



**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT  
AND ENVIRONMENTAL MANAGEMENT PLAN**

**North West Coastal Highway Material Source at SLK 48.5**

**October 2011**



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Revision	Prepared by	Date	Reviewed by	Date
Rev 0	Anna Sutherland Environmental Officer		<Name> <Title>	
Rev 1.1				

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## SUMMARY

The North West Coastal Highway (NWCH) is the major link, joining the Brand Highway (Geraldton) to the Great Northern Highway (Port Hedland). The highway carries a mix of heavy freight vehicles, tourist and commute vehicles. On the section between 45.56 and 48.56 SLK there have been six crashes reported over the past five years, all involved loss of control.

Main Roads Western Australia (Main Roads) proposes to reconstruct two sections of the highway between SLK 47.0 and 49.0 (the Project), which will involve the lowering of vertical crests to increase the line of site for vehicles, increasing road safety and reducing the risk of traffic accidents. All approvals have been sought for this aspect of the project.

The Project is located approximately 2.5 km south of Northampton within the Shire of Northampton.

This project has identified the material source at SLK 48.5, which is adjacent to the proposed project area.

The area is currently used as a stockfeed paddock for the farmers sheep. It is heavily weed infested and contains approximately 25 *Hakea presei* within the proposed clearing area.

This PEIA is for the proposed material source.

# PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN NORTH WEST COASTAL HIGHWAY MATERIAL SOURCE 48.5

## 1. BACKGROUND

Following Main Roads' corporate Environmental Assessment and Approval process, an initial 'Low Impact Environmental Screening Checklist' was completed for the proposal. The checklist determined the project required further environmental assessment as the project requires clearing outside of the maintenance zone. Therefore the preparation of a project specific Preliminary Environmental Impact Assessment (PEIA) and Environmental Management Plan (EMP) are required.

The preliminary environmental assessment will involve a desktop analysis of environmental aspects and impacts, a site investigation, an assessment of native vegetation clearing, stakeholder consultation and consideration of necessary environmental management. The preliminary assessment will determine whether an Environmental Impact Assessment (EIA) is necessary and if referral to State and/or Commonwealth authorities is required.

## 2. DESCRIPTION OF THE PROJECT

The proposed works involve the clearing of 25 *Hakea Presii* for the creation of material pit for the proposed road realignment works on the North West Coastal Highway. Once the material is removed, the area will be battered and reinstated with the removed topsoil.

### 2.1 Project Location

The location and boundaries of the study area for the project are shown in Figure 1 and include the following features:





**Legend**

- Road Project Length
- Material Pit 48.50



0 125 250 500 Meters

**Proposed Material Pit Location Map  
NWCH 48.50 SLK LHS**

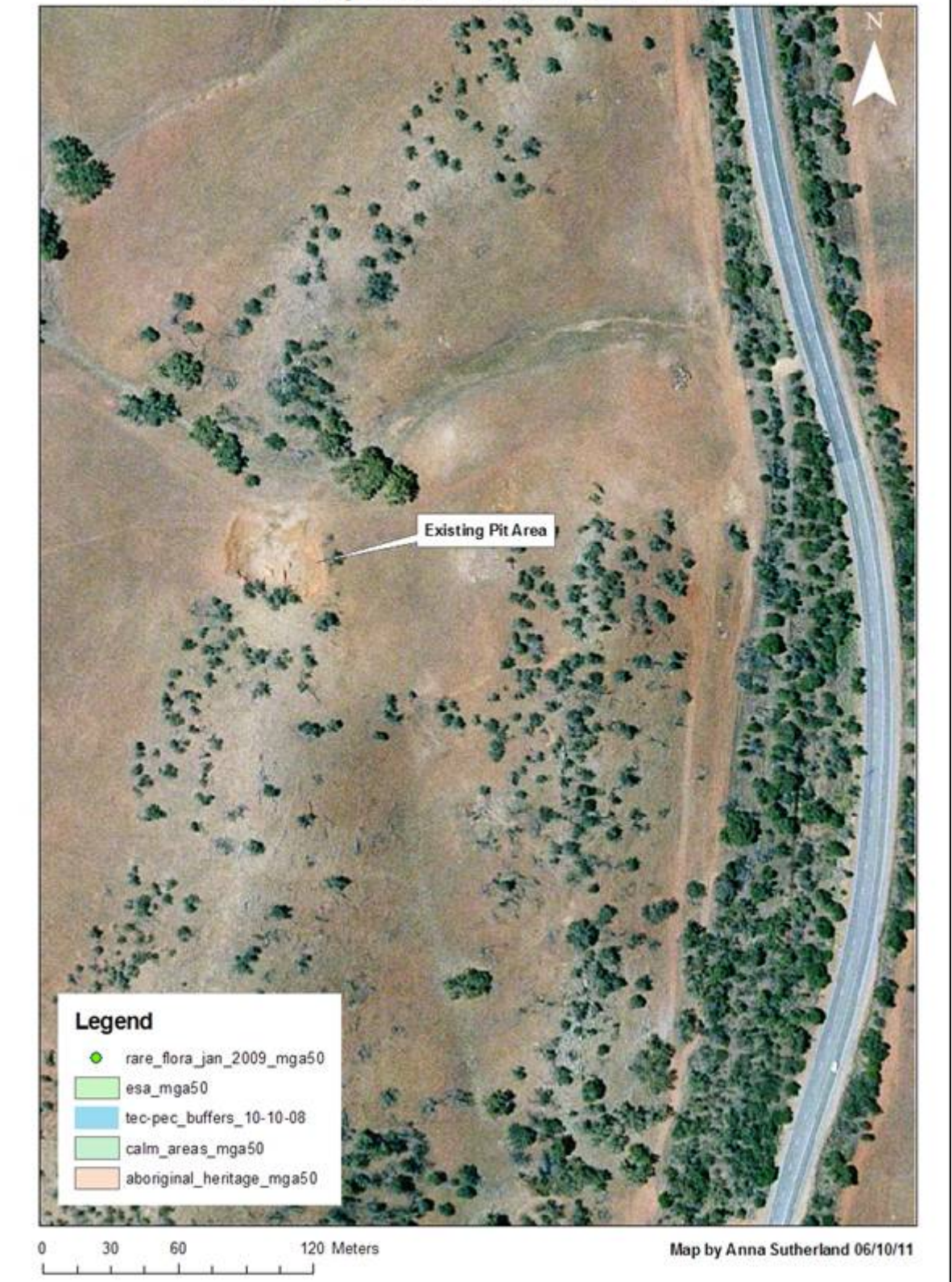
Created By: Matt Oswald (04/10/11)  
Map Projection: Transverse Mercator  
Horizontal Datum: Geocentric Datum of Australia 1994  
Grid: Map Grid of Australia, Zone 50

Filepath: \\Gersrv01\public\Environment\NWCH\SLK 48.5 - 49.9\Proposed Materials Pit

**Figure 1 – Project Location and Study Area**



## NWCH Proposed Pit Area SLK 48.5



**Figure 2 – Current Location of existing material source**



### NWCH Proposed Pit Area SLK 48.5

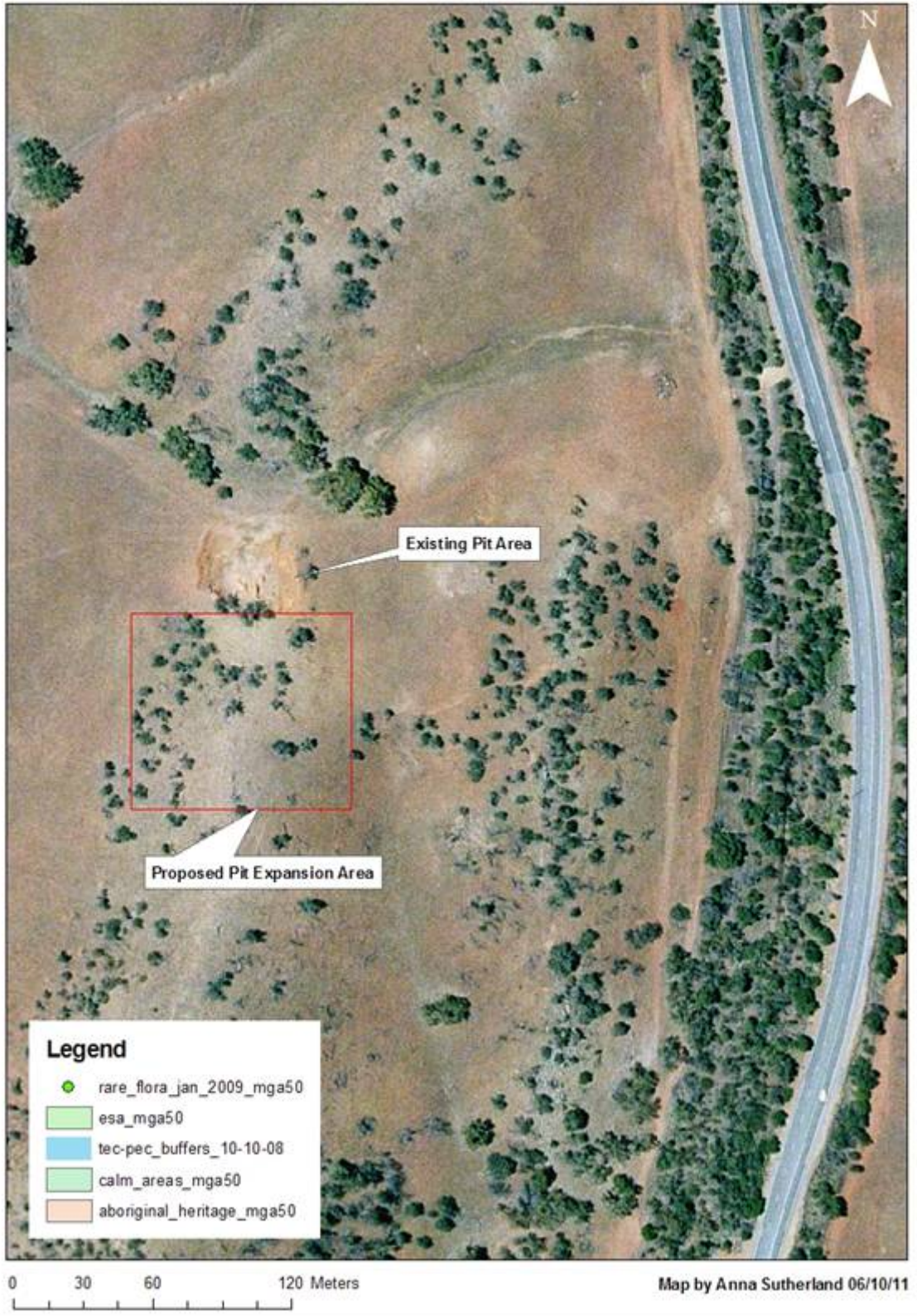


Figure 3 – Proposed expansion area of existing material source



### 3. METHODOLOGY

#### 3.1 Preliminary Desktop Study

A preliminary assessment of the project area and the potential constraints of the proposal was undertaken by reviewing a number of government agency managed databases, viewing GIS shapefiles and consulting with relevant stakeholders where necessary.

##### 3.1.1 Threatened Flora, Fauna & Communities, Conservation Reserves and ESAs

Current GIS shapefiles provided to Main Roads by the DEC were examined for known populations of threatened flora, fauna, Threatened Ecological Communities (TECs) or conservation areas located within the vicinity of the works, refer to Figure 3.

The Department of Agriculture website was utilised to identify what species are likely to exist at this site -

[http://spatial.agriv.wa.gov.au/slip/commands/vegreportall/showvegetation\\_species.asp?keyvalue=80100486&type=938](http://spatial.agriv.wa.gov.au/slip/commands/vegreportall/showvegetation_species.asp?keyvalue=80100486&type=938)

##### 3.1.2 Heritage

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.environment.gov.au/heritage/places/wa/index.html>), Heritage Council of Western Australia Places Database (<http://register.heritage.wa.gov.au/>) and the **Shire of Northampton's local heritage list** (previously known as the Municipal Heritage Inventory), refer to Appendix C.

##### 3.1.3 Aboriginal Heritage

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

##### 3.1.4 Sensitive Water Resources

A search of the Department of Water's (DoW's) database was undertaken (<http://www.water.wa.gov.au/idelve/dowdataext/index.jsp>) to determine whether the project area contains any sensitive water resources (including Public Drinking Water Source Areas or Water Pollution Control Areas) or was adjacent to any significant lakes, rivers, wetlands or proclaimed areas, refer to Appendix E.

##### 3.1.5 Wetlands

The locations of any wetlands within the project area was determined using the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) mapping tool, the Department of Environment and Conservation (DEC) "Native Vegetation Map Viewer" mapping tool, viewing current GIS shapefiles.

##### 3.1.6 Weeds

A site visit by E.O. Oswald was conducted to determine whether there are any known populations of declared plants or significant weeds in or adjacent to the project area.

##### 3.1.7 Dieback

As the project receives <400 mm of rain dieback is considered not to be an issue.

### 3.1.8 Contaminated Sites

A search of the DEC's contaminated sites database was undertaken (<https://secure.dec.wa.gov.au/idelve/css/>) to determine whether the project area contains or is adjacent to any contaminated sites, refer Appendix J.

### 3.1.9 Acid Sulfate Soils

The CSRIO's acid sulfate soils maps were reviewed on the [http://www.asris.csiro.au/index\\_ie.html](http://www.asris.csiro.au/index_ie.html) to determine the level of risk the project is exposed to, refer to Appendix K.

### 3.1.10 Air Quality

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

## 3.2 Commonwealth Referral

The decision whether to refer the project to the Commonwealth DSEWPC was based upon whether the project would impact Commonwealth land, or may have a significant impact upon matters of national significance, which are protected under the EPBC Act. These are; World Heritage properties, National Heritage places, wetlands of international importance (listed under the Ramsar convention), Commonwealth Marine Areas, migratory species protected under international agreements, nuclear actions, nationally threatened species and ecological communities.

The DSEWPC protected matters search tool was used to determine if the project will impact upon any matters of national significance: (<http://www.environment.gov.au/erin/ert/epbc/index.html>) refer to Appendix G for the results of this search and Section 7 for a discussion on the findings.

## 3.3 State Referral

The decision whether to refer the project to the State's EPA was based on whether the project would impact on environmental factors significantly enough to require referral under section 38 of the Environmental Protection Act 1986.

## **4. EXISTING ENVIRONMENT**

### **4.1 Description**

The site is currently used as a stock feed paddock for sheep and is heavily weed infested. The site where the material is to be sourced has previously been used as a borrow pit source previously, and these proposed works will be extending this area.

### **4.2 Site Investigation**

A site visit was carried out by Matt Oswald on 04/10/11 to examine the general features of the area.

The site is heavily weed infested with approximately 25 *Hakea preisii* trees, the area is used for stock feed.



## 5. CLEARING OF NATIVE VEGETATION

Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

Apart from activities that are exempt under the clearing regulation (Section 5 – Prescribed Clearing), typically all Main Roads clearing will be undertaken using a permit.

### 5.1 Details of Vegetation Associations to be Cleared

In order to assess the significance of the vegetation proposed to be cleared for North West Coastal Highway Material Source SLK 48.5 the vegetation type, condition and percent of pre-European Extent remaining has been identified. Table 1 describes the location and condition of vegetation associations within the project area and at road building material extraction sites while Table 2 provides further information regarding each vegetation association's representativeness.

**Table 1: Vegetation Description, Condition and Percent Remaining**

No.	Description	Start & End SLK	Side of Road (L- left, R - right, RBM -road building materials)	Condition (Keighery 1994)*	Pre-European Extent Remaining (%) **	Area (ha)
35	Shrublands; jam scrub with scattered York gum	48.5	L	Very Degraded	17.02	0.02
<b>Total Area (ha)</b>						<b>0.02</b>

**Table 2: Vegetation Percent Remaining**

Pre-European Extent Remaining: Vegetation Association No. 35		
Regional Context	Location	Pre-European Extent Remaining (%)
State-wide	N/A	17.02
Bioregional (IBRA Region)	Geraldton Sandplains (GS)	17.02
Bioregional (IBRA Sub-Region)	Geraldton Hills (GS1)	17.02
LGA	Shire of Northampton	15.68

### 5.2 Assessment Against Clearing Principles

In assessing whether the project is likely to have a significant impact on the environment, the project was assessed against the ten clearing principles (EP Act 1986 Schedule 5).

The project is not likely to be at variance with the 10 clearing principles.

<b>(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.</b>	
ASSESSMENT	Site contains 25 <i>Hakea preseii</i> and is heavily weed infested. One species out of a possible 19 species associated with vegetation association 35 present in the proposed clearing area.
METHODOLOGY & REFERENCES	Site Visit which picked up the heavy weed infestation and single species present at site. DEC Spatial website was accessed to identify what species were likely at the site. Website indicated that 19 species are likely at this site, therefore the fact that this site has 1 out of the possible 19 indicates that this is a very low level of biological diversity.
Proposal is not likely at seriously at variance to this Principle.	

<b>(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.</b>	
ASSESSMENT	Site contains 25 <i>Hakea preseii</i> and is heavily weed infested. One species out of a possible 19 species associated with vegetation association 35 present in the proposed clearing area. Proposed site is within the middle of a paddock which has been severely cleared.
METHODOLOGY & REFERENCES	Site visit showed that area is within paddock which is heavily degraded due to grazing and cropping. Single species would not provide habitat for fauna.
Proposal is not likely at variance to this Principle.	

<b>(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.</b>	
ASSESSMENT	Site contains 25 <i>Hakea preseii</i> , which is not considered rare or priority status.
METHODOLOGY & REFERENCES	Site visit indicated that only one 'species' which is not threatened existed at site. GIS search indicated that not threatened flora is located at this site.
Proposal is not likely at variance to this Principle.	

<b>(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.</b>	
ASSESSMENT	Site contains 25 <i>Hakea preseii</i> and is heavily weed infested. One species out of a possible 19 species associated with vegetation association 35 present in the proposed clearing area. DEC data does not indicate that this area is a TEC.
METHODOLOGY & REFERENCES	Site visit indicated single species within a degraded area. GIS desktop search utilising DEC data indicated no TEC's within area.
Proposal is not likely at variance to this Principle.	

<b>(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.</b>	
ASSESSMENT	Site contains 25 <i>Hakea preseii</i> and is heavily weed infested. One species out of a possible 19 species associated with vegetation association 35 present in the proposed clearing area.
METHODOLOGY & REFERENCES	Site visit indicated one species out of a possible 19 species associated with this vegetation association. Area has also been severely degraded through cropping and grazing of stock. Area is not considered as 'significant'.
Proposal is not likely at variance to this Principle.	

<b>(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.</b>	
ASSESSMENT	Site visit indicated that site is on the crest of a hill.
METHODOLOGY & REFERENCES	Site visit indicated no watercourses within project area. Area is within a crest of a hill.
Proposal is not likely at variance to this Principle.	

<b>(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.</b>	
ASSESSMENT	Area is currently very degraded and is very weed infested. Proposed works will remove topsoil, remove material, batter the area and replace topsoil over the top. The owner of the land would like the area to be used for feeding his stock.
METHODOLOGY & REFERENCES	Site visit indicated that proposed material source area is within a top of a hill, in a middle of a paddock which has been regularly cropped and grazed.
Proposal is not likely at variance to this Principle.	

<b>(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.</b>	
ASSESSMENT	Area is within agricultural area, with no conservation reserves within proximity to proposed works area
METHODOLOGY & REFERENCES	Site visit indicates proposed works are within an area that has been agricultural for many years. DEC data supported the fact that these proposed works will not be impacting on DEC managed land.
Proposal is not likely at variance to this Principle.	

<b>(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.</b>	
ASSESSMENT	Site visit indicated that site is on top of a hill and is not in close proximity to surface water. Proposed works area removing material and replacing topsoil. There is no dewatering required for these works
METHODOLOGY & REFERENCES	Site visit indicated that works will be expanding an existing material source that currently does not impact on surface or underground water. Site is located on the crest of a hill.
Proposal is not likely at variance to this Principle.	

<b>(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.</b>	
ASSESSMENT	Area is currently very degraded and is very weed infested. Proposed works will remove topsoil, remove material, batter the area and replace topsoil over the top. The owner of the land would like the area to be used for feeding his stock. The proposed works is not in an area that is prone to flooding and is on located on a hill.
METHODOLOGY & REFERENCES	Site visit indicated that the proposed works area is on the top of a hill and not within a floodplain.
Proposal is not likely at variance to this Principle.	

### 5.3 Summary of Management Actions

Main Roads attempts to avoid clearing vegetation if possible, where clearing cannot be avoided then this clearing is kept to a minimum. The following actions are proposed to manage and minimise vegetation clearing for the North West Coastal Highway Material Source at SLK 48.5:

- Site office and materials storage areas will be located on previously disturbed/ designated area; and
- Construction works to be undertaken in summer to reduce the potential for soil erosion impacting adjoining vegetation during heavy rains; and
- Control/spray weeds species within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance; and
- Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread.



The following table summarizes what further assessment and management is required in accordance with MRWA State-wide vegetation Clearing Permit (CPS 818).

**Table 3: Summary of Additional Management Actions**

Impact of Clearing	Yes/No or NA	Further Action Required
1. Does the assessment indicate that the clearing may be at variance or is at variance with one or more of the principles for clearing?	N	No further action required.
2. Does the assessment indicate that the clearing is at variance with one or more of the principles for clearing?	N	No further action required.
3. Does the assessment indicate that the clearing is at variance with clearing principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding?	N	No further action required.
4. Will the project involve clearing for purposes considered temporary in nature under Condition 13 of CPS818?	N	No further action required.

## 6. ASSESSMENT OF ASPECTS AND IMPACTS

**Table 4: Aspects and Impacts – North West Coastal Highway Material Source at SLK 48.5**

Aspect	Evaluation of Potential Impacts
Vegetation – clearing	<p><b>0.02 ha</b> of native vegetation is proposed to be cleared, the vegetation is described as <b>35 Shrublands</b>; jam scrub with scattered York gum this Vegetation Association has <b>17.02 %</b> remaining.</p> <p>The native vegetation proposed to be cleared <b>isn't</b> well represented regionally as it possesses <b>less</b> than 30% of its pre-European extent.</p> <p>According to Keighery, (1994) the condition of the native vegetation to be cleared is described as <b>Completely Degraded</b>.</p>
Vegetation – TECs/DRF	None present in the proposed works areas. No significant vegetation types or threatened flora have been recorded within the road reserve.
Vegetation – weeds	There are numerous common weed species that occur throughout the proposed works areas. These species are likely to be widespread within the reserve and general area.
Vegetation – dieback	Not an issue given the project area receives less than 400 mm of average annual rainfall. In 2010 Northampton received annual rainfall of 283.2mm ( <a href="http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=136&amp;p_display_type=dailyDataFile&amp;p_startYear=2010&amp;p_c=20390467&amp;p_stn_num=008100">http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=136&amp;p_display_type=dailyDataFile&amp;p_startYear=2010&amp;p_c=20390467&amp;p_stn_num=008100</a> )
Fauna	<p>No significant fauna issues associated with any of the proposed upgrade works. With the generally degraded and exposed nature of the works areas, no significant impacts would be expected on native fauna generally as a result of the proposed works.</p> <p>No Matters of National Environmental Significance as protected under the EPBC Act (1999) will be impacted (see Table 5).</p>
Heritage (non-indigenous)	<p>A search of the Australian Heritage Places Inventory, Heritage Council of Western Australia and the <b>Shire of Northampton</b> Municipal Heritage Inventory on-line databases has indicated that there <b>are no</b> known site(s) of heritage significance within the vicinity of the project area.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>
Aboriginal heritage	<p>A search of the <b>DIA's database/Heritage survey</b> identified <b>no</b> known site(s) of Aboriginal heritage significance within the vicinity of the project area.</p> <p>No further investigations are required for all aspects of the project.</p>
Wetlands	<p>DEC has advised that there are no wetlands within the vicinity of the project area.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>
Surface water/drainage	A search of the DoW's database has confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns.
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Reserves / Conservation areas	There are no conservation areas or reserves adjacent to the project area

**Table 4: Aspects and Impacts – North West Coastal Highway Material Source at SLK 48.5**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project since: <ul style="list-style-type: none"> <li>• the predicted traffic flow is less than 15,000 vehicles per day in rural areas; and</li> <li>• residential and other sensitive receptors are not within 200 meters of the road centre.</li> </ul>
Dust	Likely to be a minor issue during earthworks. No major sensitive receivers adjacent to the proposed works, but excessive dust could impact vegetation. This is likely to be easily managed by standard construction dust management techniques.
Noise and vibration	No major sensitive local receivers. Construction works is not expected to significantly contribute to noise levels at the nearest sensitive receivers, provided works are limited to normal working hours. The requirements of the Shire of Northampton must be met in respect of noise management and construction working hours.
Visual amenity	The proposed works will result in minor and short-term visual impacts during construction.
Public safety and risk	Provided traffic management and signage to Main Roads standards is employed, none of the proposed works present any significant hazards to public safety. The proposed works will serve to enhance public safety by improving local road and pedestrian conditions.
Hazardous substances	Not relevant to the proposed works, the project requires no hazardous substances to be used.
Contamination	A search of the DEC's contaminated sites database indicates there <b>are 0</b> identified contaminated site(s) within the project area.
Salinity	There were no visual signs of salinity observed in the project area. Given the nature and scale of the project the impact is considered not relevant.
Acid Sulfate Soils	The SLIP database indicates that the area is classified as Low Risk as there is no dewatering or excavation below the water table planned no further investigations are required.
Statutory Land Use Planning	Proposed works are within freehold land (Ivan Teakle) who has given Main Roads permission to access this land for the purpose of sourcing material for the proposed realignment works.  Mr Teakle has requested that the area be rehabilitated by battering slopes to ensure that the area can be used as feed for his stock.  No planning scheme amendments are required.

**Table 5: Commonwealth Aspects and Impacts – North West Coastal Highway Material Source at SLK 48.5**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
World Heritage properties	The project will not impact any World Heritage properties i.e. <u>Shark Bay</u>
National Heritage places	A search of the Australian Heritage Places Inventory Database located <b>no</b> site(s) within the vicinity of the project. .
Wetlands of international importance (Ramsar)	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located <b>no</b> Ramsar Wetland(s) within the vicinity of the project.



**Table 5: Commonwealth Aspects and Impacts – North West Coastal Highway Material Source at SLK 48.5**

Aspect	Evaluation of Potential Impacts
Nationally threatened species or ecological communities	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located <b>0</b> threatened ecological communities, <b>5</b> threatened species and <b>5</b> listed marine species within the vicinity of the project. The project activities are unlikely to have a significant impact on <b>these</b> species and the marine species are listed as “over fly” with the vegetation present unlikely to be habitat for <b>these</b> species.
Migratory species protected under international agreements	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located <b>5</b> migratory species within the vicinity of the project. The project activities are unlikely to have a significant impact on <b>these</b> species as the vegetation present is unlikely to be habitat for <b>these</b> species.
Commonwealth marine areas	The project will not impact any Commonwealth marine area or marine protected area i.e. <u>Ningaloo Marine Park</u>
Commonwealth lands	The project is not located on and will not impact any Commonwealth lands.
Nuclear Actions	Not relevant to the proposed works.

## 7. DECISION TO REFER.

### 7.1 Referral to the Department of Sustainability, Environment, Water, Population and Communities

The preliminary impact assessment determined the project does not, will not, or is not likely to have a significant impact on Matters of National Environmental Significance or impact Commonwealth land as outlined in Table 5 of the report. For this reason the project does not require referral to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

### 7.2 Referral to the Environmental Protection Authority

Due to the small scale of the project, the low significance of its impacts to the surrounding environment and that it is unlikely the project will generate significant public interest, the project does not require referral to the WA Environmental Protection Authority.

## 8. STAKEHOLDER CONSULTATION

Table 6: Project Consultation

Name	Agency	Date	Comments
Nil stakeholders consulted due to lack of potential impacts.			

## 9. OTHER APPROVALS/PERMITS/LICENCES

No further approvals, permits or licences are required for the North West Coastal Highway Material Source at SLK 48.5.

## 10. REFERENCES

Beeston, G.R., Hopkins, A.J.M. and Shepherd, D.P. (2002). Land-use and vegetation in Western Australia. Department of Agriculture, Western Australia, Resource Management Technical Report 250.

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

## Appendix A

### **Low Impact Environmental Screening Checklist**



### Checklist - Low Impact Screening Checklist

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

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

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


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

Tick "Yes" or "No" for every item.

Project Name Kash Over Coastal Highway Material Source 148.5


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 clearing of native vegetation outside the maintenance zone.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Works to occur outside normal working hours.	<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	Dewatering, or a new water bore required.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Known potential source of hazardous materials within or adjoining project area, e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Buildings will require demolition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Completed By:

Signature   
Name Eamon Vivan

Date 13/10/2011  
Title Leadwise Engineer

To be reviewed by  
a Main Roads  
Environment Officer

Signature   
Name Anna Jithonovos

Date 13/10/11  
Title Environment Officer

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Appendix B

### **DEC Threatened Flora and Fauna Database Searches**

Message HP TRDR

From: RONIE Ngel (20)  
 To: OSWALD Matt (20)(A)  
 Cc:  
 Subject: Veg 35

Sent: Mon 12/09/2011 4:38 PM

Vegetation Report - Microsoft Internet Explorer provided by HWWA...

Map Unit Number: 80100486  
 Vegetation Type No: 938

Species List

Stratum	Minimum % Crown Cover	Maximum % Crown Cover	Maximum Height (m)	Species	Dominance	Growth Form
Upper 1	0	5	20	<i>Eucalyptus toxophleba</i>	sub-dominant	Tree
Upper 1	0	5	20	<i>Eucalyptus camaldulensis</i>	sub-dominant	Tree
Mid 1	10	30	2.5	<i>Acacia acuminata</i>	dominant	Shrub
Mid 1	10	30	2.5	<i>Acacia tetragonophylla</i>	sub-dominant	Shrub
Mid 1	10	30	2.5	<i>Hakea preissii</i>	sub-dominant	Shrub
Mid 1	10	30	2.5	<i>Jacksonia espullifera</i>	sub-dominant	Shrub
Mid 1	10	30	2.5	<i>Acacia rostellifera</i>	sub-dominant	Shrub
Mid 1	10	30	2.5	<i>Hakea recurva</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Dryandra sessilis</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Calothamnus quadrifidus</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Grevillea pinaster</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Hibiscus huegelii</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Labiichea sp.</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Scholtzia umbellifera</i>	sub-dominant	Shrub
Mid 2	10	30	1.5	<i>Xanthorrhoea preissii</i>	sub-dominant	Shrub
Ground 1	10	30	0.5	<i>Cephalopterum drummondii</i>	sub-dominant	Forb
Ground 1	10	30	0.5	<i>Goodenia pinnatifida</i>	sub-dominant	Forb
Ground 1	10	30	0.5	<i>Schoenia cassiniana</i>	sub-dominant	Forb
Ground 1	10	30	0.5	<i>Waitea aurea</i>	sub-dominant	Forb

Source:

[http://spatial.agrив.wa.gov.au/slip/commands/vegreportall/showvegetation\\_species.asp?keyvalue=80100486&type=938](http://spatial.agrив.wa.gov.au/slip/commands/vegreportall/showvegetation_species.asp?keyvalue=80100486&type=938)

## Appendix C

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

Heritage places in Western Australia map - Microsoft Internet Explorer provided by MRWA . . .

http://www.environment.gov.au/heritage/places/wa/index.html

File Edit View Favorites Tools Help

Heritage places in Western Australia map

Skip to content Change text size

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

Heritage  
Heritage places

Heritage places in Western Australia

Full heritage list

Education

Movable cultural heritage

Historic shipwrecks

International projects

Heritage organisations

Grants and funding

Nominating a heritage place

Managing a heritage place

Laws and notices

Publications and resources

Heritage  
Heritage places

Type keywords here search

You are here: Environment home » Heritage » Heritage places » Heritage in Western Australia

## Heritage places in WA

Australian heritage places are included on different heritage lists. On this page you can use a map to find places on the World and National heritage lists; or you can search for places on World, National, State & Territory lists.

### Map: World and National heritage places

The map below shows places in WA that are on the World and National heritage lists. If you can't use the interactive map below, see the [list of world and national heritage places in WA](#).

- Zoom to a Heritage place on the map -

Map Satellite Hybrid

Northampton  
Bowes

Northampton Rd  
Bowes Rd  
North West Coastal Hwy  
Nabawa-Northampton Rd

Stephen St  
Nookahena Brook

Northampton Bridge

2 km  
1 mi

Map data ©2011 Google, WhereFrom(R), Sensis Pty Ltd - [Terms of Use](#)

Search for heritage in Western Australia

Done

start

Deleted Items - Mi... HP TRIM - [Offline... G:\Environment\W... Z:\ PEIA&EMP North ... NWCH SLK 47-49 ... SLK 46.5 - 49.5 N... Heritage places in ... 9:44 AM

Source: <http://www.environment.gov.au/heritage/places/wa/index.html> (06/10/11)

Heritage Council of WA - Places Database : Search Results - Microsoft Internet Explorer provided by MRWA ...

http://register.heritage.wa.gov.au/search\_results.html

File Edit View Favorites Tools Help

Home Feeds (1) Print Page Tools

THE GOVERNMENT OF WESTERN AUSTRALIA

Heritage Council of WA Home

Quick Search

Advanced Search

Results List

Location Report

Save Data

What Is The State Register?

Other Heritage Lists

Home » Places Database » Search Results

Places Database

Site Map | Contact Us | Accessibility

heritage  
a future for our past

Search here  
Search WA Government

Displaying results: [1-6] of 6

hide selected hide unselected

<input type="checkbox"/>	<a href="#">200 Mile Tank</a> (17830)	North West Coastal Highway, Northampton		
<input type="checkbox"/>	<a href="#">Bridge 802 over Hutt River</a> (16767)	North West Coastal Hwy, Northampton		
<input type="checkbox"/>	<a href="#">CBH Silos</a> (9053)	North West Coastal Hwy, Northampton		
<input type="checkbox"/>	<a href="#">Mugawa (Ruins)</a> (9057)	North West Coastal Hwy, Northampton		
<input type="checkbox"/>	<a href="#">Murchison Bridges</a> (8771)	North West Coastal Hwy, Northampton		
<input type="checkbox"/>	<a href="#">Northampton Police Station, Quarters &amp; Court House (fmr)</a> (1906)	Cnr Hampton St (North West Coastal Hwy) & Stephen St, Northampton		

hide selected hide unselected

Perform a new: [QUICK PLACES DATABASE SEARCH](#) | [ADVANCED PLACES DATABASE](#)

wa.gov.au

Home | Site Map | Privacy | Disclaimer | Copyright | FAQs | Links | Contact Us | Places Database

Copyright © 2011 All contents copyright Government of Western Australia. All Rights Reserved.  
Last updated: 19/01/2010

Done

Internet 100%

start Deleted Items - Micro... HP TRIM - [Offline Re... G:\Environment\NWC... Z:\ PEIA&EMP North We... Heritage Council of W... 9:52 AM

Source: [http://register.heritage.wa.gov.au/search\\_results.html](http://register.heritage.wa.gov.au/search_results.html)



## Appendix D

### **Department of Indigenous Affairs Database Search**

Sites in a search box - Aboriginal Heritage Inquiry System - Microsoft Internet Explorer provided by MRWA . . .

http://www.dia.wa.gov.au/AHIS/Default.aspx

File Edit View Favorites Tools Help

Sites in a search box - Aboriginal Heritage Inquiry Sys...

Home Feeds (1) Print Page Tools

Government of Western Australia  
Department of Indigenous Affairs

Aboriginal Heritage Inquiry System

What do you want to do?  
Zoom to an area... : ...

show legend

show on map  
 Aboriginal Sites  
 Heritage Surveys  
 refresh more

Map size  
 Small  
 Medium  
 Large

next map

next map

Sites in a search box

0 results

Clear Results

Printable - All results (with map)

0 Registered Aboriginal Sites  
No results

0 Other Heritage Places  
No results

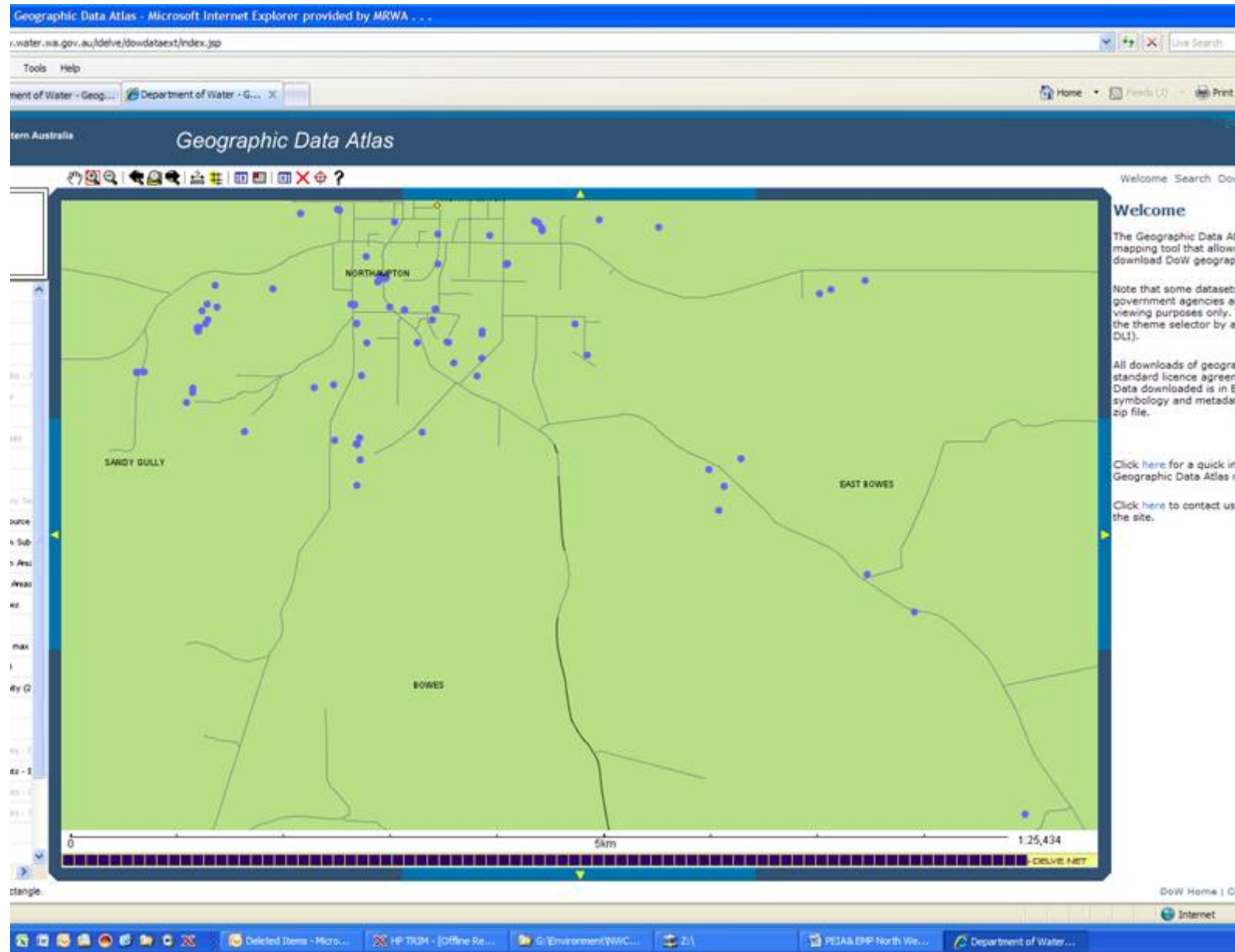
start

Deleted Items - M... HP TRIM - [Offin... G:\Environment\... Z:\ PEIA& EMP North... NWCH SLK 47-49 ... SLK 46.5 - 49.5 N... Sites in a search ... 9:41 AM

Source: <http://www.dia.wa.gov.au/AHIS/Default.aspx> (06/10/11)

## Appendix E

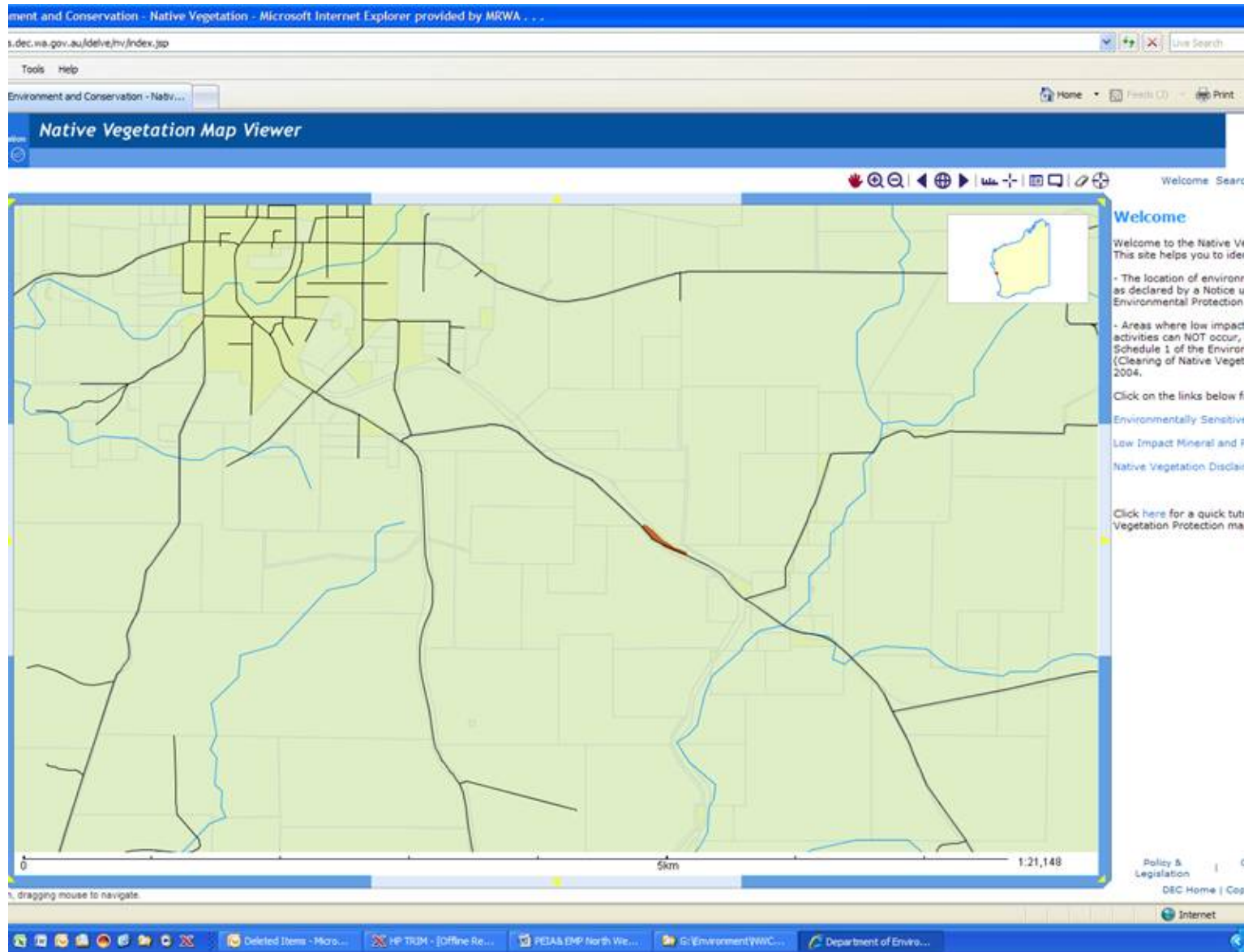
### **DoW Geographic Data Atlas Database Search**



Source: <http://www.water.wa.gov.au/idelve/dowdataext/index.jsp> (06/10/11)

## Appendix F

### **DEC Native Vegetation Map Viewer Database Search**



Source: <http://maps.dec.wa.gov.au/idelve/nv/index.jsp> (06/10/11)



## Appendix G

### **DSEWPC Database Search**



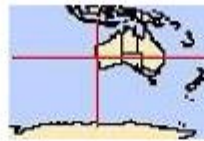
## EPBC Act Protected Matters Report: Coordinates

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.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.environment.gov.au/epbc/assessmentsapprovals/index.html>

**Report created: 06/10/11 13:29:07**



### [Summary](#)

### [Details](#)

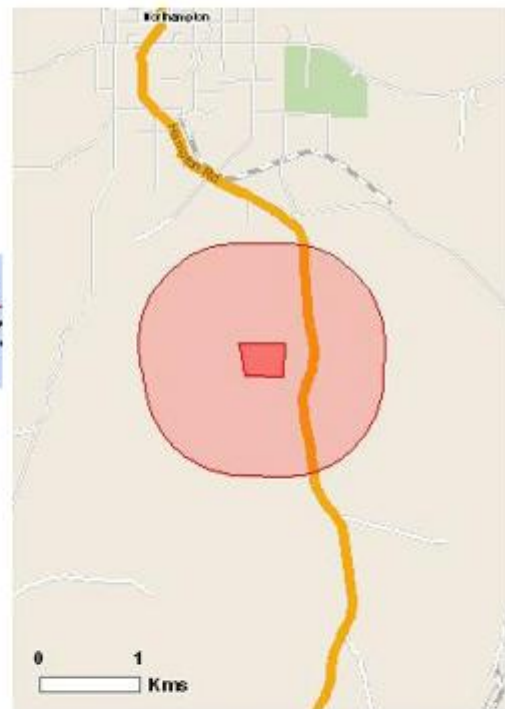
[Matters of NES](#)

[Other matters protected by the EPBC Act](#)

[Extra Information](#)

### [Caveat](#)

### [Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 1.0Km

## Summary

### Matters of National Environmental Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Significance (Ramsar Wetlands):</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Areas:</a>	None
<a href="#">Threatened Ecological Communities:</a>	None
<a href="#">Threatened Species:</a>	5
<a href="#">Migratory Species:</a>	7

### Other Matters Protected by the EPBC Act

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

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

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

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

<a href="#">Commonwealth Lands:</a>	None
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	5
<a href="#">Whales and Other Cetaceans:</a>	None

<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves:</a>	None

## Report Summary for Extra Information

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

<a href="#">Place on the RNE:</a>	None
<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	8
<a href="#">Nationally Important Wetlands:</a>	None

## Details

### Matters of National Environmental Significance

Threatened Species		<a href="#">[ Resource Information ]</a>
Name	Status	Type of Presence
<b>BIRDS</b>		
<a href="#">Calyptrorhynchus latirostris</a> Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area
<b>PLANTS</b>		
<a href="#">Caladenia hoffmanii</a> Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat likely to occur within area
<a href="#">Chorizema humile</a> Prostrate Flame Pea [32573]	Endangered	Species or species habitat may occur within area
<a href="#">Conostylis micrantha</a> Small-flowered Conostylis [17635]	Endangered	Species or species habitat may occur within area
<a href="#">Eucalyptus cuprea</a> Mallee Box [56773]	Endangered	Species or species habitat may occur within area
<b>Migratory Species</b>		<a href="#">[ Resource Information ]</a>
Name	Status	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat may occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area



[Merops ornatus](#)

Rainbow Bee-eater [670]

Species or species habitat may occur within area

**Migratory Wetlands Species**

[Ardea alba](#)

Great Egret, White Egret  
[59541]

Species or species habitat may occur within area

[Ardea ibis](#)

Cattle Egret [59542]

Species or species habitat may occur within area

**Other Matters Protected by the EPBC Act**

**Listed Marine Species**

**[ Resource Information ]**

Name	Status	Type of Presence
------	--------	------------------

**Birds**

[Apus pacificus](#)

Fork-tailed Swift [678]

Species or species habitat may occur within area

[Ardea alba](#)

Great Egret, White Egret  
[59541]

Species or species habitat may occur within area

[Ardea ibis](#)

Cattle Egret [59542]

Species or species habitat may occur within area

[Haliaeetus leucogaster](#)

White-bellied Sea-Eagle [943]

Species or species habitat likely to occur within area

[Merops ornatus](#)

Rainbow Bee-eater [670]

Species or species habitat may occur within area

**Extra Information**

**Invasive Species**

**[ Resource Information ]**

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
------	--------	------------------

**Mammals**

[Felis catus](#)

Cat, House Cat, Domestic Cat  
[19]

Species or species habitat likely to occur within area

[Oryctolagus cuniculus](#)

Rabbit, European Rabbit [128]

Species or species habitat likely to occur within area

[Sus scrofa](#)

Pig [6]

Species or species habitat likely to occur within area

[Vulpes vulpes](#)

Red Fox, Fox [18]

Species or species habitat likely to occur within area

**Plants**

[Cenchrus ciliaris](#)

Buffel-grass, Black Buffel-grass  
[20213]

Species or species habitat may occur within area

[Lycium ferocissimum](#)

African Boxthorn, Boxthorn [19235] <a href="#">Salvinia molesta</a>	Species or species habitat may occur within area
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665] <a href="#">Tamarix aphylla</a>	Species or species habitat may occur within area
Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]	Species or species habitat likely to 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 following provisions of the EPBC Act have been mapped:

- migratory and
- marine

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.



## Coordinates

-28.37915 114.63853,-28.37915 114.64271,-28.38212 114.64264,-28.38205 114.63906,-28.37931 114.63868,-28.37931 114.63868,-28.37915 114.63853

## Acknowledgements

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

- [Department of Environment, Climate Change and Water, New South Wales](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment and Natural Resources, South Australia](#)
- [Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [Environmental and Resource Management, Queensland](#)
- [Department of Environment and Conservation, Western Australia](#)
- [Department of the Environment, Climate Change, Energy and Water](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [SA Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [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](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [State Forests of NSW](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

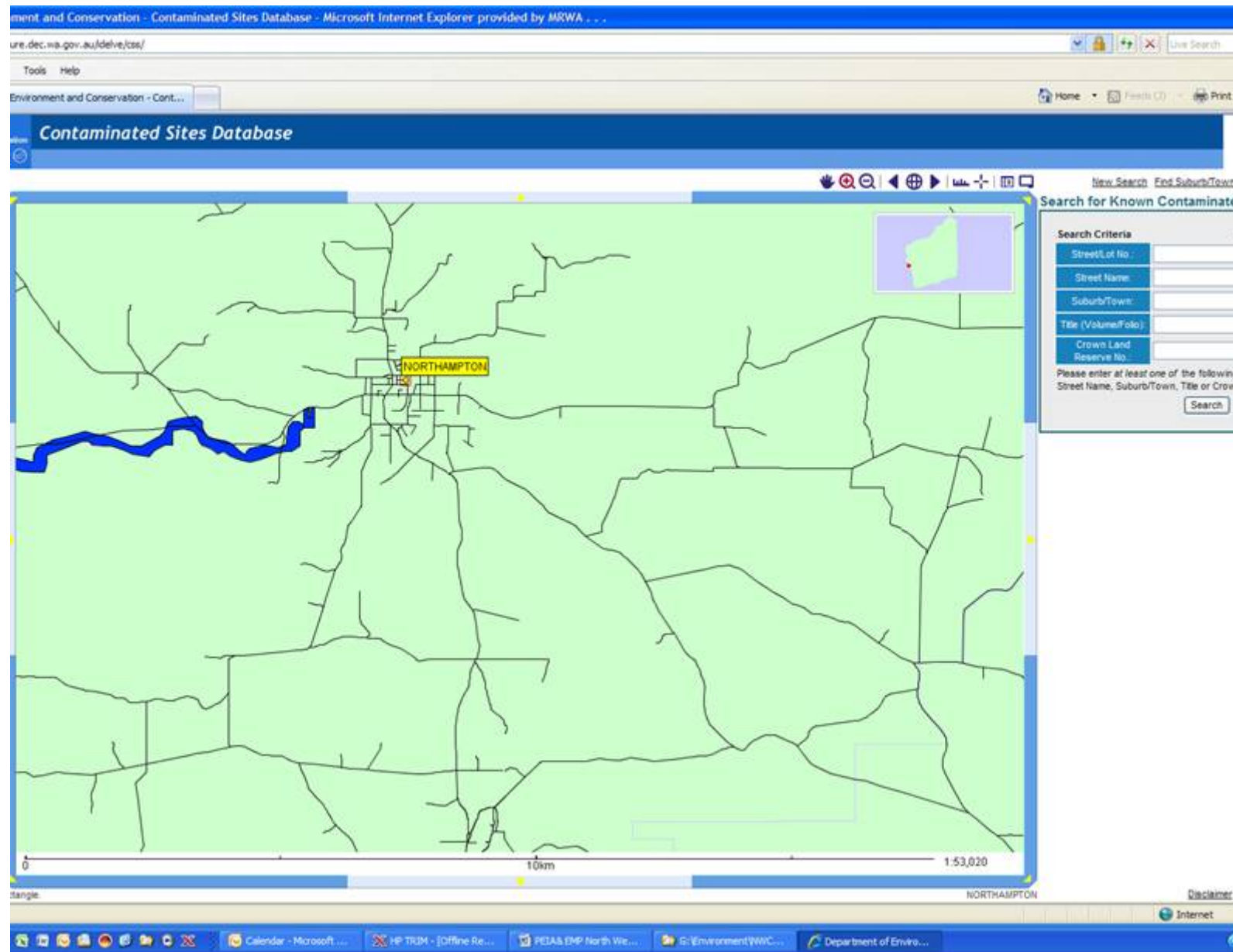
Please feel free to provide feedback via the [Contact Us](#) page.

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Last updated: Thursday, 16-Sep-2010 09:13:25 EST

## Appendix H

### **DEC Contaminated Sites Database Search**



Source: <https://secure.dec.wa.gov.au/idelve/css/> (06/10/11)

## Appendix I

### **Acid Sulfate Soils Mapping**

A S R I S - Maps - Microsoft Internet Explorer provided by MRWA . . .  
 http://www.asris.csiro.au/mapping/viewer.htm

# ASRIS

Australian Soil Resource Information System

Home About Maps Methods Themes Help Collaborators Contacts

Maps - Zoom Out

Layers Legend

- Locations
- Roads (1:250K)
  - Highway
  - Other Roads
- Streams
  - Major
  - Minor
- Builtup Areas
- Inland Water Bodies
- ASS Reference Sites
  - National ASS Atlas
  - A1 High Probability/High Confidence
  - A2 High Probability/Moderate Confidence
  - A3 High Probability/Low Confidence
  - A4 High Probability/Very Low Confidence
  - B1 Low Probability/High Confidence
  - B2 Low Probability/Moderate Confidence
  - B3 Low Probability/Low Confidence
  - B4 Low Probability/Very Low Confidence
  - C1 Extremely Low Probability/High Confidence
  - C2 Extremely Low Probability/Moderate Confidence
  - C3 Extremely Low Probability/Low Confidence
  - C4 Extremely Low Probability/Very Low Confidence
- Base-Map

Data delivered by CSIRO Land and Water

GDA94 Longitude: 114.7347 Latitude: -28.4077 Bookmark: select Approx Scale: 1: 47.903

start | Calendar - Microsoft ... | ASS - Message (HTML) | HP TRIM - [Offline Re... | PEIA&EMP North We... | G:\Environment\ASS | A S R I S - Microsoft I... | A S R I S - Maps - Mic... | 2:05 PM

Source: <http://www.asris.csiro.au/mapping/viewer.htm>

## Appendix J

### **Site Photos**





**Photo 1: South view**



**Photo 2: South West View**



**Photo 3: West View**

## Appendix K

# **Environmental Management Plan**



## ENVIRONMENTAL MANAGEMENT PLAN

### NORTH WEST COASTAL HIGHWAY MATERIAL SOURCE SLK 48.5

#### Introduction

This Environmental Management Plan (EMP) has been developed for the project area following the completion of the Preliminary Environmental Impact Assessment (PEIA) report. The aim of this EMP is to minimise the environmental impacts associated with the proposed works as well as to identify areas of responsibilities required for the implementation of management strategies.

This EMP addresses specific issues that were identified during the PEIA. The project management measures identified within this EMP are in addition to the standard environmental management contract specifications used for Category 2 projects. Main Roads' standard environmental contract specifications (Specifications 203, 204, 301, 302 and 304) are to be adhered to where appropriate.

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

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

#### Communication Plan

Environmental issues specific to the project will be communicated as follows:

Method	Frequency	Participants	Reference	Record
<b>Project Site</b>				
Induction	Prior to Work	All personnel and subcontractors	EMP and Contractor Environmental Policy	Induction Meeting
Toolbox Meetings	Weekly	Project Personnel	Contractor Safety Plan	Minutes of Meeting
Contract Meetings	Weekly	Main Roads' Project Manager and Contractor Project Manager	EMP	Minutes of Meeting
<b>Authority Consultation</b>				
Department of Environment and Conservation	As required	Main Roads' Project Manager and Contractor Project Manager	-	Minutes of meeting

#### External Communication and Complaints

A complaints register shall be maintained by the contractor. All complaints received shall be forwarded to the Main Roads' Project Manager for action. Serious complaints shall be investigated within 24 hours of the complaint being received.

## **Monitoring**

After project completion and project handover, the Asset manager should develop a monitoring program to monitor for those aspects that have been identified as requiring monitoring.

## **Contingency Measures**

Due to the scale and nature of the project, no contingency measures are identified as the inherent environmental risks are small.

## **Auditing**

Due to the scale and nature of the project, there is no requirement for auditing the implementation of the EMP as the environmental risks are small.

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	Topic	Objective	Action	Responsible Party	Advice
All phases of Construction	Vegetation Clearing - Record-keeping	All projects should maintain the required records relating to clearing native vegetation under the purpose permit.	Clearing: <ul style="list-style-type: none"> <li>a copy of the PEIA &amp; EMP (Minor projects) for small projects;</li> <li>a map showing the location where the clearing occurred, recorded in an ESRI Shapefile</li> <li>the size of the area cleared (in hectares); and</li> <li>the dates on which the clearing was done.</li> </ul>	Project Manager	DEC
Pre-Construction	Vegetation Clearing	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.			
			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
			Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread over battered area.	Contractor	Main Roads
Construction	Noise, Vibration and Dust	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
			Any complaints regarding dust will be attended to as soon as possible.	Contractor/Project Manager	Main Roads
			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
Construction	Pollution and Litter	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment.			
			Emergency cleanup procedures shall be implemented in the case of any spillage. These will include control of spilled material and removal of contaminated soil to an approved site. The contractor shall ensure appropriate equipment is available at all times and shall notify the Superintendent's Representative of a spill.	Contractor	Main Roads
Construction	Fire	Ensure that the fire risk	No fires shall be lit within the project area.	Contractor	Main Roads



ENVIRONMENTAL MANAGEMENT PLAN					
Timing	Topic	Objective	Action	Responsible Party	Advice
		associated with the construction of the proposal is minimised.	Machinery will be fitted with approved spark arresting mufflers.	Contractor	Main Roads
			A water tanker/fire fighter unit will be on site at all times.	Contractor	Main Roads
Construction	Fauna	Avoid unnecessary impacts to fauna and damage to fauna habitat.	Fauna are not to be fed or intentionally harmed.	Contractor	Main Roads
			No pets or firearms permitted on site.	Contractor	Main Roads
			The WILDCARE Helpline is to be contacted, 9474 9055, in the event of sick, injured or orphaned native wildlife on the site.	Contractor	Main Roads
Construction	Site Management	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the surrounding environment.	Site office and materials storage areas will be located on previously disturbed/ designated area.	Contractor	Main Roads
Construction	Rehabilitation	Rehabilitate the project area to meet project commitments.	Implement the contract specifications for rehabilitation of the site.	Contractor	Main Roads
			All waste materials from the development are to be completely removed from the site upon completion of the project. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.	Contractor	Main Roads