

**Coastal road Jurien to Green Head,
Shires of Dandaragan and Coorow**

Shires of Coorow and Dandaragan

**Report and recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
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Summary and recommendations

The Shires of Dandaragan and Coorow are seeking to construct a through road from Jurien to Green Head, access roads to Sandy Point, and scenic lookout road in Lesueur National Park. A 100 m wide road reserve is sought for the through road. The route avoids regionally significant vegetation associations and Declared Rare Flora.

The preferred alignment of the road passes through a reserve for the Conservation of Flora, land identified as having significant conservation value in the Central Coast Regional Strategy and a reserve for Parkland and Recreation adjacent to Lesueur National Park. The area around the road alignment is recognised as having a number of particular and important conservation values. The Environmental Protection Authority is concerned that the proposal would result in the excision of more than 190 ha of Conservation of Flora Reserve and a loss of a further 50 ha of land with significant conservation value, in an area where there is an identified need for additional conservation reserves.

Materials for the road are proposed to be sourced from private property and Vacant Crown land which has been identified as having significant conservation value in the Central Coast Regional Strategy. The Environmental Protection Authority is concerned that sourcing materials in the area identified as having significant conservation values could adversely affect those values.

If materials are to be sourced from existing conservation reserves, separate approval would be sought.

Other environmental aspects of the road construction are design and management issues, such as preventing the introduction of dieback and weeds, managing people pressure, protecting landscape values, management of noise and dust, prevention of contamination of wetlands, and impacts on townsites from recreation and tourism. The Environmental Protection Authority considers that the proponents' commitments adequately address these design and management issues.

Recom- menda- tion No.	Summary of recommendations
1	The proposal is environmentally acceptable subject to the recommendations in this report and the proponents' commitments.
2	<p>There should be a no net loss of area of conservation estate as a result of this proposal. In order to achieve this:</p> <ul style="list-style-type: none"> (a) a special working group should be established to identify areas of high conservation value which should be added to the conservation estate to compensate that lost through the gazettal of the reserve for this proposed road; (b) the working group should work with the committee implementing the Central Coast Regional Strategy, and report back to the Environmental Protection Authority to advise the Minister for the Environment; and (c) the gazettal of the additional reserve(s) should be able to be achieved at the same time as gazettal of the road reserve.
3	<p>If the proponents require road making material from:</p> <ul style="list-style-type: none"> (a) the conservation estate or proposed additions as recommended in the Central Coast Regional Strategy, this should be deemed a change of proposal under Section 46 of the Environmental Protection Act; and (b) other locations, the extraction activities should be the subject of an Environmental Management Programme.

Part I — Information supplied during assessment

1. Introduction and background

The possibility of a coastal road which would ultimately connect Lancelin to Dongara has been the subject of discussion for many years.

In June 1990, the (then) Main Roads Department published an initial planning study which investigated possible alignments for the Jurien to Green Head section (Main Roads Department Western Australia 1990). The Environmental Protection Authority (EPA) responded to the initial planning study by:

- noting that a level of assessment would be set when a more detailed proposal was submitted;
- expressing its view that the preferred alignment had not been justified in environmental terms;
- suggesting that additional alignments should be considered; and
- providing a brief list of issues likely to be relevant to the proposal.

During the next two years a number of meetings were held, and in November 1993 the Shires of Coorow and Dandaragan agreed to be proponents for the proposal, and Main Roads Western Australia set up a Steering Committee to progress the proposal.

The proposal was referred to the Environmental Protection Authority in December 1993. The level of environmental impact assessment was set at Consultative Environmental Review (CER) because the proposal involved an excision from a conservation reserve and passed through or near environmentally sensitive areas such as near coastal dunes, wetlands and vegetation with significant conservation value. Draft Guidelines were issued in March 1994, and these were finalised in May 1994.

Prior to publishing the CER document two publications were prepared by the proponents which were subsequently incorporated into the CER. The publications were a preferred alignment statement (Main Roads Western Australia, et al. 1994b) and an environmental assessment of potential construction material source sites (Main Roads Western Australia, et al. 1994a).

Prior to publishing the CER the proponents sought public input by publishing two newsletters, holding a public meeting in Coorow on 23 August 1993, and setting up displays at Jurien and Green Head.

In June 1994, before the CER was published by the proponents, the (then) State Planning Commission published the Central Coast Regional Strategy (State Planning Commission 1994). This strategy included consideration of several studies undertaken of the region in which the road is proposed, including an environmental audit of the region (Tinley 1992). The Environmental Protection Authority reported on the Central Coast Regional Strategy in Bulletin 765 (Environmental Protection Authority 1994).

The CER was released for public comments on 20 February 1995.

2. Proposal

The proposal encompasses a direct road link between Jurien and Green Head, the associated access roads to Sandy Point and a road to a scenic lookout as shown in Figure 1.

Currently traffic between Jurien and Green Head travels via Cockleshell Gully Road (See Figure 1) and this was identified as Option 3 by the proponent. Option 3 is not preferred because it is significantly longer than the other options and is a gravel surface between the Jurien Road and Coorow Green Head Road. Option 2 is the easterly alignment shown on Figure 1. This option was not preferred by the proponent because it affects wetlands, passes through vegetation which is more diverse than the western route and passes through Drovers Cave National Park.

The western alignment (Option 1) is the proponents' preferred option and is the option considered in this report.

The direct road link would be built to AUSTRROADS design guidelines which requires a 100 m road reserve, and the Sandy Point access road will be built to a lower standard. The direct road link would have a 7 m wide sealed pavement, whilst the Sandy Point access road would be a 6 m wide unsealed road.

The northern section of the road would be excised from reserve C 40544 for Parkland and Recreation and follow the western boundary of Lesueur National Park.

The southern section of the road reserve would be excised from an existing reserve for the Conservation of Flora and from Vacant Crown Land identified as having significant conservation value in the Central Coast Regional Strategy (State Planning Commission 1994) (See Figure 2).

Approval is sought for road making materials to be extracted from private property, Vacant Crown land (identified as having significant conservation value by the Central Coast Regional Strategy), and from within the proposed road reserve.

In addition to commitments made in the CER, additional commitments were made in response to public submissions (See Appendix 2).

3. Method of assessment

3.1 Steps in the method of assessment

The purpose of the environmental impact assessment is to determine whether a proposal is environmentally acceptable or under what conditions it could be environmentally acceptable.

A set of administrative procedures has been defined (refer to flow chart in Appendix 1) in order to implement this method of assessment.

The first step in the method is to identify the environmental issues to be considered. A list of topics (or possible issues) is identified by the EPA through the preparation of guidelines which are referred to relevant agencies for comment prior to being finalised.

In the next main step these topics are considered by the proponent in the CER both in terms of identifying potential impacts as well as making project modifications or devising environmental management strategies.

The CER is checked to ensure that each topic has been discussed in sufficient detail by the proponent prior to release for government agency and public comment. The submissions received are summarised by the Department of Environmental Protection (DEP) on behalf of the EPA and this process can add environmental issues which need to be evaluated in terms of the acceptability of potential environmental impact.

Proponents are invited to respond to the issues raised in submissions. Appendix 2 contains a summary of the issues raised in submissions and the proponents' response to those issues. A list of submitters appears as Appendix 3. Nine submissions were received, of which five were from government agencies and four from members of the public and conservation groups.

4. Biological and physical environment

4.1 Topics

The Environmental Protection Authority has recognised the topics identified in Table 1 as those which have the potential to adversely effect the physical and biological environment as a result of this proposal.

Table 1. Biological and physical environment topics

Topic	Comment
Alienation of areas of conservation significance	Road Reserve would be excised from a reserve for Conservation of Flora and also procured from other areas identified as having significant conservation value in the Central Coast Regional Strategy. The significance of this topic is such that it has been treated as a key issue - Refer to Section 4.2 of this report.
Clearing of significant flora along the road alignment	Clearing of regionally significant vegetation associations or Declared Rare Flora would be of concern. This topic is closely linked with the conservation significance of the proposed road reserve and has also been considered within Section 4.2 of this report.
Impact of extracting road making materials	If sufficient materials cannot be sourced from private property, the proponent intends to seek separate approval under Section 46 of the Environmental Protection Act to source them from conservation areas. The CER identifies some sources in conservation reserves including National Parks. The significance of this topic is such that it has been treated separately - Refer to Section 4.3 of this report.
<i>Indirect impacts on existing and proposed conservation estate</i>	<i>The following topics are generally management issues and are considered in Section 4.4 of this report and in Tables 3 to 5.</i>
Dieback	The introduction of dieback could affect the composition of flora in the adjacent reserve for conservation of flora.
Weeds	The introduction of environmental or noxious weeds could affect the composition of flora in the adjacent reserve for conservation of flora.
People pressures	Increased access could result in more off-road vehicle use in environmentally sensitive areas causing loss of vegetation, erosion and spread of dieback and weeds.
Landscape	Poor positioning of the road could affect barchan dunes and values of the conservation estate.
Scenic lookout in Lesueur National Park	Side road proposed into National Park is not consistent with draft Management Plan.

Table 2. Conservation values of land along proposed route alignment south of Lesueur National Park.

Value	Information source
Area represents one of the three major centres of diversity in the State	(Department of Planning and Urban Development 1994, p. 56)
Area has very high level of species endemism (i.e. many of the species are found nowhere else).	(Department of Planning and Urban Development 1994, p. 56)
Is the northern or southern limit for several plant species	(Department of Planning and Urban Development 1994, Figure 9)
The area contains gypsiferous playa lagoons (wetlands)	(Department of Planning and Urban Development 1994, p. 18)
The southern group of lagoons (near North Head) contain unique barchan dune types and complex wind and water (swash) formed geographic features.	(Tinley 1992, p. 55)

4.2.2 Significance of flora along the road alignment

A consideration of significant flora needs to cover both the significance of the vegetation associations and the presence of declared rare flora. The following information has been summarised from (Main Roads Western Australia, et al. 1994c) which formed Appendix B to the CER.

The flora of the area was surveyed in June 1994. Thirty three 10 x 10 m quadrats were surveyed, and this resulted in the identification of eleven vegetation associations. This information was mapped to identify the pattern of vegetation associations within about 250 m of each side of the proposed road alignment.

Of the vegetation associations identified, none were noted as being regionally significant. Local significance was ascribed to some vegetation associations based on ecological significance (e.g. wetland associated vegetation), restricted distribution within the area surveyed, and presence of priority flora species¹.

Priority 3 and Priority 4 species were identified along the route alignment, namely *Olix scalariformis* (Priority 3) and *Grevillea olivacea* (Priority 4).

4.2.3 Proposal characteristics and advice to EPA

About 190 ha of reserve for Conservation of Flora and 50 ha of land with significant conservation value proposed for conservation by the Central Coast Regional Strategy would become Road Reserve if this proposal is implemented. The 100 m wide road reserve would be utilised as a source of materials (e.g. cut and fill) for the road.

¹ The relevant conservation codes for Western Australian flora for this proposal are:

Priority 3 are poorly known taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

Priority 4 are rare taxa which are considered to be adequately surveyed and which, whilst being rare (in Australia) are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

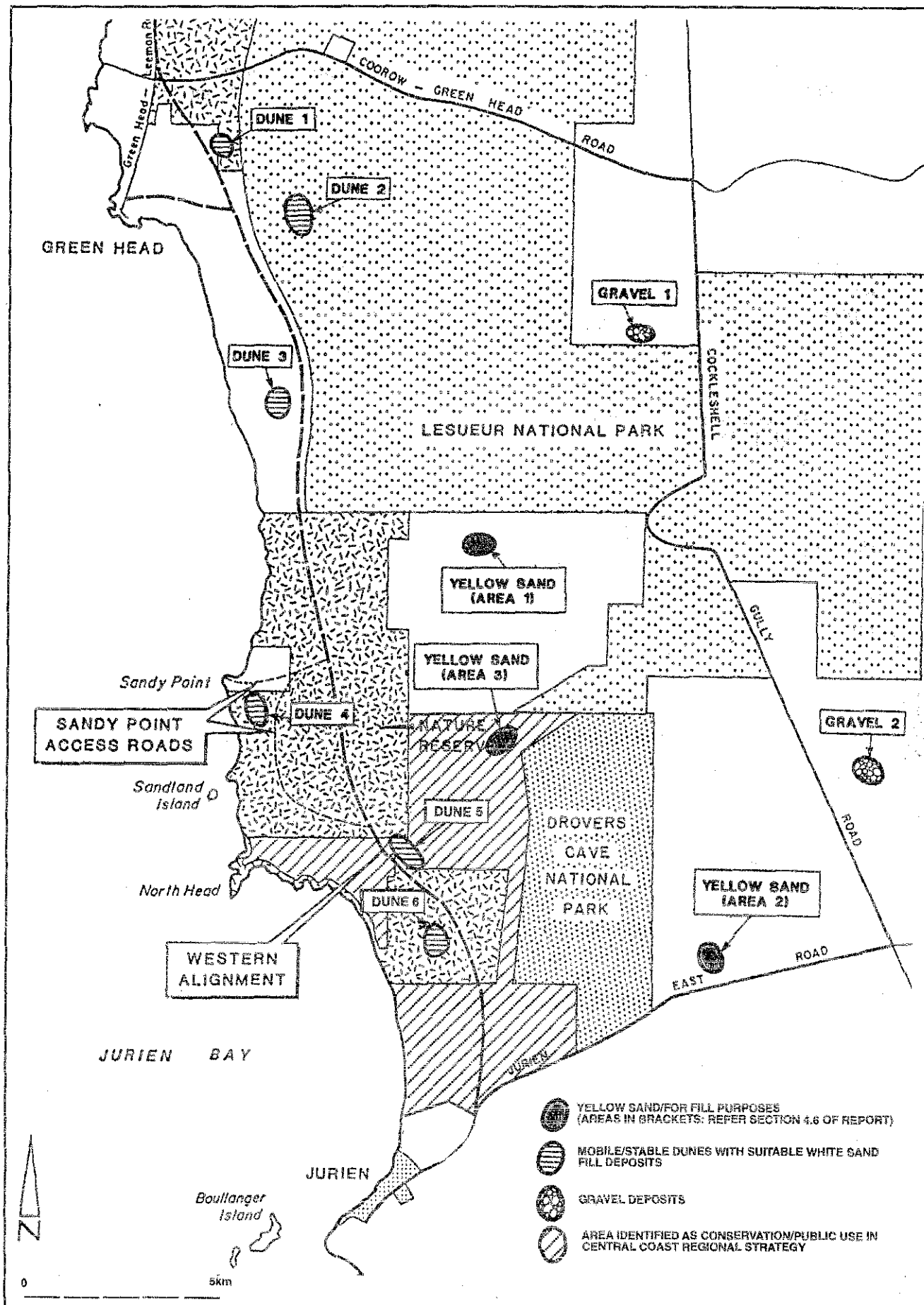


Figure 2. Potential road materials borrow pit sites showing the existing and proposed conservation estate. Source: (Main Roads Western Australia, et al. 1995) and (State Planning Commission 1994).

Topic	Proposal characteristics (Relevant commitment No's noted in brackets. No's correspond to those in Appendix 4)	Advice to EPA (including comments in public submissions)	Proponent's responses (Relevant commitment No's noted in brackets. No's correspond to those in Appendix 4)	Issues
Physical and biological environment				
Dieback	Dieback management proposed (2 to 7, 14)	CALM provided additional information No significant concerns expressed	Additional information noted	Potential spread of dieback into Lesueur National Park or reserve for Conservation of Flora (ie the conservation estate) altering the ecosystem
Weeds	Weed management proposed (8, 34, 35)	CALM concerned about weeds other than noxious weeds	Modified commitment to include environmental weeds (42, 43)	Potential spread of weeds into conservation estate altering the ecosystem
Clearing	Clearing to be minimised, erosion prevented, rehabilitation of cleared areas and existing tracks closed (9, 12, 13, 15, 19, 20, 28, 29, 30, 32, 34, 37)	CALM concerned minimisation of clearing not applied to borrow pits, and no consultation with NPNCA/CALM	Additional commitments to address CALM/ NPNCA concern (40, 41)	Clearing of significant flora

Table 3. Views of potential indirect biophysical impacts associated with Coastal Road Jurien to Greenhead, Shires of Dandaragan and Coorow (Direct impacts are dealt with in Sections 4.2 & 4.3 of this report)

(CALM = Department of Conservation and Land Management, NPNCA = National Parks and Nature Conservation Authority, MFP = Ministry for Planning, DOME = Department of Minerals and Energy, MRWA = Main Roads Western Australia)

Topic	Proposal characteristics (Relevant commitment No's noted in brackets. No's correspond to those in Appendix 4)	Advice to EPA (including comments in public submissions)	Proponent's responses (Relevant commitment No's noted in brackets. No's correspond to those in Appendix 4)	Issues
Pollution issues				
Construction noise & dust	Noise levels will comply with regulations, landscaping and revegetation will be undertaken to reduce traffic noise impacts and dust will be managed (22, 23, 25, 36)	DOME suggested MRWA best practice be adopted to manage construction impacts (i.e. noise and dust)	Modified commitment and saline water not to be used for dust control (44, 45)	Potential for adverse impacts on residents
Waste management	Portable chemical toilets will be used and waste materials (including oils) disposed of at an approved waste disposal site (26,27)	No concerns expressed	—	Potential contamination of wetlands near the road
Potential contamination	Silt traps will prevent drainage waters carrying sediment/oils to wetlands, no sewage effluent to be discharged and all waste materials to be disposed of at approved facility (21, 26, 27,	No concerns expressed	—	Potential contamination of wetlands near the road from fuel spills/ stormwater

Table 4. Views of potential environmental impacts in relation to pollution associated with the Coastal Road Jurien to Greenhead, Shires of Dandaragan and Coorow

(CALM = Department of Conservation and Land Management, NPNC = National Parks and Nature Conservation Authority, MFP = Ministry for Planning, DOME = Department of Minerals and Energy, MRWA = Main Roads Western Australia)

Topic	Proposal characteristics (Relevant commitment No's noted in brackets. No's correspond to those in Appendix 4)	Advice to EPA (including comments in public submissions)	Proponent's responses (Relevant commitment No's noted in brackets. No's correspond to those in Appendix 4)	Issues
Impact on social surroundings				
Traffic impacts (safety and noise)	Route selected to avoid traffic through townsites	Public submissions concerned about traffic impacts on Green Head	Already addressed through previous public consultation, route selection and landscaping (36)	Increased traffic and noise in townsites
Recreation and tourism	Easier access along the coast may encourage more visitors	Public submissions concerned about tourism impacts on towns	A regional approach is being taken on this issue.	Increased tourism in towns
Aboriginal heritage ¹		Public submissions expressed concern	Already addressed through ethnographic and archaeological surveys which found no significant sites.	Disturbance to significant sites

¹ This issue was included in the Consultative Environmental Review document by the proponent and raised in public submissions. However, it is considered that the issues raised are most appropriately dealt with by the Aboriginal Heritage Act 1972.

Table 5. Views of potential environmental impacts on social surroundings associated with Coastal Road Jurien to Greenhead, Shires of Dandaragan and Coorow

(CALM = Department of Conservation and Land Management, NPNCA = National Parks and Nature Conservation Authority, MFP = Ministry for Planning, DOME = Department of Minerals and Energy, MRWA = Main Roads Western Australia)

Response

In order to meet the assessment objective, the EPA also recommends (Recommendation 4, Section 10) that if the proponents require road making material from:

- (a) the existing conservation estate or proposed additions to the conservation estate as recommended in the Central Coast Regional Strategy, this should be deemed a change of proposal under Section 46 of the Environmental Protection Act; or
- (b) other locations, the extraction activities should be the subject of an Environmental Management Programme which addresses issues identified in the *Environmental management of quarries* publication issued by the (then) Department of Mines in March 1991.

7.3 Indirect impacts on existing and proposed conservation estate

Objective

To ensure that the existing and proposed conservation estate is not adversely impacted outside of the Road Reserve as a result of road construction and improved access to the area.

Projected state

As identified in Section 4.4 above, the following potential impacts need to be managed:

- the potential spread of dieback into conservation areas;
- the potential spread of weeds into conservation areas;
- unnecessary clearing and erosion initiation;
- off-road vehicle access to fragile dune areas;
- loss of landscape values; and
- inappropriate side roads.

Response

The proponent has made the following commitments to address these issues.

Dieback management (Commitments 2, 3, 4, 5, & 14)

- The proponents are to commission a dieback survey and laboratory testing of all materials sourcing sites to determine the prevalence of soil borne fungal pathogens especially *Phytophthora* species.
- The proponents are to commission the development of dedicated dieback hygiene management measures. The hygiene management plan will be developed from the MRWA Dieback Management Procedure Manual (1992) and CALM Dieback Disease Hygiene Manual (1992) utilising specific dieback knowledge for the Northern Sandplains.
- Incorporated within the dieback management programme will be appropriate drainage design considerations which will minimise the facilitation of the introduction and spread of soil borne fungal pathogens especially *Phytophthora* species.
- Only road materials sourcing sites found to be free of soil borne fungal pathogens especially *Phytophthora* species will be utilised.
- The approved dedicated dieback hygiene and control measures developed for the project are to be strictly adhered to during construction.

Inappropriate side roads

- The proponents have made a commitment to develop a management plan for the proposed scenic lookout area and access road in consultation with Department of Conservation and Land Management and the National Parks and Nature Conservation Authority prior to construction (Commitment 47).

It is considered that the proponent's commitments, if effectively implemented should ensure that indirect impacts are limited to within the Road Reserve.

8. Pollution issues

Objective

To ensure that emissions comply with relevant criteria, measures are taken to reduce contamination levels from construction and operation of the road to be as low as practical.

Projected state

As identified in Section 5.0 above the following potential impacts need to be managed:

- noise levels associated with construction of the road and traffic using the road;
- dust levels during construction to ensure no nuisance is created; and
- wastes generated by construction activities are appropriately managed.

Response

The proponent has made the following commitments to address these issues.

Noise management (Commitments 23, 44)

- Construction activities adjacent to residential areas will be limited to reasonable daytime hours.
- Main Roads best practice and relevant EPA guidelines with respect to noise and dust control for the project will be applied.

Dust control (Commitments 25, 44 & 45)

- Construction and earthworking is to be undertaken during suitable ground conditions otherwise dust suppression measures will be employed when dust levels become problematic.
- Main Roads best practice and relevant EPA guidelines with respect to noise and dust control for the project will be applied.
- The proponents will not use saline water sources for dust control during the project.

Waste management (Commitments 26 & 27)

- Portable chemical toilets will be used to cater for sewage.
- The proponents will undertake the collection and off-site disposal (at an approved disposal facility) of all waste materials including used oil and unserviceable vehicle/machinery parts and excess spoil.

Stormwater run-off (Commitment 21)

- Silt traps are to be installed where necessary to collect run-off and prevent sediment from entering drainage systems and wetlands.

Recommendation 2

There should be a no net loss of area of conservation estate as a result of this proposal.

In order to achieve this objective of no net loss of conservation estate:

- (a) a special working group should be established to identify areas of high conservation value which should be added to the conservation estate to compensate that lost through the gazettal of the reserve for this proposed road;**
- (b) the working group should work with the committee implementing the Central Coast Regional Strategy, and report back to the Environmental Protection Authority to advise the Minister for the Environment; and**
- (c) the gazettal of the additional reserve(s) should be able to be achieved at the same time as gazettal of the road reserve.**

The State Government has the administrative mechanisms to implement Recommendation 1. Provision has been made for this in the "procedures" section of the recommended environmental conditions which appear in Section 10 of this report.

The proponents have identified sources of road making materials from various sites including National Parks, within a reserve for Conservation of Flora, Vacant Crown land identified as having significant conservation value and private land.

The proponents response to submissions states³

The proponents have agreed not to utilise any materials sourcing sites within either of the two National Parks in the project area.

Environmental commitments have been made by the proponent not to source road-making materials from existing conservation areas.

The Environmental Protection Authority considers that the two above-mentioned national parks have very high conservation value.

Recommendation 3

The Environmental Protection Authority considers that the use of Lesueur and Drovers Cave National Parks as a source for road making materials would be environmentally unacceptable.

Recommendation 4

If the proponents require road making material from:

- (a) the existing conservation estate or proposed additions to the conservation estate as recommended in the Central Coast Regional Strategy, this should be deemed a change of proposal under Section 46 of the Environmental Protection Act; or**
- (b) other locations, the extraction activities should be the subject of an Environmental Management Programme which addresses issues identified in the *Environmental management of quarries* publication issued by the (then) Department of Mines in March 1991.**

The Authority has established an implementation and auditing system which requires the proponent to advise the Authority on how it would meet the requirements of the environmental

³ See p. 8, section 4.2 of proponent response

3-2 Prior to commencement of excavation works to extract road materials on private property, the proponents shall prepare an Environmental Management Programme which addresses issues identified in the *Environmental management of quarries* publication issued by the (then) Department of Mines in March 1991.

3-3 The proponents shall implement the Environmental Management Programme required by condition 3-2.

4 Proponents

These conditions legally apply to the nominated proponents.

4-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponents shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponents. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

5 Time Limit on Approval

The environmental approval for the proposal is limited.

5-1 If the proponents has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced.

Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority.)

6 Compliance Auditing

To help determine environmental performance, periodic reports on progress in implementation of the proposal are required.

6-1 The proponents shall submit periodic Progress and Compliance Reports, in accordance with an audit programme prepared by the Department of Environmental Protection in consultation with the proponents.

Procedure

1 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.

2 Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.

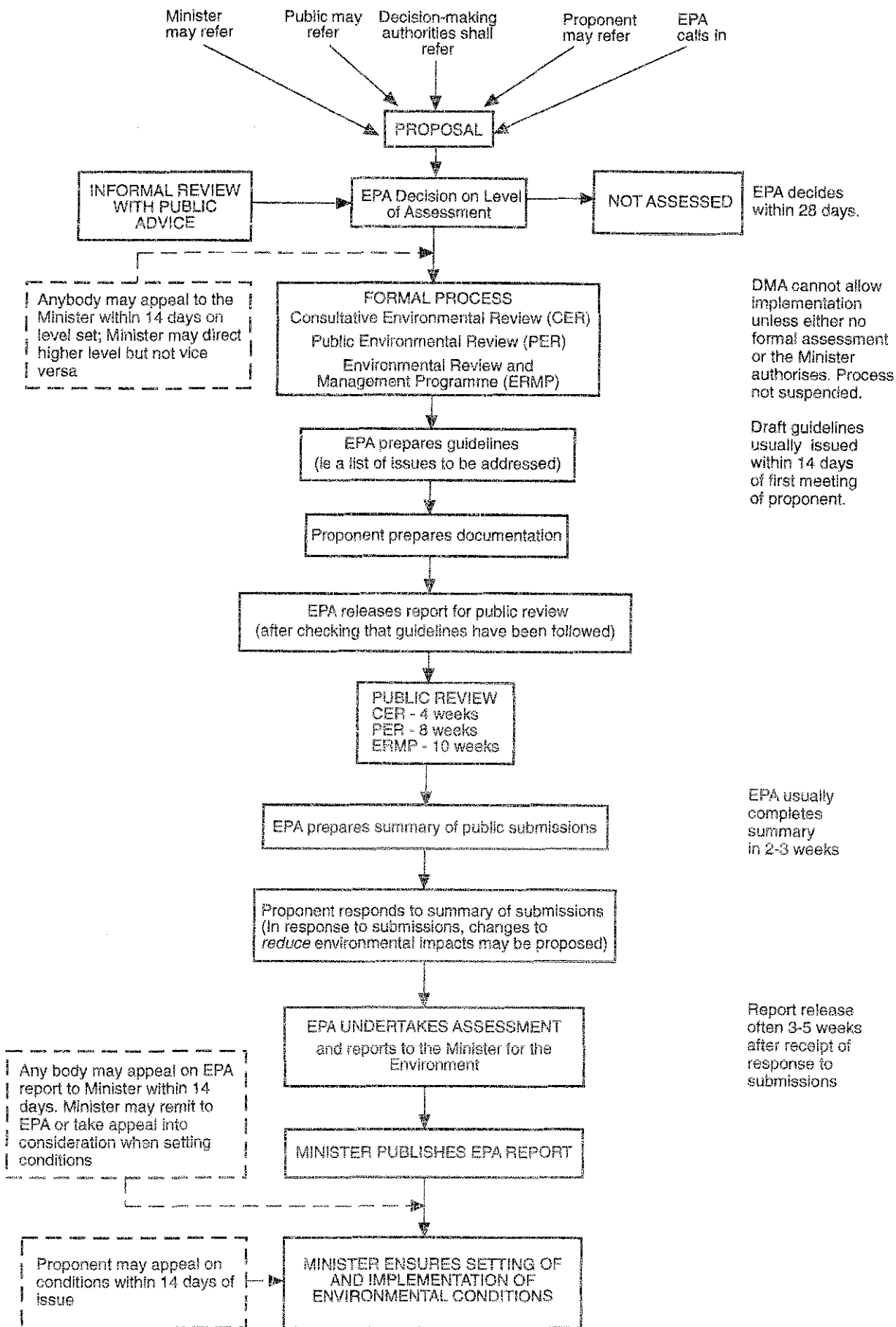
3 The objective of no net loss of conservation estate will be achieved as follows:

(a) The Department of Environmental Protection will establish a Working Group to identify areas of high conservation value which should be added to the conservation estate to compensate for that lost through the gazettal of the reserve for the road;

Appendix 1

Environmental Impact Assessment flow chart

EIA PROCESS FLOW CHART



Appendix 2

Summary of submissions and proponent's response

COASTAL ROAD JURIEEN TO GREEN HEAD CONSULTATIVE ENVIRONMENTAL REVIEW

ASSESSMENT NUMBER 850

RESPONSES TO PUBLIC REVIEW SUBMISSIONS

A list of concerns and questions has been compiled from submissions received during the public review period. The EPA's summary of the comments and concerns in relation to the proposed Coastal Road Jurieen to Green Head have been dealt with individually. The responses answer and/or acknowledge each of the issues raised. In some cases where it is considered necessary additional commitments have been recommended to satisfactorily address the issue which has been brought to the proponents attention. The content of additional commitments is shown under the recommendation for that particular issue. A summary of all additional commitments is provided at the end of this document.

The issues have been grouped by the EPA under the headings:

- 1.0 Support for the proposal
- 2.0 General objections and concerns about CER
- 3.0 Specific concerns about options and routes presented
- 4.0 Source of materials
- 5.0 Comments relating to information on existing environment
- 6.0 Management of impacts on Nature Reserve
- 7.0 Post-construction issues
- 8.0 Other miscellaneous comments

The format for the responses is as follows:

- A) Issue raised;
- B) Response and discussion of issue raised;
- C) Recommendations to EPA in relation to issue raised, where appropriate.

Construction of the proposed road will sever an area containing the Guilderton vegetation system and will result in the disturbance of vegetation along its alignment. The impacts arising from the construction of the route are specifically addressed in the CER. However, based on the comparative assessment of all anticipated impacts associated with the alternative route options considered, including but not limited to severance and vegetation disturbances, Option 1 was concluded to be the preferred route.

- reasons for wanting reduced travel time not addressed, except for local business such as cray fishing industry freezer trucks which should use Brand Highway.

Response:

The desire for a new direct link between Jurien and Green Head stems from the communities themselves. Community wide benefits are seen to arise from the proposal as detailed in Section 2.2 of the CER (page 6).

There is also an implied concern that the proposed Jurien to Green Head Road (and the broader ultimate link from Lancelin to Dongara of which it is a part) is intended as an alternative route to Brand Highway for inter-regional travel.

This matter is addressed in Section 1.2 of the CER (page 2). As indicated therein, the Central Coast Regional Strategy (which establishes the overall planning context for the proposed road) states that the intended functions of this ultimate link are to encourage:

- (i) traffic with an interest in the scenic characteristics of the region or the facilities of the coastal towns rather than heavy haulage traffic; and*
- (ii) intra-regional and local traffic including tourists travelling between towns. The only context in which reduced travelling time is mentioned in the CER relates to travel by students attending local schools (refer to Section 2.2, page 6). Such travel is clearly consistent with the intended intra-regional and local traffic service functions of the proposed road.*

- argument that road desired for future tourism activity doesn't state if this is to create tourism or is a response to tourism. If it is to create tourism this could be better addressed through improvements to the towns.

Response:

The CER merely acknowledges that the proposed road will cater for increasing tourism activity (refer to Section 2.2., page 6).

Historically, the Central Coast Region has been a popular holiday and recreation destination, and its attractions as a tourist destination are increasingly being recognised. The Central Coast Regional Strategy acknowledges the importance of tourism, both present and future, to the region (refer to Section 4.2.4, pp 37-38 of the Central Coast Regional Strategy) and the need for management of such activity.

The coastal road links proposed in the Central Coast Regional Strategy (of which the Jurien to Green Head route is one) are identified as part of the infrastructure needed to help manage tourism.

Response:

It is agreed that the vegetation surrounding the lake system is compositionally different to other areas within the Guilderton System. The Biological Survey Report acknowledges this fact (pages 11 and 12 Appendix B of the CER). The fact remains that this vegetation type is floristically depauperate and does not support any Declared Rare or Priority flora species whereas the adjacent Jurien System supports in excess of 30 species of recognised conservation value. The area of impact to the vegetation abutting the playa lake system is minimal with the alignment only in close proximity to this vegetation at a point near the eastern edge of the gypsum lake. The route has been located to minimise impact to this area. The series of commitments given in both the CER and this document designed to protect the natural environment recognises the conservation values of these areas.

Option 1, the preferred Western Alignment, passes to the south and west of the barchan dunes referred to in the work of Tinley (1992, Figure vi page 59 and Figure 9). The preferred route will come no closer than approximately 150 m and the road reserve only 100 m, for approximately a length of 400 m of the route, to the dune system which contains the barchan dunes. Generally the alignment is at least 300 m distant to the dune system. Additionally, the barchan dunes are moving in a NNE direction away from the road alignment. The conservation value of these features is recognised by the proponents and will be safeguarded by avoiding any impact to the dune system which they form a part of.

Recommendation:

It is recommended that a specific commitment prohibiting impact to the barchanoid dunes and their associated dune systems be amended to the CER.

- 3.2** **Tinley (1992) in work prepared for the Central Coast Study strongly recommends a different route which would largely pass to the east of the salt lakes, crossing the chain and not compromising lagoonal deposit values (i.e. barchanoid sand dunes and associated vegetation). (Copy of Tinley 1992 provided to proponent).**

Response:

The route detailed by Tinley (1992) was rejected by the project Working Group, comprising representatives from the two Shires, Main Roads, CALM and DPUD, due to the degree with which it impinged upon the Lesueur National Park and the high conservation value Jurien Vegetation System. The Tinley route lies more inland within the Jurien System for much of the alignment and still requires a crossing of the gypsiferous playa lagoon system adjacent to Green Head (Figure vi page 59 and Figure 5 of Tinley (1992)). Additionally the route would have traversed Lesueur National Park up to seven kilometres inland from the coast and only five to eight kilometres west of the existing Cockleshell Gully Road. Additionally the more inland route was seen not to derive the social and tourism benefits a more westerly route provides.

- 3.3** **Construction of the Sandy Point access road should not be permitted to proceed until a tourism and recreational development plan, prepared in consultation with CALM, is prepared for Sandy Point.**

Response:

Agreed. The shire of Dandaragan is committed to the implementation of effective management strategies for the Sandy Point area. However, because of the implications of the Jurien to Green Head Road project for its coastal management strategies, the Shire of Dandaragan considers a final decision on the proposed road is a necessary precursor to commencement of the preparation of the plan. That is, whether or not the proposed road is constructed will have a significant effect on the direction of the Shire of Dandaragan's coastal management strategies. However it is agreed that a specific commitment will be given by the proponents that a Management Plan for the Sandy Point area will be developed in consultation with CALM prior to the construction of the proposed Sandy Point Access road.

3.7 Option 2 is not supported because the road should not enter Cockleshell Gully wetlands as this could seriously affect birdlife.

Response:

Noted - As determined within the CER Option 1, the Western Alignment, is the preferred route alternative.

3.8 Option 3 is not supported because it may spread dieback in Lesueur National Park.

Response:

Noted - As determined within the CER Option 1, the Western Alignment, is the preferred route alternative. One of the factors within the comparative assessment which indicated that Option 3 was not desirable was the dieback susceptibility of the vegetation within Lesueur National Park.

4.0 Source of Materials

4.1 Pros and Cons regarding borrow pit locations should include:

- Private land Cons - unknown dieback status; and

Response:

Agreed. This issue should be listed as a Con for private land materials sources sites. A commitment has been give by the proponents to undertake a dieback survey and laboratory testing of all materials sourcing sites to determine the prevalence of soil borne plan fungal pathogens, Section 9.1 (3) page 62 of the CER.

- Crown land Cons - reduction in area of conservation estate.

Response

Agreed. This issue should be listed as a Con for crown land materials sources sites. All materials sources sites will be kept to a minimum. A commitment has been give by the proponents to minimise all clearing required for the project Section 9.1 (9) page 63 of the CER and to develop a specific borrow pit Environmental Management Plan (EMP) for those sites occurring within gazetted conservation areas, Section 9.1 (1) page 62 of the CER.

Recommendation:

It is recommended that the commitment given in Section 9.1 (9) page 63 of the CER be amended to include borrow pits, ".....clearing required for borrow pits and route construction..". Additionally it is recommended that the EMP to be developed for Section 9.1 (1) page 62 of the CER be done in consultation with CALM and the NPNCA.

- 5.1.2 The arguments regarding the various merits of botanical diversity per se (Jurien System) vs potential rarity of botanic association (Guilderton System) is flawed in the absence of relevant field work carried out by the proponents.

Response:

This statement is not correct. The Guilderton vegetation system occurs from Knobby Head north of Leeman down to below Lancelin in a continuous strip along the coast. The system is similar to the Cliff Head system of the Irwin Botanical District to the north and represents the northward extension of the Quindalup Dune system of the Swan Coastal Plain under a different vegetation (Beard, 1979).

The Jurien System occupies the older coastal limestone further inland of the Guilderton System. The Jurien System is represented by only two bands, the northern by Jurien and Cervantes and the southern by Lancelin. Impact through clearing for agriculture has been greater to this system due to it occupying a position further inland.

In terms of area occupied, potential pressure from impacts and botanical community composition, the Jurien system encompasses greater conservation values than the Guilderton system.

- 5.1.3 Concerned about the value being attached to Guilderton system based on vegetative formation and species richness (pers comm by submitter with Main Roads Western Australia 1994). However the lack of diversity in the Guilderton formation does not mean it is less important, particularly as little of it exists in an undisturbed state particularly as a result of afford vehicles

Response:

Agreed. The Guilderton system is acknowledged to contain significant conservation values. The series of commitments given in both the CER and this document designed to protect the natural environment recognises these values. However based upon the comparative assessment of the route options available for a direct link between the two townships, Option 1 the Western Alignment, represented the least potential environmental impact and the best opportunity for protecting the conservation values of the area while providing the desired link.

5.2 Other comments

- 5.2.1 Possibility of Aboriginal occupation, midden or burial sites (Amangu tribe) being present not adequately addressed.

Response:

Full ethnographic and archeological surveys were conducted in the project area in consultation with the appropriate aboriginal custodians. Full details of the surveys are contained in Appendices C and D of the CER.

- 5.2.2 Hill river environmental impact assessment noted Mt Lesueur National Park extending to high water mark, contrary to this CER document.

Response:

The Hill River Environmental Review & Management Programme (ERMP) was compiled in 1990 prior to the vesting of the Class A Lesueur National Park in 1992. The western boundary of the National Park as vested is the proposed coastal road alignment (see pages 7 & 8 Lesueur National Park & Coomallo Nature Reserve Draft Management Plan (CALM, 1994). The Central Coast regional Profile (DPUD, 1994) also acknowledges that the western boundary of Lesueur National Park will conform with the proposed new route alignment (see page 108, Central Coast regional Profile).

Recommendation:

It is recommended that a specific commitment by the proponents to not use saline water during the project be amended to the CER.

- 6.2.3 Environmental as well as noxious weeds need to be considered (See sections 8.2.1.3 & 8.3.1.4)

Response:

Noted. A commitment to that effect is given in Section 4.4 of this document.

Recommendation:

It is recommended that the commitment Section 9.3 (35) page 64 of the CER include environmental weeds in Post Construction management.

- 6.2.4 Potential for weed infestation (e.g. of carnation weed, clover, wild oats, veldt grass, barley grass & Patersons curse) and for secessionist plants e.g.. Atriplex & Spinifex) to dominate areas not adequately addressed.

Response:

It is assumed that this concern relates to the revegetation of cleared areas during the post construction life of the project. A series of commitments have been given by the proponents to undertake the re-establishment of local plant species to the satisfaction of 'approval authorities' including CALM and the EPA., Section 9.3 page 64 of the CER.

- 6.2.5 Topsoil should be used for rehabilitation, not buried even if there are noxious weeds present (See commitment 9.1(8)).

Response:

As discussed in the CER, safeguards against the spread of noxious weed species are considered desirable. Some comments on the CER in fact suggest that even more rigorous safeguards than those proposed are necessary.

As construction of the proposed road formation will entail the permanent modification of an area of about 30 hectares, topsoil removed prior to construction will be available for reuse elsewhere. Abundant topsoil for rehabilitation works will, therefore, be available. Accordingly, utilisation of weed contaminated topsoil in rehabilitating disturbed areas could pose unnecessary environmental risk (i.e. the potential spread of weed species). The proposal to dispose of weed contaminated topsoil by burial to a depth that would prevent germination is still regarded as appropriate.

7.0 Post-construction issues

7.1 Human impacts on coastal areas & Green Head

- 7.1.1 Main concern is indirect impacts of road such as the facilitation of increased use of sensitive and unstable for and secondary dune systems and wetland areas by off-road drivers likely to cause environmental damage. The CER does not address this adequately, and does not propose management of dune blowouts and loss of vegetation caused by off-road vehicles.

7.2 Water bores

- 7.2.1 The proposed bores could provide a useful water supply for fire fighting operations in the future. CALM should be consulted before decommissioning

Response:

The proponents will retain control of the bores upon completion of the project. However the bores will be available for use as required by other government departments such as CALM. It is recommended that a specific commitment to undertake liaison with CALM on this issue is to be amended to the CER.

Recommendation:

Upon completion of construction the Proponents shall consult with CALM as to the future use of all water bores.

8.0 Other miscellaneous comments

- Land use (Section 3.2.1) should include lime sands.

Response:

The existence of a number of tenements under the Mining Act within the project area is specifically acknowledged in the CER (refer to Section 3.2.1, page 11) and these are shown on Figure 2 (page 10 of the CER). The location of these tenements, not the minerals they encompass, is the important consideration in terms of the proposal.

- Figure 7; if the Dune 3 coincides with Mining Tenement M70/782 it would be useful to record this.

Response:

While the Dune 3 borrow pit area and Tenement M70/782 are approximately coincident (as can be established by comparing Figures 2 and 7 in the CER), the final boundaries of the borrow pit have yet to be established.

- The work of Geological Survey of WA for the Central Coast Region Study should be cited.

Response:

It is, (refer to References Section of the CER, page 68).

- Section 7.4.2 should also consider traffic (human) safety aspects of Cockleshell Gully Rd.. It is noted as a benefit in section 2.2.

Response:

The assessment of environmental impacts presented in Section 7 of the CER relates only to the preferred route (Option 1). Cockleshell Gully Road is not part of the preferred option and traffic safety aspects of that road are, therefore, not relevant to the assessment.

Appendix 3
List of submitters

State and local government agencies

Department of Minerals and Energy

Ministry for Planning (2 submissions)

Department of Conservation and Land Management

National Parks and Nature Conservation Authority

Members of the public and conservation groups

Ian Zlatnik

Bernie McArthur

K & D O'Brien

Conservation Council of Western Australia

Appendix 4

Proponent's commitments

EPA AUDITABLE COMMITMENTS

In this section, the commitments given in the Consultative Environmental Review and the Response to Public Submissions are restated in a consolidated listing. The commitments are numbered according the numbering in both the CER and the Response to Public Submissions.

The commitments are categorised into;

- ★ Pre-construction commitments;
- ★ During construction commitments;
- ★ Post-construction commitments;

Pre-construction Commitments

- (1) Approval to utilise those borrow pit sites occurring within gazetted conservation areas will be sought under Section 46 of the Environmental Protection Act 1986. A dedicated borrow pit Environmental Management Plan will be formulated at the time approval is sought.
- (2) The proponents are to commission a dieback survey and laboratory testing of all materials sourcing sites to determine the prevalence of soil borne fungal pathogens especially *Phytophthora* species.
- (3) The proponents are to commission the development of dedicated dieback hygiene management measures. The hygiene management plan will be developed from the MRWA Dieback Management Procedure Manual (1992) and CALM Dieback Disease Hygiene Manual (1992) utilising specific dieback knowledge for the Northern Sandplains.
- (4) Incorporated within the dieback management programme will be appropriate drainage design considerations which will minimise the facilitation of the introduction and spread of soil borne fungal pathogens, especially *Phytophthora* species.
- (5) Only road materials sourcing sites found to be free of soil borne fungal pathogens, in particular *Phytophthora* species, will be utilised.
- (8) In all borrow pit areas where noxious weeds are present, sterilisation and / or removal and burial of affected topsoils is to be undertaken prior to excavation of road construction materials.
- (43) The Commitment 9.1 (8) of the CER will include environmental weeds as well as noxious weeds.
- (47) An Environmental Management Plan will be developed in consultation with CALM and the NPNCA for the proposed scenic lookout area and access road prior to construction.

During Construction Commitments

- (11) The proponents are to make all members of the workforce associated with the construction of the route alignment aware of environmental commitments aimed at protecting the environment during construction.
- (12) The proponents are to restrict vegetation clearing and machinery movements to within the road reserve excepting sourcing of road construction materials.
- (13) The proponents are to reduce clearing of vegetation to the essential minimum consistent with safe and efficient operations.

- (33) Access links will be maintained and signed to sites of significance such as Beekeepers Nature Reserve and Drovers Cave National Park.
- (34) If revegetation is not progressing to the satisfaction of approval authorities, the proponents will implement appropriate measures to remedy revegetation establishment.
- (35) The proponents are to carry out eradication programmes should any noxious weed species be introduced to the proposed road reserve.
- (36) Appropriate landscaping and revegetation will be undertaken to reduce noise impacts to residents within the Green Head Township.
- (37) The proponents will monitor the establishment of revegetation annually for a period of 2 years after the practical completion of the route construction. Results of monitoring will be included in the Annual Monitoring Report.