BONVILLE PROJECT
PACIFIC HIGHWAY
COFFS HARBOUR

Director-General's Report
Section 115C of the
Environmental Planning and
Assessment Act 1979

February, 2000

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FOREWORD

The Roads and Traffic Authority (RTA) is proposing to upgrade the Pacific Highway near to the village of Bonville some 11 kilometres south of Coffs Harbour on the NSW North Coast. The proposal forms part of the Pacific Highway Upgrade Program and has been developed to improve travel efficiency and road safety along this section of the highway.

The proposal is subject to Division 4, Part 5 of the *Environmental Planning and Assessment (EP&A) Act 1979*. As such, the approval of the Minister for Urban Affairs and Planning is required for the proposal. The RTA sought the approval of the Minister on 4 October 1999.

This report has been prepared in accordance with Section 115C of the EP&A Act which requires that the Minister obtain a report from the Director-General of the Department of Urban Affairs and Planning prior to making a decision.

The purpose of this report is to review the environmental impact statement (EIS), issues raised in representations to the EIS, the RTA's response to the representations and any other relevant matters pertaining to the potential environmental impacts of the proposal. The report concludes that the potential environmental impacts associated with the works can be mitigated to an acceptable level by adopting the management measures referred to in this report and embodied in the Recommended Conditions of Approval.

It is recommended that the proposal be approved subject to the recommended conditions.

Sue Holliday
Director-General

EXECUTIVE SUMMARY

The Proposal

The Roads and Traffic Authority (RTA) is proposing to upgrade the Pacific Highway near the village of Bonville some 11 kilometres south of Coffs Harbour on the NSW North Coast (refer Figure 1.1). The proposal which is part of the Pacific Highway Upgrade Program involves the construction of a new 9.8km four lane dual carriageway extending from the northern end of the Raleigh Deviation to the southern end of the Lyons Road to England Road Project, currently under construction.

The proposal would also involve the construction of bridges over Bonville, Reedy and Pine Creeks and incorporates fauna crossing measures including a 60 metre wide vegetated fauna overpass within the Pine Creek State Forest. Local access across the Highway would be maintained by providing overpasses on East Bonville Road, Bonville Station Road, and Williams Road.

The proposal is estimated to have a capital cost in the order of $114 million and is expected to employ up to 200 people over the approximate three year construction period.

Alternatives

The EIS contained an examination of ten corridor options for the proposal. Subsequent assessment led to seven options being rejected and the addition of a new option at the suggestion of the NPWS. The remaining four options were assessed through a Value Management Workshop, output from a community consultation program, and the findings of a study team assessing technical information.

The Bellingen Environment Centre (BEC) provided the RTA with a suggested alternative route. The Department has reviewed this option and it is concluded that it would be unlikely to provide any reduced environmental impacts when compared to the RTA proposal and in many cases is likely to increase environmental impacts of the project.

Further consultation with the NPWS and other State government agencies, as well as community involvement, has resulted in project design modifications since the exhibition of the EIS.

EIS Exhibition and Approval Process

An environmental impact statement (EIS) and species impact statement (SIS) were prepared by the RTA and exhibited between 6 August and 11 September, 1998. Sixty-three representations were received in response to the exhibition.

The proposal is subject to Division 4, Part 5 of the Environmental Planning and Assessment (EP&A) Act 1979. As such, the approval of the Minister for Urban Affairs and Planning is required for the proposal.

There are two SEPP 14 wetlands in the vicinity of the proposed route downstream of the preferred route. The wetlands are not directly affected by the proposal.

Key Issues

Flora and Fauna

The RTA prepared a species impact statement (SIS) to accompany the EIS for the proposal and obtained the concurrence of NPWS prior to seeking the Minister's approval. NPWS's concurrence was granted subject to a number of conditions relating to the an assessment of the feasibility of the proposed translocation of threatened flora identified within the construction area, implementation of fauna underpasses and overpass, protection of threatened flora species during construction, development and implementation of a comprehensive compensatory habitat package and monitoring of the effectiveness of mitigation measures.

It is concluded that the impacts on flora and fauna could be managed to an acceptable level provided all identified mitigation measures are implemented. The RTA would be required to prepare a detailed Flora and Fauna Management Plan, in consultation with the NPWS, to embody the identified mitigation measures.

Noise

The Department's assessment concluded that there is potential for significant noise impacts to occur during construction. As such, the RTA would be required to prepare a detailed Noise and Vibration Management Plan, in consultation with the EPA, detailing the mitigation measures to be implemented. Mitigation measures would include both roadside barriers and individual treatment of residences where required. The RTA would implement noise mitigation measures prior to the commencement of construction.

During operation, the proposal would result in exceedances of the EPA guidelines (Environmental Criteria for Road Traffic Noise, May, 1999) at many residences located within 200m of this alignment. Implementation of noise control measures such as the construction of roadside barriers and individual treatment of affected residences would result in noise level goals within the EPA guidelines being complied with at most of the nearby residences. The RTA has identified the remaining properties which would be subject to noise exceedances and the Department considers that the RTA's commitment to negotiate appropriate treatments for these properties, including the option of acquisition, would be acceptable.

Other Issues

The Department's assessment addressed a range of other issues including property severance, visual impacts, geotechnical issues, water quality, acid sulphate soils, and impacts on indigenous heritage. It was concluded that, provided the mitigation measures identified in the EIS, Representations Report, and this report were implemented, the impacts could be reduced to acceptable levels.

Conclusions and Recommendations

The Department recognises the importance of the proposal as part of the Pacific Highway Upgrade Program. The Department's detailed assessment of the impacts of the proposal concluded that while there was the potential for impacts to occur, particularly in terms of

flora and fauna impacts and construction and operation noise, adequate mitigation measures have been identified to reduce these impacts. The Concurrence Conditions developed by NPWS would also be fundamental to ensuring an acceptable outcome is achieved in terms of flora and fauna.

The Department has recommended that the proponent prepare comprehensive Environmental Management Plans for the construction and operation stages of the proposal to ensure the identified mitigation measures are implemented throughout the life of the project. The key mitigation measures, which are embodied in the Recommended Conditions of Approval, are as follows:

- implementation of noise mitigation measures prior to construction and ongoing monitoring of noise levels;
- implementation of a number of conditions relating to flora and fauna, including development of a comprehensive Compensatory Habitat Package;
- preparation of detailed Environmental Management Plans for construction and operation stages of the works; and
- establishment of a Community Liaison Committee to discuss measures to minimise impacts arising from the construction of the works.

The Department recommends that the proposal be approved by the Minister for Urban Affairs and Planning, subject to the Recommended Conditions of Approval contained in Section 9 of this report.

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GLOSSARY AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
Acid Sulphate Soils (ASS)	Naturally acid clays, mud and other sediments usually found in swamps and estuaries. These may become extremely acidic when drained and exposed to oxygen, and may produce acidic leachate and runoff which can pollute receiving waters and liberate toxins
AHD	Australian Height Datum
Ambient Noise	The background noise at a point being a composite of sounds from near and far
ANZECC	Australian and New Zealand Environment and Conservation Council
ARI	Average Recurrence Interval
Department, the	Department of Urban Affairs and Planning
Director-General	Director-General of the Department of Urban Affairs and Planning
DLWC	Department of Land and Water Conservation
DUAP	Department of Urban Affairs and Planning
Edge effects	Impacts created at the edge of vegetated area due to creation of corridor through that area. Examples may include weed invasion, changes to microclimate etc.
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority (NSW)
Floodplain	Flat large area of alluvium adjacent to a watercourse, characterised by frequent active erosion and aggregation by channelled and overbank stream flow
Grade separation	The separation of a road, rail or other traffic so that crossing of movements, which would otherwise conflict, are at different elevations
Interchange	A grade separation of two or more roads with one or more interconnecting carriageways
LALC	Local Aboriginal Land Council
Level of Services (LOS)	An indicator of performance of the road network
Median	A strip of road not normally intended for use by traffic, which separates carriageways for traffic in opposite directions
NPWS	National Parks and Wildlife Service
PAD	Potential Archaeological Deposit

PASS	Potential Acid Sulphate Soils
RTA	Roads and Traffic Authority
SEPP 14	State Environmental Planning Policy 14 – Coastal Wetlands
Shoulder	The portion of the carriageway beyond the traffic lanes adjacent to the land flush with the surface of the pavement
SIS	Species Impact Statement
TSC Act	Threatened Species Conservation Act 1995
V/C Ratio	Volume/capacity ratio
Wetland	Land either permanently or temporarily covered by water, usually characterised by vegetation of moist-soil or aquatic type

1 INTRODUCTION

1.1 Nature of the Proposal

The Roads and Traffic Authority (RTA) is proposing to upgrade the Pacific Highway around the village of Bonville some 11 kilometres south of Coffs Harbour on the NSW North Coast (refer Figure 1.1).

The proposal involves the construction of a 9.8 km, four lane dual carriageway road which would be aligned adjacent to or over the existing road. This would extend from the northern end of the Raleigh Deviation, adjacent to Parrys Road to the southern end of the Lyons Road to England Road project (currently under construction).

The proposal would also involve the construction of bridges over Bonville, Reedy, and Pine Creeks and features a series of fauna crossings and exclusion fencing to reduce the barrier effect created by the construction and operation of the road.

The proposal is part of the Pacific Highway upgrade program which is being jointly funded by the NSW and Federal governments. The aim of the proposal is to improve road safety and travel efficiency along this section of the Highway.

1.2 Route Selection Process

The RTA undertook a route selection process which involved the community and key stakeholders participating in a program of public information and consultation. This aimed at achieving an outcome that met the objectives of the Pacific Highway Upgrade program and incorporated the concerns and ideas of the stakeholders. The program featured four stages:

- initiation and identification of issues;
- route selection;
- concept design and environmental impact assessment; and
- exhibition of the EIS incorporating revision and design modification.

The key issues that emerged from the route selection process were:

- providing adequate highway geometry;
- limiting of access to strategic locations;
- separating local and through traffic;
- minimising property impacts;
- maintaining local access and community links to schools, shops etc;
- economic comparisons;
- minimising environmental impacts, through both forest and estuarine environments;
- providing protection of endangered fauna and provision of improved fauna crossings;
- minimising community disturbance and disruption from construction impacts; and
- ensuring long term improvements in travel time and road safety.

The route selection process yielded an initial ten possible routes which were later refined to a few viable routes. An expanded discussion of these issues can be found at section 3.3.

The route selected, identified as Option B3 in the EIS, was an alignment that minimised impacts on sensitive areas. The alignment generally followed a road reserve corridor created by Coffs Harbour City Council approximately 10 years ago, referred to as the LEP corridor. Subsequent to exhibition of the EIS and consideration of submissions, the RTA has made several design modifications to the southern part of the route, which aimed at minimising the amount of area to be cleared in the Pine Creek State Forest and allowed the integration and strategic location of additional fauna crossings.

1.3 Preparation and Exhibition of the Environmental Impact Statement

The RTA requested the requirements of the Director-General for the preparation of an Environmental Impact Statement (EIS) on 28 October, 1997. The Director-General's requirements were issued on 10 December, 1997.

The RTA subsequently prepared an EIS and Species Impact Statement (SIS) which was exhibited between 6 August and 11 September, 1998. Sixty-three representations were received in response to the EIS and SIS. The nature of the submissions is outlined in section 4 of this report.

1.4 Statutory Provisions and Assessment Process

The proposal is subject to Division 4, Part 5 of the Environmental Planning and Assessment (EP&A) Act 1979. As such, the approval of the Minister for Urban Affairs and Planning is required for the proposal.

There are two SEPP 14 wetlands in the vicinity of the proposed route downstream of the preferred route. The wetlands are not directly affected by the proposal, however potential impacts on them have been addressed in the EIS.

1.5 Request for the Approval of the Minister for Urban Affairs and Planning

In accordance with Section 115B of the EP&A Act, the RTA sought the approval of the Minister for Urban Affairs and Planing by way of letter dated 5 October, 1999. The request for approval was accompanied by a Representations Report, which presented the RTA's response to the issues raised in response to the public exhibition.

In accordance with the EP&A Act, the RTA obtained the concurrence of the Director-General of the NPWS in relation to the SIS prior to seeking approval from the Minister.

1.6 Purpose of this Report

The purpose of this report is to review the Environmental Impact Statement (EIS), issues raised in representations to the public exhibition of the EIS, submissions made by the RTA, and other matters pertinent to the potential environmental impact of the proposal.

This report has been prepared in accordance with Section 115C of the EP&A Act, which requires the Director-General of the Department of Urban Affairs and Planning to assess and report to the Minister on the proposal. The report documents the outcome of an independent environmental impact assessment by the Department, accounting for all issues raised in representations to the EIS.

2 DISCUSSION OF PROPOSED WORKS AS DESCRIBED IN THE EIS

This section of the report provides a description of the project as described in the EIS. The purpose is to provide an overview of the information presented in the EIS and does not necessarily represent the views of the Department. Section 5 provides a discussion of the proposed modifications to the proposal following exhibition of the EIS. The Department's consideration of the modified proposal is provided in Sections 6 and 7.

2.1 Proposed Alignment and Major Features

The overall route of the proposal is shown in Figure 2.1. The proposal would commence approximately 800 metres south of Mailmans Track and extend northwards for 9.6 kilometres to connect with the existing Pacific Highway at the Lyons Road interchange.

The alignment of the proposal in the southern section of the route (Mailmans Track to Pine Creek), is generally consistent with the alignment of the existing Pacific Highway, with the exception of a 1km deviation. To the north of Pine Creek, the alignment of the proposal deviates east of the existing alignment for approximately 4.5 kilometres. In this section, the alignment generally follows the LEP corridor with some notable exceptions. These are:

- the route is moved further to the west of the LEP route in the area north of Bonville Creek;
- the alignment is located east of the LEP route between East Bonville Road and Bonville Creek.

Variations of the LEP route were developed in order to reduce impacts on sensitive areas and to move the route from the wetlands between Bonville Creek and Lyons Road.

Incorporated in the proposal are the following features:

- access to the highway via interchanges providing northbound and southbound access at Mailmans Track, Archville Station Road and Lyons Road;
- passage across the highway by grade separated crossings within the Pine Creek State Forest and at East Bonville Road, Bonville Station Road and Williams Road;
- new bridges over Pine Creek and Bonville Creek;
- a culvert crossing over Reedy Creeek;
- major fauna crossings at nine locations over the length of the project;
- a heavy vehicle inspection bay within the Pine Creek State Forest;
- koala exclusion fencing in Pine Creek State Forest; and
- a new rest area opposite Mailmans Track in the south.

2.2 Carriageway Design

The proposal would generally comprise two carriageways, each with two 3.5m wide traffic lanes with inner sealed shoulders of 0.5m and a sealed outer shoulder/breakdown lane of 2.5m which would also be available to cyclists. The proposal includes a traversable concrete channel in excavation situations or where mounding is provided for noise

attenuation purposes. The proposal would comply with relevant RTA design criteria. The key design features of the proposal are summarised in Table 2.1 below.

Road Design Criteria

CRITERIA	
Design speed	110kph
Median widths	3m to 17 m
Minimum radius of horizontal curves	600m
Maximum gradient	5%
Vertical clearance to highway overpass	5.3m

2.3 Cut and Fill Requirements

As far as possible, the proposal has been designed to balance fill materials with material obtained from excavations. The RTA calculated that the earthworks undertaken will result in an excess 0.6 million cubic metres of material which could be used for the creation of "sound mounds" used to mitigate construction and for the replacement of unsuitable material or additional landscaping.

2.4 Drainage and Erosion Control

The proposal incorporates a non-point source drainage management approach, where surface water runoff is directed into retention basins or artificial wetlands prior to release into adjoining watercourses.

The EIS identifies a number of catchments in the study area as sensitive receiving environments:

- Pine and Reedy Creeks;
- the wetland areas east of the highway between Archville Station Road and East Bonville Road, and East Bonville Road and Bonville Station Road;
- Bonville Creek; and,
- Bongil Bongil National Park.

The surface runoff directed to these areas would receive sufficient treatment through the use of water quality ponds and grassed swales, to ensure that the EPA's requirements would be met prior to discharge.

Erosion and sediment controls would be implemented during the construction and operation phases of the works to protect water quality.

2.5 Access Arrangements and Road Modifications

The following access arrangements and road modifications would be carried out as part of the proposal:

- retention of the existing highway and integration into the local road network;
- use of the existing highway for alternative route for the upgraded Highway;
- the construction of a new service road where the new highway is built over the existing route south of Pine Creek;
- access to the existing road network to be provided by three interchanges at Lyons Road, Archville Station Road and Mailmans Track; and
- grade separated crossings for the existing cross roads at Mailmans Track, Archville Station Road, East Bonville Road, Bonville Station Road, Williams Road and Lyons Road.

2.6 Property Acquisition

The proposal has been generally located along the route of the existing highway, within existing RTA property and the LEP corridor. Notwithstanding, the proposal would necessitate the total or partial acquisition of a number of properties.

The range of landowners affected by the proposal include the Crown, State Government agencies such as State Forests and NPWS, and 39 individual private property owners.

To the south of Pine Creek, the most significantly affected land owner is State Forests. To the north of Pine Creek the majority of land acquisition would affect private land owners and involve varying size landholdings.

The RTA has also identified that the proposal may adversely impact property improvements such as access, fencing, dams, drainage, services (telecommunications and power) and other structures. Where total acquisition is not involved, the RTA would be required to replace improvements as part of the construction of the road or negotiate with the individual property owner a suitable outcome. All property acquisitions would be acquired in accordance with the *Land Acquisition (Just Terms) Act 1991*.

2.7 Construction Tasks

The RTA has identified the main construction tasks as follows:

- site establishment;
- implementation of Environmental and Acid Sulphate Management Plans;
- installation of erosion and sedimentation controls;
- clearing and demolition;
- topsoil stripping and management;
- foundation treatments;
- drainage construction;
- bulk earthworks;
- installation of noise attenuation measures;

- blasting may be required in the base of the Williams Road cut;
- bridge construction;
- pavement construction;
- topsoiling and revegetation of batters and berms;
- landscaping;
- line marking and signposting;
- interchange lighting; and
- finishing works.

The proposed construction period is approximately 18 months. The construction schedule would be developed in detail by the contractor selected to undertake the works. It is anticipated that approximately 180-200 persons would be employed during the construction period.

The RTA has proposed construction hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturday with no work on Sundays or public holidays.

The cost of the proposal is stated to be approximately $98 million.

3 JUSTIFICATION, ALTERNATIVES CONSIDERED AND IMPACTS IDENTIFIED IN THE EIS

This section discusses the project need and justification as described in the EIS and outlines the alternatives considered and the potential adverse and beneficial impacts of the proposal as identified in the EIS. This section does not necessarily reflect the views of the Department. The Department's assessment of issues associated with the proposal including alternatives is contained in section 6.

3.1 Justification and Need for the Proposal

The proposal would join two adjacent sections of the Pacific Highway subject to upgrade works. The proposal would be required to ensure consistency in the road and safety standards between the Bonville and adjoining sections of the route.

The EIS has justified the proposal on the following basis:

- economic development of the north Coast regional centres;
- improved efficiency for freight industry;
- better links for major tourist centres;
- separation of through and local traffic movements;
- improved road conditions and safety improvements;
- a decrease in current travel times;
- a reduction as opposed to an increase in crashes; and
- lower average fuel consumption.

The EIS also states that the proposal has been developed to mitigate continuing community and environmental impacts that are resulting from the existing Highway. In particular, this includes:

- the deterioration of road safety resulting from such factors as the large number of access points to the existing highway and existing conflict between local and through traffic;
- the poor road conditions experienced throughout the Bonville area and especially in the southern section through the Pine Creek State Forest; and
- increasing traffic volumes including a high proportion of heavy vehicles travelling at night creating environmental hazards such as limited and unsafe opportunities for fauna crossings.

3.2 Consequences of Not Proceeding

The EIS identifies the following consequences of implementing the 'do-nothing' option:

- lengthening travel times and increasing delays on side roads seeking access to the Highway;
- deterioration of road safety with an increase in the number of crashes. The current accident rate of 18 crashes per year predicted to increase to 33 crashes per year in 10 years time and at least 45 crashes per year in a further 10 years;
- loss of potential for the improved amenity of Bonville residents;
- a gradual deterioration of the quality of the environment experienced in the area;
- the potential to adversely affect future development; and
- a loss of potential to achieve the full economic benefits of the Pacific Highway Upgrade Project.

3.3 Alternatives Considered

The EIS contains a discussion of the approach for the selection of route options and notes that the approach was phased and consisted of a number of steps. The initial phase resulted in the identification of ten alternative route options.

Subsequent assessment led to seven options being rejected and the addition of a new option under the advice of the NPWS. The remaining four options consisted of three LEP route options and one highway upgrade option (refer to Figure 6.1). These options were assessed through a Value Management Workshop, output from a community consultation program and the findings of a study team assessing technical information.

The selection process recommended the LEP route B3 as the preferred route to the RTA for the following reasons:

- improved amenity for residents in close proximity to existing highway;
- minimisation of property impacts;
- least impact upon sensitive habitats between Bonville Creek and Lyons Road and sensitive areas along the northern part of the route;
- utilisation of the LEP corridor which has been reserved for road purposes for over 20 years; and
- ability to incorporate a range of measures to improve the viability of koala populations by providing facilities for safe crossings.

The Bellingen Environment Centre (BEC) proposed an alternative to the preferred route B3 which they considered having less environmental impact than the proposed route. The BEC representation advocated alternative features to the RTA proposal including the following:

- a 150 metre long tunnel under Overhead Bridge Road;
- relocation of the proposed Heavy Vehicle Inspection Bay to Boambee, north of the project;
- the construction over all floodplain areas in Bonville below 1 in 100 year level;

- the raising of the highway to reduce the depth of cuts between Archville Station Road and Bonville Station Road; and
- the replacement of fauna fencing on the eastern side of the highway between Bonville Creek and Lyons Road with a noise barrier.

An assessment was undertaken by the RTA of the merits of this alternative route. The RTA concluded that the options identified in the BEC representation do not provide any likelihood of reduced environmental impacts when compared to the RTA proposal and in many cases may increase impacts of the proposal.

3.4 Major Benefits and Adverse Impacts Identified in the EIS

The EIS identifies the following benefits of the proposal:

- improvement of the social amenity and safety conditions for local traffic and pedestrians for the Bonville area;
- separation of through traffic from local traffic, reduction in congestion, travel times and improvement in travel efficiency and road safety; and
- provision of a high standard dual carriageway for local and regional movement of freight and people.

The EIS recognises that the construction and operation of the proposal would create a range of localised impacts. This includes:

- impacts through clearing and loss of habitat for endangered and vulnerable flora and fauna;
- the creation of a significant barrier to the migration of fauna;
- the degradation of amenity for residences situated adjacent to the proposal; and
- the creation of air, noise and water pollution into sensitive receiving environments.

The RTA state in the EIS that the majority of these impacts can be mitigated so that the environment is adequately protected.

4 SUMMARY OF REPRESENTATIONS

Some 63 representations were received in response to the EIS. Representations were received from the following parties:

- Commonwealth government (3);
- State government (11);
- local government (1);
- individuals (38);
- interest groups (7); and
- business (3).

In accordance with the requirements of the EP&A Act, the RTA forwarded copies of all representations to the Department following the close of the EIS exhibition period.

In its Representations Report, the RTA included a summary of the key issues raised in representations. The Department has undertaken an independent assessment of the representations and is satisfied that the RTA has adequately identified all issues raised.

The following are the key issues that were raised in representations:

- Flora and Fauna Impacts: the majority of representation expressed concern over the impact of the proposal on flora and fauna. Key issues of concern included the effectiveness of fauna underpasses, removal of key koala habitat, the increased barrier effect upon the movement of fauna including the threatened Yellow Belly Glider and Sugar Glider and the adequacy of the survey process;
- Noise and Vibration: a large number of submissions expressed concern relating to noise and vibration. The key issues raised related to the extent of noise mitigation works, the timing of such works and the methods employed to measure the existing conditions;
- Rest Area: a number of submissions questioned the need for an additional rest area at Mailmans Track and raised concern over the impact of this element of the proposal to increase pollution and pose an additional fire hazard for the area;
- Environmental Impacts: A broad range of concerns regarding the nature and extent of the environmental impacts of the proposal. These concerns included the range of environmental impacts associated with the preferred route as opposed to the Highway upgrade route, edge effects upon Bongil Bongil National Park, and the potential to accommodate future road widening;
- Residential Amenity and Property Impacts: The impacts of the proposal on residential amenity in terms of visual impacts and air quality and the impacts on property values were identified as being of concern.

5 MODIFICATIONS TO THE PROPOSAL FOLLOWING EIS EXHIBITION

This section describes the current proposal for which the RTA has sought approval from the Minister for Urban Affairs and Planning as described in its Representations Report. The modifications to the proposal described in this section have been made by the RTA following exhibition of the Environmental Impact Statement and in response to the issues raised in representations.

The following proposed modifications to the proposal have been made by the RTA following exhibition of the EIS:

- the provision of vegetated medians up to 50 metres wide in the northern part of the Pine Creek State Forest where previously the median would measure 10 metres, adjustment of the alignment to the east in this area, reduction of the width of the carriageway in the southern section and design modifications to reduce the width of the road to assist in the amelioration of the barrier effect upon the Squirrel Glider population in the Pine Creek State Forest;
- service road alignment and cross section modification to enhance habitat preservation and better facilitate fauna crossing opportunities;
- inclusion of wire rope safety barriers to minimise the need for habitat clearing;
- the addition of a 60 metre wide vegetated fauna overpass, strategic relocation of proposed fauna underpasses and the replacement of proposed culvert crossing of Reedys Creek with twin two span 60 metre bridges to improve the fauna crossing opportunities;
- the addition of bridge screening to eliminate the potential safety hazard of projectiles being thrown into the traffic stream;
- the provision of help telephones to improve safety along the proposed highway;
- re-positioning of the Heavy Vehicle Inspection Bay to utilise the existing Pacific Highway Road Reserve eliminating the need for additional clearing;
- improvements to the methods applied for cross-highway drainage;
- improvements for water quality treatment for the southern section of the proposal;
- the use of concrete pavement for the majority of the Highway and the use of open grade asphalt over 200 metres across Bonville Creek Bridge to assist noise attenuation;
- identification of individual noise mitigation measures;
- changes to the volume of earthworks as a result of design modifications with greater use of excess fill in noise attenuation mounds and raising the road profile to the north of Williams Road; and
- an overall increase in the amount of property for acquisition.

Overall, the rationale behind the modifications has been to reduce the environmental impacts of the proposal. The proposed modifications in the southern section of the route are illustrated in Figure 5.1.

6 ASSESSMENT OF KEY ISSUES RELATING TO THE MODIFIED PROPOSAL

This section of the report provides the Department's assessment of the key environmental impacts of the modified proposal based on an examination of the EIS, issues raised in representations during the exhibition period and the RTA's response to these issues in its Representations Report and during further consultation with the Department.

The Department has identified two key issues from its assessment of the proposal. These are:

1. the need to introduce appropriate flora and fauna mitigation measures to:
   - offset the removal of viable Koala habitat,
   - provide adequate fauna crossing opportunities, and
   - ensure the overall conservation significance of the study area and surrounding region; and
2. the need to mitigate noise associated with the construction works and operation of the highway affecting properties in close proximity to the road.

6.1 Flora and Fauna

The Bonville area is part of a biogeographically important region. However, with the exception of the area contained within the Pine Creek State Forest (which is an extensive area of re-growth forest) the study area contains only fragments of natural vegetation as a result of past land use activities such as forestry and agriculture.

Flora and fauna surveys undertaken as part of the route selection process and additional targeted surveys subsequent to the selection of a preferred route identified the presence of only one threatened flora species and four threatened fauna species (as defined in the *Threatened Species Conservation Act 1995*).

The Species Impact Statement (SIS) concluded that the proposal would not have significant impacts on any threatened plants known, or with the potential to occur, within the route corridor. However, the proposal would result in the clearing of a total of about 55.6 ha of native vegetation, of which about 43 ha has been identified as 'key habitat'. In addition, the road creates a barrier for fauna movements including koalas and gliders. Appropriate mitigation measures need to be identified which address future management of the area and a comprehensive compensatory habitat package needs to be developed to off-set 'key habitat' losses.

NPWS Concurrence Report

The Director-General of NPWS granted concurrence to the proposal on 17 September, 1999 subject to a number of conditions. The Concurrence Report (refer to Appendix B) prepared by NPWS (NPWS, 1999) contains an assessment of the proposal in terms of its threatened species impacts. NPWS concluded that the proposal, as ameliorated by the conditions, would be unlikely to significantly compromise the local or regional viability of any threatened species known to occur on the subject site.

The key elements of the Conditions of Concurrence are as follows:

- provision of the construction of fauna crossing structures and fauna exclusion fencing;
- NPWS review of the Environmental Management Plans;
- provision for a survey to be undertaken to identify the location of threatened flora prior to clearing for construction;
- the RTA funding recovery planning actions for the threatened species Koala which will be impacted by the proposal;
- the RTA to prepare a Weed Management Strategy for the project;
- the RTA to undertake a survey within Pine Creek State Forest to determine the position of trees suitable for potential crossing points for arboreal mammals;
- an assessment of the impacts of the proposal on an Osprey nest situated adjacent to the route;
- employment of an appropriately qualified and experienced rehabilitation specialist/ecologist to provide advice and assist with the implementation and monitoring of mitigation measures; and
- NPWS approval of a negotiated habitat compensation package prior to the commencement of construction.

The RTA would be required to comply with all conditions of concurrence issued by NPWS for the proposal, and this is reflected in Condition of Approval 34.

6.1.1 Department's Assessment of the Flora and Fauna Issues

The Department assessment has taken into account the mitigation measures contained in the NPWS's Concurrence Report and a review of the flora and fauna aspects of this proposal by an independent consultant, P&J Smith Ecological Consultants, who was engaged by the Department. The independent consultant was responsible for reviewing the 8 Part Tests, assessing the adequacy of the survey effort, assessing the adequacy of the conclusions relating to identification of species for consideration in the SIS and considering the adequacy of the proposed mitigation measures.

In response to comments made by the Department following its independent review, and submissions made by the NPWS, the RTA undertook additional desktop studies on flora and fauna issues, as well as specialist studies into aquatic species and wetlands. Based on these additional investigations the RTA decided to modify the proposal to minimise identified impacts on terrestrial and aquatic fauna, and on wetlands. Of significance was the modifications to the type and location of fauna crossing opportunities. These are shown in Figure 6.2 and now include:

- A 60 m wide vegetated (planted) fauna overpass (highway tunnel) in the centre of the Pine Creek State Forest section (an overpass can be expected to be more attractive to a wider range of fauna than an underpass).

- A vegetated median up to 50 m wide, consisting of retained vegetation and plantings, in the northern section (about 60%) of Pine Creek State Forest (north of the fauna overpass). This will allow gliders to cross the highway safely in two stages (gliders are unlikely to cross the highway in one glide, and are unlikely to use fauna underpasses).

- A combined service road and fauna underpass (highway bridge) in Pine Creek State Forest north of the fauna overpass.

- A fauna underpass (highway bridge) in Pine Creek State Forest between Mailmans Track and the fauna overpass.

- A fauna underpass (culvert) in Pine Creek State Forest south of Mailmans Track.

- A combined creek and fauna underpass (65 m long highway bridge) over Pine Creek.

- A combined creek and fauna underpass (60 m long highway bridge) over Reedys Creek.

- A combined fauna and cattle underpass (highway bridge) in the strip of native vegetation between Archville Station Road and East Bonville Road.

- A combined creek and fauna underpass (162.5 m long highway bridge) over Bonville Creek.

- A fauna underpass (highway bridge) in the strip of native vegetation near Herdegen Close/Titans Close.

The proposal has also been modified in Pine Creek State Forest to minimise clearing. The modifications included:

- reducing the median width south of the fauna overpass;
- refining the location and grading of the highway and service roads;
- increased use of wire rope safety barriers; and
- relocating the heavy vehicle inspection bay to the existing highway footprint.

The modified proposal would result in the loss of more native vegetation than the original proposal (about 2 ha more) as it would need to provide a wide vegetated median in the northern section of Pine Creek State Forest to allow gliders to cross the highway safely. It is felt, however, that the benefits resulting from the above modifications would outweigh the additional loss of habitat involved, particularly when compensatory habitat measures are introduced (see below).

Overall, the proposal would result in the clearing of a total of about 55.6 ha of native vegetation, of which about 43 ha has been identified as 'key habitat'. All 'key habitat' removed would be offset by means of a compensatory habitat package currently being negotiated between the RTA and the NPWS. The package is to include the acquisition and transfer of lands and/or funds for rehabilitation and management to the NPWS, and is one of the conditions of concurrence (No. 4) required by the Director-General of the NPWS. The RTA would be required to obtain the formal agreement of the NPWS for the compensation package prior to the commencement of clearing for the construction of the proposal.

Notwithstanding the net loss of 55.6 ha of native vegetation, the Department is satisfied from inspection of the supplementary information provided by the RTA and the NPWS, and its own field inspections of the site, that other adverse impacts on native flora and

fauna, especially the barrier effects of the highway, can be satisfactorily mitigated, provided that:

- the proposed mitigation measures are implemented;
- the NPWS concurrence conditions are followed; and
- the mitigation measures are refined and additional measures taken where necessary, based on the results of the Koala monitoring study, the proposed pre-construction flora and fauna surveys, and continuing negotiations with NPWS.

The Department raised additional concerns about the extent of pre-construction flora and fauna surveys, survey for hollow bearing trees and survey for additional species of regional significance. These have been addressed as follows:

- Recommended Condition of Approval 37 requires the Proponent to undertake poly-web fencing to delineate the extent of clearing in areas of native vegetation and to ensure that it remains in place throughout construction to prevent the any expansion of the limit of clearing;
- Recommended Condition of Approval 40 requires the Proponent to employ a suitably qualified ecologist to advise on the habitat value of hollow bearing trees located in edge areas of clearing activity; and
- Recommended Condition of Approval 41 requires the Proponent to include additional specified flora when surveying the proposed rest area opposite Mailmans Track to ensure the construction of the proposed rest area would have minimal impacts on these species.

6.1.2 Conclusion

The Department's assessment of the likely impacts of the proposal on flora and fauna, including consideration of NPWS's Concurrence Report, has concluded that, provided all identified mitigation measures are implemented, the potential impacts would be reduced to an acceptable level.

6.2 Noise

The alignment for the proposed new highway would redirect traffic from the centre of Bonville to the east. The effect of this new alignment is that there would be a dramatic drop in noise levels for most residents fronting the existing highway, however a number of rural residences, previously unaffected by traffic noise would now be subject to noise impacts.

In addition the EIS predicts that noise levels associated with construction exceed the EPA guidelines contained in the Environment Noise Control Manual at the closest residences along the whole alignment.

The EIS lists design elements of the Construction Noise Environmental Management Plan that, once implemented, would aim to minimise noise impacts, including the following:

- use of quietest plant available which is regularly maintained and fitted with appropriate mufflers;

- formation of noise bunds or erection of traffic noise barriers prior to noisy construction works where this is practicable;
- possible restrictions in construction hours (beyond EPA requirements, where noise impacts are likely;
- notification of residents prior to noisy or vibration generating activities;
- noise and vibration monitoring to ensure best practice is being implemented; and
- use of temporary barriers.

The EIS proposes to implement a post construction noise monitoring program to ensure the proposed noise mitigation measures are achieving the design goals.

6.2.1 Department's Assessment of Noise Impacts

Following the Department's review of the noise assessment undertaken in the EIS, further information was requested from the RTA in relation to certain aspects of the methodology used in the noise assessment as well as further detail of the proposed mitigation measures.

Construction Noise

Additional investigations were undertaken and a "Supplementary Noise and Vibration Report" was prepared by the RTA in order to provide more certainty as to the likely mitigation measures to be implemented to minimise the impacts of construction noise.

The supplementary report provided a review of all residences where EPA guidelines are predicted to be exceeded, irrespective of any noise control provided at the roadside. Using these predicted levels, generic criteria were identified to assess the significance of the likely impacts and identify suitable mitigation measures including the construction of barriers or acoustic treatment of properties.

In general terms, the RTA's proposed approach to mitigating construction noise impacts would result in a deferral of the finalisation of mitigation measures until a detailed construction schedule has been developed. Such deferral does not represent an optimum approach because there is still uncertainty for the local community. However the Department recognises that it is difficult for mitigation measures to be finalised at this time due to the uncertainty of the specific construction methods to be used.

The Department's assessment has concluded that a precautionary approach to the construction noise mitigation measures is appropriate. An important component of this is that further investigations be finalised and put in place prior to the commencement of any substantial construction works. The Department recommends that results of such investigations should be included in a Noise and Vibration Management Plan. This requirement is specified in Recommended Condition of Approval 25.

The Department considers that in its investigations of mitigation measures, the RTA should consider measures other than erection of noise barriers and individual treatment of houses. Such alternative measures should include scheduling of noisy construction activities such as earthworks, to times when disturbance is likely to be minimal, or temporary relocation of severely affected residents during noisy construction periods.

To further protect the local community from adverse construction noise impacts, the Department recommends that all construction activities to be restricted to 7am to 6pm

Monday to Friday and 8am to 1pm Saturday with no work on Sundays or public holidays. This requirement is reflected in Recommended Condition of Approval 27.

Operation Noise

The proposal would introduce traffic noise to a number of rural residences. The EIS states that predictions of noise levels without any mitigation measures resulted in exceedances of the new draft EPA guidelines at many of the residences located within 200m of this alignment. Implementation of noise control measures such as the construction of roadside barriers and individual treatment of affected residences would result in noise level goals within the draft EPA guidelines being complied with at most of the nearby residences.

The Department expressed concern to the RTA in relation to their strategy to provide mitigation measures to each of the noise affected properties. A greater level of clarity was needed in identifying each of the affected properties, the predicted noise affect and the proposed mitigation strategy for each of the affected residences. This was especially required where the noise mitigation strategy involved a combination of measures, such as roadside noise barriers, individual treatment as well as partial property acquisition.

The Department subsequently requested clarification of the extent of each noise affected property and the respective proposed level of treatment for each property. The RTA has prepared a table which identifies all residences where traffic noise levels require consideration. By default the table also refers to residences where the greatest construction noise impact is expected. The table also shows proposed mitigation measures for affected properties, including where a combination of measures is proposed such as individual noise treatment and noise barriers or earth mounds (refer to Appendix C). The spatial distribution of these measures is shown in Figure 6.3.

Noise Amelioration Strategy

The Noise and Vibration Supplementary Information Report refers to the RTA strategy for residences where EPA guidelines are exceeded. The strategy involves a range of measures to assist in the amelioration of noise affect. As a result of the representations process and additional consultation with the Department, elements of the strategy have been strengthened. The main elements of the strategy are as follows:

- The EIS refers to the erection of noise attenuation barriers at roadside locations to mitigate the noise from the road (refer to Figure 6.3). This would result in a 3 dBA reduction in noise levels. The EIS refers to the possibility of installing these barriers at an early stage of the project where possible to also assist in the reduction of construction noise for affected residences. The Department requested that the RTA investigate the feasibility of the use of greater landscaping in conjunction with the use of noise barriers. The RTA offered that extensive consideration had been given to alternative noise mitigation techniques for the project to balance the requirements for noise control, cost of barriers and visual implications for both residents and motorists given the predominantly rural landscape in the area. The RTA provided that on this basis, a barrier height of typically up to 4m (with a maximum of 4.5m) was proposed. Nevertheless, this is still expected to result in exceedances of more than 3 dBA at a few residences Individual treatments for these residences would include such measures as the provision of air conditioning, ventilation treatment and partial screening of the

residence. Appendix C refers to the extent of properties where the RTA have proposed individual treatments.

- The RTA has proposed to provide open graded asphaltic concrete (OGAC) on the Bonville Creek Bridge. The supplementary report notes that OGAC is highly voided (approximately 20% air voids) when initially constructed, producing 3-4 dBA lower noise levels than textured concrete surfaces. However, over time, the air voids reduce due to dust, grit and other particles entering, thus lessening the noise reduction properties of the OGAC. The RTA has indicated in the EIS that cleaning of the voids could be performed, however this is considered a costly treatment and the more likely scenario would be replacement of the OGAC every 8-10 years.

  Given the variability of the effectiveness of OGAC over time and the costs associated with maintenance or replacement, it is considered that large scale applications are not justified. The Department recognises the localised benefits that can be derived from the treatment on a smaller scale and endorses this treatment for the residences at 108, 128 & 130 Williams Road.

- The RTA has identified that the total number of residences where EPA guidelines of $L_{Aeq,9hr}$ 50 dBA would be exceeded (even allowing for mitigation measures) is 29. These affected residences are identified in the "Summary of Traffic Noise Levels" table (refer to Appendix C).

- The RTA indicate in the Noise and Vibration Supplementary Information Report that individual noise treatment was originally intended to be provided where roadside mitigation was considered impracticable or not cost effective or where roadside noise barriers had been incorporated and predicted noise levels were more than 3 dBA above the EPA $L_{Aeq,9hr}$ goal of 50 dBA, even though roadside barriers had been incorporated in the design. The Department recognises that the RTA has modified their original approach to extend the provision of individual noise treatments to 16 of the 29 residences where even though roadside barriers have been incorporated , predicted noise levels where 3 dBA or less above the EPA $L_{Aeq,9hr}$ goal of 50 dBA.

- The RTA has indicated that several properties owners who have been subject to partial property acquisition by the RTA have now expressed their desire to sell their properties. The RTA is currently negotiating with 10 adjacent property owners. The "Summary of Traffic Noise Levels" table (refer to Appendix C) indicates those properties where the RTA is prepared to negotiate for total acquisition if the owner desires. Should all these property owners accept total acquisition, then the number of properties where the EPA goal would be exceeded would be reduced to 19.

- Given the relatively small margins by which noise level criteria are expected to be met at a number of locations, ongoing monitoring of noise during the operation of the proposal would be critical. It is recommended that the results of such monitoring be used to determine if noise mitigation is required at any location, and if so, what the most appropriate form of such mitigation would be. This requirement is specified in Recommended Condition of Approval 33.

The Department recommends that noise monitoring also be undertaken to determine if ongoing patterns of high level noise and exceedances of relevant criteria are occurring

where noise mitigation has been implemented. In such situations, the RTA would be required to implement further noise mitigation measures including consideration of acquisition of the property if requested by the owner. This requirement is specified in Recommended Condition of Approval 33.

7 ASSESSMENT OF OTHER ISSUES RELATING TO THE MODIFIED PROPOSAL

This section outlines the Department's consideration of other issues relating to the current proposal. Again, recommendations are made for conditions of approval in order for particular issues to be satisfactorily addressed during construction and/or operation.

7.1 Property Severance

A number of individual property owners expressed concerns about the effect of partial acquisition and their capacity to properly carry out agricultural practices as a result of fragmentation. This is reinforced by the recommendation by the Department of Agriculture in it's submissions to the RTA that property severance should be kept to a minimum and where severance does occur, all attempts should be made to combine smaller lots with neighbouring properties. This would have the effect of maximising the potential agricultural land capability.

The RTA has acknowledged and agreed with the approach recommended by the Department of Agriculture and has indicated in the Representations Report that there exists opportunities for severed land to be amalgamated with adjoining properties.

In accordance with Recommended Condition of Approval 65 the RTA is also required, if requested by any landowner, to consider the consolidation of any severed parcels of land as part of any compensation package, if practical and cost effective.

7.2 Visual Impact

The study area contains rural residential development in a number of elevated locations. These residences would have prominent views of the highway once constructed. The proposed major structures (ie noise attenuation barriers) would feature strongly in the visual assessment.

The Department recognises that the proposal would have a potentially significant effect on the visual amenity of the study area. To a large extent, the significance of the potential impact would arise from the relatively high number of residences in close proximity to the new Highway.

The EIS contained a description of a number of landscape treatments that would be implemented along the route including specific treatments for embankments and fill batters and interchanges. The EIS contained a concept landscape plan which the RTA is proposing to develop into a detailed landscaping plan in conjunction with Coffs Harbour City Council and the local community.

The Department endorses the preparation of a detailed landscaping plan encompassing the landscape principles and typical treatments contained in Section 5.7 of the EIS. The Department recommends that the detailed landscape plan be included as part of the Construction Stage EMP. The Department notes the importance of involving Coffs Harbour City Council and the local community in the development of the landscape plan.

The requirement for preparing the landscape plan is specified in Recommended Condition of Approval 46.

The importance of ongoing monitoring and maintenance of the landscaping works to ensure the landscaping works are retained as a permanent feature of the proposal is recognised by the Department. As such, the Department recommends that the RTA engage a suitably qualified landscape specialist to monitor and maintain all landscaping works outside the road reserve implemented as part of the proposal for a period of at least three years, unless alternative arrangements are reached with relevant landowners. The RTA should also implement any required remediative measures to ensure landscaping works are maintained to a high standard. The RTA would also need to maintain all landscaping works within the road reserve for the life of the project. These requirements are reflected in Recommended Condition of Approval 47.

7.3 Geotechnical Issues

The heavy excavation and blasting in the Williams Creek cutting and the presence of phyllite (soils which posses low strength and weather on exposure) along the route gives rise to the potential for landslip. This issue would be addressed in the Construction Stage EMP.

It is also recommended that geotechnical monitoring be included in the Construction Stage Environmental Monitoring Report and Environmental Impact Audit Report (to be prepared following commissioning of the road). Should any other geotechnical issues be identified as a result of that monitoring, the RTA would be required to implement appropriate mitigation measures and undertake any necessary remedial works. These requirements are reflected in Recommended Conditions of Approval 14 and 16 respectively.

7.4 Water Quality

The proposal has the potential to impact on water quality during both construction and operation phases. This could affect the water quality and associated wetlands of Bonville Creek and its tributaries, Pine Creek and Reedys Creek, the three creeks which pass through the area.

The RTA has incorporated a number of design modifications to reduce the potential impacts on the receiving environment. These include:

- the replacement of the twin culvert at Reedy's Creek with a twin 60 metre, two span bridge benefiting both wetland habitat and fauna passage;
- the replacement of a multi-cell culvert behind Grandis Road with four twin cell culverts thus enhancing groundwater flow and improving the circulation of surface waters;
- the inclusion of permeable base layers beneath roadway embankments at Reedys Creek, north of Gould Road, behind Grandis Roads, Bongil Bongil National Park and north of Herdegen Close;
- in the Pine Creek State Forest, the vegetated median and buffer areas between the proposed route and the service road would act as swales removing dissolved and suspended materials prior to dispersal;

- runoff from the Heavy Vehicle Inspection Bay near the Syd Burke Rest Area on the western side of the highway would be held within the verge and treated in a water quality pond prior to discharge; and
- catch drains at Reedys Creek and Archville Station Interchanges would be incorporated to divert storm water before it reaches the road pavement and three water quality control ponds would be constructed on the banks of Reedys Creek helping to minimise impacts.

Additional relevant guidelines have been sourced, including the Constructed Wetland Manual (DLWC, 1998) and the RTA Road Design Guide, Section 7, Stormwater Management and Drainage Design (RTA 1998). The RTA has indicated that the principles contained within these documents would be adhered to obtain best practice design and reduced impacts. This requirement is specified in Recommended Condition of Approval 17.

The Department also supports the incorporation of the design modifications to assist in the reduction of potential impacts given appropriate monitoring is undertaken. The Department recommends that a detailed water quality management sub-plan be prepared as part of the Construction EMP in consultation with DLWC, EPA, Coffs Harbour City Council and NSW Fisheries. NPWS should also be consulted in relation to specific water quality control measures required to protect wetland and other sensitive areas.

The Sub-plan should provide details of the exact location and size of water quality control structures and the flood level protection of such structures. The Sub-plan should also contain details of erosion and sediment control measures and design discharge standards. A detailed water quality monitoring program for construction and operation should also be developed. These requirements are reflected in Recommended Condition of Approval 17.

Prior to the commencement of construction, the RTA should also assess the feasibility of using treated effluent from the Coffs Harbour Sewerage Treatment Scheme for dust suppression and/or landscaping. The RTA should consult with the NSW Department of Health and the EPA in relation to this measure. The assessment should include an examination of any likely surface or groundwater impacts that may result from runoff of treated effluent used in such a manner. The results of the assessment should be provided in the Construction EMP for the works. This requirement is reflected in Recommended Condition of Approval 19.

7.5 Acid Sulphate Soils

Pyritic material, possibly associated with Holocene sediments, is present in various sections of the route and as a result there is potential for developing Acid Sulphate Soils (ASS).

The Department recognises that the management of the impacts of Potential Acid Sulphate Soils (PASS) disturbance and runoff is achievable through the implementation of appropriate mitigation measures. In order for such mitigation measures to be effectively developed and implemented, it would first be necessary to identify the nature and extent of PASSs along the route. The Department recommends that the RTA undertake testing for the presence of PASS in accordance with a plan to be prepared to the satisfaction of DLWC and the EPA. This requirement is specified in Recommended Condition of Approval 23.

It is recommended that the RTA prepare an ASS Management Sub-plan as part of the Construction Stage EMP. The Sub-plan should be prepared in accordance with the NSW Acid Sulphate Soils Manual (NSW Acid Sulphate Soil Management Committee, 1998) and in consultation with EPA and DLWC. The Sub-plan should detail measures to be implemented if unexpected areas of ASS are identified during construction. Requirements relating to ASS are specified in Recommended Condition of Approval 23.

7.6 Indigenous Heritage

The full extent of the proposal was not subjected to systematic survey for indigenous cultural heritage sites because the archaeological potential was considered to be low. This may be attributed to the low-lying, swampy nature of much of the terrain through which the corridors pass.

It is likely that previously unidentified items of potential significance may be identified during construction works. Therefore the Department recommends that the RTA prepare an Indigenous Heritage Management Sub-plan as part of the Construction EMP which details management options for items or areas of indigenous heritage. The Sub-plan should also include measures to be implemented if any previously unidentified items of potential significance are identified during construction works. This requirement is reflected in Recommended Condition of Approval 48.

8 CONCLUSIONS AND RECOMMENDATIONS

The RTA is proposing to upgrade the Pacific Highway around the village of Bonville on the NSW North Coast. The proposal which is part of the Pacific Highway Upgrade Program involves the construction of a 9.8km, four lane dual carriageway road which would extend from the northern end of the Raleigh Deviation, adjacent to Parrys Road to the southern end of the Lyons Road to Englands Road Project.

The Department has undertaken a comprehensive assessment of the proposal which has examined issues identified in the EIS, the representations to the EIS and further information provided by the RTA.

The Department's detailed assessment concluded that while there was the potential for impacts to occur, particularly in terms of flora and fauna impacts and construction and operation noise, adequate mitigation measures have been identified to reduce these impacts. The mitigation measures are embodied in the Recommended Conditions of Approval contained in Section 9 of this report. It is also noted that the Concurrence Conditions developed by NPWS are fundamental to ensuring an acceptable outcome in terms of flora and fauna.

The Department has recommended that RTA prepare comprehensive Environmental Management Plans for the construction and operation stages of the proposal to ensure the identified mitigation measures are implemented throughout the life of the project.

The Department recommends that the proposal be approved by the Minister for Urban Affairs and Planning, subject to the Recommended Conditions of Approval contained in Section 9 of this report.

The key elements of the Recommended Conditions of Approval include:

- implementation of noise mitigation measures prior to construction and ongoing monitoring of noise levels;
- implementation of a number of conditions relating to flora and fauna including development of a comprehensive compensatory habitat package;
- preparation of detailed Environmental Management Plans for construction and operation; and
- establishment of a Community Liaison Committee to discuss measures to minimise impacts arising from the construction of the works.

9 RECOMMENDED CONDITIONS OF APPROVAL

This section provides the Department's recommended conditions of approval for the project under Section 115B(2) of the EP&A Act. These are based on the Department's assessment of the EIS, the representations made to the RTA and advice provided.

It is noted that the EIS and Representations Report contains extensive information on procedures and mitigation strategies to be implemented to ameliorate impacts of the proposal. The recommended conditions should therefore be implemented in conjunction with those procedures and mitigation strategies specified in the EIS and Representations Report. Where there is an inconsistency with the recommendations in the EIS and Representations Report, the recommendations in this report would prevail.

The following acronyms and abbreviations are used in this section:

ASS	Acid Sulphate Soils
Department, the	Department of Urban Affairs and Planning
Director-General, the	Director-General of the Department of Urban Affairs and Planning or delegate
DLWC	Department of Land and Water Conservation
DUAP	Department of Urban Affairs and Planning
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMR	Environmental Management Representative
ENCM	Environmental Noise Control Manual
EP&A A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
ESD	Ecologically Sustainable Development
L_{Aeq} 15 hour	Equivalent continuous (constant) sound level over 15 hour period from 7am to 10pm
L_{Aeq} 9hour	Equivalent continuous (constant) sound level over 9 hour period from 10pm to 7am
LALC	Local Aboriginal Land Council
Minister, the	Minister for Urban Affairs and Planning
NPWS	National Parks and Wildlife Service
NVMP	Noise and Vibration Management Sub-Plan
Proponent	Roads and Traffic Authority (RTA)
RTA, the	Roads and Traffic Authority (RTA)
SEPP 14	State Environmental Planning Policy 14 - Coastal Wetlands

General

1. The proposal shall be carried out in accordance with:

   (i) the proposal contained in the environmental impact statement '*Bonville Project – Pacific Highway Coffs Harbour'* dated July 1998, (the EIS), prepared for the Roads and Traffic Authority (RTA) by PPK Environment & Infrastructure, subject to modifications to the proposal as described in the

'*Bonville Project, Pacific Highway Coffs Harbour – Supplementary Route Selection and Design Report'* prepared by PPK Environment & Infrastructure Pty Ltd, dated 17 June 1999 and the '*Representations Report – The Bonville Project* (the Representations Report) prepared for the RTA by Environmental Technology, dated July 1999;

(ii) all identified procedures, safeguards and mitigation measures identified in the EIS and Section 3.3 of the Representations Report;

(iii) the conditions of concurrence granted by the Director-General of the NPWS; and

(iv) the conditions of approval granted by the Minister,

Despite the above, in the event of any inconsistency, the conditions of approval by the Minister shall prevail.

These conditions do not relieve the Proponent of the obligation to obtain all other approvals and licences from all relevant authorities required under any other Act. Without affecting the generality of the foregoing, the Proponent shall comply with the terms and conditions of such approvals and licences.

It shall be the ultimate responsibility of the RTA to ensure compliance with all conditions of approval granted by the Minister.

Compliance

General

2. The Proponent shall comply with, or ensure compliance with all requirements of the Director-General in respect of the implementation of any measures arising from the conditions of this approval. The Proponent shall bring to the attention of the Director-General any matter that may require further investigation and the issuing of instructions from the Director-General. The Proponent shall ensure that these instructions are implemented to the satisfaction of the Director-General within such time that the Director-General may specify.

Pre-Construction Compliance Report

3. At least one month prior to commencement of substantial construction (or within such period as otherwise agreed by the Director-General), the Proponent shall submit for approval of the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of substantial construction and shall address:

(i) the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and

(ii) action taken or proposed to implement the recommendations made in terms of approvals and/or studies.

Pre-Operation Compliance Report

4. At least one month prior to commissioning of the proposal, or within such period as otherwise agreed by the Director-General, the Proponent shall submit for approval of the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of operation and shall address:

   (i) the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and
   (ii) action taken or proposed to implement the recommendations made in terms of approvals and/or studies

Dispute Resolution

5. The Proponent shall endeavour, as far as possible, to resolve any dispute with relevant public authorities arising out of the implementation of the conditions of this approval. Should this not be possible, the matter shall be referred to the Minister for resolution. The Minister's determination of the disagreement shall be final and binding on all parties.

Contact Telephone Number

6. Prior to the commencement of construction, the Proponent shall institute, publicise and list with a telephone company a 24 hour complaints contact telephone number, which would enable any member of the general public to reach a person who can arrange appropriate response action to the complaint.

Complaints Register

7. The Proponent shall record details of all complaints received during construction and ensure that an initial response to the complaint is provided within one working day and a detailed response within 10 days. Information on all complaints received shall be made available on request to the Director-General and all relevant government agencies. The Proponent shall nominate an appropriate person(s) to receive, log, track and respond to complaints within the specified timeframe. The name and contact details of this person(s) shall be provided to the relevant Council(s) and the Director-General upon appointment or upon any changes to that appointment.

Project Commencement

8. The Proponent shall notify the Director-General and all relevant authorities in writing of the project commencement both in terms of construction and operation (ie commissioning).

Advertisement of Activities

9. Prior to the commencement of construction and then at three-monthly intervals, the Proponent shall advertise in relevant local newspapers the nature of the works proposed for the forthcoming three months, the areas in which these works are proposed to occur, the hours of operation and a contact telephone number.

The Proponent shall ensure that the local community is kept informed (by way of local newsletters, leaflets, newspaper advertisements, and community noticeboards, etc.) of the progress of the project, including any traffic disruptions and controls, construction of temporary detours and work required outside the nominated working hours, prior to such works being undertaken.

Community Liaison Group

10. A Community Liaison Group shall be formed prior to the commencement of construction to discuss detailed design issues and methods for minimising the impact on the local community and businesses during the construction stage. The Group shall include the Environmental Management Representative, representatives from the RTA, the contractor, relevant local community and business groups, and Coffs Harbour City Council.

    Issues for discussion shall include, but not be limited to local vehicle, pedestrian and cyclist requirements; construction stage traffic diversions; noise control measures; air and water quality; landscaping requirements; and any other issues considered relevant by the Group.

    Appropriate facilities and information shall be provided by the Proponent to assist the Group in carrying out its functions. The Group may make comments and recommendations about the design and implementation of the proposal, which shall be considered by the Proponent.

Environmental Management Representative

11. A suitably qualified Environmental Management Representative (EMR) shall be available during construction activity at the site and be present on-site during any critical construction activities as defined in the Environmental Management Plan (EMP). The EMR shall have responsibility for considering and advising on matters specified in the conditions of approval and compliance with such and facilitation of an induction and training program for all persons involved with the construction activities. The following information shall be provided to the Director-General:

    (i) appropriateness of the qualifications of the EMR including demonstration of general compliance with the principles of AS/NZS ISO 14012:1996 *Guidelines for Environmental Auditing : Qualification criteria for environmental auditors*;
    (ii) role and responsibility of the EMR; and,
    (iii) authority of the EMR including details of the Proponent's internal reporting structure. This shall include the authority to stop work immediately if in the view of the EMR an unacceptable impact is likely to occur or to require other reasonable steps to be taken to avoid or minimise any adverse impacts

    The appointment of the person nominated to serve as the EMR shall be approved by the Director-General prior to the commencement of construction.

Environmental Management System

12. The Proponent shall ensure the appointment of contractors that have a demonstrated capability and experience in the implementation of an Environmental Management System prepared in accordance with the AS/NZS ISO 14000 series or BS7750-1994 certified by an accredited certifier and/or have a proven environmental management performance record of a level relevant to the scale of the works being undertaken.

Environmental Management Plan (Construction Stage)

13. Prior to the commencement of construction, an Environmental Management Plan (EMP) (Construction Stage) shall be prepared, following consultation with the EPA, DLWC, NSW Fisheries, NPWS, other relevant government authorities, and Coffs Harbour City Council. Where construction activities may be undertaken in discrete stages, the Proponent may prepare individual EMPs relating to specific stages of construction. An outline of any proposed staging of EMPs shall require the approval of the Director-General.

The EMP (Construction Stage) shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management procedures. The EMP (Construction Stage) shall require approval by the Director-General prior to substantial construction works or within such time as otherwise agreed to by the Director-General. The EMP shall be certified as being in accordance with the conditions of approval by the EMR prior to seeking approval of the Director-General.

The EMP (Construction Stage) shall:

(i) address construction activities associated with all key construction sites, including staging and timing of the proposed works;
(ii) cover specific environmental management objectives and strategies for the main environmental system elements and include, but not be limited to: noise and vibration; air and water quality; erosion and sedimentation; access and traffic; property adjustments; heritage and archaeology; groundwater; contaminated spoil and acid sulphate soils, spoil stockpiling and disposal; waste/resource management; flora and fauna; wetlands; flooding and stormwater control; geotechnical issues (including land slip and settlement); visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; vermin; and utilities; and
(iii) address, but not be limited to:
(a) identification of the statutory and other obligations which the Proponent is required to fulfil during project construction, including all approvals and consultations/agreements required from other authorities and stakeholders, and key legislation and policies which control the Proponent's construction of the project;
(b) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to compliance with the EMP;
(c) measures to avoid and/or control the occurrence of environmental impacts;
(d) measures (where possible and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;

(e) the role of the EMR;
(f) environmental management procedures for all construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
(g) monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental management of the project, including performance criteria, specific tests, protocols (eg. frequency and location) and procedures to follow;
(h) environmental management instructions for all complex environmental control processes which do not follow common practice or where the absence of such instructions could be potentially detrimental to the environment;
(i) steps the Proponent intends to take to ensure that all plans and procedures are being complied with;
(j) identification of cumulative impacts and mitigation measures for staged EMPs;
(k) consultation requirements with relevant government agencies; and
(l) community consultation and notification strategy (including local community, relevant government agencies, and Coffs Harbour City Council), and complaint handling procedures.

Specific requirements for some of the main environmental system elements referred to in (b) shall be as required under the conditions of this approval and/or as required under any licence or approval.

The EMP(s) (Construction Stage) shall be made publicly available.

Environmental Monitoring - Construction

14. The Proponent shall submit to the Director-General, a report(s) in respect of the environmental performance of the construction works and compliance with the EMP (Construction Stage) and any other relevant conditions of this approval. The reports shall be prepared six months after the start of substantial construction and thereafter at six monthly intervals or at other such periods as requested by the Director-General to ensure adequate environmental performance over the duration of the construction works. The report(s) shall include, but not be limited to, information on:

(i) applications for consents, licences and approvals, and responses from relevant authorities;
(ii) implementation and effectiveness of environmental controls and conditions relating to the work undertaken;
(iii) identification of construction impact predictions made in the EIS and any supplementary studies and details of the extent to which actual impacts reflected the predictions;
(iv) details and analysis of results of environmental monitoring;
(v) number and details of any complaints, including summary of main areas of complaint, action taken, response given and intended strategies to reduce complaints of a similar nature; and

(vi) any other matter relating to the compliance by the Proponent with the conditions of this approval or as requested by the Director-General.

The report(s) shall be provided to the EPA, NPWS, DLWC, NSW Fisheries and Coffs Harbour City Council, and any other relevant government agency nominated by the Director-General. The report(s) shall also be made publicly available.

Environmental Management Plan (Operation Stage)

15. An Environmental Management Plan (EMP) (Operation Stage) shall be prepared prior to the commencement of operation. The Plan shall be prepared in consultation with the EPA, DLWC, NSW Fisheries, NPWS and Coffs Harbour City Council and any other relevant government agency nominated by the Director-General. The Plan shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management procedures. The EMP (Operation Stage) shall require approval by the Director-General prior to commissioning or within such time as otherwise agreed to by the Director-General. The EMP shall be certified as being in accordance with the conditions of approval by the EMR prior to seeking approval of the Director-General.

The EMP (Operation Stage) shall address at least the following issues:

(i) identification of the statutory and other obligations which the Proponent is required to fulfil, including all licences/approvals and consultations/agreements required from authorities and other stakeholders, and key legislation and policies which control the Proponent's operation of the project;
(ii) sampling strategies and protocols to ensure the quality of the monitoring programme, including specific requirements of the EPA and DLWC;
(iii) monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental performance of the project during its operation, including description of potential site impacts, performance criteria, specific tests and monitoring requirements, protocols (eg. frequency and location) and procedures to follow;
(iv) steps the Proponent intends to take to ensure compliance with all plans and procedures;
(v) consultation requirements, including relevant government agencies, the local community and Council, and complaints handling procedures; and
(vi) strategies for the main environmental system elements and including but not limited to: noise and vibration; water; land slip/settlement; air quality; erosion and sedimentation; access and traffic; property acquisition and/or adjustments; heritage and archaeology; groundwater; contaminated spoil; waste/resource management/removal/disposal; flora and fauna; hydrology and flooding; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities.

Specific requirements for some of the main environmental system elements referred to in (iv) shall be as detailed under the conditions of this approval and/or as required under any licence or approval.

The EMP (Operation Stage) shall be made publicly available.

All sampling strategies and protocols undertaken as part of the EMP (Operation Stage) shall include a quality assurance/quality control plan and shall be approved by the relevant regulatory agencies to ensure the effectiveness and quality of the monitoring programme. Only accredited laboratories can be used for laboratory analysis.

Environmental Impact Audit Report

16. An Environmental Impact Audit Report shall be submitted to the Director-General, and the EPA, and upon request by the Director-General, to any other relevant government authority 12 months after commissioning of the project, or unless otherwise agreed by the Director-General, and at any additional periods thereafter as the Director-General may require. The technical studies required as part of the report shall be prepared by appropriately qualified, independent specialists. The Report shall assess the key impact predictions made in the EIS and any supplementary studies and detail the extent to which actual impacts reflect the predictions. In particular, the Report shall provide details on actual versus predicted noise and vibration impacts on local residences and nearby buildings, flora and fauna mitigation measures, geotechnical issues (including land slip) and all other key impact issues identified in the EIS. The suitability of implemented mitigation measures and safeguards shall also be assessed. The Report shall also assess compliance with the EMP (Operation Stage).

The Report shall discuss results of consultation with the local community in terms of feedback/complaints on the construction and operation phases of the project and any issues of concern raised. The Proponent shall comply with all reasonable requirements of the Director-General with respect to any reasonable measure arising from, or recommendations in, the report.

The Report shall be made publicly available.

Soil and Water Management

Soil and Water Quality Management Sub-plan

17. As part of the EMP(s) (Construction Stage) and (Operation Stage), a detailed Soil and Water Quality Management Sub-Plan shall be prepared to the satisfaction of the DLWC and in consultation with the EPA, sufficient to address the technical requirements for obtaining relevant EPA licences. The Proponent should also consult with NSW Fisheries and Coffs Harbour City Council. NPWS shall be consulted in relation to specific water quality control measures to be implemented in the vicinity of wetland areas.

The Sub-plan shall be prepared in accordance with the Department of Housing's guideline *Managing Urban Stormwater - Soils and Construction,* 1998 and where appropriate DLWC's *Constructed Wetlands Manual*. The Sub-plan(s) shall be prepared prior to construction or operation as appropriate and provide details of pollution control measures, including measures to treat and dispose of water from

the site, and water quality monitoring to be undertaken during the construction and operation stages respectively.

Erosion and Sediment Control Works

18. The Soil and Water Management Sub-Plan shall incorporate detailed **erosion and sedimentation controls** and **site rehabilitation requirements** which shall be prepared and submitted to the satisfaction of DLWC and in consultation with the EPA, sufficient to address the technical requirements for obtaining relevant EPA approvals/licences.

    The DLWC, or an appropriately qualified soil conservationist shall be consulted on a regular basis to undertake inspections of temporary and permanent erosion and sedimentation control devices to ensure that the most appropriate controls are being implemented, that they are being maintained in an efficient condition at all times and meet the requirements of any relevant approval/licence condition(s).

Use of Treated Effluent

19. Prior to the commencement of construction, the Proponent shall investigate, in consultation with the NSW Department of Health and the EPA, the feasibility of using treated effluent from the Coffs Harbour Sewage Treatment Scheme for dust suppression and/or landscaping works. The investigation shall include assessment of the likely effects on surface water quality and groundwater quality from the use of any treated effluent. The results of the investigation shall be included in the Construction EMP referred to in Condition 13.

Operation Stage Control Measures

20. All stormwater drainage, erosion, sedimentation and water pollution control systems and facilities of the proposal shall be located, designed, constructed operated and maintained to meet the reasonable requirements of the relevant authorities including the EPA and DLWC and in consultation with NSW Fisheries. All facilities including wetland filters, grass filter strips, gross pollutant traps and sedimentation basins shall be inspected regularly and maintained in a functional condition for the life of the project by the Proponent unless the responsibilities are transferred to other parties with the approval of the EPA.

21. The Proponent shall provide appropriate detention systems for containment of spills and materials arising from accidents and install appropriate detention systems in consultation with the EPA. Lockable shut-off valves shall be provided at all points that discharge directly to natural watercourses.

Flood/Drainage Management Sub-plan

22. As part of the EMP (Construction Stage) a detailed **Flood/Drainage Management Sub-plan** shall be prepared in consultation with the DLWC and Coffs Harbour City Council. The Sub-plan shall provide details on catchment analysis (including localised flooding as recognised by the Council), existing drainage systems and

capacity, drainage changes resulting from the proposal and implications for the system, detention requirements and their environmental impacts.

Acid Sulphate Soils

23. The proponent shall ensure that tests are carried out in advance of excavation to test for the presence of acid sulphate soils in all areas to be disturbed by the proposal where acid sulphate soils have the potential to be present. These tests shall prepared to the satisfaction of the DLWC and in consultation with the EPA.

    Should acid sulphate soils be found, a detailed Acid Sulphate Soil Management Sub-plan shall be prepared in consultation with the EPA and DLWC prior to any additional construction activity taking place in the area affected. The Sub-plan shall include reference to the water quality monitoring program contained in the Soil and Water Quality Management Sub-plan. The Sub-plan shall be prepared in accordance with the Acid Sulphate Soils Manual (ASSMAC, 1998). As part of the Sub-plan, a Contingency Plan to deal with the unexpected discovery of actual or potential acid sulphate soils shall be prepared in consultation with the EPA and DLWC.

Contaminated Soils - Cattle Tick Dip Sites

24. As part of the EMP (Construction Stage), the Proponent shall identify the location of any cattle tick dip sites likely to be affected by the proposed works and details of appropriate management measures. These are to be developed in consultation with the EPA and NSW Agriculture.

Noise and Vibration

Management Sub-plan

25. A detailed **Noise and Vibration Management Sub-plan (NVMP)** shall be prepared as part of the EMP (Construction Stage) and EMP (Operation Stage) respectively, in consultation with the EPA, sufficient to address the technical requirements for obtaining relevant EPA licences. The Sub-plan shall provide details of noise and vibration control measures to be undertaken during the construction and operation stages. The Sub-plan shall include, but not be limited to:

    (i) tests for ascertaining acoustic parameters;
    (ii) identification of noise and vibration catchments and predicted noise and vibration levels;
    (iii) impacts from site compounds/construction depots;
    (iv) location, type and timing of erection of temporary and permanent noise barriers and/or other noise mitigation measures;
    (v) specific physical and managerial measures for controlling noise and vibration;
    (vi) noise and vibration monitoring, reporting and response procedures; and
    (vii) the urban design issues relating to noise and vibration control measures.

    With respect to sub-clause (iv), the Proponent shall consider the use of a range of structural and non-structural noise mitigation measures including barriers,

acoustic treatment of residences, scheduling of construction activities and temporary relocation of affected residents.

26. Where considered relevant or appropriate by the EPA, a **Noise Impact Statement(s)** shall be prepared consistent with the Noise Management Sub-plan and shall include:

(a) description of proposed processes and activities;
(b) valid background levels;
(c) examination of alternative methods that would potentially reduce noise impact;
(d) assessment of potential noise from proposed construction methods;
(e) description of and commitment to work practices which limit noise;
(f) description of specific noise mitigation treatments and time restrictions, and consideration of their effectiveness;
(g) justification for any activities outside the normal hours;
(h) consideration of construction vehicle movements;
(i) compliance with EPA criteria;
(j) monitoring of construction activities; and
(k) community consultation and notification.

Construction Hours

27. All construction activities, including entry and departure of heavy vehicles are restricted to the hours of 7.00am to 6.00pm (Monday to Friday); 8.00am to 1.00pm (Saturday) and at no time on Sundays and public holidays. Works outside these hours that may be permitted include:

(i) any works which do not cause noise emissions to be audible at any nearby residential property;
(ii) the delivery of materials which is required outside these hours as requested by police or other authorities for safety reasons;
(iii) emergency work to avoid the loss of lives, property and/or to prevent environmental harm; and
(iv) any other work as agreed by the EPA through the NVMP process.

Construction Noise Impact Assessment

28. Construction noise levels shall be monitored to verify compliance with the requirements specified in the Noise and Vibration Management sub-plan and where relevant the Noise Impact Statements. Should monitoring indicate exceedance the Proponent shall ensure consultation with the EPA and implement any additional mitigation measures as required.

29. As far as practicable, vibratory compactors shall not be used closer than 15 m from residential buildings and the use of rock breakers no closer than 25 m from residential buildings. Should it be necessary to use vibratory compactors closer than these limits, building condition surveys of all buildings and structures likely to be affected shall be undertaken before and after use of this type of equipment.

30. The Proponent shall ensure that the noise mitigation measures described in Appendix D of the Director-General's Report are implemented prior to the commencement of substantial construction unless otherwise agreed by the EPA. All other noise mitigation measures, including those referred to in Condition 33, shall be implemented prior to the commencement of construction where practical.

Blasting

31. Blasting shall only be undertaken between 9am and 3pm, Monday to Friday and 9 am and 1 pm on Saturdays, unless otherwise agreed by the EPA, as part of the NVMP.

Operation Noise

32. The Proponent shall undertake the additional noise treatment works identified in the Supplementary Route Selection and Design Report to mitigate the increased operational noise resulting from the raising of the road through cut and fill sections adjacent to Grandis Road between East Bonville and Bonville Station Road and to the north of Williams Road. Consideration shall be given to landscaping and additional individual treatment works to assist in noise mitigation for affected properties.

33. Monitoring of the noise when operational shall be undertaken as part of the Noise and Vibration Management Sub-plan. The Proponent shall, in consultation with the EPA, assess the adequacy of the traffic noise mitigation measures with regard to the EPA Guideline "Environmental Criteria for Road and Traffic Noise". Should the assessment indicate a clear trend in traffic noise levels which are higher than the predictions made and exceed EPA noise goals, the Proponent shall ensure the implementation of further noise mitigation measures such as consideration of open grade asphalt road pavement, inclusion and/or heightening of noise barriers, insulation of buildings, partial or total acquisition of properties or any other measure as agreed to by the EPA.

    Notwithstanding the above, the Proponent shall ensure compliance with the noise assessment criteria as described in the EIS unless otherwise agreed by the EPA as part of the NVMP.

Flora and Fauna

NPWS Concurrence Report

34. The Proponent shall implement the conditions contained in Section 11 of '*Concurrence Report for the Proposed Pacific Highway Upgrade from Mailmans Track to Lyons Road, Bonville'* (NPWS, 1999) unless otherwise agreed by the NPWS.

35. In accordance with Condition 4 of Section 11 of the NPWS Concurrence Report, the Proponent shall ensure that a satisfactory compensation habitat package, which will offset the loss of key habitat, is negotiated with the NPWS. The compensation package will require the approval of the NPWS Manager of the Northern Zone, prior to the commencement of construction.

Construction

36. As part of the EMP the Proponent shall prepare in consultation with NPWS a detailed Flora and Fauna Management Sub-plan. The Sub-plan shall be prepared prior to construction and shall identify requirements for seed collection, strategies for minimising vegetation clearance and protection of vegetated areas outside the direct impact zone, controlling impacts due to spillages, spread of debris and refuse, movement and storage of materials and equipment, clearance of vegetation and soil for construction, revegetation of cleared areas, weed control including aquatic species, handling of any fauna and measures to manage drainage from the project in the vicinity of SEPP 14 wetlands.

37. The Proponent shall undertake poly-web fencing of the limit of clearing in areas of native vegetation. The fencing shall be installed concurrent with, or immediately following the pegging of the limit of clearing and shall be in advance of any substantial clearing of the road footprint. The fencing shall remain in place delineating the limit of clearing in areas of native vegetation until the risk of accidental clearing is removed. To remove any potential fauna barrier, provision shall be made, at intervals, for fauna passage. This can include additional clearance under the fence or breaks in the fence line.

38. The Flora and Fauna Management Sub-Plan shall contain the details of the methods to be employed to install the poly-web fencing required by Condition 37.

39. The Proponent shall employ a qualified ecologist to undertake all survey requirements set out in Section 11 of the NPWS Concurrence Report. This includes the survey for threatened species to be undertaken in accordance with the development of 'best practice' pre-clearing guidelines required by Condition 17 of Section 11 of the NPWS Concurrence Report.

40. In accordance with Condition 10 of Section 11 of the NPWS Concurrence Report, the proponent shall employ a suitably qualified ecologist to undertake a survey for Epipogeum roseum and any threatened species at the site for the proposed rest area opposite Mailmans Track. In addition, the Proponent shall be required to extend the survey to include the following species:

    Arytera distylis (Twin-leaved Coogera)
    Digitaria divaricatissima (Umbrella Grass)
    Exocarpos latifolius (Broad-leaved Native Cherry)
    Lygodium microphyllum (Climbing Fern)

    The RTA must ensure that the design and construction of the proposed rest area minimises impacts on these species.

41. The Proponent shall employ a suitably qualified ecologist to advise on the habitat value of hollow bearing trees where there is some doubt over the decision to fell on safety grounds and where the retention of such trees would be desirable.

42. If, during the course of construction, the Proponent becomes aware of the presence of any threatened species which are likely to be significantly affected and are not recognised in an existing concurrence from NPWS for the proposal under the Threatened Species Conservation Act 1995, the Proponent shall immediately advise the Director-General of the NPWS. No activity which places any of these species at risk shall be undertaken until advice has been received from the NPWS. All recommendations by the NPWS shall be complied with prior to any works likely to affect any threatened species.

43. Seed of locally endemic species shall be collected prior to the commencement of construction to provide seed stock for revegetation purposes to the satisfaction of a appropriately qualified specialist. Topsoil and leaf mulch shall be stripped and stored for placement back in the vegetation zone from where it was removed.

44. Weed infested topsoil as identified by a qualified ecologist shall not be used in the rehabilitation works unless it is to be sterilised or treated as specified by the ecologist. Measures to control invasion of weeds during operation of the proposal, including aquatic weed species, shall also be addressed.

45. Unless otherwise approved by the EPA, cleared vegetation shall not be burnt. Rather, as much as possible shall be mulched and stored for use in rehabilitation. All reasonable measures to use any surplus vegetation shall be undertaken including donation to community groups, distribution to the local community, etc.

Urban Design and Landscaping

46. Prior to the commencement of construction, a detailed **Urban Design and Landscape Sub-plan** shall be prepared in consultation with Coffs Harbour City Council and the Community Liaison Group. The Sub-plan should include the following elements:

i) sections and perspective sketches;

ii) the location and names of existing and proposed tree and shrub species, mounds, bunds, structures or any other proposed treatments, finish of exposed surfaces (including paved areas), use of public art, measures to preserve biodiversity along the roadside, colours and specifications, staging of works, methodology of landscaping works, monitoring and maintenance;

iii) methods to incorporate the following species, where feasible, in landscaping works;

Arytera distylis (Twin-leaved Coogera)
Epipogium roseum (Drooping Orchid)
Digitaria divaricatissima (Umbrella Grass)
Exocarpos latifolius (Broad-leaved Native Cherry)
Lygodium microphyllum (Climbing Fern)

iv) landscape strategies incorporating other environmental controls such as erosion and sedimentation controls, drainage, noise mitigation, lighting etc.

47. All landscaping works undertaken outside the road reserve shall be monitored and maintained by a suitably qualified landscape specialist for a period of not less than three years from commissioning of the road unless otherwise agreed with relevant landowners. All costs of such monitoring and maintenance shall be borne by the Proponent. Landscaped areas within the road reserve shall be maintained at all times.

Indigenous and Non-Indigenous Heritage

Indigenous Heritage Management Sub-plan

48. As part of the EMP (Construction Stage), the Proponent shall prepare an Indigenous Heritage Management Sub-plan. The Sub-plan shall identify archaeological items and present management options. In the preparation of the Sub-plan, the Proponent shall consult with Coffs Harbour City Council, NPWS and the Coffs Harbour Local Aboriginal Land Council the Mudjay Elders Aboriginal Corporation and the Gunbalar Julipi Elders Group.

49. Prior to disturbance of any identified Aboriginal site(s), the Proponent shall, at its own expense, comply with the requirements of the NPWS and where appropriate the relevant Local Aboriginal Land Council(s).

50. Temporary protective fences shall be placed around all sites considered to be archaeologically sensitive.

Non-Indigenous Heritage Management Sub-plan

51. As part of the EMP(s) (Construction Stage) and (Operation Stage) (as applicable), the Proponent shall prepare a Non-Indigenous Heritage Management Sub-plan. The Sub-plan shall identify heritage items and present management options. In the preparation of the Sub-plan, the Proponent shall consult with any local historical societies, relevant Heritage authorities and Coffs Harbour City Council.

Unexpected items

52. If during the course of construction the Proponent becomes aware of any heritage items or archaeological material, all work likely to affect the site(s) shall cease immediately and the relevant authority(s) shall be consulted to determine an appropriate course of action prior to the recommencement of work at that site. Appropriate supporting documentation would need to accompany any application for required permit/consent(s).

Air Quality

Construction Air Quality Sub-plan

53. As part of the EMP(s) (Construction Stage), a specific **Construction Stage Air Quality Sub-plan** shall be prepared in consultation with the EPA. The Sub-plan shall provide details of dust monitoring locations and all dust control measures to be implemented during the construction stage, sufficient to address the technical

requirements for any EPA approvals/licences. The Sub-plan shall include measures to reduce dust from stockpiles and cleared areas or other exposed surfaces.

54. The proponent shall ensure that the first flush interceptors for rainwater collection systems are provided to residents within a minimum distance of 150 metres of construction works and beyond 150 metres if required by the Director-General following consultation with the EPA.

55. All construction vehicles using public roads shall be maintained and covered as required to prevent any loss of load, whether in the form of dust, liquid, solids.

56. No open burning or incineration shall be permitted on site unless otherwise approved by the EPA.

Traffic and Roadworks

57. The Proponent shall consult with the relevant Council to develop management techniques for construction traffic on local roads, prior to the commencement of construction. The Proponent shall monitor the use of local roads by heavy vehicle traffic and shall consult with the local Council to develop measures to minimise and/or restrict use of local roads by heavy vehicle traffic involved in project construction if so required. Truck access points from local roads to the site and truck routes on local roads shall be designated prior to commencement of bulk earthworks in consultation with the relevant Council.

58. A road dilapidation report shall be prepared for all non-arterial roads likely to be used by construction traffic prior to commencement of construction and after construction is complete. Copies of the report shall be provided to all relevant Councils. Any damage aside from that resulting from normal wear and tear shall be repaired at the cost of the Proponent.

59. All local service roads shall be constructed to standards as negotiated with the relevant local Council. The Proponent shall negotiate with the relevant local Council regarding contributions to costs for maintenance and enhancement.

Spoil Disposal and Waste Management

Spoil Management Plan

60. As part of the EMP(s) (Construction Stage), the Proponent shall prepare a **Spoil Management Plan**. This Plan shall identify how excavated material would be handled, stockpiled, reused and disposed. The Plan shall be prepared in consultation with the EPA and Council before the commencement of construction at relevant sites.

61. All clean and/or treated excavated material shall be reused or recycled where possible and cost effective to do so. The Proponent shall ensure that the use of excavated material generated from construction activities is maximised in preference to any import of fill.

Waste Management and Recycling Sub-plan

62. As part of the EMP(s) (Construction Stage) and (Operation Stage) as relevant, a detailed **Waste Management and Reuse Sub-plan** shall be prepared in consultation with the EPA. The Sub-plan shall address the management of wastes during the construction and operation stages respectively. It shall be prepared prior to construction, and shall identify requirements for:

    (i) waste avoidance;
    (ii) reduction;
    (iii) reuse; and
    (iv) recycling,

    and details of requirements for:

    (i) handling;
    (ii) stockpiling;
    (iii) disposal of wastes: specifically contaminated soil or water, concrete, demolition material, cleared vegetation, oils, grease, lubricants, sanitary wastes, timber, glass, metal, etc.; and
    (iv) identifying any site for final disposal of any material and any remedial works required at the disposal site before accepting the material.

    Any waste material that is unable to be reused, reprocessed or recycled shall be disposed at a landfill licensed by the EPA to receive that type of waste.

63. As part of the Sub-plan, an **Action Plan** shall be prepared to promote the use of recycled materials, including construction and landscape materials. The Plan shall detail how the proposal gives consideration and support to the Government's *Waste Reduction and Purchasing Policy*. The Plan shall also include details on measures to implement energy conservation best practice.

Property and Land Use

64. The Proponent shall ensure that any access way affected by the proposal is reinstated to an equivalent standard or that adequate compensation is negotiated with the relevant landowner.

65. If so requested by any affected landowner, the Proponent shall consider the consolidation of severed parcels of land as part of any compensation package if practical and cost effective.

Utilities and Services

66. The Proponent shall identify the services potentially affected by construction activities to determine requirements for diversion, protection and/or support. This shall be undertaken in consultation with the relevant service provider(s). Any alterations to utilities and services shall be carried out to the satisfaction of the relevant service provider(s), and unless otherwise agreed to, at no cost to the service/utility provider(s).

67. The Proponent shall ensure that disruption to services resulting from the proposal is minimised and shall be responsible for advising local residents and businesses affected prior to any disruption of service.

Concrete Batching Plants

68. The Proponent shall only construct concrete batching plants and construction compounds under this approval in those locations identified in Appendix 7, Section 3.3 of the Representations Report or in other locations that satisfy the following, unless otherwise agreed to by the Director-General:

- sites to be located within the road reserve or only extend outside the road reserve in areas where the land use is permitted;
- sites are central to a substantial portion of the proposed roadworks;
- sites to be located with ready access to the local road network;
- sites to be separated from nearest residences by at least 200m unless it can be demonstrated to the satisfaction of the Director-General that there will be minimal adverse effects in terms of noise, visual and air quality impacts;
- sites are not to be permitted within 100m of waterways unless adequate erosion and sediment controls are implemented to protect water quality;
- sites are not to be located within 100m of; or drain directly to SEPP 14 wetlands;
- sites are to have low conservation significance for flora and fauna and indigenous and non-indigenous heritage and are not to require clearing of any native vegetation beyond that which must be cleared for the proposal in any case;
- sites are to be selected such that there is sufficient room for the effective operation of plant, including effective installation and operation of all necessary mitigation measures associated with the potential impacts that may arise from the operation of the plant;
- on relatively level sites;
- sites are above 1 in 100 year flood limits; and
- sites are to be selected so that construction of the compound and/or operation of the plants does not impact on the land use of adjacent properties.

The location of all concrete batching plants shall be detailed in the EMP (Construction Stage) which shall include demonstration that the above criteria have been met.

Cumulative Impact Assessment

69. As part of the EMP (Construction Stage), the Proponent shall identify parameters to be monitored during construction and operation of the proposal which have the potential for cumulative effects to occur. The Proponent shall also define the time period for which the identified parameters will be monitored. The results of such monitoring shall then be used as an input to the RTA's Pacific Highway Upgrade Program Strategic Assessment Study.

10 REFERENCES

Biosis Research, (1999). Bonville Project, Species Impact Statement – Supplementary Information Report. Prepared for the RTA.

Biosis Research, (1998). Discussion Paper – Compensatory Habitat Assessment for the Bonville Deviation. Prepared for the RTA.

Environmental Technology, (1999). Representations Report – The Bonville Project. Prepared for the RTA.

P&J Smith Ecological Consultants, (1999). Flora and Fauna Review of Proposed Pacific Highway Upgrade at Bonville. Prepared for the Department of Urban Affairs and Planning.

PPK Environment & Infrastructure Pty Ltd, (1999). Bonville Project, Pacific Highway, Coffs Harbour – Supplementary Route Selection and Design Report. Prepared for the RTA

PPK Environment & Infrastructure Pty Ltd, (1998). Bonville Project, Pacific Highway, Coffs Harbour – Environmental Impact Statement. Prepared for the RTA.

PPK Environment & Infrastructure Pty Ltd, (1998). Bonville Project, Pacific Highway, Coffs Harbour – Species Impact Statement. Prepared for the RTA.