

**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND
ENVIRONMENTAL MANAGEMENT PLAN (MINOR PROJECTS)
TWELVE MILE PIT EXTENSION – 460.92 SLK**

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12-MILE PIT EXTENSION

COMBINED ENVIRONMENTAL REPORT

1. PROJECT DESCRIPTION

The project involves extending an existing gravel pit that is located 1000 meters east of North West Coastal Highway at 460.90 SLK. Materials sourced from this pit will be used as construction material in the Flood Mitigation Project for Carnarvon.

The proposed project is located within the Shire of Carnarvon. The existing pit boundary is gazetted as being vested as a government reserve.

The location of the project area is shown in Figure 1 of this report.

2. BACKGROUND

Heavy rainfall in the catchment of the Gascoyne River can cause severe flooding in Carnarvon and surrounding plantation areas. Floods causing damage and social disruption have occurred at least nine times in the last 50 years.

In July 2000, the Waters and Rivers commissioned Sinclair knight Mertz (SKM) to develop a suite of appropriate measures as a recommended future floodplain management strategy. They included:

- An embankment system, extending east from Brown Range beside North West Coastal Highway (NWCH) to upstream of Nine Mile Bridge, connecting to a diversion embankment from the south bank on Lawson Street, and featuring a leveed floodway at the Santa Rosa property between South River Road and the highway. This shifts the balance of outflows from the McNeill Claypan, forcing more flow around the southern end of Brown Range away from more developed areas.
- Excavation of part of a low sand ridge to open the flow-path south of Six Mile Crossing on the west side of the NWCH, and use of the excavated material to block the flow-path north of Six Mile Crossing beside the highway
- Works to retain the current standard of service of the highway approach to Carnarvon from the south
- Excavation to improve drainage outfall at the western end of Sheridans Gully and construction of a low, fixed-crest levee at the entrance to Sheridans Gully
- Low, fixed-crest levees at the openings of Lyalls Gully, Fahls Gully and Burnt Gully
- Short, low, fixed-crest levees at locations along the north bank of the river upstream of the bridge where the bank is low
- A 600 m embankment north from the riverbank just upstream of the plantations in McGlades Road to match into slightly higher ground away from the river.

In addition to the proposal in the SKM strategy, sources of fill material and rock for levee construction are required. Twelve Mile Pit extension will be used to provide approximately 22,000 cubic meters of gravel material. This material will be used for raising the pavements at Six Mile Creek (SLK 467.00 to 468.52) and Drag Strip (SLK 462.73 to 464.90).

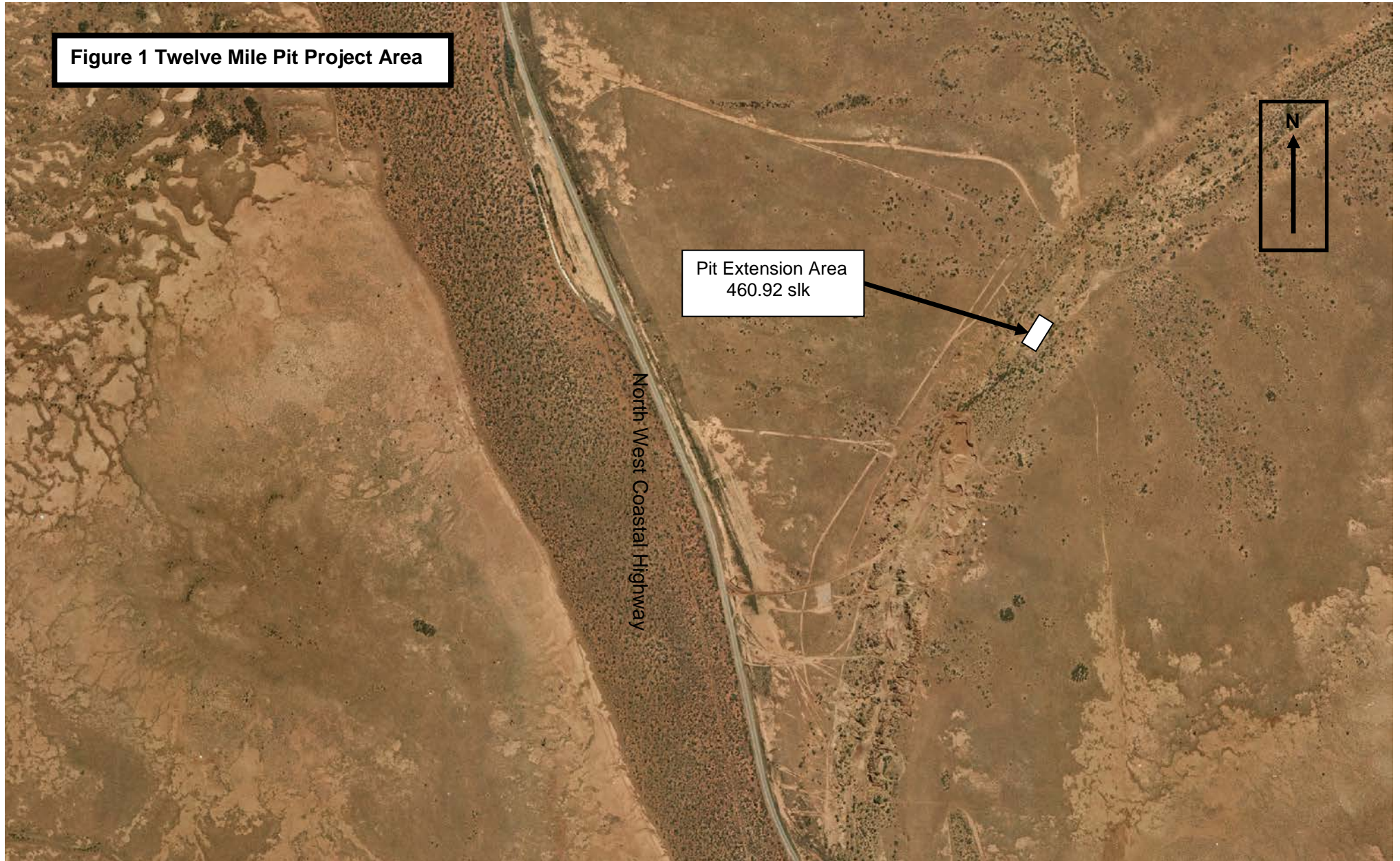
As per Main Roads' Environmental Assessment and Approval process, the Low Impact Environmental Screening Checklist has been completed for the proposal, refer Appendix A. As the proposed works involves, the preparation of a project specific Preliminary Environmental Impact Assessment (PEIA) and Environmental Management Plan (EMP) are required. This report fulfils this requirement.

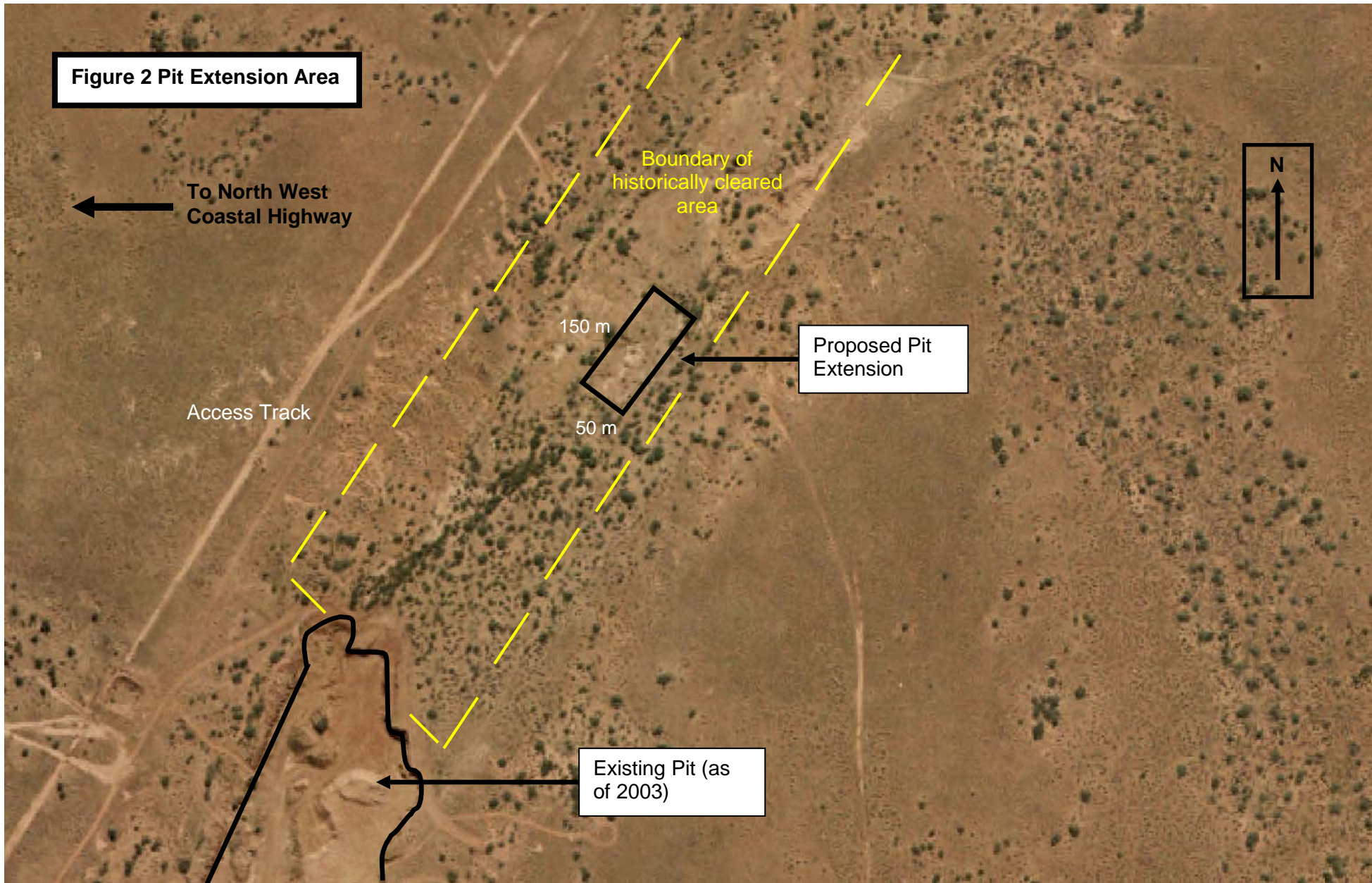
3. DESCRIPTION OF THE PROJECT

The location and boundaries of the study area is shown in Figures 1 and 2 and includes the following features:

- A proposed pit extension area that is 150 meters long by 50 meters wide.
- Existing access track to the west that will be used by plant machinery to transport material from the pit to the works site at "6 Mile Crossing" and the "Drag Strip"
- Historically cleared area where the local shire has cleared vegetation and taken shallow scrapings from in the past.

Figure 1 Twelve Mile Pit Project Area





3.1 Methodology

3.1.1 Preliminary Desktop Study

A preliminary assessment of the project area and its potential constraints was undertaken by reviewing a number of government agency managed databases.

Wetlands

The locations of wetlands within the project area was determined using the Commonwealth Department of Environmental and Heritage (DEH) mapping tool, Department of Environment (DoE) Environmentally Sensitive Area (ESA) mapping tool (http://portal.environment.wa.gov.au/portal/page?_pageid=53,2569721&_dad=portal&_schema=PORTAL).

Threatened Flora, Fauna and Communities, Conservation Reserves and ESAs

Department of Conservation and Land Management's (CALM's) database (contact CALM direct) was searched for known populations of threatened flora, fauna and Threatened Ecological Communities (TECs) and conservation reserves, refer Appendix C. A quick TEC check can be done using the ESAs mapping tool http://portal.environment.wa.gov.au/portal/page?_pageid=53,2569721&_dad=portal&_schema=PORTAL.

Air Quality

The need for a local air quality assessment was determined using the criteria outlined in the MRWA environmental guideline, Air Quality.

Heritage

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.heritage.gov.au>), Heritage Council of Western Australia (<http://register.heritage.wa.gov.au/>) and the Shire of Carnarvon's Municipal Heritage Inventory refer Appendix D.

Aboriginal Heritage

A Search of the Department of Indigenous Affairs' (DIA's) (<http://www.dia.wa.gov.au/Heritage/SitesSurveysSearch.aspx>) database was undertaken to determine whether the project area contains any sites of Aboriginal heritage, refer Appendix E.

Sensitive Water Resources

The Water Information Officer of the Department of Water's regional office was consulted on sensitive water resources (including Public Drinking Water Source Areas) to determine whether the project area supported, or was adjacent to, any significant lakes, rivers or wetlands or proclaimed areas, refer Appendix F.

Contaminated Sites

The project area is within a reserve that has remained in control of Main Roads and the Shire of Carnarvon and there is no evidence of contamination, therefore it is not considered a contaminated site.

Acid Sulfate Soils

The Western Australian Planning Commission's acid sulfate soils maps were reviewed and the self assessment done (<http://www.wapc.wa.gov.au/Publications/213.aspx>) to determine what level of risk the project area is exposed to, refer Appendix G.

Weeds

Consultation was undertaken with the Department of Agriculture to determine whether there are any known populations of declared plants or significant weeds in or adjacent to the project area, refer Appendix H.

Dieback

Project receives <400 mm of rain so determined not to be an issue.

Commonwealth Referral

The decision to refer the project to the Commonwealths DEH was based upon whether the project was going to impact upon matter of national significance, eg World Heritage properties, protected wetlands and migratory species, Commonwealth marine areas, threatened species or communities or nuclear actions (refer to the Commonwealth webpage www.deh.gov.au/epbc/assessmentsapprovals/index.html for further information and the search tool page at <http://www.deh.gov.au/erin/ert/epbc/imap/map.html>), refer Appendix I.

3.1.2 Site Investigation

A site visit was carried out by Matthew Oswald (Environment Officer) and Julian Goodram (Materials Manager) on 04/04/06 to examine the general features of the area. The broad vegetation types in the vicinity of the project area were identified. Other issues that were considered included topography, the impacts on creek lines, property access and the potential for noise and vibration impacts (dilapidation).

4. EXISTING ENVIRONMENT

The area is classified by Beard (1976) as the Gascoyne Marshes and is described as "*Vegetation consisting of an open growth of shrubs, domed, irregular, scattered, attaining 2.5m. There is a ground layer of herbaceous, small woody plants.*"

The project lies within an area that is highly degraded. In the past, the Shire of Carnarvon have taken shallow scrapings and cleared the vegetation. There area has sparsely re-established itself with species such as *Enchylaena tomentose*, *Exocarpos aphyllus*, *Frankenia* spp, *Acacia Mimosaceae*, *Acacia sclerosperma* and *Hakea subera*. Kylie Bauer (Department of Environment) described the flora species within the proposed pit extension as being well represented in the region.

Due to the area being previously cleared, water erosion occurs throughout the area. Appendix B, photographs 5 and 6 show parts of the pit that has extensive scouring.

No mature trees will be cleared within the project area. John Stretch (Department of Agriculture) estimated the vegetation that has re-established itself in the pit to be 15-20 years old.

5. CLEARING OF NATIVE VEGETATION

Under the amended *Environmental Protection Act 1986 (EP Act)* clearing of native vegetation must be under the authority of a clearing permit.

In assessing whether the project is likely to have a significant impact on the environment, the project has been assessed against the DoE's 10 principles of clearing, see table below.

Clearing Principles - <i>Environmental Protection Act</i> Section 5	Yes/No
Does the area to be cleared comprise a high level of biological diversity?	No
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
Does the area to be cleared include, or is necessary for the continued existence of, rare flora?	No
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
Is the area to be cleared significant as a remnant of native vegetation in an area that has been extensively cleared?	No
Does the area to be cleared within, or in association with, an environment associated with a watercourse or wetland?	No
Is the clearing of the vegetation likely to cause appreciable land degradation?	No
Is the clearing of the vegetation likely to have an impact on the environmental values of any adjacent or nearby conservation area?	No
Is the clearing of the vegetation likely to cause deterioration in the quality of surface or underground water?	No
Is the clearing of the vegetation likely to cause, or exacerbate, the incidence or intensity of flooding?	No

The total clearing area required for material extraction is 150 meters long by 50 meters wide, giving an area of 0.75 hectares.

It is the intention of Main Roads Gascoyne to extend the current pit reserve and invest the pit in the Shire of Carnarvon. The Shire is likely to continue to extract material from the same area with 12 months of the works ending.

Discussion has taken place with the Department of Environment in regards to Revegetation Plan requirements. Advice from Parveen Naidoo (Natural Resources Manager) was that Main Roads Gascoyne would still be required to submit a Revegetation Plan since the clearing will take place under the permit; therefore a condition of that permit is revegetation works as well.

Assessment of Aspects and Impacts

Table 1: Aspects and Impacts – Pit Extension 460.91

Aspect	Evaluation of Potential Impacts
Air quality	Local air quality assessment is not required for the project since residential and other sensitive receptors are not within 200 meters of the project area.
Dust	Likely to be a minor issue during earthworks. No major sensitive receivers adjacent to the proposed works.
Fauna	The EPBC search resulted in one threatened species being identified which is the Slender-Billed Thornbill. With the generally degraded and exposed nature of the works areas, no significant impacts would be expected on this species or native fauna generally as a result of the proposed works. Recommendations to minimise clearing (see below) will also serve to reduce impacts to fauna and remnant fauna habitat at the sites.
Vegetation – clearing	The native vegetation to be cleared will be done so using the purpose permit as the project does not occur within an ESA.
Vegetation – TECs/DRF	Consultation with CALM confirms that the proposal is not going to have a significant impact upon any DRF or TECs.
Vegetation – weeds	Consultation with the Department of Agriculture confirms that there are no declared plants in the project area.
Vegetation – dieback	Not an issue given the project area receives less than 400 mm of average annual rainfall.
Reserves / Conservation areas	There are no reserves or conservation areas within the vicinity of the project area.
Heritage (non-indigenous)	A search of the Australian Heritage Places Inventory, Heritage Council of Western Australia and the Shire of Carnarvon's Municipal Heritage Inventory on-line databases has indicated that there are no heritage significance listed sites present in the currently proposed works areas.
Aboriginal heritage	A search of DIA database identified no known sites of Aboriginal heritage significance within the vicinity of the project area.
Surface water/drainage	Consultation with Department of Water has confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns.
Wetlands	There are no wetlands within the vicinity of the project area.
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Noise and vibration	No major sensitive local receivers.
Visual amenity	Not an issue given the works is out of sight of the road and works will form part of a pit extension.
Public safety and risk	Not an issue given the project area is 1km off the Highway.
Hazardous substances	Not relevant to the proposed works.
Contamination	Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues.
Salinity	Given the nature and scale of the project the impact is not relevant.
Acid Sulfate Soils	The WAPC's self-assessment (Planning Bulletin 64) indicates that no further soil investigation is required for the project.
Statutory Land Use Planning	As the proposed works will take place outside the existing road reserve, prior to construction, development approval from the Western Australian Planning Commission will be sought.

6. DECISION TO REFER

Given the scale of the project, the low significance of its impacts to the surrounding environment and the environmental management measures proposed, the project does not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment and Heritage.

7. ENVIRONMENTAL MANAGEMENT PLAN

This section of the report (the EMP) has been developed for the project area following the completion of the above sections. The main aims of this EMP is to provide a management plan to assist in minimising the environmental impacts of the activities associated with the proposed works and identify who is responsible for the implementation of the management strategies.

This EMP will only address the actions already listed as well as any site-specific issues that were identified during the PEIA. The project specific management measures identified within this EMP are in addition to the standard specifications used for Category 2 projects. The environmental management measures/conditions in Main Road's Specifications 203, 204, 301, 302 and 304 are still to be followed where applicable.

The areas that require special management will be addressed in terms of:

- area of management (eg vegetation);
- the timing of the various management requirements;
- the management objectives for each area;
- the management strategies that are necessary to minimise the impact;
- the person/s responsible for implementing the management action; and
- on whose advise or Main Roads requirement

ENVIRONMENTAL MANAGEMENT PLAN					
Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
Communication	All phases of Construction	The Project Manger is required to identify both internal and external stakeholders, obtain their requirements on the Project and communicate as required or at regular intervals with key stakeholders.	Develop and implement a communication plan including response to complaints, liaising/reporting to government agencies, engagement with the community and other when work is performed outside the normal hours with specific reference to nuisance issues such as noise, dust and lightning spill.	Project Manager/ Contractor	Main Roads
Vegetation Clearing - Record-keeping	All phases of Construction	All projects should maintain the required records relating to clearing native vegetation under the purpose permit	<p>Clearing:</p> <ul style="list-style-type: none"> • a copy of the PEIA & EMP (Minor projects) for small projects; • a map showing the location where the clearing occurred, recorded in an ESRI Shapefile; • the size of the area cleared (in hectares); • the dates on which the clearing was done. 	Project Manager	DoE
			<p>Revegetation and rehabilitation of areas:</p> <ul style="list-style-type: none"> • a copy of each Revegetation Plan; • a map showing the location of any area revegetated and rehabilitated recorded in an ESRI Shapefile; • a description of the revegetation and rehabilitation activities undertaken; and • the size of the area revegetated and rehabilitated (in hectares). 	Project Manager	DoE
			<p>Each offset implemented:</p> <ul style="list-style-type: none"> • a copy of each offset proposal; • a map showing the location of any offset implemented recorded in an ESRI Shapefile; • a description of the offset implemented; and • the size of the area of the offset (in hectares). 	Project Manager	DoE
Vegetation Clearing - Record-keeping	All phases of Construction	All projects should maintain the required records relating to clearing native vegetation	<p>Each management strategy implemented:</p> <ul style="list-style-type: none"> • a map showing the location of any area to which a management strategy has been 	Project Manager	DoE

ENVIRONMENTAL MANAGEMENT PLAN					
Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
		<i>under the purpose permit</i>	<p><i>applied recorded in an ESRI Shapefile;</i></p> <ul style="list-style-type: none"> <i>a description of the management strategy implemented; and</i> <i>the size of the area to which the management strategy was applied (in hectares).</i> 		
			<p><i>Control of weeds, dieback and other pathogens:</i></p> <ul style="list-style-type: none"> <i>a copy of any management plan prepared; and</i> <i>for any pathogen other than dieback, the appropriate steps taken</i> 	Project Manager	DoE
Vegetation - Clearing	Pre-Construction	Ensure that the overall objectives of the alignment and construction works are compatible with maintaining and, where possible, enhancing the biological integrity of the surrounding environment and minimising vegetation loss and degradation; and Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible, particularly where associated with riparian zones.	Selection of designs/locations that minimise adverse impacts on the biological environment	Project Manager	Main Roads
			Construction works to be undertaken in summer to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains.	Project Manager	Main Roads
			Control/spray weeds species within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance	Contractor	Main Roads
			Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either chipped or replaced according to the EMP.	Contractor	Main Roads
Noise, Vibration and Dust	Construction	Ensure that the construction of the proposal does not become a nuisance to the public	Access to private property and appropriate traffic management measures should be planned and implemented prior to the construction of works	Contractor	Main Roads
			Works associated with the construction of the development should not prevent public access along the adjacent reserve. Public access should be maintained along the reserve at all times	Contractor	Main Roads
			Any complaints regarding dust will be attended to as soon as possible	Contractor/Project Manager	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
			Where it is found that trucks leaving the site are carrying excessive material onto sealed surfaces, these areas will be swept to reduce dust generation and maintain traffic safety.	Contractor	Main Roads
			Watering, the use of hydromulch or other forms of mulching to protect loose surfaces shall be used as mitigation measures	Contractor	Main Roads
Vegetation – Clearing	Construction	Ensure compliance with the purpose permit in regions that has an average annual rainfall of greater than 400 mm and is south of the 26 th parallel of latitude. (If not applicable may be deleted)	Clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared	Contractor	DoE
			Avoid the movement of soil in wet conditions	Contractor	DoE
			If movement of soil in wet conditions is necessary, the permit holder must prepare, implement and adhere to a dieback management plan developed in consultation with CALM for minimising the spread of dieback	Contractor	DoE
			Ensure that no dieback-affected road building materials, mulches or fill are brought into an area that is not affected by dieback	Contractor	DoE
			Restrict the movement of machines and other vehicles to the limits of the areas to be cleared	Contractor	DoE
			Dumping or temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands.	Contractor	Main Roads
			The project areas, including hardstand areas, will be kept in a tidy manner at all times.	Contractor	Main Roads
			All litter on the project will be placed into lidded bins and disposed of at an approved landfill.	Contractor	Main Roads
Fire	Construction	Ensure that the fire risk associated with the construction of the proposal is minimised.	No fires shall be lit within the project area	Contractor	Main Roads
			Machinery will be fitted with approved spark arresting mufflers.	Contractor	Main Roads
Aboriginal	Construction	Ensure that there is no	If any materials of significance to Aboriginal people	Contractor/Project	DIA

ENVIRONMENTAL MANAGEMENT PLAN

Area of management	Timing	Management objective	Management Strategy	Responsibility	Whose advice
Heritage		unauthorised disturbance to Aboriginal heritage sites during construction	are discovered, works will immediately cease within 100m of the material and the site will be examined by a qualified archaeologist.	Manager	
Aboriginal Heritage (cont.)	Construction	Ensure that there is no unauthorised disturbance to Aboriginal heritage sites during construction	The DIA will be notified in the event of any significant Aboriginal Heritage discovery.	Contractor/Project Manager	
			If skeletal material is uncovered during works the WA Police Service will also be advised immediately.	Contractor/Project Manager	
Site Management	Construction	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the surrounding environment	A formal induction program will be conducted for all personnel prior to commencing work on the site. The program will aim to make them fully aware of all management strategies.	Contractor	Main Roads
			Site office and materials storage areas will be located on previously disturbed/ designated area	Contractor	Main Roads
Rehabilitation	Post-Construction	Leave the project area free from debris; and Rehabilitate the project area so that the revegetated area provides a net increase in area of native vegetation at the site.	Replace the cleared trees with locally occurring natives	Contractor	Main Roads
			All waste materials from the development are to be completely removed from the site upon completion of the development. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.	Contractor	Main Roads

8. REFERENCES

Beard, J.S (1976). Vegetation Survey of Western Australia, sheet 6:Murchison. 1:1,000,000 Vegetation Series: Map and Explanatory Notes. University of Western Australia Press.

Appendix A

Low Impact Environmental Screening Checklist

Checklist - Low Impact Environmental Screening

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

All projects are to be screened to identify those that are Low Impact, ie that will have a low impact on the environment and that can be adequately managed through standard contract clauses.

Projects that have "No" to **all** items are classed as Low Impact and should be implemented using standard contract clauses in the Tender Document Process.

Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Management Plan.

Tick "Yes" or "No" for every item. Circle the relevant part of the item.

Project Name 12 Mile Pit Extension

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Works require ground disturbance or clearing of native vegetation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	New, or expansion of existing, pits or quarries. (non-commercial sources)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Adjoining sensitive land use. eg residential or hospital or education centre	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Local natural drainage regime / hydrology will be changed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Within/immediately adjacent to surface/underground Public Drinking Water Source Area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Dewatering, or a new water bore.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Known potential source of hazardous materials within or adjoining the road reserve. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Buildings will require demolition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Completed By: *Signature* Matthew Oswald *Date* 08/03/06
Name Matthew Oswald *Title* Environment Officer

To be reviewed by a Main Roads Environment Officer: *Signature* Matthew Oswald *Date* 22/03/06
Name Matthew Oswald *Title* Environmental Officer

Comments: Pit extension area is highly disturbed and been previously cleared by the local shire.

Appendix B

Site Photographs



Photograph 1: Proposed Pit Extension – North West View



Photograph 2: Proposed Pit Extension – North View



Photograph 3: Proposed Pit Extension – South View



Photograph 4: Proposed Pit Extension – South West View



Photograph 5: Erosion within the proposed pit extension – East View



Photograph 6: Erosion within the proposed pit extension – North View

Appendix C

Department of Conservation and Land Management's Threatened Flora and Fauna Database Searches

OSWALD Matt (GEnv)

From: Poultney, Kelly [KellyP@calm.wa.gov.au]
Sent: Friday, 7 April 2006 9:30 AM
To: OSWALD Matt (GEnv)
Subject: RE: CALM database search - Threatened Flora
Attachments: carnarvon_letter_070406.doc; carnarvon_waherb_070406.dbf;
 carnarvon_drf&plist_070306.doc

Hi Matt

I have attached the results to the Declared Rare and Priority Flora database search that you requested. Please also read through the attached letter as it contains important information regarding the records that you have received.

Kind regards

Kelly Poultney

Threatened Flora Database Officer
 Species and Communities Branch
 Department of Conservation and Land Management
 Locked Bag 104, Bentley Delivery Centre WA 6983
 Ph: (08) 9334 0123 Fax: (08) 9334 0278 Email: kellyp@calm.wa.gov.au

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

From: OSWALD Matt (GEnv) [mailto:matthew.oswald@mainroads.wa.gov.au]
Sent: Friday, 31 March 2006 1:34 PM
To: Poultney, Kelly
Subject: CALM database search - Threatened Flora

To Kelly,

Main Roads Western Australia will soon commence construction of the Carnarvon Flood Mitigation Project, which is a Federal, State and Local Government funded project. The purpose of the project is to redirect water away from the Carnarvon townsite in order to reduce the severity of flooding.

One of the areas in which material is hoping to be sourced from is an extension of an old quarry pit approximately 20 kilometers south of Carnarvon know locally as the '12-Mile' pit.

I am requesting that a CALM database search be conducted in order to determine whether the pit area will impact on any know Threatened Flora populations.

The co-ordinates for the pit extension is:

E0779274
 N7235052

E0779349
 N7235038

E0779220
 N7234898

E0779284
 N7234890

Your assistance in the matter would be greatly appreciated.

7/04/2006

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
DECLARED RARE AND PRIORITY FLORA LIST
22 February 2005

SPECIES / TAXON	CONS CODE	CALM REGION	DISTRIBUTION	FLOWER PERIOD
Gnephosis sp. Billabong (B Noldenstam and A Anderberg 203)	1	MW	Carnarvon, Overlander Roadhouse	Oct
Lepidium biplicatum	2	MW	Carnarvon, Shark Bay	Sep
Rumex crystallinus	2	MW, GLD, *	Lyndon River, Carnarvon, Rowles Lagoon, All other States	
Schoenia filifolia subsp. arenicola	1	MW	Carnarvon, Champion Bay	

24.7759 °S 113.567 °E / 25.1733 °S 113.964 °E '12-Mile' pit south of Carnarvon (plus ~20km buffer)

* Date Certainty Seen Location Name Method

Schedule 1 - Fauna that is rare or is likely to become extinct

Lagostrophus fasciatus fasciatus **Banded Hare-wallaby** 1 records

This small macropod occurs in low shrubland and extant populations occur on Bernier and Dorre islands in Shark Bay. An attempted reintroduction to Peron Peninsula showed that the species is highly vulnerable to predation from cats as well as foxes. The record for Carnarvon is an historical sighting record. The species is unlikely to be present today.

2 Carnarvon Day sighting

Priority Four: Taxa in need of monitoring

Ardeotis australis **Australian Bustard** 1 records

This species is uncommon and may occur in open or lightly wooded grasslands.

1980 1 1 Brick House Day sighting

Neochima ruficauda subclarescens **Star Finch (western)** 1 records

A nomadic species inhabiting grasslands and eucalypt woodlands near water.

1982 1 Chinamans Pool Day sighting

* Information relating to any records provided for listed species:-

Date: date of recorded observation

Certainty (of correct species identification): 1=Very certain; 2=Moderately certain; and 3=Not sure.

Seen: Number of individuals observed.

Location Name: Name of reserve or nearest locality where observation was made

Method: Method or type of observation

Department of Conservation and Land Management



Appendix D

Australian Heritage Places Inventory, Heritage Council of Western Australia and the Municipal Heritage Inventory Database Searches

Search this site

QUICK SEARCH
ADVANCED SEARCH
RESULTS LIST
LOCATION REPORT
SAVE DATA

WHAT IS THE STATE REGISTER
OTHER HERITAGE LISTS

Displaying results: [1-4] of 4

hide selected | hide unselected

- Carnarvon Cemetery (5821) *North West Coastal Hwy, Carnarvon*
- Gascoyne River Bridge (463) *North West Coastal Hwy over Gascoyne River, Carnarvon* [REG] [ASSESS]
- OTC Satellite Earth Station (fmr) (472) *Craggs Ct & Mahoney Av, North West Coastal Hwy, Carnarvon* [REG] [ASSESS]
- Telecom Radio Communication Station (5820) *North West Coastal Hwy, Carnarvon*

hide selected | hide unselected

HELP

HELP

AUSTRALIAN HERITAGE PLACES INVENTORY

[New Search]

- | | | |
|-----|---|---|
| 1. | Anglican Church of St George
Francis St, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 2. | ANZ Bank
18 Robinson St, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 3. | Bernier and Dorre Islands
Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 4. | Carnarvon One Mile Jetty
Annear Pl, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 5. | Carnarvon Pioneer Cemetery
Crowther St, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 6. | Carnarvon Tracking Station (former)
North West Coastal Hwy, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 7. | Church of St Mary, Presbytery and Grounds
Johnston St, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 8. | Gascoyne River Bridge
North West Coastal Hwy, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 9. | Indigenous Place
Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 10. | Jubilee Hall
Francis St, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 11. | Lake MacLeod Area
Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 12. | Lighthouse Keepers Cottage
Annear Pl, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 13. | McNeill Claypan and Brown Range
North West Coastal Hwy, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 14. | OTC Earth Satellite Station (former)
Mahony Av, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |

<http://www.heritage.gov.au/cgi-bin/ahpi/results.pl?id=&pn=&ad=Carnarvon&lg=Car...> 21/03/2006

- | | |
|---|---|
| 15. The Fascine
Olivia Tee, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 16. The Hermitage
Boundary Rd, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 17. The Red House
Margaret Row, Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 18. Wise Park
Shallcross St, East Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |
| 19. Wooramel Seagrass Bank
Carnarvon, WA | LGA: Carnarvon Shire
Source: Register of the National Estate |

Query matched 19 records.

Report produced : 21/3/2006
AHPI URL : <http://www.heritage.gov.au/ahpi/search.html>

Appendix E

Department of Indigenous Affairs Database Search



Search Criteria

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

MGA Zone 49	
Northing	Easting
7233602	778213
7235628	779860

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.

Appendix F

DoE's Sensitive Water Resources Database Search

OSWALD Matt (GEnv)

From: BAUER Kylie [kylie.bauer@environment.wa.gov.au]
Sent: Wednesday, 5 April 2006 11:15 AM
To: OSWALD Matt (GEnv)
Subject: RE: Sensitive Water Resources
Attachments: InterScan_Disclaimer.txt

Hi Matt,

I am informing you of the below, from DoE's perspective:

- * There is no current record of any sensitive water resources in the below mentioned area outlined by MRD for the 12- Mile pit.
- * The only apparent water resource in the area is a 'minor creek' which is in a previous pit source area and would only run in a large flood event.

You have also made me aware that as part of the PEIA you will be making an application to the Vegetation Clearing section for the relevant permits.

If you require any further assistance with the Vegetation Clearing permits please contact : Natalie Lauritsen in DoE's Geraldton Office on 99645978 for preliminary discussions natalie.lauritsen@environment.wa.gov.au

Thanks

Kylie Bauer

Natural Resource Management Officer
Carnarvon Office
(08)99414921

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

From: OSWALD Matt (GEnv) [mailto:matthew.oswald@mainroads.wa.gov.au]
Sent: Friday, 31 March 2006 15:31 :
To: BAUER Kylie
Subject: Sensitive Water Resources

Kylie,

As discussed over the phone, Main Roads Gascoyne Region proposes to source some of the needed building material for the Carnarvon Flood Mitigation project from the '12-Mile' Pit off North West Coastal Highway.

Unfortunately the Environmental Impact Assessment (EIA) undertaken by GHD in 2005 did not cover the area as far south as the '12-Mile' Pit. I am therefore undertaking a Preliminary Environmental Impact Assessment (PEIA) for the pit area. One aspect in the PEIA requires that the Department of Water be consulted to determine whether the project area will impact on sensitive water resources such as significant lakes, rivers, wetlands or proclaimed areas.

The co-ordinates for the pit extension is presented below:

E0779274
N7235052

E0779349
N7235038

7/04/2006

Appendix G

WAPC's Acid Sulfate Soils Mapping



ACID SULFATE SOILS

APPLICANT SELF - ASSESSMENT FORM

PLEASE COMPLETE THIS SELF-ASSESSMENT FORM AND ANSWER THE FOLLOWING:

STEP 1: **IS THERE EVIDENCE OF A SIGNIFICANT RISK OF DISTURBING ACID SULFATE SOILS AT THIS LOCATION?**

Question 1:

Is the land depicted in Figures 1 - 11 of the Western Australian Planning Commission's Planning Bulletin No. 64: Acid Sulfate Soils as having a 'high risk of Actual Acid Sulfate Soil (AASS) & Potential Acid Sulfate Soil (PASS) < 3m from surface'?

Note: Planning Bulletin No. 64: Acid Sulfate Soils can be downloaded from:
<http://www.wapc.wa.gov.au/publications/policies/bulletins/PB64/64Nov03.html>



TICK BOX AS APPROPRIATE:

YES

NO

Question 2:

Is the land located in an area, whether depicted in Figures 1 - 10 or not, where site characteristics and local knowledge lead you to form the view that there is a significant risk of disturbing acid sulfate soils at this location?



TICK BOX AS APPROPRIATE:

YES

NO

If YES to either of these two questions go to Step 2.

If NO to both of these questions no further investigation is required.
Sign this form and submit it with your application.

STEP 4:

CARRY OUT DETAILED SITE ASSESSMENT IN ACCORDANCE WITH DEPARTMENT OF ENVIRONMENT GUIDELINES.

Question 7:


Did the Detailed Site Assessment reveal the presence of acid sulfate soils?

▶ **TICK BOX AS APPROPRIATE:** YES NO

If YES to this question you should consider modifying the design of the proposal to ensure that there is no disturbance to acid sulfate soils at this location. Regardless of whether you modify the design or not, sign this form and submit it with your application together with the written results of the Preliminary and Detailed Site Assessments.

If NO to this question then no further investigation or work is required. Sign this form and submit it with your application together with the written results of the Preliminary and Detailed Site Assessments.

APPLICANT SIGNATURE:

▶ Matthew Joel Oswald
Full Name
▶ 
Signature
▶ 31/3/06
Date

TICK BOX FOR ATTACHMENTS AS APPROPRIATE:

- Preliminary site Assessment Results
- Detailed site Assessment Results
- The proposal has been designed to avoid disturbance of Acid Sulfate Soils at this location

Appendix H

Department of Agriculture Advice on Declared Weeds

OSWALD Matt (GEnv)

From: Stretch, John [jstretch@agric.wa.gov.au]
Sent: Thursday, 6 April 2006 10:56 AM
To: OSWALD Matt (GEnv)
Cc: Hine, Linda
Subject: confirmation about inspection visit to proposed extended Main Roads gravel pit in relic Gascoyne river channel approx 19 km SE from Carnarvon

Matthew

This email confirms my visit with you to the relic River channel Main Roads gravel pit that is to the south of town, east of the NWCH.

Your Department have marker pegs in place that define a proposed extension to the existing Main Roads pit area - on the north east (upstream) side of the currently used area. (In approximate terms the extension area is a good 1000 metres east of the NWCH.) We walked through the pegged area and also further to the north east - inspecting prospective channel bottom areas that extend at least 600 metres.

Much of the base of the channel in the area has been extensively quarried for sand and gravel in the past (more than 15 years ago.) Ridges and mounds of overburden are common. Extending out and upslope from these previously disturbed 'quarry areas' are numerous substantial but not extreme erosion gullies. The photo record that you have taken of the area should adequately record the incidence of this feature. Importantly, because only moderate grazing levels have been maintained in this part of the Brickhouse pastoral lease over the past 10 years, the 'heads' of the erosion gullies are typically relatively stable (or advancing at only a very slow rate - certainly no more than 10 cm per year.)

No serious weeds are present in any of the prospective area that we inspected. (No mesquite, parkinsonian, prickly cactus, saffron thistle, devils claw.) A moderate incidence of a minor perennial Cucurbit - likely *Momordica balsamina* - is present as are a few weedy native *Solanum orbiculatum* (this plant's name has now changed but the old name is adequate for your ref.) and *Hakea preisii*.

Trail bikes have in the past been active amongst the abandoned quarry workings that lie to the north east of your Department's prospective area. It is to be expected that bike riders and also that cattle will from time to time continue to revisit the area. For this reason, for safety reasons your quarry operational procedure should aim to minimise excavations that leave unattended 'dangerously vertical' quarry faces. It should not be necessary to fence off the quarry area, so long as the threat to both stock and bike riders is understood and managed. Also, in accordance with Main Roads operational practice, be sure that exploratory/prospective trench excavations are not made and then left unattended. (Stock have been known to die when trapped in such trenches and the threat to bike riders (both station staff and recreational) is obvious.)

It will be understood that all the excavations that you carry out for quarry purposes will have the effect to increase gradient locally. Inevitably, some increased rate of local gully and duplex surface sheet erosion will occur. The abundance of above ground vegetation (and hence, seasonal conditions and the intensity of grazing locally) will influence the intensity of any resulting erosion.

Thanks for the opportunity to visit the site. You are now able to differentiate between juvenile *Acacia farnesiana* (false mesquite) and *Prosopis spp* (mesquite).

John

John Stretch
 Department of Agriculture WA
 Carnarvon District Office
 Ph: 0899563324
 Fax: 0899418334

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7/04/2006

Appendix I

Department of Environment and Heritage Database Search



Protected Matters Search Tool

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

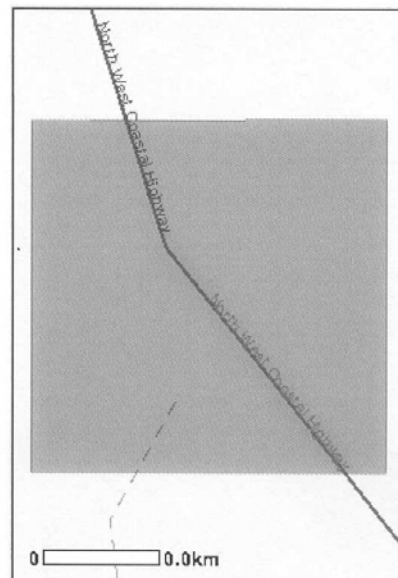
22 March 2006 18:02

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>



Search Type: Area
Buffer: 0 km
Coordinates: -24.954797,113.739483, -24.956118,113.739483, -24.956118,113.740868, -24.95479,113.740868



http://www.deh.gov.au/cgi-bin/erin/ert/epbc/epbc_report.pl

22/03/2006

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>.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
Threatened Species:	1
Migratory Species:	4

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>.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	8
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

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

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

Details

Matters of National Environmental Significance

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
<i>Acanthiza iredalei iredalei</i> Slender-billed Thornbill (western)	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]		
Migratory Terrestrial Species		
Birds		
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<i>Hirundo rustica</i> Barn Swallow	Migratory	Species or species habitat may occur within area
Migratory Wetland Species		
Birds		
<i>Charadrius veredus</i> Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
<i>Numenius minutus</i> Little Curlew, Little Whimbrel	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		

<i>Apus pacificus</i> Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
<i>Ardea alba</i> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
<i>Ardea ibis</i> Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
<i>Charadrius veredus</i> Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Species or species habitat may occur within area
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
<i>Hirundo rustica</i> Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
<i>Merops ornatus</i> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<i>Numenius minutus</i> Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area

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.

Last updated:

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