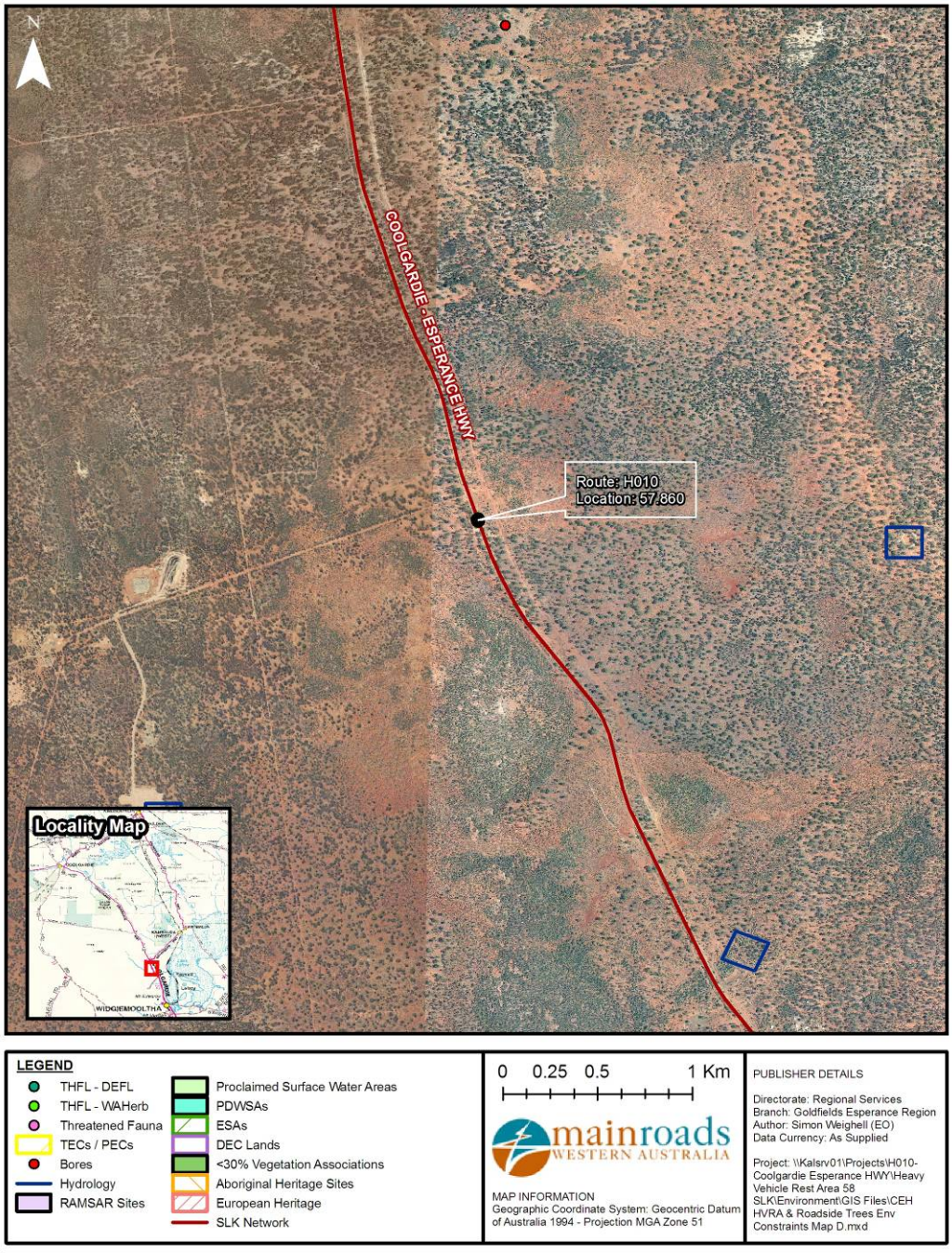


Figure 5. Environmental Constraints Map D

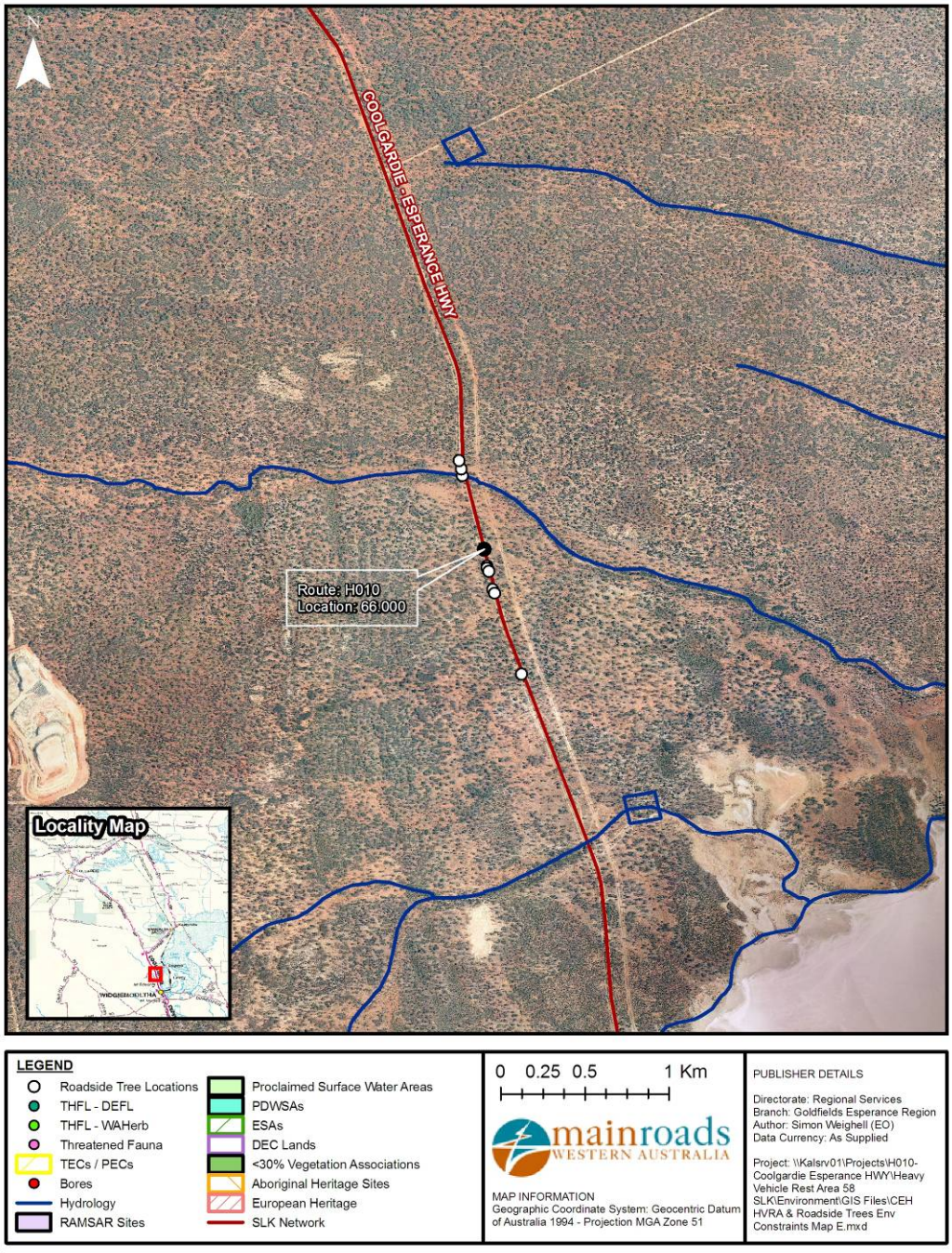


Figure 6. Environmental Constraints Map E

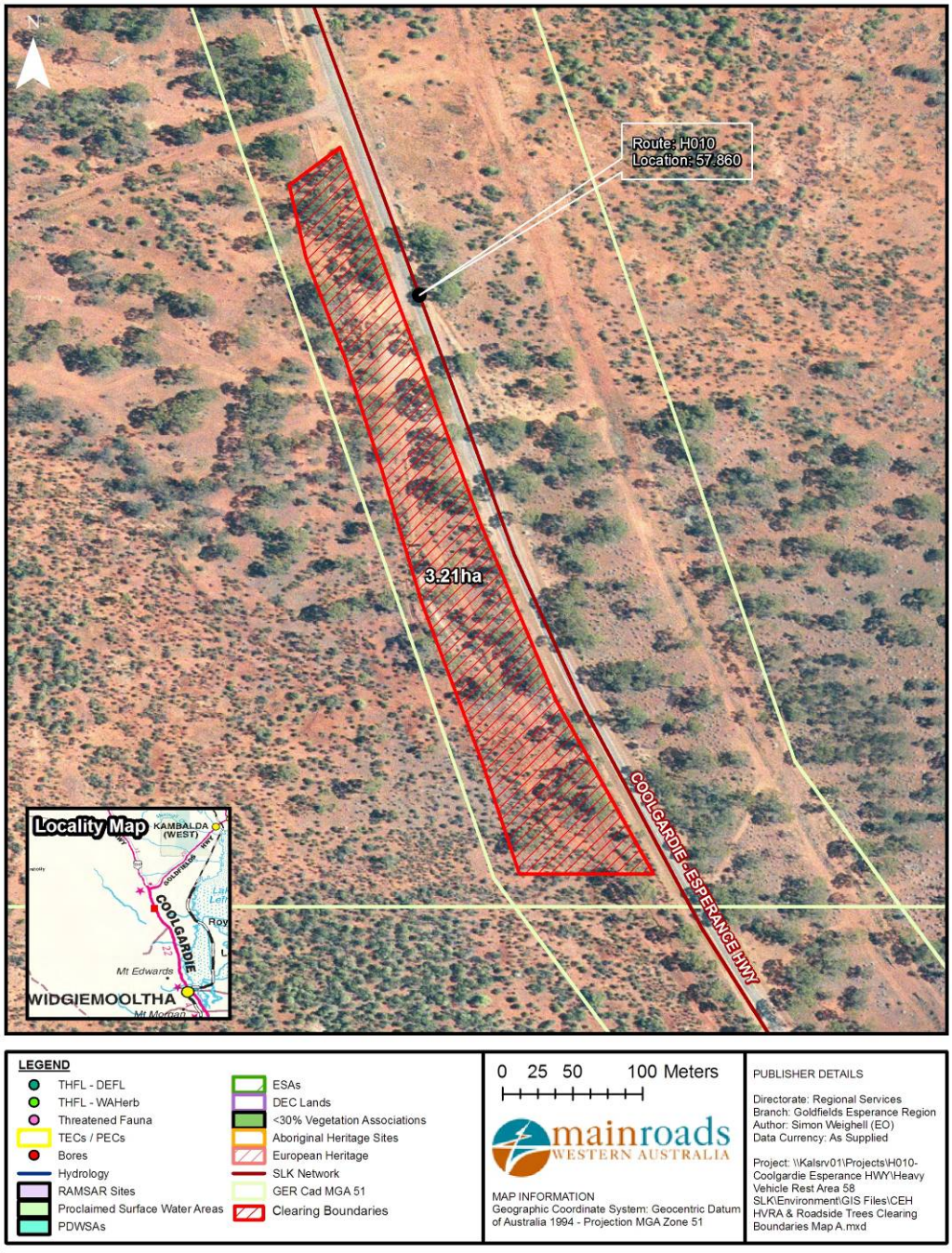


Figure 7. Clearing Boundaries Map A - Heavy Vehicle Rest Area

Note: GER Cad MGA 51 = Goldfields-Esperance Region Cadastral MGA Zone 51

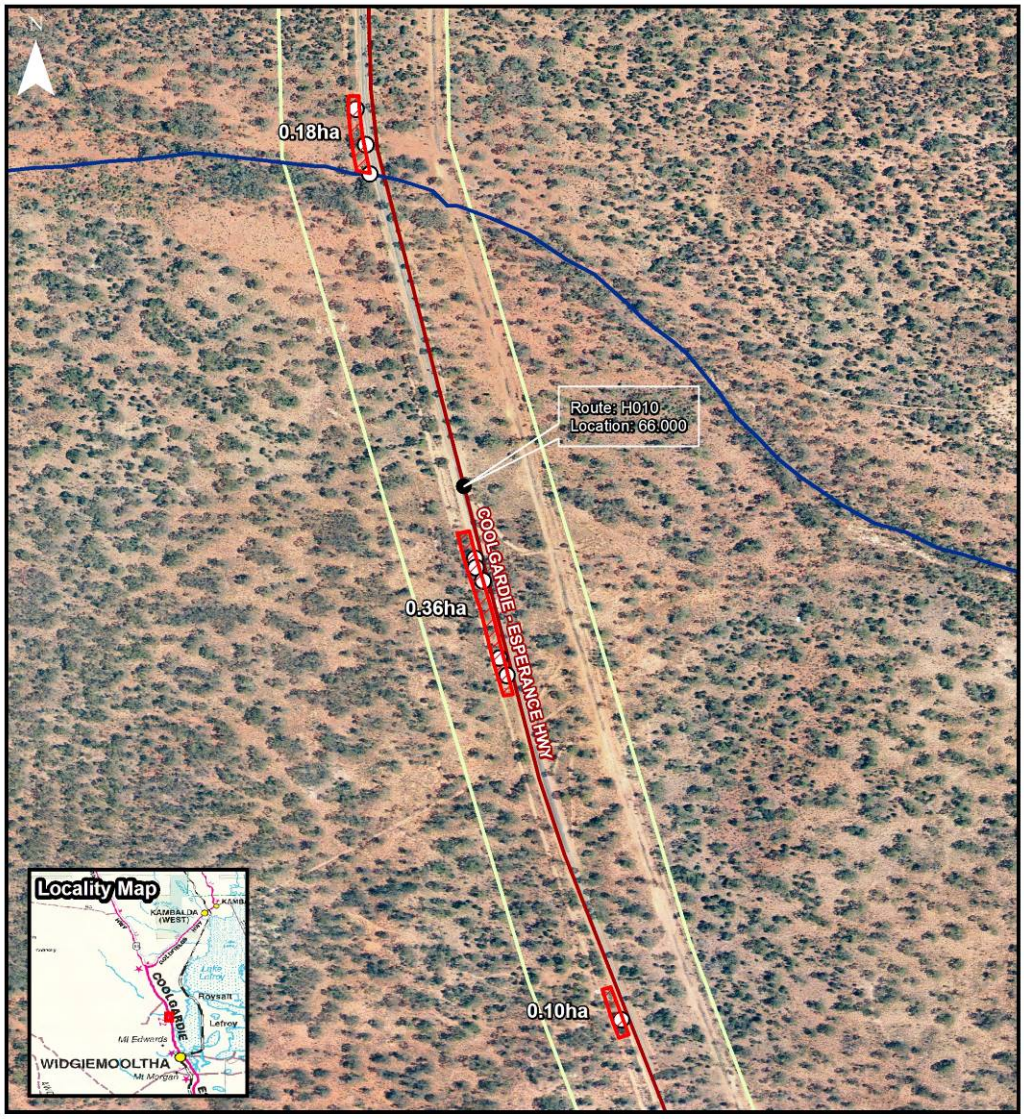


Figure 8. Clearing Boundaries Map B - Roadside Trees

Note: GER Cad MGA 51 = Goldfields-Esperance Region Cadastral MGA Zone 51

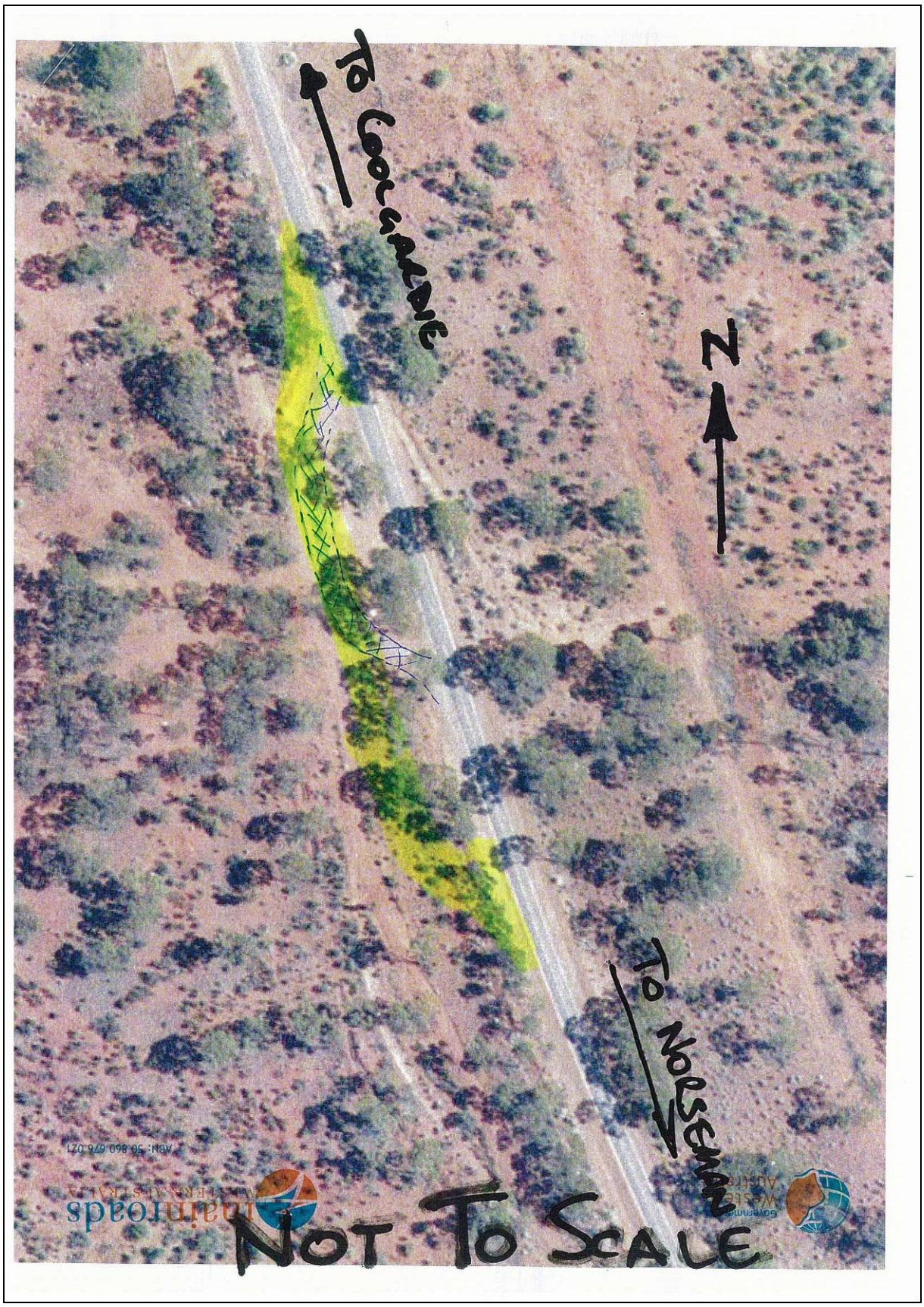


Figure 9. Approximate design layout of new heavy vehicle rest area (highlighted yellow) in relation to existing parking bay (cross-hatched).

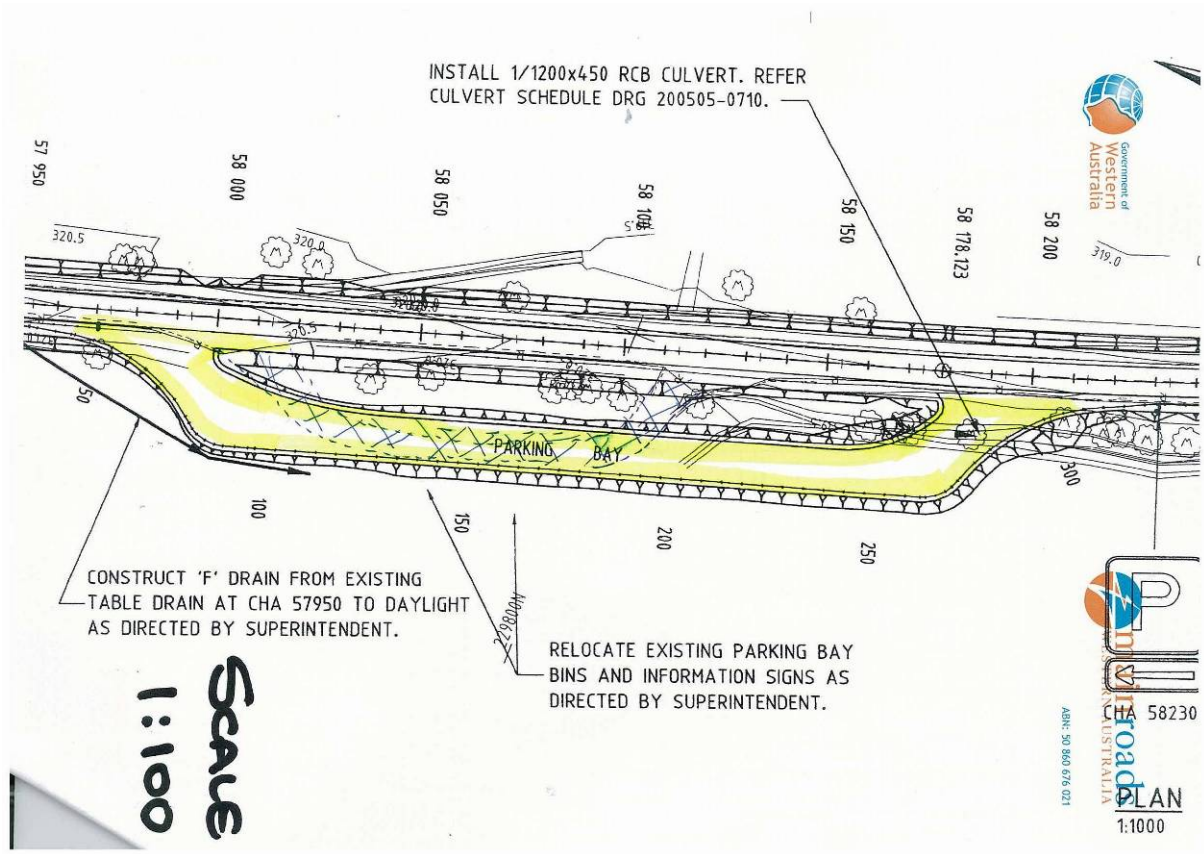


Figure 10. Heavy vehicle rest area design drawing (existing parking bay cross-hatched).

Appendix B

Low Impact Screening Checklist

Form No. 6707/001/01

Checklist - Low Impact Screening Checklist

The Low Impact Screening Checklist is part of the environmental assessment and approval process, refer to in Figure 2 in the Main Roads environmental guideline Environment Assessment and Approvals. It should be noted that the checklist does not address Aboriginal heritage issues. Please refer to Main Roads guideline *Aboriginal Heritage* for the heritage assessment process.

All projects are to be screened to identify those that are Low Impact.

Projects that have "No" to all items are classed as Low Impact and should be implemented using standard contract clauses in the Tender Document Process.
Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Management Plan.
Tick "Yes" or "No" for every item.

Project Name: **Coolgardie Esperance Highway at 58.00 SLK – Emu Rocks Heavy Vehicle Rest Area**

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.		✓
2	Works require clearing of native vegetation outside the maintenance zone.	✓	
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	✓	
4	Works to occur outside normal working hours.		✓
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.		✓
6	Local natural drainage regime / hydrology will be changed.		✓
7	Dewatering, or new water bore required.		✓
8	Known potential source of hazardous materials within or adjoining project area. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)		✓
9	Buildings will require demolition.		✓

Completed By: *Signature* _____ *Date* 8 November 2010

Name Bram van Berkel *Title* Senior Project Manager

To be reviewed by a Main Roads Environment Officer *Signature* S. Weighell *Date* 2/12/10

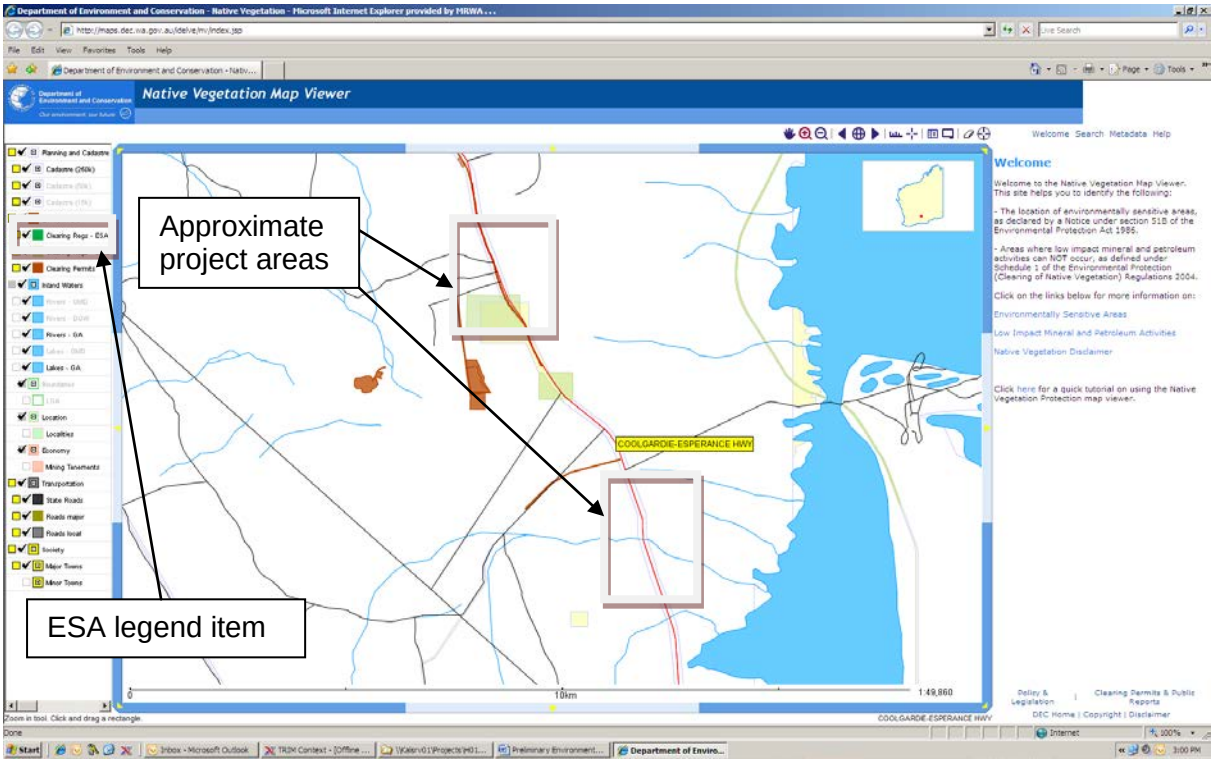
Name Simon Weighell *Title* Environment Officer

Comments: Extend existing carpark south to accommodate Heavy Vehicle Rest Area.
PEIA + EMP Required.
Project also includes removal of trees in the maintenance zone several kms away (approx. SLK 66).

MAIN ROADS Western Australia
Form 6707/001/01 Screening Checklist Rev 3.doc 30/05/07

Appendix C

Government Agency Database Searches



DEC's Native Vegetation Map Viewer showing no ESAs (dark green shaded areas) within the proposed project areas.

DIA's Aboriginal Heritage Inquiry System results for the project areas:

Government of Western Australia
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

Aboriginal Sites Database

Search Criteria

10 sites in a search box. The box is formed by these diagonally opposed corner points:

MGA Zone 51	
Northing	Easting
6482363	351212
6538745	380198

Report created 02 Dec 2010 14:27:25. Identifier: 743526.

Page 1

Disclaimer

Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist. Consultation with Aboriginal communities is on-going to identify additional sites. The AHA protects all Aboriginal sites in Western Australia whether or not they are registered.

Copyright

Legend

Restriction

N	No restriction
M	Male access only
F	Female access

Access

C	Closed
O	Open
V	Vulnerable

Coordinate Accuracy

Accuracy is shown as a code in brackets following the site coordinates.

[Reliable]	The spatial information recorded in the site file is deemed to be reliable, due to methods of capture.
[Unreliable]	The spatial information recorded in the site file is deemed to be unreliable due to errors of spatial data capture and/or quality of spatial information reported.

Status

L - Lodged	→	IA - Information Assessed	→	ACMC Decision Made
Information lodged, awaiting assessment		Information Awaiting ACMC Decision Assessment Only		R - Registered Site I - Insufficient Information S - Stored Data

***Explanation of Assessment**

Sites lodged with the Department are assessed under the direction of the Registrar of Aboriginal Sites. These are not the final assessment.

Final assessment and decisions will be determined by the Aboriginal Cultural Material Committee (ACMC).

Spatial Accuracy

Index coordinates are indicative locations and may not necessarily represent the centre of sites, especially for sites with an access code "closed" or "vulnerable". Map coordinates (Lat/Long) and (Easting/Northing) are based on the GDA 94 datum. The Easting / Northing map grid can be across one or more zones. The zone is indicated for each Easting on the map, i.e. '5000000:Z50' means Easting=5000000, Zone=50.

Sites Shown on Maps

Site boundaries may not appear on maps at low zoom levels

Government of Western Australia
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

Aboriginal Sites Database

List of 1 Registered Aboriginal Sites with Map

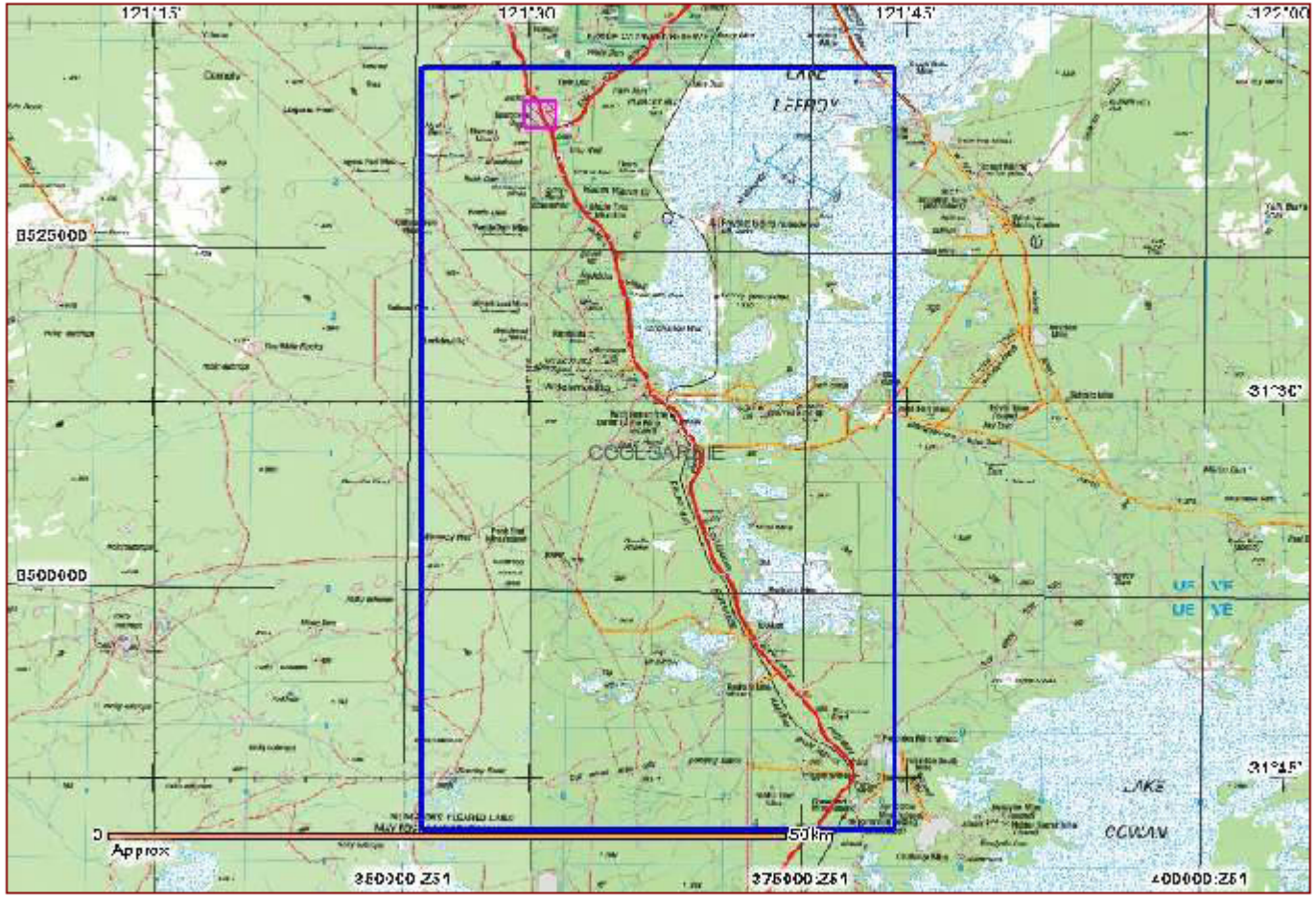
Site ID	Status	Access	Restriction	Site Name	Site Type	Additional Info	Informants	Coordinates	Site No.
497	R	C	M	Milbari Nidjuru	Ceremonial, Mythological		*Registered Informant names available from DIA.	Not available for closed sites	W02250

Report created 02 Dec 2010 14:27:25. Identifier: 743526.

Government of Western Australia
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

Aboriginal Sites Database



Legend

Selected Heritage Sites

- Registered Sites
- Town
- Map Area
- Search Area

Report created 02 Dec 2010 14:27:25. Identifier: 743526.

Page 4

Government of Western Australia
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

Aboriginal Sites Database

List of 9 Other Heritage Places with Map

Site ID	Status	Access	Restriction	Site Name	Site Type	Additional Info	Informants	Coordinates	Site No.
3152	S	O	N	Mt Morgan	Artefacts / Scatter	Water Source		373637mE 6511657mN Zone 51 [Unreliable]	W00142
18700	I	C	N	Dordie Rockhole	Historical	Camp, Water Source	*Registered Informant names available from DIA.	Not available for closed sites	
20608	L	O	N	Jarjuru Tjukurpa	Mythological	Plant Resource, Natural Feature, [Other: Increase site]	*Registered Informant names available from DIA.	370975mE 6497786mN Zone 51 [Reliable]	
20609	L	O	N	Yundamie Rocks	Artefacts / Scatter	Camp	*Registered Informant names available from DIA.	376000mE 6491601mN Zone 51 [Reliable]	
22940	L	O	N	Tsf4 East 1	Artefacts / Scatter			378167mE 6513820mN Zone 51 [Unreliable]	
22941	L	O	N	Tsf4 East 2	Artefacts / Scatter			378167mE 6513820mN Zone 51 [Unreliable]	
24021	L	O	N	Dordie North Isolated Find	Artefacts / Scatter		*Registered Informant names available from DIA.	370490mE 6505145mN Zone 51 [Reliable]	
27000	IA	O	N	Nickelwest 7	Man-Made Structure, Artefacts / Scatter, Historical	Camp	*Registered Informant names available from DIA.	359438mE 6533101mN Zone 51 [Reliable]	
27002	IA	O	N	Nickelwest 9	Artefacts / Scatter	Camp	*Registered Informant names available from DIA.	365188mE 6534990mN Zone 51 [Reliable]	

Report created 02 Dec 2010 14:27:25. Identifier: 743526.

Government of Western Australia
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

Aboriginal Sites Database

Legend

Selected Heritage Sites

Other Heritage Places

Town

Map Area

Search Area

Map Showing Registered Aboriginal Sites and Other Heritage Places

Government of Western Australia
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

Aboriginal Sites Database

Legend

Selected Heritage Sites

- Registered Sites
- Other Heritage Places
- Town
- Map Area
- Search Area

DSEWPC's EPBC Act Protected Matters Report for the project area:

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Protected Matters Search Tool

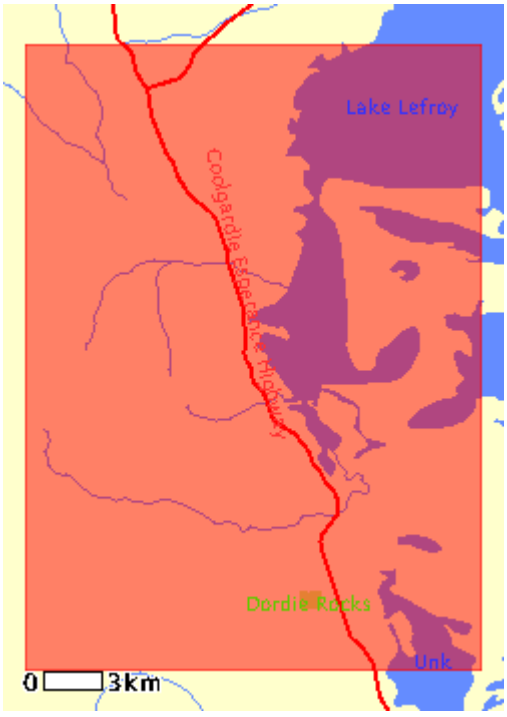
EPBC Act Protected Matters Report 2 December 2010 17:23

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

---



Search Type: Area

Buffer: 0 km

Coordinates: -31.29740,121.44859, -31.62831,121.44859, -31.62831,121.68891, -31.29740,121.68891

Report Contents:

Summary
Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
Threatened Species:	3
Migratory Species:	7

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by

Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	4
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details
Matters of National Environmental Significance

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
Acanthiza iredalei iredalei Slender-billed Thornbill (western)	Vulnerable	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl	Vulnerable	Species or species habitat likely to occur within area
Plants		
Gastrolobium graniticum Granite Poison	Endangered	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		

Birds		
Leipoa ocellata Malleefowl	Migratory	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Migratory Wetland Species		
Birds		
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Other Matters Protected by the EPBC Act		
Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Commonwealth Lands [Dataset Information]		
Unknown		

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act*

1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the migratory and marine provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria

- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Last updated: Thursday, 20-Nov-2008 14:17:56 EST

Department of the Environment, Water, Heritage and the Arts
GPO Box 787 Canberra ACT 2601 Australia
Telephone: +61 (0)2 6274 1111

Appendix D

Site Photos

Heavy Vehicle Rest Area Photos:

Vegetation north of existing parking bay.

Existing parking bay looking south.

Existing parking bay looking south.

Existing parking bay looking west (area proposed to be closed off and have cleared vegetation spread).

Existing parking bay looking north.

Existing parking bay looking north.

Looking south from existing parking bay – area of proposed extension.

Looking south from existing parking bay – area of proposed extension.

Looking south from existing parking bay – area of proposed extension.

Looking north towards existing parking bay – area of proposed extension.

Roadside Trees Photos:

Northern most area looking north – at least one tree requires removal.

Northern most area looking south – at least one tree requires removal.

Tree in northern most area requiring removal looking north.

Tree in northern most area requiring removal looking south.

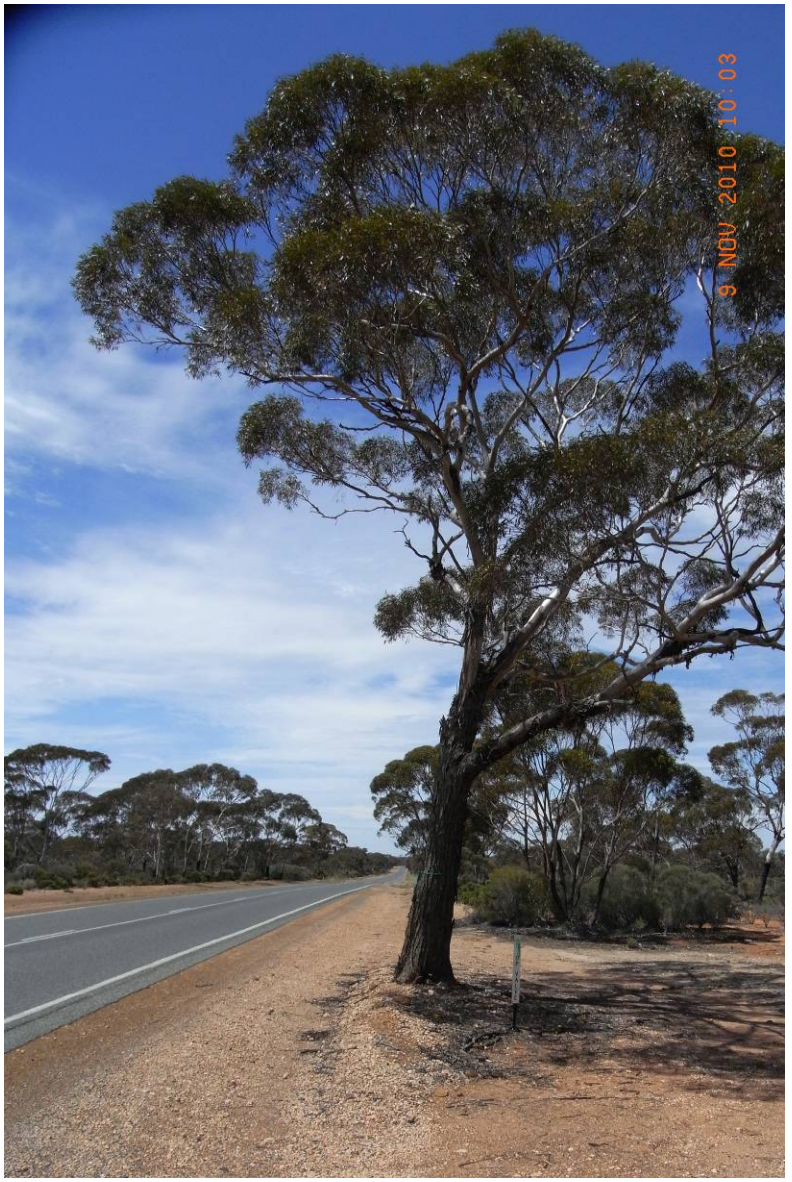
Central area looking north – at least one tree requires removal.

Central area looking south – at least one tree requires removal. Photo also shows culvert / drainage line location.

Tree in central area requiring removal looking south.

Tree in central area requiring removal looking north.

Tree in southern most area requiring removal looking north.



Tree in southern most area requiring removal looking south.

Appendix E

Environmental Management Plan

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action(s)**	**Responsible Party**	**Advice**
All phases of construction	Induction / Start-up meeting / Progress meetings	Create awareness in all personnel of the Main Roads Environmental Policy as well as the environmental aspects associated with the project.	Main Roads Environmental Policy to be communicated to all personnel. All personnel to be informed of the environmental aspects associated with the project prior to undertaking any works. Attendance / participation records for inductions / meetings to be kept. Such records must demonstrate adequate communication of environmental policies and aspects.	Contractor	Main Roads
All phases of construction	Vegetation Clearing - Record-keeping	All projects should maintain the required records relating to clearing native vegetation under CPS 818/5.	Record: - a copy of the PEIA, - a map showing the location where the clearing occurred, recorded in an ESRI Shapefile, - the size of the area cleared (in hectares), and - the dates on which the clearing was done.	Main Roads Project Manager	DEC
All phases of construction	Weed Management	Ensure that the risk of weed spread or establishment is minimised as far as is practically possible (refer to Sections 4 & 5 of PEIA for locations and extent of weed infestations and good or better quality native vegetation).	Contractor is to ensure that all equipment brought on to site is free of soil and vegetative material. Weed infested material is to be cleaned from equipment prior to traversing areas of good or better quality native vegetation and prior to leaving the work site. No weed infested material (e.g. spoil) to be stockpiled / moved adjacent to or within areas of good or better quality native vegetation. No weed infested material / spoil to be removed to land other than that vested within Main Roads without approval from the landowner / manager, Main Roads Project Manager and Main Roads Environment Officer (unless removed to an approved Shire waste disposal facility – e.g. rubbish tip).	Contractor	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action(s)**	**Responsible Party**	**Advice**
All phases of construction	Aboriginal & Non-Indigenous Heritage	Ensure that Aboriginal heritage values are maintained.	No Aboriginal Heritage sites are known to exist within the proposed work areas. If any Aboriginal site is discovered during the works, work within 50m of that area is to cease immediately and shall not recommence until relevant approvals are obtained.	Contractor – ceasing of works Main Roads Project Manager – obtaining of approvals	Main Roads / DIA
		Ensure that Non-indigenous heritage values are maintained.	Old wheelbarrow in parking bay to be protected.	Contractor	Main Roads
All phases of construction	Pollution and Litter	Ensure that the works are managed to a standard that minimises pollution or the risk of pollution occurring.	The designated servicing area is to be bunded to contain any spills or leaks or it will drain into a temporary sump. It is not to be located in an area adjacent to drainage areas or watercourses / wetlands.	Contractor	Main Roads
			Emergency cleanup procedures shall be implemented in the case of any spillage. These are to include the control of spilled material and removal of contaminated soil to an approved Shire waste disposal facility. Appropriate equipment is to be available on site at all times in the case of a spill.		
			All waste oil is to be collected for disposal / recycling and any empty fuel / oil containers, used filters and waste hydraulic parts are to be collected and stored in an allocated area before being removed to an approved Shire waste disposal / recycling facility.		
			The project areas, including hardstand areas, are to be kept in a tidy manner at all times. No littering is to be tolerated and an adequate number of rubbish bins are to be provided on site at all times.		

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action(s)**	**Responsible Party**	**Advice**
All phases of construction	Flora and Fauna	Ensure that the overall objectives of the works are compatible with maintaining the biological integrity of the surrounding environment, and minimising the loss of flora and fauna and the level of degradation.	Clearing is to be kept to an absolute minimum and within the maximum clearing boundaries identified for the project (refer to Section 5 and maps in Appendix A for maximum clearing boundaries / amounts). Clearing lines based on design drawings as well as any no go areas (including trees or shrubs to be kept) are to be clearly marked out in the field prior to works being undertaken.	Both	Main Roads / DEC
			Cleared vegetation that is not infested with weeds is to be mulched / broken down and stockpiled separately and re-used on site in an appropriate manner (e.g. respread over batters / areas of bare soil).		
			Cleared vegetation is not to be burnt or permanently left stockpiled in heaps.		
			Care is to be taken when clearing in order to avoid death of / injury to any native fauna. Any death of / injury to native fauna is to be reported to the Main Roads Project Manager immediately and the appropriate actions taken (e.g. contact DEC, RSPCA or Veterinarian).		
			Where possible, nests or nesting sites are to be avoided or relocated.		
Construction	Noise, Vibration and Dust	Ensure that the construction of the proposal does not become a nuisance to the public.	Any complaints regarding dust, noise or vibration are to be attended to and dealt with as soon as possible.	Both	Main Roads
			Dust suppression techniques to be employed during construction works.	Contractor	Main Roads
Construction	Fire	Ensure that the fire risk associated with the construction of the project is minimised.	No fires shall be lit within the project area and standard fire prevention methods (e.g. spark arresting mufflers) are to be employed at all times.	Contractor	Main Roads
			Fire response equipment to be present and readily available on site at all times.		

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action(s)**	**Responsible Party**	**Advice**
Construction	Environmental Incidents	Ensure that any environmental incidents that occur during works do not have a significant or long term impact on the environment.	Implement corrective and preventive actions in liaison with an environmental specialist and Main Roads Manager Environment where necessary.	Both	Main Roads
		Ensure that the details of any environmental incidents are recorded in accordance with corporate requirements.	Complete and submit environmental incident report forms in accordance with the Main Roads corporate procedure *6707/042 Environmental Incident Reporting and Investigation*. Environmental Incident report forms are available on the Main Roads Internet site at http://www.mainroads.wa.gov.au/UnderstandingRoads/Environment/Pages/incident_report.aspx		
Construction	Soil & Erosion Management	Ensure that soil is managed in a way that prevents future land degradation and erosion.	Stripped topsoil that is not infested with weeds is to be stockpiled separately and re-used on site in an appropriate manner (e.g. respread over batters).	Contractor	Main Roads
			Cleared areas to be landscaped in a way that prevents future erosion.		
Construction	Ground and Surface Water Management	Ensure that the project does not have an unacceptable level of impact on water resources and that water quality in the area is not compromised.	Water required for project activities to be sourced legally and used in a sustainable manner.	Contractor	Main Roads
			Where possible, road drainage is to be directed away from natural watercourses and wetlands.		
			Water extraction activities to be carried out in a way which prevents the potential for contamination of the water source (e.g. bunding of pumping equipment).		
Post-Construction	Clean-up	Ensure that the project area is left clean and tidy.	All waste materials from the development are to be completely removed from the site and disposed of at an approved Shire waste disposal facility upon completion of works.	Contractor	Main Roads
			All remaining road building materials (e.g. gravel, aggregate) to be removed from the site upon completion of works to an approved stockpile site.	Both	Main Roads

Note: “Both” refers to both the Main Roads Project Manager and Contractor.