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## **Main Roads Western Australia**

**Sherwood Station Fencing  
(SLK 775.62 to 781.62 and SLK  
748.11 to 753.51)**

**Preliminary Environmental  
Impact Assessment**

April 2006



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## Executive Summary

Main Roads Western Australia (Main Roads WA) commissioned GHD Pty Ltd to complete a Preliminary Environmental Impact Assessment (PEIA) associated with the construction of fencing at Sherwood Station approximately 32 km east of Meekatharra along the Goldfields Highway. Two sections are proposed to be fenced to prevent stock losses i.e.

- » 775.62 to 781.62 SLK; and
- » 748.11 to 753.51 SLK.

A number of desktop assessments including database, literature reviews and consultation with State Government Departments were undertaken to determine the potential environmental impacts of the project. These included identification and reporting of:

- » rivers, water catchments and drainage;
- » vegetation i.e. clearing and presence of Declared Rare or Priority Flora (DRF);
- » weed management;
- » significant fauna;
- » Aboriginal heritage;
- » European heritage;
- » land use; and
- » construction phase impacts.

Three Registered Aboriginal sites were identified within close proximity to the proposed fence setout. Further investigation with Main Roads WA has indicated that these sites will not be impacted.

No issues identified during the development of this PEIA are considered to require referral to the Environmental Protection Authority or the Commonwealth under the *Environmental Protection and Biodiversity Conservation Act (1999)*.

It is estimated that approximately 3.42 hectares of vegetation will be required to be removed as part of the project. An area specific clearing permit under the *Environmental Protection (Clearing of Native Vegetation) Regulations (2004)* is not required as it is assumed Main Roads WA will work within the conditions of their "Purpose Permit" issued by the Department of Environment (DoE).



# 1. Introduction

Main Roads WA has commissioned GHD Pty Ltd to complete a Preliminary Environmental Impact Assessment (PEIA) associated with fencing at Sherwood Station along Goldfields Highway. The specific sections of fencing to be erected are adjacent to the road alignment at SLK 748.11 to 753.51 and 775.62 to 781.62. The proposed sections to be fenced are approximately 32 km east of Meekatharra. The project location is shown in Figure 1.

## 1.1 Scope of Report

This PEIA has been prepared to conform with the Main Roads WA's project brief and:

- » describes the significant aspects of the existing environment;
- » assesses the project against the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and associated 10 Clearing Principles;
- » details the primary environmental and social impacts of the proposed works; and
- » assesses the project in regard to:
  - environmental aspects that may require referral to the Environmental Protection Authority;
  - matters of National Environmental Significance which might require project referral, and determine if referral to the Commonwealth Department of the Environment and Heritage may be necessary;
  - additional investigations that may be required to clarify the expected environmental impacts of the proposed works;
  - developing appropriate management measures during the development of the project design; and
  - recommending the necessary environmental statutory approvals.

Based on the information provided by Main Roads and database/literature reviews, the environmental and social aspects considered and discussed in this PEIA include:

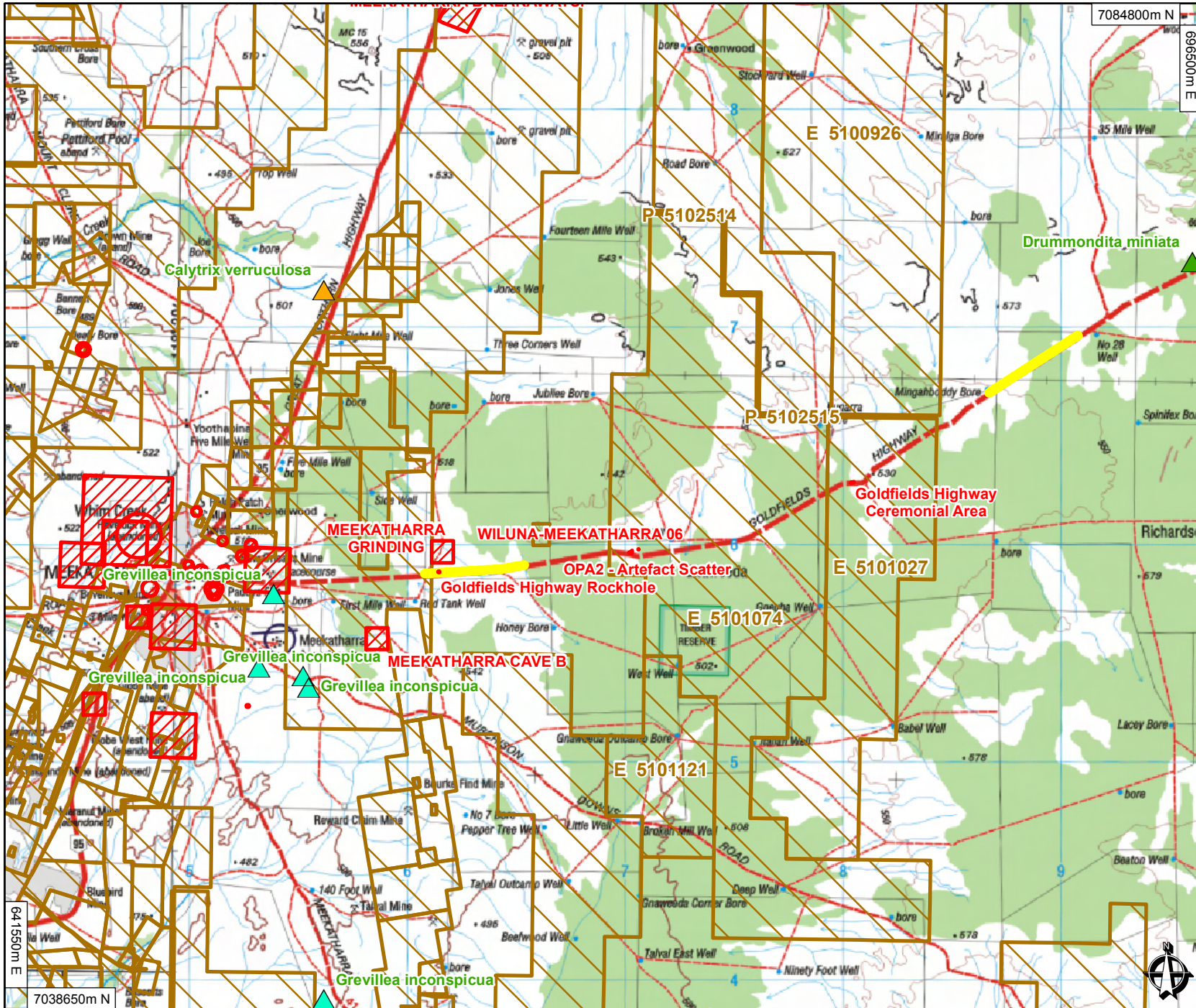
- » rivers, water catchments and drainage;
- » vegetation – Declared Rare Flora and clearing of vegetation;
- » weed management;
- » fauna;
- » Aboriginal heritage;
- » European heritage;
- » land use; and
- » construction phase impacts.

The Main Roads WA study brief required the desktop investigation to assess a number of issues. However, some of these issues are considered not be relevant to this study. Table 1 identifies these issues and provides reasons why they were not assessed.



**Table 1 Environmental Issues Not Relevant to the Project**

<b>Issue</b>	<b>Reason for non - assessment</b>
Air quality	The proposed works comprises erection of fencing on Sherwood Station. Air quality emissions are considered to be minimal as the project consists of constructing a fence and no sensitive receptors are located in the study area.
Reserves and conservation areas	There are no reserves or conservation areas located within the study area.
Acid Sulphate soils	Acid sulphate soils are considered to be an issue in the South West of Western Australia. Based on the project location, Acid sulphate soils are not considered to be an issue.
Groundwater	No groundwater abstraction has been proposed for the works. As such, use of groundwater is not likely to be an issue.
Salinity	As groundwater is not located close to the surface, salinity is not an issue at this location.
Public safety and risk	Public safety and risk will be managed in accordance with standard Main Roads WA specifications.
Dust	There are no sensitive receptors that will be impacted by the proposed works. It is assumed that either a Construction Environmental Management Plan or Main Roads WA specifications will be developed to manage this issue in accordance with Main Roads WA policies.
Dieback	The risk and spread of Dieback disease is not considered to be an issue based on the location of the project area.
Noise and vibration	Noise and vibration are not considered to be an issue based on the lack of sensitive receptors in the project area. It is assumed that either a Construction Environmental Management Plan or Main Roads WA specifications will be developed to manage this issue in accordance with Main Roads WA policies.
Visual amenity	Visual impact is considered irrelevant as the works involves fencing of an existing pastoral station along the Goldfields Highway.
Contaminated sites	The project area is isolated and located within a pastoral lease. A search of the Department of Environment's LEGACI database identified no contaminated sites in the works area.



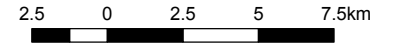
7084800m N  
696500m E

641550m E  
7038650m N

### LEGEND

- Approximate Extent of Works
- Aboriginal Heritage Sites
- Mining Tenements
- Declared Rare & Priority Flora**
  - (R) Declared Rare Flora - Extant Taxa
  - Priority 4 - Rare Taxa
  - Priority 3 - Poorly Known Taxa
  - Priority 2 - Poorly Known Taxa
  - Priority 1 - Poorly Known Taxa

### SCALE



1:250,000 at A4

### LOCALITY MAP



Meekatharra District

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CREATED BY: MD    CHECKED:    APPROVED:

MD

HORIZONTAL DATUM: GDA94    PROJECTION: MGA Zone 50

HEIGHT DATUM:    METADATA RECORDED:

DATE: 11.04.06    FILE LOCATION: N:\6117640\GIS\MXDS\6117640-G1.MXD

REVISION: 0    DRAWING NO: 6117640-G1



**SHERWOOD STATION FENCING SET OUT  
GOLDFIELDS HIGHWAY - PRELIMINARY  
ENVIRONMENTAL IMPACT ASSESSMENT**

**Figure 1  
Locality and Environmental Constraints**





## 2. Project Description and Justification

This project entails erecting a fence line on two sections of Sherwood Station along the existing road alignment for the purpose of protecting stock. Concept design drawings are contained in Appendix A.

According to Main Roads WA, the proposed road works will consist of the following actions:

- » clearing of approximately 3.42 hectares (3m x 11.4 km) of native vegetation on Sherwood Station; and
- » erection of fences on Sherwood Station in two sections from SLK 748.11 to 753.51 and 775.62 to 781.62.

This Preliminary Environmental Impact Assessment seeks to determine and assess the potential environmental impacts of the project. Recommendations to Main Roads WA on the actions and requirements necessary for completion of this project within legislative guidelines are also provided.





### 3. Environmental Aspects and Management

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

#### 3.1 Climate

Meteorological information obtained from the Bureau of Meteorology provided information on the likely climate of the closest Meteorological monitoring site to Sherwood Station as presented in Table 2.

**Table 2 Climate Information from Meekatharra Weather Station (Airport)**

Mean Annual Maximum Temperature Range	38.1 °C (January) & 18.9°C (July)
Mean Annual Minimum Temperature Range	24.3 °C (January) & 7.4°C (July)
Mean Annual Rainfall	235.9 mm
Mean Annual Raindays per year	45.8
Mean Daily Evaporation	9.8 mm

(Source – Bureau of Meteorology Climatic Averages of Australian Sites, 2006).

#### 3.2 Geology and Soils

Martinick McNulty Pty Ltd (1999) provides details on the geology that may occur at Sherwood Station. The report describes the geology across most of the works area as containing archaean gneiss and granite traversed by remnant belts of steeply dipping metavolcanic greenstone and meta sedimentary whitestone. The granitoids typically form large monoliths or flat pavements while the greenstones form elongate subdued hills and rugged strike ridges.

The report further details most of the underlying bedrock, particularly along palaeodrainages, as being obscured by alluvial, colluvial, aeolian and calcrete deposits. The thickness of these deposits varies from a thin veneer to more than 20m.

It is understood from descriptions in the Martinick McNulty Pty Ltd (1999) report that leached coarse-grained red earths and red sands are the most extensive soils in the region. They are mainly derived from weathered rock on the old plateau. Shallow red earths are widespread siliceous hard-pan (or Murchison Cement) which occur on tributary alluvial plains but the lower plains can also have calcareous and saline soils.



Saline soils have a powdery consistency due to dispersed carbonates, are brown in colour and alkaline in nature while shallow, stony soils are found extensively on hill slopes and plateau surfaces and stone pavements are widespread even on lower soil covered slopes with leached soils. As alluvial soils are typically restricted to valleys, they are not common and consequently alluvial soils are not widespread in the area where Sherwood Station is located. The only deep soils that might occur on site are the sands that characterise sand plains and Wanderrie banks.

### **3.3 Environmentally Sensitive Areas**

A search of the Department of Environment's on-line database was conducted and indicated that no Environmentally Sensitive Areas would be impacted by the development.

### **3.4 Rivers, Wetlands and Drainage**

Topographical information indicates that no rivers or wetlands will be impacted by the development. It is unlikely that construction of the fence would impact on surface drainage patterns.

There appears to be a small drainage line located a 776.25 SLK. This is considered not to be a major issue as the project consists of constructing a fence.

There is a low risk of accidental spills in the project area. However, pollution management actions should be implemented in the vicinity of the drainage line as well as ensuring no laydown areas are established.

The Department of Agriculture has indicated that the Sherwood land system has a high susceptibility to water erosion. Low density vegetation on this land system should make possible clearing, however any continuous incised earthworks are likely to harvest and convey runoff to a point where soil erosion is inevitable (refer to Section 4 of this PEIA).

#### **Recommendation 1**

It is recommended that Main Roads WA make certain that the land surface is restored to its original state to ensure existing surface water drainage patterns are maintained. This will minimise the impact on *Acacia aneura* (Mulga).

#### **Recommendation 2**

It is recommended that no laydown areas be used in the vicinity of the drainage line at SLK 776.25

#### **Recommendation 3**

It is recommended that pollution management actions be incorporated into Main Roads WA contract specifications.



### 3.5 Flora and Vegetation

Information from Martinick McNulty (1999) indicates that the project site is within the Austin Botanical District (after Beard, 1990). The predominant vegetation is comprised of low woodlands and tall shrublands of *Acacia aneura* (Mulga) on red brown loams over siliceous hardpans, and scattered shrub lands of *Acacia aneura* on gently undulating sandplains, and mallee (*Eucalyptus kingsmilli*) over hummock grasslands. In the vicinity of the Wiluna, mosaics of woodlands of *Acacia aneura* and saltbush (*Atriplex spp.*) are common on greenstone terrain.

*Halosarcia spp.* (samphire) and halophytic shrublands (*Maireana* and *Scleroleana spp.*) occur in the low lying alluvial areas with saline soils and they are characterised by chenopods, either as herbaceous shrubs in landscape units that have been stripped of lateritised rock, leaving landforms of shallow stony plains and breakaways. Open mulga with dense shrubs near drainage lines are also characteristic of the area.

Most communities have well developed shrub layers with various species of *Eremophila*. Spinifex (mainly *Triodia basedowii*) forms the only extensive grassland, with the annual grass *Aristida arenaria* and the perennial tussock grasses *Danthonia bipartita* and *Eragrostis lanipes* also being common. After winter rains forbs and ephemerals, mostly composite, become short-lived elements of most plant communities.

The effects of grazing by domestic and feral animals at levels that are not sustainable, account for much of the soil and vegetation degradation that is evident in the region.

#### 3.5.1 Threatened Ecological Communities

The Department's Threatened Ecological Communities (TEC's) database was assessed to determine the presence of TEC's within the study area. There were no known occurrences of TEC's identified within the study area.

#### 3.5.2 Declared Rare and Priority Flora Species

The Department for Conservation and Land Management (CALM) was consulted to determine the presence of any Declared Rare or Priority Flora species (DRF) that may exist in the project area. Table 5 indicates the results of the search and Table 6 provides a description of the conservation codes.

The coordinates of the locations of the DRF were plotted and it is apparent that no identified TECs or DRF have been identified as occurring in the study area (refer to Figure 1).



**Table 3 Declared Rare and Priority Flora Species**

<b>Species</b>	<b>Conservation Code</b>
<i>Acacia speckii</i>	P3
<i>Calytrix verruculosa</i>	P1
<i>Eremophila micrantha ms</i>	P1
<i>Eremophila retropila ms</i>	P1
<i>Grevillea inconspicua</i>	P4
<i>Indigofera gilesii subsp. gilesii</i>	P3
<i>Maireana prosthocochaeta</i>	P3
<i>Eremophila pungens ms</i>	P4
<i>Menkea draboides</i>	P3
<i>Rhodanthe sphaerocephala</i>	P1
<i>Ptilotus crosslandii</i>	P3
<i>Ptilotus astrolasius var. luteolus</i>	P1



**Table 4 Conservation Codes and Descriptions**

<b>Code</b>	<b>Description</b>
R: Declared Rare Flora - Extant Taxa	Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.
X: Declared Rare Flora - Presumed Extinct Taxa	Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.
1: Priority One - Poorly known Taxa	Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
2: Priority Two - Poorly Known Taxa	Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey
3: Priority Three - Poorly Known Taxa	Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.
4: Priority Four - Rare Taxa	Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

### 3.6 Clearing of Native Vegetation

Main Roads WA has provided the proposed locations of the two areas to undergo fencing works (SLK 748.11 to 753.51 and 775.62 to 781.62). It is estimated that approximately 3.42ha of native vegetation will be required to be removed as part of the project.

The following table provides details on a desktop assessment of the project against the Department of Environment's 10 Clearing Principles associated with the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.



**Table 5 Assessment Against the Ten Clearing Principles**

Clearing Principle	Yes/No	Comment
Does the area to be cleared comprise a high level of biological diversity?	No	The proposed area for the road works does not comprise a high level of biological diversity.
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	No significant fauna has been identified in the works area, hence the area to be cleared is not believed to be necessary to maintain fauna indigenous to Western Australia.
Does the area to be cleared include, or is necessary for the continued existence of, rare flora?	No	A desktop assessment has identified that the area to be cleared does not contain any declared rare flora.
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	No TEC's were identified within the proposed works area during desktop assessment.
Is the area to be cleared significant as a remnant of native vegetation in an area that has been extensively cleared?	No	The predominant vegetation formation is low woodlands and tall shrublands of <i>Acacia aneura</i> (mulga). The area to be cleared is not considered to be a remnant of the remaining vegetation complexes as there are extensive areas of vegetation in the study area.
Does the area to be cleared within, or in association with, an environment associated with a watercourse or wetland?	No	There are no wetlands or watercourses within this section of the highway.
Is the clearing of the vegetation likely to cause appreciable land degradation?	No	There will be no degradation due to fencing works on Sherwood Station.
Is the clearing of the vegetation likely to have an impact on the environmental values of any adjacent or nearby conservation area?	No	No conservation areas have been identified during the desktop assessment. Therefore it is unlikely environmental values will be compromised.
Is the clearing of the vegetation likely to cause deterioration in the quality of surface or underground water?	No	Main Roads WA will ensure that there is no deterioration in surface or underground water quality.
Is the clearing of the vegetation likely to cause, or exacerbate, the incidence or intensity of flooding?	No	The proposed fencing works will not impact watercourses or wetlands. Therefore it is unlikely that flooding potential will be increased.

Assessment of the project against the *10 Clearing Principles* indicates that the project is not at variance with DoE principles.



#### Recommendation 4

As part of contractual documentation requirements, Main Roads WA will comply with the required conditions of the statewide vegetation "Purpose Permit" under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* as of 1 February 2006.

### 3.7 Weed Management

Table 4 details the weed species identified by Martinick McNulty Pty Ltd in 1999. The report indicates that there are no widespread infestations of weeds reported within the study area.

**Table 6 Weed Species Identified by Martinick McNulty Within the Study Area**

<i>Aristida holathera</i> (note – this species is not an alien (WAHERB, 2005))	<i>Malva australiana</i> (formerly <i>Lavatera plebeia</i> ) (note – this species is not an alien (WAHERB, 2005))
<i>Asphodelus fistulosus</i>	<i>Lepidium oxytrichum</i> (note – this species is not an alien (WAHERB, 2005))
<i>Brassica tournefortii</i>	<i>Mesembryanthemum crystallinum</i>
<i>Bromus rubens</i>	<i>Mesembryanthemum nodiflorum</i>
<i>Carrichtera annua</i>	<i>Rumex vesicarius</i>
<i>Chenopodium pumilio</i> (note – this	<i>Schismus barbatus.</i>
<i>Hordeum murinum</i>	

The weed *Emex australis* (doublegee) was prevalent throughout the study area in the report, and was found scattered along most of the existing road from Wiluna to Meekatharra (611.51 to 793.28 SLK). As Sherwood station is located within the study area, it is likely that the condition exists on the proposed site also.

#### Recommendation 5

It is recommended that Main Roads WA develop standard weed management protocols as part of their contract documentation.



### 3.8 Fauna

The Western Australian Museum's fauna database was accessed to determine the likely presence of fauna in the study area. The results of the database search are shown in Appendix B.

The Wildlife Conservation (Specifically Protected Fauna) Notice 2005 administered by the Department of Conservation and Land Management (CALM) was examined to identify any protected fauna that may be present in the study area. The search identified two species of significant fauna:

- » P1: *Lerista eupoda* (species of skink); and
- » P4: *Sminthopsis longicaudatus* (Long-tailed Dunnart).

(note: P4 Taxa in need of monitoring and P1 Taxa with few, poorly known populations on threatened lands).

The skink was recorded south west of the study area and the Long-tailed Dunnart is found predominantly in rugged rocky areas surrounding Meekatharra.

A search of Significant fauna from the Department of the Environment and Heritage's Matters of National Environmental Significance database was conducted to determine the presence of any fauna species that may occur within the site and its surrounding areas.

The search identified the following fauna species as being present:

- » Slender – billed Thornbill;
- » Pilbara Leaf-nosed Bat;
- » Oriental Plover;
- » Fork-tailed Swift;
- » Great Egret; and
- » Rainbow Bee-eater.

As the project consists of fencing in an area within Sherwood Station, it is unlikely any of the above-mentioned species are likely to be impacted.

#### Recommendation 6

Main Roads WA should ensure Contractor's are aware of potential fauna in the project area. It is recommended that fauna management strategies be incorporated into Main Roads WA contract documentation to prevent potential impacts on fauna in the project area.

### 3.9 European Heritage

The results of a search of the Heritage Council of Western Australia database and the Commonwealth's Australian Heritage Place Inventory did not identify any European heritage sites that may be impacted by the proposed works.





### **3.10 Aboriginal Heritage**

An Aboriginal heritage field survey was not undertaken as part of this PEIA. It is understood that Martinick McNulty gained a Section 18 Clearance under the *Aboriginal Heritage Act (1972)* for the Goldfield Highway,

A search of the Department of Indigenous Affairs (DIA) on-line database was undertaken to identify registered Aboriginal heritage sites present within the project areas. A copy of the report from the DIA database search is attached in Appendix C.

The search identified three Aboriginal heritage sites in the vicinity of the project area.

- » Goldfields Highway Ceremonial Area at (760 SLK);
- » Goldfields Highway Rockhole at (779 SLK); and
- » Meekatharra Grinding at (778 SLK).

Main Roads WA plotted the coordinates of the sites on to the concept design drawings (refer to Appendix C). As a result of this, it appears that no registered Aboriginal heritage sites will be impacted.

#### **Recommendation 7**

In regard to the fencing setout Main Roads WA construction contractors should be aware of their obligations under the *Aboriginal Heritage Act (1972)*.

#### **Recommendation 8**

It is recommended that the Main Roads WA Aboriginal Liaison Officer be consulted in regard to this issue prior to the commencement of works.

### **3.11 Land Use**

Martinick McNulty (1999) stated that the dominant landuse in the study area is agriculture, predominantly cattle, sheep and to a lesser extent goats. The proposed fencing setout traverses through Sherwood Station along the existing road alignment.

The Department of Industry and Resources (DoIR) 'Tengraph' database indicates that no mining tenements are present in the project area.

#### **Recommendation 9**

It is recommended that Main Roads WA maintain open communication with the pastoral leaseholder at Sherwood Station for the duration of the works.



### **3.12 Construction Phase Impacts**

Potential environmental and social impacts likely to require consideration during the construction phase of the project include:

- » stock losses;
- » clearing;
- » weeds;
- » traffic safety and access;
- » fire management;
- » fuel storage; and
- » rubbish disposal.

These issues will be managed through the implementation of a construction phase Environmental Management Plan (CEMP) and/ or Main Roads WA standard contractual documentation.



## 4. Consultation

No public consultation was undertaken in accordance with the Main Roads WA project brief. However, consultations were undertaken with the following government regulatory authorities.

- » Department of Environment;
- » Department of Conservation and Land Management; and
- » Department of Agriculture.

A copy of the correspondence received from these stakeholders is attached in Appendix D.

### **Mr Jim Addison – Department of Agriculture (Kalgoorlie District Office)**

The Department of Agriculture has provided comments focused on the surface hydrology of the surrounding landscape. Three land systems associated with the fenceline are:

- » Sherwood;
- » Yanganoo; and
- » Bullimore.

The Department of Agriculture indicates that the Sherwood land system has a high susceptibility to water erosion. Low density vegetation on this land system should make possible clearing, however any continuous incised earthworks are likely to harvest and convey runoff to a point where soil erosion is inevitable.

The Department of Agriculture has recommended that strategic surveyed earth bunds be developed across the cleared line, which will assist in transferring runoff to adjacent undisturbed rangeland. This is necessary even if earth moving has been minimal as vehicular traffic during fence construction and ongoing maintenance will in itself produce concentration of overland water flow. It has been recommended that Main Roads WA ensure that the existing surface drainage patterns be maintained.

### **Ms Natalie Lauritsen – Department of Environment (Geraldton Regional Office)**

The Department of Environment has indicated that the project is low impact in regard to the clearing of native vegetation. Please note that the DoE is aware of Main Roads WA Purpose Permit for clearing and therefore it is assumed that the conditions within the permit will be adhered to.

### **Mr David Blood – Department of Conservation and Land Management (Geraldton Regional Office).**

CALM Midwest has no objection or additional conditions to recommend to the project, provided standard conditions suggested by MRWA are adhered to during construction. The only known issue relating to road construction through Sherwood is that of water starvation, common to many roads in the rangelands. Standard MRWA construction standards should take this issue into account. There are no priority flora or fauna issues known to occur along that section of road on Sherwood station.



## 5. Environmental Approvals

### 5.1 Commonwealth Approvals

No environmental impacts identified during the preparation of this PEIA warrant referral of the project to the Commonwealth under the provisions of the *Environmental Protection and Biodiversity Conservation Act (1999)*.

### 5.2 Government of Western Australia

The Department of Environment (DoE) are responsible for administering the *Environmental Protection Act (1986)*. This project consists of erecting a fence within a pastoral lease (Sherwood Station) along the Goldfields Highway road alignment. This PEIA indicates that environmental and social impacts are minimal and formal assessment by the DoE and EPA is considered not to be required.

#### 5.2.1 Clearing Regulations

The DoE has issued Main Roads WA with a "Purpose Permit" under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. This permit supercedes the requirement to obtain individual clearing permits. Main Roads WA should comply with the conditions of the "Purpose Permit".



## 6. Conclusion and Recommendations

The desktop assessment and review undertaken as part of this PEIA indicates that the environmental and social impacts associated with the construction of a fence at Sherwood Station are minimal.

GHD advises Main Roads WA of the following recommendations in ensuring that the project occurs with minimal impact on the immediate and surrounding areas of Sherwood Station.

### **Recommendation 1**

It is recommended that Main Roads WA make certain that the land surface is restored to its original state to ensure existing surface water drainage patterns are maintained. This will minimise the impact on *Acacia aneura* (Mulga).

### **Recommendation 2**

It is recommended that no laydown areas be used in the vicinity of the drainage line at SLK 776.25

### **Recommendation 3**

It is recommended that pollution management actions be incorporated into Main Roads WA contract specifications.

### **Recommendation 4**

As part of contractual documentation requirements, Main Roads WA will comply with the required conditions of the statewide vegetation "Purpose Permit" under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* as of 1 February 2006.

### **Recommendation 5**

It is recommended that Main Roads develop a recommend standard weed management protocols as part of their contract documentation.

### **Recommendation 6**

Main Roads WA should ensure Contractor's are aware of potential fauna in the project area. It is recommended that fauna management strategies be incorporated into Main Roads WA contract documentation to prevent potential impacts on fauna in the project area.

### **Recommendation 7**

In regard to the fencing setout Main Roads WA construction contractors should be aware of their obligations under the *Aboriginal Heritage Act (1972)*.



**Recommendation 8**

It is recommended that the Main Roads WA Aboriginal Liaison Officer be consulted in regard to this issue prior to the commencement of works.

**Recommendation 9**

It is recommended that Main Roads WA maintain open communication with the pastoral leaseholder at Sherwood Station for the duration of the works.



## 7. References

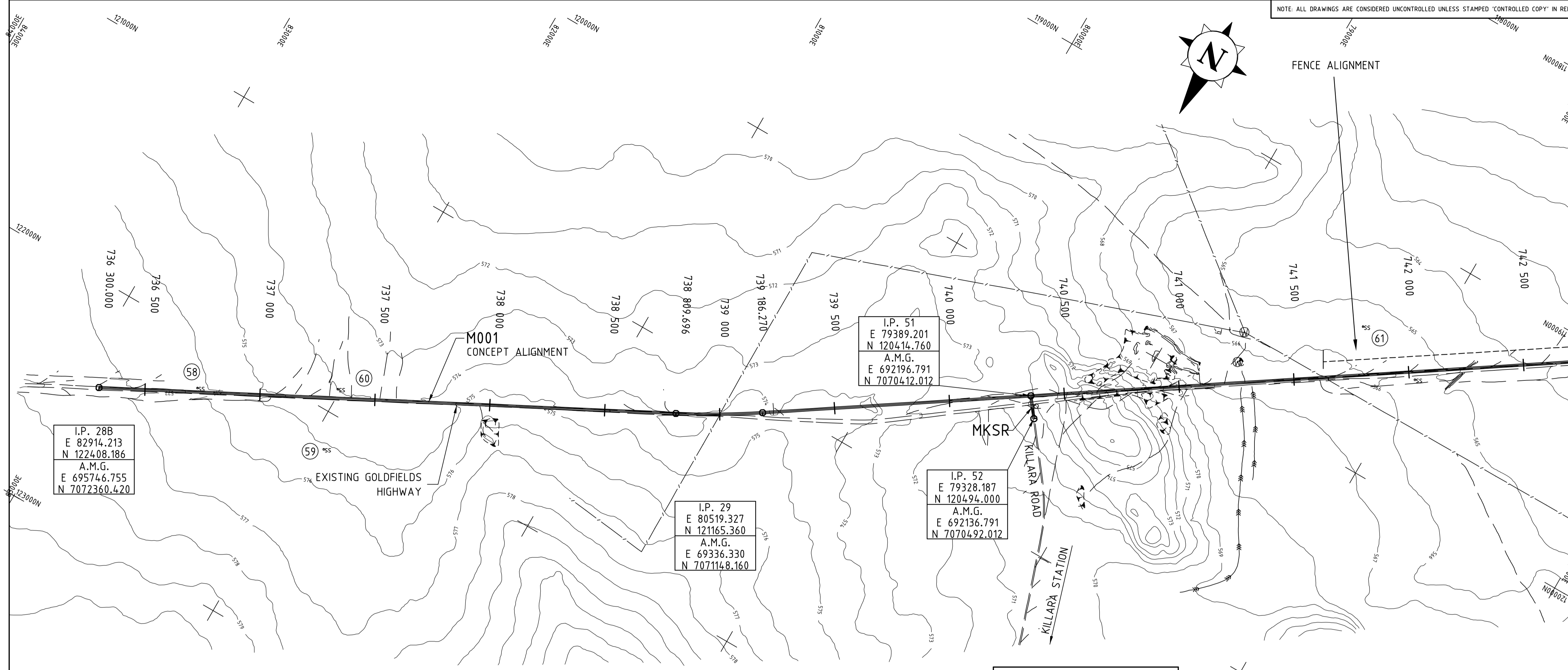
Martinck McNulty Pty Ltd (1999) Environmental Assessment of the Proposed Design and Construction of the Wiluna to Meekatharra Section of Goldfields Highway (SLK 611.51 to 793.28), on behalf of Main Roads Western Australia.

Martinck McNulty Pty Ltd (1999b) *Notice under Section 18 of the Aboriginal Heritage Act for the Proposed Design and Construction of the Wiluna to Meekatharra Section of Goldfields Highway (SLK 611.51 to 793.28)*, on behalf of Main Roads Western Australia.



Appendix A  
Concept Design Drawings





SURVEY CONTROL POINTS			
PT No	STATION NUMBER	CO-ORDINATES	
		EASTING	NORTHING
58	ZY49	82542.965	122196.305
59	GGY56T	81934.087	122152.634
60	GGY56	82012.089	121895.601
61	GGY55T	78289.659	119432.746

AMENDMENTS			
No.	DATE	DESCRIPTION	APPROVED

**CONCEPT PLAN ONLY**

**AERIAL SURVEYS AUSTRALIA**  
 5 Cressall Road, Balcatta  
 Western Australia 6021  
 Ph 08 9240 4448 Fax 08 9240 6666  
 Email: spectrum@inet.net.au

**REFERENCES**

MOSS PROJECT :  
 DRAWING PROJECT :  
 SURVEY GRID : PLANE - H6KARALUND  
 SURVEY DATUM : AHD

**MAJOR PROJECTS DIRECTORATE**

FILE No. 94-1502-2	JOB No.	DATE MAR '99
DESIGNED/DRAWN C.MAGRIPLIS		
VERIFIED		
APPROVED		



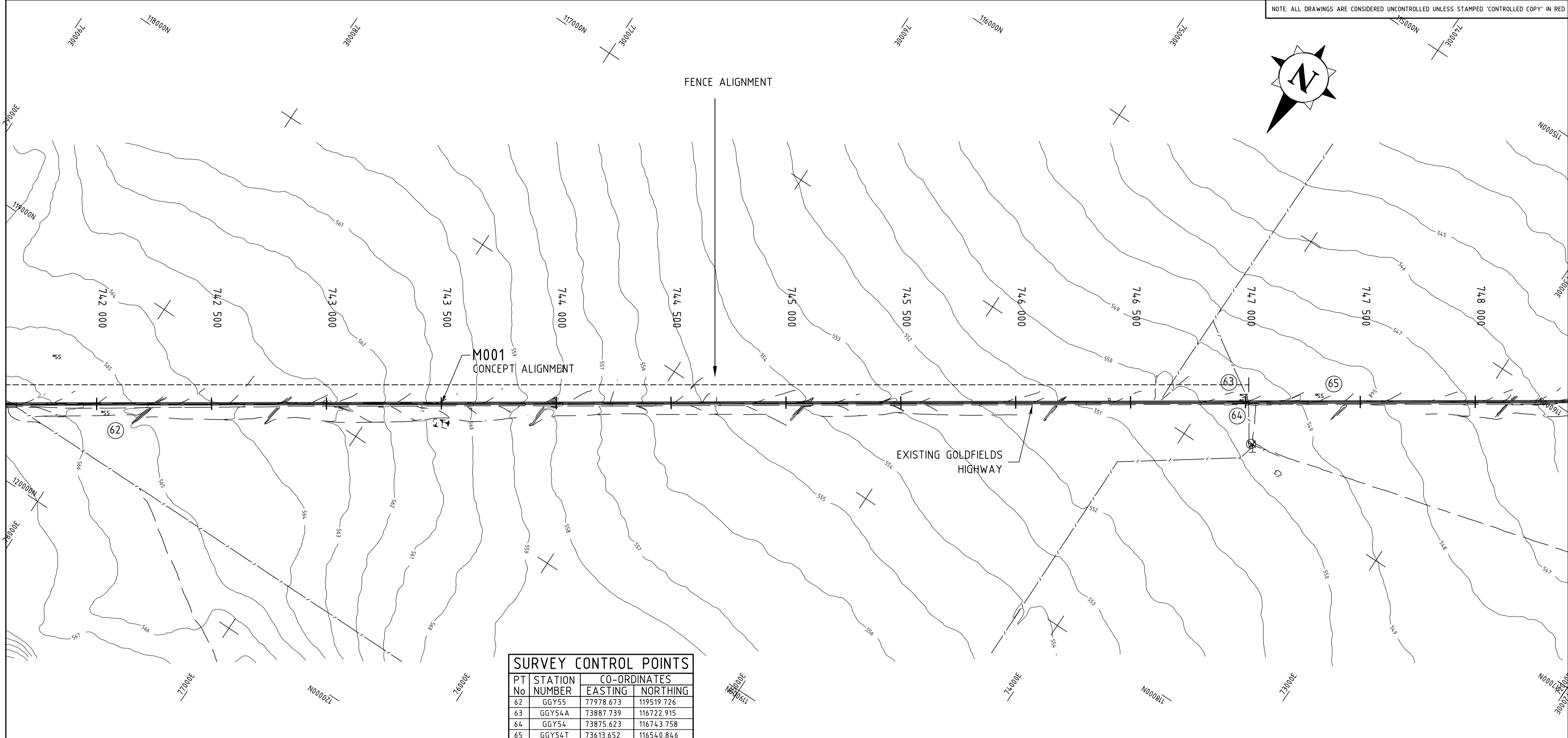
**GOLDFIELDS HIGHWAY (H049)**  
 WILUNA - MEEKATHARRA SECTION  
 613.50 SLK TO 793.28 SLK  
**PLAN PROFILE**  
 CHA 736300 TO CHA 742000  
 LOCAL AUTHORITY (703) SHIRE OF MEEKATHARRA

DRAWING TYPE: 04:00  
 DRAWING NUMBER: 9844-0078  
 AMEND:  

DATUM	490.0																																																									
EXISTING GROUND	577.714	577.555	577.394	577.134	576.593	576.260	575.893	575.350	575.038	574.785	574.687	574.503	574.322	574.283	574.088	574.811	575.549	575.795	575.400	575.338	575.091	575.020	574.852	574.550	574.283	574.392	574.630	574.339	574.050	574.023	574.330	574.638	574.946	573.946	573.300	572.802	572.433	572.555	572.073	572.613	573.299	574.717	575.900	574.641	571.989	570.327	568.732	567.153	566.825	566.815	566.805	566.758	566.580	566.634	566.019	565.960	565.811	
CHAINAGE M001	736 300	736 400	736 500	736 600	736 700	736 800	736 900	737 000	737 100	737 200	737 300	737 400	737 500	737 600	737 700	737 800	737 900	738 000	738 100	738 200	738 300	738 400	738 500	738 600	738 700	738 800	738 900	739 000	739 100	739 200	739 300	739 400	739 500	739 600	739 700	739 800	739 900	740 000	740 100	740 200	740 300	740 400	740 500	740 600	740 700	740 800	740 900	741 000	741 100	741 200	741 300	741 400	741 500	741 600	741 700	741 800	741 900	742 000
HORIZONTAL	TANGENT																				R=3 500m LEFT										TANGENT																											

SCALE 1:10000  
 MICROFILM DATE A 1

NOTE: ALL DRAWINGS ARE CONSIDERED UNCONTROLLED UNLESS STAMPED 'CONTROLLED COPY' IN RED



SURVEY CONTROL POINTS			
PT No	STATION NUMBER	CO-ORDINATES	
		EASTING	NORTHING
62	GGY55	77978.673	119519.726
63	GGY54A	73887.739	116722.915
64	GGY54	73875.623	116743.758
65	GGY54T	73613.652	116540.846

AMENDMENTS			
No.	DATE	DESCRIPTION	APPROVED

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 5 Cressall Road, Balcatta  
 Western Australia 6021  
 Ph 08 9240 4448 Fax 08 9240 6666  
 Email: spectrun@inet.net.au

**REFERENCES**

MOSS PROJECT :  
 DRAWING PROJECT :  
 SURVEY GRID : PLANE - H6KARALUND  
 SURVEY DATUM : AHD

**MAJOR PROJECTS DIRECTORATE**

94-1502-2		JOB No.
DESIGNED/DRAWN	C.MAGRIPLIS	DATE MAR '99
VERIFIED		
APPROVED		



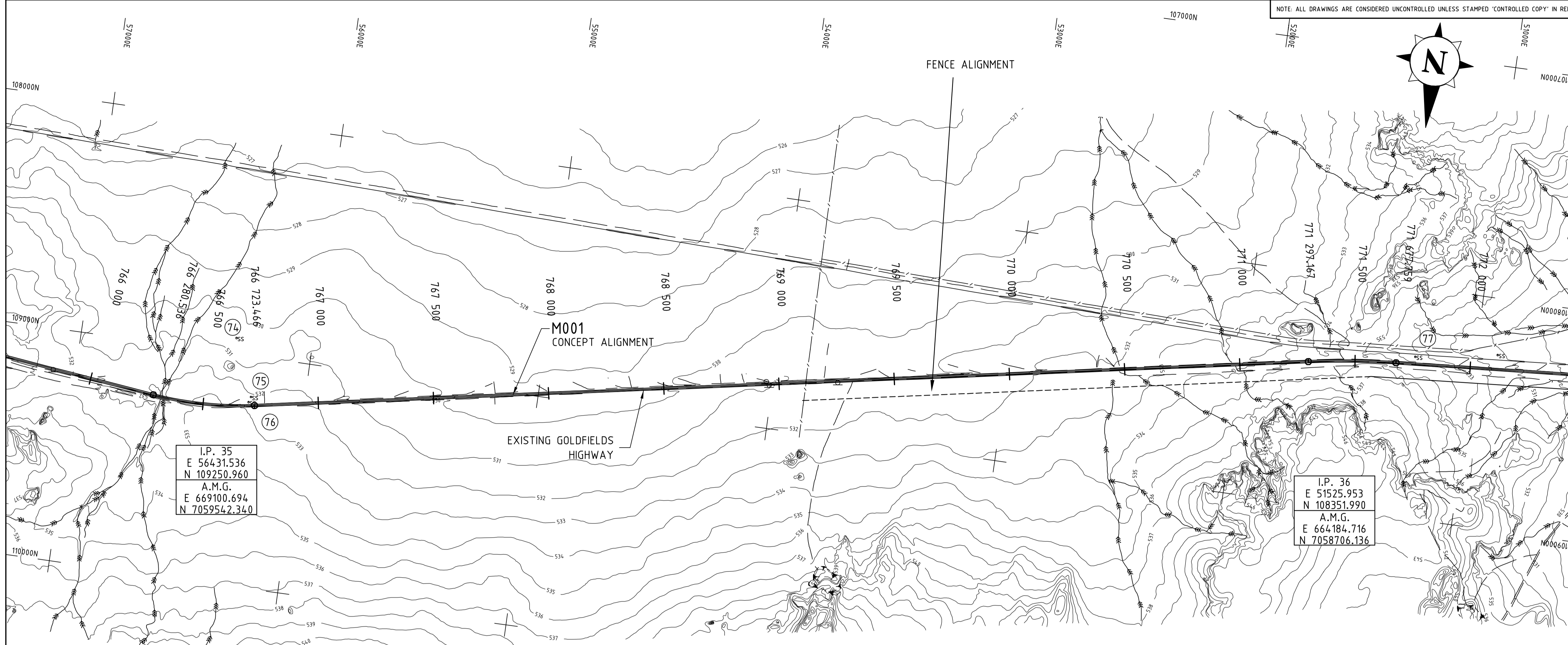
**GOLDFIELDS HIGHWAY (H049)**  
 WILUNA - MEEKATHARRA SECTION  
 613.50 SLK TO 793.28 SLK  
**PLAN PROFILE**  
 CHA 742000 TO CHA 748000  
 LOCAL AUTHORITY (703) SHIRE OF MEEKATHARRA

	742 000	742 100	742 200	742 300	742 400	742 500	742 600	742 700	742 800	742 900	743 000	743 100	743 200	743 300	743 400	743 500	743 600	743 700	743 800	743 900	744 000	744 100	744 200	744 300	744 400	744 500	744 600	744 700	744 800	744 900	745 000	745 100	745 200	745 300	745 400	745 500	745 600	745 700	745 800	745 900	746 000	746 100	746 200	746 300	746 400	746 500	746 600	746 700	746 800	746 900	747 000	747 100	747 200	747 300	747 400	747 500	747 600	747 700	747 800	747 900	748 000
EXISTING GROUND	565.811	565.330	564.927	564.707	564.484	564.209	564.115	563.833	563.737	563.404	563.126	562.927	562.416	561.707	561.076	560.766	560.169	559.631	559.240	558.756	558.114	557.609	556.984	556.492	556.047	555.652	555.277	555.040	554.800	554.629	554.413	554.122	553.904	553.603	553.198	552.927	552.617	552.401	552.186	551.882	551.748	551.587	551.365	550.999	550.752	550.600	550.557	550.368	550.091	550.128	550.428	549.867	549.282	548.758	548.405	548.320	547.993	547.758	547.394	547.103	546.859
CHAINAGE M001	742 000	742 100	742 200	742 300	742 400	742 500	742 600	742 700	742 800	742 900	743 000	743 100	743 200	743 300	743 400	743 500	743 600	743 700	743 800	743 900	744 000	744 100	744 200	744 300	744 400	744 500	744 600	744 700	744 800	744 900	745 000	745 100	745 200	745 300	745 400	745 500	745 600	745 700	745 800	745 900	746 000	746 100	746 200	746 300	746 400	746 500	746 600	746 700	746 800	746 900	747 000	747 100	747 200	747 300	747 400	747 500	747 600	747 700	747 800	747 900	748 000
HORIZONTAL	TANGENT																																																												

DRAWING TYPE	DRAWING NUMBER	AMEND.
04:00	<b>9844-0079</b>	

SCALE 1:10000  
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MICROFILM DATE  
**A 1**



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AMENDMENTS		
No.	DATE	DESCRIPTION

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 5 Cressall Road, Balcatta  
 Western Australia 6021  
 Ph 08 9240 4448 Fax 08 9240 6666  
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**REFERENCES**

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 DRAWING PROJECT :  
 SURVEY GRID : PLANE - H6KARALUND  
 SURVEY DATUM : AHD

**MAJOR PROJECTS DIRECTORATE**

FILE No. 94-1502-2	JOB No.	DATE MAR '99
DESIGNED/DRAWN C.MAGRIPLIS		
VERIFIED		
APPROVED		



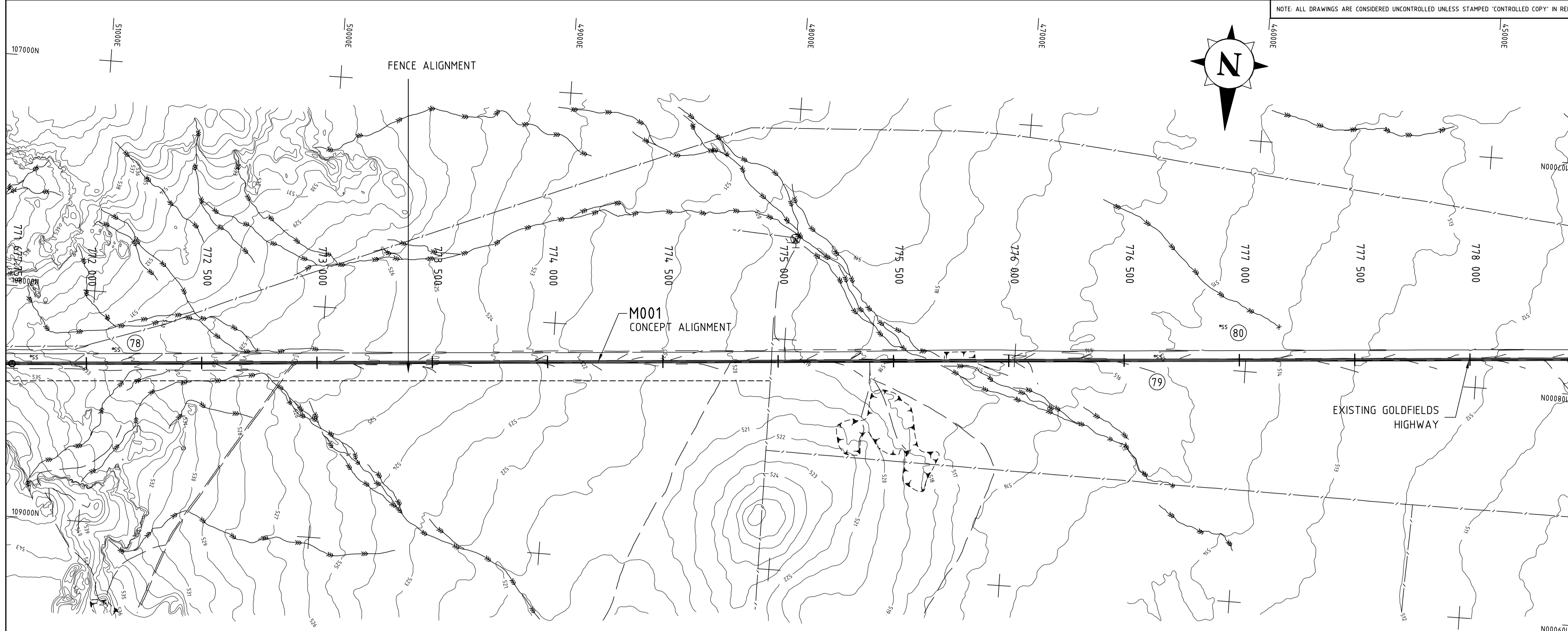
**GOLDFIELDS HIGHWAY (H049)**  
 WILUNA - MEEKATHARRA SECTION  
 613.50 SLK TO 793.28 SLK  
**PLAN PROFILE**  
 CHA 766000 TO CHA 772000  
 LOCAL AUTHORITY (703) SHIRE OF MEEKATHARRA

DRAWING TYPE: 04:00  
 DRAWING NUMBER: 9844-0083  
 AMEND:  

SURVEY CONTROL POINTS			
PT No	STATION NUMBER	CO-ORDINATES EASTING	NORTHING
74	GGY4.8T	56329.873	108931.699
75	GGY4.8A	56232.827	109176.168
76	GGY4.8	56239.634	109199.603
77	GGY4.7	51256.861	108301.103

EXISTING GROUND	531.822	532.000	532.000	532.000	532.489	533.003	533.090	532.906	532.609	532.457	532.009	531.359	531.028	530.812	530.411	530.131	529.943	529.767	529.612	529.378	529.369	529.474	529.616	529.572	529.715	529.957	530.348	530.672	530.714	530.851	531.173	531.556	531.309	531.104	531.267	531.177	531.079	531.058	531.145	531.163	531.323	531.866	532.264	532.226	532.420	532.504	532.920	533.370	533.657	533.653	533.740	534.299	535.016	535.341	535.495	535.506	535.705	534.506	533.942	533.364	532.441
CHAINAGE M001	766 000	766 100	766 200	766 300	766 400	766 500	766 600	766 700	766 800	766 900	767 000	767 100	767 200	767 300	767 400	767 500	767 600	767 700	767 800	767 900	768 000	768 100	768 200	768 300	768 400	768 500	768 600	768 700	768 800	768 900	769 000	769 100	769 200	769 300	769 400	769 500	769 600	769 700	769 800	769 900	770 000	770 100	770 200	770 300	770 400	770 500	770 600	770 700	770 800	770 900	771 000	771 100	771 200	771 300	771 400	771 500	771 600	771 700	771 800	771 900	772 000
HORIZONTAL	TANGENT R=1 500m LEFT															TANGENT															TANGENT R=3 500m RIGHT																														

SCALE 1:10000  
 MICROFILM DATE A 1



SURVEY CONTROL POINTS			
PT No	STATION NUMBER	CO-ORDINATES	
		EASTING	NORTHING
78	GGY4.7T	50903.936	108243.756
79	GGY2	46394.655	107960.351
80	GGY2T	46120.989	107810.096

AMENDMENTS			
No.	DATE	DESCRIPTION	APPROVED

**CONCEPT PLAN ONLY**

**AERIAL SURVEYS AUSTRALIA**  
 5 Cressall Road, Balcatta  
 Western Australia 6021  
 Ph 08 9240 4448 Fax 08 9240 6666  
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 SURVEY GRID : PLANE - H6KARALUND  
 SURVEY DATUM : AHD

**MAJOR PROJECTS DIRECTORATE**

FILE No. 94-1502-2	JOB No.	DATE MAR '99
DESIGNED/DRAWN C.MAGRIPLIS		
VERIFIED		
APPROVED		



**GOLDFIELDS HIGHWAY (H049)**  
 WILUNA - MEEKATHARRA SECTION  
 613.50 SLK TO 793.28 SLK  
**PLAN PROFILE**  
 CHA 772000 TO CHA 778000  
 LOCAL AUTHORITY (703) SHIRE OF MEEKATHARRA

DRAWING TYPE	DRAWING NUMBER	AMEND.
04:00	<b>9844-0084</b>	

	772 000	772 100	772 200	772 300	772 400	772 500	772 600	772 700	772 800	772 900	773 000	773 100	773 200	773 300	773 400	773 500	773 600	773 700	773 800	773 900	774 000	774 100	774 200	774 300	774 400	774 500	774 600	774 700	774 800	774 900	775 000	775 100	775 200	775 300	775 400	775 500	775 600	775 700	775 800	775 900	776 000	776 100	776 200	776 300	776 400	776 500	776 600	776 700	776 800	776 900	777 000	777 100	777 200	777 300	777 400	777 500	777 600	777 700	777 800	777 900	778 000
EXISTING GROUND	532.441	532.001	531.309	530.866	530.243	529.432	528.710	528.128	527.620	527.175	526.864	526.572	526.302	525.882	525.464	525.108	524.800	524.547	524.117	523.591	522.755	522.529	522.045	521.490	521.089	520.916	520.635	520.350	520.136	519.933	519.740	519.143	518.709	518.412	518.128	517.956	517.670	517.674	517.595	517.465	517.276	517.211	516.972	516.348	515.901	515.524	515.276	514.991	514.903	514.719	514.505	514.195	513.970	513.781	513.365	513.038	512.619	512.490	512.312	512.199	512.021
CHAINAGE M001	772 000	772 100	772 200	772 300	772 400	772 500	772 600	772 700	772 800	772 900	773 000	773 100	773 200	773 300	773 400	773 500	773 600	773 700	773 800	773 900	774 000	774 100	774 200	774 300	774 400	774 500	774 600	774 700	774 800	774 900	775 000	775 100	775 200	775 300	775 400	775 500	775 600	775 700	775 800	775 900	776 000	776 100	776 200	776 300	776 400	776 500	776 600	776 700	776 800	776 900	777 000	777 100	777 200	777 300	777 400	777 500	777 600	777 700	777 800	777 900	778 000
HORIZONTAL	TANGENT																																																												

DATUM 437.0

SCALE 1:10000  
 MICROPLM DATE  
 A 1





Appendix B  
Results of WA Museum Fauna Search

 Department of the Environment and Heritage logo

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## Protected Matters Search Tool

You are here: [DEH Home](#) > [EPBC Act](#) > [Search](#)

5 April 2006 15:51

# EPBC Act Protected Matters Report

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.deh.gov.au/epbc/assessmentsapprovals/index.html>

 Map of Search Region including any Buffer

**Search Type:** Area

**Buffer:** 0 km

**Coordinates:** -26.44565,118.41344, -26.70206,118.41344, -26.70206,118.85458, -26.4456,118.85458

 Thumbnail Map of Search Region

**Report Contents:** [Summary](#)  
[Details](#)  
 | [Matters of NES](#)

- | [Other matters protected by the EPBC Act](#)
- | [Extra Information](#)
- [Caveat](#)
- [Acknowledgments](#)

## 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.deh.gov.au/epbc/assessmentsapprovals/guidelines/index.html>.

<b>World Heritage Properties:</b>	None
<b>National Heritage Places:</b>	None
<b>Wetlands of International Significance:</b>	None

#### (Ramsar Sites)

<b>Commonwealth Marine Areas:</b>	None
<b>Threatened Ecological Communities:</b>	None
<b><a href="#">Threatened Species:</a></b>	1
<b><a href="#">Migratory Species:</a></b>	1

### 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.deh.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.deh.gov.au/epbc/permits/index.html>.

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

## Extra Information

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

<b>State and Territory Reserves:</b>	None
<b>Other Commonwealth Reserves:</b>	None
<b>Regional Forest Agreements:</b>	None

---

## Details

### Matters of National Environmental Significance

Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Birds</b> <i>Acanthiza iredalei iredalei</i> * Slender-billed Thornbill (western)	Vulnerable	Species or species habitat likely to occur within area



Migratory Species [ [Dataset Information](#) ]

Status      Type of Presence

### **Migratory Wetland Species**

#### **Birds**

[Charadrius veredus](#)

Oriental Plover, Oriental Dotterel

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 -      Species or species habitat may occur within area  
overfly marine area

[Ardea alba](#)

Great Egret, White Egret

Listed -      Species or species habitat may occur within area  
overfly marine area

[Charadrius veredus](#)

Oriental Plover, Oriental Dotterel

Listed -      Species or species habitat may occur within area  
overfly marine area

[Merops ornatus](#)

Rainbow Bee-eater

Listed -      Species or species habitat may occur within area  
overfly marine area

Commonwealth Lands [ [Dataset Information](#) ]

Unknown

Places on the RNE [ [Dataset Information](#) ]

Note that not all Indigenous sites may be listed.

#### **Historic**

[Old Courthouse WA](#)

## 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. Environment Australia 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.

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Appendix C  
**Aboriginal Heritage Information**



## Search Criteria

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

MGA Zone 50	
Northing	Easting
7051728	652593
7078285	702306

## 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

Copyright in the information contained herein is and shall remain the property of the State of Western Australia. All rights reserved. This includes, but is not limited to, information from the Register of Aboriginal Sites established and maintained under the Aboriginal Heritage Act 1972 (AHA).

## Legend

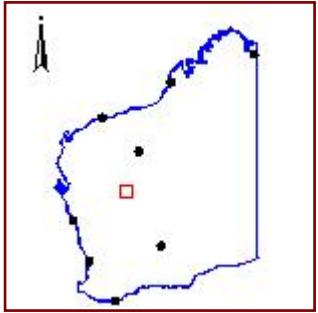
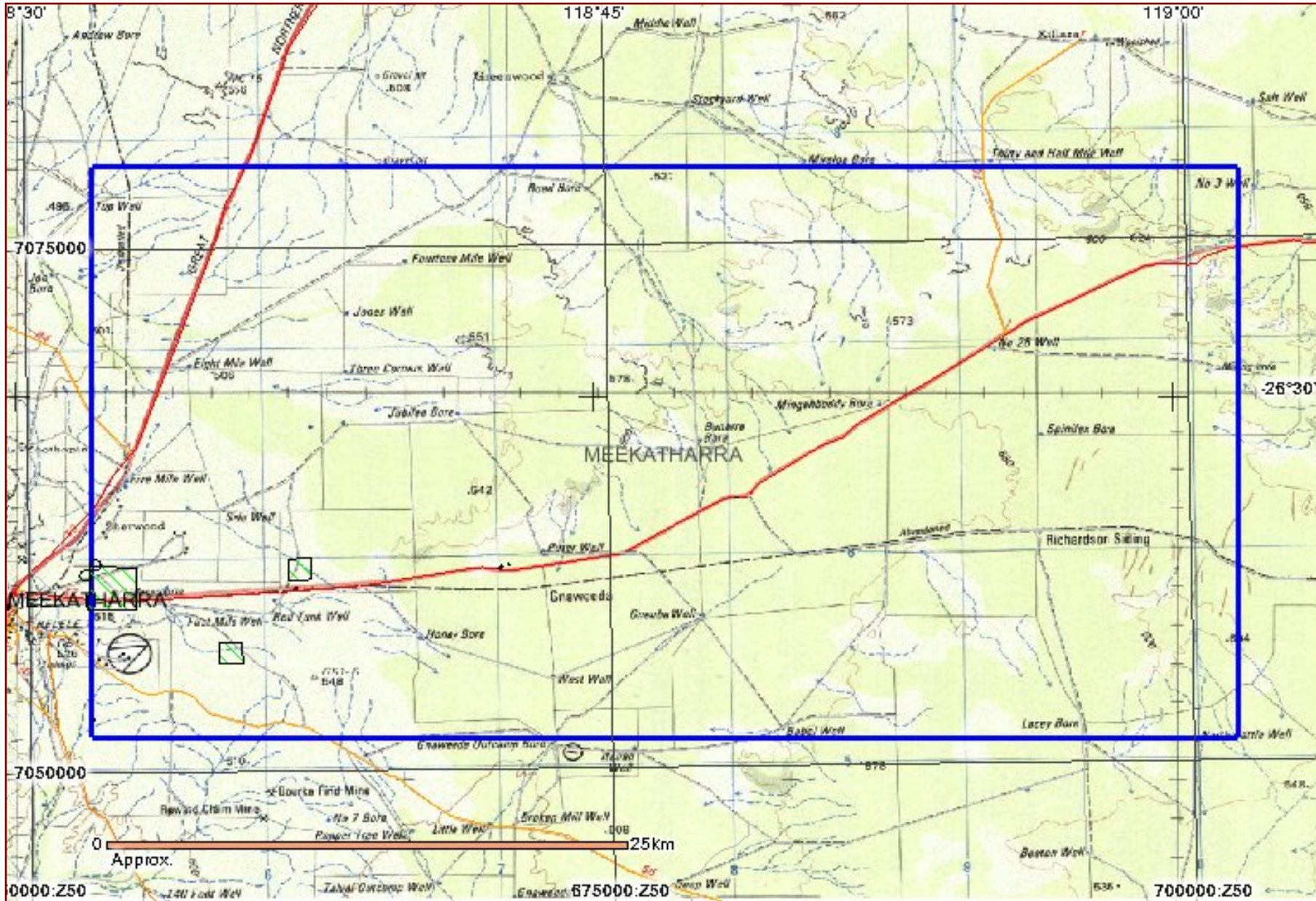
Restriction		Access		Status		Coordinate Accuracy
N	No restriction	C	Closed	I	Interim register	Accuracy is shown as a code in brackets following the site coordinates.
M	Male access only	O	Open	P	Permanent register	[Reliable] The spatial information recorded in the site file is deemed to be reliable, due to methods of capture.
F	Female access	V	Vulnerable	S	Stored data	[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.

## 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.



Site ID	Status	Access	Restriction	Site Name	Site Type	Additional Info	Informants	Coordinates	Site No.
20013	P	O	N	Goldfields Highway Ceremonial Area	Ceremonial, Mythological		*Registered Informant names available from DIA.	680468mE 7062839mN Zone 50 [Reliable]	
20009	P	O	N	Goldfields Highway Rockhole		Camp, Hunting Place, Water Source	*Registered Informant names available from DIA.	661476mE 7058730mN Zone 50 [Reliable]	
10043	P	O	N	Meekatharra Cave B	Painting			658640mE 7055653mN Zone 50 [Unreliable]	P02160
11058	P	O	N	Meekatharra Grinding.	Grinding patches / grooves	Camp		661640mE 7059653mN Zone 50 [Unreliable]	P01104
6064	P	O	N	Meekatharra Racecourse 3	Quarry, Artefacts / Scatter			652440mE 7059453mN Zone 50 [Unreliable]	P07057
6065	P	O	N	Meekatharra Racecourse 4	Quarry, Artefacts / Scatter			652840mE 7059953mN Zone 50 [Unreliable]	P07058
6192	P	C	N	Meekatharra-Wiluna Road	Ceremonial		*Registered Informant names available from DIA.	652949mE 7058028mN Zone 50 [Reliable]	P06925
19616	I	O	N	Meekatharra Quarry	Quarry, Artefacts / Scatter		*Registered Informant names available from DIA.	652697mE 7052569mN Zone 50 [Reliable]	
20010	P	O	N	Opa2 - Artefact Scatter	Artefacts / Scatter		*Registered Informant names available from DIA.	670288mE 7059643mN Zone 50 [Reliable]	
15818	P	O	N	Wiluna-Meekatharra 06	Artefacts / Scatter	Rockshelter		670643mE 7059767mN Zone 50 [Reliable]	



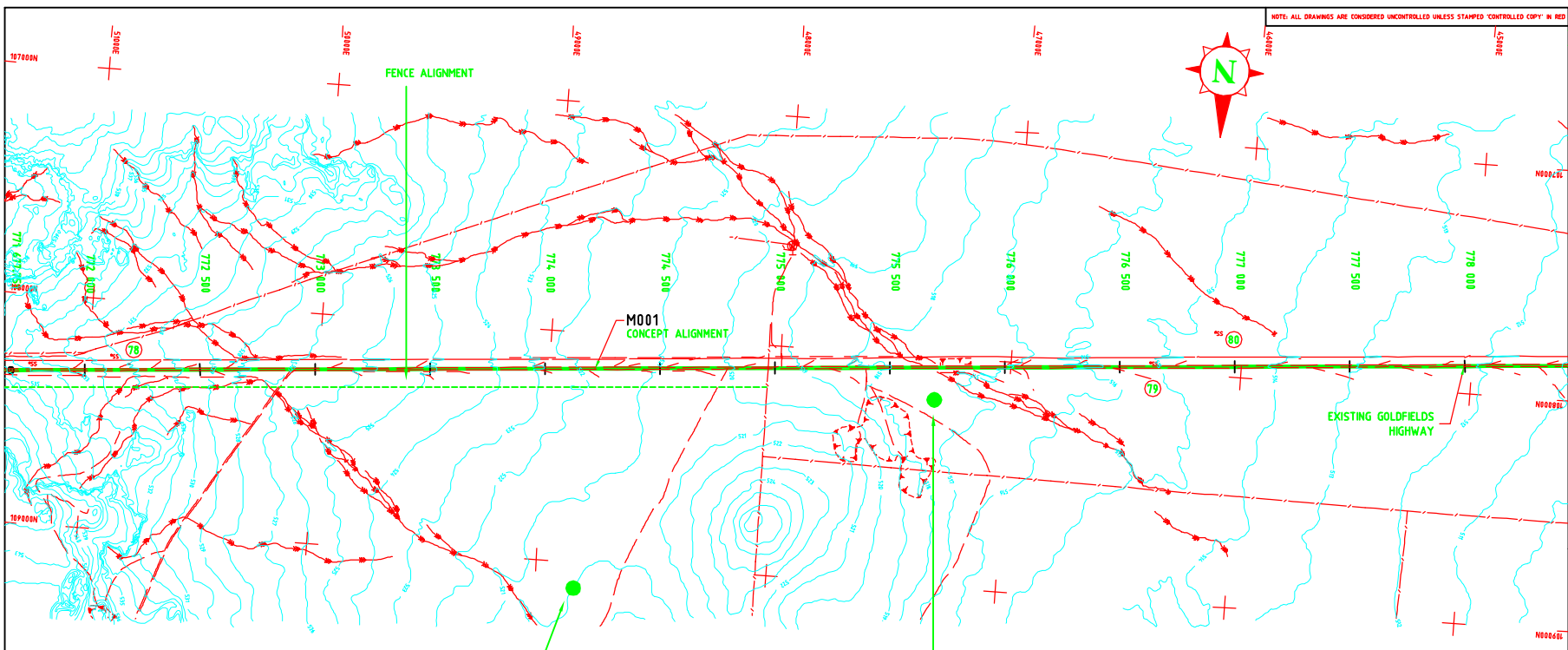
**Legend**

- Highlighted Area
- Town
- Map Area
- Search Area

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**SURVEY CONTROL POINTS**

PT No	STATION NUMBER	CO-ORDINATES
		EASTING   NORTHING
78	GGY2T	46394.65   107960.35
79	GGY2	46394.65   107960.35
80	GGY2T	46120.98   107810.09

Site 11058

Site 2009



NOTE: ALL DRAWINGS ARE CONSIDERED UNCONTROLLED UNLESS STAMPED 'CONTROLLED COPY' IN RED

AMENDMENTS		
NO.	DATE	DESCRIPTION

**CONCEPT PLAN ONLY**

**AERIAL SURVEYS AUSTRALIA**  
 5 Crossmill Road, Belmont  
 Western Australia 6001  
 Ph 08 9840 4448 Fax 08 9840 6666  
 Email: spectrum@airtau.com.au

**REFERENCES**

MOSS PROJECT :  
 DRAWING PROJECT :  
 SURVEY GRID : PLANE - H6KARALUND  
 SURVEY DATUM : AHD

**MAJOR PROJECTS DIRECTORATE**

FILE No. 94-1502-2	JOB No.
DESIGNED/DRAWN CMAGRIPLIS	DATE MAR 99
VERIFIED	
APPROVED	



**GOLDFIELDS HIGHWAY (H049)**  
 WILUNA - MEEKATHARRA SECTION  
 618.50 SLK TO 793.28 SLK  
**PLAN PROFILE**  
 CHA 772000 TO CHA 778000  
 LOCAL AUTHORITY 1703 SHIRE OF MEEKATHARRA

DRAWING TYPE: 04:00 DRAWING NUMBER: 9844-0084

DATUM	437.8																																																										
EXISTING GROUND	532.441	532.001	531.309	530.866	530.243	529.432	528.710	528.128	527.620	527.175	526.864	526.572	526.302	525.882	525.464	524.800	524.547	524.117	523.591	522.755	522.529	522.045	521.490	521.089	520.916	520.635	520.350	520.136	519.933	519.740	519.443	519.709	518.412	518.128	517.956	517.670	517.674	517.465	517.276	517.211	516.972	516.348	515.981	515.524	515.276	514.991	514.903	514.719	514.505	514.195	513.970	513.781	513.365	513.038	512.619	512.490	512.312	512.199	512.021
CHAINAGE M001	772 000	772 200	772 400	772 600	772 800	773 000	773 200	773 400	773 600	773 800	774 000	774 200	774 400	774 600	774 800	775 000	775 200	775 400	775 600	775 800	776 000	776 200	776 400	776 600	776 800	777 000	777 200	777 400	777 600	777 800	778 000																												
HORIZONTAL	TANGENT																																																										

Scale 1:50000

A 1





Appendix D  
Consultation Correspondence

**From:** "Addison, Jim" <jaddison@agric.wa.gov.au> on 11/04/2006 04:43:42 PM

**Repository:** 6117640 MRWA ETS - Sherwood Fencing PEIA

**To:** Joanne.Lipinski@ghd.com.au

**cc:** "Shaw, Russell" <RShaw@agric.wa.gov.au>

**Subject:** RE: Consultation for MRWA Fencing Works - Goldfields Highway.

Greetings Joanne

The three land systems which will be encountered during fence-line clearing will be Sherwood, Yanganoo and Bullimore.

Of these Sherwood poses the highest susceptibility to water erosion. The vegetation on this land system (probably stony plains with shallow red sand or red earth over granite) will largely be scattered acacia-eremophila shrublands. With this low density vegetation it should be possible to "clear" the fence-line without moving too much soil. Any continuous incised earthworks are likely to harvest and convey runoff to a point where soil erosion is inevitable. The construction of strategic surveyed earth bunds across the cleared line will assist in transferring runoff to adjacent undisturbed rangeland. This should be done even if earth moving has been minimal as vehicular traffic during fence construction and ongoing maintenance will in itself produce concentration of overland water flow.

The Yanganoo land system (usually deep red earth on hardpan or deep earthy red sand supporting mulga tall shrublands with wanderrie grasses) is much more resilient and generally not subject to water erosion.

The Bullimore land system (deep earthy red sand supporting hard spinifex hummock grasslands and variable tall shrubs and trees) is pretty bullet-proof and should not pose any dramas.

I guess the important thing is to have someone supervising the fence-line clearing that has a basic understanding of surface hydrology.

Cheers jim

Jim Addison

Senior Technical Officer

Department of Agriculture and Food (WA)

Kalgoorlie District Office

Ph. (08) 9088 6017 Fax (08) 9088 6034

(PO Box 417 Kalgoorlie WA 6430)

-----Original Message-----

**From:** Joanne.Lipinski@ghd.com.au [mailto:Joanne.Lipinski@ghd.com.au]

**Sent:** Friday, 7 April 2006 3:16 PM

**To:** Addison, Jim

**Subject:** Consultation for MRWA Fencing Works - Goldfields Highway.

Dear Jim,

I have previously corresponded with you in regard to a separate MRWA Project. We have again been engaged by Main Roads WA to complete a Preliminary Environmental Impact Assessment (PEIA) for a project in your region i.e. a fencing set out within two areas of Sherwood Station along Goldfields Highway approximately 32km East of Meekatharra. I have attached a sketch of the study areas and background information provided by Main Roads WA.

Part of the project requires us to consult with AgWA to determine any potential issues that require further discussion or investigation. I would appreciate your comments at your earliest convenience to be able to incorporate these into my report.

If you require any further information, feel free to contact me.

Regards,

Joanne Lipinski

Environmental Scientist

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**From:** "Blood, David" <DavidBI@calm.wa.gov.au> on 13/04/2006 04:41:16 PM  
**Repository:** 6117640 MRWA ETS - Sherwood Fencing PEIA  
**To:** <Joanne.Lipinski@ghd.com.au>  
**cc:** "Gillen, Kelly" <kellyg@calm.wa.gov.au>, "Desmond, Anthony" <anthonyd@calm.wa.gov.au>  
**Subject:** RE: Consultation for MRWA Fencing Works - Goldfields Highway.

Joanne

CALM Midwest has no objection or additional conditions to recommend to the project, provided standard conditions suggested by MRWA are adhered to during construction. The only known issue relating to road construction through Sherwood is that of water starvation, common to many roads in the rangelands. Standard MRWA construction standards should take this issue into account. There are no priority flora or fauna issues known to occur along that section of road on Sherwood station.

*David Blood*

*Senior Operations Officer (Pastoral)  
Geraldton District Office  
Ph: 99 215 955  
fax: 99 215 713  
Mob: 0429 654 236*

-----Original Message-----

**From:** Desmond, Anthony  
**Sent:** Friday, 7 April 2006 3:40 PM  
**To:** Blood, David  
**Subject:** FW: Consultation for MRWA Fencing Works - Goldfields Highway.

Any comments

-----Original Message-----

**From:** Joanne.Lipinski@ghd.com.au [mailto:Joanne.Lipinski@ghd.com.au]  
**Sent:** Friday, 7 April 2006 3:15 PM  
**To:** Desmond, Anthony  
**Subject:** Consultation for MRWA Fencing Works - Goldfields Highway.

Dear Anthony,

I have previously corresponded with you in regard to a separate MRWA Project. We have again been engaged by Main Roads WA to complete a Preliminary Environmental Impact Assessment (PEIA) for a project in your region i.e. a fencing set out within two areas of Sherwood Station along Goldfields Highway approximately 32km East of Meekatharra. I have attached a sketch of the study areas and background information provided by Main Roads WA.

Part of the project requires us to consult with CALM to determine any potential issues that

require further discussion or investigation. I would appreciate your comments at your earliest convenience to be able to incorporate these into my report.

If you require any further information, feel free to contact me.

Regards,  
Joanne Lipinski  
Environmental Scientist

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"LAURITSEN Natalie"  
<natalie.lauritsen@environment.wa.gov.au>

13/04/2006 04:57 PM


To <andrew.nagle@ghd.com.au>

cc

bcc

Subject RE: PEA for MRWA fencing set out within two areas of Sherwood Station along Goldfields Highway

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History:  This message has been replied to.

Hi Andrew,

Joanne Lipinski asked us to have a look at this proposal. I have done a desktop study of it, and I believe that there will be a low impact upon the vegetation. For your information I have included the results of my search.

<<GHD for MRWA Murchison.doc>>

I understand that Main Roads has received a purpose permit for clearing activities, but I'm afraid that I don't understand completely how this will work. If you require specific information I would refer you to our Native Vegetation Branch in Perth. I hope this helps.

Regards,

**Natalie Lauritsen**

Department of Environment

Native Vegetation Protection

PO Box 73 Geraldton WA 6531

Ph: 9964 5978



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**Document Status**

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	J Lipinski	A Nagle		M Goldstone		
1	A Nagle	M Goldstone		M Goldstone		