



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

**Bussell Highway (H043)
Osmington Road to Nozzle Road
SLK 93.75 – 94.83
Shire of Augusta Margaret River**

Compiled: A/EO Peter Swanson
Date: January 2010

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1 SUMMARY

The proposal to reconstruct, widen and seal just over one kilometre of Bussell Highway (H43) in the Shire of Augusta Margaret River does not impact with any significance on any environmental aspects.

The project is not likely to be at variance to the Clearing Principles; therefore the removal of native vegetation can be undertaken using Main Roads' Purpose Permit (CPS 818/4).

The project does not warrant referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment, Water, Heritage and Arts.

The Environmental Management Plan (EMP) in Section 8 of this report needs to be complied with. Roadside weeds should be managed prior to any disturbance to the site.

2 PROJECT DESCRIPTION

Bussell Highway is the main traffic route to Margaret River and one of the key routes between Bunbury and Augusta. The Vasse to Margaret River Section of the highway is increasingly popular with tourists and combined with regional population growth, the number of vehicles using this particular route has increased and will continue to do so. This increasing vehicle use has been linked to increased accident rates in the area.

Main Roads Western Australia (Main Roads), South West Region, is in the advanced planning stages for road improvements on the Bussell Highway. This project to reconstruct, widen and seal between Osmington Rd and Nozzle Rd north of Margaret River town site (93.75 – 94.83 SLK Figure 1) is part of a larger project to widen and provide passing lanes on Bussell Highway between Vasse and Margaret River. It is estimated that approximately 0.5 hectares of native vegetation (mixed with invasive weed tree species) will need to be cleared to implement the project.

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

GHD was initially commissioned by Main Roads in early 2008 to undertake an EIA for the section from Cowaramup Bay Road to Margaret River (SLK 87.4-96.2). A draft version including flora and fauna surveys was produced in October 2008. Since then, in order to progress works through identified less environmentally sensitive sections and also sections where land acquisition requirements do not impact on the proposed works; Main Roads has produced a PEIA for the section from Cowaramup Bay Road to the boundary of the state forest just south of Burnside Road (SLK 87.4 – 91.1). Similarly, this current project is a small section within the remaining investigation area of GHD between Burnside Rd and Carters Rd north of Margaret River town site (SLK 90.47 – 96.60). Several references will be made in this document to the draft EIA report and associated surveys.

3 PROJECT LOCATION

The project location and study area are shown below.

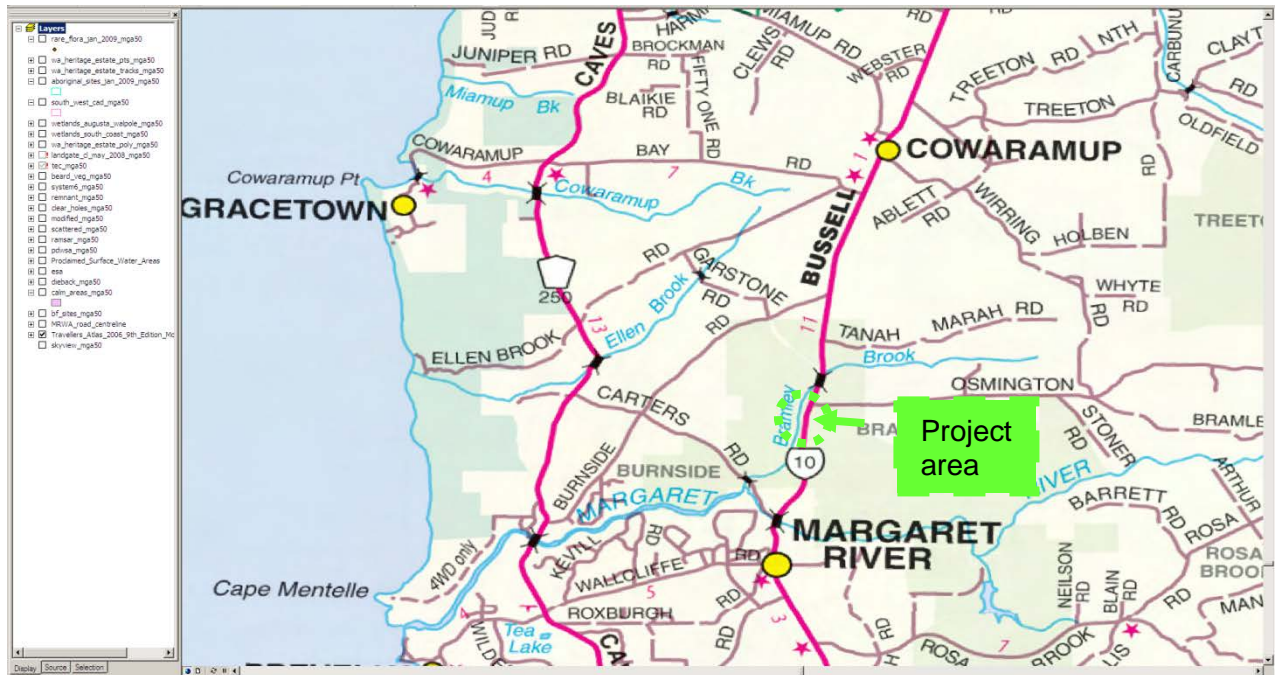


Figure 1: Streetsmart indicating the project location and study area

4 EXISTING ENVIRONMENT

This section of Bussell Highway traverses state forest on the eastern side and relatively good native forest to the west. The vegetation proposed to be cleared on the eastern side exists as a narrow strip (up to 10m) of mixed native vegetation in the road reserve. It is comprised of immature Marri (*Eucalyptus callophylla*), WA Peppermint (*Agonis flexuosa*) with very occasional Karri (*Eucalyptus diversifolia*) trees and a sparse array of low and groundcover shrubs.

The condition of this vegetation, using the Keighery 1994 scale, is degraded by being severely impacted from disturbance as roadside fringing vegetation and invasion primarily by Victorian teatree (*Leptospermum laevigatum*) and plantation pine (*Pinus spp.*). The ecosystem of these trees would be considered unlikely to be performing services and maintaining ecological value due to the isolated nature of their location between a major highway and a wide cleared track.

Adjacent to this strip of vegetation and located in the state forest, there is a cleared fire trail sometimes 15 metres wide. The eastern side of this is a buffer of disturbed native vegetation of about 50 metres wide prior to the boundary of the plantation pine forest (see aerial view in Figure 2).

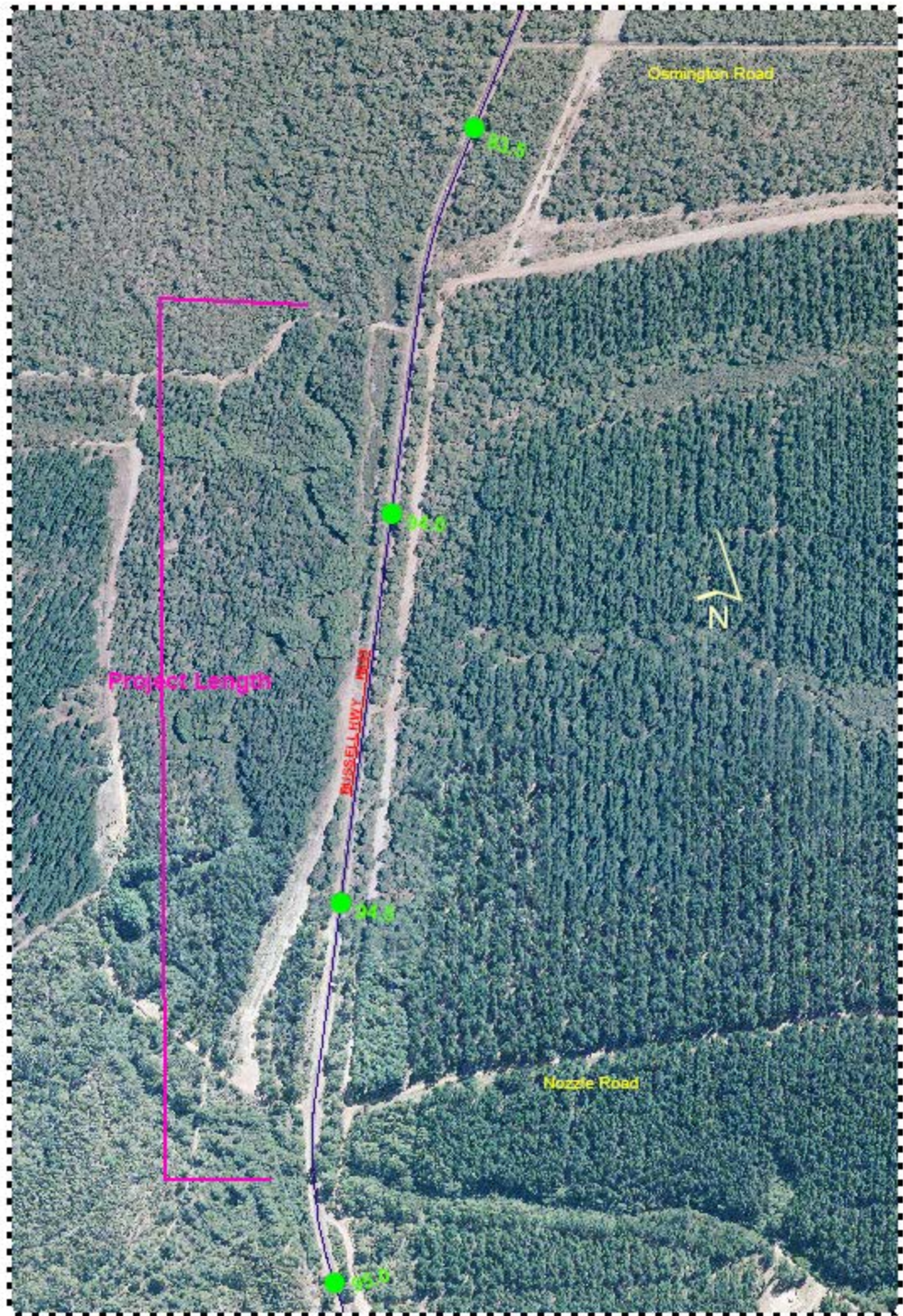


Figure 2: Aerial view of project area

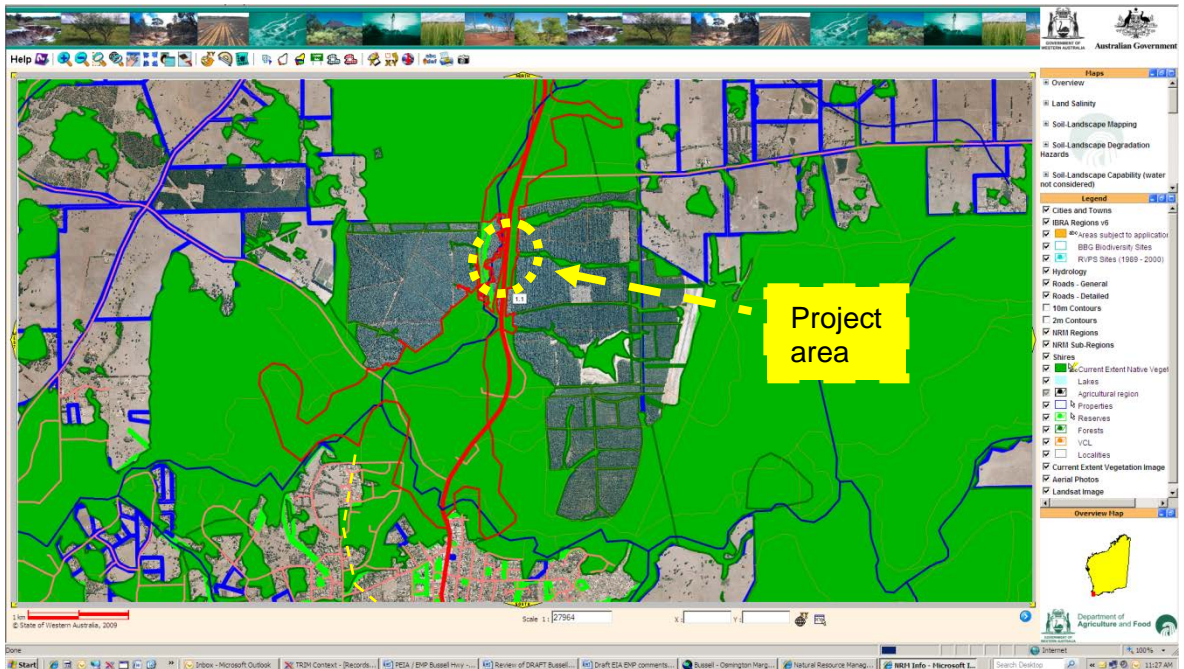


Figure 3: Department of Agriculture and Food: Natural Resource Management - Shared Land Information Portal

Vegetation Map Unit					
Map Unit Number: 80100426 Spatial Mix: pure Number of Vegetation Types: 1					
Vegetation Types					
Type	Type Description Number	Description	Environmental Descriptor	NVIS Lv2 Structural Formation	NVIS Lv3 - Broad Floristic Formation
694	1	Tall forest; karri (Eucalyptus diversicolor)	DARLING - WARREN - DENMARK - TORNDIRRU	Open forest	Eucalyptus open forest

Table 1: Vegetation Map Unit & Vegetation Type (Department of Agriculture and Food, Natural Resource Management)

Vegetation Association	Pre-European Extent	Current Extent	% Remaining
1	72,410.18	58,644.35	80.99

IBRA Region Code	IBRA Region Name	IBRA Region Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
JF	Jarrah Forest	4,509,045.88	1	3,066.13	2,518.18	82.13

IBRA Sub Region Code	IBRA Sub Region Name	IBRA Sub Region Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
JF2	Southern Jarrah Forest	2,612,303.82	1	3,066.13	2,518.18	82.13

Local Govt. Authority	Local Govt Authority Extent	Vegetation Association	Pre-European Extent	Current Extent	% Remaining
AUGUSTA-MARGARET RIVER, SHIRE OF	299,935.11	1	12,555.63	7,028.85	55.98

Table 2: Vegetation extent of Association 4 by State, IBRA Region and Sub-region and LGA

Vegetation Map Unit - Dominant Species Information

Map Unit Number: 80100426
Vegetation Type No: 694

Species List

Stratum	Minimum % Crown Cover	Maximum % Crown Cover	Maximum Height (m)	Species	Dominance	Growth Form
Upper 1	30	70	60	<i>Eucalyptus diversicolor</i>	dominant	Tree
Upper 2	30	70	60	<i>Eucalyptus marginata</i>	sub-dominant	Tree
Upper 2	30	70	60	<i>Corymbia calophylla</i>	sub-dominant	Tree
Upper 3	10	30	30	<i>Allocasuarina decussata</i>	sub-dominant	Tree
Upper 3	10	30	30	<i>Eucalyptus megacarpa</i>	sub-dominant	Tree
Upper 4	10	30	10	<i>Agonis flexuosa</i>	sub-dominant	Tree
Upper 4	10	30	10	<i>Banksia grandis</i>	sub-dominant	Tree
Upper 4	10	30	10	<i>Banksia verticillata</i>	sub-dominant	Tree
Upper 4	10	30	10	<i>Persoonia longifolia</i>	sub-dominant	Tree
Mid 1	10	30	3	<i>Acacia pentadenia</i>	sub-dominant	Shrub
Mid 1	10	30	3	<i>Albizia lophantha</i>	sub-dominant	Shrub
Mid 1	10	30	3	<i>Bossiaea aquifolium</i>	sub-dominant	Shrub
Mid 1	10	30	3	<i>Chorilaena quercifolia</i>	sub-dominant	Shrub
Mid 1	10	30	3	<i>Trymalium spathulatum</i>	sub-dominant	Shrub
Mid 1	10	30	3	<i>Pimelea clavata</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Acacia divergens</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Bossiaea linophylla</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Cassytha glabella</i>	sub-dominant	Climber
Mid 2	30	70	1.5	<i>Chorizema diversifolium</i>	sub-dominant	Climber
Mid 2	30	70	1.5	<i>Clematis pubescens</i>	sub-dominant	Climber
Mid 2	30	70	1.5	<i>Acacia myrtifolia</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Acacia obscura</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Acacia pulchella</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Acacia urophylla</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Bossiaea ornata</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Chorizema ilicifolium</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Crowea angustifolia</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hakea amplexicaulis</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hardenbergia comptoniana</i>	sub-dominant	Climber
Mid 2	30	70	1.5	<i>Hibbertia amplexicaulis</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hibbertia crenata</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hibbertia serrata</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hibbertia tetrandra</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hovea elliptica</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Hypocalymma cordifolium</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Kennedia coccinea</i>	sub-dominant	Climber
Mid 2	30	70	1.5	<i>Leucopogon capitellatus</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Leucopogon propinquus</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Leucopogon verticillatus</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Phyllanthus calycinus</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Podocarpus drouynianus</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Sphaerolobium medium</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Thomasia quercifolia</i>	sub-dominant	Shrub
Mid 2	30	70	1.5	<i>Thomasia triloba</i>	sub-dominant	Shrub

Mid 2	30	70	1.5	Tremandra stelligera	sub-dominant	Shrub
Mid 2	30	70	1.5	Xanthosia sp.	sub-dominant	Forb
Mid 2	30	70	1.5	Macrozamia riedlei	sub-dominant	Chenopod
Mid 2	30	70	1.5	Xanthorrhoea preissii	sub-dominant	Grass tree
Ground 1	10	30	1	Anigozanthos flavidus	sub-dominant	Forb
Ground 1	10	30	1	Dampiera hederacea	sub-dominant	Forb
Ground 1	10	30	1	Lepidosperma longitudinale	sub-dominant	Sedge
Ground 1	10	30	1	Lomandra sp.	sub-dominant	Sedge
Ground 1	10	30	1	Opercularia hispidula	sub-dominant	Shrub
Ground 1	10	30	1	Dampiera linearis	sub-dominant	Forb
Ground 1	10	30	1	Orthosanthus laxus	sub-dominant	Forb
Ground 1	10	30	1	Patersonia xanthina	sub-dominant	Forb
Ground 1	10	30	1	Pteridium esculentum	sub-dominant	Fern
Ground 1	10	30	1	Scaevola auriculata	sub-dominant	Shrub
Ground 1	10	30	1	Scaevola striata	sub-dominant	Shrub

Table 3: Dominant species list (Department of Agriculture and Food, Natural Resource Management)

Site Investigation	Description/Comment
Total area (ha) of native vegetation to be cleared	Approximately 0.5ha
Total area (ha) of other vegetation, including regrowth, landscape areas, to be cleared	n/a
Weeds present	Victorian teatree (<i>Leptospermum laevigatum</i>) and Pinus spp.
Drainage areas or wetlands present	n/a
Adjacent land uses	State forest (pine plantation) and native forest

Table 4: Summary of environmental aspects

5 CONSULTATION

5.1 DEC database searches

A number of database searches were completed over the study area by the DEC at the request of GHD to gain information necessary to complete the EIA. The agencies contacted and the information provided included the following:

- ▶ DEC-Declared Rare and Priority Flora database search;
- ▶ DEC-WA Herbarium Specimens database search;
- ▶ DEC-Threatened and Priority Fauna database search;
- ▶ DEC-TEC database search; and
- ▶ DEC-Contaminated sites database.

5.2 Main Roads Public Consultation

Main Roads consulted extensively on the overall project section, Vasse to Margaret River along the Bussell Highway, in 2001 and 2002. This included approaching over 30 local community groups, local authorities and the general public through public displays.

More recent consultation in 2009 relating to this section of Bussell Highway include meetings with Margaret River Environment Centre and Shire of Augusta Margaret River.

12/6/2009 – Met with Margaret River Environment Centre – Rod Whittle & Tracy Skippings – Specific details of proposed works between Burnside Road and Nozzle Rd were outlined by MRWA. MREC outlined concerns with impact of clearing on biodiversity particularly sections of high quality vegetation along western side of highway. MRWA

undertook to review alternative treatments and alignments to reduce the need for clearing esp. along western side. Inspected site.

12/6/2009 – Met with Shire of Augusta Margaret River – Wayne Prangnell, Merryn Delaney – Details of proposed works between Burnside Rd and Nozzle Rd discussed. Shire queried need for passing lane in the section between Osmington and Nozzle Roads and expressed concern that this would lead to loss of remaining vegetation on the approach to town. Requested that clearing be kept to the minimum required to achieve safety outcomes.

14/9/2009 – Met with Rod Whittle, Tracy Skippings and Dave Rankin – Reviewed alterations to alignment and proposed use of road safety barriers to eliminate the need for clearing in sensitive areas. Also discussed a plan to move the planned passing lane from the Osmington / Nozzle section further out of town to the area between Burnside Rd and Tanah Merah Rd. Inspected site to view how the proposed design would impact on clearing requirements. Agreed to proceed with pegging the proposed clearing extents to allow further site evaluation.

14/9/2009 – Met with AMRSC - David Nicholson, Merryn Delaney - Reviewed alterations to alignment and proposed use of road safety barriers to eliminate the need for clearing in sensitive areas. Also discussed the plan to move the planned passing lane from the Osmington / Nozzle section to the area between Burnside Rd and Tanah Merah Rd.

12/11/2009 – Met with Rod Whittle and Dave Rankin – Reviewed pegging of clearing extents on site and discussed design constraints. Rod and Dave indicated that they were generally happy with the adjustments that had been made to the design. Agreed that final design and acquisition of State Forest would proceed. MRWA undertook to continue liaison with MREC as project progresses.

12/11/2009 – Met with AMRSC – Wayne Prangnell – Briefed Wayne on alterations to alignment and proposed use of road safety barriers to eliminate the need for clearing in sensitive areas. Also discussed the plan to move the planned passing lane from the Osmington to Nozzle section to the area between Burnside Rd and Tanah Merah Rd. Reviewed pegging of clearing extents on site and advised that MRWA would proceed with final design and acquisition of State Forest. MRWA undertook to arrange information board to be prepared for display in Shire library / offices etc.

6 ASSESSMENT AGAINST CLEARING PRINCIPLES

In assessing whether the project is likely to have a significant impact on the environment, the project has been assessed against the DEC's 10 principles of clearing, refer to Appendix K.

The project is NOT LIKELY to be at variance with the DEC's 10 clearing principles.

The project is NOT in an Environmentally Sensitive Area.

7 ASSESSMENT OF ASPECTS AND IMPACTS

Table 1: Aspects and Impacts – Bussell Highway: Osmington Road to Nozzle Road

Aspect	Evaluation of Potential Impacts
Air quality	Not relevant to the proposed works.
Dust	Likely to be a minor issue during earthworks. Likely to be easily managed by standard construction dust management techniques.

Table 1: Aspects and Impacts – Bussell Highway: Osmington Road to Nozzle Road

Aspect	Evaluation of Potential Impacts
Fauna	No significant fauna issues associated with any of the proposed upgrade works due to the degraded condition and immaturity of the vegetation to be cleared. No nesting hollow trees or significant habit identified during surveys undertaken by GHD in 2008.
Vegetation – clearing	<ul style="list-style-type: none"> Approximately 0.5 ha of native vegetation will be cleared. The condition of the native vegetation to be cleared is Degraded. The native vegetation to be cleared is well represented on a state wide and bioregional basis (i.e. there is >80% remaining which is much greater than 30% of its pre-European extent) (see Table 2). The native vegetation to be cleared does not occur within an ESA. The native vegetation can be cleared using the purpose permit.
Vegetation – TECs/DRF	None present in the proposed works areas. None were identified during surveys undertaken by GHD in 2008.
Vegetation – weeds	The general area is quite disturbed with Victorian teatree (<i>Leptospermum laevigatum</i>) and plantation pine invaders throughout the proposed works area.
Vegetation – dieback	From consultation undertaken between GHD and DEC (Jeremy Chick) in 2008 it was considered that the entire study area (Burnside Rd to Carter Road: 90.47 - 96.6 SLK) was Unprotectable. (GHD 2009 draft)
Reserves / Conservation areas	No clearing is proposed in the adjacent state forest.
Heritage (non-indigenous)	A search of the Heritage Council of Western Australia indicated that there are no heritage significance listed sites in the vicinity of the proposed works areas. A search of the Australian Heritage database and the Australian Heritage Places inventory of the Department of Environment, Water, Heritage and Arts indicated that there are no national state heritage significant listed sites in the vicinity of the proposed works area.
Aboriginal heritage	A search of Main Roads GIS database identified no known sites of Aboriginal heritage significance within the vicinity of the project area.
Surface water/drainage	The project will not be of concern given the limited nature of the proposed works, which 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. The Bramley Brook, located to the west of the project area is identified as a sensitive watercourse, but as the clearing is to be undertaken on the eastern side of the highway and given the minimal scope of works; there is little likelihood of it being impacted.
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Noise and vibration	No major sensitive local receivers in the vicinity.
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.
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	No further investigations are necessary as there is no dewatering or excavation below the water table planned.
Statutory Land Use Planning	As the proposed works are entirely within the existing road reserve, no further amendments would be required to the Local Government Planning Scheme or Region Scheme.

8 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, it is considered that the project does not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment, Water, Heritage and Arts.

9 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 aim of this EMP is to provide a management plan to assist in minimising the environmental impacts of the activities associated with the proposed works and identify who is responsible for the implementation of the management strategies.

It is critical that all clearing works are carried out in accordance with the management measures prescribed in Specifications 301 (Clearing) and 302 (Earthworks).

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.

9.1 Communication Plan

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

Method	Frequency	Participants	Reference	Record
Project Site				
Induction	Prior to Work	All personnel and subcontractors	EMP and Contractor Environmental Policy	Induction Meeting

9.2 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.

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"> a copy of the PEIA & EMP (Minor projects) for small projects; a map showing the location where the clearing occurred, recorded by coordinates or in an ESRI Shapefile; the size of the area cleared (in hectares); and the dates on which the clearing was done. 	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. Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible.	Selection of designs/locations that minimise adverse impacts on the biological environment.	Project Manager	Main Roads
			Control/spray weeds species (Victorian teatree (<i>Leptospermum laevigatum</i>) and <i>Pinus spp.</i>) within the project area on the western side of the road prior to construction to limit the amount of propagative material that may be spread during disturbance.	Project Manager Contractor	Main Roads
			Avoid burning stockpiled vegetation from clearing works (especially during fire restriction periods) and attempt to mulch and utilise during any rehabilitation works.	Project Manager 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.	Project Manager Contractor	Main Roads
			Public access should be maintained along the reserve at all times.	Project Manager Contractor	Main Roads
			Any complaints regarding dust will be attended to as soon as possible.	Project Manager Contractor	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
	Weeds & Pathogens	Reduce the chance of spreading weeds and (dieback) pathogen	Standard weed and pathogen (dieback) hygiene measures should be applied for all earthworks in the area, including ensuring that plant and equipment brought on to the site are clean of soil.	Project Manager Contractor	Main Roads
			Ensure all imported material is from a certified supplier and free of weed seed and pathogen free	Project Manager Contractor	
	Pollution and Litter	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment.	The designated servicing area will be bunded to contain any spills or leaks and shall not be located in an area adjacent to any drainage areas or watercourses or will drain into a temporary sump.	Contractor	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	Topic	Objective	Action	Responsible Party	Advice
			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
			All waste oil will be collected for recycling and any empty fuel/oil containers, used filters and waste hydraulic parts to be collected and stored in an allocated area then removed to an approved site.	Contractor	Main Roads
			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
	Fire	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
			A water tanker will be on site at all times.	Contractor	Main Roads
	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
Post-Construction	Rehabilitation	Leave the project area free from debris	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

10 CONTINGENCY MEASURES

Given the scale and nature of the project, no contingency, monitoring or auditing measures are identified as the inherent environmental risks are small.

Appendix A

Low Impact Environmental Screening Checklist

Form No. 6707/001/01

Checklist - Low Impact Screening Checklist

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

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

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

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

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

Project Name RUSSELL HWY (1443): Osminston Rd. to Nozzle Rd. SLK 93.75 - 94.83
RECONSTRUCT, WIDEN & SEAL 10.0 - WIDE.

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. <u>BLAMLEY BROOK ON WESTERN SIDE.</u>	<input checked="" type="checkbox"/>	<input 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 [Signature] Date 12/1/2010
Name B WALKER Title PROJECT MANAGER

To be reviewed by a Main Roads Environment Officer: Signature [Signature] Date 13/1/10
Name Peter Swanson Title A/EO

Comments: Further investigation required
regarding Items 2 & 5 i.e. PEIA.

Appendix B

Main Roads GIS Database Search Results

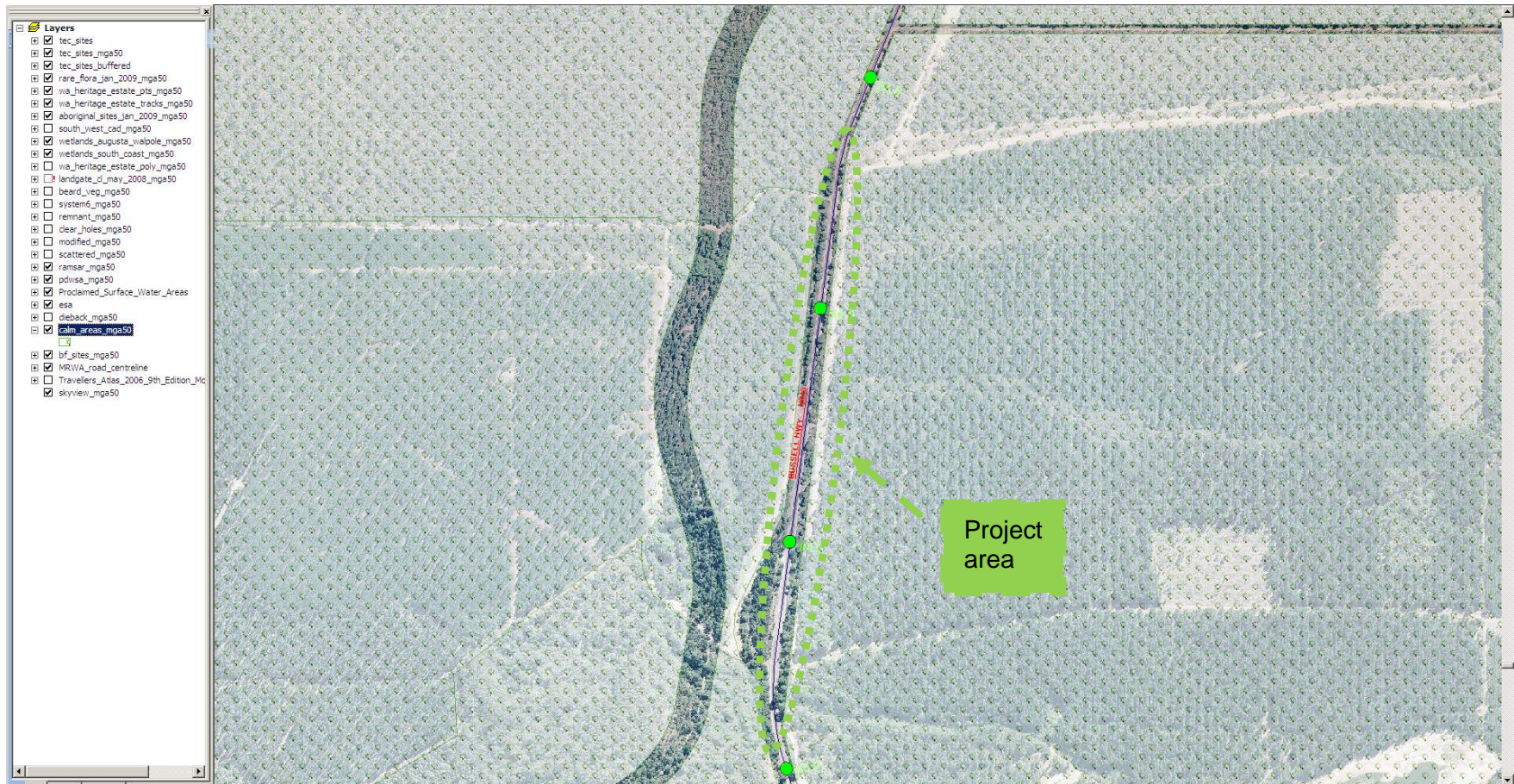


Figure 3: Main Roads GIS database search results showing the study area free of any registered environmental aspects and surrounded by CALM (DEC) managed land.

Appendix C

Site Photos



Photo 1: View north at SLK 94 – clearing to be undertaken on the right side of the road



Photo 2: View north - clearing to be undertaken on the right side of the road. Note width of vegetation between the highway and the state forest track. Also note the drop-off within metres of the road edge.



Photo 3: View south – showing the width of the track between the vegetation strip to the right and the buffer area to the left in the state forest.



Photo 4: Large Victorian Teatree with pine species in the background



Photo 5: showing the invasiveness of the Victorian Teatree



Photo 6: large Karri (centre) that will need to be removed



Photo 7: view south showing vegetation on the left to be removed

Appendix D

Vegetation Clearing Assessment Report

MRWA Vegetation Clearing Assessment Report

This report has been prepared to assist MRWA in addressing condition 7 "Assessment of Clearing Impacts" under Clearing Permit CPS 818/3.

For guidance on how to complete the form, refer to DEC completed reports (active permits) at http://203.20.251.100/cps_reports/.

AREA UNDER ASSESSMENT DETAILS

Proponent details

Proponent's name:
Contacts:

MRWA
Name: Peter Swanson
Phone: 9725 5692
Fax: 9725 5666
Email: peter.swanson@mainroads.wa.gov.au

Property details

Property:

Bussell Highway: Osmington Road to Nozzle Road in the Shire of Augusta Margaret River

Colloquial name:

Area under assessment

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:	Site Plan Attached
0.5	20 semi-mature Marri (<i>Eucalyptus callophylla</i>), 15-20 WA Peppermint (<i>Agonis flexuosa</i>), 2 Karri (<i>Eucalyptus diversicolor</i>)	Machine & Hand	Road widening	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Avoidance/Minimise clearing

How have the clearing impacts been minimised?

The road is to be widened on the eastern side only where the vegetation is most sparse, therefore maintaining a vegetation/fauna corridor on the other side.

Clearing of vegetation is only to the extent of providing safe clear zones to appropriate standards.

The original design for an overtaking lane in this location was changed (to another location) following public consultation so as to reduce removal of vegetation at the approach to the Margaret River townsite.

BACKGROUND

Existing environment and information

Description of the native vegetation under application

Site Visit Undertaken	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fauna / Flora Survey Undertaken	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Site Report Attached	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Fauna / Flora Survey Report Attached	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Site Photos Attached	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other Relevant References Attached	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Vegetation Complex	Clearing Description	Vegetation Condition	Comment
Tall forest; karri (<i>Eucalyptus diversicolor</i>) (Shepherd et al 2001)	Approximately 0.5 hectares of immature Marri (<i>Eucalyptus callophylla</i>), WA Peppermint (<i>Agonis flexuosa</i>) with two Karri (<i>Eucalyptus diversicolor</i>) trees and various low and groundcover shrubs	Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by occasional fires, partial clearing and grazing. (Keighery 1994)	The composition of the vegetation to be cleared is not representative of species of a tall forest; karri (as noted in Table 3) as it is degraded, with little or no understorey and weed invasion.

ASSESSMENT OF APPLICATION AGAINST CLEARING PRINCIPLES

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

The approximately 0.5 hectares proposed to be cleared consists of part of a non-continuous narrow (10m) strip of shrubs and small trees along the roadside which are isolated from the surrounding forest. The highway is on the western side and a 15m wide cleared track on the eastern side.
Aerial photography and site photos show the vegetation proposed to be cleared does not appear to have a higher diversity than the surrounding area especially on the opposite side of the road where the vegetation will not be impacted. The existing biological diversity of the vegetation proposed to be cleared at ecosystem, species or genetic levels is not likely to comprise a high level of biodiversity.

Methodology Site inspection
 GIS data base
 EIA, GHD 2008

(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.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

The majority of the trees to be cleared are immature specimens that do not have broken or fallen branches that might provide suitable hollows as habitat for fauna. The semi-mature Marri trees and Karri tree have been inspected and do not appear to have any suitable nesting hollows.

Methodology Site inspection
 EIA, GHD 2008 and Site assessment of habitat & fauna (opportunistic survey)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

There are no DRF registered in the project area and it is unlikely that the disturbed condition of the vegetation would support any.

Methodology Main Roads GIS data base search (DEC shape file)
 EIA, GHD 2008 and Flora survey

(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.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

There are no TECs registered in the project area and it is unlikely that the disturbed condition of the vegetation would represent a significant ecological community.

Methodology Main Roads GIS data base search (DEC shape file)
 EIA, GHD 2008 and Flora survey

(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.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

The vegetation complex of the vegetation proposed to be removed (medium woodland; marri & wandoo) is represented by 80.99% of pre-European settlement, which above the 30% trigger point.
IBRA Region extent is 82.13%.
IBRA Sub-region extent is 82.13%.
LGA extent is 55.98%.

The vegetation proposed to be cleared would not be considered as representative of 'Tall forest; karri' due to the structural degradation, lack of mid and under-storey plants and the range of species differing from that listed in Table 3 (see also Appendix C: Site Photos).

Therefore it would be considered that the proposed clearing is not likely to be at variance to this principle.

Methodology SLIP NRM database & Main Roads file "*Native Vegetation in Western Australia - Extent, Type and Status*" (*car_reserve_analysis_2006.xls*)
EPA Position Statement No.9 'Environmental Offsets', 2006.
EPA Guidance Statement No.19 'Guidance for the Assessment of Environmental Factors (Environmental Offsets)', 2008.
EIA, GHD 2008 and Flora survey

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

Bramley Brook has been identified as being in the proximity of the project area on the western side of the highway; but because the works are occurring only on the eastern side, it is unlikely that there will be any impact to the watercourse. Drainage designs are to reinstate the current hydrological regime which will prevent any possible impact from erosion and sedimentation.

Methodology Site inspection
Main Roads GIS data base search
EIA, GHD 2008

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

The limited extent of proposed clearing will not cause land degradation.

Methodology Site inspection
EIA, GHD 2008

(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.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

There are no registered conservation sites near or adjacent to the project area. The proposed clearing is not to extend into the adjacent state forest.

Methodology Site inspection
Main Roads GIS data base search
EIA, GHD 2008

(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.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

The limited extent of proposed clearing will not cause deterioration of surface or groundwater.

Methodology Site inspection
EIA, GHD 2008

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments **Proposal is NOT LIKELY to be at variance to this Principle**

The limited extent of proposed clearing will not cause or influence flooding.

Methodology Site inspection

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

The proposed works are within a dedicated road reserve; which extinguishes native title under section 33 of the *Land Act 1933*, there will be no issues (National Native Title Tribunal, 2008).

Methodology

SUBMISSIONS

If required have submissions been requested and addressed

Submission Requested from	Request Sent (Date)	Submission Received (Date)	Issues Raised / Comments Made
n/a			

ASSESSOR'S RECOMMENDATIONS

List of Principles seriously at variance, at variance or maybe at variance
N/A

Recommendation: The proposal is NOT LIKELY to be at variance to the Clearing Principles, and therefore can be undertaken using the Purpose Permit CPS 818/4.

References

A Guide to the Assessment of Applications to clear Native Vegetation under Part V of the Environmental Protection Act 1986. Department of Environment and Conservation

EPA Guidance Statement No.19 'Guidance for the Assessment of Environmental Factors (Environmental Offsets), 2008.

EPA Position Statement No.9 'Environmental Offsets', 2006.

Keighery BJ 1994, Bushland Plant Survey. A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc.), Nedlands.

SLIP NRM database & Main Roads file "Native Vegetation in Western Australia - Extent, Type and Status" (car_reserve_analysis_2007.xls)

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

GHD, 2008: Draft Report for Bussell Highway - Burnside Rd to Carter Rd (90.47 - 96.6 SLK), Environmental Impact Assessment and Environmental Management Plan. (Results of the Flora and Fauna Surveys undertaken by GHD are in Appendix E & F respectively).

OFFICER PREPARING REPORT

Peter Swanson

Position: Title: EO/A
South West Regional Office
MRWA
Date: January 2010

Appendix E

Flora Survey Results – GHD 2008

GHD Flora survey lists for 90.47 to 96.60 SLK (July 2008 and supplementary survey September 2008)

NOTE: GHD defines the Vegetation Description of this section of Bussell Highway (eastern side SLK93.75-94.83) as CcAf*Ec: Tall Open Forest of *Corymbia calophylla* and *Eucalyptus marginata* over *Agonis flexuosa*, *Callystachys lanceolata* and *Lasiopetalum floribundum* over **Egrostis curvulata*, *Vinca major* and *Oxalis pes caprae*

FAMILY	* TAXA	CcAf*Ec	CcCILg	BGRP	PP	EdLf	CcHITc	PC
July 2008								
DENNSTAEDTIACEAE	<i>Pteridium esculentum</i>	+				+		
ZAMIACEAE	<i>Macrozamia riedlei</i>	+	+	+			+	
PODOCARPACEAE	<i>Podocarpus drouynianus</i>						+	
PINACEAE	* <i>Pinus radiata</i>		+	+				
POACEAE	* <i>Briza maxima</i>		+					+
	* <i>Eragrostis curvula</i>	+		+				
	<i>Neurachne alopecuroidea</i>					+		
	* <i>Pennisetum clandestinum</i>	+		+				+
	<i>Poaceae</i> sp.	+		+			+	
CYPERACEAE	<i>Lepidosperma gladatum</i>		+					
	<i>Lepidosperma</i> sp.	+		+				
	<i>Lepidosperma tetraquetum</i>		+					

FAMILY	* TAXA	CcAf*Ec	CcCILg	BGRP	PP	EdLf	CcHITc	PC
	<i>Tetradia capillaris</i>						+	
ARACEAE	* <i>Zantedeschia aethiopica</i>	+		+				+
JUNCACEAE	<i>Juncus pallidus</i>		+					
DASYPOGONACEAE	<i>Lomandra nigricans</i>		+					
	<i>Lomandra preissii</i>					+		
XANTHORRHOEACEAE	<i>Xanthorrhoea brunonis</i>			+			+	
	<i>Xanthorrhoea gracilis</i>						+	
	<i>Xanthorrhoea preissii</i>							+
ANTHERICACEAE	<i>Johnsonia lupulina</i>							
HAEMODORACEAE	<i>Conostylis aculeata</i>		+					
	<i>Conostylis setigera</i>						+	
	<i>Haemodoraceae</i> sp.	+	+	+		+		
IRIDACEAE	* <i>Watsonia meriana</i>	+	+	+				+
	<i>Patersonia occidentalis</i>						+	
	<i>Patersonia umbrosa</i>						+	
ORCHIDACEAE	<i>Orchidaceae</i> sp.						+	
PROTEACEAE	<i>Hakea amplexicaulis</i>	+		+			+	
	<i>Hakea lissocarpha</i>						+	+
	<i>Persoonia longifolia</i>						+	
	<i>Synaphea petiolaris</i>						+	
LAURACEAE	<i>Cassytha</i> sp.	+		+				
BRASSICACEAE	* <i>Brassica tournefortii</i>	+		+				+
DROSERACEAE	? <i>Drosera</i> sp.						+	
ROSACEAE	* <i>Rubus ulmifolius</i>		+					
MIMOSACEAE	<i>Acacia pulchella</i>	+		+		+		
	* <i>Acacia</i> sp.							+
	<i>Acacia uliginosa</i>	+		+				
	<i>Acacia urophylla</i>	+		+				
CAESALPINACEAE	<i>Labichea punctata</i>	+		+		+	+	
PAPILIONACEAE	<i>Bossiaea linophylla</i>	+	+	+		+	+	
	<i>Bossiaea ornata</i>	+		+			+	

FAMILY	* TAXA	CcAf*Ec	CcCILg	BGRP	PP	EdLf	CcHITc	PC
	<i>Gompholobium knightianum</i>						+	
	<i>Hardenbergia comptoniana</i>	+		+		+		
	<i>Hovea chorizemifolia</i>	+		+			+	
	<i>Mirbelia dilatata</i>	+	+	+			+	+
OXALIDACEAE	* <i>Oxalis pes caprae</i>	+		+				+
	* <i>Oxalis purpurea</i>		+					+
	* <i>Oxalis Incarnata</i>		+			+		
RUTACEAE	<i>Philotheca spicata</i>						+	
EUPHORBIACEAE	<i>Phyllanthus calycinus</i>	+	+	+			+	
ANACARDIACEAE	* <i>Schinus terebinthifolius</i>	+		+				
RHAMNACEAE	<i>Trymalium ledifolium</i>	+		+				
STERCULIACEAE	<i>Lasiopetalum floribundum</i>	+		+		+		
DILLENIACEAE	<i>Hibbertia furfuracea</i>					+		
	<i>Hibbertia hypericoides</i>	+	+	+		+	+	
THYMELAEACEAE	<i>Pimelea ciliata</i>	+		+			+	
MYRTACEAE	<i>Agonis flexuosa</i>	+	+					+
	<i>Corymbia calophylla</i>	+	+			+	+	+
	<i>Eucalyptus diversicolor</i>					+		
	* <i>Eucalyptus globulus</i>		+	+				+
	<i>Eucalyptus marginata</i>	+		+			+	
	* <i>Leptospermum laevigatum</i>						+	
	? <i>Myrtaceae sp.</i>	+		+				
	<i>Taxandria linearifolia</i>		+					
	<i>Taxandria parviceps</i>						+	
EPACRIDACEAE	? <i>Epacridaceae sp.</i>		+				+	
	<i>Leucopogon propinquus</i>						+	
	<i>Leucopogon verticillatus</i>						+	

FAMILY	* TAXA	CcAf*Ec	CcCILg	BGRP	PP	EdLf	CcHITc	PC
LOGANIACEAE	<i>Logania serpyllifolia</i>	+						
APOCYNACEAE	* <i>Vinca major</i>	+						
RUBIACEAE	<i>Opercularia vaginata</i>	+		+		+		
GOODENIACEAE	<i>Dampiera linearis</i>					+		
STYLIDIACEAE	? <i>Stylidium</i> sp. 1		+					
	? <i>Stylidium</i> sp. 2						+	
ASTERACEAE	* <i>Hypochoeris glabra</i>		+					+
	<i>Lagenophora huegelii</i>						+	
September 2008 – Supplementary Survey								
POACEAE	<i>Amphipogon amphipogonoides</i>							
DASYPOGONACEAE	<i>Lomandra integra</i>							
	<i>Lomandra pauciflora</i>							
HAEMODORACEAE	<i>Anigozanthos flavidus</i>							
	<i>Haemodorum laxum</i>							
ORCHIDACEAE	<i>Lyperanthus serratus</i>							
	<i>Pterostylis aff. nana</i>							
	<i>Pterostylis recurva</i>							
PROTEACEAE	<i>Grevillea pulchella</i>							
	<i>Grevillea quercifolia</i>							
PAPILIONACEAE	<i>Gompholobium villosum</i>							
	<i>Isotropis cuneifolius</i>							
TREMANDRACEAE	<i>Tremandra stelligera</i>							
EUPHORBIACEAE	<i>Poranthera huegelii</i>							
EPACRIDACEAE	<i>Astroloma pallidum</i>							
	<i>Sphenotoma capitata</i>							
STYLIDIACEAE	? <i>Stylidium</i> sp. 1 (still not in flower)							
	? <i>Stylidium</i> sp. 2 (still not in flower)							
	* weed species							
	? identification to species level not certain due to lack of distinctive features							

Appendix F

Fauna Survey Results – GHD 2008

A search of the DEC Threatened Fauna Database and the EPBC Act Protected Matters Tool was conducted by GHD in 2008. The results of these searches and the opportunistic fauna survey are listed below. The species recorded from the opportunistic survey include species observed (obs.), either visually or through distinctive calls (particularly birds and amphibians), and species identified from signs, such as scats or tracks.

Fauna occurring, or likely to occur within the vicinity of the study area and recorded during the GHD fauna survey in July and September 2008

Family	Genus	Species	Common Name	Conservation Codes					Recorded
				EPB C	W C	DE C	Loc al	Exot ic	
Hylidae	<i>Litoria</i>	<i>adelaidensis</i>	Slender Tree Frog						
	<i>Litoria</i>	<i>moorei</i>	Western Green Tree Frog						
Myobatrachidae	<i>Crinia</i>	<i>georgiana</i>	Quacking Frog						+ (heard)
	<i>Crinia</i>	<i>glauerti</i>	Glauert's Froglet						
	<i>Crinia</i>	<i>pseudinsignifera</i>	Bleating Froglet						+ (heard)
	<i>Geocrinia</i>	<i>leai</i>	Lea's Frog						
	<i>Heleioporus</i>	<i>albopunctatus</i>	Western Spotted Frog						
	<i>Heleioporus</i>	<i>eyrie</i>	Moaning Frog						
	<i>Limnodynastes</i>	<i>dorsalis</i>	Banjo Frog						+ (heard)
Acanthizidae	<i>Sericornis</i>	<i>frontalis maculatus</i>	White-browed Scrubwren						
Accipitridae	<i>Circus</i>	<i>approximans</i>	Swamp Harrier	Mi,					

Family	Genus	Species	Common Name	Conservation Codes					Recorded
				EPB C	W C	DE C	Loc al	Exot ic	
				Ma					
	<i>Pandion</i>	<i>haliaetus cristatus</i>	Osprey	Mi					
Anatidae	<i>Biziura</i>	<i>lobata</i>	Musk Duck	Mi, Ma					
Charadriidae	<i>Charadrius</i>	<i>rubricollis</i>	Hooded Plover	Mi					
Climacteridae	<i>Climacteris</i>	<i>rufa</i>	Rufous Treecreeper						
Corvidae	<i>Corvus</i>	<i>coronoides perplexus</i>	Australian Raven						
Cuculidae	<i>Cacomantis</i>	<i>flabelliformis flabelliformis</i>	Fan-tailed Cuckoo						
	<i>Chrysococcyx</i>	<i>lucidus plagosus</i>	Shining Bronze Cuckoo						
Falconidae	<i>Falco</i>	<i>peregrinus</i>	Peregrine Falcon	Mi	S4	P1			
Halcyonidae	<i>Dacelo</i>	<i>novaeguineae</i>	Laughing Kookaburra						+ (heard)
Laridae	<i>Larus</i>	<i>novaehollandiae novaehollandiae</i>	Silver Gull						
	<i>Sterna</i>	<i>bergii</i>	Crested Tern	Ma					
Maluridae	<i>Malurus</i>	<i>elegans</i>	Red-winged Fairy- wren						
	<i>Stipiturus</i>	<i>malachurus</i>	Southern Emu- wren						
Megapodiidae	<i>Leipoa</i>	<i>ocellata</i>	Malleefowl	V, Mi	S1				
Meliphagidae	<i>Anthochaera</i>	<i>carunculata</i>	Red Wattlebird						+ (heard)
Pardalotidae	<i>Pardalotus</i>	<i>striatus</i>	Striated Pardalote						
Passeridae	<i>Stagonopleura</i>	<i>oculata</i>	Red-eared Firetail						
Petroicidae	<i>Eopsaltria</i>	<i>australis griseogularis</i>	Western Yellow Robin						
	<i>Eopsaltria</i>	<i>georgiana</i>	White-breasted Robin						
Psittacidae	<i>Calyptorhynchus</i>	<i>banksii naso</i>	Forest Red-tailed Black Cockatoo		S1				
	<i>Calyptorhynchus</i>	<i>baudinii</i>	Baudin's Black- Cockatoo	EN	S1				
	<i>Calyptorhynchus</i>	<i>latirostris</i>	Carnaby's Cockatoo	EN	S1				
	<i>Platycercus</i>	<i>Icterotis</i>	Western Rosella					*	+ (observed)
	<i>Platycercus</i>	<i>spurius</i>	Red-capped Parrot						+ (observed)

Family	Genus	Species	Common Name	Conservation Codes					Recorded
				EPB C	W C	DE C	Loc al	Exot ic	
	<i>Platycercus</i>	<i>zonarius</i>	Australian Ringneck						
Rallidae	<i>Porzana</i>	<i>tabuensis</i>	Spotless Crake	Ma					
	<i>Rallus</i>	<i>pectoralis clelandi</i>	n/a	Ex, Mi	E2				
Tytonidae	<i>Tyto</i>	<i>alba</i>	Barn Owl						
Carangidae	<i>Naucrates</i>	<i>doctor</i>	Pilot Fish						
Clinidae	<i>Cristiceps</i>	<i>australis</i>	Crested Weed Fish						
Galaxiidae	<i>Galaxias</i>	<i>occidentalis</i>	Western Minnow						
Nannoperca e	<i>Edelia</i>	<i>vittata</i>	Western Pygmy Perch						
Ostraciidae	<i>Aracana</i>	<i>aurita</i>	Striped Cowfish						
Pataecidae	<i>Aetapcus</i>	<i>maculatus</i>	Warty Prowfish						
Serranidae	<i>Acanthistius</i>	<i>pardolutus</i>	n/a						
Terapondidae	<i>Pelsartia</i>	<i>humeralis</i>	n/a						
Triglidae	<i>Pterygotrigla</i>	<i>polyommata</i>	Latchet						
Burramyidae	<i>Cercartetus</i>	<i>concinnus</i>	Western Pygmy-possum, Mundarda						
Dasyuridae	<i>Antechinus</i>	<i>flavipes leucogaster</i>	Yellow-footed Antechinus, Mardo						
	<i>Phascogale</i>	<i>tapoatafa tapoatafa</i>	Brush-tailed Phascogale, Wambenger	V	S1				
	<i>Sminthopsis</i>	<i>gilberti</i>	Gilbert's Dunnart						
Macropodida e	<i>Macropus</i>	<i>irma</i>	Western Brush Wallaby			P4			
	<i>Setonix</i>	<i>brachyurus</i>	Quokka	V	S1				
Muridae	<i>Hydromys</i>	<i>chrysogaster</i>	Water-rat			P4			
	<i>Rattus</i>	<i>fuscipes</i>	Western Bush Rat						
	<i>Rattus</i>	<i>rattus</i>	Black Rat					*	
Peramelidae	<i>Isoodon</i>	<i>obesulus fusciventer</i>	Southern Brown Bandicoot, Quenda			P5			
Phalangerida e	<i>Trichosurus</i>	<i>vulpecular vulpecula</i>	Common Brushtail Possum						
Pseudocheiri dae	<i>Pseudocheirus</i>	<i>occidentalis</i>	Western Ringtail Possum	V	S1				
Vespertilionid ae	<i>Nyctophilus</i>	<i>timoriensis timoriensis</i>	Greater Long-eared Bat						
	<i>Vespadelus</i>	<i>regulus</i>	Southern Forest Bat						

Family	Genus	Species	Common Name	Conservation Codes					Recorded
				EPB C	W C	DE C	Loc al	Exot ic	
Cheloniidae	<i>Caretta</i>	<i>caretta</i>	Loggerhead Turtle	E, Mi, Ma	S1				
Elapidae	<i>Echiopsis</i>	<i>curta</i>	Bardick						
	<i>Notechis</i>	<i>scutatus</i>	Tiger snake						
	<i>Pseudonaja</i>	<i>affinis</i>	Dugite						
Gekkonidae	<i>Christinus</i>	<i>marmoratus</i>	Marbled Gecko						
Pygopodidae	<i>Lialis</i>	<i>burtonis</i>	Burton's legless Lizard						
	<i>Pygopus</i>	<i>lepidopodus</i>	Common Scaly Foot						
Scincidae	<i>Cryptoblepharus</i>	<i>plagiocephalus</i>	snake-eyed skink sp.						
	<i>Ctenotus</i>	<i>impar</i>	South-western Odd-striped Ctenotus						
	<i>Ctenotus</i>	<i>labillardieri</i>	Common South-west Ctenotus						
	<i>Egernia</i>	<i>kingii</i>	King's Skink						
	<i>Egernia</i>	<i>napoleonis</i>	South-western Crevice Skink						
	<i>Egernia</i>	<i>pulchra pulchra</i>	Spectacled Rock Skink						
	<i>Hemiergis</i>	<i>peronii tridactyla</i>	Lowlands Earless Skink						
	<i>Lerista</i>	<i>distinguenda</i>	South-western Orange-tailed Slider						
	<i>Lerista</i>	<i>elegans</i>	Elegant Slider						
	<i>Lerista</i>	<i>microtis microtis</i>	South-western Slider						
	<i>Menetia</i>	<i>greyii</i>	Common Dwarf Skink						
	<i>Morethia</i>	<i>lineocellata</i>	West Coast Morethia Skink						
	<i>Morethia</i>	<i>obscura</i>	Shrubland Morethia Skink						