Main Roads Western Australia

Report for Brand Highway and Midlands Road Upgrades

Preliminary Environmental Impact Assessment

FINAL REPORT

March 2006

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1. Introduction and Project Description

1.1 Introduction

GHD Pty. Ltd. were engaged by Main Roads Western Australia's Mid West Region to prepare a desktop Preliminary Environmental Impact Assessment (PEIA) for the following roadworks upgrades:

» Widening of the northern side of the Brand Highway / Midlands Road junction, to accommodate a slip lane to enable vehicles continuing through to Midlands Road to overtake other vehicles turning right (south) onto the Brand Highway. The work is located from 297.34 SLK to 297.46 SLK on the Brand Highway and from 262.86 SLK to 262.60 SLK on the Midlands Road, being approximately 400 metres in length (see Figure 1); and

» Widening on the southern side of the Brand Highway west of the Pells Bridge from 297.50 SLK to 298.69 SLK, being a length of approximately 1.2km, to extend an existing northwest-bound passing lane heading into Dongara (see Figure 2).

These projects have been considered together due to their close proximity and similar environmental issues.

This report details the requested PEIA, which:

» Describes the significant aspects of the existing project environment; and

» Details the primary environmental and social impacts of the proposed works.

This PEIA has been prepared based on:

» A brief site inspection conducted on 20 January 2006

» Brief discussions with Main Roads

» Consultation with the Department of Conservation and Land Management, the Department of Environment, the Department of Agriculture and the Shire of Irwin; and

» A review of relevant databases.

Environmental and social aspects identified as requiring consideration during the project and therefore addressed in this report have been identified in Table 1.

1.2 Project Description

Main Roads proposes to undertake upgrades to improve the safety on the northern section of the Brand Highway by alteration of the intersection Brand Highway (from 297.34 to 297.46 SLK) and Midlands Rd (from 262.60 to 262.86 SLK) intersection and to the west of this site, on the other side of the Pells Bridge, an extension of the existing passing (from 297.50 to 298.69 SLK).

The upgrades comprise a length of approximately 400 metres and 1.2 kms, respectively.

Both projects are bordered by the Irwin River (to the west and east respectively) and surrounded by the rural landuses that are zoned as "General Farming", under the Shire of Irwin Town Planning Scheme No. 4. The Australian Government (2006) describes the surrounding rural land uses as 'dry land agriculture'.

Key features of the proposed road project include:

» The road projects will involve the widening of the road's existing seal

» Nominal vegetation clearing is anticipated to occur with most already previously disturbed by previous roadworks; and

» The project will be undertaken during 2005 / 2006.

Table 1 Environmental and Social Aspects Considered

Aspect	Refer to Section
Air quality	2.11
Dust	2.11
Fauna	2.7
Vegetation - threatened species and communities	3.6.4 + 2.6.5
Vegetation – associations, representativeness and clearing	2.6
Vegetation - dieback and other diseases or pathogens	2.6.6
European cultural heritage	2.10
Aboriginal heritage	2.9
Surface waters / drainage (watercourses, stormwater disposal, water quality, proclaimed waterways)	2.2
Groundwater	2.3
Wetlands	2.2
Salinity	2.4
Acid Sulphate Soils	2.5
Noise and vibration	2.12
Visual amenity	2.13
Public safety and risk (industrial plant, gas pipeline, unexploded ordinance)	2.14
Contaminated sites	2.8
Reserves and conservation areas	2.1
Other project-specific aspects not covered elsewhere in this list. Examples include environmentally significant landforms, coastal and mangrove areas.	2.15

2. Preliminary Environmental Impact Assessment

2.1 Reserves and Conservation Areas

The nearest conservation area to the project sites is the Beekeepers Nature Reserve approximately 8km to the south-west (at its northern most extent). This reserve will not be impacted by the roadworks.

The Shire of Irwin manages a Public Recreation Reserve along the southern embankment of the Irwin River approximately 300 metres downstream from the project sites. This reserve will be unaffected by the works as they are believed to be restricted to the road reserve. No other Parks and Recreation zones are indicated in the vicinity of the roadworks on the Shire of Irwin Town Planning Scheme No. 4.

2.2 Wetlands / Surface Waters & Drainage

According to available information these upgrades are not within a proclaimed surface water area.

No *Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998* wetlands or wetlands listed under the Ramsar Convention (1971) occur within the project area.

The Irwin River is situated west of the Brand Highway / Midland intersection works and east of the passing lane extension site. A buffer area of at least 30 metres will be maintained between the river and the works road upgrades on either side. Drainage from the project sites will be controlled via infiltration. No direct impact upon the river is expected to occur as a result of the proposed roadworks.

2.3 Groundwater

The proposal is within a proclaimed groundwater area, being the Arrowsmith Groundwater Area. Construction of bores in this area require a 26D Licence under the *Rights in Water and Irrigation Act 1914*, taking water (eg for dust suppression) will also require a licence.

DoE have advised that they have groundwater monitoring bores in the area. These should not be impacted by the road works as they are generally located away from the immediate roadside, and are easily distinguishable, being painted bright blue with a white cap.

The site will not impact on a Public Drinking Water Supply Area with the closest (Allanooka Water Reserve) being approximately 4km to the east.

2.4 Salinity

The Department of Water (2006) identifies the area as having on average groundwater salinity levels of between 3000 and 7000 mg/L, reducing to an average of between 1000 and 3000mg/L towards the eastern section of these project sites, due to the influence of coastal waters.

Mayer *et al* (2004) classify the Irwin River as moderately saline at 3200mg/L with an O/I ratio of 11 (where O = salt load export from the catchment divided by I = salt input from rainfall).

The Department of Agriculture assessed the proposed road works using air photography and considers the land degradation risk to be low.

2.5 Acid Sulphate Soils

The project area has not been mapped for potential acid sulphate soils as part of the WAPC (2003) Planning Bulletin No. 64.

It is considered likely that the project area would contain Acid Sulphate Soils at depth owing to the close proximity of the project area to the Irwin River. However, based upon the fact that the roadworks associated with the project are not expected to require deep excavation, it is considered unlikely that Acid Sulphate Soils will require management during the project.

2.6 Vegetation

2.6.1 Site Vegetation Composition

The composition of remnant native vegetation in the project area was interpolated from mapping conducted by Beard (1976). According to this mapping, the project area is likely to contain two vegetation communities; being the York Gum Medium Woodland and a mosaic of shrublands; *Acacia rostellifera* & *Melaleuca cardiophylla* thicket / Sparse low woodland; *Eucalyptus erythycorys* (Illyarrie).

Site Vegetation Condition

Vegetation condition was assessed via a brief site inspection and aerial imagery interpretation (Landgate, 2006) and considered factors such as the continuity and extent of vegetation, adjacent land use, proximity to existing roads and other disturbance / disease vectors.

Based upon this assessment it was concluded that the project area primarily supports degraded parkland-cleared vegetation with some continuous though highly disturbed overstorey vegetation associated with the Irwin River.

2.6.2 Project Clearing Impact

Little remnant vegetation remains on the road verges to be impacted.

The area to the west of Pells Bridge is almost completely cleared due to previous road works, with the vegetation remaining consisting largely of grassy weeds and other pest plants such as the African Boxthorn. Eucalyptus and Melaleuca species have also been planted along the existing verge. Main Roads have advised that the total clearing required in this area is negligible and no clearing of native vegetation is expected.

The Midlands Road / Brand Highway site close to the Irwin River is the more significant area in terms of vegetation. Main Roads have advised that the clearing of vegetation is required, although significantly less than 0.5ha in total, clearing will include a minimal amount of degraded riparian vegetation (largely overstorey of *Eucalyptus cameldulensis*, with an understorey of grassy weeds eg. **Pennisetum setaceum*). This clearing should only affect young regrowth plants and possibly require lopping limbs from larger trees. A buffer of at least 30 metres will be left from the edge of the river bank to the start of the roadworks.

The Department of Environment's '10 Principles of Clearing' have been discussed in relation to this project at Appendix A and form a summary of the project's anticipated environmental impact in terms of native vegetation clearing.

2.6.3 Site Vegetation in a Regional Context

The relative importance of conserving remnant native vegetation in the project area at a regional scale was determined via the analysis of aerial photos by Shepherd *et al* (2002), the dataset has been archived as the 1997 vegetation extent, so it is likely the current extent figures may now be less. The results of this assessment are summarised in Table 2 below.

Table 2 Regional Assessment of Vegetation Extent

Vegetation Association	Description	Pre-European Extent (Ha)	Current Extent (Ha)	% remaining (1997)
352	Medium Woodland; York Gum	874,652	133,255	15.2
433	Mosaic: Shrublands; *Acacia rostellifera* & *Melaleuca cardiophylla* thicket / Sparse low woodland; *Eucalyptus erythycorys* (Illyarrie)	37,257	15,234	40.9

The WA EPA, has established through Position Statement No. 2. (Environmental Protection of Native Vegetation in Western Australia), the "threshold level" below which species loss appears to accelerate exponentially at an ecosystem level is regarded as being at a level of 30% of the pre-clearing extent of the vegetation type (EPA, 2000).

In the case of Vegetation System Association '352 – York Gum Woodland' detailed in Table 2 above, less than 30% of its original regional extent remained intact as at 1997. Clearing of this vegetation may be considered contradictory to the EPA's recommendations stated in Position Statement No. 2. However, the vegetation at the project sites appears to be inconsistent with the Vegetation System Association '352 – York Gum Woodland', and as it is expected that a nominal amount of native vegetation located within the road reserve will be cleared (refer to Section 2.6.2), the project's impact upon this vegetation association is considered negligible.

The Department of Environment (2006) do not identify any Environmentally Sensitive Areas (ESAs) at the project sites.

It should be noted that Main Roads has recently been granted a Purpose Clearing Permit (CPS 818/1) under the provisions of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. This permit provides for Main Roads to conduct vegetation clearing associated with roadworks projects where that clearing is:

- not within an Environmentally Sensitive Area, and
- the clearing is not at variance with the 'Ten Clearing Principles'

In the case of these projects although negligible clearing of degraded vegetation some 30m distant from the Irwin River will be required it considered that the clearing is not at serious variance with the 'Ten Clearing principles'. As such a Clearing Permit for the project is not believed to be warranted.

2.6.4 Declared Rare Flora

A search of the Department of the Environment and Heritage (DEH, 2006) online Protected Matters Search Tool was undertaken in order to identify flora protected under the *Environment Protection and Biodiversity Conservation Act 1999*, which may potentially occur within the project area. The following flora species were identified as likely to occur in the Shire of Irwin using this search:

- *Caladenia hoffmanii*
- *Chorizema humile* (Prostrate Flame Pea)
- *Conostylis dielsii subsp. teres* (Irwin Conostylis)
- *Conostylis micrantha* (Small-flowered Conostylis)
- *Dryandra serratuloides* subsp. *perissa* (Northern Serrate Dryandra)
- *Eucalyptus leprophloia* (Scaly Butt Mallee)
- *Hypocalymma longifolium*
- *Leucopogon marginatus* (Thick-margined Leucopogon)
- *Paracaleana dixonii*
- *Starwellia dimorphantha* (Arrowsmith Stilt Lily)
- *Wurmbea tubulosi* (Long-flowered Nancy)

A search was undertaken through the Department of Conservation and Land Management's (CALM) Threatened *(Declared Rare)* Flora Database (TFD), the *Western Australian Herbarium Specimen* (WAHERB) database and the Department's *Declared Rare and Priority Flora* (DR&PF) list. None of those species listed by the DEH were identified through the CALM searches as located within the project area and buffers, see Table 3 for the CALM results.

Refer to the Department of Conservation and Land Management's search response in Appendix B.

The project sites were surveyed for the listed Priority Flora by a GHD Ecologist on the 27 February 2006. None of the CALM search listed species were identified during that site inspection. Refer to Appendix C for the details of the targeted Priority Flora search for the project areas (referred to as Sites 1 and 2 in this report).

Table 3 Threatened and Priority Flora

Species	Conservation Category	Database	Distribution	Description (FloraBase, 2006)
Acacia telmica	3	WAHERB	Found in project buffer search area	Dense, rounded shrub, 1–3 m high and 1.5–5 m wide. Flowers yellow in Jul–Sep. Occurs on sand, loam or loamy clay in low-lying seasonally moist areas.
Anthocercis intricata	3	DR&PF	Dongara, Port Gregory, Denham, Kalbarri	Dense, spinescent shrub, 0.9–3 m high. Flowers white / cream in Jun–Sep. Occurs on sand or loam over limestone on consolidated sand dunes.
Eucalyptus ebbanoensis subsp. *photina*	4	WAHERB	Found in project buffer search area	Mallee, 2–6 m high, adult leaves glossy. Flowers white/cream in Sep–Mar. Occurs on sandy clay, red sand on lateritic breakaways and sandplains.
Eucalyptus zopherophloia	4	DR&PF, WAHERB	Dongara, Cliff Head, Illawong, Jurien Bay	Spreading mallee, 2.5–6 m high, with rough, fibrous bark. Flowers cream / white in Oct–Jan. Occurs on grey/white sand with limestone rubble, in coastal areas.
Gastrolobium callistachys	4	WAHERB	Found in project buffer search area	Open, often weeping shrub to 3 m high. Flowers yellow/ orange in Sep–Nov. Occurs on sandy soils, granite, siltstone on margins of rock outcrops, woodland.
Grevillea tenuiloba	3	WAHERB	Found in project buffer search area	Low spreading shrub of 0.4–0.6 m high, up to 3 m wide. Flowers orange/brown in Apr/Jul–Oct. Occurs on sand, clay loam and granite outcrops.
Haloragis foliosa	3	DR&PF	Winchester, Arrowsmith, Leeman Beekeepers Reserve, Cliff Head, Dongara	Perennial, herb or shrub, 0.2–0.5 m high. Flowers October. Occurs on white/grey sand over limestone.
Tricoryne robusta	2	TFD	Found in project buffer search area	Rhizomatous, perennial herb, to 0.45 m high. Flowers yellow in Sep–Jan. Occurs on white-grey or yellow sand, limestone.
Villarsia congestiflora	3	WAHERB	Found in project buffer search area	Aquatic or semi-aquatic, erect annual herb to 0.1–0.4 m high. Flowers yellow in Oct–Nov. Occurs on mud, sandy soils and damp places, such as roadside drains and creek beds.

2.6.5 Threatened Ecological Communities

Based on a search of the Department of Conservation and Land Management's Threatened Ecological Community (TEC) Database, no TECs are located within the project area and are thus unlikely to be impacted upon by the project.

2.6.6 Diseases or Pathogens

The project area can be considered as susceptible to the development of the dieback pathogen, *Phytophthora cinnamomi* (Dieback Consultative Council, 2001).

The high degree of historical disturbance exhibited within the project area and its close proximity to potential disease vectors i.e. major transport routes, suggests that it is highly likely that the disease is already established within the project area.

Dieback hygiene measures should be adhered to during roadworks, with plant and machinery cleaned down prior to arrival and prior to departure from the site.

Dieback hygiene measures implemented during roadworks will reduce the risk of importing additional weeds to the site, or transporting weeds from the site to other locations.

2.6.7 Weeds

The Department of Agriculture have recorded 75 Declared Plants as occurring within the Shire of Irwin, in addition to a wide range of common and pasture weeds found elsewhere throughout the Mid-West.

The brief site inspection and discussions with Main Roads staff indicated the presence of the Declared Plant, Athel Pine (*Tamarix aphylla*) at the sites. Main Roads should also advise its Term Network Contractor on the presence of this weed to ensure it is eradicated in line with Main Roads responsibilities under the *Agriculture and Related Resources Protection Act 1976*. This Act stipulates that landowners whose properties support declared species are legally responsible for the management of the species.

The Department of Agriculture has recommended the adoption of a biosecurity protocol to ensure weeds are not spread to other locations from the sites and, new weeds are not introduced to the sites through road materials and machinery. The Department is in the process of drafting biosecurity protocols for work by utility companies and other contractors.

2.7 Fauna

A search of the Department of the Environment and Heritage's online Protected Matters Search Tool was undertaken in order to identify fauna protected under the *Environment Protection and Biodiversity Conservation Act 1999*, which are likely to occur within the Shire of Irwin. The following terrestrial fauna species were identified through this search:

» Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*); and

» Malleefowl (*Leipoa ocellata*)

The Western Australian Museum's (2006) online collection catalogue 'Faunabase', which details actual specimen records, was also investigated in order to verify the results of the Protected Matters Search Tool results above. This investigation determined that of the two threatened fauna species have actually been recorded in a south-western portion of the Shark Bay to Dongara search area.

A search was also undertaken through the Department of Conservation and Land Management's Threatened Fauna database, which includes species which are declared as '*Rare or likely to become extinct* (Schedule 1)', '*Birds protected under an international agreement* (Schedule 3)', and '*Other specially protected fauna* (Schedule 4)'. Neither of those species listed by the DEH were identified through the CALM database records within a 20km buffer from the sites, see Table 4 for the CALM results.

Table 4 Threatened Fauna

Scientific Name	Common Name	Record No / Date	Other information	Likelihood of Occurring in the Project sites
Phasmodes jeeba	Phasmodes jeeba	1 in 1984	This species of stick-insect is only known from an area near Eneabba	Low
Macropus irma	Western Brush Wallaby	1 (dead) in 1983	This species occurs in areas of forest and woodland supporting a dense shrub layer.	Low
Ardeotis australis	Australian Bustard	1 in 1984	This species is uncommon and may occur in open or lightly wooded grasslands.	Low

Refer to the Department of Conservation and Land Management's search response in Appendix D.

Based upon the nominal clearing area associated with the project and disturbed nature of vegetation and lack of feeding/breeding habitat in the project area, it is considered unlikely that the project will significantly impact upon the long-term survival of any species of threatened fauna that may occur in the area.

2.8 Contaminated Sites

The project area is isolated and is surrounded predominately by rural land uses. As the road project requires minimal soil disturbance within an existing road reserve, it is unlikely that any contaminated sites exist in the area.

A search for Potentially Contaminated Sites through the Department of Environment's Water Information (WIN) database was conducted by the on the 2/2/2006. This search concluded that no previously recorded contaminated sites occur within the project area, which is consistent with the pattern of historical land use in the project area.

2.9 Aboriginal Heritage

A search of the Department of Indigenous Affairs Register of Aboriginal Sites was conducted to determine the likelihood of the project impacting on a listed Aboriginal heritage site.

Three Aboriginal Heritage sites occur within the vicinity of the proposed works (refer to Appendix E for localities).

Site 18907: Irwin River (SC04) – mythological / historical

Site 5218: Natgas 138 – artefact / scatter

Site 4650: Pell Bridge – skeletal material / burial

Sites 18907 and 5218 are sites that have been determined by the Aboriginal Materials Cultural Committee (ACMC) to be “stored” sites. These sites have not, at the time of assessment, sufficiently met the criteria under Section 5 of the *Aboriginal Heritage Act 1972*. These sites are not deleted from the Register of Aboriginal Sites, but are maintained for the possibility that new information may be presented about 'Stored' sites and can be presented to ACMC for re-assessment (DIA website, 2006). Although these areas have no legal protection under the *Aboriginal Heritage Act 1972* they may still be of significance to the local aboriginal communities.

Site 4650 is on the “interim register” which means a claim has been submitted to the ACMC, but not considered at this stage. Sites on the interim register are still provided with protection under the *Aboriginal Heritage Act 1972.*

It is expected given the location of the roadworks that there will be no impact to Site IDs 5218 and 4650, however, given the significant site buffer around the Irwin River, it is recommended that Main Roads WA liaise with appropriate representatives of the local Aboriginal community to determine the level of impact on this area.

2.10 European Heritage

A search of the Heritage Council of Western Australia’s Heritage Places database was conducted to determine the likelihood of the project impacting upon a listed heritage site.

The following heritage sites are located in the vicinity of the project sites:

- Old East End (Place No. 01217) – approximately 2km west of the nearest upgrade works, being Upgrade 2
- Royal Steam Roller Flour Mill (Place No. 01210) – approximately 5km west of the nearest upgrade works, being Upgrade 2

Given the distance between the works and the sites, it is unlikely that either site will be impacted upon by the project. No other listed heritage sites are believed to occur in close vicinity to the project area.

2.11 Air Quality

The road is not expected to significantly impact on regional air quality.

Dust may be generated during construction and should be managed for the protection of road users and adjoining landholders.

2.12 Noise and Vibration

Noise and vibration during the construction phase are not expected to be an issue, due to the lack of sensitive receptors in the area.

In any case, noise and vibration should be controlled by Main Roads standard work procedures in order to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*.

2.13 Visual Amenity

The minimal nature of the works, condition of the exiting roadside and low numbers of surrounding residents will result in minimal impacts on visual amenity.

2.14 Public Safety and Risk

The Dongara gas flowlines are within the alignment for these projects. Agility Management Pty Ltd (Pipeline Operator for APT Parmelia) have advised that no work whatsoever is to be carried out on or adjacent to the Parmelia pipeline easement, including any attempts to locate the pipeline, without the prior consent from APT.

In addition, the Dongara gas processing facility is located approximately 200 metres to the south of the Brand / Midlands Road intersection.

Main Roads have advised that gas pipelines infrastructructure will be avoided, with their worksites at least 100 metres from the flow line to the east, and 250 metres from the flowline to the west, of the Pells Bridge.

The remainder of the areas surrounded the sites are zoned as “General Farmland”.

Neither site is located within the boundaries of known Unexploded Ordinance area.

Public safety and traffic safety during construction will be managed by Main Roads’ contractor as part of the project scope of works.

2.15 Other

No other relevant environmental issues were discovered through the preliminary Environmental Impact Assessment process.

3. Consultation

During the preparation of this PEIA GHD contacted the following stakeholders by e-mail on 23rd and 24th January, 2005. The responses to our request for comments are detailed below.

Ms Annaleisha Sullivan, Geraldton Regional Office - Department of Environment. Ms Sullivan advised that the proposal is within the Arrowsmith groundwater area. Construction of bores in this area require a 26D licence under the Rights in Water and Irrigation Act, taking water (eg for dust suppression) will also require a licence. The Irwin River is not proclaimed, the presence of a buffer between the road widening project and the river is supported.

Ms Natalie Lauritsen, Geraldton Regional Office - Department of Environment. Ms Lauritsen provided information on a basic check as for any clearing permit, consisting of a review of environmentally sensitive areas, threatened ecological communities, proximity to reserves etc. Ms Laritsen advised that there was some declared rare flora that may be within the road reserve and thus may be affected, a check with CALM would be required. She also advised that DoE have some monitoring bores within road and rail reserve in this area, but they are mostly away from the immediate roadside. The bores are easily identified, as they are painted bright blue with a white cap. Ms Lauritsen did add that the roadworks project may be exempt from requiring a clearing permit under Schedule 2: 'Clearing in existing transport corridors' or Schedule 3: 'Infrastructure maintenance activities' of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, however, if not a clearing permit would have to be applied for.

Ms Catherine Page, Conservation Officer (Flora) - Geraldton District Office - Department of Conservation and Land Management. Ms Page recommended the area be searched for *Eucalyptus zopherophloia* and *Anthocercis intricate* prior to the commencement of any works. She did not have enough information to provide an opinion on the likelihood of the occurrence of *Haloragis foliosa* in the area, however did not think it would be likely that *Stylidium pseudocaespitosum* would occur as it is generally associated with different vegetation types and there are limited records of this species in the area. This *Stylidium* species was not listed for the sites covered in these reports, but rather for the Brand Highway project, south of Matsen Road, discussed in a separate report. A flora survey to target all listed Priority Flora species was conducted on behalf of MRWA, refer to Appendix C for details.

Ms Mia Morley – Species and Communities Branch – Department of Conservation and Land Management, Woodvale. Ms Morley advised that there are no known occurrences of threatened ecological communities recorded within the project areas or buffers. She further stated that it would be appreciated if any occurrences of threatened ecological communities encountered by you in the area could be reported to this Department to ensure their ongoing management.

Ms Kelly Poultenay – Species and Communities Branch – Department of Conservation and Land Management, Woodvale. Ms Poultenay advised of rare and priority flora listings on their database for the area. Refer to Section 2.6.4 and Appendix B for details.

Ms Christine Freeman – Species and Communities Branch – Department of Conservation and Land Management, Woodvale. Ms Freeman advised of threatened fauna on their database from the area. Refer to Section 2.7 and Appendix D for details.

Mr Paul Findlater, Geraldton Office, Department of Agriculture. Mr Findlater recommended the adoption of a biosecurity protocol to ensure weeds are not spread to other locations from the sites and, new

weeds are not introduced to the sites through road materials and machinery. He further advised the Department is in the process of drafting biosecurity protocols for work by utility companies and other contractors. To obtain a copy of the draft protocol contact Andrew Stevens (Dept Ag, Bunbury), on 97806100 or 0427380489. He further assessed the sites for the proposed road works using air photography and considers the land degradation risk is low.

Ms Kim Senior, Environmental Health Officer, Shire of Irwin. Verbally advised that Shire of Irwin Officers saw no issue with the proposals and welcomed the construction of new passing lanes.

Mr Andrew Arnold – UXO Liaison Officer, FESA. Mr Arnold advised that the coordinates were checked against known UXO Contamination Boundaries and that the project sites require no action in the form of precautionary searching, or further advice in relation to unexploded ordnance.

Mr Gerard Connell – Lands Officer, Agility Management Pty Ltd. Mr Connell advised there was gas pipeline infrastructure in the vicinity of the project area, including gas flow lines in the alignment and the Dongara gas processing facility and main natural gas processing transmission pipelines in the vicinity. Mr Connell further advised that no work whatsoever, (construction, excavations, trenching or vehicle crossings etc) is to be carried out on or adjacent to the Parmelia pipeline easement without prior consent from APT, also there is to be no attempt to physically locate the pipeline without first consulting APT. Although the route of the pipeline is marked out by warning signs it shall not be inferred that the pipe is buried under and in a straight line between signs. No depths on the pipeline should be assumed.

4. Conclusion

Through the results of this PEIA and based upon available information, it is considered unlikely that the following will be impacted upon by, or will otherwise be of concern during, the proposed roadworks:

» Acid Sulphate Soils

» Declared Rare or Priority Flora

» Threatened Ecological Communities

» Threatened Fauna

» Significant Areas / Land Features

» Contaminated Sites

» European Heritage Sites

» Air Quality

» Noise and Vibration; or

» Visual Amenity.

The project may have an impact upon remnant native vegetation, some of which is regionally poorly represented. However, this clearing impact is considered to be nominal owing to the characteristics of the proposed roadworks.

To ensure that the impact of the project are fully identified it is suggested that the following site investigations be conducted in order to resolve issues discussed throughout this report:

» Aboriginal community consultation.

4.1 Construction Phase Impacts

Environmental and social impacts requiring consideration and management during the roadworks phase of the project should be addressed by the development and implementation of a detailed Construction Phase Management Plan by Main Roads and its contractor. Issues to be considered in this management plan include:

» Damage to public property

» Public consultation

» Dust control

» Traffic safety and access

» Fire management

» Vehicle servicing

» Weed and dieback management

» Fuel and chemical storage and management; and

» Rubbish disposal.

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Figures

Appendix A

Department of Environment Clearing Principles

1. Does the area to be cleared comprise a high level of biological diversity?

No. Based upon remote sensing analysis (aerial photography interpretation), a brief site inspection and a targeted Priority Flora assessment, remnant vegetation at the project sites is believed to be completely cleared to highly disturbed and is therefore unlikely to comprise a high level of biological diversity.

2. Does the area to be cleared comprise the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia?

No. Vegetation in the project area is believed to be completely cleared to highly disturbed and is therefore unlikely to constitute important habitat for local fauna populations.

3. Does the area to be cleared include, or is necessary for the continued existence of rare flora?

No. A targeted Priority Flora survey was conducted based on the results of the CALM searches (discussed in Section 2.6.4 of this report). None of the potential species were found during the survey.

Species that are herbaceous in nature are often difficult to identify when not flowering and could have been present and not identified. It is considered that those herbaceous species of relevance to the project areas, being *Haloragis foliosa* and *Tricoryne robusta* are unlikely to be present on site due to the generally poor vegetation condition and/or lack of suitable habitat. Refer to Appendix C for details.

4. Does the area to be cleared comprise the whole or a part of, or is necessary for the maintenance of, a threatened ecological community?

No. The results of a search of the Department of Conservation and Land Management's Threatened Ecological Community Database concluded that no TECs have been previously recorded in the project area.

5. Is the area to be cleared significant as a remnant of native vegetation in an area that has been extensively cleared?

Yes. According to Beard (1976) mapping the area includes the Vegetation System Association No. 352 (Medium Woodland: York Gum), Shepherd *et al* (2002) identify that the 1997 extent comprised 15.2% of its pre-European extent (lower than the EPA's threshold level of 30%).

However, the vegetation at the project sites appears to be inconsistent with the Vegetation System Association '352 – York Gum Medium Woodland', and as only a nominal amount of remnant native vegetation will be cleared (significantly less than 0.5ha) to provide for the proposed road works the project's impact upon Vegetation System Association No. 352 is considered negligible.

6. Is the area to be cleared within, or in association with, an environment associated with a watercourse or wetland?

Yes. A nominal amount of young riparian vegetation, may need to be cleared to provide for the proposed road works. The vegetation condition is considered to be degraded, consisting largely of a *Eucalyptus cameldulensis* overstorey, with an understorey of grassy weeds eg. **Pennisetum setaceum.* The riparian vegetation of the Irwin River bed and banks (and a minimum 30 metre buffer from the river) is protected from impact, as the current bridge will continue to be utilised following the road upgrade i.e. no new clearing will be required.

7. Is the clearing of the vegetation likely to cause appreciable land degradation?

No. Only a nominal amount of vegetation clearing will be undertaken as part of the proposed roadworks and is unlikely to be of sufficient scale to result in significant land degradation.

The Department of Agriculture have assessed the proposed road works using air photography and consider the land degradation risk to be low.

8. Is the clearing of the vegetation likely to have an impact on the environmental values of any adjacent or nearby conservation area?

No conservation areas are situated adjacent to the project area. The nearest reserve is approximately 300 metres downstream from the project sites (Parks and Recreation reserve along the Irwin River) and will be unaffected by the proposed works.

9. Is the clearing of the vegetation likely to cause deterioration in the quality of surface or underground water?

No. Only a nominal amount of vegetation clearing will be undertaken as part of the proposed roadworks and is unlikely to be of sufficient scale to cause the deterioration in the quality of surface or underground water. Also, no discharge will be permitted to enter adjacent waterways but rather will be retained onsite for insitu infiltration.

10. Is the clearing of the vegetation likely to cause, or exacerbate, the incidence or intensity of flooding?

No. Only a nominal amount of vegetation clearing will be undertaken as part of the proposed roadworks and is unlikely to be of sufficient scale to result in, or exacerbate the incidence or intensity of flooding.

Appendix B

CALM Rare and Priority Flora Search

Appendix C

Targeted Priority Flora Survey Report

Appendix D

CALM Threatened Fauna Search

Appendix E

Aboriginal Heritage Sites

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