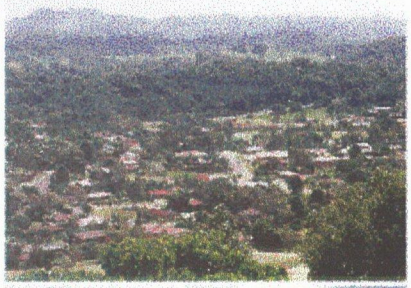
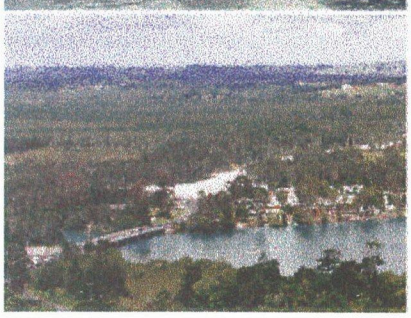
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Roads and Traffic Authority

Representations Report







Duplication of the Brunswick Heads Bypass
and
Pacific Highway Upgrade Brunswick River to Yelgun

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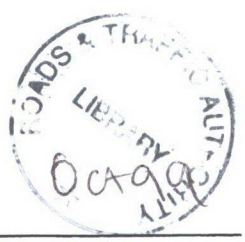
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Declaration	**Signed**
This report was prepared under the supervision of: Ken Oldfield, Project Manager, RTA Pacific Highway Development Office, 21 Prince Street, Grafton	22 FEB 1999





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Glossary

AADT	Annual Average Daily Traffic
AEP	Annual Exceedence Probability
Alignment	A detailed geometric layout, in plan and profile, following a general route.
ARI	Average Recurrence Interval (of a flood). Refers to the flood which occurs on average at any given interval (for example, a 1 in 100 year ARI). These floods are random. It is possible for there to be two 100 year floods in successive years, or the 1 in 100 year ARI may not occur for 200 years.
Carriageway	The portion of a road or bridge used by vehicles (inclusive of shoulders and auxiliary lanes).
CIA	Cumulative Impact Assessment.
Concept design	Initial functional layout of concept, such as a road or road system.
CONOS	Conservation of North Ocean Shores (ecological interest group local to Brunswick Heads)
dBA	Decibels using the 'A' weighted scale, measured according to the frequency response of the human ear.
Design speed	A nominal speed for the design of geometric features of the road, such as curves.
DLWC	Department of Land and Water Conservation
Dual carriageway	A highway or road with separated carriageways for traffic travelling in opposite directions.
DUAP	Department of Urban Affairs and Planning
EP&A Act	Environmental Planning and Assessment Act 1979 as amended.
EIS	Environmental Impact Statement.
EMP	Environmental Management Plan
EPA	Environment Protection Authority
ESD	Ecologically sustainable development
ESP Act	Endangered Species Protection Act 1992 (Commonwealth)
Interchange	A grade separation of two or more roads with one or more interconnecting carriageways or ramps.
LALC	Local Aboriginal Land Council
Level of service	A qualitative measure describing operational conditions (amount of congestion) within a traffic stream.
LGA	Local Government Area
NPWS	NSW National Parks and Wildlife Service
PAD	Potential archaeological deposit.
PASS	Potential Acid Sulphate Soils
POEO Act	Protection of the Environment Operations Act 1997
RAC	Rail Access Corporation
REP	Regional Environmental Plan

Road corridor/ reservation	The strip of land within which a road is to be constructed.
ROTAP	Rare or Threatened Australian Plants
RSA	Rail Services Australia
RTA	Roads and Traffic Authority
SEPP	State Environmental Planning Policy
Shoulder:	The portion of the carriageway beyond the traffic lanes adjacent to, and flush with the surface of the pavement.
SIS	Species Impact Statement
The Program:	The Pacific Highway Upgrade Program
The Proposal:	The proposed Brunswick-Yelgun Upgrade
TSC Act	Threatened Species Conservation Act 1995
VMS	Value Management Study

1. Introduction

1.1 Introduction

RTA Technology, the independent consulting arm of the Roads and Traffic Authority, has been commissioned by RTA Pacific Highway Development Office to prepare a Representations Report for the proposed upgrade of the Pacific Highway between Brunswick Heads and Yelgun (see Figures 1-1 and 1-2 for locations and plans).

The Proposal relates to an 8.7km upgrading, including the duplication of the Brunswick Heads Bypass and the construction of a new dual carriageway between the Brunswick River and Yelgun. The works would commence approximately 500 metres north of Saddle Road, Brunswick Heads and rejoin the existing Highway near Stock Route Road at Yelgun. The Proposal adjoins the proposed Yelgun-Chinderah Upgrade.

Design features of the Proposal include the provision of a high standard dual carriageway comprising four 3.5m traffic lanes with medians, shoulder/ breakdown lanes and verges (the Brunswick Heads Bypass duplication would be constructed on the western side of the existing Road). The design speed of the proposed Highway would be 100-110km/h. A new six lane bridge would be constructed across the Brunswick River (four lanes Highway traffic, two lanes dedicated local traffic). Two interchanges would be provided, allowing a full range of traffic movements, and local movements would be allowed through a series of overpasses, underpasses and local roundabouts. The Proposal also features the provision of a number of fauna underpasses and a range of other fauna mitigation measures such as exclusion fencing.

An Environmental Impact Statement (EIS) for the project (dated July 1998) was prepared on behalf of the RTA by Sinclair Knight Merz. The EIS concluded that the identified adverse impacts of the Proposal could be managed to ensure that the environment was adequately protected and to achieve a net positive environmental impact and benefit to the community. A Species Impact Statement (SIS) was also prepared for the project (dated July 1998) on behalf of the RTA by Gunninah Environmental Consultants through the principal consultant, Sinclair Knight Merz. The SIS concluded that the Proposal is unlikely to impose a 'significant effect' on threatened fauna in the immediate locality, and that that the potential impact on threatened plant species and habitats overall is regarded to be low.

The RTA exhibited the EIS and SIS between 6 August and 11 September 1998. The RTA received 46 submissions from a range of stakeholders including individuals, councils, businesses, interest groups and State and Commonwealth Government.

A development application was also submitted to Byron Council for that part of the Proposal which would affect coastal wetlands gazetted under State Environmental Planning Policy No 14.

1.2 Purpose of a Representations Report

The primary purpose of a Representations Report is to assist the Chief Executive of the RTA in deciding whether to proceed with a Proposal. To this end, the Report provides a consideration of the EIS and SIS, a review of the representations received following the EIS and SIS exhibition, the RTA's responses to these submissions and details of any additional investigations undertaken after the EIS exhibition. It also provides the description and assessment of any proposed modifications to eliminate or reduce environmental impacts,

recommendations on whether the project should proceed and if necessary, recommended conditions upon which a decision to proceed should be based.

As this proposal also required the preparation of an SIS, if the Chief Executive decides that the Proposal should proceed, the Representations Report is also forwarded to NSW National Parks and Wildlife Service to assist the Service with its consideration of concurrence with the Chief Executive's decision. Subject to concurrence, it is provided to the Department of Urban Affairs and Planning to assist in the preparation of its report to the Minister for Urban Affairs and Planning in relation to whether the Minister should grant approval to the Proposal (see also section 1.3.5 of this Report).

This Representations Report includes six main sections:

- **Summary of Proposal:** A brief review of the features of the Proposal (section 2).
- **Consideration of EIS and SIS:** An examination of the EIS and SIS, including the compliance with statutory requirements, the consultation undertaken, the justification for the Proposal, and the assessment of the environmental impacts of the Proposal (sections 3 and 4).
- **Representations:** A review of representations made during the exhibition of the EIS, and the RTA's responses to these representations (section 5).
- **Additional investigation or studies:** A summary of the additional investigations or studies undertaken after the exhibition of the EIS (section 6).
- **Design modification:** A review of the design modifications made after the EIS in response to community representations and with the aim of eliminating or reducing environmental impacts, and their revised environmental impacts (section 7).
- **Recommendations:** A schedule of recommendations, including a recommendation on whether to proceed with the activity and recommended draft conditions of approval (section 8).

1.3 The Environmental Impact Assessment Process

1.3.1 The Statutory Framework (Parts IV and V of the EP&A Act)

The proposed upgrade of the Pacific Highway between Brunswick Heads and Yelgun is subject to Parts IV and V of the Environmental Planning and Assessment Act 1979.

The Part IV requirements relate to the crossing of State Environmental Planning Policy No. 14 Coastal Wetlands Nos. 62 and 65. Under SEPP 14, the section of the Proposal that affects the wetland areas is considered designated development and is subject to development consent from Council. While the provisions of SEPP 14 do not apply to lands dedicated or reserved under the National Parks and Wildlife Act 1974 as 'nature reserve' (the classification of SEPP 14 Wetland No. 62). Council consent would be required for work to be carried out when the relevant part of the Nature Reserve is revoked to allow the Proposal to proceed.

Accordingly, a Development Application and copy of the EIS was submitted for SEPP 14 Wetlands Nos 62 and 65 to Byron Council on 6 August 1998 for its review and consent.

Any consent from Council also requires the concurrence of the Director General of DUAP. Council has advised that, as a result of correspondence received from the NPWS, it does not require concurrence from the Director-General of National Parks and Wildlife.

The Part V requirements relate to the remainder of the Proposal. Under Part V, the RTA is both proponent and the determining authority for the project.

SINCLAIR KNIGHT MERZ

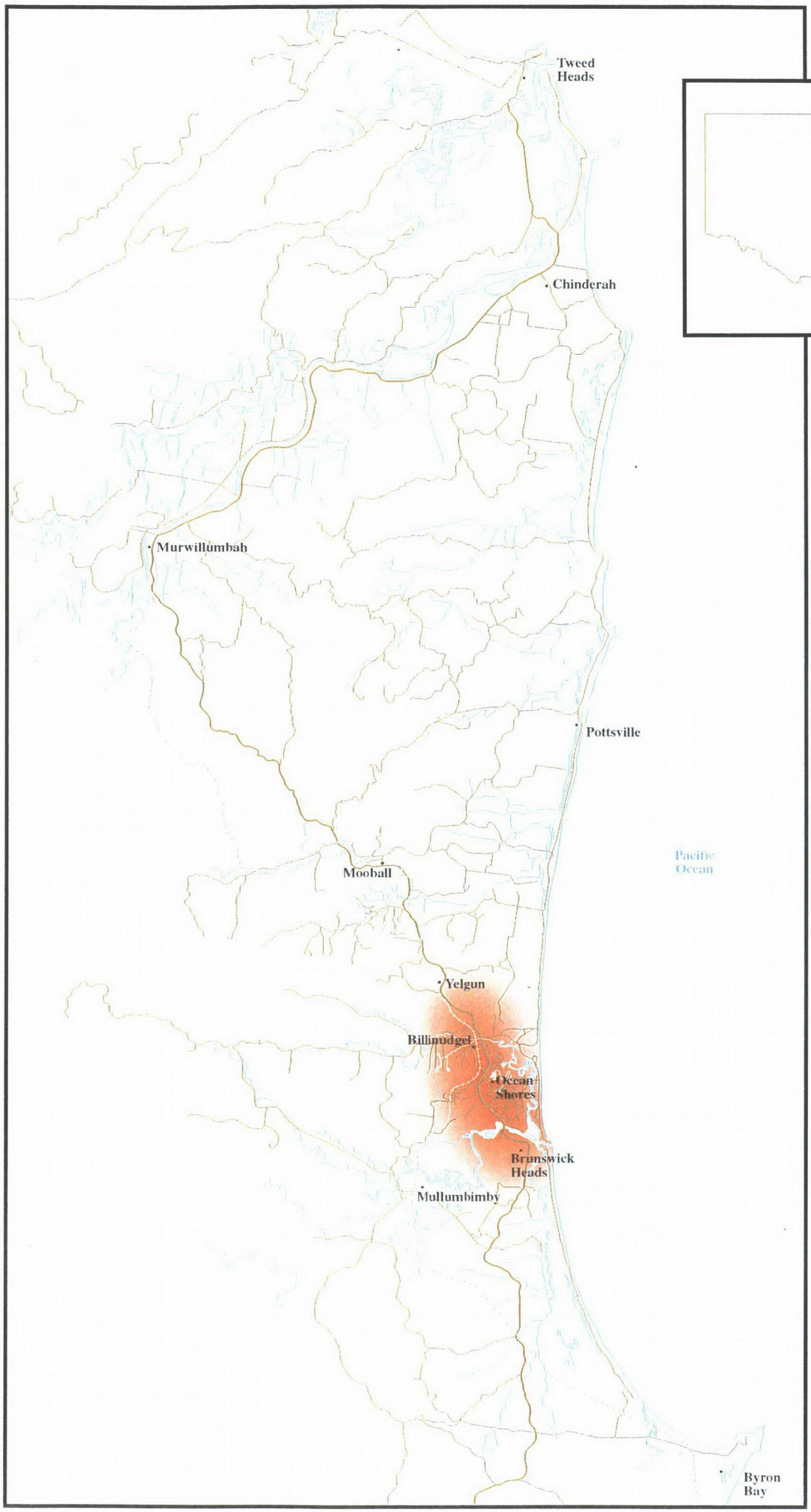


Figure 1-1
LOCALITY PLAN

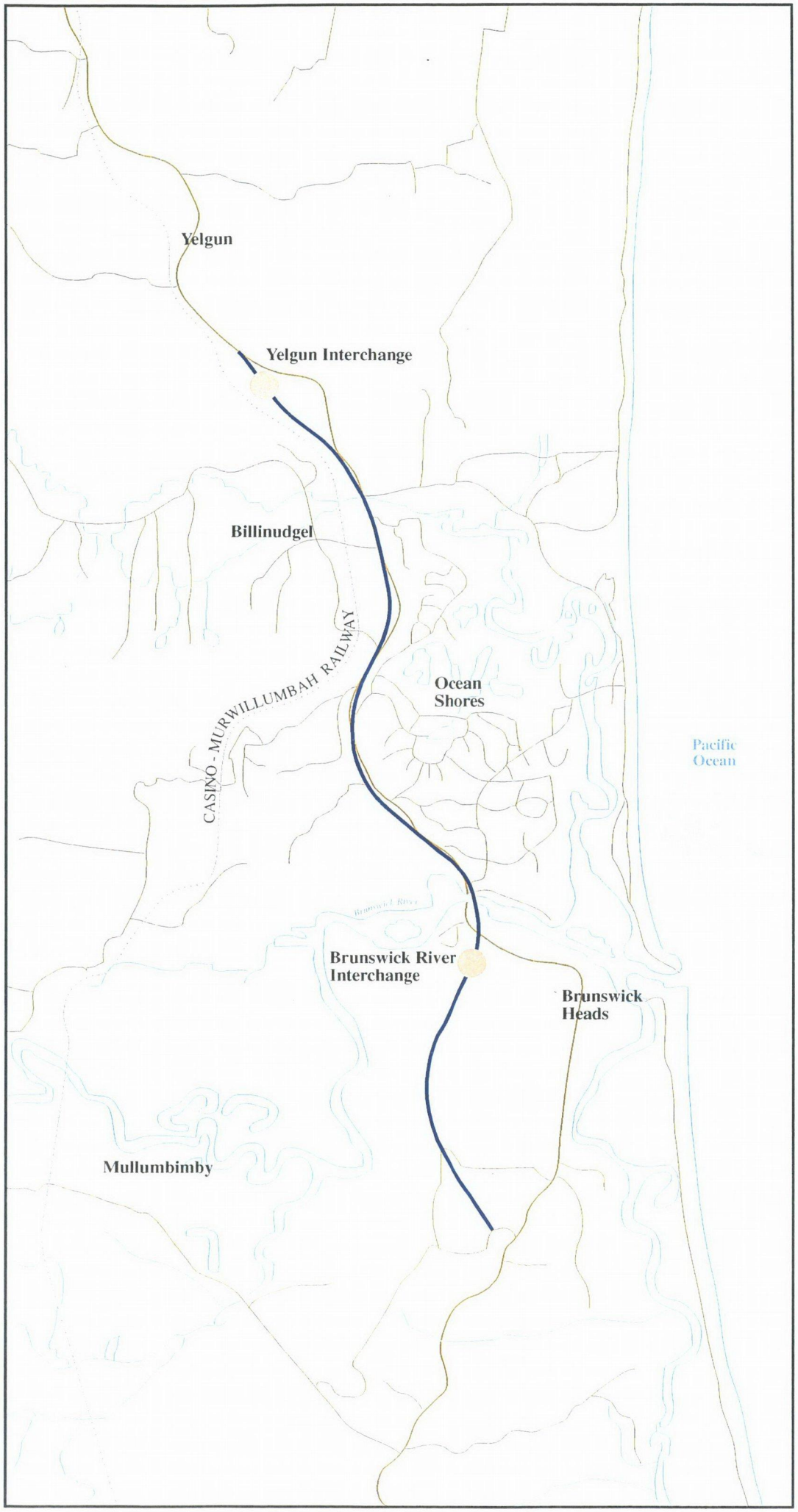


Figure 1-2
PROPOSAL PLAN

The RTA is required to comply with Divisions 2 and 3 of Part V of the EP&A Act, in particular, sections 111-113 which in general terms require:

- The RTA to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity (section 111).
- The preparation and consideration of an EIS in accordance with the prescribed form and manner (section 112(a)).
- The notification and exhibition of the EIS in accordance with section 113 of the Act and receipt and consideration of representations made to the RTA or any other determining authority in accordance with section 113(2) (section 112(1)(b)).
- Compliance with section 113(3) of the Act where all representations made during exhibition are provided to Department of Urban Affairs and Planning (section 112(1)(c)).
- The RTA to examine all representations made during the statutory exhibition period and decide if it wishes to proceed with the Proposal, either with or without modifications (section 112(1)(b)).

The provisions of Division 4 of Part V of the Act apply to the Proposal and require the approval of the Minister for Urban Affairs and Planning to be obtained prior to the RTA carrying out the activity. The RTA may seek the Minister for Urban Affairs and Planning's approval once the RTA has complied with section 112(1)(a)-(c) (section 115B(1)).

These issues have been addressed in sections 3 and 4 of this Report.

1.3.2 Preparation of the EIS

In accordance with the requirements of the EP&A Act, an EIS was prepared for the proposed upgrade of the Pacific Highway between Brunswick Heads and Yelgun by Sinclair Knight Merz Consultants in conjunction with a number of sub-consultants. The EIS covers the requirements under both Parts IV and V of the EP&A Act. The study team for the EIS can be found in Appendix C of the EIS.

1.3.3 Preparation of the SIS

Taking into consideration the provisions of the Threatened Species Conservation Act 1995, the Proposal was assessed under section 5A of the EP&A Act to determine whether a Species Impact Statement was required.

A precautionary approach was adopted, as the Proposal had the potential to have a significant effect on threatened species, populations or ecological communities, and an SIS was prepared in accordance with the requirements of the Director-General of the NPWS. The Director-General's requirements are contained in Appendix A to the SIS. Compliance with the D-G's requirements are contained in Appendix B to the SIS.

The SIS was prepared by Sinclair Knight Merz Consultants in conjunction with a team of sub-consultants. The study team can be found in Appendix C of the EIS. The study team for the SIS can be found in Appendix K of that document.

The SIS was prepared as a separate document to the EIS and was exhibited simultaneously.

1.3.4 Amendments to National Parks and Wildlife Act 1974

The Proposal requires part of the Brunswick Heads Nature Reserve beyond the corridor already established for road purposes. The Nature Reserve was established in accordance with the provisions of the National Parks and Wildlife Act 1974 and any changes to the boundary will require an amendment under the provisions of that Act.

It is anticipated that the Environment Minister would initiate such action in the Parliament of NSW if and when the Proposal receives consent under the Part IV provisions and has been determined in accordance with the Part V provisions by the RTA.

1.3.5 The Determination Process

The determination process for this Proposal following the exhibition of the EIS is as follows:

i. **Preparation of a Representations Report:** A Representations Report is prepared, addressing all submissions received following the EIS exhibition. Copies of these submissions are sent to NPWS and DUAP.

ii. **Development Application:** A Development Application for those sections of the Proposal affecting SEPP 14 Coastal Wetlands, together with a copy of the EIS and SIS is lodged with Byron Council as the consent authority.

   Council considers public submissions and any concurrence requirements of the Director-General of the NPWS when considering whether or not to grant consent for the Development Application. Council's decision, together with any proposed conditions of consent is forwarded to the Director-General of Urban Affairs and Planning for concurrence.

iii. **CE considers Representations Report:** The Chief Executive Officer of the RTA considers the Representations Report, the EIS, Council proposed conditions of consent and any other relevant information.

iv. **Concurrence sought from NPWS:** If the Chief Executive Officer of the RTA decides that the RTA should proceed with the Proposal, a copy of the Representations Report is forwarded to the Director-General of the National Parks and Wildlife Service to seek concurrence.

v. **Approval sought from DUAP:** If concurrence is gained from the Director-General of NPWS, the Representations Report, Director-General's concurrence and any other relevant information is forwarded to the Department of Urban Affairs and Planning, seeking the approval of the Minister for Urban Affairs and Planning in accordance with section 115A of the Environmental Planning and Assessment Act 1979.

vi. **DUAP prepares report to Minister:** The Department of Urban Affairs and Planning examines the Proposal and prepares a report to the Minister for Urban Affairs and Planning. At the same time, the Director-General's decision in relation to concurrence is advised to Council, enabling Council's consent to be provided.

vii. **DUAP approval:** Acting on the DUAP report, after consultation with the Minister for Roads, the Minister for Urban Affairs and Planning decides whether to grant approval to the Proposal. At the same time, the decision in relation to concurrence is advised to Council.

viii. **CE determination:** If approval is given, the Chief Executive of the RTA determines whether the project will proceed.

ix. **Exhibition:** The Director General's Report, the Minister's approval, and the RTA determination are made public.

x. **Commonwealth advised of decisions:** Environment Australia and the Commonwealth Department of Transport and Regional Services are advised of determination.

xi. **Commonwealth recommendation:** Commonwealth Environment Minister makes recommendation to Commonwealth Transport Minister on Environmental Assessment.

xii. **Commonwealth approval:** Commonwealth Minister for Transport decides on Proposal approval and Commonwealth Department of Transport and Regional Services advises the RTA.

xiii. **Project proceeds:** Project does or does not proceed.

2. Proposal Description

2.1 Location and Description of Site and Surroundings

The Proposal relates to an 8.7km upgrading of the Pacific Highway between Brunswick Heads and Yelgun and duplication of the Brunswick Heads Bypass on the NSW north coast.

The site is characterised by the following features:

Settlements and towns: The Proposal passes by the towns of Ocean Shores and Billinudgel. The township of Brunswick Heads is located further to the east of the Proposal and the township of Mullumbimby to the west.

Geotechnical features: The area is characterised by four main terrain units:
Brunswick River Floodplain: a flat to gently sloping low lying coastal plain south of the Brunswick River;
Neranleigh-Fernvale Hillslopes: hillslopes north of the Brunswick River;
Hainsville Alluvium: a narrow, gently sloping valley floor within the hillslopes;
Marshalls Creek floodplain: a flat to gently sloping, low lying coastal plain to the north of the project.

Major considerations are soft/ compressible soils and potential acid sulphate soils.

Drainage and hydrology: The Brunswick River and Marshalls Creek have extensive flood plains. The area experiences high annual rainfall.

Land use: The area is characterised by urban and rural development and recreational uses. Urban uses in Brunswick Heads, Ocean Shores, Billinudgel and Yelgun comprise residential development, commercial/ retail uses and small areas of industrial/ manufacturing subdivisions. Rural land uses are found to the north and west of Billinudgel and include grazing and cropping. The Brunswick River is used for oyster growing and recreational sports. Major infrastructure, including the existing Highway and Casino-Murwillumbah Railway line, occurs within the area. Other land uses include caravan park, nature reserve, restaurants/ cafes and tourist developments. Ocean Shores still has substantial amounts of land available for residential development.

Flora: The area is characterised by seven native vegetation communities: Rainforest, Wet Sclerophyll Forest, Swamp Sclerophyll Forest and Woodland, Sedgeland, Mangroves, Saltmarsh, and Pioneer Forest Regrowth/ Cleared. The study area is part of an area of outstanding biodiversity and includes rare and threatened species. Two SEPP 14 wetlands are located within the Road corridor.

Fauna: Major and minor wildlife corridors occur in the site area, providing an array of habitats and resources. Threatened fauna species occur within the study area, including the Koala, Squirrel Glider, and a variety of bats and birds. One threatened aquatic species has the potential to occur.

Economy: The economy of the region is predominantly retail and service provision (particularly in Brunswick Heads), industrial/ manufacturing (Billinudgel) and agricultural activities such as cattle grazing and cropping.

Air quality: Existing air quality is good with respect to roadway emissions.

Water quality: Existing water quality in the Brunswick River and Marshalls Creek is considered to be reasonable, when compared to ANZECC guidelines These waterways are affected by agricultural activities and stagnation.

Heritage: The area is rich in cultural heritage, with twenty eight archaeological sites recorded within a 4km radius of the Proposed route, fifty five non-indigenous heritage items listed on national and local heritage lists and other areas of historical significance.

Archaeological items of low-medium significance would be affected by the Proposal. No non-indigenous items would be affected.

Visual quality: The North Coast is renowned for its beautiful and dramatic landscape. Within the project area, the visual character is defined by the 'mosaic' of visual settings including plains, river, ocean, ridge, woodlands and open rural lands. Seen together, the topography, vegetation and waterviews create attractive and diverse landscape settings adjacent to the Proposal corridor.

2.2 General Description of Proposed Works

The Proposal is approximately 8.7km in length, commencing approximately 500 metres north of Saddle Road at Brunswick Heads (refer to Figure 1-2). The first 'section' of the project is comprised of 1.9km of duplication of the existing Brunswick Heads Bypass. Adjoining this section, the works are made up of a new dual carriageway, generally located parallel to and west of the existing Highway. At Billinudgel, the Proposal deviates to the west before rejoining the existing Highway near Stock Route Road at Yelgun.

The Proposal standard generally provides four 3.5 metre lanes with inner sealed shoulders of 0.5 metres, a sealed outer shoulder/ breakdown lane of 2.5 metres and a 1.0 verge adjacent to the breakdown lane. The carriageways would be separated by barriers or a median of variable width. The shoulder/ breakdown lanes would be used by bicyclists. The proposed Road corridor varies in width and would include space for the establishment of mitigation measures, environmental controls and landscaping.

The Proposal includes interchanges at 700m south of the Brunswick River and 250m south of Stock Route Road. The interchanges would be grade separated and would cater for movements in all directions.

The existing bridge would be demolished and a new six lane bridge constructed over the Brunswick River, two lanes of which would carry local traffic. Local and through traffic would be separated by locating the local road and dual carriageway on different levels.

2.3 Concept Design Guidelines

The concept design for the upgrading of the Pacific Highway between Brunswick Heads and Yelgun has been based on:

- RTA Road Design Guide (1993, as amended).
- AUSTROADS Guide to Engineering Practice.
- Pacific Highway Schedule of Design Policies and Specifications for the Construction of New sections of Dual Carriageway (RTA 1996, as amended).

2.4 Design Specifications and Features

General Specifications	
Length:	8.7km
Start:	North of Saddle Road, Brunswick Heads
Finish:	Stock Route Road, Yelgun
LGA:	Byron Council

Road Specifications	
Standard:	Highway
Carriageway:	Dual
Lanes:	Four
Lane width:	3.5m
Inner shoulder:	0.5m sealed
Outer shoulder:	2.5 metre (breakdown lane/ bicycle lane)
Verge:	1.0 metre
Medians:	2.6m-9.0m depending on location
Median 'barriers':	Type F, wire rope or depressed median
Pavement:	Hessian dragged concrete or flexible pavement and asphaltic concrete where required
Min. radius:	600m (1,200m desirable)
Road corridor width:	50m-250m
Lighting:	At interchanges
Signage:	Determined at detailed design stage.

Cut and Fill Specifications	
Cuttings:	Up to 30 metres
Embankments:	Up to 15 metres
Cut batters:	1H:2V - 2H:1V depending on material
Berms:	7m height intervals and landscaped
Fill batters:	2H:1V (typical) flattening to 4H:1V where fill is less than 1.5m; 1H:1V in Smoky Valley.
Fill height on floodplain:	1 in 100 year flood.
Cut material taken:	1.3M m^3
Fill material required:	1.2M m^3 (approx.)

Interchange, Access Road and Bridge Specifications	
Interchange locations:	South of Brunswick River
	Yelgun
Interchange specs:	Grade separated, movements allowed in all directions. Local roads would require modification and would go over the Highway.
Local access:	Local access would be maintained by maintaining connections from the service road (existing Highway) to the existing road system and properties.
	Ferry Reserve Caravan Park: access from Brunswick River Interchange
	Rajah Road: new roundabout
	Brunswick Sewage Treatment Plant: current road realigned with underpass.
	Coolamon Scenic Drive and Stock Route Road: realigned with underpass to connect to new roundabout at Orana Road..
	Banana Road: realigned parallel to new road formation over two sections, with new connection to service Coolamon Scenic Drive.
	Wilfred Street: connected to local road with overpass across Proposal.

	Balemo Drive: regraded to match the local road.
	Shara Boulevard: modified to accommodate changes to alignment.
	Stock Route Road: road linked to Yelgun Interchange.
Bridges and culverts:	6 lane bridge across Brunswick River, existing bridge demolished.
	Overpass to link Billinudgel and Ocean Shores (Wilfred Street).
	Bridge matching current size across Marshalls Creek and floodplain.
	Two bridges on Brunswick Heads Bypass
	One bridge over STP Road.
	One bridge over Coolamon Scenic Drive.
	One bridge at each interchange.
	Culverts for minor waterway crossings.

Local Environment Specifications

Ped/ cycle access:	Shared cycle/footway on eastern side of service road connecting to existing facilities on southern side of Brunswick River. New link provided on foreshore under southern end span of proposed bridge. Shared cycle/ footway would link Balemo Drive to Wilfred Street and Billinudgel and a through underpass would be provided at Coolamon Scenic Drive. Long distance cyclists on outer shoulders of Highway.
Property access:	Access roads and service roads (including underpasses) to properties constructed as necessary and would accommodate heavy vehicles if required.
Fauna crossings:	A number of fauna underpasses and other measures such as glider poles.
Noise attenuation:	Noise barriers, noise mounds or individual property treatment as required.
Fencing:	Proposal would be fenced in manner consistent with land uses: Rural - post and wire; Urban - chain wire or acoustic; Nature reserves, Brunswick Heads Bypass and areas of fauna movement - fauna exclusion fencing.
Landscaping:	Full Project length to fit with characteristics of each area.
Lighting:	At interchanges.
Road signage:	Determined during detailed design.
Existing Highway:	Would become a local service road.
Property acquisition:	31 freehold properties (partial and full).

Drainage, Erosion and Sedimentation Specifications

Drainage:	Cross Drainage:	1:100 year ARI
	Road Drainage:	1:5 year ARI
	Incident mgmt:	Additional storage to be incorporated in sedimentation basins.
Runoff controls:	Stormwater wetlands, grassed swales/ channels, interceptors.	
Erosion controls:	Diversion channels, level spreaders, contour drains.	
Sediment controls:	Sediment traps, sediment filters, sediment basins, retention ponds/ wetlands (incorporating trash racks and stormwater interceptors).	

Construction Specifications

Temporary access:	Access to public roads and private properties maintained throughout construction works, excepting Wilfred Street which will be temporarily closed.
Construction materials:	250,000m^3 road pavement
Materials source:	Mostly from suppliers in region.
Concrete batch plants:	On site
Workforce:	80-200 persons
Construction Hours:	Normally 7am-6pm Monday-Friday, 7am-1pm Saturdays (8am on Sat. near houses). No works currently anticipated on Sunday or public holidays, but this is dependent on sensitivity of works. Outside normal hours, works other than concrete cutting will be subject to EPA approval.

Energy usage:	8M litres distillate

Timing Specifications

Construction Timing:	2.5 years
Cost:	$81M.
Funded by:	NSW State and Commonwealth Governments
Open to traffic:	Mid-2002

3. Consideration of the EIS and SIS

3.1 Compliance Checklist

Table 3-1. Compliance Checklist

Requirement	Relates to what...	Addressed in which section of this Report...
☐ Section 111 of the EP&A Act 1979	Requires the RTA to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity.	3.2.1
☐ Section 112(1)(a) of the EP&A Act 1979	Relates to the preparation and consideration of an EIS in accordance with the prescribed form and manner.	3.2.1
☐ Clause 82 of the EP&A Regulation 1994	Compliance with section 111 and 112 of the EP&A Act.	3.2.1
☐ Clauses 54A and 84 of the EP&A Regulation 1994	Content of the EIS.	3.2.2
☐ Clauses 55 and 85 of the Regulation 1994	Content of the EIS - Requirements of the Director-General of the Department of Urban Affairs and Planning.	3.2.3
☐ Clause 87 of the EP&A Regulation 1994; section 113 of the EP&A Act	The notification and exhibition of the EIS.	3.2.4
☐ Section 113(3), 112(1)(c)of the EP&A Act 1979	Providing the Secretary of the Department of Urban Affairs and Planning with all representations made during the EIS exhibition.	3.2.5
☐ Section 5A of the EP&A Act 1979	The need to do an SIS and obtain requirements of the Director-General of NSW National Parks and Wildlife Service.	3.3.1
☐ Section 113(2), 112(1)(b) of the EP&A Act 1979	Receipt and consideration of representations made to the RTA or any other determining authority during the statutory exhibition period.	5

3.2 Consideration of the EIS

This section presents the consideration of the EIS, both in terms of its compliance with statutory requirements and in terms of its environmental assessment and mitigation measures.

This consideration shows the following:

Statutory Requirements: The EIS has been prepared in accordance with statutory requirements.

Environmental Assessment: The potential impacts of the Proposal have been comprehensively assessed using current best practice and the best available information.

This task has been approached in an analytical manner, and substantial effort and resources have been directed towards preparing specialist studies and utilising local knowledge of the study area. Where new information has become available, or current practices have changed since the preparation of the EIS (for example, through the introduction of the *Fisheries Management (Amendment) Act 1997*), this has been noted below and reference to the section of this Report that deals with the new information has been made.

Mitigation Measures: A comprehensive range of mitigation measures has been proposed for the project in order to reduce the negative impacts of the Proposal. These measures comprise current best practice in the field of environmental management. All consideration was made at the concept design stage to minimise impacts and reduce the need for mitigation. Further improvements are anticipated at the detailed design stage.

3.2.1 Section 111, 112(1)(a) and Clause 82 of the EP&A Act

An EIS for the proposed Upgrade of the Pacific Highway between Brunswick Heads and Yelgun was prepared on behalf of the RTA by Sinclair Knight Merz and a number of subconsultants. Details of the study team and the specialist studies undertaken are documented in Appendix C of the EIS.

The EIS addressed all relevant statutory requirements under the Act. The EIS takes into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity as per section 111 of the Act and was prepared in accordance with the prescribed form and manner set out in section 112(1)(a).

In doing so, the EIS complies with Clause 82 of the Regulation. Table 3-2 below sets out the compliance with this Clause.

Table 3-2. Compliance with Clause 82 of the EP&A Regulation

Matters to be addressed in the EIS	Impact
(a) any environmental impact on a community;	Yes. The Proposal will benefit the community by the provision of safer road conditions and by the separation of through and local traffic. It will adversely affect a number of landholders and maintain the current high noise levels received to some residences. These environmental impacts have been the subject of the EIS and safeguards will be implemented to mitigate and minimise adverse impacts.
(b) any transformation of a locality;	No. The Proposal generally widens the existing Highway and as such will not 'transform' the locality or the existing character of the area. The widening will, however, increase the visual dominance of the Highway and will affect views and amenity of some residences that are currently relatively unaffected, particularly in the northern parts of the Proposal. These environmental impacts have been the subject of the EIS, and safeguards will be implemented to minimise the adverse impacts.
(c) any environmental impact on the ecosystems of the locality;	Yes. The Proposal will affect areas which support rare, endangered, threatened and SEPP 14 wetland flora and fauna. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise the adverse impacts.

Matters to be addressed in the EIS	Impact
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality;	Yes. The Proposal will reduce the aesthetic quality of the area through the upgrading of a Highway in an area of area of attractive and diverse landscape value and will reduce the scientific and ecological value of the SEPP 14 wetlands and other areas of native habitat. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise the adverse impacts.
(e) any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations;	No. The Proposal will not affect any indigenous or non-indigenous heritage or historical sites of significance. Note: While the proposal will affect several Aboriginal sites, these have been assessed as being of low-moderate significance and are not recommended for further investigation.
(f) any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974);	Yes. The Proposal will remove an area of habitat of a number of threatened fauna species. The impacts on habitat has been the subject of an SIS and safeguards, including a compensatory habitat package, will be implemented to mitigate the adverse impacts.
(g) any endangering of any species of animal, plant or other of life, whether living on land, in water or in the air;	Yes. The Proposal has the potential to endanger flora, fauna and aquatic species. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise the adverse impacts.
(h) any long-term effects on the environment;	Yes. The Proposal will have long-term positive effects on the environment, in particular from the improved standard of alignment, compensatory habitat package and long term environmental controls. These environmental impacts have been the subject of the EIS and SIS and incorporate the safeguards that will provide the positive impacts.
(i) any degradation of the quality of the environment;	Yes. The Proposal will result in the degradation of the environment, particularly in areas of natural and scenic value. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise the adverse impacts.
(j) any risk to the safety of the environment;	Yes and No. The Proposal will improve road safety through the provision of an improved alignment, fewer conflict points, and a reduced risk of spillage through accidents. It will reduce the likelihood of fauna kill through the provision of underpasses and exclusion fencing. Possible risks to the safety of the environment are most likely to occur during construction, and include the effects of erosion and sedimentation and the disturbance of acid sulphate soils. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise adverse impacts.
(k) any reduction in the range of beneficial uses of the environment;	Yes. The Proposal will acquire rural land and residential property. Access and methods of property management at some locations may also change due to the Proposal. These environmental impacts have been the subject of the EIS, and safeguards will be implemented to minimise adverse impacts.

Matters to be addressed in the EIS	Impact
(l) any pollution of the environment;	Yes and No. The Proposal has the potential to cause some air, noise and water pollution during the construction phase . These environmental impacts have been the subject of the EIS, and safeguards will be implemented to minimise adverse impacts. The proposal will improve air, noise and water pollution during the operation phase, through the improved alignment and the implementation of environmental controls.
(m) any environmental problems associated with the disposal of waste;	No. The Proposal will include measures to ensure that materials are treated and/ or recycled for use on or off-site, or removed and disposed at an approved facility.
(n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply;	No. The Proposal will not require resources that are, or are likely to become, in short supply.
(o) any cumulative environmental effect with other existing or likely future activities.	Yes. The Proposal is part of the overall Pacific Highway Upgrading Program and will have both positive and negative cumulative impacts. Positive impacts include improved safety and operation of the Highway. Negative impacts include the potential shift from rail to road transport and the acquisition of areas of natural significance. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise adverse impacts.

3.2.2 Clauses 54A and 84, EP&A Regulation

The EIS was prepared to comply with Clauses 54A and 84 of the Regulation. These Clauses require that (where no other guidelines are in force) an EIS must comply with Schedule 2 of the Regulation.

Appendix A of the EIS sets out the compliance with Schedule 2.

3.2.3 Clauses 55 and 85, EP&A Regulation

The EIS was prepared to comply with Clauses 55 and 85 of the Regulation. These Clauses requires that the Director-General of DUAP must be consulted concerning the form and content of any EIS. The Director-General was consulted before the commencement of this EIS, and the Requirements were received on 16 December 1996.

Appendix A of the EIS sets out the compliance with the Director-General's Requirements and the correspondence from the Director-General.

3.2.4 Clause 87 - Statutory Exhibition of the EIS and SIS

The EIS and SIS were exhibited for 35 days from 6 August to 11 September 1998. This was undertaken in accordance with the requirements of Clause 87 of the *Environmental Planning and Assessment Act 1979*. Details of the exhibition, including the exhibition locations are presented on page ix of the EIS.

Advertisements for the exhibition were published as follows:

Sydney Morning Herald: 7 August 1998, 20 August 1998.
Daily Telegraph: 6 August 1998, 20 August 1998
The Byron Shire Echo: 11 August 1998, 18 August 1998.
Byron Shire News: 11 August 1998.
Northern Star, Lismore: 7 August 1998, 18 August 1998.

The advertisements identified the display locations and times, the availability of copies of the EIS for purchase, and the date to which submissions would be received.

3.2.5 Provision of Representations

Forty six representations were received following the exhibition of the EIS and SIS. Forty three submissions were provided to the Secretary of the Department of Urban Affairs and Planning between 28 September 1998 and 13 October 1998. Three late submissions were forwarded to DUAP on 18 November 1998.

Copies were also provided to NSW National Parks and Wildlife Service.

3.2.6 Environmental Assessment and Mitigation Measures -EIS

Need for the Proposal: The upgrading of this section of the Highway has been the subject of a number of strategic transport planning studies. This particular Proposal arose directly from a land use and transport strategy study undertaken in 1996 by the Department of Urban Affairs and Planning and the RTA which identified the need for upgrading the Highway between the Brunswick River and Yelgun.

The standard of the existing Highway alignment and gradients between Brunswick Heads and Yelgun is below that required to carry the existing and projected volumes of traffic. Accident rates along this section of highway are lower than the State average but almost half the accidents recorded along this section of the highway have resulted in some type of injury. Traffic volumes along the Pacific Highway are expected to increase due to population and development growth both within the entire North Coast corridor and more locally within the Byron Shire area. Forecasts show that if the Highway is not upgraded in this section, traffic congestion and accident rates could be expected to increase and therefore road efficiency would decrease. The need to upgrade the route has been recognised by both the Commonwealth and NSW State Governments through their commitment to the Pacific Highway Upgrading Program.

Route Selection: The choice of a preferred route represents a balance between practical engineering considerations and minimising environmental and community impacts. Overall, the aim has been to meet the project objectives (which were a direct outcome of community needs) while ensuring that the environment can be adequately safeguarded.

A number of feasible route options were identified following consideration of ecological, social, economic constraints and opportunities within the study area, and of the practicability of construction (refer to Figure 3-1 for route selection map).

A comparative evaluation was made of all feasible route options identified by the study team, and of several other options and variations suggested by the community. The process of selecting the preferred route included a two day Value Management Workshop attended by community, government, Roads and Traffic Authority and study team representatives. The route which was considered to offer the best value to the community was the route known as Route A2. Ultimately, the Roads and Traffic Authority and the Minister for Roads decided that the route known as "Route A2" was the preferred route for the purposes of undertaking detailed studies leading to the preparation of an Environmental Impact Statement.

Route A2 is consistent with Byron Council's planning strategies and was the route that would have the least ecological impact, notwithstanding that it would have an impact on the Brunswick Heads Nature Reserve. Other routes would have had a greater impact on residential areas and/or sensitive natural areas.

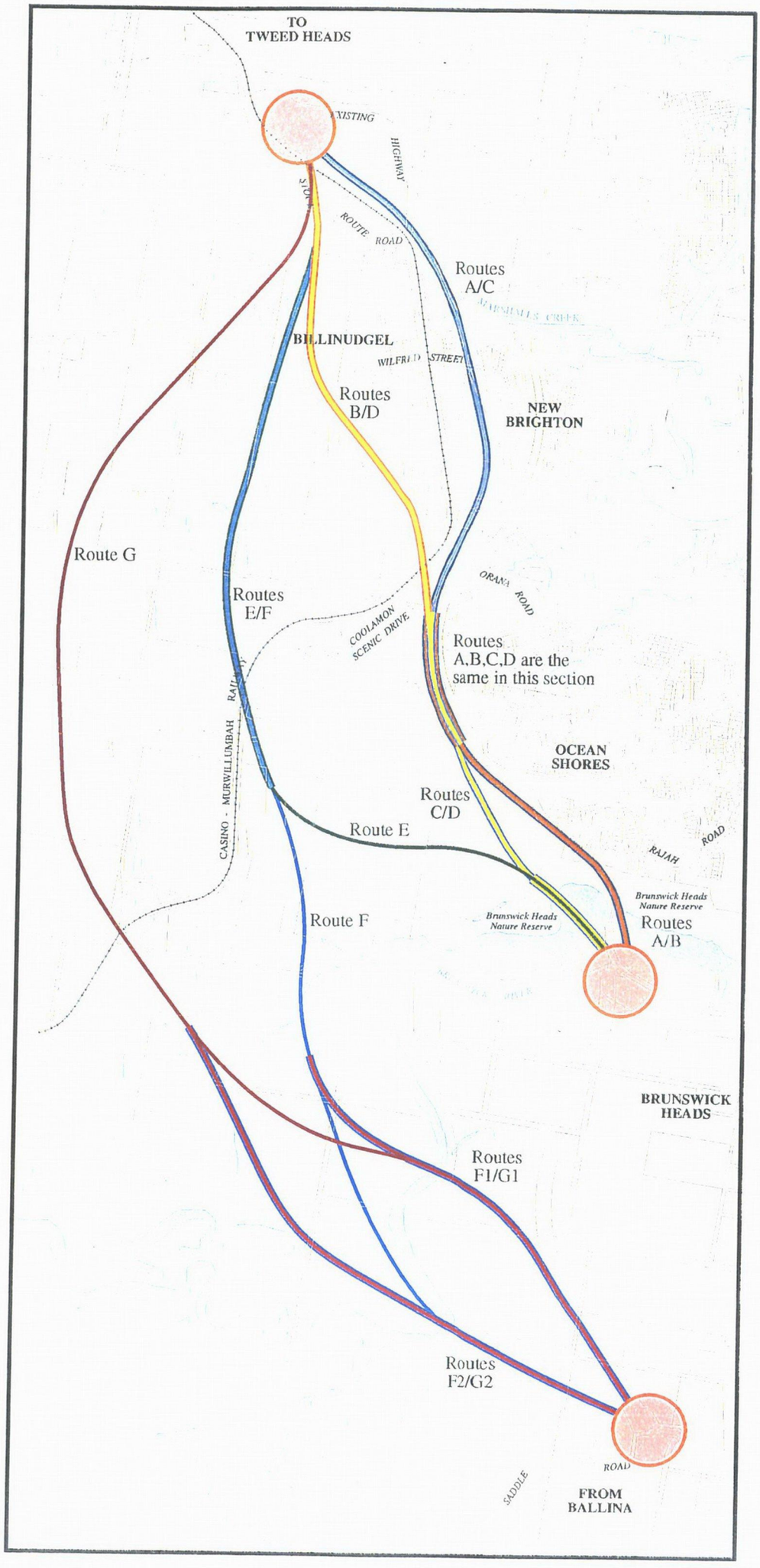
Traffic and Transport Impacts: Traffic volumes are forecast to increase in this area. The Proposal would provide sufficient capacity for the forecast volumes until at least 2016. The Proposal would remove a significant proportion of traffic from the existing highway, particularly from the section north of the Brunswick River. The Proposal would also redistribute some traffic from Coolamon Scenic Drive.

Through traffic would use the new Road, leaving the existing Highway primarily to local traffic and improving safety and travel times for both sets of users and improving the performance of local intersections. Public transport using the existing highway would benefit from the removal of through traffic using the existing highway. Local access arrangements would remain, although they would be altered at some locations.

The Proposal would also improve safety due to the separation of traffic flows, the reduction in access/conflict points and the improved alignment.

Economic Impacts: An economic cost benefit analysis was undertaken to predict the road user benefits of the Proposal. This analysis indicated that the Proposal would be economically viable, would provide benefits as soon as the Proposal is opened and would continue to provide benefits for the design life of the new Highway. The Proposal would also provide inter and intra regional accessibility for tourist movements and support for industry. This would also provide a catalyst for economic development in the area.

Noise: A noise and vibration assessment of the construction and operational aspects of the Proposal was undertaken using draft Environment Protection Authority (EPA) traffic noise criteria and the EPA Environmental Noise Control Manual guidelines for construction and vibration effects. The analysis indicates that the Environment Protection Authority noise level goals would be met at all residences, with a reduction of noise levels expected in the main Ocean Shores area. Many residences in the Ocean Shores area would receive noise levels similar to current levels and would still be subjected to relatively high traffic noise levels. In the vicinity of Rajah Road, where the proposed new highway and realigned local road are close to each other, it would be necessary for safety reasons to provide a barrier between the Proposal and the realigned local road. The RTA would propose to construct this barrier so that it would provide noise reduction benefits. Noise treatment would be required for the Christian Life Centre at Billinudgel.





Legend

- Proposed Locations for Interchanges
- Route A
- Route B
- Route C
- Route D
- Route E
- Route F
- Route G

Figure 3-1
ROUTE SELECTION MAP

The assessment of construction noise indicated that the predicted noise levels would exceed the EPA goals at the closest residences at stages during the work along the whole alignment. Mitigation measures for the construction period would be included in a Noise Management Strategy.

The RTA will enter into negotiations with those affected residents to determine the most appropriate and cost effective form of noise mitigation treatment. A post construction noise monitoring program will be undertaken at representative sites to confirm the predictions and ensure that the noise mitigation measures are achieving the desired aims.

Air Quality: The air quality assessment indicated that the emissions generated by traffic using the Proposal would not exceed EPA goals and other relevant air quality criteria. The main source of potential air emissions during the construction phase of the project is the generation of dust associated particularly with the earthworks phase. Management measures would be implemented to control potential dust impacts from construction work.

Water Quality and Hydrology: The Proposal would cross two sensitive watercourses, the Brunswick River and Marshalls Creek, as well as affecting, or being very close to wetland areas including areas gazetted under State Environmental Planning Policy 14. The Proposal includes a new bridge over the Brunswick River, which would be a major structure, and the demolition of the existing bridge.

The sediment movement and depositional processes in the river were investigated and it was concluded that flow velocities upstream and downstream of the proposed bridge alignments would remain unchanged. The crossings are designed to have no significant effect on existing flood levels upstream and downstream of the Road.

The construction and operation of the Proposal has the potential to introduce contaminants to these sensitive watercourses and wetlands, and also to result in impacts on water flow. A water quality management strategy is an integral part of the Proposal. The aim of the strategy is to maximise the capture of contaminants and spillages from the road and bridges, and consequently mitigate the impact on the water quality of downstream waterways.

Mitigation measures would be implemented during construction and operation phases of the Proposal in consultation with the EPA and DLWC. Mitigation measures would include the provision of run-off controls, the implementation of an Erosion and Sedimentation Control Plan, and revegetation and monitoring programs.

Heritage: No significant indigenous or non-indigenous sites were identified in the study area. While subsurface testing recovered 106 artefacts, these items and sites were assessed as being of low-medium significance and were not recommended for further investigation. Members of the Tweed-Byron Local Aboriginal Land Council would be asked to be present during initial site works to monitor the work for disturbance of artefacts. No items of non-indigenous heritage would be affected by the Proposal.

Flora and Fauna: The NSW Far North Coast and Brunswick Heads Region is recognised as an area with considerable significance for biological diversity. The Brunswick Heads Nature Reserve, located on the northern bank of the Brunswick River, is recognised as being important for wildlife movement and habitat. Consequently, flora and fauna considerations were critical to the selection of the preferred route and to the design of the Proposal.

The Proposal would have an effect on approximately 0.6 hectares of the 83 hectare Brunswick Heads Nature Reserve. This is less than 1% of the total Reserve area and is located mostly in disturbed areas. There would also be an impact on several other (generally modified) vegetated areas in the proposed Road corridor. 8-Part tests were undertaken for nine flora species and fifteen fauna species of conservation status. These assessments showed that 'a significant effect' was likely for six flora species (no fauna species or their habitats). A Species Impact Statement (SIS) was prepared to further assess the impact of the Proposal. This report concluded that the potential impact of the proposal on these species was overall regarded to be low and recommended an extensive range of general and specific mitigation measures.

An addendum SIS was also prepared following Exhibition. This investigation elaborated on information found in the previous reports, and provided 8-Part Tests for an additional three fauna species, with no significant effects assessed for these species.

The RTA in consultation with the National Parks and Wildlife Service (NPWS), has developed a compensatory habitat package for the project.

Aquatics: An '8-Part Test' was undertaken for the Project following the introduction of the *Fisheries Management (Assessment) Act 1997* in July 1998. This assessment showed that no threatened aquatic species, populations or ecological communities would be affected by the Highway upgrade. Mitigation measures to minimise runoff and improve fish habitat would be included in EMP for the Project.

Present and Future Land Use and Community Impacts: The Proposal is consistent with Byron Council's planning strategies, and with existing and zoned future land uses.

The Proposal would have a direct effect on 31 properties, and potentially on 14 dwellings. The RTA would acquire land in accordance with the provisions of the Land Acquisition (Just Terms Compensation) Act 1991.

The Proposal would have a direct effect on a number of businesses including the Salad Bowl service station and caravan park, two restaurants on the southern side of the Brunswick River and two carpentry businesses operating on residential properties.

The Proposal includes the demolition of the existing Brunswick River bridge and rehabilitation of the foreshore area. It also includes the provision of an improved navigation clearance and access underneath the bridge. Liaison would take place with property owners, Byron Council and the local community regarding the design of this area, and long term management and funding arrangements. The development and rehabilitation of this area would represent a significant overall community benefit, which would also benefit the residents of the Ferry Reserve Caravan Park, Riverside Drive and also the businesses operating in this locality.

Visual Quality and Landscape Character: This area is known for its scenic qualities. The upgrading of the Highway has the potential for significant visual impacts. This potential impact would be minimised by careful landscaping. The visual impacts would be high initially, but would be moderated as the landscaping becomes established and softens the appearance of the major cuts. The EIS includes a set of design principles for landscaping which would be applied at the detailed design stage.

Environmental Management: The EIS and additional investigations undertaken after the exhibition of the EIS include a range of measures which would be implemented to ensure

that the Proposal is constructed and operated with minimal environmental impact. These measures will be collated in the form of an outline Environmental Management Plan.

A Project Environmental Management Plan would be developed during the detailed design phase of the project.

Cumulative Impacts: Cumulative impacts of the Proposal were discussed within the body of the EIS. Information concerning the cumulative impacts of the Pacific Highway as a whole were discussed in the Working Papers to the Draft Cumulative Impact Assessment (CIA) for the Pacific Highway Upgrading Program.

The EIS showed that the Proposal would have cumulative benefits in terms of travel efficiency, safety and overall level of service. It would have an economic benefit to the region through improved accessibility. It also showed that the potential negative cumulative effects (such as loss of rural lands, effects to flora and fauna, air quality, water quality and residents) could be managed through the implementation of mitigation measures.

The CIA is currently in Draft form, and as such, the results of the study were not incorporated into the EIS. An analysis showing the 'flow on' effects of the CIA (Pacific Highway as a whole) in terms of the Brunswick Heads-Yelgun project is shown below in Table 3-3:

Table 3-3. 'Flow-on' effects of Pacific Highway Project Draft Cumulative Impact Assessment on the Brunswick Heads-Yelgun EIS.

Outcome of the Working Papers to the Pacific Highway Cumulative Impact Study	'Flow on' to Brunswick Heads to Yelgun EIS
Potential Positive Impacts	
Reduction in total and fatal accidents on the highway overall.	Improved safety for the highway and improved safety conditions for local traffic and pedestrians.
Improved travel times, reduced transport costs.	Shorter travel distance and higher standard road will improve travel times and reduce road user costs between Brunswick River and Yelgun.
Increased regional employment levels and increased economic output.	Employment will be provided as a result of road construction. Better transport facilities and access from Brisbane to the area is expected to contribute to economic development on the north coast.
Visitor numbers and their direct expenditure will increase.	Better access to the coastal areas and south Byron and Ballina will lead to higher visitor numbers and expenditure on the north coast.
Construction will generate employment directly and by induced economic activity.	Same will apply for Brunswick Heads-Yelgun project.
Reduced travel times - improved access to employment opportunities, community services and facilities.	The same will apply. Easier access to Brisbane for major services, and to other towns in northern NSW for more local services and employment opportunities.
Amenity improvements by town bypassing.	Brunswick Heads has already been bypassed by the earlier Brunswick Heads Bypass. While the upgrading between the Brunswick River and Yelgun does not comprise a 'bypass' as such (as it does not currently traverse any towns), it does provide some of the benefits of a bypass, including the separation of local and through traffic.
Improved townscape values following bypass.	Not relevant - however opportunity exists to create gateway landscaping treatments at entry points into Brunswick Heads, Ocean Shores and Billinudgel.
Effective level of expenditure yielding satisfactory rate of return.	For an estimated capital cost of $81 million the Proposal has a road user benefit cost ratio of 2.0 and an internal rate of return of 12%.
Potential Negative Impacts	
Effects on flora and fauna.	Some potentially significant impacts, including impacts on threatened species. Mitigation measures provided include propagation of threatened species for planting, maintenance of major corridors and provision of compensatory habitat.
Increased fuel use and greenhouse gas emissions. This is a relatively small amount and is due primarily to induced transport activity on the highway over the life of the program and beyond.	In the short term, fuel use and greenhouse gas emissions would be reduced due to shorter distances and better road design. Fuel usage, greenhouse gas emissions and the initial savings will be lost as traffic volumes increase. However, the initial reduction will result in a delay in the increase to greenhouse gas levels.
Impacts on landscape values.	Mitigation strategies and landscaping have been adopted for the Highway as a whole. The principles adopted in this project are consistent with the

	principles identified for the full Highway length.
Loss of prime agricultural land.	The route selected impacts on a small number of productive rural landholdings, particularly to the north of the Proposal.
Reduction in water quality and increased flood problems.	The road design is such that effects on flooding will be negligible, and the provision of sedimentation ponds at sensitive locations, development of acid sulfate management plans and erosion and water management plans will minimise direct impacts from the Road.
Effects on townscape and heritage values.	Not relevant
Lack of equity in sharing the benefits of road improvements.	The provision of services to non road users was not directly part of the EIS consideration, although economic benefits derived from improved travel conditions would pass through the community.
Increases in noise, air pollution and severance in towns not bypassed.	At most residences noise level decreases are predicted at opening. For most residences where noise level increases are predicted, mitigation measures have been considered. The air quality assessment indicated that emissions generated by traffic would not exceed EPA goals. The Proposal keeps all existing connections between the townships, especially between Billinudgel and Ocean Shores. These local access will be improved as local traffic will be separated from through traffic by the Proposal.
Increases in population growth and changes in lifestyle through development.	Better access to north coast towns for SE Queensland areas
Disturbance to indigenous sites.	The proposal impacts on several indigenous sites and an number of artefacts, however, these are assessed as being only of low-medium significance.
Potential transfer of freight from rail to road.	Potential impacts from this would mean the possibility of a slight increase in percentage of heavy vehicles on the road compared with the numbers used in noise modelling. This increase would only occur if the proposed mitigation measures were not successful. The increased levels would be slight and given the percentages of heavy vehicles, would not be detectable.
Diversion of traffic from New England Highway and Summerland Way to Pacific Highway.	The local model allowed for this, and the volumes predicted for future scenarios would have allowed for this diversion.

Source: Sinclair Knight Merz

3.3 Consideration of the SIS

This section presents the consideration of the SIS, both in terms of its compliance with statutory requirements and in terms of its assessment and mitigation measures.

This consideration shows the following:

Statutory Requirements: The SIS has been prepared in accordance with all statutory requirements, including sections 109-111 of the TSC Act and sections 78A and 112 of the EP&A Act.

Assessment: The SIS makes its assessment using the requirements of the Director General of NSW NPWS and the requirements of the legislation. The SIS provides an assessment of the likely effects of the proposed development on relevant threatened species.

Mitigation Measures: A range of mitigation measures is proposed in order to reduce the negative impacts of the Proposal on threatened species.

3.3.1 Sections 5A, 78A and 112 EP&A Act; Sections 109-110 TSC Act - SIS

The SIS was prepared to satisfy sections 5A, 78A and 112 of the EP&A Act 1979, sections 109-110 of the Threatened Species Conservation Act 1995, and in accordance with the requirements of the Director-General of the NSW National Parks and Wildlife Service.

Appendix A of the SIS sets out the correspondence from the Director-General and Appendix B of the SIS tables the compliance with these requirements.

The SIS is in writing as required under section 109(1) of the TSC Act.

The SIS has been signed by the principal author and by the proponent, as required under section 109(2) of the TSC Act.

The SIS has been structured according to section 110 of the TSC Act, and by reference to the Director—General's requirements, which were obtained for its preparation under Section 111(1) of the TSC Act.

3.3.2 Reporting, Assessment and Mitigation Measures - SIS

Proposal Description: A proposal description was included in the SIS in accordance with section 110(1) of the TSC Act.

Survey Methods: Were detailed as required in the Director—General's requirements under section 111 of the TSC Act. Survey techniques listed by the NPWS were largely applied, although some minor variations were made and the reason for doing so documented accordingly.

Initial Habitat Assessment: Was undertaken in accordance with the D—Gs requirements. This showed that ten broad vegetation communities existed in the area and that the habitat within the upgrade section (north of the River) was of higher quality and relevance than that of the duplication section (south of the River).

General Description of Threatened Species or Populations: Was undertaken in accordance with section 110(2)(a) of the TSC Act. This showed that 73 threatened fauna species and 23 threatened flora species were known or expected to occur in the area.

Threatened Species Considered of Relevance: Were detailed in accordance with 110(2)b of the TSC Act. This showed that no threatened fauna species and nine threatened flora species were of relevance to the SIS.

Conservation Status and Habitat Requirements of Threatened Species of Relevance: was detailed in accordance with section 110(2)(c) of the TSC Act. This showed that all nine subject species should be considered endangered or vunerable on a local, regional and State level.

Abundance of Threatened Species Relevant to the Proposal: was detailed in accordance with section 110(2)(d) of the TSC Act. This showed that threatened species are present only in relatively low regional abundances, although some species are locally abundant.

Types and Distribution of the Relevant Habitat: was detailed in accordance with section 110(2)(f) of the TSC Act. This showed that in most cases (except the Hairy Quandong), there was more than 100ha of potentially suitable habitat in the locality.

Assessment of the Likely Effects of the Proposed Development: was undertaken in accordance with section 110(2)(g) of the TSC Act as modified by the Director—General's Requirements. This showed that:

- A number of six threatened plant species will require removal for the project. There will be some removal or modification of habitat for these species. However, in no instance will all of the suitable habitat, or even a significant proportion of it, be removed or modified as a result of the proposal.
- The removal or modification of habitat for threatened plants which will be affected by the proposal will not adversely affect their conservation in the general locality to any significant extent. The potential impact of the Proposal on these species is regarded overall to be low.
- the Proposal is unlikely to impose a 'significant effect' or any relevant impact on threatened fauna in the immediate locality.
- the potential impact of the proposal on threatened fauna or their habitats is regarded as minimal.
- While the proposal has the potential to contribute to a 'threatening process' specific design and construction protocols and measures have been incorporated into the project to minimise the potential for an increase in 'threatening processes' on any threatened biota.

Information Regarding Alternatives to the Proposal: was provided in accordance with section 110(2)(h) of the TSC Act. This showed that the proposal has been subject of a substantial strategic planning and route selection program to determine the most appropriate solution to road safety and access in the Brunswick Heads area.

Information Regarding Proposed Impact Amelioration Measures: was provided in accordance with section 110(2)(i) of the TSC Act. This detailed general and specific measures for all phases of construction that will be implemented by the RTA and included discussion of compensatory habitat, recovery plans, long-term management.

Additional Details Regarding Other Approvals and Licensing that is required: was provided in accordance with section 110(2)(j) of the TSC Act. This showed that concurrence/ approvals and/ or licences were required from a range of authorities including DUAP, Byron Council, NSW Parliament, EPA, NPWS, DLWC and NSW Fisheries.

Qualifications and experience: of the principal author and other relevant personnel was provided in accordance with section 110(4) of the TSC Act.

Additional information was requested by NPWS following the exhibition of the SIS. This was provided to the Service on 24 December 1998 through the provision of an SIS Addendum Report and an SIS Addendum Supplementary Information (see sections 6.6 and 6.7, and Appendices 8 and 9 of this Report for further details).

4. Consultation and Exhibition

4.1 The Consultation Program

The consultation program for the proposed Brunswick Heads-Yelgun Upgrade has been extensive, inclusive, ongoing and indicative of best practices in this field. The objectives of the consultation program can be found in section 3 of the EIS.

Consultation commenced at the project initiation stage and is proposed to continue through to the construction phase. It has included a range of communication and feedback methods such as information sheets, staffed displays, public meetings, and a Value Management Study (VMS). Perhaps most importantly, the program has included a system of one-on-one discussions with affected landholders and stakeholders. One of the major outcomes of the program was a high level of problem solving prior to the EIS exhibition.

The success of the practices and techniques used in this program is verified by the low number of submissions received to this major project (46), and the number of representations which complimented the team for the time and effort invested in community involvement.

Consultation with the community and public authorities was undertaken at a number of stages:

- Prior to project commencement.
- At the commencement of route selection.
- During route selection.
- During alignment and interchange considerations.
- During EIS Exhibition.
- During the preparation of the Representations Report.
- Ongoing (for example, discussions with affected landowners and Council).

A summary of this program is outlined below in Table 4-1. Further detail on the consultation during the preparation of the Representations Report is discussed in section 4.1.1 - 4.1.3 of this Report.

Table 4-1. Consultation Program for the Brunswick Heads-Yelgun Project

Consultation Program	
Consultation Prior to Project Commencement	
General	Consultation commenced in 1996 as part of the DUAP/ RTA investigation to identify a corridor for the upgrading of the Highway and included public exhibition of options, several public meetings and discussions with individuals and groups.
Consultation at Route Selection Commencement	
Correspondence	Undertaken with all relevant authorities.
A 1800 (Freecall) Number	Established in November 1996 for the duration of the project.
An Information Sheet 1 (Nov 1996)	Distributed widely via Australia Post to the Ocean Shores/ Brunswick Heads/ Mullumbimby area and sent directly to groups, individuals, and property owners.
A Community Database	Established and maintained for the duration of the

Consultation Program	
	study. Information sheets (2-4) were sent to everyone on the database.
Advertisements	Placed in local press advertising the Community Information Meeting and providing contact details.
Community Information Meeting (26 November 1996)	Provided preliminary information and heard community concerns, issues and suggestions.
Planning Focus Meeting (26 November 1996).	Provided a briefing for state and local government authorities and received comments. Community group representatives were also invited.
Community Involvement During Route Selection	
Community input	Taken into consideration in the identification of route options. In particular, the study area was broadened to include a far western option.
Information Sheet 2 (March 1997)	Provided information about the options that had been identified and invited submissions.
Public Display	Route options were displayed in March-April 1997 for a period of 3 weeks at 4 locations.
Value Management Workshop (April 1997)	Was held over two days in April 1997 to assist the RTA in the selection of a preferred route.
Information Sheet 3 (May 1997)	Reported on the investigations undertaken following the VMS on the suggested additional route options.
Information Sheet 4 (September 1997)	Advised that a preferred route and location of interchanges had been selected and explained the reasons for the decision.
Individual and Group Meetings	Were held during the route selection phase and after the preferred route had been selected.
Community Involvement During Alignment and Interchange Considerations and Environmental Mitigation Measures	
General	Some of the most intensive discussions and meetings were held following the route selection.
Individual Meetings	Were initiated with directly affected property owners and tenants following the announcement of the preferred route. These meetings were an important part of the process of refining and improving the Proposal. Where possible, the design team made adjustments to design and alignment to meet property owners requests. All comments and suggestions made during these meetings were noted and taken into consideration in refining the preferred route alignment and mitigation measures.
Information Sheet 5 (December 1997)	Provided an update on the study progress.
Information Sheet 6 (March 1998)	Advised that there would be a public display showing the Proposal.
Value Engineering and Risk Management Workshop (March 1998)	Were held after the preliminary engineering work had been completed in order to suggest further refinements to the Proposal to minimise impacts.
Public Display (commenced 18 March 1998)	Display of the Proposal, including local access arrangements and interchange locations. The display was held at 3 locations for a period of 3 weeks. Members of the study team were available on one day, over extended hours, to provide advice

Consultation Program	
	and answer questions about the Proposal.
Consultation during the EIS Exhibition	See also section 4 of this Report.
Advertisements	Were placed in local and NSW Papers.
Exhibition of the EIS	Was held between 6 August and 11 September 1998 at a number of locations (see page xi of the EIS).
Consultations during the Preparation of the Representations Report	
	Consultation and site meetings were held with authorities such as NPWS, DLWC, NSW Fisheries, Waterways Authority, Brunswick Oyster Growers and DUAP during the preparation of the Representations Report in order to clarify concerns and resolve outstanding issues.
Ongoing Consultation	
	Ongoing consultation has been held with affected landowners, Councils, State government authorities and other stakeholders in order to keep these groups informed and to resolve design issues and other requirements of landowners.

4.1.1 Consultation During the EIS Exhibition

The EIS was widely advertised between 7 August and 20 August 1998. It was exhibited between 6 August and 11 September 1998 at a number of locations. (See page ix of the EIS).

The exhibition was approached in a proactive manner, with all affected owners, some tenants and community groups, as well as each person or group on the community data base given a copy of the EIS brochure and encouraged to view the exhibition and make a submission. Representatives of the project team were available to discuss any aspect of the Proposal at the Ocean Shores Shopping Village on 13 August 1998.

4.1.2 Consultation During the Preparation of the Representations Report

Consultation was held during the preparation of the Representations Report in order to clarify concerns and resolve outstanding issues. To this end, a number of on-site meetings and phone conferences were held with NSW National Parks and Wildlife Service, NSW Fisheries, Waterways Authority and Brunswick River Oyster Growers.

A site visit and issues meeting was also held with DUAP on 4-5 November 1998 in order to establish issues of concern to the Department and discuss procedural requirements.

4.1.3 Ongoing Consultation

Ongoing consultation has been held with affected landowners and other stakeholders in order to keep them informed and to resolve design issues and other requirements of landowners.

Consultation with Local, State and Commonwealth government authorities has also continued throughout the study period and has provided valuable input into the project.

5. Representations to the EIS and SIS

5.1 'Snapshot' of Representations and Key Issues

Forty six representations were received by the RTA following the exhibition of the EIS and SIS. A summary of respondents is found in Appendix 1 of this Report.

A 'snapshot' overview of respondents and key issues is shown below. A detailed consideration of these issues is presented in section 5.3 of this Report.

One additional item of correspondence was received late in the Representations Report process. It has been considered separately (see section 5.4 and 6.12).

5.2 'Snapshots' of Representations

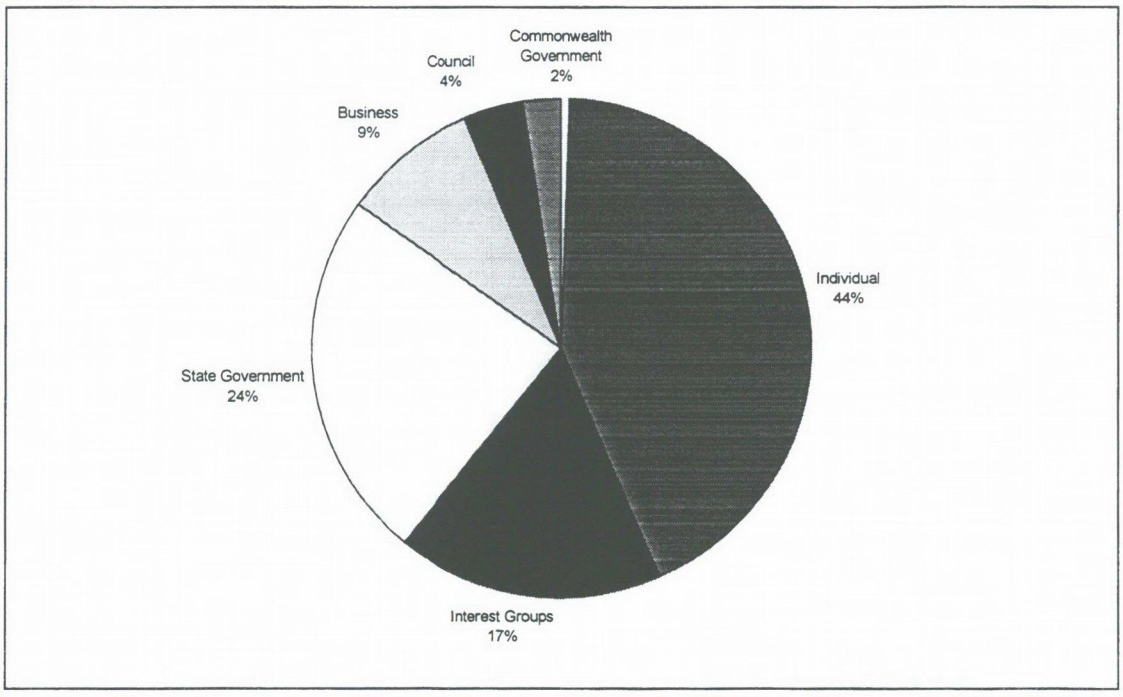
5.2.1 'Snapshot' 1 - Who Responded?

Most Representations received were from individuals and State government authorities. Interest groups and businesses also made a substantial contribution (see Table 5-1 and Figure 5-1) below.

Table 5-1. Who Responded to the EIS Exhibition?

Respondent Type	Number of Submissions	% of Submissions
Individual	20	44%
Interest Groups	8	17%
State Government	11	24%
Business	4	9%
Council	2	4%
Commonwealth Government	1	2%
Total	**46**	**100.0%**

Figure 5-1. Who Responded to the EIS Exhibition?



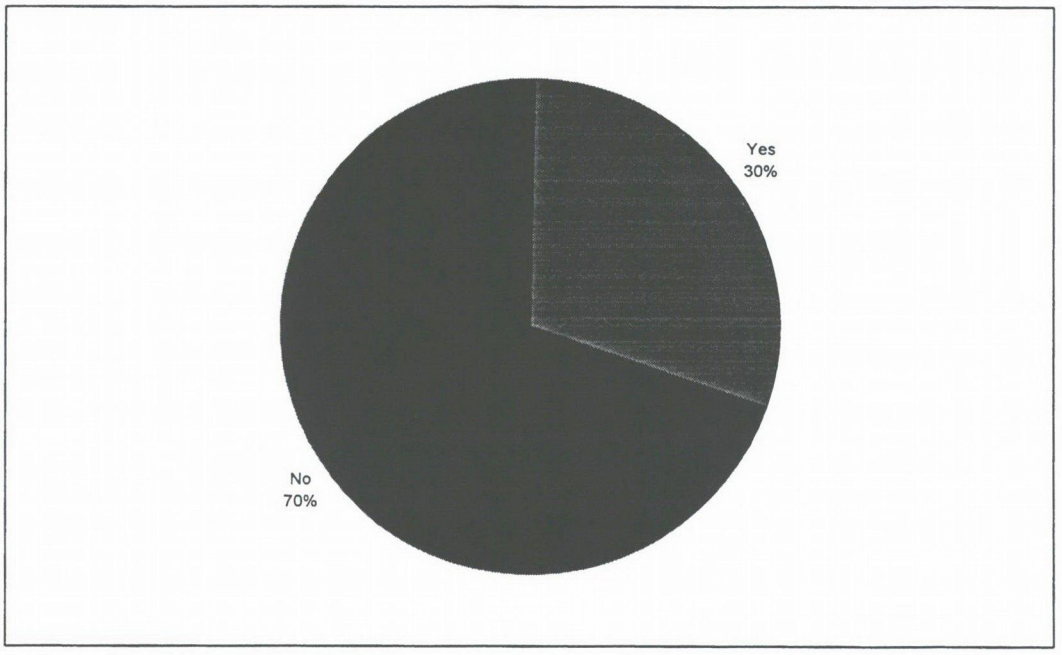
5.2.2 'Snapshot' 2 - Were respondents' Property Directly Affected by the Proposal?

A little over one quarter of respondents (28%) were directly affected by the Proposal through property acquisition (see Table 5-2 and Figure 5-2 below).

Table 5-2. Were respondents' property directly affected by the Proposal?

	Number of Submissions	% of Submissions
Yes	14	30%
No	32	70%
Total	**46**	**100%**

Figure 5-2. Were respondents' property directly affected by the Proposal?



5.2.3 'Snapshot' 3 - What were the Main Issues?

Twenty five issues 'types' were identified from the Representations received (see Table 5-3 and Figure 5-3 below). Of these, the top five issues concerned:

- Process
- Flora and fauna
- Noise and vibration
- Access
- Property acquisition and value

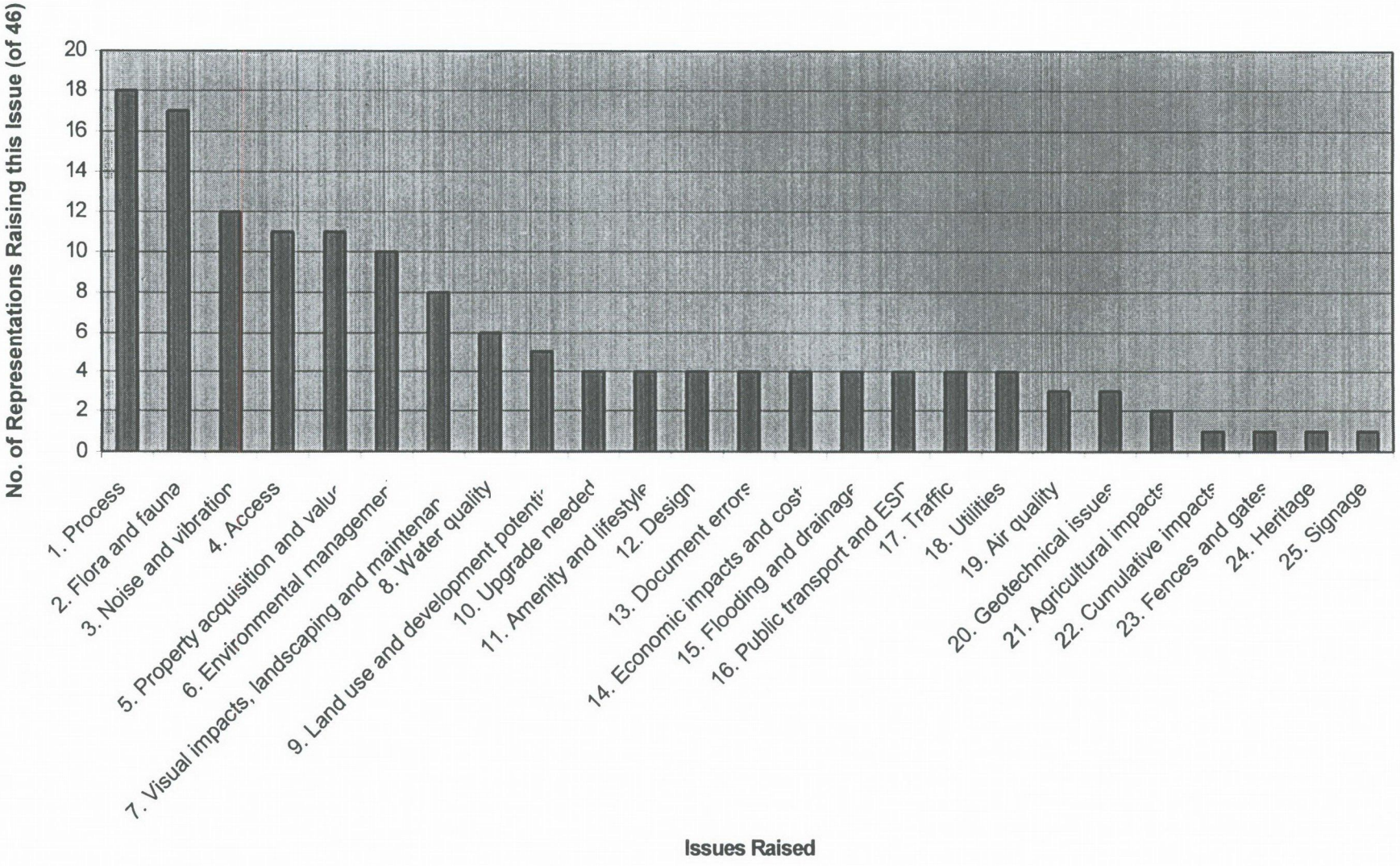
The high number of representations received concerning Process issues reflects the broad range of respondents with an interest in issues such as route selection, community consultation and the overall decision making process.

The high number of responses received concerning flora and fauna is indicative of the importance placed on the natural environment by the community, and of the sensitivity of the area. The issues of noise and vibration, access and property acquisition and value mainly relate to specific property-related concerns, and are consistent with the high number of representations received from individuals.

Table 5-3. Issues raised in Representations

Nr	Issue	Number representations concerning this issue	% of representations concerning this issue (of 46)
1	Process	18	39%
2	Flora and fauna	17	37%
3	Noise and vibration	12	26%
4	Access	11	24%
5	Property acquisition and value	11	24%
6	Environmental management	10	22%
7	Visual impacts, landscap'g & maintenance	8	17%
8	Water supply and quality	6	13%
9	Land use and development potential	5	11%
10	Upgrade needed	4	9%
11	Amenity and lifestyle	4	9%
12	Design	4	9%
13	Document errors	4	9%
14	Economic impacts and costs	4	9%
15	Flooding and drainage	4	9%
16	Public transport and ESD	4	9%
17	Traffic	4	9%
18	Utilities	4	9%
19	Air quality	3	7%
20	Geotechnical issues	3	7%
21	Agricultural impacts	2	4%
22	Cumulative impacts	1	2%
23	Fences and gates	1	2%
24	Heritage	1	2%
25	Signage	1	2%

Figure 5-3. Issues Raised in Representations: Brunswick Heads-Yelgun EIS



5.3 Consideration of Responses to Representations

Representations received to the exhibition of the Brunswick Heads-Yelgun EIS underwent an extensive logging and consideration process including:

- Entry into database. The representations were given a number, entered into a database and classified according to: (see Appendix 2 of this Report)

  Group type: Individual, Interest Group, Business, Council, State Government, Commonwealth Government.

  Property affected?: Whether the property of the respondent would be directly affected by the Proposal.

  Issues type: Each issue raised within a representation was identified as an issue 'type' (for example, access, flooding and drainage, process).

  Representation number: Each issue raised was also numbered for easy referencing (for example, if representation 'No. 1' raised three issues, the issues would be numbered 1a, 1b and 1c).
- Consideration by the RTA in consultation with its consultants commissioned to prepare the EIS.
- Additional investigation (to resolve outstanding issues - see section 6).
- Additional design refinement (where a design solution was possible to resolve issues - see section 7).
- Consultation with groups and individuals in an effort to reach shared or agreed solution and to comply with all statutory or other requirements (see section 4.1).

Responses to the Representations are presented below and are arranged by issue 'type' (Process, Flooding and Drainage etc). For a list of submittors/ respondents, see Appendices 1 and 2 of this Report.

5.3.1 Process

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06a	Indiv	The EIS is an excellent document and explains all I need to know re the Highway and interchange.	Acknowledged.
06i	Indiv	Landowners may need access to an RTA representative so that they can appeal to contentious matters.	An RTA representative will be available throughout the whole construction process. A contact phone number will be provided for the duration of the project.
10h	DLWC	Areas of Crown land east of the Brunswick Heads Bypass and east of the Pacific Highway along Marshalls Creek, are currently the subject of discussions with National Parks and Wildlife Service of NSW.	Noted. Discussion will continue with NPWS.
11c	Busin	The RTA and Sinclair Knight Merz (Jo Moss) have done an excellent job on this project.	Noted.
13a	Interest group	Wrote to Mr Scully in September 1997 outlining concerns, asking questions, and presenting petition. No reply was ever received. Directly and indirectly affected residents have not been 'consulted'.	There is no record this letter being received at the Ministers office or of this letter being forwarded to the RTA Pacific Highway Development Office. A high level of community consultation was undertaken for the project. Community involvement was sought throughout the study including; the planning focus meeting which included a number of community representatives; an open invitation for community suggestions in the identification of route options; a value management workshop which included participants from community organisations and numerous individual and group meetings. Other consultation included the production of information sheets; establishing and operating a toll free phone number and a public display.
13b; 23a, 23e; 23f	Interest group; Indiv	• The community consultation has been ineffective and its conclusions run opposite to community views. • Objects to the way the RTA selected the preferred route, conducted community consultation and provided information to the community. • RTA held no meaningful community consultation with the community. No meetings were held to listen. Only one side of the story was presented - the preferred route. • The whole RTA process appears to be deliberately designed to make it as hard as possible for individuals to have their	The RTA has worked hard to achieve a fair, transparent and considered route selection and community consultation process. Community views have been actively sought and considered at all stages of this Project. Community involvement was sought through advertisements, public displays, 'Have Your Say' requests, planning focus meetings and various workshops. Six information sheets were distributed in the local area, a toll-free number was established and an RTA project manager has been available for discussion since the inception of the project.

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		say.	
			The community has played in integral role in the selection of route, with representatives of local groups included all a range committees, including the one that selected the consultants. RTA has responded to community suggestions, investigating several additional route options and making alignment and design changes where possible in order to meet property owners requests. The final route selected reflects the broad range of participants and is a trade-off between social, natural and engineering requirements. The community consultation program is considered to be extensive, inclusive and indicative of best practices in this field. It meets all legislative requirements. The small number of submissions received to the EIS is indicative of effort made at the early stages of the Project to resolve issues and provide design solutions. For additional information on the consultation program, see section 4 of this Report.
13c	Interest group	Why are Bypasses constructed for Bangalow and Brunswick Heads (and Ballina in the future) but Ocean Shores residents get 4 lanes on their doorstep. We want the Highway further west, out of our sight and hearing.	Bangalow and Brunswick Heads were Bypassed because the Pacific Highway traversed the town. The Proposal does not 'bypass' Ocean Shores or Billinudgel because the Highway does not currently go through either of these towns - they are already effectively 'bypassed'. The Proposal does however provide some of the benefits of a bypass, including the separation of local and through traffic and the reduction of traffic noise in many areas. While a route further west would improve amenity to a greater degree, the route selection study showed that such a route would have significant impacts, particularly in terms of flora and fauna. The preferred route was a trade-off between natural, social and engineering needs and requirements.
13d	Interest group	The decade old LEP displayed in every real estate agent's office was a key determining factor in mine and hundreds of other people's decision to purchase land and homes in Ocean Shores during the last 10 years.	The selection of the LEP route was based on processes different to those now in place. The route selection was looked at afresh in order to address environmental issues not considered for the LEP route.

5.3.1 Process

Rep. Nr*	Who by?*	Issue	RTA Response
13k	Interest group	The two Councillors who approved of the A2 proposal and the destruction of the Brunswick Heads Nature Reserve do not represent community values of Ocean Shores Residents.	Twenty four participants were involved in the Value Management Study, including representatives from the Caldera Environment Centre, the Brunswick Catchment Management Committee, the Brunswick Progress Association and the Ocean Shores Urban Association. Working Paper No. 10, Value Management Study contains a full list of representatives and details the outcomes of the Value Management Study.
14e	Indiv	I am enclosing two press cuttings. Both letters are gross distortions of the truth.	Noted.
22h	Interest group	It is requested that negotiation is continued with affected oyster farmers and that issues raised are dealt with expeditiously.	The RTA is continuing negotiations with affected oyster farmers and other relevant authorities and stakeholders in order to resolve outstanding issues, including access to moorings, as quickly as possible.
23b	Indiv	'Information' (given) was either unnecessary or too complicated. Equally detailed information was not given for the alternatives. The EIS, at 12 volumes, is a complicated document beyond the understanding of the average citizen, particularly the elderly.	The EIS document was written as a single volume to stand alone, with the Working Papers available to those who required more (technical) information on specific studies eg air quality, road engineering etc. For people not wanting, or needing, to read the EIS document an eight page summary document was produced.
23c; 38a	Indiv; Interest group	• Access and evaluation of the EIS was restricted to a one month display during working days of one copy. There was a short period for submissions. RTA staff on information days could only provide information on the 'preferred route'. • Time and resources limit our ability to respond to the EIS in the detail we feel necessary.	The EIS was on exhibition for a five week period which is more than the required period of time. During the development of this project, staffed information days were held. At route selection stage, information was available on all routes. By EIS stage, the other routes had been discarded and the studies concerned the preferred route. While some information on the other routes would have been available at the EIS exhibition, only the preferred route was the subject of the document. Copies of the EIS and Working Papers were available at Brunswick Heads Post Office between 9 and 5 as well as at locations in Murwillumbah and Mullumbimby.
23d	Indiv	(The RTA conducted a) misinformation campaign as to the status of various areas of the Brunswick Heads Nature Reserve and the LEP corridor, and Council lands zoned 5a around Ocean Shores Sewage Treatment Works.	The RTA has undertaken the community consultation process in a transparent and open manner. All information was presented honestly and openly.
23g	Indiv	RTA have refused to make information available to the public about the route planned for the Pacific Highway in 1968, on which the LEP was based.	Very limited information is available on the planning or selection of the 1968 route. This route would have been selected using engineering/ costing factors only.

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
23h	Indiv	The interpretation of the RTA's legal obligations is very liberal. A different legal interpretation is that environmental concerns are in many cases unnecessary because of the precedence of the Act under which our national highways are built.	The RTA has responsibilities under many pieces of environmental legislation and endeavours to meet these requirements. The Roads Act does not give exemptions from these requirements.
23i	Indiv	The unnecessary 'environmental' emphasis was wasteful and deliberately misleading, eg species at risk within 10kms are listed, etc.	It is a requirement of Flora & Fauna Assessments and the preparation of a Species Impact Statement that species of threatened biota in the "locality" are considered. The Director-General's requirements for the SIS define "locality" as the area within a 10km radius of the study area.
23j	Indiv	By not showing the LEP corridor on many maps or diagrams, the public was denied the chance to evaluate that route using the information provided in the EIS.	The route options considered are shown in Figure 5.2 of the EIS. Many of these utilised parts of the LEP corridor, which is described in the text. Routes C and D follow the existing road reservation established as part of the LEP in the section south of Coolamon Scenic Drive. Route E also crosses the Brunswick River using the LEP corridor. The LEP route is not described in detail in the EIS as the EIS is a detailed investigation into the proposed/preferred (A2) route only. The land zoning information shown in Figure 14.2 of the EIS shows the proposed road corridor as exists on Byron Council's LEP.
23k	Indiv	The 'studies' have made the EIS superficial and have led to deficiencies in planning - eg, the study of pedestrian access was based on a few hours of observation. A professional study would have acknowledged that the northern side of the bridge, apart from being a popular fishing spot, gives access to the oyster lease, bait gatherers and recreational users. Provisions for pedestrians/ cyclists to use the highway are inadequate, as with provisions to cross the Highway on the northern side.	The survey of pedestrians and cyclists was part of a wider study which included a review of existing facilities, the likely cycle/ pedestrian patterns arising from the local urban concentrations and Byron Council's bicycle strategy. The resultant proposed facilities meet all needs identified by the respondent - that is, access and provisions for pedestrians, cyclists, bait gatherers and recreational fishers, as well as access to oyster leases.
23t; 23zd; 23ze	Indiv	• The LEP route is the preferred option for most of the residents of the Brunswick Heads area. That the RTA has selected a 'preferred route' other than the LEP corridor is flawed in law as well as under the RTA's governing regulations and guidelines on the environment. • Has serious reservations about way RTA has undertaken its obligations. In particular, not following the LEP route,	The RTA is not obliged by law or policy to follow an LEP corridor. The RTA undertook extensive consultation in order to include the community in the decision making process, and to provide an equitable outcome in terms of a preferred route. The outcome of this process clearly showed

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		but providing 'alternatives' which were guaranteed to cause community dissent. Then engaging in a 'community consultation' and information process that was restricted and biased. • EIS contradicts view that there are concerns with LEP route.	that route A2, not the LEP corridor, was the preferred option. See section 4 of this Report for further details on the community consultation process. See also Representation Number 13b.
25l	Council	Prior to completion of these works, Council's Traffic Committee should review speed limits on the old Pacific Highway between Rajah Road and the Yelgun interchange.	A review of speed limits along the old highway will be carried out by the RTA in consultation with Council Traffic Committee prior to project completion.
29a	Indiv	We have studied the EIS and would like to commend you and your team on what we consider a job very well done. The attention to detail and the efficient way you have addressed the various matters of concern raised by the community leave very little to be desired.	Noted.
30i	Indiv	In general, the threats of disturbance or removal of habitat suitable for Schedule 1 and 2 species on NPWS lists have not been adequately addressed, or likely threats too easily dismissed. It would appear that the consultants have relied too heavily on NPWS records.	The selection and design of the proposed Brunswick Heads to Yelgun upgrade of the Pacific Highway have involved substantial consideration of "threats of disturbance or removal of habitat" for threatened species. Considerable effort has been applied to designing and locating the Proposal so as to minimise the potential for adverse impacts to be imposed upon threatened biota or other native fauna and flora or their habitats. Threatened biota have been a substantial issue with respect to the proposed roadwork, and have been exhaustively addressed in the Working Paper for the EIS and in the SIS. The potential for threats or adverse impacts to be imposed upon threatened biota has been recognised by the whole project team, and ecological matters were accorded the highest level of consideration at the Value Management Workshop in 1997, at which there was substantial representation by community groups and environmentalists. In this regard, and given the extent of documentation for the project, the assertion that "likely threats [to threatened species have been] too easily dismissed" is not accepted. Neither the Working Paper nor the SIS "have relied heavily on NPWS database records". As detailed in both documents, there have been substantial and extensive field investigations, as well as discussions with a number of relevant experts and the accessing of several databases and other information

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			sources for the Flora & Fauna Working Paper and the SIS. The NPWS Wildlife Atlas is utilised only as one source of information (as is appropriate) and is certainly not the most significant source.
33a	Interest group	The public has been disadvantaged by the release of the Brunswick Heads EIS and Yelgun EIS simultaneously.	Both EISs were exhibited for five weeks which is more than the required period of time. There are also benefits in displaying the two EISs simultaneously, particularly as the projects adjoin each other.
35b; 35e	Interest group	• An alternative route suggestion was submitted to RTA 27 June 1997, but was not addressed in the EIS (letter and map attached to representation). • The 'alternative proposal' (suggested by the respondent) is more socially acceptable.	An additional route option was suggested to the RTA in June 1997. This route was split into two alternatives by the RTA and designated as Routes J and J1. The proposed Routes J and J1 were considered during the route selection process, and were assessed as imposing unacceptable impacts upon the natural environment, particularly in relation to damage to and destruction of wetlands, impacts on threatened species, habitat fragmentation and the imposition of barriers to fauna movements A full description of the history of Route J and J1, which were initially investigated, is detailed in section 6.4 and Appendix 6 of this Report.
39l	Comm gov	Once the NSW process is completed and a determination has been made by the Minister for Urban Affairs and Planning, Environment Australia will complete its assessment of this Proposal having regard to the assessment work that has been undertaken.	Noted. This will be addressed as part of the normal assessment procedure.
40a	Indiv	Wish to propose the name of 'Matthew Devine Bridge' for the proposed bridge. Matthew Devine was responsible for instigating and implementing the first ferry/ punt crossing over the river in the 1890's.	In view of the strong association of Matthew Devine with the site of the Brunswick River crossing the idea has merit and will be given further consideration in the context of the RTA's naming policy.
42a	RSA	With the restructuring of the Rail organisation, multiple parties need to be consulted with regard to our issues.	See Rep Nr 43a below for full representation and response.
43a	RSA	RSA North will provide liaison services on behalf of RAC for the following general issues: • Technical issues during the preparation of detailed designs. (See attached table summarising specific areas affected). • Identification of check points during the design and contract preparation stage and progressive clearance of check points during the construction phase.	Service agreements will be negotiated between the two Authorities to ensure input at appropriate times from RAC into the design, documentation and construction phases. Dilapidation surveys of existing Rail tunnels and structures will be undertaken in conjunction with the final design.

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		• Formal handover procedures will also need to be included in the RTA contract documents which allow for clearance by the RSA representative where works affect the rail corridor. • Assessment of monitoring or dilapidation surveys for rail tunnels where stability issues are a problem. • Resolution of fencing issues. • Resolution of surface drainage issues. • Arrangement of supervision of external parties within the rail corridor. • A funding arrangement with the RTA will need to be arranged before any further work can proceed.	Geotechnical advice from Douglas and Partners indicate that the rail structures are located at a safe distance from the proposed road construction. Fencing and surface drainage issues will be resolved in consultation with RAC during the final design stage.
45r	Interest group	It is important that transparent solutions are reached as a result of consultation with the affected community. The following are unresolved issues: • Redesign of the river foreshores involving community and authority stakeholders. • Access for oystergrowers. • Future management/ ownership of the LEP corridor north of the river. • Mitigation of impacts on the two restaurants, particularly that with outdoor dining.	The rehabilitation of the foreshore area on both sides of the River was identified in the EIS as an opportunity to improve the area for the local community and visitors to the area. Should the proposal be approved the RTA will facilitate a meeting of stakeholders, including the community and DLWC, to discuss a program for the foreshore area. Extensive and ongoing discussions have been held with the Brunswick River Oyster Growers regarding a suitable alternative mooring site. At this stage a dedicated mooring site at the Brunswick Heads Boat Harbour is being investigated. In principle agreement to this arrangement has been given by Department of Land and Water Conservation (as the owners of the site) and by the Brunswick Heads Fishing Cooperative(as the current lessees of the site). Further discussions will be required to fully resolve this issue. The RTA has been working towards finding an appropriate solution in consultation with the Brunswick River oyster industry. The LEP corridor through the Brunswick Heads Nature Reserve will become Nature Reserve under the Comprehensive Regional Assessment undertaken by NPWS. The remainder of the LEP corridor from north of the River comprises Council and freehold land. The RTA will apply to Council to remove the current zoning and restore as appropriate. The use of the area would be determined by Council. As such, the community will not necessarily be involved in the process of rezoning the LEP corridor, but will be able to be involved in the restoration of the Brunswick River foreshores.

5.3.1 Process			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			Negotiations between the RTA and the building owner and the two restaurant owners regarding compensation and future operation are now complete.

Rep. Nr = Representation Number. See Appendix 2 for individual Representations Summary Sheets
Who by? = Representation type. Indiv = Individual
Interest group = Interest group
Busin = Business
Council = Council
Comm gov = Commonwealth government

5.3.2 Flora and fauna

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06k	Indiv	Please examine the North East sector when you show a long sliver of land between the Nature Reserve and Road Reserve.	Portions of land isolated by the road design, such as the section between the road corridor boundary and Billinudgel Nature Reserve will be assessed and dealt with during the land acquisition process.
18e	NSW Fish.	NSW Fisheries disagrees with the statement that '(there would be) no significant impact on seagrasses' as the removal of the old bridge bed sediments for the new bridge are classified as dredging activities. Shading will also kill off seagrasses. NSW Fisheries requests further assessment of potential impacts on seagrass and possible mitigation measures.	Seagrasses have been identified and mapped as part of additional work carried out after the EIS to address this issue. A number of *Zostera capricorni* beds were mapped however those that may be directly affected by bridge construction or by shading were small patches with sparce blade coverage and were not thought to constitute a significant habitat. The RTA will consult with NSW Fisheries and carry out a joint inspection of the bridge site over the Brunswick River to assess the potential impact on seagrasses and to determine the most appropriate management strategy (mitigation measures, habitat rehabilitation and environmental components). See section 6.1 and Appendix 3 of this Report for further information on potential impacts to seagrasses. While dredging is not required for bridge construction or demolition the construction of the proposed bridge will possibly require preboring for the northern most piers. This will require the removal of sediment from the casing used to bore. This sediment will be disposed of on land in accordance with EPA requirements. Prior to dredging, the RTA will notify NSW Fisheries via an agreed letter format. Further detail on bridge construction and demolition, see section 6.2 and Appendix 4 of this Report.
18f	NSW Fish.	NSW Fisheries requires habitat compensation to maintain 'no net loss' habitat policy. Habitat compensation is usually calculated on	The Proposal potentially impacts on approximately 0.28 ha of mangrove vegetation. No areas have been identified as suitable for planting mangroves for compensation for the loss this area.

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		a 2:1 basis for vunerable habitat. NSW Fisheries requests that habitat compensation, as outlined on p17-2 of the EIS be discussed and agreed to jointly between the two departments in relation to the loss of mangroves and potential damage to seagrass.	Sparse patches of seagrass may be lost through construction. Consultation will be undertaken with NSW Fisheries to determine appropriate mitigation for this loss. Silt curtains will be used where appropriate to minimise effects to retained seagrass beds. NSW Fisheries have accepted that the RTA will prepare a detailed study for rehabilitation and enhancement of the saltmarsh as compensatory habitat (refer to Appendix 14 of this Report).
18g	NSW Fish.	NSW Fisheries is concerned at the lack of information used to assess the fish fauna of the Brunswick River (Working Paper 7). NSW Fisheries requests further assessment of the available literature and catch data on aquatic fauna be undertaken to ensure that impacts on fish passage and breeding cycles are minimised.	Further work has been carried out on to assess fish fauna of the Brunswick River (refer to section 6.1 and Appendix 3 of this Report). Literature sources suggested by NSW Fisheries have been used. The results of this literature survey are presented in section 6.1 and Appendix 3.
18h	NSW Fish.	NSW Fisheries agrees that the Oxleyan Pygmy Perch is potentially found within the study area. Given the potential for significant water quality problems during the construction, NSW Fisheries disagrees with the statement that "the Proposal would not affect the habitat of this species and has the potential to result in overall improvements to water quality by containing and treating runoff and accidental spills." P12-10. NSW Fisheries agrees that a more detailed '8 Part Test' should be undertaken. This should be done in consultation with the person employed under the Memorandum of Understanding.	An expanded 8-part test has been carried out and is contained in the attached report. The test addressed the status of the Oxleyan pygmy perch and concludes that it is unlikely that any threatened species, population or communities will be affected by the Proposal, and Species Impact Statement is not required. The revised 8-part test was carried out prior to NSW Fisheries employing the liaison officer under the Memorandum of Understanding between NSW Fisheries and the RTA. A review of the 8-part test was carried out by the NSW Fisheries Ballina Conservation Manager. A NSW Fisheries liaison officer has now been employed under the Memorandum of Understanding between NSW Fisheries and the RTA. The RTA will ensure that there is a close consultation with this position throughout this project.
18i	NSW Fish.	Permits will be required from NSW Fisheries under the Fisheries Management Act 1994 for i) any damage to or removal of marine vegetation (mangroves and seagrasses), and ii) the proposed dredging and reclamation works associated with the construction of waterway crossings, and the removal of the existing Brunswick River Bridge.	Approval will be required for the destruction of mangroves and seagrasses. The RTA will submit a formal application should the project be approved. Some works involved in the construction and demolition of the Brunswick River bridge may also be classified as dredging operations. The RTA will notify the Minister for Fisheries of these works, as required by the Act.

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
18j	NSW Fish.	NSW Fisheries suggests that the Project Manager for the project work in close consultation with the person employed under the Memorandum of Understanding to address the following issues: • Bridge and culvert design. • The development and/ or review of aquatic flora and fauna and water quality monitoring programs. • Minimisation of impacts on aquatic organisms and marine vegetation during dredging and reclamation works and the construction of waterway crossings. • The design of the erosion and sedimentation control plan.	Acknowledged/ agreed. Please see Appendix 14 for the NSW Fisheries letter confirming that the mitigation measures proposed are satisfactory.
19a; 20a; 24a; 30n; 33w	Indiv; Interest group; Interest group; Indiv; Interest group	• Biodiverse lands located to the East of the Highway, referenced by NPWS as "additions to Brunswick Heads (Marshalls Creek)/ Billinudgel Reserve" should be purchased for compensatory habitat. • It is essential to provide compensatory habitat on both sides of the proposed route, especially in the Marshall Creek area. The cut and cover wildlife crossing at Jones Road is rendered impractical, as any wildlife using the corridor will (then) be abandoned among agricultural lands. • Compensatory habitat on the western side of the Upgrade fails to address the needs of the eastern side. There is land in the vicinity of New Brighton available on the Eastern side of the Highway which would form a coherent corridor between the Billinudgel Reserve and the Brunswick Heads Reserve. • Where will the compensatory habitat be? Lands identified to the west of the Ocean Shores sewage treatment works and along Marshalls Creek are obvious examples of prime flora and fauna sites. • The SIS does not provide an in-depth analysis of compensatory habitat. The appropriate level of compensatory habitat is not discussed at all. Compensatory habitat does not replace habitat lost - overall there remains a net loss. Questions such as 'how should a compensatory strategy address this net loss of habitat' have not been considered. In addition to purchasing existing or mature habitat for protection, cleared or degraded lands should be purchased and a Habitat Rehabilitation	A compensatory habitat package has been proposed by the RTA. This package includes: i. Additions to NPWS Estate. This includes: • The purchase of properties of high environmental values which are unaffected by roadworks. • Transfer of road residues and residues of affected properties adjoining NPWS nature reserves. • Consolidation of residues with adjacent crown lands and transfer to NPWS. • Transfer of residues associated with the Brunswick Heads Bypass. ii. Restoration of lands to be transferred to NPWS • Restoration of areas by the RTA prior to handover. • Contribution to and participation in the preparation of plans of management and subsequent restoration activities. iii. Release of RTA interest over the LEP corridor through Brunswick Heads Nature Reserve. iv. Restoration of Brunswick Rover Southern Foreshore in the vicinity of the existing bridge. The RTA will finalise its compensatory habitat package in consultation with NPWS and other stakeholders. Please see section 6.5 and Appendix 7 of this Report for details on the compensatory habitat package.

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		Plan devised.	
20b	Interest group	With regards to SIS, amazed that threatened terrestrial mammals such as the Common Planigale and Long-nose Potoroo, which were identified as species of major concern in the original EIS in 1992 have been classified as 'no viable local population' and 'significant effect not likely'. Special fauna underpasses were constructed under the present Bypass to cater for the movements of these species and Koalas, yet there appears to be no reporting of the effectiveness of these provisions, or the need to upgrade them.	The Common Planigale and Long-nosed Potoroo, were not of such concern in the original Fauna Impact Statement prepared for the Brunswick Heads Bypass (Milledge & McKinley 1992)"...as to warrant refusal of the Bypass Proposal. Furthermore, the underpasses which have been constructed under the present Bypass, to cater for the movements of these species and the Koala" have been recommended for extension and enhancement as part of the current Proposal. Refer to section 12.1.2 of the Species Impact Statement for more information.
20c	Interest group	We support the submission by CONOS.	Acknowledged
21a; 36d; 38b	Indiv; Interest group; Indiv	• The RTA should purchase additional lands for compensatory because it did not purchase any for the Brunswick Heads Bypass. There are lands to the east of the Proposal referenced by the NPWS as additions to the Brunswick Heads/ Billinudgel Nature Reserve. The RTA should purchase these lands. • There was no compensatory habitat set aside for the originial Bypass. The proposed project should include compensatory habitat for both the new and old works. Understands that 90 ha has been purchased west of the route. This is not enough, nor is it appropriately located to compensate the communities. Ideal land is located near Marshalls Creek and would provide links from Billinudgel Nature Reserve and Brunswick Heads Nature Reserve. • The recently opened Bypass was constructed without provision compensatory habitat despite the destruction or alteration of many significant areas. The duplication and construction of the river bridges and approaches will have a much greater impact and we would anticipate significant compensatory habitat being designated. The Brunswick Heads Village Committee would like to be included in any negotiation on compensatory habitat and requests maps of areas proposed as a basis for discussion.	Compensatory habitat has been provided for the original Brunswick Heads Bypass. Land to the east of the Bypass has been purchased by the RTA and the recommendation, as stated in the EIS for the Brunswick Heads Bypass, is to dedicate this land as a Nature Reserve under the National Parks and Wildlife Act. This area has a very high conservation value and role in providing a stepping stone link between the Tyagarah and Brunswick Heads Nature Reserves. Refer to Representation Number 19a as well as section 6.5 and Appendix 7 of this Report for further information regarding compensatory habitat.
23l	Indiv	The impact of the Proposal on the south side of the River is an unnecessary destruction of SEPP 14 wetlands and other environmentally sensitive areas. Mangroves and environment directly east of	The road design south of the Brunswick River has been developed to minimise disturbance to or unnecessary destruction of SEPP 14 wetlands and other environmentally sensitive areas. The use of the existing corridor and

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		the present bridge will be needlessly destroyed. According to the SIS, more sensitive habitats will be disturbed by this route.	areas currently disturbed avoids impacts intact native vegetation communities.
23u	Indiv	The use of the LEP corridor would result in less destruction of SEPP 14 wetlands and mangroves.	Use of the LEP corridor would, in fact, involve a greater area of damage to SEPP 14 Wetlands, as well as damage to mangrove habitats and other native vegetation west of the existing Highway.
23x	Indiv	The contention that the LEP corridor would damage Brunswick Heads Nature Reserve is erroneous and legally wrong. The Reserve is in two parts. The LEP corridor is not legally National Parks land but crown road reserve. The flora and fauna in this area is not considered to be endangered or sensitive. The preferred route would impact on sensitive areas and would involve negotiations with NPWS. This is not legally necessary on the LEP corridor.	Regardless of the legal status of the LEP corridor, it is clear that the use of the LEP corridor would be ecologically damaging, involving further fragmentation of and damage to natural habitats in this locality. The LEP corridor is currently Crown Reserve for the protection of native flora. Following determination, the RTA would relinquish interest in this area. Under the recent Comprehensive Regional Assessment undertaken by the NPWS the LEP corridor will become part of NPWS and will become part of the Nature Reserve. The potential ecological impacts of imposing additional barriers to fauna movement and disturbing areas of currently undisturbed vegetation are extensively discussed in the EIS and Working Paper No. 7. The LEP corridor would have a high potential for these impacts as it would divide the Brunswick Heads Nature Reserve into three parts and disturb to threatened flora species to the north. Discussion with NPWS regarding the impact to Brunswick Heads Nature Reserve is not seen as an impediment to the project.
29b; 29c	Indiv	• The list of plant species of National and State conservation significance does not include Endiandra hayesii – there is an adult tree and four young trees on our property. We invite you to initiate a recovery plan using material from our trees. • Endiandra muelleri ssp bracteata is found in juvenile form on both railway land leased by us and on our property. A search of the area should identify the seed source for these plants.	No individuals of Endiandra hayesii and E muelleri ssp bracteata on the property or on leased railway will be affected by the proposed roadworks. However, during the seed collection for the propagation of plants for landscaping, seeds and/ or cuttings may be taken from these trees. A recovery program is not necessary as none will be removed by the project.
29m	Indiv	We suggest you give careful consideration before making any decision on the area of land to be sold off with the two dwellings. The primary aim of securing these properties was to offer them as a compensatory	The two properties referred to (Walshe and Perrin) are owned by the RTA and the 44ha of high quality habitat that this land comprises will be included as part of the compensatory habitat package minus the houses and

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		package. Because of the very high conservation value of the rainforest, the connecting links should be of similar high value. This would be achieved by planting the cleared areas. This will be ideal habitat for both Elaeocarpus willamsianus and Endiandra hayseii once recovery plans have been put into force.	respective curtilages. The 44ha will be transferred to NPWS. A Plan of Management and funding for proposed Nature reserve will be developed with NPWS. This will involve the owners, possibly through a voluntary conservation agreement over their property. See also section 6.5 and Appendix 7 of this Report for information regarding Compensatory Habitat.
29n	Indiv	We suggest that both Davidson's Plum and Red Lilly Pilly be grown for at least 12 months before planting. A method of growing them has been achieved by Burringbar Rainforest Nursery.	The RTA will prepare a detailed plan of plantings. A contractor will be engaged to identify and propagate plants in advance of roadworks.
30a; 33d	Indiv; Interest group	• There is no reference to the Flying Fox colony situated in the Brunswick Heads Nature Reserve area. Last count I conducted revealed 17,000 plus. The consultants found none. • A Black Flying Fox (TSC Act) colony is located a short distance east of the Pacific Highway within the Brunswick Heads Nature Reserve. It is surprising that this species was not recorded during inspections.	The Flying Fox colony is approximately 500 metres east of the corridor alignment. It cannot reasonably be regarded that the proposed roadworks will impose any adverse impacts upon the Black-Flying Fox, or any other Flying Foxes.
30b	Indiv	There will be a major impact on habitat utilised by the Black necked Stork. To create an island effect with this saltpan will destroy its primary function (that of feeding and foraging) and will increase runoff impacts through increased pollutants, oil etc. Ameliorative measures will not stop this problem, the only answer is to avoid the site.	It is understood that individuals of the Black-necked Stork utilise the saltmarsh on the southern side of the Brunswick River on occasions. The Proposal has been specifically designed to minimise adverse impacts upon this portion of habitat, including a commitment to the implementation of water quality control measures to protect the saltmarsh. A central component of the Compensatory Habitat Package is also the preservation and restoration of this saltmarsh area. Bird species listed on JAMBA and CAMBA have been considered in the EIS and in Working Paper No 7.
30c	Indiv	There is conjecture as to whether fauna use underpasses. Movements cameras must start to be installed in this area.	Research undertaken for the for the RTA, including that for the F3 has shown that fauna do use underpasses. The Pacific Highway Development Office is also currently preparing a brief for the engagement of a specialist to undertake the monitoring of the fauna underpasses on the Brunswick Heads Bypass and on other

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			projects on the Pacific Highway.
30d	Indiv	It should be mandatory practice for the RTA and consultants to replace any hollow logs salvaged from the clearing activities as quickly as possible – not at the end of the project.	Hollow logs and other habitat features will be reinstated as soon as practicable during construction; however, the limited space available in many areas may mean that this is not possible until the completion of construction.
30e	Indiv	Koala searches were not thorough enough. Areas of known koala movement have received little or no investigation, ie, north end Balemo Drive, Ridge above and to south of El Dorado Estate and Shara Boulevard and surrounds.	Koalas were a target species throughout all fauna investigations in the study area, as well as being specifically targeted by dedicated Koala surveys. The proposed roadworks include measures at several localities intended specifically to protect Koalas from the potential impacts of road mortalities.
30f	Indiv	The osprey nest on Bashforth's property and in the Billinudgel Reserve are both active nests and have been for quite a number of years.	No Osprey nests are to be directly affected by the proposed roadworks, and it is not likely that this species will be adversely affected in this locality.
30g	Indiv	There have been no reports of any successful Pied Oyster Catcher nestings for at least 3 years in the NE NSW area. Local extinction of this species should come as no surprise, as a result of human activity.	The proposed roadworks will include an array of impact amelioration and environmental management measures, and the implementation of 'best practice' engineering and habitat management measures. The works are not likely to involve any adverse impacts upon the Pied Oystercatcher.
30h	Indiv	Rose-crown Fruit Dove records going back 25 years show that the species relies on Camphor Laurel during winter. Replacing this food source with native endemic species should have already started.	The selection of Route A2 and its subsequent design and development were specifically targeted at minimising the potential for removal of resources and habitat for species such as the Rose-crowned Fruit Dove. Habitat suitable for the Rose-crowed Fruit Dove will be included in the revegetation program and will be planted as early as possible.
30o	Indiv	The statement in relation to the Crystal Creek Walnut Species that it: "Appears that the areas of known habitat (that will be) modified or removed (are) not significant..." is not good enough because of the word 'appears'. Table 7Gxviii seems to contradict the consultants findings in regard to this species.	It is recognised that much of the proposed road corridor has already been modified or degraded. While there is some debate regarding the definition of a 'viable local population', for the purposes of establishing the potential significance of impacts on threatened species, a precautionary approach has been adopted. Only a small area of (mostly) modified or degraded habitat for this species will be removed, furthermore, numbers of individuals of this species are located outside of the proposed route and will consequently not be affected by the proposed route.
30p	Indiv	The consultants dismiss too easily major impacts upon various flora species. I am concerned that care and control may not be up to the standards that should be afforded habitat in this region, which is second to North Qld Wet Tropic regions with regards to	Impacts on flora species were not treated lightly. Flora and fauna issues were highly weighted in the route selection criteria, and a preferred route selected that was best able to minimise the impacts to flora.

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		biodiversity.	A Species Impact Statement was prepared to address the imposition of impacts upon a number of flora species. This study used the Precautionary Principle for the project. It should also be noted that there is a difference between impacts on species and impacts on *individuals* of those species. The conclusion of the SIS was that while individuals may be affected, no significant impacts would be imposed on any species as a whole.
33b	Interest group	CONOS found that the SIS on Brunswick Heads-Yelgun provided little additional information useful in assessing the significance of impacts. The conclusion suggests there will be no significant impact, which CONOS disagrees with.	The EIS, Working Papers and SIS are all thorough documents. The SIS has been written to address the requirements of the Director-General of NPWS. The outcome of the SIS, that the impacts to threatened flora, fauna or habitats were likely to be low or minimal, were the result of a rigorous and methodical assessment that was subject to the scrutiny of NPWS and DUAP.
33c	Interest group	Section 4.5 – Corridors – One Koala fatality was recorded along the northern portion of the Proposal by CONOS and such record supplied to the consultants. This matter has not been adequately addressed in that koala movement occurs within these areas and no mitigation measures to alleviate future potential fatalities have been proposed for this section.	Discussion regarding the mortalities of Koalas on the Pacific Highway is included in the SIS, with additional commentary provided in the SIS Addendum Report (see section 6.6 and Appendix 8 of this Report). The latter document as well as the SIS Addendum Supplementary Information (section 6.7 and Appendix 9) provide additional consideration regarding the location of fauna underpasses and exclusion fencing, and note that fauna crossings are to be located at Marshalls Creek and at the southern end of the Yelgun to Chinderah portion of the Pacific Highway upgrade (to the north).
33e	Interest group	Section 7 – Conservation status – makes a number of subjective statements about habitat requirements. For example at a local scale, Davidson's Plum is said to occur 'throughout' the locality. This is an exaggeration. At the same time the SIS states that this species is very rare and endangered. Another exaggeration is describing the distribution of the Crystal Creek Walnut as the 'northern portion of the NSW coast', whereas this species is only found in the lower Brunswick and Tweed Valleys.	The statements regarding the conservation status, distribution and habitat requirements are provided to the fullest extent possible given that only limited information is known or available for many of the threatened species. With respect to the local conservation status of Davidson's Plum, it is in fact correct that this species "occurs throughout the locality", though sparsely so. This being the case, Davidson's Plum should be considered endangered in the local context. With respect to the Crystal Creek Walnut, the SIS does not say that it is distributed over the northern portion of the NSW Coast, but that the species is 'restricted to the northern portion…'
33f	Interest group	Section 8 – Abundance of Species – the regional abundance of threatened species is often overestimated in the SIS. The report	There appears to be a confusion over the meaning of the statement. The SIS does not state that the Davidson's Plum is locally

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		states that Davidson's Plum is locally abundant, with local properties supporting 70, 45 and 50 plants.' These low numbers are hardly an abundance.	abundant. The SIS does state that this species occurs in very low abundance and that the species' REGIONAL abundance is likely to be sparce. The statement that appears to be misinterpreted identifies the stands of Davidson's Plum which have been located in the Brunswick Heads area during the investigations, including a number of sites with LOCAL concentrations of the species. At no time is the abundance of the Davidson's Plum or any other threatened species over-estimated in the SIS.
33g	Interest group	Section 9 – Type of Habitat. Generally, this section is very poor. The mapped plant community where a threatened species was recorded is repeatedly equated with actual habitat, whereas threatened species are generally found in a small part of these communities, open in specific topographic sites. For example, p 65 describes the broad communities Davidson's Plum occurs in and infers its presence in similar communities as far away as the Grafton area, which is quite false.	The SIS does not infer the presence of Davidson's Plum, or any other threatened plant species, in vegetation communities or habitats, other than where there is specific proof of the species' presence.
33h	Interest group	Section 9 –Size of habitat – sizes of areas of suitable habitat beyond the road corridor are repeatedly said to be 'considerable', with no attempt at justification. The evidence on distribution given in the EIS would indicate the contrary. Eg – most Stinking Cryptocarya populations are described as very small in Quinn et al (1991).	The size of habitat refers to areas of potentially suitable habitat for species both within the study area and beyond it. This is not to be interpreted as the size of populations of threatened species.
33i	Interest group	Section 9 – Regional habitats – this section repeatedly claims there are thousands of hectares of potentially suitable habitat for given threatened flora species in the locality (and therefore no significant impact by implication). The information on species distributions indicates that these species are in fact highly restricted within these communities.	It is a requirement of the TSC Act, (s.110(2)(f)), that the SIS provide information regarding "details of the distribution and condition of similar habitats in the region". In this regard, the SIS is not required to verify that individuals of the species occur in all of those habitats, but must have regard to "the distribution and condition" of "similar habitats". This information is only in regard to the occurrence of regional habitats for threatened flora species. It should be noted that the NPWS provided no comments with regard to Chapter 9 of the SIS, in relation to the habitat of relevant species or populations for the Proposal.
33j	Interest group	Section 10.1.1 Location, Nature and Extent of Impacts. Contrary to statements made in SIS, habitat resources for threatened species do not occur widely throughout the area. The	Given the widespread distribution and identification of threatened flora species throughout the study area during the extensive field investigations, it is clear that

5.3.2 Flora and fauna			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		information on distribution indicates that most of these species occur only as small relict populations and only in the lower Brunswick and Tweed Valley where development pressures are greatest. These are very important areas.	"habitat and resources for threatened species, especially threatened flora" do actually occur "widely throughout the area". The SIS does not suggest that there will be no significant impact because of the widespread distribution of potentially suitable habitat for given threatened flora species.
33k	Interest group	Section 10.1.1 Location, Nature and Extent of Impacts. Page 76 states that threatened flora recorded on the route are dependent on rainforest, whereas the information in the SIS indicates these species are dependent more on Brush Box forest.	The information in the SIS indicates the threatened flora species "are dependent primarily on rainforest vegetation for suitable habitat".
33l	Interest group	CONOS does not agree with the assertion on p 77 that the projected 'removal or modification of habitat' for the Highway upgrade will be minimal. An extensive area of habitat will be cleared with edge effects extending further into habitats. This land represents habitat for eight threatened plant species, six of which will loose a significant part of their local population.	Approximately 7ha of native vegetated land and 20ha of cleared/ disturbed land will be affected by the Proposal. These areas are made up of a range of vegetation communities. In most instances, only a portion of the vegetation communities will be removed. Conversely, in most instances, there are substantial areas of these vegetation communities outside the road reserve. Refer to section 6.7 and Appendix 9 for the SIS Addendum Report Supplementary Information.
33m	Interest group	Section 10.1.1 Location, Nature and Extent of Impacts. Contrary to the statement on page 77, some of the habitat to be removed is of high quality and in a natural condition. Eg., the Box Brush community in Smoky Valley.	The SIS states that 'none of the areas to be cleared for the Proposal are in an undisturbed or natural condition...' on the basis that most of the alignment has been affected to various extents by the existing Pacific Highway and by other activities in the area. While the vegetation in Smoky Valley contains relatively high quality habitat in places (particularly at some distance from the existing Highway), it has been disturbed by previous clearing and by weed invasion from the Highway. As such, none of the areas to be cleared are considered to be in an undisturbed or natural condition.
33n	Interest group	Section 10.1.2 Potential Impacts – The potential impact of the Brunswick Heads-Yelgun section is assessed as 'extremely small' and 'not regarded of particular concern' without justification. These assertions are not consistent with the large number of threatened flora species affected by the Proposal.	Comments in the SIS in section 10.1.2 regarding the assessment of potential impacts as "extremely small" and "not regarded of particular concern" relate to threatened fauna species, not to threatened flora species.
33o	Interest group	Section 10.1.2 Potential Impacts – Ameliorative measures are described in a single paragraph with no further detail about 'when, where and how many'. In the case	Considerable detail on impact amelioration measures and environmental management measures for the proposed Brunswick Heads to Yelgun project are contained within

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		where significant impact on threatened species such as Davidson's Plum, Crystal Creek Walnut, detailed ameliorative measures should be given.	Chapter 12 (pg 89 –97) of the SIS and in Chapter 12 (pg 12-16) of the SIS Addendum Report. (See section 6.6 and Appendix 8 of this Report for further detail).
33p	Interest group	Section 10.1.3 Threatening Processes- Threatened species such as the Osprey and Koala were not mentioned in the Brunswick Heads Duplication section, though recorded by NPWS. The development that follows Highway construction is a real threat to already threatened species. The 'big picture' has not been seriously considered. It is to be noted that most habitat is along the existing Pacific Highway road corridor and reinforces the importance of compensatory habitat.	Species including the Osprey and Koala have been discussed widely in the SIS and Working Paper No. 7 Flora and Fauna Assessment, with further detail being provided in the SIS addendum report. Compensatory habitat has included areas suitable for many threatened and regionally significant species, including the Koala. (See section 6.6 and Appendix 8 of this Report for further detail on the SIS and Section 6.5 and Appendix 7 for further detail on Compensatory Habitat).
33q	Interest group	Contrary to section 10.2, there is no discussion of the 'relative significance of the subject site for the subject species' either in ch 6 or Appendix E in response to 2.2 of the D-G's requirements. The intent of 2.2 is a discussion of the site relative to its local context. While there is discussion in 10.2.3, this claims no significant impact on the grounds of plant communities and habitats being widespread. CONOS regards the relative significance of the site for threatened species to be relatively high given the i) grouping of 8 threatened flora species, ii) the large area of habitat, iii) viable reproducing species exist and iv) significant number of individuals are involved. The SIS gives no reason for its claim that the significance of this area is relatively low.	Consideration of the "relative significance of the subject site for subject species" is detailed in Chapters 7 and 8 of the SIS, as well as in Appendix E of the SIS. Brunswick River to Coolamon Scenic Drive does form part of the subject site and the SIS does not claim that this area is not of conservation "significance" or value. In fact, the proposed Highway upgrade has been designed and located precisely to minimise the impacts upon areas of habitat and threatened biota in this locality. With respect to the comments regarding the relative significance of the site: • the eight threatened flora species will remain following the completion of the road construction activities • the area of habitat to be removed of affected by the proposed road works is relatively small compared to other habitat in the vicinity, and work will be carried out to enhance and rehabilitate existing disturbed or modified habitat for these threatened flora species • viable reproducing populations of threatened flora species will remain in the vicinity and their long-term survival will be enhanced by the rehabilitation and environmental management measures proposed as part of the road works. While significant numbers of individuals are involved in the general study area, the Road has been carefully designed to minimise the number of individuals which will require removal. In no instance will a significant number of individuals of any threatened flora

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			species be removed.
33r	Interest group	The Brunswick River catchment is an area of high sensitivity. It is unfortunate that consultants with local knowledge and understanding of this area were not engaged to undertake flora and fauna assessments. This is why other suggestions such as upgrading the existing Highway, were made.	Fauna and flora investigations were undertaken by consultants with local knowledge of the area. Gunninah Environmental Consultants and its subconsultants have considerable local knowledge from experience in the area. Where necessary others with additional "local knowledge" were contacted for information during the flora and fauna assessment process.
33s	Interest group	11.3 – ESD Ameliorative measures- It does not appear to be possible to ameliorate the impact of the Proposal by locating it along a route that does not entail significant clearing and disturbance of threatened species habitat. In this situation, the proposed ameliorative measures required by s 110(2)(I) of the TSC Act and D-G requirements are crucial. CONOS considers the chapter on ameliorative measures to be inadequate and to fail the D-G's requirements.	The preferred route was selected because it was able to minimise the amount of land and habitat required for the works. The Proposal will affect 7ha of native vegetated land and 20ha of cleared/ disturbed land which is not regarded to entail 'significant clearing'. It will also provide up to 140ha (approx) of compensatory habitat package of land that will be incorporated into adjoining nature reserves. The NPWS representation and additional correspondence asked for clarification on certain points including D-G's requirements, and this was addressed in the SIS Addendum Report and the SIS Addendum Supplementary Information. NPWS otherwise expressed its satisfaction that the D-G's requirements had been met. (See Section 6.6-6.7 and Appendices 8, 9 and 14 of this Report).
33zb	Interest group	Summation of SIS – The consultant has relied on a desk-top study. The SIS is inadequate and had not adequately addressed the D-G's requirements. CONOS recommends that further on ground field assessment be undertaken.	Extensive flora and fauna surveys, trapping, spotlighting and other observations were undertaken over a period of 32 days in the preparation of the SIS and the document is considered to meet the D-G's requirements in this regard. Further details regarding the methodology are provided in Appendix D to the SIS.
34a	NPWS	The document(s) provide considerable detail regarding the nature and impacts of the Proposal. The report is well structured and NPWS complements the authors for clarity with regard to compliance with the D-Gs requirements for an SIS. In particular, the section on compliance with the DGRs was most helpful with assessment of the adequacy of the SIS.	Noted
34b	NPWS	SIS section 3.1.2. The national conservation significance of individual plant species should be assessed using the *Commonwealth Endangered Species Protection Act 1992*. Hagar and Benson (1994) and Griffith (1993) cannot be used to assess the conservation	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).

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		significance of individual plant species as they deal with plant communities.	
34c	NPWS	SIS section 3.1.2. Hagar and Benson is not the most comprehensive study of the conservation status of plant communities in north east NSW, as stated in the SIS. The most current comprehensive data is provided by Resource and Conservation Assessment Council (1996) which assesses how reservation targets of plant communities are met.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34d	NPWS	SIS section 3.1.2. The vegetation maps provided are well presented and clear. It would have been useful however, to provide some further detail with regard to habitat quality of the vegetation units, perhaps by dividing the vegetation units into sub-units on the basis of condition – eg combining vegetation community maps with the vegetation condition maps in App 7 of WP 10.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34e	NPWS	SIS section 3.1.3. NPWS would appreciate information as to suitability of the persons who undertook the hair tube analysis as this is a highly specialised skill.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34f	NPWS	SIS section 3.1.3. NPWS does not consider that the limitations of the noise triggered mode of Anabat detection is 'offset by the use of hair traps' as hair trapping targets a different range of species (low flying).	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34g	NPWS	SIS section 3.2. Cryptic amphibians such as the Green-thighed Frog should be added to the groups of species which may be particularly affected by seasonal and climatic conditions as it is generally on detected shortly after heavy rainfall.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34h	NPWS	SIS section 3.2. The SIS states that information from previous surveys has been included in the SIS investigations. This information seems to have been included in the initial discussions of the SIS. Some species such as the Long-nosed Potaroo and Eastern Grass Owl are not further assessed or potential impacts mitigated.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34i	NPWS	SIS section 3.3. NPWS has provided the consultants with more recent predictive distribution maps for the study area which are better suited to local-scale environmental assessment. These should be used to identify suitable habitat for threatened species.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).
34j	NPWS	SIS 3.3. Table 3.1 summarised survey methods. Many entail 'habitat assessment', though what this entails is not described. It is also not clear why habitat assessment is not undertaken for all species.	Please see section 3 of the SIS Addendum Report (Appendix 8 of this Report).

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34k	NPWS	SIS section 4.3.1. Some discussion of the significance and conservation status of the vegetation communities described would be useful.	Please see section 4 of the SIS Addendum Report (Appendix 8 of this Report).
34l	NPWS	SIS section 4.3.2. Page 23 notes that small creeklines have been affected by the construction of the Brunswick Heads Bypass. In what ways have they been affected?	Please see section 4 of the SIS Addendum Report (Appendix 8 of this Report).
34m	NPWS	SIS section 4.3.2. It would be helpful if the potential corridor described on page 23 was depicted on a map and additional detail was provided regarding the potential use of this area by threatened species that have been recorded nearby.	Please see section 4 of the SIS Addendum Report (Appendix 8 of this Report).
34n	NPWS	SIS section 4.5. All potential corridors discussed in the SIS need to be depicted on a map.	Please see Attachment B of the SIS Addendum Report (Appendix 8 of this Report).
34o	NPWS	SIS section 4.5. The wooded ridge near Coolamon Scenic Drive has been identified as a fauna 'blackspot' What mitigation measures are proposed?	Please see section 4 of the SIS Addendum Report (Appendix 8 of this Report).
34p	NPWS	SIS section 4.5. The corridor south of Dirty Flat Road may potentially provide a link to Billinudgel Nature Reserve. It is worth investigating any potential revegetation work that may be possible in this area to strengthen this corridor, and the corridor along Marshall's Creek.	Please see section 4 of the SIS Addendum Report (Appendix 8 of this Report).
34q	NPWS	SIS section 4.5. No detail is provided as to what constitutes 'improved opportunities for fauna movements by the provision of improved and better designed bridges'.	Please see section 4 of the SIS Addendum Report (Appendix 8 of this Report).
34r	NPWS	SIS section 4.5. No detail is provided as to the location of 'dedicated fauna underpass structures'. NPWS requests the location and dimension of these structures.	Please see Attachment C of the SIS Addendum Report as well as the SIS Addendum Supplementary Information (Sections 6.6, 6.7 and Appendices 8 and 9 of this Report).
34s	NPWS	SIS section 5.1. In addition to the threatened species detected during the SIS surveys, fauna species should be included that were recorded in the Brunswick Heads Bypass Investigations, and those species that have predicted habitat present in the area.	Please see section 5 of the SIS Addendum Report (Appendix 8 of this Report).
34t	NPWS	SIS section 5.1.1. The SIS states that eight threatened species were recorded during investigations, however only 5 have been mapped on Figure 6. In addition, the species recorded during the Brunswick Heads Bypass Investigation should be on this map.	Please see section 5 and Attachment D of the SIS Addendum Report (Appendix 8 of this Report).
34u	NPWS	SIS section 5.1.1. The SIS states that a Squirrel Glider was recorded on the eastern side of the existing Bypass, but Figure 6 shows the west.	Please see section 5 and Attachment D of the SIS Addendum Report (Appendix 8 of this Report).
34v	NPWS	SIS section 5.1.1. The SIS states that the Squirrel Glider is not likely to be dependent	Please see section 5 of the SIS Addendum Report (Appendix 8 of this Report).

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		on resources immediately adjacent to the Bypass. This may be the case, but it is important to state that increased barrier effects through the widened carriageway may have a significant effect on the foraging and ranging habits of the species.	
34w	NPWS	SIS section 5.1.1. No mention is made of whether any potential roost trees were identified for the Eastern Long-eared Bat.	Please see section 5 of the SIS Addendum Report (Appendix 8 of this Report).
34x	NPWS	SIS section 5.1.2. The SIS should make reference to threatened species recorded during the Bypass surveys and an assessment undertaken of the likely impact of these species. While the SIS states that the area provides suitable habitat and resources for all of these species, it does not discuss why none of these species 'are likely to be adversely affected...'.	Please see section 5 and Attachment E of the SIS Addendum Report (Appendix 8 of this Report).
34y	NPWS	SIS section 5.2. Scented Acronychia was not included on Figure 7, although a stand of this species was recorded for the Brunswick Heads Bypass. This comment also applies to sections 6 and 7 of the SIS, and NPWS considers that the potential impact of this species should be assessed more fully.	Please see section 5 and Attachment F of the SIS Addendum Report (Appendix 8 of this Report).
34z	NPWS	SIS section 6. The consultant provides a lengthy discussion on the perceived anomalies in the DGRs. The list was provided as a framework for field survey and to ensure that potential impacts are adequately addressed.	Please see section 6 of the SIS Addendum Report (Appendix 8 of this Report).
34za	NPWS	SIS section 6. The SIS states that nine threatened species were identified, however, Table 5.2 lists only eight.	Please see section 6 of the SIS Addendum Report (Appendix 8 of this Report).
34zb	NPWS	SIS section 6. The SIS states that six of the nine threatened flora species recorded in the study area are likely to be affected. However, Figure 7 seems to indicate that eight threatened flora species are (likely to be affected). This comment also applies to section 10.1.	Please see section 6 and Attachment F of the SIS Addendum Report (Appendix 8 of this Report).
34zc	NPWS	SIS section 7.1. The SIS states that there is no specific or recognised conservation status on either a regional or local basis. This is not correct. Sheringham and Westaway (1995) provides some assessment of the regional conservation status of the plants of relevance.	Please see section 7 of the SIS Addendum Report (Appendix 8 of this Report).
34zd	NPWS	SIS section 7.1. Table 10.1 is very useful, but would benefit with a figure indicating the total area of vegetation communities in the area. As the heading for Table 10.1 says that 'up to 40% of each community will be retained within the corridor', are the figures a total area to be cleared or the total (which may not	Please see section 10 of the SIS Addendum Report (Appendix 8 of this Report).

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		be cleared) within the road corridor?	
34ze	NPWS	SIS section 7.1. The SIS states that 'no threatened flora species were recorded in those areas which are to be affected by the duplication of the Brunswick Heads Bypass'. No mention is made of the threatened plant Acronychia littoralis which was found in the initial Bypass surveys. This species needs to be addressed to determine the potential impacts of the duplication project.	Please see section 10 and Attachment E of the SIS Addendum Report (Appendix 8 of this Report).
34zf	NPWS	SIS section 7.1. The SIS discusses the s 5A assessment which concluded that the Proposal is not likely to impose a 'significant effect' on threatened fauna species. However, two species that were recorded on the initial Bypass surveys were not included – the Long-nosed Potaroo and Eastern Grass Owl. These species should be assessed.	Please see section 10 and Attachment E of the SIS Addendum Report (Appendix 8 of this Report).
34zg	NPWS	SIS section 7.1 NPWS agrees with the impact amelioration measures proposed on page 78 of the SIS. However, NPWS considers that the Proposal may have an impact on threatened fauna if appropriate measures are not implemented, which is not clearly stated in the SIS.	Please see section 10 of the SIS Addendum Report (Appendix 8 of this Report).
34zh	NPWS	SIS section 10.2.1. The integrity to home range should be considered when discussing the mobility and ranging behaviour of threatened fauna.	Please see section 10 of the SIS Addendum Report (Appendix 8 of this Report).
34zi	NPWS	SIS section 10.2.1. Although the SIS states that it is not likely that any threatened fauna species would be restricted to or concentrated along this alignment, fragmentation and severance of habitat is a significant issue that should be discussed.	Please see section 10 of the SIS Addendum Report (Appendix 8 of this Report).
34zj	NPWS	SIS section 10.3. Neither of the fauna 'black spots' identified in the SIS have been located on a map and it is difficult to assess the adequacy of mitigation measures.	Please see section 10 and Attachment C of the SIS Addendum Report (Appendix 8 of this Report).
34zk	NPWS	SIS section 12.1. A map showing proposed mitigation measures would be helpful.	Please see section 12 and Attachment C of the SIS Addendum Report (Appendix 8 of this Report).
34zl	NPWS	SIS section 12.1.1. Guidelines should be developed for dealing with threatened flora and fauna, such as those developed for Bulahdelah to Coolongolook.	Please see section 12 of the SIS Addendum Report (Appendix 8 of this Report).
34zm	NPWS	SIS section 12.1.1. Stags or existing trees should be retained to allow gliding species to traverse the widened Highway.	Please see section 12 of the SIS Addendum Report (Appendix 8 of this Report).
34zq	NPWS	SIS Appendix F. Grevillea hilliana was recorded during the survey. While this is not a threatened species, it is very restricted and has been proposed for listing as endangered. NPWS considers that the potential impact of the construction works on this species should	Please see SIS Addendum Report (Appendix 8 of this Report).

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		be assessed.	
34zr	NPWS	SIS Appendix J. The environmental safeguards outlined do not have adequate detail to satisfy the requirements of the DGRs.	Please refer to SIS Addendum Report (see Appendix 8 of this Report).
34zs	NPWS	SIS Appendix J. Tables are provided in NPWS representation discussing compliance with DGRs. Partly complied with: DGRs 1.6, 1.11, 1.12, 3.2, 3.4, (Appendix 3 of DGRs technique nrs 1.1, 1.2, 1.3, 1.6, 1.8, 1.11(iv)(vi)). Not complied with: DGRs 3.3, 4.2, (Appendix 3 of DGRs technique nrs 1.10, 1.11(ii)(v), 3.1 (I)-(iv), 3.2).	Please refer to SIS Addendum Report (see Appendix 8 of this Report).
34zt	NPWS	EIS. Reference should be made to issues raised in the discussion of the SIS, as many of the issues are common.	Noted
34zx	NPWS	EIS section 12.2.1. The EIS states that four plant species of regional conservation significance were recorded within the proposed Bypass corridor, but does not state what these species are.	The four plant species of regional conservation significance, as determined by De Vries (1997) are discussed in detail in the Flora & Fauna Assessment report (Working Paper No 7 of the EIS). The four species are the Mangrove Fern *Acrostichum speciosum*, White's Tea-tree *Leptospurman whiteii*, *Cyperus haspan ssp juncoides* and the Burny Bean *Mucuna gigantea*
34zy	NPWS	EIS section 12.2.2. The EIS incorrectly states that 13 plant species of conservation significance were recorded along this section of the Proposal. 24 species were recorded, including 9 TSC Act listed species, 4 ROTAP species, and 11 species considered by DeVries (1997) to be of regional conservation significance. Consideration should also be given to significant plant species according to Sheringham and Westaway (1995) as DeVries (1997) is a draft document.	The 13 plant species "of conservation significance" discussed in section 12.2.2 of the EIS (and in greater detail in the Flora & Fauna Assessment Report and Species Impact Statement) include only those which are of state or national conservation significance. Section 12.2.2 of the EIS also notes that "11 plant species that are considered to have regional conservation significance (De Vries 1997) were also recorded in the study area, of which 4 will be affected by the proposal". Thus, section 12.2.2 of the EIS addresses the 24 species of conservation significance recorded
34zz	NPWS	EIS section 12.3.1. See comments for section 5.1.1 of the SIS survey.	Please refer to SIS Addendum Report (see Appendix 8 of this Report).
34zza	NPWS	EIS section 12.4.1. See comments for section 6 of the SIS survey.	Please refer to SIS Addendum Report (see Appendix 8 of this Report).
34zzb	NPWS	EIS section 12.4.2 See comments for section 5.1.1 of the SIS survey.	Please refer to SIS Addendum Report (see Appendix 8 of this Report).
34zzj	NPWS	Working Paper No 7. Some detail provided in this Report is not included in the SIS. This is unfortunate as it appears that this information clarifies some of the comments provided for the SIS: • Table 4.4 provides a summary of the conservation significance of and direct impact to plants recorded along the proposed route and would have been	Noted

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		useful in the SIS. • section 5.1.2 provides useful discussion on the likely occurrence of threatened species recorded by Milledge and McKinley (1992) in the initial Bypass surveys, but not recorded in the current surveys. • Tables 5.1 and 5.2 provide a useful summary of the locations of threatened fauna recorded during field surveys.	
34zzk	NPWS	Working Paper No 7 section 4.2.2. DeVries (1997) is still a draft document. Sheringham and Westaway (1995) should also be used to assess the regional significance of plant species.	Sherringham and Westaway (1995) was referred to but DeVries was used in preference as it is a more recent document.
34zzl	NPWS	Working Paper No 7 section 4.2.3. Resource and Conservation Assessment Council (1996) should be used in addition to those consulted in the EIS to assess the regional conservation status of vegetation communities.	The RACAC (1996) report was used in addition to Hager & Benson (1994), Griffith (1993) and Floyd (1990) "to assess the regional conservation status of vegetation communities". See SIS Addendum Report - section 3.1.2 (Appendix 8 of this Report).
34zzm	NPWS	Working Paper No 7 section 4.3.2. It is stated that 3 specimens of Grevillea hilliana were recorded along route A2, however, it is not clear if these specimens will be directly impacted. As this species is proposed for listing on the TSC Act, it is important to determine the precise location of these specimens.	Whilst 3 individual *Grevillea hilliana* trees may require removal from the road alignment near Rajah Road, there are more than 15 individuals contained within the Brunswick Heads Nature Reserve which are to be retained. Consequently, it has been concluded that "the proposed roadworks will impose only a minimal impact upon this species". Please refer to SIS Addendum Report (see section 6.6 and Appendix 8 of this Report).
34zzn	NPWS	Working Paper No 7 Appendix 9. An 8 Part test should have been conducted for three threatened species previously recorded along the Bypass route, namely *Acronychia littoralis*, Eastern Grass Owl and Long-nose Potaroo.	8 Part tests were undertaken for these 3 species subsequent to the EIS exhibition. The conclusion of these tests were that the Proposal will not have a significant effect on these species, and that an SIS was not required. Refer to SIS Addendum Report in Appendix 8 of this Report for additional information.
34zzo	NPWS	Working Paper No 7 section 3.2.11. NPWS does not agree with the conclusion that the proposed duplication is not likely to significantly increase the barrier effect for the Squirrel Glider. Additional widening is likely to significantly reduce the likelihood of it being able to glide across the Highway. Also, due to the increased distance across the Highway, habitat may become 'isolated from currently interconnecting or proximate areas of habitat', contrary to the statement in this section.	The RTA will provide glider poles and retain trees at appropriate locations to be determined in consultation with NPWS. Please refer to sections 6.6, 6.7 and Appendices 8 and 9 of this Report for additional information relating to Squirrel Gliders.
35c	Interest group	The' alternative proposal' is more environmentally acceptable than A2 for the	Those portions of the Brunswick Heads Nature Reserve which are to be affected by

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		following reasons: • SIS states that 25 Davidsonia puriens would be removed along with 37 individuals of 5 other endangered or vunerable species. This impact would be far greater than the alternative route. • The SEPP 14 Wetland would not be affected by the alternative proposal. • The Brunswick Heads Nature Reserve would not be affected by the alternative proposal. The EIS plays down the value of the area that will be destroyed by Route A2 and makes no mention of the fact that a magnificent walking track will be destroyed. • The perception that keeping the Highway corridor within the current one is better environmentally does not have the support it used to as it just widens to wildlife 'killing zone'. The alternative route is confined to open cleared land, and is better for wildlife movement.	the A2 (preferred) option for the Brunswick Heads to Yelgun project are already modified and degraded, having been disturbed by existing residential development, roadworks and unsupervised human access. Considerable attention has been paid to the design and location of the Road in this locality, specifically to minimise the potential for adverse impacts upon the Nature Reserve. In addition, the proposed roadworks will involve rehabilitation of areas of the Nature Reserve and of natural vegetation which are currently in a degraded condition. The proposed roadworks in the vicinity of the Brunswick Heads Nature Reserve will not involve the destruction of a "magnificent walking track". The alternative proposal (Route J) was not considered a viable option due to the environmental, geotechnical and engineering constraints it presented (see section 6.4 and Appendix 6 of this Report).
38c	Interest group	The Brunswick Heads Village Committee would like to be included in any negotiation on compensatory habitat and requests maps of areas proposed.	Compensatory habitat will be negotiated directly with state and local government agencies. The Brunswick Heads Village Committee will not be included in these negotiations.
39c	Comm gov	The decision to locate the new route as close as possible to the existing Highway should minimise disturbance to relatively intact native vegetation and eliminate the formation of another major barrier to fauna movement.	Acknowledged; as per EIS.
39l	Comm gov	It is noted that a total of 8 species of migratory birds listed under the JAMBA and CAMBA agreements were recorded in the study area. Environment Australia accepts the view that there will be no significant impact on the species or habitats provided that all measures to control pollution, sediment and erosion and site rehabilitation are carried out.	All measures outlined in the EIS to control sediment, erosion and site rehabilitation will be included in the EMP for the Project and implemented.
41b	Indiv	The bridge structure and its impacts on the surrounding wetland is unnecessary and could be overcome by siting a 4 lane bridge for local traffic. Suggestion is attached for improving the area and reducing roadworks. Local residents benefit by these changes.	The bridge was designed to minimise impacts to the wetland, separate local and through traffic and to allow pedestrian and cycle access both across and under it. This can be readily integrated into existing access from the Ferry Reserve Caravan Park and Riverside Drive area. It has been recommended in the EIS that a master plan for this area be developed in consultation with Byron Council, the community and other relevant agencies.

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			The proposed route also avoids impact to the Caravan Park. Re-siting the Caravan Park in the area suggested (on the map attached to the representation) would not be desirable due to impacts to mangrove vegetation on the site. The design of proposed southern interchange, and the entire Proposal, is constrained by design criteria such as road geometry, road cross-section and drainage. Both interchanges have been designed to allow for all traffic movements, are grade separated and maintain the separation of through and local traffic. The one roundabout, interchange proposed in the submission would not meet these engineering standards or safety requirements. Further detail on the design of the Proposal is contained in Working Paper No. 2, Road Concept Design.
45c	Interest group	NRMA supports the RTA's plans to develop fauna underpasses, overpasses and exclusion fencing, but is unsure as to their effectiveness. It suggests that regular post construction audits should be undertaken. These audits should include performance indicators such as the number of injured animals.	Fauna underpasses and exclusion fences are standard fauna protection treatments for many current road projects. A monitoring program will be implemented for the Brunswick Heads Bypass to assess the effectiveness of fauna protection measures. During construction phase liaison with the NPWS, Wires and other wildlife carer groups will be maintained to deal with individual animals.

Rep. Nr = Representation Number. See Appendix 2 for individual Representations Summary Sheets
Who by? = Representation type. Indiv = Individual
Interest group = Interest group
Busin = Business
Council = Council
Comm gov = Commonwealth government

5.3.3 Noise and Vibration

5.3.3 Noise and vibration			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06g, 31c; 32c; 31h; 32h; 32k	Indiv	• Is concerned about noise attenuation during construction. • The expected noise levels during construction are unacceptable. Predicted construction noise levels would exceed EPA guidelines at the closest residences along the whole alignment. • 32c as per 31c • The conclusion on page 34 of working paper 3 fails to acknowledge construction disturbances or that the 'local road' will become the Highway during that period. • Property owner currently studying for a Masters in Health Management. A disruption to family life and noise will limit her ability to achieve this goal. • 32k as per 31c.	A supplementary noise report was undertaken after the exhibition of the EIS to augment the information on construction noise and to recommend mitigation measures. The report concluded that construction noise (for the whole of the route) would be generated for at least 6-9 months and that construction noise would be clearly audible and at times disruptive. The RTA will provide the following mitigation measures for noise during construction, many of which will also provide permanent noise controls: • A solid barrier of between 2m and 2.5 m will be provided between Rajah Road and Oba Place. • The RTA will offer and provide noise mitigation in the form of mechanical ventilation/ air conditioning at residences overlooking the road which would not benefit by the barrier (see section 6.10 for residence locations proposed for treatment). • Individual treatment will also be required at other locations. These treatments would be subject to negotiations between affected residents and the RTA (see section 6.10 for locations proposed for treatment). See section 6.10 and Appendix 12 of this Report for further detail on the proposed management of Construction Noise.
06h	Indiv	Adequate notice should be given of explosions to avoid cattle stampeding.	The Community consultation Program will be an important part of this Strategy. For events such as blasting adequate notice will be given to affected residents so preparations, such as containing cattle, can be made.
09e	Indiv	There is a real likelihood of extra noise emanating to the property, together with vibration and fumes.	Although the new alignment is closer to the premises, the improved gradient and road surface results in only a small increase in noise levels in the vicinity of the property. Similarly, vibration will be improved due to the improved road surface and gradient. The potential for impacts from car emissions

5.3.3 Noise and vibration			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			has been addressed in the EIS. It was found that carbon monoxide, lead, nitrogen dioxide and benzene levels will not exceed EPA guidelines for present and projected traffic levels. Post-construction noise monitoring will be undertaken at representative sites to ensure that noise goals are met. The RTA will also undertaken to offer assistance to landowners adjacent to the Proposal by providing tubestock and other plant stock to be used for screening residences. While it is recognised that plantings do not have a physical impact on noise levels, they can have a benefit in terms of residential amenity. More information on vehicle emissions is contained in Working Paper No. 4, Air Quality Assessment.
12b	Indiv	The noise factor during the building of the section from Orana Road to Billinudgel is also of concern to me as this is just on the other side of the railway and will only add to the ever increasing highway noise level unless preventative measures are taken.	An Environmental Management Plan (EMP) will be produced prior to construction. This will include a Noise Management Plan that will be reviewed by the EPA. The Noise Management Plan will identify the potential noise impact at all affected residences and nominate methods to mitigate noise. Please see section 6.10 and Appendix 12 of this Report for further information.
13f	Interest group	The EIS states that residents overwhelmingly voted no to noise barriers and the decision (not to install any) was due to extensive community consultation. I hereby state that I have not been consulted on this or any other option. WHY?	The EIS does not state that residents "...voted no to noise barriers being constructed". The RTA will provide noise barriers or other noise mitigation measures as practical, appropriate and cost effective. In the Ocean Shores area, noise mitigation will take the form of a noise barrier and/ or individual treatments to residences as appropriate (refer to section 6.10 and Appendix 12 of this Report). The final details of the mitigation measures will be determined in consultation with property owners. See section 6.10 and Appendix 12 of this Report for further detail on noise impacts, including construction noise, and mitigation measures.
13g	Interest group	Why has a noise wall been constructed at Ferry Reserve Camping Ground? There are still only two lanes bordering this small village as has always been the case.	Since the preparation of the EIS, an extensive temporary barrier scheme has been constructed around the Ferry Reserve Caravan Park as a result of the noise impact from the Brunswick Heads Bypass. This temporary barrier will provide significant noise

5.3.3 Noise and vibration			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			reduction during the construction phase.
13j	Interest group	Greatest concern is the proposed blasting away of the Brunswick Heads Nature Reserve and the damage it will cause to my building and its foundation – which would lead to the building being condemned. What happens then? Who pays compensation?	The geotechnical investigations indicate that the subsurface conditions in the area of this property are extremely low to very low strength argillite. Blasting is not expected in this area as this material is soft and should be easily removed by other mechanical means. Working Paper No.8, Geotechnical Assessment contains more information on the geology of the area and information on where blasting is most to occur.
15b	Indiv	Had been led to believe that noise would decrease as a result of the Proposal. Surprised to learn that it would increase and no mitigation measures are proposed. Already severely affected by road noise – currently need to close all window and doors. Have spent a lot of money creating an outdoor living area on the side of the house away from the Highway. House will also be affected by noise during construction. Noise mitigation measures such as earth banks and walls need to be implemented as soon as possible in the construction stage and maintained permanently.	This property is not located within the Ocean Shores area and noise levels are likely to exceed EPA guidelines both during construction and operation. The request for earth banks and noise barriers has been considered as part of the post-EIS investigations. However, since only one residence is affected at this location, it would not be cost effective to provide noise control in the form of a barrier at the roadside. The RTA proposes treatment to the residence in the form of mechanical ventilation/air conditioning or localised barriers. This will be subject to negotiation with the property owner. See section 6.10 and Appendix 12 of this Report for further detail on proposed mitigation measures.
16a	Indiv	In the past have suffered from increasing noise levels. Would like to make sure that southern Stock Route will be included in noise monitoring, as the prospect of further noise increases is not a happy one.	The RTA will conduct noise monitoring after the Proposal is open to traffic. At least one site relevant to the Southern Stock Route Road area will be included in this monitoring programme. Although changes in noise level in this area are predicted to be small, and within EPA guidelines, this monitoring programme is to confirm the predicted results.
22f	Interest group	Issues not covered by the EIS are the impacts on oysters cause by concussion (blasting and piledriving). More information is required on both bridge construction methods and the effects of concussion on oysters.	Further investigations were carried out into the potential effects of piledriving on oysters. No information could be found on this subject however it is known that direct blow to an oyster causes a break in filter feeding. Pile driving activities will only take place over approximately an eight week period and oyster growers will be notified well in advance of the construction schedule to make any alterations to their operations as thought necessary. See sections 6.1 and 6.2 and Appendices 3 and 4 of this Report for further detail on both works in the Brunswick River and potential

5.3.3 Noise and vibration			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			impacts to oysters.
23q; 23zc	Indiv	• Noise levels in Ocean Shores would increase, and noise reduction measures such as the RTA has already erected are visually intrusive and ecologically suspect. Safety issues presented to pedestrians and cyclists by these 'walls' have not been addressed thoroughly by the RTA either. • Noise should be kept further from dense residential areas, especially in the construction and earthworks stage.	Noise levels at the vast majority of residences within Ocean Shores will reduce significantly. At other residences close to the proposed highway (allowing for noise control) noise levels are predicted to reduce. At a few residences noise levels will increase marginally but remain below the EPA guideline levels. The design of noise attenuation barriers will ensure that road user safety is not compromised. See section 6.10 and Appendix 12 of this Report for further detail on noise issues.
31a; 32a	Indiv	• The EIS working paper no 3 uses assumptions adopted so as to comply with the EPA's upper permissible dBA limits. Page 15 assumes that the proposed section of highway would be considered 'redevelopment of an existing road' in terms of noise criteria. The construction proposed should be classified as 'new road' and should use the lower noise criteria. • 32a as per 31a	The classification of the Proposal in terms of its potential noise impact as a "new road" or "realigned road" was based on the likely change in noise impact at various residences rather than the simple physical location of the highway. On this basis the classification as a "realigned highway" is most appropriate. Irrespective of this classification, noise levels are predicted to be lower at this residence as a result of the Proposal therefore EPA limits will be achieved.
31b; 32b	Indiv	• The guidelines provide that a 'new road should be designed so as not to increase existing noise levels more than 0.5dBA'. Should the EIS have applied the 'new road' guidelines required by the EPA, the conclusions supported by figure 5.6 would not be achieved, even with proposed mitigation. • 32b as per 31b.	The information in Table 5-6 of the EIS which stated that levels of 59-62 dBA would be achieved with mitigation, relates to the maximum (La max) noise levels from heavy vehicle passbys. This should not be confused with the EPA criteria which are either Laeq,15hr or Laeq,9hr noise levels.
32e	Indiv	Noise impact further compounded by fact that occupants are registered nurses who work shifts and need to sleep in the morning.	The RTA has noted the need to provide noise amelioration suitable for shift-workers. These special conditions will be dealt with as part of the negotiations between the RTA and residents.
32f	Indiv	The couple also have a son with Aspberger's Syndrome. This syndrome requires a rigid routine and quiet environment – any changes must be planned, discussed and implemented gradually. The construction period will be unmanageable by him. He will not be able to play outside (part of his routine) because of the noise. He will become unmanageable due to noise, stress, and anxiety due to lack of sleep. Mr Al-Manro suffers from injuries sustained during the Vietnam war (including Post Traumatic Stress Reaction). The Proposal will undoubtedly severely aggravate his condition.	The RTA has noted the special requirements to be considered at this residence due to the child's medical condition. These special requirements will be dealt with as part of the negotiations between the RTA and residents.

5.3.3 Noise and vibration

Rep. Nr*	Who by?*	Issue	RTA Response
45d	Interest group	It is indicated in the EIS that the RTA will use draft EPA noise guidelines to develop the noise design criteria for the Proposal. NRMA believes that these guidelines are likely to change, and that the RTA should liaise with EPA to ensure that the more up-to-date version of the guideline is utilised.	The EIS is based on current and appropriate EPA guidelines. No changes will be made following determination should these guidelines be revised.
45e	Interest group	The EIS also states that 'for places of worship, the EPA goal of 40dBA would be applied in the main area of the Church where services are held, rather than in ancillary spaces such as the church hall or offices.' NRMA believes that since all of these buildings are likely to be on the same premises and are likely to be used simultaneously, a suitable EPA goal should be applied in the building that is closest to the new road.	Noise mitigation has been proposed for the Christian Life Centre in the form of direct treatment to affected rooms closest to the new Highway. This may include treatment such as double glazing and air conditioning. Please see section 6.10 and Appendix 12 of this Report for further information on noise issues.
45q	Interest group	It is important that, where possible, noise impacts of increased traffic are effectively mitigated, particularly on properties where partial land acquisition is proposed.	Acknowledged. Please see section 6.10 and Appendix 12 of this Report for further information on noise mitigation measures during the construction and operational phases of the Road.
46b	Busin	The new road alignment is much closer to my restaurant, thereby increasing noise level.	Even though the new alignment will result in the northbound carriageway being closer to the premises, both carriageways will be surfaced with a quieter material than the existing chipseal surface. Overall, a slight reduction in noise levels of 1dBA, has been predicted at Road opening, due to a quieter surface. No adverse impact is therefore expected.

Rep. Nr = Representation Number. See Appendix 2 for individual Representations Summary Sheets
Who by? = Representation type. Indiv = Individual
Interest group = Interest group
Busin = Business
Council = Council
Comm gov = Commonwealth government

5.3.4 Access

5.3.4 Access			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
03a	Indiv	Is concerned that people from Pocket, Middle Pocket and Main Arm will use Stock Route Road to access the Highway rather than driving a circuitous route through Billinudgel. Considers that Stock Route Road is of poor alignment and dangerous for high speeds. Asks the RTA and Council to upgrade Stock Route Road in anticipation of this additional traffic. Considers that it would be negligent to leave the Road in its current condition.	It is likely that the longer term proposed land use development will lead to an increase in the traffic on this Road and the need for upgrading by Byron Council. The RTA will liase with Council to ensure that the required work as part of the Proposal will suit both short and long term needs.
06c	Indiv	Concerned regarding access – construction will take place over a long time period. Need to discuss the process in some detail. Asks for a new permanent access approximately 350 metres north of Shara Boulevard.	An alternative and permanent access will be provided in this general location. Details of design are to be finalised during the detailed design phase and in consultation with the landholder and business manager.
07c	DoT	Severance issues are inadequately addressed.	In regard to severance, the access criteria used was to provide access or grade separation for all local roads. For some local roads, the routes have been realigned, but access has been maintained. This is outlined in section 6 of the EIS – Description of the proposed activity. The bus operators, along with the DoT have the opportunity to comment on the access details during the current consultation phase. These issues will then be further considered during the detailed design stage should the project proceed.
08a	Indiv	The NPWS will need some sort of permanent access along the western boundary – firefighting is the most important issue. At the moment, access is available along the ridge line at ch 50200. The aerial photography reveals branch roads extending along other ridgelines to the east, north and south. Maybe public access is also important in terms of illicit crops. NPWS experience difficulty in gaining access via Ocean Shores and Jones Road for all sorts of reasons. Obviously the established ridge track offers the best prospects.	The area in question is a small strip of residual land between the proposed road corridor and the Billinudgel Nature Reserve. A decision on the use of this residual land will be made during the property acquisition phase of the project. Discussion with NPWS has been ongoing throughout the EIS process. Issues regarding access to NPWS land will be discussed directly between the RTA and NPWS.
09b	Indiv	As a result of the use of the premises, highway access is a matter of great priority. It is apparent from the proposed deviation that such access will be substantially reduced. A significant proportion of business comes from Ocean Shores. It appears that the effect of the upgrading of the Bypass will be to 'physically divorce' Ocean Shores from the premises.	Access will be maintained via an underpass and access road. The Proposal design will provide improved interconnection and integration with Ocean Shores when the 'barrier' caused by the current Highway is removed.
18a; 22a	NSW Fish.;	• NSW Fisheries is concerned that the issue of access for oyster farmers to the	Extensive and ongoing discussions have been held with the Brunswick River Oyster

5.3.4 Access			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
	Interest Group	boat ramp on the northern side of the Brunswick River has not yet been resolved. Despite the makeshift nature of their current access, a suitable alternative access route should be identified as a priority to avoid adverse impacts on the livelihood of oyster farmers. • The RTA must provide access for oyster farmers to moorings, and this provision must be a practical solution that does not add to the difficulty of farming. All costs in developing an alternative access must be met by the RTA. This is also a view shared by the NSW Farmers Association – Oyster Farmers.	Growers regarding suitable alternative access to mooring sites. At this stage a dedicated mooring site at the Brunswick Heads Boat Harbour is being investigated. In principle agreement to this arrangement has been given by Department of Land and Water Conservation (as the owners of the site) and by the Brunswick Heads Fishing Cooperative(as the current lessees of the site). Further discussions will be required to fully resolve this issue.
25b	Council	At the end of Brunswick Bridge, the Old Highway should be physically prevented from Northbound right turn movements into the Nature Reserve. Access can be made via the Rajah Road roundabout.	It is expected that traffic numbers on the local service road will be reduced after the opening of the proposed Highway and would not warrant physical prevention of right hand movements into the Nature Reserve.
25c	Council	Access to Ocean Shores Sewage Treatment Plant via underpass will need to provide sufficient clearance and width for heavy construction equipment eg cranes, concrete, and semi-trailer vehicles, for maintenance and possible augmentation of the Sewage Treatment Plant.	This underpass will have a standard 5.3m clearance, which will be sufficient for heavy vehicles.
25f	Council	Coolamon Scenic Drive underpass will need to provide for all vehicles. Minimum vertical clearance 5.5m. Width of underpass to cater for heavy vehicle turning movement and bicycle/ pedestrian separated pathway.	Clearance of 5.3m will be provided which will be cater for heavy vehicle movements. Bicycle/pedestrian access will be addressed, details of which will be provided at the detailed design stage.
34zu	NPWS	EIS section 6.9.4. Access into Brunswick Heads Nature Reserve on the north-east side of the bridge needs to be retained both during and post construction. The access should be low key, with minimal disturbance within and adjacent to the Nature Reserve.	Access will be available into the Brunswick Heads Nature Reserve at all times during construction. Some temporary arrangements may be required and there will need to be some controls on traffic turning into the Nature Reserve when construction activity is in the area. Details of this access will be resolved during the detailed design stage of the project. Final access into the Nature Reserve will be via an upgraded entrance. Alterations will include regrading of the access to meet the new road level. Disturbance in this area will be limited to the road footprint only as shown in the EIS and in more detail in Working Paper No. 2 Road Concept Design Report.
34zzf	NPWS	EIS section 14.4.2. When selecting access for oystergrowers, consideration should be given to the fact that the bridge is also intended to be a fauna underpass.	As the option of providing the Oyster Growers access to their current position on the north side of the Brunswick River west of the existing bridge has been discounted due to engineering and environmental constraints. Therefore the use of the proposed new bridge

5.3.4 Access			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			as a fauna underpass will not be compromised.
44c	NPWS	All reasonable steps should be made to provide suitable farm access and farm movement arrangements.	Existing access will be maintained where possible. Where existing access has been cut off an alternative arrangement will be offered generally in consultation with the landholder and the RTA.
46c	Busin	The EIS does not detail the Wilfred Street overpass or the amended principle entrance to my premises.	In the vicinity of Billinudgel the proposal will use the existing highway as the southbound carriageway, and a new northbound carriageway will be constructed parallel and to the west. The service road will be constructed to the east. Wilfred Street will connect to the service road with an overpass across the dual carriageway. There will be no need to acquire any of the Humble Pie Co. property. The Wilfred Street entrance to Humble Pie premises will need to be regraded to match the new level of Wilfred Street. The front entrance to the property will remain and is shown on Figure 6.1d of the EIS and can be seen more clearly and at a larger scale in Figure 5.6 of Working Paper No. 2, Road Concept Design Report.
46d	Busin	The EIS does not detail the amended traffic conditions during the construction of the overpass and for that matter the new Highway. I need to know how access to by business will be affected particularly in terms of time.	Traffic conditions during construction have been detailed in Working Papers No.1 and 2, Traffic Transport Assessment and Road Concept Design Report. The entire project is expected to take approximately 2.5 years to construct. A possible construction staging plan was developed and is outlined in Figures 6.1 to 6.3 of Working Paper No.2, Road Concept Design Report. It is important to note that the Contractor will not be bound to adhere to this plan. The following is a further description of these staging plans, with emphasis on how access to the Humble Pie property would be affected. Stage 1A (Figure 6.1) will take the bulk of the construction time as it is during this stage that most of the new highway will be built (shown green). During this time the traffic in the vicinity of Billinudgel will still use the existing highway and Wilfred Street will be open to traffic. The new northbound carriageway will be built between the existing road and Billinudgel. As construction traffic and haul trucks will use the new northbound carriageway to move up and down the route (highway), there will need to be controls on traffic turning into Wilfred Street from the

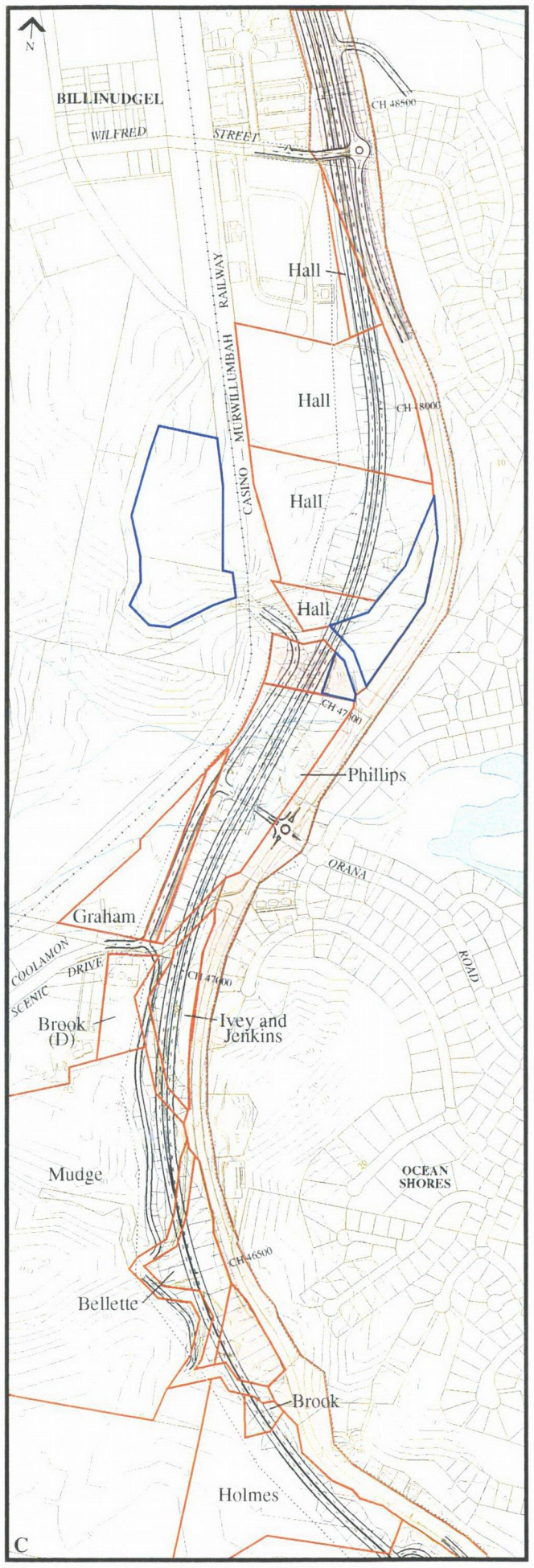
5.3.4 Access			
Rep. Nr*	Who by?*	Issue	RTA Response
			existing highway (shown red) and on construction traffic crossing Wilfred Street. This will most likely be in the form of staffed stop/go signs. Construction of the northbound carriageway in the vicinity of Billinudgel and Wilfred Street will be likely to take approximately 10-12 months though the northbound carriageway adjacent to Billinudgel will be in use by construction traffic for a considerably longer period. Stage 1B (Figure 6.2), shows (in green) the construction of the Wilfred Street overpass, adjustments to Wilfred Street and construction of the service road in the vicinity of Billinudgel. It is expected that construction of these works between Shara Boulevard and just south of Wilfred Street will take between 6 to 8 months. During this time a temporary access will be provided for traffic entering Billinudgel. This will be provided through an undeveloped block in the industrial area to the south (labelled). Access to the Humble Pie premises may be most appropriate through the rear entry off Mogo Place at this stage. This requires further discussion with the property owner and will be carried out during the detailed design phase. Stage 2 (Figure 6.3) works during this stage will include the regrading of Balemo Drive, which is expected to take 3-4 weeks. During this time highway traffic will still be using the northbound carriageway of the new highway (shown red). Access from the Pacific Highway to Humble Pie will effectively be unchanged during this stage, as access into Billinudgel will still be via the temporary access through the industrial estate. The Wilfred Street overpass may be opened to local traffic (that is traffic from Balemo Drive and Billinudgel). The main entrance to the shop will be reinstated off Wilfred Street (if not sooner) but traffic from the highway will have no direct access to Wilfred Street. With the opening of the dual carriageway, access to the Humble Pie property will only be available from the service road across the overpass into Wilfred Street. Through traffic will be able to access the service road at the interchange at Yelgun or the interchange south of the Brunswick River. It should be noted that construction times

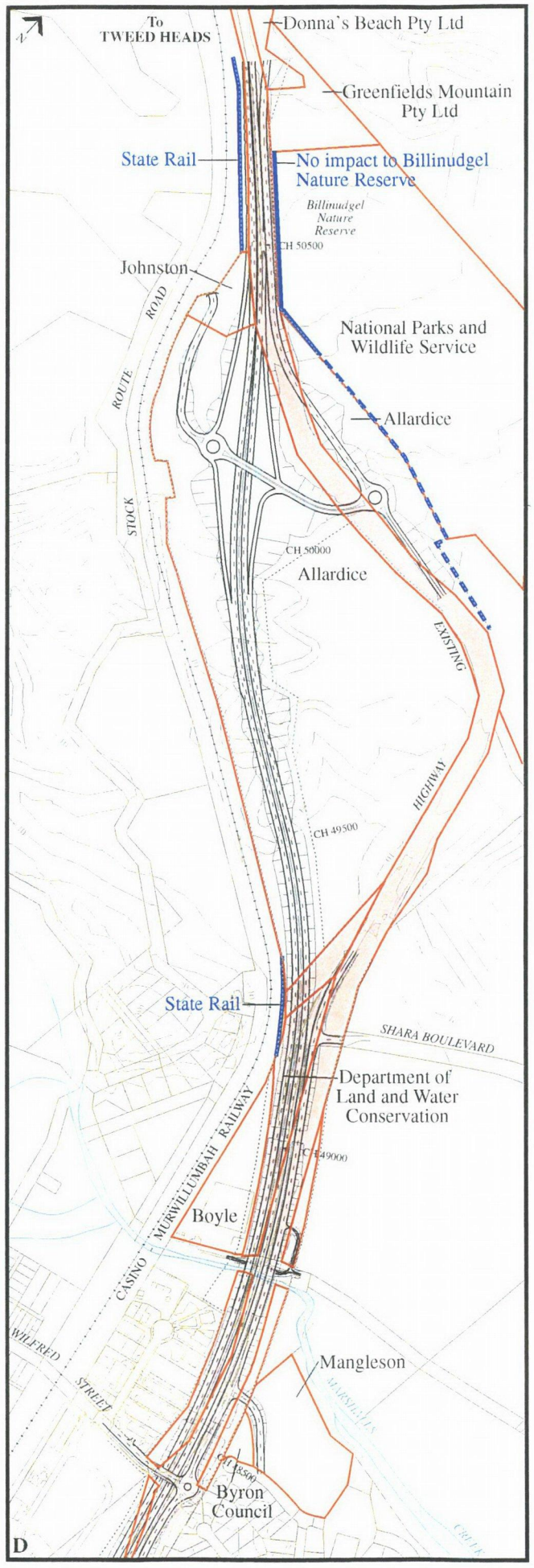
5.3.4 Access			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			given are approximate only. Delays due to bad weather and other unforeseen circumstances can cause interruptions to the construction schedule. This staging information is one possible scenario only. Depending on the contractors preference other schedules may be used, however which ever staging plan should be adopted, it will be at the RTA's direction that the temporary access into Billinudgel be in use for the minimum time possible and that new access be constructed and in use as soon as possible. As part of the conditions of the standard condition of contract all access must be maintained at all times.

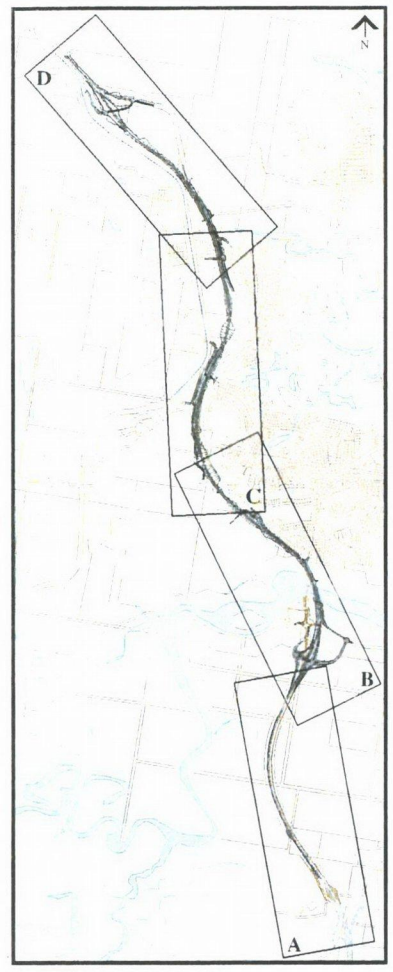
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5.3.5 Property Acquisition and Value

5.3.5 Property Acquisition and Value			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
09g	Indiv	Any resumption of the property should be a total resumption due to the potential adverse affects of the Road on the property.	Property acquisition will be negotiated between the landholder and the RTA during the detailed design phase. This will be done under the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*. The impact to the property is not considered sufficient to justify total acquisition.
10g	DLWC	Any Crown land directly impacted by the development will need to be purchased by RTA from the Department.	Acknowledged / agreed
11b	Busin	We found the EIS to be accurate and comprehensive in its content as far as our own properties are concerned, except for the omission of the westerly parts of two portions of our property shown on figure 14.3. However, the statement made in Table 14.1 states that 'total acquisition of the affected portion(s) is proposed'. We have no argument there.	It is acknowledged that the westerly section of these properties were not indicated in full on Figure 14.3 of the EIS. Figure 5-4 indicates the full boundaries of the land portions. The RTA is prepared to negotiate for the purchase of the entire property, however it should be noted that under the Land Acquisition (Just Terms Compensation) Act 1991, the RTA is only required to purchase property directly required for the Proposal.
13h	Interest group	Land value of residence has been devalued 20% due to Proposal. No one bothered to inform the body corporate or any other resident of Ocean Shores directly affected by the Proposal. The Proposal has turned developers and other home purchasers away. I believe there is a strong case for general compensation from the RTA for all affected landowners, not just SP 31475.	Mitigation measures, such as treatments to reduce noise and visual impacts, have been proposed to reduce any impact of the Proposal on directly and indirectly affected properties. The body corporate was not directly informed because the property will not be directly affected (that is, no acquisition is required). However, an extensive advertising and information program was undertaken by the RTA and the body corporate was given ample opportunity to comment and/ or speak directly with the Project Manager. The RTA is obliged to only acquire land that is required for the proposal. Furthermore, it may only compensate where land acquisition takes place. As no acquisition is required for this property, no compensation is proposed.
15c	Indiv	Our property will be significantly devalued without compensation, in spite of our determined efforts to deal with the noise problem.	Mitigation measures, such as treatments to reduce noise and visual impacts, have been proposed to reduce any impact of the Proposal on directly and indirectly affected properties. As mentioned above it is proposed to treat this residence directly to mitigate against noise.
23o	Indiv	The resumption of properties, especially houses, is very disruptive to the elderly and is entirely unnecessary.	The RTA is mindful that the resumption of properties is disruptive and one of the main foci of the route selection process is to







Property owned by the RTA

Proposed Road Corridor

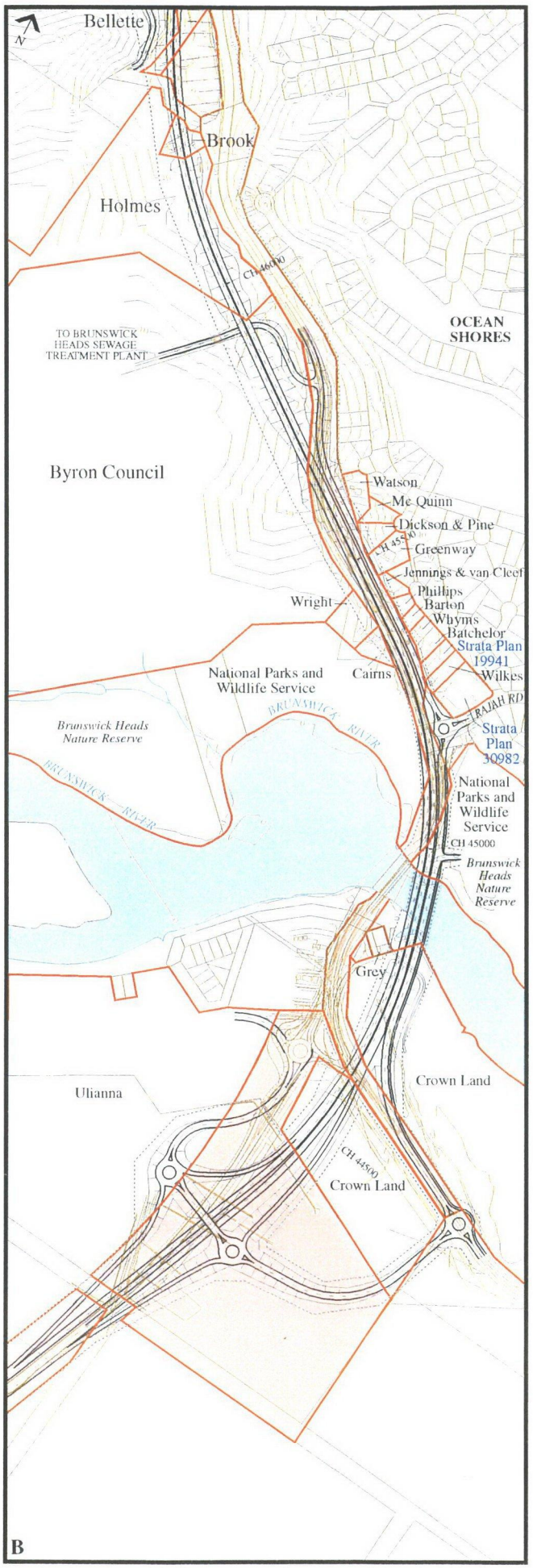
Amended Property Details

0 100 500m

Figure 5-4
REVISED PROPERTY DETAILS

SINCLAIR KNIGHT MERZ





0 100 500m

5.3.5 Property Acquisition and Value			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			minimising impacts to properties, in particular the acquisition of houses. Where full property acquisition is necessary, the RTA makes every effort to make the transition process as smooth as possible (for example, settling at a time to suit the landowner). Where partial acquisition is necessary, the RTA works closely with each landowner to reduce impacts and provide amelioration measures. A designated RTA representative (usually the Project Manager) is always available to discuss these issues and where possible, solutions suggested by the affected landowner are implemented.
23s	Indiv	People who bought in Ocean Shores did so believing that the Pacific Highway would follow the LEP corridor. The movement of the Highway into Ocean Shores has detracted from the value of those properties.	The RTA recognises the expectations generated by an LEP corridor. However, while an LEP corridor is always given consideration in a route selection process, particularly in terms of equity issues, the RTA is not obliged to follow an LEP corridor. In the case of the Brunswick Heads to Yelgun EIS, the LEP corridor was not selected because of its significant potential environmental impacts.
31g	Indiv	The impact of the Proposal on the property value shall be catastrophic, ranging from rendering it unsaleable during construction to near worthless on completion (due to): a) noise and impact, b) visual amenity and the destruction of trees abutting the property, c) environmental disturbance, d) reduction in size of holding due to partial resumption, and e) damage as a result of blasting and drilling.	The historical experience of the RTA is that the impact of a road on property values are less than the community fears and that properties will tend to hold their values. One of the reasons for this is that the RTA provides an extensive range of mitigation measures to minimise impacts to a property. These include: a) noise mitigation (before and during construction). b) landscaping and plantings. c) mitigation measures and controls to minimise environmental disturbance. d) Compensation for property acquisition. e) Condition surveys and monitoring where blasting is proposed (none is currently proposed for this Project). The Pacific Highway Upgrade will also provide positive impacts that have the potential to improve property values. These include improved access to Tweed Heads/ Brisbane, noise amelioration to houses currently affected by road noise, landscaping, improved river frontage/ recreation areas and the separation of local and through traffic. After opening the RTA will monitor the performance of these measures to ensure

5.3.5 Property Acquisition and Value			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			that they are functioning correctly, accord with predictions and whether any further action is required.
31i; 32l	Indiv	• Should the proposed duplication proceed, the only acceptable solution will be an acquisition by the RTA of the (whole) property at fair value. • 32i as per 31i.	The RTA is obliged to only acquire land required for the Project and does not propose total acquisition for this property. Mitigation measures, including noise amelioration will be offered to the landowners. Other aspects of the property acquisition will be negotiated directly between the landholder and the RTA in accordance with the Land Acquisition (Just Terms Compensation) Act 1991.
32g	Indiv	The loss of property value shall be devastating, particularly during construction as the property will be potentially unsaleable.	Various mitigation measures are described in the EIS to address potential air and noise emissions, visual impacts and other impacts on the biophysical environment. These measures incorporate best practice environmental management. A summary of environmental mitigation measures can be found in Table 17.1 of the EIS. After opening the RTA will monitor the performance of these measures to ensure that they are functioning correctly, accord with predictions and whether any further action is required.
35g	Interest group	31 properties will be directly affected by the preferred Proposal, with 10 properties totally acquired. This can be dramatically reduced by the alternative route. This route would affect only 14 properties, all of which would be affected by A2.	Property acquisition was one area within a broad range of issues considered during the route selection process. The 'alternative route' (J1/J2) referred to here was not favoured because of its significant potential environmental impacts in other areas, including effects to flora and fauna. For further information, refer to section 6.4 and Appendix 6 of this Report.
44b	NSW Ag.	NSW Agriculture recommends that property severance be kept to a minimum and where severance does occur, all attempts are made to combine smaller lots with neighbouring properties.	Where possible severed property will be rationalised to form consolidated lots.
46a	Busin	I can ill afford to spare the land which would be resumed.	There will be no acquisition of Humble Pie Co. property. Properties which will be directly affected by the proposal are listed in Table 14.1 and shown on Figure 14.3 of the EIS. There will need to be some regrading or alteration to the level of the main access driveway off Wilfred Street which will be higher than at present.

**Rep. Nr = Representation Number. See Appendix 2 for individual Representations Summary Sheets*

**Who by? = Representation type: Indiv = Individual*
Interest group = Interest group
Busin = Business
Council = Council
Comm gov = Commonwealth government

5.3.6 Environmental Management

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
01b	Busin	It is necessary to obtain Optus approval prior to any works being undertaken within the vicinity of its assets.	Necessary notifications and approvals from Optus will be made prior to any work being carried out.
05a	EPA	The working papers indicate that detailed Environmental Management Plans, erosion and sedimentation plans, surface water and spill management plans and acid sulfate soils management plans will be prepared in consultation with the EPA. The EPA will be a better position to review technical aspects and provide detailed advice during the preparation of these Plans.	The RTA will prepare a detailed Environmental Management Plan in consultation with the EPA prior to any construction.
05b	EPA	It is not clear if all wastewater will be fully treated before discharge into SEPP 14 or Coastal wetlands. These wetlands have significant environmental value and measures should be in place to ensure that wastewater is collected and treated.	All runoff from construction activities will receive treatment prior to discharging into SEPP 14 or other Coastal Wetlands.
05c	EPA	EPA supports the Proposal that treated effluent wastewater be used for dust suppression, landscaping works and other associated uses (makeup water for concrete or asphalt plants) wherever practicable.	The RTA will use treated effluent wastewater for dust suppression, landscaping works and other associated uses (makeup water for concrete or asphalt plants) wherever practicable.
05d	EPA	EPA agrees that the concrete or asphalt plants should incorporate a closed water recycling system.	The RTA will incorporate a closed water recycling system in its concrete or asphalt plants.
05e	EPA	There appears to be a significant distance between pollution control devices on sections of the proposed road corridor. This matter should be addressed in the Erosion and Sedimentation Control Plan and Surface Water and Spill Management Plans.	Sediment control during construction will be included in an Erosion and Sediment Control Plan which will be reviewed by Soil Conservation staff. The locations of the permanent pollution control devices satisfy the requirements of the RTA's water policy, which provides that concentrated runoff (this generally means areas in cut) will require treatment. Areas in fill will flow as sheet flow over the embankment and into a constructed grass swale. Exceptions have been made for environmentally sensitive areas such as Marshalls Creek and the Brunswick River, where runoff will be fully intercepted and treated.
05f	EPA	The reports do not identify the design discharge standards for the treatment processes. As a consequence, we are unable to comment on the adequacy of the proposed controls. As previously advised, details of design discharge standards should be included in the Environmental Management Plan.	Details of design discharge standards for the treatment of runoff will be addressed in the Environmental Management Plan.

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
05h	EPA	The proposed volume capacity for the first flush ponds (for tanker spills) should be amended to include fire water that would be generated as a result of fire associated with a tanker spill incident.	The RTA will determine the appropriate retention volume and design at detailed design stage in consultation with detailed design.
05i	EPA	EPA is concerned about potential noise experienced by Ferry Reserve Caravan Park, Christian Life Centre and Villa Ruidosa cottage during construction. Further work should be carried out to minimise the impact on these premises.	The EIS has identified that there will be a substantial increase in noise levels for protracted periods during the construction phase. Noise mitigation will be provided to the Christian Life Centre. The Villa Ruidosa may be totally acquired as part of the Project, or alternatively, appropriate noise mitigation will be provided. Further work has been carried out since the preparation of the EIS to minimise noise impacts. An extensive barrier scheme has been constructed around the Ferry Reserve Caravan Park. This will provide significant noise reduction during the construction phase. See section 6.10 and Appendix 12 of this Report for further information on noise.
05j	EPA	No blasting should be carried out on Saturdays, as proposed in the EIS.	There is no foreseen need for blasting to occur on Saturdays. However should circumstances require that this is necessary appropriate approvals and variations to any licence conditions will be first sought from the EPA.
05k	EPA	Where practical, noise barriers should be in place before construction commences.	Where practical, noise barriers will be in place before construction commences.
05l	EPA	It is noted that further investigation of dip sites in the vicinity of the route is proposed.	Noted. As indicated in the EIS further investigation into old cattle dip sites will be undertaken prior to work being undertaken. This investigation and assessment will consist of gathering a history of the site usage as well as taking soil samples from each potential contaminated site and analysing these for possible contaminants. If a contaminated site is found, the site will be left undisturbed and then encased during works.
05m	EPA	The EPA notes that the road corridor passes a service station. Any proposed disturbance of soil in the vicinity of the service station site should be subject to appropriate testing to ensure that no hydrocarbon contaminated soil is present or disposed of without appropriate safeguards and remediation.	Due to the location and siting of the service station, the soil in the vicinity of the service station site would only be disturbed if the property was totally purchased and the service station demolished. If this occurs, the RTA will undertake appropriate testing for contamination and remediation in consultation with the EPA.

5.3.6 Environmental Management

Rep. Nr*	Who by?*	Issue	RTA Response
10a	DLWC	No licences are required under Part 2 of the Water Act 1912 as there is no realignment of a flow line near the route.	Acknowledged
10b	DLWC	A permit will be required for DLWC under the Water Act 1912, if water extraction from streams is required.	Acknowledged - applications for appropriate licences will be made
10c	DLWC	Under the New Vegetation Conservation Act 1998 and the Roads Act no licences are required for clearing of steep lands (>18°) and along prescribed streams. DLWC requests that maximum care should be taken to minimise impacts on vegetation in the riparian zone as it plays an important part in reducing harmful impacts on the river.	Care will be taken to minimise impacts on riparian zones. This will be undertaken in consultation with DLWC.
10d	DLWC	All monitoring bores or piezometers must be licensed under the Water Act 1912 and results forwarded to the Department.	The Contractor will apply for a licence from DLWC for monitoring bores or piezometers.
10e	DLWC	Any new bores or dams (>7 megalitres) constructed for farmers as compensation for affected water supplies, will need to be licensed under the Water Act 1912.	An application for an appropriate licence will be made.
10i	DLWC	The EIS has adequately addressed Erosion and Sediment Control Issues. Specific details should be outlined in the Erosion and Sediment Control Plan which will need to be produced prior to work commencing. The rehabilitation plan should include local native species where possible in rehabilitation works. Where practical, roadside batters should be no steeper than 1(v)-3(h) to aid stability and subsequent revegetation.	The RTA will include local native species where possible in rehabilitation works. This will be incorporated at the detailed design phase. Batter slopes will need to be steeper than 1:3 in many places to minimise footprint and reduce landtake. The stability and subsequent revegetation at these locations are abie to managed at these slopes.
18c	NSW Fish.	NSW Fisheries recommends that monitoring during the construction and operational phases of the project, as outlined in Working Paper 5, be expanded to include oxygen and pH. This will ensure that the release of any acid sulfate soil is detected. This is crucial to minimise impacts to aquatic organisms.	During the construction phase of the project monitoring of pH and DO will be included. However, during the operational phase, when exposed surfaces are stabilised, including the remediation of any possible acid sulphate soil problems, pH only will be periodically monitored, as a precautionary measure, even though it is not thought that acid sulphate soils will impact on pH after construction. Additional testing will be undertaken if the monitoring detects acid sulphate soils.
18d	NSW Fish.	NSW Fisheries does not generally support the establishment of structures such as detention basins and wetland filters in areas where a major rainfall event will result in the mobilisation of untreated waters. Of particular concern are those in the floodplains of Brunswick River and Marshalls Creek. There is no discussion in the EIS of how often these structures will be managed (maintained?) before, during or after major	The provision of water quality controls upstream of sensitive areas such as Brunswick River and Marshalls Creek is essential and will be undertaken on accordance with the requirements of regulatory agencies such as EPA. It is considered important to ensure that almost all road surface runoff receives treatment through the water quality control structures prior to discharging into

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		rainfall or flooding events. NSW Fisheries is concerned that the water quality controls for these areas will not be sufficient to minimise the release of polluted water into nearby SEPP 14 wetlands, Brunswick River and Marshall's Creek and require further clarification on the issue.	downstream waters. This sometimes may require locating the water control structures close to the receiving waters (for example structure F upstream of Marshalls Creek, see Figure 4.1 of Working Paper No. 5 Water Quality and Hydrology). However this is not seen as an impediment to their function and management. The mobilisation of untreated water into downstream areas will be unlikely to occur as the captured sediments, which contain the majority of pollutants, will have been contained in the stormwater interceptor located upstream of the wetland. It is unlikely the interceptor will release any of this sediment since it is designed to prevent this occurring. Finer sediments in the open water zone of the wetland have the potential to resuspend should the wetland be inundated by very turbulent flood waters from the main stream (eg Marshalls Creek). The fine sediments are mostly captured at the deepest part of the open water zone up to 2.5m deep and will be more difficult to mobilise than shallow waters. The frequency of maintenance will be as required and this will be determined by monitoring the rate of sediment capture in the wetland. Typically if the depth of fine sediments in the open water zone of the wetland is more than 25% to 35% then maintenance is required. Detail on maintenance and monitoring issues will be provided in the Environmental Management Plan. NSW Fisheries will be involved in the development of relevant areas of the EMP.
30j	Indiv	Given the gradient north of the bridge, there are not enough erosion and sediment control structures proposed for the western side of the upgrade above the SEPP 14 wetlands.	One major facility with a large catchment has been proposed for the structure because of the sensitivity of the area and the shortage of sites available for control structures. Smaller sediment control structures such as sediment fences and other appropriate measures will be included in the Erosion and Sediment Control Plan for the Project and will be employed during construction to control any possible source of erosion and sedimentation south of this proposed sediment control structure.
30k	Indiv	Erosion and sediment control measures	Design of the monitoring program will be

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Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		should not be 'self monitoring' during construction. This should be done by an outside independent body, eg Southern Cross University.	undertaken by the RTA. The contractor will have primary responsibility for the implementation of the measures. Auditing and verification will be undertaken independently. Controls will be monitored daily by the contractor.
33t	Interest group	11.3.1.2.1 - ESD Habitat Management - Little or nothing is said about 'long term management strategies to protect areas of importance for subject species. (D-G's requirement 3.2). In particular, there is no information for measures to protect habitats between the Brunswick River and Coolamon Scenic Drive. Neither is there any detail on rehabilitation strategies for individual threatened species. How is this to be carried out, and in which areas.	Additional details regarding long-term management of the areas affected by the roadworks and of additional habitat to be acquired and managed for conservation purposes are provided in the SIS Addendum Report (see section 6.6 and Appendix 8 of this Report). Details of seed and propagule collection, landscaping, rehabilitation programs, and other active management protocols for subject species are to be included in the Environmental Management Plan for the project, which can only be prepared once the Proposal is approved and details of compensatory habitat to be purchased and transferred to the NPWS are finalised.
33u	Interest group	11.3.1.2.1 - ESD Habitat Management - The burning of vegetation, especially fallen logs which may contain resident fauna, is to be absolutely avoided.	The RTA will use alternative disposal methods in preference to the burning of vegetation. Any burning will be in accordance with EPA requirements and licensing.
33v	Interest group	11.3.1.2.1 - ESD Habitat rehabilitation. There are no details of habitat restoration or improvement programmes proposed for the study area, including a timeframe for habitat restoration/ improvement and the likely impact on flora and fauna (D-G 3.4).	Habitat restoration and improvement programs will be finalised with specific reference to compensatory habitat.
33x	Interest group	11.3.1.2.1 - ESD Compensatory Habitat. Details of compensatory habitat measures should have been provided in the SIS to allow comment. Questions concerning habitat compensation include: i) does the land contain viable populations of threatened species (that will) be impacted upon? ii) Does the compensatory proposal represent the range of different threatened species? iii) Does the area enable the long term survival of species? iv) Does the compensatory habitat address the loss of scenic amenity? In terms of point ii), the riparian/ swampy regrowth to be cleared near Billinudgel can be found along Marshalls Creek, immediately	Full details regarding compensatory habitat were not documented in the EIS as the land proposed for the package is privately owned and the landholders had not been approached regarding the matter. i) The land purchased to the west of the Proposal is of importance as core koala habitat and significant lowland rainforest. ii) The proposed compensatory habitat along Marshalls Creek also contains several plant species of conservation significance and a number of threatened fauna species. This land provides a valuable connection between Brunswick Heads and Billinudgel Nature Reserve. iii) The compensatory habitat package provides the quantity, quality and diversity of habitat to contribute to long term survival of species.

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Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		downstream of Billinudgel, which provides and major connecting link.	iv) Scenic amenity does not form part of the compensatory habitat package as its main function relates to flora and fauna. However, mitigation measures for scenic amenity are outlined as part of the landscape strategy in section 15 of the EIS. See section 6.5 and Appendix 7 of this Report for further detail on compensatory habitat.
33z	Interest group	11.3.1.2.1 - ESD Compensatory Habitat. What proportion of the budget will be allocated to compensatory habitat? Given that $10 million was saved by lowering the bridge, more money should be diverted to habitat compensation.	Compensatory habitat won't be determined according to an allocated budget but will be developed according to the type of habitat impacted and the extent of the impact. A substantial compensatory habitat package is proposed (see section 6.5 and Appendix 7 of this Report).
33za	Interest group	11.3.1.2.1 - ESD Compensatory Habitat. CONOS believes that proposed 'additions to the Brunswick Nature Reserve' along Marshalls Road will be ideal compensatory habitat. This has been supported by NPWS.	A broad range of areas within the Marshalls Creek area are being proposed as part of the compensatory habitat package in consultation with NPWS. Refer to section 6.5 and Appendix 7 of this Report for further information on compensatory habitat.
33zc	Interest group	Exclusion fencing - CONOS supports the use of exclusion fencing. The 'floppy top' design in an unobtrusive colour should be used, and should be positioned well back from the Road. Plantings should be used to screen from view. Plants should not be planted to allow animals to climb over the fence, and should not be bird-attracting (to minimise road hits). Acacias, ti-tree, bolwarra and Xanthera are suggested species.	Appropriate exclusion fencing will be utilised, as required and in suitable locations along the Brunswick Heads to Yelgun upgrade of the Pacific Highway.
33zd	Interest group	Wire rope fencing - CONOS supports the use of wire rope fencing as it is less obtrusive, allows plantings, and allows fauna mobility, visibility and safety.	The use of the "wire rope barrier" is appropriate in some circumstances along the Highway, but the use of concrete barriers (Type F traffic barrier) will be preferred at certain locations, where the median is not of sufficient width to use 'wire rope' barriers. Type F will also be used on the shoulder edge in some locations to assist in the control of noise and exclusion of fauna.
33ze	Interest group	Water Quality and Hydrology - The Proposal has the potential to have a significant effect on flooding, drainage characteristics and water quality. Appropriate measures must be undertaken to prevent erosion, pollutants, spillage and acid sulfate soils from entering the wetlands. Note: fishkills and disease in the area have been related to acid sulfate soils.	Acknowledged. An important part of the EIS process has been to mitigate potential impacts to water quality and hydrology and provide mitigation and environmental measure to ensure the environment can be protected. Wetlands including SEPP 14 Coastal Wetlands have been given particular attention to prevent water quality being adversely affected in these areas.
33zf	Interest group	Heritage - The area has been utilised for thousands of years by Aborigines. It is of concern that few sites were located within the corridor. CONOS recommends the	The fact that sites were not located by the survey was due to the density of vegetation cover, a point which is stated in section 5.7 of the Working Paper. Although sites were not

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		consultants view the document entitled 'An Archaeological Survey of North Ocean Shores Development Area, NSW', Navin (1990).	located in the survey, seven areas of potential archaeological deposit (PADs) were identified. Three were within creekline land form areas, and four in ridge crest landforms. Subsequent sub-surface testing at these PAD areas identified 106 artefacts, 96% of which were recovered from spurline PADs and 4% of which were from the creekbank PADs. The report by Navin (1990) was reviewed and its recommendations are contained in section 4.2 of the Working Paper and the results were incorporated in the development of the site distribution model used in the subsequent survey.
34zn	NPWS	SIS section 12.1.1. In addition to the general environmental measures proposed in the SIS, the following should be considered: • Use of plant species suitable for use as a food resource by threatened species, particularly rainforest pigeons (fruiting rainforest species), Queensland Blossom Bat (nectar producing species such as Callistemon, Banksia, Melaleuca etc), Koala (Eucalypts such as Tallowwood, Red Gum and Grey Gum). • Advice from local experts in rainforest regeneration and NPWS should be sought with regard to selection of appropriate species, rainforest regeneration techniques and propagation of rainforest species. • Fencing and underpasses should be provided for the Long-nosed Potaroo and Koala along the Bypass. • Wetland habitats should be replaced and restored where appropriate. • An on-site environmental officer should be employed for the duration of the project or, as minimum, during critical stages of construction such as clearing and rehabilitation. • A booklet should be prepared to assist with the identification of threatened flora likely to occur along the length of the route. • Regeneration or rehabilitation work of existing degraded vegetation should be undertaken along the length of the route, including the removal of environmental weeds.	The issues identified by NPWS are discussed in the SIS Addendum Report and the SIS Addendum Report Supplementary Information (see Appendices 8 and 9 of this Report).
34zo	NPWS	SIS section 12.1.3. It is unlikely that NPWS would consider it appropriate to redistribute shredded native plant material into either	Please see section 12 of the SIS Addendum Report (Appendix 8 of this Report).

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Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		Billinudgel or Brunswick Heads Nature Reserves unless it was associated with rehabilitation works. NPWS wishes to be consulted prior to development of such measures.	
34zp	NPWS	SIS section 12.1.3. The DGRs for the long-term management of the study area have not been adequately addressed, particularly with regard to the long-term objectives for the site. It is not acceptable to state that details will be provided in the EMP, as this has not been provided with the SIS. Long term management strategies should include the following: • Monitoring of the effectiveness of mitigation works. • Maintenance of rehabilitation and landscape works. • Provision of funds to the appropriate management authority for the initial management of lands acquired as compensatory habitat.	Please see section 12 of the SIS Addendum Report (Appendix 8 of this Report).
34zv	NPWS	EIS section 10.2.2. Primary issues affecting the management of water quality should include the potential impacts to native species, particularly threatened amphibians which may be sensitive to sedimentation or polluted runoff.	Stringent water quality controls have already been proposed for both the construction and operational stages of the proposal. These measures will be reviewed and developed as part of the Environmental Management Plan for the project. NPWS will be invited by the RTA to participate in the development of relevant areas of the Environmental Management Plan.
34zw	NPWS	Consideration should be given to the adequacy of the environmental mitigation measures for maintaining water quality proposed for the upgrade in or adjacent to sensitive environments (eg adjacent to watercourses and the Brunswick Heads and Billinudgel Nature Reserves).	Protection of environmentally sensitive areas such Nature Reserves and waterways was an important criteria in the design of water quality controls. These measures will be reviewed and further developed as part of the EMP and Soil and Water Management Plan, both of which will offered for review by EPA, DLWC and NPWS.
34zzc	NPWS	EIS section 12.5. NPWS supports the environmental management measures proposed in the EIS. Suggestions of additional measures are provided above in comments relating to section 12.1 of the SIS.	Acknowledged, see SIS Addendum Report (Appendix 8 of this Report).
34zzd	NPWS	EIS section 12.5.1. It would be useful to specify what the mitigation measures are that are proposed to be continued for the duplication of the Bypass.	Please refer to SIS Addendum Report (Appendix 8 of this Report).
34zze	NPWS	EIS section 12.6. Compensatory habitat, in addition to being a mitigation measure for the loss of NPWS estate is also intended to mitigate the impacts to threatened species and their habitats.	Acknowledged.
34zzi	NPWS	EIS section 17.2.1. NPWS wishes to be involved in the development and review of the	NPWS will be invited by the RTA to participate in the development of relevant

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		Environmental Management Plan for this Proposal.	areas of the Environmental Management Plan. The RTA will ensure that there is a close consultation with NPWS throughout the implementation of this project.
36b	Indiv	The old bridge should be totally removed and the site restored to its natural state. This includes: • removal of all piers to several metres below bed level. • removal of all abutment material to at least 20% more width than the new opening. • return of any soils removed at the bridge's construction (say, from the new site). • replanting species (possibly from new site).	The existing bridge and abutments will be demolished and site restoration works carried out as part of the project. More information on bridge demolition and construction is contained in section 6.2 and Appendix 4 of this Report.
36c	Indiv	Where roads cross wetlands, they should minimise impacts by being on piers rather than embankments. The narrow openings under the recently constructed single Bypass are inadequate and should be remedied when the duplication goes in by the provision of 30 metre wide openings.	The size and location of the openings under the single carriageway (Stage 1) of the Brunswick Heads Bypass were based both on flood levels and the need for openings to facilitate fauna movement. The duplication of the Bypass provides the same sized openings. Working Paper No. 5 Water Quality and Hydrology provides more detail on the sizing of the openings.
39a	Comm gov	The changes to the boundary of the nature reserve requires assent of the NSW Environment Minister. As a result of the impacts on the nature reserve, it is important for the NSW NPWS to be involved in overseeing construction work and subsequent rehabilitation for this section of the Highway.	It is outlined in the EIS that areas of the Brunswick Heads Nature Reserve will need to be revoked as part of this Proposal, and this will need to be initiated by the NSW Minister for the Environment. NPWS have been involved throughout the EIS process and liaison with the Service will be continued through the construction phase of the project and beyond.
39b	Comm gov	Would like to commend the proponent for the assurance that members of the LALC will be present during initial site works should any indigenous heritage sites or items be disturbed.	As recommended in the EIS and Working Paper No. 5, Indigenous and Non-indigenous Heritage a Tweed-Byron LALC member will be invited to be present during initial site clearing and disturbance
39d	Comm gov	Environment Australia endorses amelioration measures outlined in the EIS, and particularly the Proposal to negotiate compensatory habitat for the area of Brunswick Heads Nature Reserve.	Noted. Refer to section 6.5 and Appendix 7 of this Report for further detail on Compensatory Habitat.
39e	Comm gov	As land clearance, roadworks and general habitat fragmentation are having a cumulative effect on populations of all threatened flora species identified in this EIS, mitigation measures are critical for continued survival. Environment Australia supports the Proposal that in all instances individual plants should be propagated for either additional or new plantings at appropriate sites and that were plants are identified for translocation, they	As outlined in the EIS propagation, planting and translocation will be used for site rehabilitation where appropriate.

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		should be utilised in site rehabilitation works as appropriate.	
39f	Comm gov	Plant propagation, translocation, site selection and plantings should be carried out under the supervision of an appropriate botanical/ horticultural expert and in accordance with The Guidelines for the Translocation of Threatened Plants in Australia (Australian Network for Plant Conservation 1997).	Plant propagation and translocation will be conducted under the supervision of an appropriate expert using the guidelines recommended.
39g	Comm gov	Where threatened plants are within 100 metres of the new alignment, plant/s should be flagged or protected by temporary fencing.	This matter will be discussed with NPWS. The RTA is prepared to flag within 100 metres of the new alignment, however, this practice may not necessarily be favoured, as threatened plants that are flagged also have the potential to be targeted and vandalised. The working area/ extent of any activity will be fenced using paraweb or similar. Activity will not be permitted beyond that barrier. Plants that are to be protected within the construction area will be flagged.
39h	Comm gov	Environment Australia supports the Proposal for the adoption of the following measures to mitigate any adverse effects on fauna: • Selection of the A2 option as the option with the least environmental impact. • Construction of fauna underpasses at critical points. • Construction of above-standard drainage culverts and extended bridge structures to facilitate faunal movement. • The use of fauna exclusion fencing. • The use of erosion and sediment control. • The retention of habitat features and resources for fauna, including stags and hollow bearing trees. • Site rehabilitation. • The transfer of NSW RTA property to the NSW NPWS as compensatory habitat.	Noted, as outlined in the EIS these measures will be carried out to mitigate any adverse impacts.
39k	Comm gov	Environment Australia supports NSW guidelines and processes which incorporate the use of EMPs for construction and operational activities. Management plans such as water quality management strategy, erosion and sediment control plan, acid sulfate soil policy, environmental noise control guidelines, waste disposal policies and air quality management plans should minimise any potential impacts and ensure best practice.	As stated in the EIS an EMP will be produced for the construction of the Proposal, incorporating all aspects of environmental management including quality management.
45b	Interest group	The EIS includes a list of environmental legislation which has been superseded by the Environment Operations Act 1998. RTA	The Protection of the Environment Operations Act is now expected to be operational in July 1999. The RTA will

5.3.6 Environmental Management			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		should liaise closely with the EPA on this issue to ensure environmental compliance.	maintain close liaison with the EPA throughout the project and ensure compliance will all environmental legislation.
45f	Interest group	NRMA strongly supports the waste management plan outlined within the EIS. NRMA supports measures to minimise, reuse and recycle waste likely to be generated by the Proposal.	Noted
45g	Interest group	It is stated within the EIS that 'the environmental management plan would refer to the EPA's Industrial Waste Exchange Directory in order to ensure ready access to information about professional recycling business operating within the surrounding area.' While this is supported, NRMA would like to suggest that the Directory could also be used to source waste products from other or similar industries for use during the construction and landscaping stages.	All aspects of the road construction, including ancillary works such as landscaping, will meet waste minimisation and management criteria. The Industrial Waste Directory will also be used as an information source for these works.

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5.3.7 Visual Impacts, Landscaping and Maintenance

5.3.7 Visual Impacts, Landscaping and Maintenance			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
14b	Indiv	A northern interchange would have much less visual impact than a southern interchange. Visual impact and Stock Route access were identified as being important at the VMS workshop.	The interchange will be located in the northern location at Yelgun.
15e	Indiv	We presently have a rural outlook with virtually no Highway visible. To protect the resale of our home, as well as maintaining pleasant outlook, it is of great importance that quality landscaping be carried out to counter the detrimental effects of the realignment.	The visual assessment carried out for this project recognised the visual impact that the Proposal will have on a number of rural properties. The recommendations and general guidelines for rural properties are as follows: In addition to planting within the road easement, additional planting would be carried out at or close to the point of viewing, ie around the house and or in the homestead garden. Such planting would retain existing desirable views, but screen out undesirable views. To assist this general guidelines would be prepared as required by the landscape architect when preparing detailed plans for the road easement. More detail for this type of planting will be developed as part of the detailed landscape plans for the Proposal. In addition, the RTA will undertaken to offer assistance to landowners adjacent to the Proposal by providing tubestock and other plant stock to be used for screening residences.
25m	Council	Council requests the provision of satisfactory arrangements for long term maintenance of the roads proposed to become local roads, be included as part of the project, prior to handover.	Issues regarding road maintenance, classification and handover to Byron Council have been subject to preliminary discussion between the RTA and Council. Arrangements regarding long term maintenance of local roads will be resolved with Council prior to handover.
28a	RTA	The environmental protection and landscaping systems must use 'whole of life cost minimisation strategies'. The ongoing budget must be identified and the monitoring and maintenance plans must be fully documented prior to handover for maintenance. Landscaping schemes should preferably be self managing.	Issues raised in this submission, by the Northern Region Assets Management section of the RTA, are part of normal RTA operations and procedures and are to be taken into account with the development of the project.
28b	RTA	Fauna protection fences may preclude access to the off-pavement parts of the Road for maintenance. Access points must be provided.	See issue number 28a above.

5.3.7 Visual Impacts, Landscaping and Maintenance			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
28c	RTA	Suitable cross over points must be provided to maintain divided carriageways and provide for emergency access and traffic management.	See issue number 28a above.
28d	RTA	Where fills are constructed on soft ground, it is essential that any requirements for ongoing management of the fill be documented and the budget implications identified. The requirements for the maintenance of slopes must also be identified.	See issue number 28a above.
28e	RTA	There must be a handover process to Asset Management at completion of the construction program.	See issue number 28a above.
28f	RTA	Where alterations to property access (are made) future responsibilities of property owners, Council and RTA must be agreed to prior to construction. It is desirable that the RTA does not have an ongoing obligation.	See issue number 28a above.
28g	RTA	It is essential to RTA and Councils agree on a revised route status. It is anticipated that the RTA will have an ongoing responsibility for the bridges over or on the Pacific Highway.	See issue numbers 28a and 25m above.
28h	RTA	In the case of Brunswick Heads-Yelgun, it is assumed the local road between Brunswick Heads and Ocean Shores will be carried on as an independent structure over the Brunswick River and that this structure will be a Council asset.	See issue number 28a above.
29d; 29e; 29f; 29g; 29h; 29i; 29j; 29k; 29l	Indiv	• Suggest that you investigate the possibility of using drip irrigation on trees. The extra costs would be outweighed by the benefits, including: growth rate increased by 50%, quicker stabilisation of banks, cheaper noise reduction, reduced trauma to transplanted trees. In your evaluation of this Proposal, contact CSIRO regarding trials of this system at Dubbo. • All trees to be moved should be replanted in the one area in order to make after care easier. • Local fast growing trees should be used on the western edge of the enhancement area where it crosses the valley floor. This is to cut down on wind movement and retain the current microclimate. Suitable species would be Elaeocarpus grandis or Flindersia schottiana. • A sub-tropical effect could be enhanced by planting Bangalow palms in groups of 3,5 or more at irregular intervals. The palm Livingstonia australis should also be represented along the Proposal, but at much reduced numbers than the	The comments and information provided in this submission is of value, particularly with regards to the planting of interchanges. Many of the suggestions could readily be used and incorporated into the Environmental Management Plan (EMP) for the project. The landscape architect contracted during the detailed design phase will be required to liaise with the respondents when preparing detailed planting plans. The advice on planting will be considered in conjunction with safety and other functional and landscaping requirements.

5.3.7 Visual Impacts, Landscaping and Maintenance			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		Bangalow palms. • Two types of fig occur in the study area, however, we suggest that they only be represented by a few plantings which should be on ridge lines (because of massive root system). • At both ends of Proposal, any landscaping additional to the road enhancement should be in the form of small raised islands on which a large specimen could be planted as well as a rainforest mix. Using signage, awareness of the sensitive environmental nature of the area should be appreciated by all visiting the area. • Your plantings should be a mirror image of the species that are here in the valley. Maximum health is achieved provided that pioneer species are few in number and only planted on the very edge of the stand (reference provided). • The area around the former cattle dip site should include a higher number of Hoop Pine. They are slightly person unfriendly and have the potential to make people avoid the area. • You should investigate the purchase of part of R Hall's property west of the railway line in order to establish a stand of swamp mahogany, which is a food source of the koala. Wildlife carers have advised that koalas in the area are making their way to a now destroyed stand of these trees at the now El Dorado Industrial Estate. A mixture of koala food trees and hardy rainforest could complement the proposed stand of swamp mahogany.	
33y	Interest group	The loss of scenic amenity is likely to be major. It is socially and economically important that these impacts be minimised, especially close to population centres. The RTA should take more responsibility for this.	Extensive landscape mitigation measures have been proposed in section 15 of the EIS and Working Paper No. 9, Visual Quality and Landscape Assessment.
34zzg	NPWS	EIS section 15.6.1. NPWS recommends that native species be used for landscaping at town entry point rather than exotic non-invasive species (eg flowering rainforest trees, shrubs, palms etc).	During the detailed design phase, the landscape architect employed will review planing guidelines. Native species will be used unless they pose safety or other functional problems. Selected species would be planted within natural ecotones. Native species may not be preferred in some areas such as town gateways and will depend on the outcomes of liaison with local communities and government.
41a	Indiv	The proposed bridge will be a large imposing	The new bridge will be a positive element in

5.3.7 Visual Impacts, Landscaping and Maintenance			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		structure that will dominate the river and destroy the aesthetic and quiet beauty of the river. The existing bridge blends with the surroundings and makes a tranquil scene.	the landscape of the Brunswick River through various landscape and urban landscape treatments. Bridge decks, piers, parapets and railings will be well integrated into the overall structure and revegetation around the structure will ensure visual integration is achieved. The final design of the bridge will be undertaken as part of the detailed design stage of the Proposal.
45l	Interest group	The EIS indicates the future ownership and maintenance responsibility of the Old Pacific Highway, which is to be used for local traffic, is to be negotiated between Council and the RTA in the future. This issue should be resolved prior to the Proposal being constructed.	Issues regarding road maintenance, classification and handover to Byron Council has been subject to preliminary discussion between the RTA and Council. Arrangements regarding long term maintenance of local roads will be resolved with Council prior to handover but not necessarily prior to construction. See also Representations numbers 25m and 28g above.

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5.3.8 Water Quality and Supply

5.3.8 Water quality and supply			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06e	Indiv	Concerned about avoiding contamination of water supply at ch 49500 and at a spring east of ch 50000.	Methods to prevent the contamination of surface water during both construction and operation of the Proposal are outlined in section 10 of the EIS. Additionally a soil and water management plan will be in place during the construction phase which will minimise the potential of any offsite contamination of surface and groundwater. Monitoring of groundwater chemistry prior to construction as well as during and after construction is also recommended to assess any contamination of water due to the roadworks as well as any change in water supply (see Working Paper No. 8 Geotechnical Assessment). It is considered that these measures will provide adequate protection of both the water supplies mentioned.
22e	Interest group	Oyster farmers are pleased that most potential problems with respect to oysters have been addressed in the EIS and are happy with the proposed mitigation measures. Particular importance is placed on issues of acid water, pH levels and suspended solids that can suffocate oysters or result in decline of phytoplankton.	Acknowledged. Acid Sulphate Soil management is of particular importance given the sensitive nature of many wetland and riverine environments including the Brunswick River. An Acid Sulphate Soil Management Plan will be produced as part of the Project Environmental Management Plan this will include management of the banks and bed of the Brunswick River.
30l	Indiv	The statement that the water in the Brunswick River is safe for swimming is in contradiction to the opinion of local chemists, doctors and hydrologists. The overloaded sewerage system is having an effect on the River.	The assessment of water quality in the Brunswick River at locations B1 and B2 shown on Figure 2.1 of Working Paper No. 5 - Water Quality and Hydrology, indicates that it meets the swimming criteria in over 75% of samples. This information has been obtained from the EPA document "Proposed Interim Environmental Objectives for NSW Waters, North Coast Catchments. NSW EPA Oct 1997". This assessment was not based on testing carried out by the consultants.
30m	Indiv	The chemical spill earlier this year at the bridge decimated fish stocks. To remove or impact on any Mangroves would be a tragedy as they are the lifeblood of the estuaries and oceans.	Some impacts to mangroves would occur, irrespective of the location of the proposed Brunswick Heads to Yelgun upgrade. The A2 Route and its design have been specifically targeted to limit impacts upon mangroves (as well as other native vegetation), in recognition of the value of this community to fish stocks and to ecosystem functioning. The proposed road upgrade will involve the provision of compensatory habitat (including mangrove habitat), the rehabilitation of Brunswick River foreshore area and the restoration of the saltmarsh area at the

5.3.8 Water quality and supply			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			southern interchange. It will reduce the likelihood of spills through an improved alignment and operating conditions.
35d	Interest group	(Our alternative route options - J and J1 - are preferable). Increased siltation to the river would be avoided as there would be no piers in the river. As there are no acid sulphate soils on the north bank, these problems would be lessened.	Route A2 will involve the demolition of the existing bridge leaving the area with a single crossing and fewer piers in the river than currently exist. Potential impacts to the sediment regime in the Brunswick River has been assessed as part of Working Paper No. 5, Water Quality and Hydrology and the proposed bridge has been has been shown to have no significant effect on the sediment regime. While there are no potential acid sulphate soils on the north side of the Brunswick River crossed by the Route J and J1 still cross a distance of about 1km and 1.5km of land respectively that are designated as high probability acid sulphate material. This is slightly more than the length of potential acid sulphate soils that the proposed route crosses, as can be seen in the Acid Sulphate Risk Map (see Appendix B to Appendix 6 of this Report).
39j	Comm gov	The existing water quality conditions in the Brunswick River and Marshalls Creek are at a reasonable level when compared to ANZECC guidelines, but operations during construction such as removal of vegetation, exposed soil, sediment, runoff and pollution can potentially deteriorate conditions below acceptable levels. This is an important issue as the Brunswick River and Marshalls Creek flow into environmentally sensitive areas.	The sensitive nature of both Brunswick River and Marshalls Creek have been acknowledged in the EIS studies. Strategies to minimise impacts to waterways have been detailed in Working Paper No. 5, Water Quality and Hydrology.
45i	Interest group	NRMA supports the RTA's plans to undertake water quality monitoring both during construction and operational phases. NRMA believes that water quality parameters should include polyaromatic hydrocarbons, chlorinated hydrocarbons, grease and oil, total phosphorus and total nitrogen. Monitoring of aquatic sediments should be undertaken annually. The parameters should include heavy metals, polyaromatic hydrocarbons, total nitrogen and total phosphorus. The EPA should be consulted about a more comprehensive monitoring program.	A water quality monitoring program and aquatic sediment monitoring program will be undertaken in consultation with the EPA. The parameters of these programs will be determined at this time and may or may not include that suggested by NRMA.

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5.3.9 Land Use and Development Potential

5.3.9 Land Use and Development Potential			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06b	Indiv	Byron Shire Council has classified my property as being suitable for Tourist Cabin Development. Council is also rezoning the 10 acre paddock west of the railway from 1(b) protected agriculture to rural residential.	Noted. The RTA will not affect the land use potential of this site. Zoning is a matter to be discussed between the owner and Council.
09d	Indiv	Partial acquisition is proposed. It is submitted that any acquisition of part of the property will have a significant affect on the property owner and on the use of property, in view of the relatively small size of the property.	Property acquisition will be negotiated between the landholder and the RTA during the detailed design phase. This will be done under the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991.*
09f	Indiv	The use of the property will be adversely affected as a result of noise, vibration and fumes.	Impacts from noise, vibration and fumes at this property will be negligible.
10f	DLWC	Any discussion of the future management and use of the Brunswick River Foreshores area (Crown Land) adjacent to Finns Restaurant and caravan park should also include representatives of Byron Shire Council's Estuary Management Committee.	Acknowledged / agreed
14a	Indiv	Approve in principle, of the interchange north of our house.	Noted.
23y	Indiv	The LEP corridor does not require the resumption of private dwellings or land. The majority of the route north of the river would traverse Council land. This land does not, according to the EIS, contain flora or fauna which are considered endangered, sensitive or at risk. The area is zoned 5(a) reserved for public utilities and infrastructure. The rest of the route is land which appears to be already owned by the RTA. It contains no at risk, endangered or sensitive species of flora or fauna.	The route investigation undertaken for the Project showed that the LEP corridor would have a significant impact on endangered species greater than that of the preferred option A2. The gazetted land of the LEP corridor involves an area of essentially undisturbed vegetation, and its use would also increase fragmentation and habitat loss. This corridor would have a greater impact on endangered species.

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5.3.10 Upgrade Needed

5.3.10 Upgrade Needed			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
11a	Busin	While we still feel that a Westerly Route for the Pacific Highway would have better served our area in the long term, we accept the majority decision and now look forward to just getting the project finished.	Noted
15a	Indiv	While we have always agreed that the existing Highway needed upgrading, we are vitally concerned about the impact on our property because of the chosen alignment. Property is approx. 20 metres from the upgrade. Commend the RTA's decision to upgrade the Highway, but measures need to be taken to protect those who are so adversely affected.	The RTA proposes treatment to this residence in the form of mechanical ventilation/air conditioning or localised barriers. This will be subject to negotiation with the property owner. In addition, the RTA will undertaken to offer assistance to landowners adjacent to the Proposal by providing tubestock and other plant stock to be used for screening residences. While it is recognised that plantings do not have a physical impact on noise levels, they can have a benefit in terms of residential amenity. See section 6.10 and Appendix 12 of this Report for further detail on proposed mitigation measures.
35a	Interest group	Most people are in favour of the upgrade, but not where it is proposed.	The RTA undertook extensive consultation in order to include the community in the decision making process, and to provide an equitable outcome in terms of a preferred route. The outcome of this process clearly showed that route A2 was the preferred option. See section 4 of this Report for further details on the community consultation process.
45a	Interest group	NRMA clearly recognises the need to upgrade this section of the Pacific Highway and strongly supports the upgrading of the section between Brunswick River and Yelgun, and the construction of a new alignment around the Brunswick Heads.	Noted.

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5.3.11 Amenity and Lifestyle

5.3.11 Amenity and Lifestyle			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
13e	Interest group	The Proposal will include a loss to property and amenities, including the park reserve on the corner of Rajah Road and Pacific Highway, and increased noise levels during construction and forever after construction.	The Proposal will require the acquisition of properties along the route. These have been identified in Section 14 of the EIS. Approximately 5576m^2 would be required from the Brunswick Heads Nature Reserve. Construction noise would be clearly audible and at times disruptive along the route during the construction period. Construction noise mitigation measures would be installed between Rajah Road and Oba Place early in the construction period. These measures will also provide permanent noise control.
23w	Indiv	Disturbances to the caravan park would disadvantage some permanent residents and the revenue of Byron Council, but it is not a residential area and it is a condition of law that all homes must be 'mobile'. No sensitive habitats would be disturbed nor would existing businesses have to be relocated.	Disturbance of the Caravan Park was never seen as an absolute constraint to the development of route options, however the Park houses a considerable number of permanent residents who would have to be relocated. As there are no alternative sites available in the Brunswick Heads locality, this was seen as an undesirable social impact. While the Caravan Park itself is not a sensitive habitat the impact to vegetation on the north side of the River would disturb a large amount of SEPP 14 wetland and mangrove vegetation.
35h	Interest group	The alternative route is over 1km from the residential areas of Ferry Reserve Caravan Park, the Riverside Drive and the southern half of Ocean Shores, lessening noise and visual impacts. The retired people's homes and other homes would not be affected.	Acknowledged, however the selection of the preferred route was a balance of ecological and social considerations.
45p	Interest group	The Proposal runs mainly along the corridor of the existing Highway and minimises intrusion into the surrounding existing land uses. The proposed bridge and route immediately north of the river follows the existing Highway, rather than the zoned LEP corridor. Potential short and long term impacts on land use and the community, including the Brunswick Heads Nature Reserve, Sewage Treatment Plant and individual properties are reduced.	Acknowledged. One of the main reasons for the selection of this route was the use of the existing road corridor and the minimisation of impacts on the surrounding area.

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5.3.12 Design

5.3.12 Design			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
02a; 45m	Indiv; Interest group	• Asks for more 'parking bays' (wider breakdown lane?) on both south and northbound lanes - for example, something similar to the one on the north bound lane at Mororo Hill north of Harwood Island. • The Proposal does not separately address the need for rest areas. A plan which shows the general location should be developed. Suitable roadway lighting should be provided at any rest area for the benefit of motorists stopping during the night.	No rest areas have been allowed for in this stretch of the upgrade. A strategy for the provision of parking bays and rest areas for light and heavy vehicles is currently in draft form in the RTA's Highway Strategy. It is the general aim to provide rest areas approximately every 20km in each direction. Suitable locations are always being sought however there are often constraints to where they may be placed. In this instance both for environmental reasons (the road width was limited to minimise impacts on flora and fauna) and social reasons (these facilities are often not suitable near residential areas due to noise impacts), no facilities could be provided for this section. Two rest areas are proposed for the adjoining Yelgun to Chinderah Pacific Highway Upgrade at Sleepy Hollow Valley, one on each side of that Proposal for north and south bound traffic. A north bound facility will also be provided to the south, as part of the Tandy's Lane section, near the railway bridge.
23m	Indiv	The roundabout is overdesigned and unnecessary roadworks will duplicate those already in existence.	The design of proposed southern interchange, and the entire Proposal, is constrained by design criteria such as road geometry, road cross-section and drainage. Both interchanges have been designed to allow for all traffic movements, they are grade separated and maintain the separation of through and local traffic. The interchange proposed meets all basic design criteria and is not "overdesigned". Further detail on the design of the Proposal is contained in Working Paper No. 2, Road Concept Design.
23r	Indiv	With the routing of 'highway' traffic into dedicated lanes, no roadworks or roundabout will be needed at Rajah Road. This is an unnecessary construction made necessary by the design of the preferred route.	The roundabout at Rajah Road will be provided to cater for local traffic patterns. As Rajah Road is the principal entrance into the Ocean Shores area traffic levels will increase with or without the development of the Proposal. The roundabout will assist in helping to create a safer and lower-speed traffic environment.
23v	Indiv	Only one roundabout would be needed. The existing road system would require little modification.	A full interchange will still be required to allow all movements on and off the Highway.

5.3.12 Design			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
23za	Indiv	Modern technology in bridge building has been shown by the RTA in the past to have no lasting environmental impacts or sensitive environments traversed. Decently designed 'pier and beam' structures can provide greater land traverse than the design of the bridge for the preferred route. Especially for wildlife movements between both of the parts of the nature reserve as nearly all of this corridor could be spanned. No more piers would need to be put in the river than under existing plans.	A high level bridge proposed as a component of Route A and was rejected at the Value Management Workshop as having an unacceptably high visual impact. Fauna movement corridors have been incorporated into the bridge design proposal. Construction of the bridge within the existing LEP corridor would involve considerably greater disturbance to wetlands and mangroves, and other undisturbed vegetation, disrupting potential 'wildlife movement corridors'. That option would also involve the construction of a substantially larger bridge structure than is currently proposed. The proposed bridge spans are the longest that can be provided with precast components.
25d	Council	The new section of Coolamon Scenic Drive, west of Orana Road intersection will require provision for bicycles.	Acknowledged. This will be addressed during detailed design.
25e	Council	A roundabout may be required at the intersection with Tunnel Road (Stock Route Road) at the west entrance to the Underpass, due to traffic flow from Mullumbimby at the Orana Road intersection.	Acknowledged. The RTA will finalise traffic management considerations with Byron Council as part of the detailed design process.
25g	Council	Wilfred Street access from bridge over Highway to Mogo Place to allow for bicycle/ pedestrian path minimum 2.5m wide and 1.0 m clearance from kerbs adjacent to traffic lanes.	Acknowledged. This will be addressed during detailed design.
25h	Council	Northern splitter island at roundabout to have 2m break for pedestrian/ bicycle refuge crossing.	Acknowledged. This will be addressed during detailed design.
25i	Council	Balemo Drive cul-de-sac head requires pedestrian/ bicycle access to pathway along east side of local road (old Highway) linking the roundabout access to Wilfred Street. (It exists informally at present and will provide flood free access to train line at Billinudgel).	The proposal already includes pedestrian and bicycle access in this location. Working Paper No. 2, Road Concept Design provides detail of this access.
25j	Council	Balemo Drive and Shara Boulevard intersections may require modelling as it is expected future traffic may indicate a roundabout treatment is required.	A roundabout treatment is possible however not expected to be warranted with reduced traffic levels. A sheltered right hand turn bay will be provided at both roads. These are shown in Figure 5.6 of Working Paper No.2, Road Concept Design.
25k	Council	The EIS requests Council's minimum requirements for road design widths at the intersections with the Old Pacific Highway. These widths are as follows: • Riverside Drive new entrance: 8.0m between kerbs.	Acknowledged. This will be addressed during detailed design.

5.3.12 Design			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
		• Rajah Road at roundabout: as per existing. • Sewer Treatment Plant below underpass: 6.0m formation, 4.0m seal. Underpass to have manoeuvrable width. • Banana Road diversion: 6.0m formation, 5.6m seal, minimum. • Coolamon Scenic Drive to roundabout: 9.5m formation, 8.5m seal, 2.5m bicycle/ footway in underpass. • Orana Road: as per existing. • Tunnel Road: 7.0m formation, 6.8m seal. • Wilfred Street to roundabout: 11.0m kerbs, footpath 4.0m (ie 2.5 m bicycle/ footway plus clearances). • Balemo Drive at intersection: 7.0m formation, 6.8, seal. • Shara Boulevard at intersection: 13m between kerbs. • Stock Route Road to intersection: 7.0m formation, 6.8 seal. • All bicycle/ pedestrian pathways to be a minimum of 2.5 metre widths with 1.0 metre clearance to road /kerb shoulders and 0.5m clearance to fence/ vegetation.	
45j	Interest group	The EIS appears unclear as to whether the road corridor reservation provides sufficient width to accommodate further road widening beyond 2016. It would be good planning practice to ensure that this is the case.	The footprint, or width of land, needed for the Road has intentionally been kept to a minimum through environmentally sensitive areas such as the Brunswick Heads and Billinudgel Nature Reserves. In this regard future road widening has not been catered for with this design.
45k	Interest group	The carriageway width for the most part appears acceptable. However, the section of the Road where narrow medians incorporating type F barriers or wire rope will need to be designed so as to avoid exposing motorists to headlight glare. Appropriate measures such as landscaping within a depressed median should also be included to alleviate headlight glare, particularly around curves.	Where the median has a wire barrier planting of low shrubs will be undertaken to provide headlight glare screening. The Type F has been provided as a safety feature (rather than headlight glare screening) where the width of the road footprint has had to be kept to a minimum for environmental reasons. Motorists through these areas will be required to dip their headlights.
45n	Interest group	The design speed for the Proposal is 110km/h, but the EIS does not appear to state whether this will be the signposted limit.	The signposted speed limit will be appropriate to the conditions and in accordance with overall Pacific Highway policies. The posted speed limit will be either 100 kph or 110 kph as appropriate.
45o	Interest group	The EIS indicates that pedestrian and cyclist access would be provided on the proposed new Brunswick River Bridge. It is not clear how these facilities would be accessed from the vicinity of the caravan park. This should be resolved prior to construction.	Pedestrian and cycle access from the new bridge could be readily integrated into the Caravan Park area. The detail of this access will become part of the restoration of the Brunswick River foreshore area will be discussed initially between the RTA and key

5.3.12 Design			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			local and state government stakeholders.
		It is also indicated that the old bridge would be demolished. There may be advantage in retaining the existing bridge for use by pedestrians and cyclists.	Demolition of the existing bridge was seen as a key advantage for the project as it will remove a navigation restriction and enable the restoration of the foreshore area..
45t	Interest group	With regard to the Billinudgel 2000 residential development, the Highway Proposal should consider the capacity of an access point (eg, Wilfred Street) to cope with potential added traffic.	The anticipated additional traffic generated by the Billinudgel 2000 residential development is several hundred vehicles per day. This proposed access point would be able to more than adequately cater for this amount of traffic.

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5.3.13 Document Errors

5.3.13 Document Errors			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
09a	Indiv	Table 14-1 lists the property as a plant nursery. This is incorrect, the property is currently leased and is used as a plant nursery and coffee shop.	It is acknowledged that a refreshment room is a permitted use on the property (Development Application 95/146 to Byron Council).
10j	DLWC	It should be noted that the summary document comments that "the existing bridge would be demolished, which would improve flow patterns in the Brunswick River...". This statement contradicts working paper no 5 which says that tidal and flood flow modelling showed no change in the flow patterns.	The comment in the summary document regarding the existing bridge improving flow patterns may have been misleading as it refers only to pg 2-6 of Working Paper No. 5 Water Quality and Hydrology which states that for minor floods there may be a minor reduction in flood level as a result of the improved hydraulic profile of the new bridge piers compared to the existing ones. The comment was not taken from the results for tidal and flood flow modelling.
13i	Interest group	The EIS contained a huge error about compensation to SP31475 and there are at least 14 other stated conclusions that are totally unfounded, misleading, and a few completely false. These regard 1. Noise levels on Rajah Road, 2. Flora and fauna habitat destruction in Brunswick Heads Nature Reserve versus effects on pastoral land involved in the original. The only outstanding truths in the EIS are in the maps. The EIS leaves a lot to be desired. It is flawed, 'uncomprehensive' and full of generalisations and errors. Enclosed 'letters to the editor' are much closer to Ocean Shores residents' views, feelings and opinion than any of the EIS' conclusions.	It is acknowledged that there was an error in the EIS, relating to diagram (Figure 14.3) and text (Table 14.1). While the affected properties were correctly outlined the incorrect strata number was indicated. Letters were sent to all property owners involved in this error, explaining the problem and providing the corrected information. Please see Figure 5-4 for the corrected version of the diagram. The claims that the other conclusions are false is not correct. The conclusions on noise levels on Rajah Road and the effects of habitat destruction in the Brunswick Heads area were made after the preparation of professional and methodologically sound environmental investigations. The EIS itself is a full and comprehensive document, based on a range of specialist working papers and undertaken in the context of wide community consultation. Its conclusions reflect this broad range of specialist and community input, and ethically and responsibly report the environmental impacts of the project.
26a	Indiv	We are instructed to detail errors and omissions in the EIS, in particular, Working Paper No 3 at pages 14 and 15 by way of designation of EPA criteria as a "redevelopment of an existing road" with consequential impact on all conclusions in relation to dBA criteria for Oba Place.	The classification of the Proposal in terms of its potential noise impact as a "new road" or "realigned road" was based on the likely change in noise impact at various residences rather than the simple physical location of the highway. On this basis the classification as a "realigned highway" is most appropriate. Irrespective of this classification noise levels

5.3.13 Document Errors			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			are predicted to be lower at this residence as a result of the Proposal therefore EPA limits will be achieved.

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5.3.14 Economic Impacts and Costs

5.3.14 Economic Impacts and Costs			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
09c	Indiv	As a result (of changes to access), commercial viability of the business will be greatly reduced.	Access to the property will be maintained from Coolamon Scenic Drive, which will be reconstructed to include a roundabout and underpass of the new highway at Orana Road. While the access arrangements from other points will change, the ease of access from Ocean Shores will be improved dramatically. The viability of the business is not anticipated to be greatly reduced.
09h	Indiv	The tenant has not taken up the option to renew the lease in view of the uncertainty with respect to the Highway upgrading and it is envisaged that if the tenant does not renew the lease, it will be very difficult for her to obtain a tenant for the property.	The impact on the property is not considered sufficient to justify total acquisition. The RTA is not responsible for leasing arrangements for the property.
14d	Indiv	Any development in the Shara Boulevard area (of a commercial nature) is seen as a threat to the business people in Billinudgel. For them, to optimise their businesses, the interchange would have to overlay the village area, and this is clearly not possible.	Noted.
23n	Indiv	This route impacts on the Brunswick Heads Nature Reserve and RTA would have to deal with NPWS to acquire the necessary land. The expense of negotiation and compensation over this land is unnecessary if the gazetted land of the LEP corridor is used.	NSW National Parks and Wildlife Service was necessarily a key player in the process of determining a preferred route and minimising impacts to the local ecology. The Service was involved in a number of discussions regarding the proposed upgrade, and was involved in workshops associated with the Proposal. NPWS support the Proposal and are prepared to relinquish necessary land as long as that adequate compensatory habitat is provided.
23z	Indiv	This route would appear, according to the EIS, to offer RTA land that it could acquire with little cost or negotiation.	The suggested route would be simpler in terms of acquisition, however this issue was one of a number of issues that was considered in the selection of a preferred route. Route A2 was best on balance of engineering, social and ecological considerations.
35f	Interest group	The social impacts of A2 are catastrophic. The preferred route has serious implications on the businesses of Fins Seafood, Thai on the River and the Ferry Reserve Caravan Park. Don't agree that the impacts on the Caravan Park would be beneficial, as the project will take 2 years to complete. The EIS does not mention the other businesses that would be affected by the preferred route - namely the kennels and the nursery on Coolamon Scenic Drive.	It is acknowledged there will be an impact to the restaurants on the south side of the Brunswick River. Negotiations with owner and tenants for compensation have been undertaken and have concluded. The opportunity for the rehabilitation of the Brunswick River foreshore is a major feature of the Proposal, which will arise with demolition of the existing bridge and the construction of the proposed bridge. The new bridge has been designed to allow access across and under it and these features will improve pedestrian and bicycle

5.3.14 Economic Impacts and Costs			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			movements to and from the Ferry Reserve Caravan Park. The nursery business on Coolamon Scenic Drive will not be directly affected by the Proposal. In fact access to the business will be made safer and more convenient from Ocean Shores by the Proposal. Negotiations between the landowner and RTA will be initiated to discuss the acquisition of the small area of land directly impacted by the Proposal. The kennels on Banana Road will be required for acquisition by the Proposal.
35i	Interest group	The 'alternative proposal' is far more economical for the following reasons: • It would use the current interchange and allow for a four lane bridge. It would save the cost of removing the current bridge and would be cheaper to build. • Less properties would need to be purchased. There would be huge saving on property acquisition. • The route can be built away from the existing Highway, saving construction time and vehicle delays. • It would be safer, being constructed away from the existing Highway. • It eliminates the need to build a new access road to the Sewage Treatment Plant access and overpass for Sewage Treatment Plant access. There would be no need for an access road from Rajah Road, or the construction of 2 roundabouts. • It crosses the River at a narrower point than A2 and would be cheaper. • The oyster industry would not be impacted upon. • Current contractual works for the Bypass would remain, and avoid costly modifications to them if A2 was adopted. • The current Bypass would only have to be upgraded to 4 lanes from Brunswick Heads South Interchange. • It is acknowledged that the 'alternative route' would be higher, but overall would not be expected to be more expensive.	This 'alternative proposal' (Routes J/ J1) would not be economical as: • Another Bypass would be required south of the River as the current Brunswick Heads Bypass could not be utilised. • Another full interchange would be needed at Saddle Road area to allow full traffic movement. • A number of properties would still need to be acquired. • While some of Route J1 would be built away from the existing highway, at least half the route would be adjacent to the existing highway resulting in similar interruptions to traffic from construction. • The roundabouts provided at Rajah Road and Orana Road to provide a better level of service for local traffic. See section 6.4 and Appendix 6 for further information on Routes J and J1.

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5.3.15 Flooding and drainage

5.3.15 Flooding and drainage			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
05g	EPA	The proposed 1 in 1 year ARI storm event criteria for the wetland may not be sufficient to minimise impacts of wastewater on the wetland. The RTA should also ensure there is sufficient land available along the route for sedimentation dams, storm water interceptors, and wetlands to be installed and efficiently operated during the lifetime of the construction period.	Sediment basins will be designed in accordance with the NSW Government publication 'Managing Urban Stormwater: Soils and Construction', released in 1998. This matter will be discussed with the EPA during the approvals and licensing stages. Space availability for the sedimentation basins and water quality control structures and wetlands will be further reviewed at the detailed design phase. A monitoring and maintenance program will also be designed as part of the Environmental Management Plan for implementation during construction.
14c	Indiv	A northern interchange would facilitate access from the local road system to the Stock Route. This is essential when Billinudgel is affected by flooding. Visual impact and access were identified as being important at the VMS workshop.	Stock Route Road is connected to the northern interchange.
18b	NSW Fish.	A culvert has been identified under the existing Pacific Highway route as restricting tidal flow to a wetland area located behind SEPP 14 No. 65. (Map attached). This culvert should be upgraded or improved. This would allow the wetland area to naturally rehabilitate and may assist in controlling the exposure of acid sulfate soils and release of acid water into the Brunswick River.	The EIS identified the saltmarsh on the southern side of the Brunswick River as an area that could be protected and enhanced. A management plan for this area will be formulated during the detailed design stage. This plan will include detail such as establishing an appropriate hydrological regime and a vegetation management strategy. NSW Fisheries will be involved in the formulation of this plan.
22g	Interest group	The final paragraph of section 10.3.4 states that the area around the bridge is subject to predominantly riverine influences. With respect to oyster farming, the area around the bridge is predominantly subject to tidal influences. Some concern is raised that alterations in tidal flow may affect present oyster farms and their current patterns of oyster growth and fattening.	This statement is not to imply that there are no tidal influences as the reach is subject to a complex combination of both riverine and tidal flow influences. The comment relates to work done on sediment and erosion issues, which used sediment sampling, modelling results and a review of historical air photos, to conclude that the main influence on erosional and sedimentation regimes in the area of the bridge is riverine. This work found that the new bridge will have no significant impact on the local erosion and sedimentation regime. section 6 of the Hydrology section of Working Paper No. 5 document this study in more detail. Changes in flow patters related to the construction and demolition of the bridges is expected to be negligible. Some improvement in flow may occur after the

5.3.15 Flooding and drainage			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			demolition of the existing bridge due to the removal of existing piers from the narrowest section of the river and the new piers being aligned with the river flow.

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5.3.16 Public Transport and ESD

5.3.16 Public Transport and ESD			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
07a	DoT	No or little attention has been paid to the impact of the proposed roads on current public transport services. The Department has previously requested that public transport issues are addressed in the EISs and that the consultants liaise with public transport operators as a starting point. The upgrade of the Highway will induce higher private motor vehicle travel and road freight transport. As such, it is appropriate to consider impacts on public transport and rail.	Public transport operators were consulted during the process to define existing service provision and to ensure that the Proposal will be able to maintain existing public transport operations. This included both commuter and school services.
07b	DoT	Impacts on school buses are not assessed.	As per 7a above.
36a	Indiv	By prioritising road construction above the other needs of society, we are supporting car and truck dependence. The Proposal lacks consideration of other alternatives such as effective bicycle networks, reducing freight from roads, upgrading collective transport. Opposed to Proposal for these reasons. If work must be done, asks that these aspects be included as well.	The upgrading of the Pacific Highway is a major Federal and State Government commitment and priority aimed at improving the safety and operation of this Highway. The upgrading of the Pacific Highway will provide a high capacity road link between Sydney and Brisbane. This will assist transport efficiency and improve road safety through the provision of an upgraded facility. It will also facilitate high standard road-based public transport should future demands warrant it. The alternatives, such as bicycle networks and collective transport, would not meet the needs of long distance travellers and freight.
45h	Interest group	The EIS suggests that a reduction of greenhouse gases could be expected through the anticipated better traffic flow and fuel economy. While the NRMA agrees that individual emissions would decline, the expected increase in the use of the Road and vehicle kilometres travelled may in fact lead to an overall increase in greenhouse gases.	Emissions will be reduced immediately on opening due to the improved road alignment, flow and fuel economy. Increases in the number of vehicles will cause increases in total emissions, however, the provision of the upgrading will delay any increase.
45s	Interest group	To accommodate future urban growth, adequate access points on the proposed Bypass should allow access to integrated transport services such as bus and rail links to the local and regional centres of Mullumbimby and Brunswick Heads, Byron Bay and Tweed Heads.	Intra-regional services will benefit from the proposal by improved travel times. Local services will benefit from the reduction in through traffic which will assist in providing more reliable service running times. Interchanges have been provided at the Brunswick River, Yelgun and south at Saddle Road. This provides a good balance between high standard uninterrupted travel for through traffic and access to local communities.

5.3.16 Public Transport and ESD

Rep. Nr*	Who by?*	Issue	RTA Response

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5.3.17 Traffic

5.3.17 Traffic			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
16b	Indiv	The design of connection from Coolamon Scenic Drive to the southern Stock Route will actually encourage drivers to use our road as a through road to Billinudgel. This is a concern as the road is narrow and dangerous for drivers unfamiliar with dirt roads. There have been several accidents on the road over the years and with an increase in traffic, fatalities would become inevitable. There is a risk of increased dust levels. The road should be blocked off, but should be able to be used during floods (eg, a locked gate).	It is likely that the longer term Proposal development will lead to an increase in the traffic on this road and the need for upgrading by Byron Council. The RTA will liase with Council to ensure that the required work as part of the Proposal will suit both short and long term needs.
23p	Indiv	Disruption to local and highway traffic during construction would be greater than with the LEP route.	Use of the LEP route would reduce disruption to traffic in the area between the Brunswick River and the access to the Brunswick Heads Sewerage Treatment Plant, a distance of about 1.5km but would severely impact on the Ferry Reserve Caravan Park.
23zb	Indiv	The existing Pacific Highway would become the local traffic system needing little modification and no disruption. Disruptions, delays etc to local and through/ interstate traffic would be minimal during construction.	The existing Highway will become the local road as part of this Proposal with some areas being upgraded and realigned. The LEP route would avoid alteration of the existing highway in the vicinity of Rajah Road. Construction disruption in this area will be temporary and can adequately be minimised.
31e; 32i	Indiv	• The EIS assumptions fail to account for peak period impacts - holidays/ weekend traffic volume increases of more than 13 weeks per annum. • The EIS assumptions fail to account for peak period impacts - holidays/ weekend traffic volume increases of more than 13 weeks per annum. The long term reduction in value is undoubted.	The increased traffic during the summer and school holiday periods and during weekends are taken into account with the use of the Average Annual Daily Traffic figures (ADDT). AADT is the average of the daily traffic on all days of the year including those peak times during holidays etc. These peaks serve to raise the average daily volume which is used to design the capacity of the road. Current transport policy is to design for roads with suitable capacity for the AADT. This is done because providing roads with enough capacity for free-flow at peak times would mean that these expensive pieces of public infrastructure would be lying under-utilised for most of the year. With pressure to spend public money in the most cost effective manner, providing for the absolute peak traffic demand is difficult to justify. The road has been designed with some spare capacity to ensure that the average traffic demand will be able to move with low congestion. The road is also designed to be able to handle the average traffic

5.3.17 Traffic			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			demands until beyond the year 2016. During 'normal' flow conditions, operating service levels will be high. At times of absolute peak traffic demand (e.g. around Christmas) road users will experience greater delays. However, with the upgrade proposed, there will be significantly less than if the proposal were not to proceed. The higher design standard of the new road will increase the safety as well as the capacity of the Pacific Highway from the existing situation. It will therefore reduce significantly the delays experienced during the peak periods as well as contributing to reducing the accident potential.
31f; 32j	Indiv	• The EIS assumes no traffic volumes impact for Highway duplication and ease of Northern River serviceability. This is nonsensical in view of the project. • The EIS assumes no traffic volumes impact for Highway duplication and ease of Northern River serviceability. This is nonsensical in view of the project.	This is an issue of induced traffic/ cumulative impact. Of itself, the project will have little impact in terms of inducing traffic. The Cumulative Impact Study does however anticipates a small level of induced traffic for the project as a whole, and additional increases in traffic are expected in the area due to residential development. These increases will not affect the serviceability of the Northern River area, as the Highway has been designed to have sufficient capacity until 2016. This being the case, an ease in traffic is anticipated, particularly at project opening.

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5.3.18 Utilities

5.3.18 Utilities			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
01a	Busin	Optus has existing assets in the vicinity of the proposed road works and will undertake their relevant environmental assessment once the extent of the impacts is recognised. Therefore Optus does not have any comments in regards to EIS/ SIS.	From searches carried out in May and December 1997 Optus assets were identified in the Billinudgel area from Balemo Drive to Wilfred Street. The Sydney to Brisbane cable located across the Brunswick River Bridge will also be affected by the Proposal as the demolition of the existing Brunswick River Bridge will require the relocation of this cable. Standard arrangements will apply for the relocation of Optus (and other utilities) assets, with the RTA responsible for the cost of movement or alteration of assets. Removal of utilities from the existing bridge, however, is subject to an agreement which requires the owner of the utility to remove them on demand. It is understood a cutover of the cable in this location is highly undesirable and the RTA envisages negotiation with Optus regarding the form, cost and timing of the relocation from the Brunswick River bridge.
04a	Council	Council has water mains that are affected by the proposed roadworks. Potential areas of conflict are shown in plans. As per previous arrangements of this type, the RTA must pay the full cost of the relocation of these assets.	The locations of water mains indicated on the plans provided have been noted. Existing services that may be impacted by the Proposal, including water supply, was addressed in Working Paper No. 2, Road Concept Design Report. Further investigation into any alteration or relocation of these water mains will be carried out during the detailed design stage in consultation with Rous County Council.
25a	Council	The following services have been omitted from the study and should be referred to by the design team. Water supply 50mm PVC service and Telstra cable to Ocean Shores Sewage Treatment Plant sharing easement with 225 rising sewer main from Rajah Road. Water supply 32mm Poly through culvert to Brook property (kennels), Banana Road, from Ocean Shores. Water supply extends from Coolamon Scenic Drive along west boundary of existing Highway to Salad Bowl Caravan Park opposite Orana Road (property of Phillips).	Noted, will be incorporated into the detailed design.
37a	Busin	A 6 fibre optical cable is crossed by the new formation at approx ch.42300, but major conflict appears unlikely. Some protection of the cable may be required at that location, to be determined later.	Noted. This will be considered at the detailed design stage.

5.3.18 Utilities

Rep. Nr*	Who by?*	Issue	RTA Response
37b	Busin	The most significant conflict appears between ch.44500 and ch.45000 where two 100mm conduits pass under the proposed highway, over the existing bridge and head north along the eastern side of the existing Highway. These conduits contain several major cables, including the Sydney-Brisbane optical fibre cable (and Optus Sydney-Brisbane cable). The project includes the removal of the bridge. However, the amount of traffic carried by these cables and the magnitude of the project to replace them would make a cutover impractical. Telstra would be willing to consider any alternative, possibly including a means of moving cables to the new bridge or another suitable location without cutting or disconnecting them.	A search carried out on the 18 June 1997 identified a number of Telstra assets in the Proposal area. As highlighted by this submission the Sydney to Brisbane cable located across the Brunswick River Bridge will also be affected by the Proposal as the demolition of the existing Brunswick River Bridge will require the relocation of this cable. Standard arrangements will apply for the relocation of Telstra assets, with the RTA responsible for the cost of movement or alteration of assets. Removal of utilities from the existing bridge, however, is subject to an agreement which requires the owner of the utility to remove them on demand. As outlined a cutover of the cables in this location is highly undesirable and the RTA envisages negotiation with utilities owners regarding the form, cost and timing of the relocation from the Brunswick River bridge. Preliminary discussions with Telstra indicate that a satisfactory solution can be achieved.
37c	Busin	Further north, near chainage 47200, the route crosses a Telstra conduit. Major impact is unlikely as long as access is still available to any pits or manholes. Some protection may be required, to be determined later. Near Wilfred Street, at ch.48500, the route would cross two asbestos conduits. If access can be preserved to manholes, impacts should be minimal. Some protection is likely to be required.	The RTA will liaise with Telstra to finalise the requirements for protection and to ensure the continued access to Telstra assets. This will be done at the detailed design stage.
37d	Busin	The route crosses the Sydney-Brisbane coax cable (now no longer carrying major inter-exchange traffic) in two places, as well as several other copper distribution cables. Telstra would be keen to minimise the impacts, but this may be best achieved by assessing the extent of conflict later in the design phase and making minor design adjustments where feasible.	Noted for detailed design

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5.3.19 Air Quality

5.3.19 Air Quality			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06f; 15d	Indiv	• Concerned about house dust during construction. • Due to proximity of property to construction site, dust control will be imperative to protect our health and well being.	One of the main air quality issues identified was the potential for nuisance dust from earthmoving equipment during construction. It will be important during construction to stabilise areas as quickly as possible and use appropriate dust suppression techniques. Water sprays will be used to suppress dust and in extreme wind conditions construction activities may need to be stopped. These aspects will be fully addressed in an Environmental Management Plan, which will be written for the construction phase of the project. Dust monitoring during construction will also form part of this plan.
12a	Indiv	Traffic coming from Coolamon Scenic Drive will come straight ahead up our road rather than via the underpass at Orana Road if travelling to/ from Billinudgel and the Pocket. This would create an increase in dust as the road is gravel. We already have a dust problem caused by through traffic avoiding the Highway.	It is likely that the longer term Proposal development will lead to an increase in the traffic on this Road and the need for upgrading by Byron Council. The RTA will liase with Council to ensure that the required work as part of the Proposal will suit both short and long term needs.

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5.3.20 Geotechnical Issues

5.3.20 Geotechnical Issues			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
17a	Dept Min Res	NSW Department of Mineral Resources is satisfied that all relevant key issues in the EIS have been addressed.	Acknowledged
31d; 32d	Indiv	• Seriously concerned about the apparent lack of geotechnical assessment (See Working Paper No. 8, Page 19, cl 10.3 which provides that geotechnical analysis has not been carried out at this stage. • As per 31d.	The RTA has undertaken sufficient geotechnical investigations to develop and justify the concept. While detailed studies need to undertaken in conjunction with the detailed design, the cuts, fills and batters have been shown to be feasible for this Proposal.

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5.3.21 Agricultural Impacts

5.3.21 Agricultural Impacts			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
22b	Interest group	The proposed bridge crosses part of oyster lease 73-386, but this was not mentioned in the EIS. Oyster farmers would require approx. 6 months to relocate.	Acknowledged. The affected oyster farmer will be given at least 6 months notice prior to works being carried out to allow any alterations in normal operations to be made.
22c	Interest group	Details relating to the actual bridge construction are absent in the EIS. Oyster farmers would require that all tidal river channels suitable for navigation by oyster punts be available throughout the construction phase.	A navigable channel will be made available during all stages of work in and around the river. Details regarding this will be provided in the Environmental Management Plan for the construction and demolition of the Brunswick River Bridges.
22d	Interest group	Written notification as to the date of commencement of the bridge would be appreciated, as would a confirmation in writing that a navigable channel would be available. Written confirmation would be appreciated that oyster farming would be allowed under the proposed bridge on L/L 73-386 after construction. Also requested is permission to affix a lease marker sign on any proposed pylon if any such pylon be directly adjacent to the corner of the lease.	Advanced details will be given to the oyster growers regarding construction timing. A navigable channel will also be available at all times during bridge construction. Oyster Lease 73-386 will be directly affected by bridge construction. This will require the RTA to request the Minister for Fisheries to withdraw part of the area from the lease. Compensation for loss of lease area will be negotiated directly between the RTA and lease holder.
44a	NSW Ag.	The proposed route is not likely to have a significant impact on agricultural resources particularly given the route passes to the east of the village of Billinudgel.	Noted.

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5.3.22 Cumulative Impacts

5.3.22 Cumulative Impacts			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
34zzh	NPWS	EIS section 17.1. NPWS considers that the Cumulative Impact Assessment (CIA) Study has not adequately addressed many issues regarding the natural environment. It is therefore not appropriate that the current Proposal state that this study will address the potential for cumulative impacts at the broad regional and network level.	It is acknowledged that the CIA Study does not fully address cumulative impacts at a broad regional and network level. However the following comments are offered in relation to cumulative impacts: • Effects on flora and fauna of the region were identified as likely to occur through a reduction in the population of certain threatened species and in the loss of habitat areas, as well as interference with wildlife movement corridors. • While a number of individual threatened plants will required removal proposed mitigation measures such as appropriate propagation, replanting and translocation the long term cumulative impact in the study are will be beneficial. • The proposal will not remove critical fauna habitat. In addition the planting strategy will create new habitat areas. The provision of compensatory habitat including the Perrin and Walshe properties to the West of the Proposal which have already been purchased, the revocation of the LEP corridor (to potentially be incorporated into the Brunswick Heads Nature Reserve) and the protection and enhancement of the saltmarsh area on the south of the Brunswick River all form part of the mitigation strategy to mitigate against loss of National Park land and against impacts to threatened species and their habitats. • The compensatory habitat package as discussed with NPWS. This area will contribute to the achievement of a positive cumulative effect for the study are as well as the region as a whole. • The planting program will enhance fauna movement corridors. These will be made safe by the provision of underpasses fauna exclusion fencing. (See section 6.7 and Appendix 9 of this Report).

5.3.23 Fences and Gates

5.3.23 Fences and Gates			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06d	Indiv	Concerned about stock proof fencing.	Details such as stock proof fencing will be directly discussed and negotiated between the landholder and the RTA as part of acquisition negotiation.

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5.3.24 Heritage

5.3.24 Heritage			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
27a	NPWS	NPWS notes that no reference is made to the scarred tree in section 11.1.3 and 11.2.1.	The scarred tree will not be affected by the Proposal and will be protected during construction (by paraweb or other means acceptable to the Tweed Byron LALC and NPWS) to ensure that the general area is avoided by personnel and machinery. See Appendix 14 of this Report for Tweed LALC and NPWS correspondence.
27b	NPWS	NPWS is curious as to why both Indigenous and non-Indigenous heritage is not addressed in the section discussing cumulative environmental effects. NPWS contends that the proposal will constitute a cumulative environmental impact on cultural heritage resources.	While no *significant* indigenous or non-indigenous sites were found in the study area, certain items and sites of interest will be directly affected by the Proposal. These include isolated artefacts and a number of non-indigenous items including a post and fence rail. These were considered to be only of low-moderate significance and no further investigation was recommended. The potentially valuable archaeological deposit (PAD & Site JW-OS-4) will be protected as recommended in the subsurface archaeological testing program (see section 6.9 and Appendix 11 of this Report) by isolating the strip of land and incorporating it into the Billinudgel Nature Reserve. The overall cumulative impact is thus minimal. While some sites and isolated artefacts will be impacted by the proposal, the areas of high significance will be protected and no net depletion of any significant resource will occur. The RTA will implement measures and controls such as protective measures and recovery plans should other sites be found during construction.
27c	NPWS	NPWS acknowledges the justification by Mills for why the stone artefacts were recorded as separate sites, but given that the stone artefacts occur on the same landform and within relatively close proximity, NPWS would prefer that the artefacts were reclassified as a single site, with a single site card forwarded to NPWS reflecting this classification.	As recommended by NPWS, isolated artefacts B-IF-1 and B-IF-2 will be grouped together as a single campsite and re-titled B-OS-1. A site card will be submitted to NPWS for this site and Recommendation 5 amended to as follows: B-OS-1 has been classified as having low archaeological significance. Tweed Byron LALC have stated that this site has low Aboriginal significance (Appendix 5 of Working Paper No. 6 - Indigenous and Non-indigenous Heritage). Therefore, it is

5.3.24 Heritage			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
			recommended that the RTA make application to NPWS for a Consent to Destroy Permit for this site. As LALC wish to collect these artefacts, the RTA shall advise the Tweed-Byron LALC that it should apply for a care and control permit from NPWS..

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5.3.25 Signage

5.3.25 Signage			
Rep. Nr*	**Who by?***	**Issue**	**RTA Response**
06j	Indiv	This is almost a constant source of worry. Humble Pie erected a sign 20 months ago and it has proved to be an outstanding success. Now everyone wants a sign. It would be more appropriate to erect a sign that was of benefit to everyone in Billinudgel - a general welcome message.	Final decisions regarding road signage will be determined by the RTA and Byron Council in accordance with RTA policy.

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5.4 Additional Correspondence

Correspondence was received on 11 February 1999 from Humble Pies Co., a manufacturing unit and refreshment establishment located on the Pacific Highway at Billinudgel (see Appendix 14 of this Report).

This correspondence related to the proprietor's concerns regarding the restricted access to the establishment during and after construction of the Upgrade, and the effect that this would have on business turnover and employment. It was suggested that the establishment be given the opportunity to relocate to the Yelgun interchange.

Concern was also raised regarding the dust likely to be generated during construction. It was considered by the proprietor that dust levels would mean that the company would not be able to comply with the Health Act for the production of food.

The RTA has commenced additional investigations on the feasibility and acceptability of locating a retail outlet at the Yelgun interchange, and on the effect of dust on manufacturing operations. However, these studies have not been able to be finalised due to the late timing of the correspondence. Both will be completed before the commencement of the detailed design stage of the Project and appropriate measures implemented in consultation with the Proprietor and any other relevant stakeholder. (See also section 6.12 of this Report).

If an appropriate opportunity exists at the interchange, there are a number of issues that would need to be addressed before any undertaking could be given to make the site available to this particular business.

6. Additional Investigations Undertaken After the Exhibition of EIS

A total of eleven additional investigations or reports providing additional information were undertaken for the Brunswick-Yelgun Proposal following the exhibition of the EIS. These studies were prepared in response to a number of factors, including issues raised in representations, design changes, changes to legislation, and ongoing consultation with authorities and interest groups. The reports were approached with a view to investigating means to eliminate or reduce impacts of the Proposal.

Two additional investigations are yet to be undertaken . These investigations are to be undertaken in response to correspondence received late in the Representations Report process.

These comprise:

1. **Aquatic assessment:** An eight part test undertaken to address the requirements of the newly introduced Fisheries Management (Amendment) Act 1997. Investigations were also undertaken to assess the impacts of construction on oysters, to determine the effects of sediment on seagrasses, and to assess the aquatic habitats in the study area.
2. **Brunswick River Bridge Construction/ Demolition Report:** An overview of the processes and methods used in the demolition and construction of the bridges.
3. **SEPP 14 Wetland Report:** A supplementary report on the effects of the Proposal on SEPP 14 Wetland.
4. **Supplementary Report – Investigations into 'Routes J and J1':** A review of the environmental investigations undertaken for two additional alternative routes suggested by the local community.
5. **Compensatory Habitat Package:** An outline of the compensatory habitat package proposed for the Project by the RTA.
6. **Species Impact Statement Addendum Report:** Clarification and additional information provided in response to the NPWS and other representations.
7. **Species Impact Statement Addendum Report Supplement:** Additional information provided in response to NPWS review of the Species Impact Statement Addendum Report.
8. **SIS Addendum Review:** Responses to issues raised by DUAP.
9. **Archaeological Report:** The results of subsurface archaeological testing.
10. **Supplementary Noise Report:** Detailed response to representations regarding noise considerations and mitigation.
11. **Batch Plant Supplementary Information:** Additional information on the potential location and environmental impacts of batch plants.
12. **Additional Investigations yet to be Undertaken:** Correspondence was received very late in the Representations Report process regarding economic concerns. In response to these concerns, the RTA will undertake additional investigations on the feasibility of locating a retail outlet at the Yelgun interchange, and on the effect of dust on manufacturing operations during the approval process.

6.1 Aquatic Assessment – Additional Investigation

The introduction of the *Fisheries Management (Amendment) Act 1997* in July 1998 has meant that road projects are now required to undertake environmental assessment to determine if there would be likely to be a significant impact on threatened species, populations or ecological communities of aquatic species.

A preliminary 8-Part Test was undertaken for fish species as part of the July 1998 EIS, and a recommendation made to prepare a more detailed 8-Part Test during the determination process. This recommendation was supported by NSW Fisheries in its representation to the EIS.

NSW Fisheries also requested further information regarding aquatic issues, including:

- Oysters: the effects of vibration and other features of construction on oysters.
- Seagrasses: the type, distribution and effect of sedimentation on seagrasses.
- Habitats: an assessment of freshwater habitats in the area.

The RTA commissioned The Ecology Lab Pty Ltd (through the principal consultants, Sinclair Knight Merz) to undertake this work (see Appendix 3 of this Report).

6.1.1 Results of the Aquatics Assessment Additional Investigation

8-Part Test: One threatened aquatic species, the Oxleyan pygmy perch (*Nannoperca oxleyana*) has a published distribution that encompassed the subject area. The assessment and '8-Part Test' indicated that it is unlikely that threatened species, populations or ecological communities would be affected by the Highway Upgrade and that an SIS is not necessary for the planned activity. No suitable habitat was located for the Oxleyan Pygmy Perch and the literature search undertaken did not suggest that any individuals had been identified from the study area.

Oysters: Bridge and landbased construction activities could potentially affect oysters through the disturbance of riverbed sediments which may release toxic substances and acid sulphate soils. These impacts would be mitigated through the appropriate use of silt curtains, erosion and sediment controls and acid sulphate management. There was little information as to whether vibrations would be likely to affect oysters, but it was considered that at least theoretically, vibration could potentially affect the animal through interruptions to feeding or some physiological effect. It was considered that adult oysters may best be protected by translocation location to a nearby estuary or elsewhere within the Brunswick River. It was recommended that the RTA provide as much warning as possible prior to construction and facilitate close liaison between the Authority, oyster growers and contractors.

Effects of Sedimentation on Seagrasses: Changes in sedimentation patterns can affect seagrasses through an impediment to the photosynthetic ability of the plant, adversely affecting its growth or leading to complete loss. However, the works proposed would not result in high sedimentation or turbidity and silt curtains would be used to mitigate any impacts. Also, *Zostera capricorni* (the species found in the subject area) is able to recolonise disturbed areas and can be transplanted with a reasonable success rate.

Assessment of Habitats:

- Seagrass habitat: A number of small, sparse patches and one large patch of seagrass (*Zostera capricorni*) were located in the study area. The larger, denser bed covered 250m^2. These beds were too sparse to constitute good habitat.

- Wetland habitat (Mangrove): An area of 0.816km^2 of mangrove was recorded for the Brunswick estuary. Most of the area comprises SEPP 14 wetlands.
- Wetland habitat(Saltmarsh): An area of saltmarsh was recorded adjoining SEPP 14 No.65. This saltmarsh has a restricted flow due to the position of a culvert. It had previously been recommended that this flow be increased to facilitate rehabilitation of the wetland, however, this may affect the current wetland, particularly if a greater tidal range allows the colonisation of mangroves. It was recommended that the proposed further study be undertaken to determine the appropriate management action for this habitat.
- Creek habitat: The assessment of Marshall's Creek and two other small creeks did not locate any suitable habitat for threatened species.

6.1.2 Outcomes of the Aquatics Assessment Additional Investigation

The outcomes of the Aquatics Assessment Additional Investigation are as follows:

Representations addressed: Concerns raised in the Representations to the EIS regarding aquatic issues have been addressed.

'8-Part Test': It is unlikely that the proposal will affect threatened or protected aquatic species, populations or ecological communities.

SIS: The RTA is not required to undertake an SIS for aquatic species for the Proposal.

NSW Fisheries 'sign off': NSW Fisheries has provided advice that it:

- Is satisfied with the additional information provided by the RTA.
- Has no objections to the conclusion of the 8-Part Test for the Oxleyan Pygmy Perch and other threatened species.
- Supports the mitigation measures, management plans and proposed actions for environmental management as proposed in this investigation.

Mitigation Measures: As a result of NSW Fisheries Requirements, the following safeguards and mitigation measures will be undertaken:

- Seagrasses: The RTA will consult with NSW Fisheries and carry out a joint inspection of the bridge site over the Brunswick River to assess the potential impact on seagrasses and to determine the most appropriate management strategy (eg mitigation measures, habitat rehabilitation and environmental components).
- Liaison with Oyster Farmers: The RTA will liaise with oyster farmers regarding various options for adapting activities during construction including periods of pile driving. The RTA will provide earliest possible notice of timing of works to allow for management of oysters during pile driving.
- Erosion and sediment controls: The RTA will use appropriate erosion controls to limit the amount of sediment released into the River and impacts on the seagrass bed.
- Permit: The RTA will notify NSW Fisheries of any action that may result in damage to or loss seagrass before undertaking the activity. This may take the form of a permit.
- Monitoring: The RTA will use the data collected by the Brunswick River Oyster Growers' Committee for long term monitoring.
- Water Quality Program: The RTA will ensure that the Water Quality Monitoring program for the project is reviewed by an aquatic ecologist before implementation.
- Saltmarsh: The RTA will seek expert advice on the impact of the saltmarsh before altering the hydrology.
- Culvert Design: The RTA will design new culverts, extend existing culverts and undertake works using the NSW Fisheries Guidelines and in consultation with NSW Fisheries.

- Water Quality: The RTA will maintain good water quality in all waterways during the construction phases, and regularly maintain sediment fences and silt curtains.
- Acid Sulphate Soil: The RTA will manage potential ASS through the implementation of its ASS policies and procedures.

6.2 Brunswick River Bridge Construction/ Demolition Report

A supplementary report regarding the proposed processes and methods for the bridge demolition and construction, and the environmental impacts of these works, was undertaken in response to requests for additional information from NSW Fisheries and other stakeholders.

The RTA commissioned Sinclair Knight Merz to undertake this work (see Appendix 4 of this Report).

6.2.1 Results of the Bridge Construction/ Demolition Report

The potential environmental impact of the construction of the new bridge and demolition of the old bridge on the river environment is expected to be minimal through the use of low impact techniques and the provision of appropriate mitigation measures.

Construction of the New Bridge

The foundation for the new bridge would be a cluster of driven, precast and prestressed concrete piles. This has been selected in preference to other methods such as bored, cast in place piles as the activity of driving piles would have minimal impact on the river bed for a short period of time (eight weeks approx.) and would cause negligible disturbance of sediment, as sediment is not removed from the river bed.

As preboring is most likely needed for the northern most piles some material would need to be removed from the river bed. The potential for acid sulphate soils has been raised as an issue but is unlikely to be a problem.

A dry working platform would be placed around each pile cluster to allow the forming and placement of the pilecaps and also minimise risk of materials falling in the river. Super-tee girders would be used for the bridge as these enable a flat working surface for deck construction to be created. This offers superior safety for both workers on the deck and anyone below.

Demolition of the Old Bridge

The piles driven to rock (piers 1 to 4 from the southern side) could be extracted (or pulled). The piles socketed into rock at piers 5 and 6 would not be easy to extract and would need to be cut off by divers using underwater demolition equipment. Exposure of the pile stubs "cut off" on the north side of the river may be an issue if river bed level lowers over time, causing the pile stubs to interfere with other river users. If this occurs further demolition work may be required.

Concern has been raised about the navigability of the river during construction and demolition works. As these works would be staged with only the immediate area around the pile group being driven or extracted being utilised at any one time, maintaining a navigable

channel would always be possible. This issue would be addressed in detail as part of the construction plan for the bridge.

Mitigation measures would be as below in section 6.2.2.

6.2.2 Outcomes of the Bridge Construction/ Demolition Report

Representations addressed: Concerns raised in the Representations to the EIS regarding the demolition of the old and construction of the new Brunswick River Bridge have been addressed.

Mitigation Measures: As a result of the Bridge Construction/ Demolition Report, the following safeguards and mitigation measures will be undertaken:

- Erosion and sediment controls: The RTA will install a silt curtain around each pile group during construction to contain any sediment that may be disturbed.
- Debris trap: The RTA will install a means of catching debris falling from the bridge.
- Construction Program: The RTA will provide a detailed construction program as part of the detailed design phase. This program will determine the best method of movement and installation of materials.
- Potential Acid Sulphate Soils: The RTA will assess any material removed from the river bed for acid sulphate soil. An appropriate plan is to be developed in accordance with ASS procedures for its storage and disposal.
- Monitoring of Pile Stubs: The RTA will monitor any pile stubs (the 'cut off' base of the demolished bridge) annually for three years after demolition. Further demolition of the piles will be carried out as necessary with additional assessment as appropriate.

6.3 SEPP 14 Wetland Report

A supplementary report was prepared in response to requests by the Department of Urban Affairs and Planning (DUAP) to report on the potential environmental impacts of the Proposal on State Environmental Planning Policy No. 14 Coastal Wetlands (SEPP 14 Wetlands). This report was prepared with reference to DUAP's recently released draft policy paper regarding wetlands destroyed through development.

The RTA commissioned Sinclair Knight Merz to undertake this work (see Appendix 5 of this Report).

6.3.1 Results of SEPP 14 Wetland Report

The SEPP 14 Wetland Report made four main points: Firstly that an extensive route selection process was undertaken in which all stakeholders involved were aware of the location and value of SEPP 14 Wetlands. Ecological considerations were given the highest weighting in the options evaluation matrix.

Secondly, the report showed that alternatives to the preferred route would have a greater impact than the route selected.

Thirdly, the report demonstrated that the impacts of the preferred route have been minimised, with impacts limited to the extremities of the wetlands, areas which are already disturbed through human activity.

Lastly, it was reiterated that an extensive range of mitigation measures were proposed to protect water quality and the wetland ecologies. A compensatory habitat package has been proposed, which includes habitat on both the eastern and western sides of the Highway. This package is in excess of the DUAP 10:1 ratio draft policy. The package incorporates the revocation of road zoning over the SEPP 14 Wetland (currently within the LEP corridor) and proposes to restore and enhance 4.6ha of saltmarsh. A Plan of Management would also include monitoring of the saltmarsh for a period of up to 10 years, in accordance with DUAP's draft policy. Overall, the package would protect, enhance, create and restore wetland areas.

6.3.2 Outcomes of SEPP 14 Wetland Report

Response to DUAP Request: The RTA has reviewed the issue of SEPP 14 Wetlands and has demonstrated that the route selected has the fewest ecological impacts of the options examined.

Information provided to DUAP: An assessment of the existing wetland site and a compensatory wetland agreement containing a contingency plan has been provided to DUAP in accordance with its draft policy.

Mitigation Measures: As a result of DUAP requirements regarding SEPP 14 wetlands, the following safeguards and mitigation measures will be undertaken:

- Implementation of WP 5: The RTA will implement the mitigation measures found in the Water Quality and Hydrology Assessment (Working Paper No. 5 of the EIS), the Flora and Fauna Assessment (Working Paper No. 7 of the EIS) and the Species Impact Statement.
- Drainage: The RTA will design an appropriate hydrological regime to ensure that tidal flushing from the river is of an appropriate magnitude and frequency to ensure the long-term functioning of the saltmarsh system.
- Saltmarsh rehabilitation and Plan of Management: A study will undertaken of the saltmarsh area by a qualified expert in consultation with NPWS and NSW Fisheries to determine the most appropriate future management techniques and procedures for the area. The outcome of the study will lead to a 'Plan of Management', which will include an appropriate hydrological regime and vegetation management strategy and monitoring. This plan of management will be implemented as part of the works.

6.4 Supplementary Report – Investigations into 'Routes J and J1'

In June 1997, a request was made by local residents of the Ocean Shores area to investigate two route options in addition to the seven options and variations that had already been investigated.

The two additional routes suggested were termed Routes 'J' and 'J1', investigated in July 1997 and then rejected as having a number of significant environmental impacts. However, these routes, investigations and reasons for rejection were not specifically discussed in the EIS.

A supplementary report reviewing these matters was undertaken in response to representations requesting information on the route selection process relating to Routes J and J1.

The RTA commissioned Sinclair Knight Merz to undertake this work (see Appendix 6 of this Report).

6.4.1 Results – Investigations into 'Routes J and J1'

Investigations into Routes J and J1 were undertaken in July 1997. The investigations showed that Routes J and J1 were less preferable to route A2 (the preferred route) on engineering, geotechnical, and ecological considerations.

Routes J and J1 encountered poor quality compressed soils, had a high potential for acid sulphate soils and crossed the river in an area of problematic bank instability.

The Routes would have introduced another barrier to fauna movement by creating a second road corridor through the area and would have traversed areas of relatively undisturbed vegetation. It would have affected a large area of high quality mangrove vegetation. It would have potentially affected threatened species including *Elaeocarpus williamsianus* (Hairy Quandong), *Davidsonia puriens ssp jerseyana* (Davidsons Plum) and *Endiandra floydii* (Crystal Creek Walnut).

Following the consideration of Routes J1 and J2, Route A2 was recommended and adopted as the preferred option, particularly on ecological grounds. The A2 route mainly affected already disturbed natural areas, minimised the fragmentation of habitats and did not impose an additional barrier to fauna movement.

6.4.2 Outcome – Investigations into 'Routes J and J1'

Representations addressed: The representation regarding Routes J and J1 in the route selection process has been addressed. A review has been undertaken showing the process by which routes J and J1 were assessed and the reasons for the conclusion that these routes would have had a greater environmental impact than the preferred route (A2).

6.5 Compensatory Habitat Package

Compensatory habitat has been an issue throughout the EIS process. Environmental investigations and workshops held early in the process indicated that mitigation measures, including compensatory habitat, would be required to compensate for the proposed impact, especially on the Brunswick Heads Nature Reserve.

The preparation of the compensatory habitat package has been an ongoing process. The RTA formally advised NPWS of its proposed package on 12 February 1999 after extensive discussions with the Service (see Appendix 7).

6.5.1 Results of Compensatory Habitat Package

The compensatory habitat package addresses the concerns of NPWS, NSW Fisheries and DUAP relating to flora, fauna habitat, fish habitat and wetlands. It should be noted however, that some elements of this package are dependant on the willingness of landowners to sell, and at an appropriate valuation.

The proposed package comprises a number of elements:

i. Additions to NPWS Estate. This includes:
   - The purchase of properties of high environmental values which are unaffected by roadworks.
   - Transfer of road residues and residues of affected properties adjoining NPWS nature reserves.
   - Consolidation of residues with adjacent crown lands and transfer to NPWS.
   - Transfer of residues associated with the Brunswick Heads Bypass.

ii. Restoration of lands to be transferred to NPWS
   - Restoration of areas by the RTA prior to handover.
   - Contribution to and participation in the preparation of plans of management and subsequent restoration activities.

iii. Release of RTA interest over the LEP corridor through Brunswick Heads Nature Reserve.

iv. Restoration of Brunswick River Southern Foreshore in the vicinity of the existing bridge.

Details of the package are as follows. A plan is attached in Appendix 7.

Table 6-1. Summary - Proposed Compensatory Habitat Package

Element of Compensatory Habitat Package	Lands affected	Amount of land/ ha	Reason for inclusion	Status of Land	Proposal Details - General	Proposal Details - Ongoing Restoration Works/ Management
i. Land to be acquired and used for Proposal	Revocation of Brunswick Heads Nature Reserve.	(0.56)	N/A	This is the land to be used for the Proposal. The revocation was agreed to by the Minister for the Environment on 21 November 1997 with conditions.		
1. Proposed Additions to NPWS Estate	Walshe/ Perrin	49	These properties contain a significant lowland rainforest remnant and core koala habitat.	RTA already owns these properties.	The bulk of the lands are proposed for transfer to NPWS. It is proposed to excise the existing dwellings, rezone the excisions, apply covenants/ voluntary conservation agreements, create rights of access to NPWS area and dispose of the dwellings on the open market.	The RTA will retain a short term involvement with the management of the area by funding the preparation of a plan of management and subsequent management/ revegetation activities to a limit of $60,000.
	Marshalls Creek Corridor	66	The Marshalls Creek corridor is an area of high ecological value and is a strategic link between Billinudgel and Brunswick Heads Nature Reserve. Several studies have confirmed this, including one undertaken by NPWS in 1990 and an RTA study in 1997.	Not owned by RTA.	The RTA proposes to purchase on a willing seller/ willing buyer basis supported by valuation, as much of the private lands identified on the plan (see Appendix 7) as can be obtained within 5 years. If it becomes clear that RTA is unable to purchase a substantial portion of the identified land, then the implications for the integrity of the package and appropriate further action will be reviewed with NPWS.	Lands will be transferred to NPWS immediately upon purchase on an as-is basis, with NPWS responsible for all management activities from the date of purchase.
	Brunswick Heads NR - Wright and Cairns	0.6ha	These two property residues lie between the western side of the Highway and the BHNR and contain	To be acquired by RTA.	It is proposed to transfer residue to adjoining nature reserve.	Stormwater treatment and interception capability works are proposed. A small area at the northern abutment of the existing Brunswick River bridge

Element of Compensatory Habitat Package	Lands affected	Amount of land/ ha	Reason for inclusion	Status of Land	Proposal Details - General	Proposal Details - Ongoing Restoration Works/ Management
			vegetation important to the continued integrity of the Reserve.			would also be restored as part of the removal of the existing bridge prior to handover.
	Billinudgel Nature Reserve - Allardice	0.8ha	NPWS has previously drawn attention to difficulties in fire management in this area.	Owner has expressed an interest in selling this narrow strip of residual land (lying between Billinudgel NR and the proposed Highway). The owner may also request the RTA to purchase the entire portion of the property east of the existing Highway (a further approx. 7 ha).	It is proposed to transfer residue to adjoining nature reserve.	Proposed to purchase and transfer it to NPWS as is. If additional 7ha purchased, it would also be transferred on an as-is basis.
	Adjacent to interchange south of Brunswick River	4.3	Apparently degraded saltmarsh	This area is land currently owned by the RTA and crown land. It is understood that the crown lands between the BHNR and Brunswick Heads village are in the process of being transferred to the NPWS to become nature reserve.	It is proposed to consolidate residues with Crown Land and transfer to NPWS. The RTA will carry out a detailed study of the saltmarsh, leading to the development and implementation of a restoration plan for the area.	The RTA would be required to maintain a 10 year involvement with the ongoing management of the area.
	Eastern side of the Brunswick Heads Bypass	17.0	This is not a new commitment but is included here for completeness.	Owned by RTA.	It is proposed to transfer residues associated with Brunswick Heads Bypass to NPWS. All lands held by the RTA on the eastern side of the Brunswick Heads Bypass, with the exception of the area now required for the southern interchange, are available for transfer into the proposed new nature reserve.	The appropriate control agency for the portion which will not adjoin the proposed new nature reserve and which contains SEPP 14 wetland, will need to be agreed between the RTA, NPWS and DLWC.

Element of Compensatory Habitat Package	Lands affected	Amount of land/ ha	Reason for inclusion	Status of Land	Proposal Details - General	Proposal Details - Ongoing Restoration Works/ Management
2. Restoration of Lands to be transferred to NPWS	Discussed above in 1.	-	-	-	-	-
3. Release of RTA interest over LEP Corridor	Brunswick Heads Nature Reserve	1.53	There is currently an area of land excluded from the Brunswick Heads Nature Reserve and zoned for road. The area is crown land and is understood to be in the process of transfer to NPWS.	Zoned for road uses.	The RTA would formally relinquish interest in this area and request Council to rezone appropriately.	
4. Restoration of the Brunswick River Foreshore	Southern Foreshore	-	Although this is not an item of direct interest to NPWS, it is an important aspect of the compensatory package.	Currently road and other uses.	Following the demolition of the existing bridge, there will be an opportunity to remove the redundant road and redevelop the area between the caravan park and restaurant building. The RTA proposes to facilitate a process involving all relevant stakeholders including the community, that will identify the appropriate uses for the area and develop an implementation plan. It is likely that RTA, Council and DLWC will all be involved in implementation.	
Total		138.67				

Source: Letter to NPWS 12.2.99. See Appendix 7 of this Report

6.5.2 Outcomes of Compensatory Habitat Report

Representations addressed: Concerns raised in the Representations to the EIS regarding the provision of compensatory habitat have been addressed.

RTA commitment: The RTA has demonstrated its intention to provide compensatory habitat as part of the Proposal.

Finalisation of Package: The RTA will finalise its compensatory habitat package, including the amount and location of land to be acquired, in consultation with NPWS and other stakeholders.

6.6 Species Impact Statement Addendum Report

An SIS Addendum Report was undertaken in response to requests from NSW National Parks and Wildlife Service and other stakeholders for additional information related to the Threatened Species Conservation Act and the Director-General's Requirements.

The RTA commissioned Gunninah Environmental Consultants to undertake this work (through the principal consultant, Sinclair Knight Merz) (see Appendix 8 of this Report).

NPWS requirements primarily concerned the following issues:

- Survey and assessment methods and personnel.
- The conservation significance of recorded species and vegetation communities.
- Additional information on or assessment of flora and fauna species within the area.
- The inclusion or exclusion of certain information in the report.
- Additional 8-Part tests.
- Mitigation measures and design details.
- Impacts on squirrel gliders.
- The presentation of information in the report.
- Mitigation measures, monitoring and management including compensatory habitat, landscaping and EMPs.
- The fulfilment of the DGRs.
- Access arrangements and impacts on river users.
- Cumulative Impacts.
- Water quality.

6.6.1 Results of SIS Addendum Report

The SIS Addendum Report provided additional information on methodology (section 3 and 7 of the SIS addendum report) and descriptions/ discussion of the study area, threatened species or endangered populations (sections 4-6). It provided information to clarify or augment the assessment of likely impacts to flora and fauna species (section 10), and detailed additional amelioration measures to be implemented as part of the Proposal (section 11). It clarified issues relating to Appendices F and J (Appendices section).

Additional 8-Part tests were undertaken for one flora species (Scented Achronychia *Acronychia littoralis*) and two fauna species (Eastern Grass Owl *Tyto Capensis*, Long-nosed Potoroo *Potorous tridactylus*). (See Attachment E of the Addendum SIS). In all three cases, it was concluded that the proposal would not involve the likelihood of a significant effect, and a Species Impact Statement was not required for the activity with respect to these species.

The RTA provided additional details regarding issues of access, water quality, the Brunswick Heads Bypass, the impacts on river users, landscaping principles, cumulative impacts and EMPs in a letter accompanying the SIS Addendum Report.

6.6.2 Outcomes of the SIS Addendum Report

The outcomes of the Additional Investigation – SIS Addendum Report, are as follows:

Representations addressed: Concerns raised in the Representations to the EIS regarding flora and fauna matters have been addressed.

TSC Act matters addressed: Additional discussion has been provided in order to address matters contained in sections 110(2)(C)(D)(H) and (I) of the Threatened Species Conservation Act 1995 (TSC Act).

D-G's Requirements addressed: Additional discussion and information regarding description, the assessment of likely impacts, amelioration requirements and data records has been provided in order to address the Requirements of the Director-General of NPWS pursuant to section 111 of the TSC Act.

Additional SIS not required: The RTA is not required to undertake an additional SIS for the project.

Amelioration measures: The RTA will undertake the amelioration requirements as outlined in the Addendum SIS.

6.7 Species Impact Statement Addendum Supplementary Information

The Species Impact Statement Addendum Report for the Brunswick Heads to Yelgun Proposal was forwarded to NPWS on 23 December 1998. Following the receipt of the Report, NPWS requested supplementary information regarding several matters as follows:

- The provision of details and suitably scaled plans as to the location of the position, structure, type and size of underpasses, either existing or proposed, including a listing of targeted threatened fauna species.
- The provision of details and suitably scaled plans as to the location of existing and proposed fauna exclusion fencing.
- The provision of details of the retention/ provision of trees for potential crossing points by Squirrel Gliders.
- Further investigation as to the provision of a suitable size fauna underpass in the vicinity of chainage 50700 where a 2.4mx1.2m box culvert is proposed.
- A listing of the approximate area of each vegetation community to be removed.

- Additional details with respect to D-G's requirement number 3-1: the name of the person conducting the plant identification, the number of individuals and the extent of the population.

NPWS also provided advice as to additional mitigation measures for the project. These are listed in the 'outcomes' section of this Report (see section 6.7.2).

The RTA commissioned Gunninah Environmental Consultants to undertake this work (through the principal consultant, Sinclair Knight Merz) (see Appendix 9 of this Report).

6.7.1 Results of Species Impact Statement Addendum Supplementary Information

Details of underpasses, targeted fauna species and exclusion fences

For the duplication of the existing Brunswick Heads Bypass, it is proposed to extend the existing fauna underpasses which have been constructed beneath the existing Bypass. These are located at approximate chainages 42400, 42900, 43200, 43300, 43350, 43400, 43450, 43550, 43650, 43800 and 44000. Of these, two consist of bridges over drainage lines (at chainages 43300 and 43450), which provide substantial fauna movement potential and constitute the main underpasses along the Bypass. The remainder were constructed of concrete box culverts, approximately 2.4 metres wide and 1.2 metres high, with wildlife fencing (with a floppy top) located on the embankment or approximately at its foot along most of the Bypass alignment. These were designed and installed following consideration of the project by the NPWS, and in recognition of the need for their future extension associated with the future duplication of the road.

Fauna species targeted for the Brunswick Heads Bypass fauna underpasses include the threatened Koala and Long-nosed Potoroo, and the general array of native fauna species (particularly reptiles, amphibians and small terrestrial mammals).

For the Pacific Highway Upgrade, four crossing points are proposed. These are located at the Brunswick River, at Marshalls Creek, at an existing bridge on the existing Pacific Highway to the north of Marshall's Creek (ch 49000). An additional structure, or lengthening of the existing bridge at ch 49000 is to be provided. In all instances, the underpasses will involve the installation of fauna exclusion fencing and the use of landscaping to provide shelter for fauna utilising the underpasses.

The locations of underpasses and exclusion fencing can be found in Appendix 9 of this Report.

Details of potential crossing points for Squirrel Gliders

Two sites were identified as providing potential Squirrel crossing points because of the proximity of large trees or the potential for tree retention. Potential crossing points are located approx. ch 43100 and 43300-43400.

Provision of a fauna underpass in the vicinity of ch 50700

The SIS Addendum Report – Additional Information showed that due to poor ecological conditions and engineering constraints, there are considerable difficulties in providing a useful and suitable dedicated underpass for native fauna in the vicinity of ch 50700. The provision of sufficient clearance under the Highway for a large underpass would also

produce direct impacts on Billinudgel Nature Reserve. The main opportunity is the provision of a 2.4x1.2m box culvert at approximately ch 50800 and the 2x1500mm diameter pipes at ch 49400. It should be noted however, that there will be a fauna overpass approximately 1km to the north, and there are substantial bridge structures in the Marshalls Creek area to the south. Fauna proof fencing will be provided. In addition, it was considered that the landscape and land uses to the west of the proposed roadworks are not conducing to most native fauna other than highly mobile groups such as birds and bat species.

As such, an underpass, other than a 2.4mx1.2m box culvert is not considered viable or proposed for this Project.

Listing of the approximate area of each vegetation community to be removed

The SIS Addendum Report – Additional Information listed the upper limit of disturbance to native vegetation. This is as follows:

Table 6-2. Area of vegetation to be cleared (upper limit)

	Brunswick Heads Bypass Duplication	Brunswick River to Yelgun Upgrade	Total
Swamp Sclerophyll Forest	0.2ha	1.0ha	1.2ha
Wet Sclerophyll Forest	-	2.5ha	2.5ha
Dry Sclerophyll Forest	<0.1ha	-	<0.1ha
Rainforest	0.2ha	2.0ha	2.2ha
Sedgelands	-	0.6ha	0.6ha
Mangroves	-	0.1ha	0.1ha
Cleared/ disturbed land	0.2ha	20.0ha	20.2ha
	<0.5ha	26.2ha	<26.9ha

Source: Gunninah Ecol. Consultants, SIS Addendum Supplementary Information, Feb 1999

Additional details - D-G's requirement number 3-1

Name of Person conducting flora identification: Andrew Benwell of Ecos Environmental Consultants.

Number of Individuals: A modified Figure 7 (as included in Attachment F of the SIS Addendum Report) is provided with this document as Attachment A indicating the numbers of individuals of threatened plant species which were recorded during field investigations.

Extent of Populations: The mapped locations show the small stands occupying an area ranging from an individual plant to over a 10m2.

6.7.2 Outcomes of Species Impact Statement Addendum Supplementary Information

The outcome of the Species Impact Statement Addendum Supplementary Information is as follows:

Representations addressed: Concerns raised in the Representations to the EIS regarding flora and fauna matters have been addressed.

TSC Act matters addressed: Additional discussion has been provided in order to address matters contained in the Threatened Species Conservation Act 1995 (TSC Act).

D-G's Requirements addressed: Additional discussion and information has been provided regarding D-G Requirement 3-1.

Additional SIS not required: The RTA is not required to undertake an additional SIS for the project.

6.8 Response to the Submission of Department of Urban Affairs and Planning

Following the exhibition of the EIS, the Department of Urban Affairs and Planning commissioned Woodward Clyde to undertake a review of flora and fauna issues for the Project.

The issues raised for further investigation were as follows:

- The impacts of doubling the length of existing fauna underpasses within the Brunswick Bypass section of the proposal.
- The possible requirement for preparation of a section 5A Assessment (8-Part Test) of Significance for the
  * Black-necked Stork.
  * Black Flying-fox.
  * Eastern Grass Owl.
  * Long-nosed Potoroo.

The RTA commissioned Gunninah Environmental Consultants to undertake this work (through the principal consultant, Sinclair Knight Merz) (see Appendix 10 of this Report).

6.8.1 Results of the Response to the Submission of DUAP

Impact of Doubling the Length of Existing Fauna Underpasses

A total of eleven fauna underpasses have been constructed along the existing Bypass. Of these two consist of bridges over drainage lines and nine are culverts approximately 2.4m wide and 1.2 metres high. The bridges comprise the main fauna underpasses, suitable for species such as the Koala, with smaller concrete culverts providing suitable fauna passage for a range of species, particularly terrestrial species such as the Long-nose Potoroo.

The Response to the Submission of DUAP noted that the original underpasses were designed and installed following consideration of the Project by NPWS, and in the understanding that the culverts would need extending when any future duplication of the Highway took place.

Additional 8-Part Tests

The Response to the Submission of DUAP considered that no 8 Part Test was required for the Black-necked stork. This due to the following factors:

- little or no habitat for this species is to be directly affected by the proposal.
- if the Black-necked Stork currently utilises the saltmarsh, it does so notwithstanding the presence of the existing Pacific Highway.

- the comments that Black-necked Storks regularly utilise features such as golf courses in the area indicate a relatively high level of tolerance for modified and artificial environments.
- there is no evidence for the presence of "*a viable local population*" in those areas to be affected, and no reasonable assessment with respect to Factor A of s.5A can be obtained.
- the proposal is sensitive to the requirements for adequate and appropriate management of the saltmarsh, and is committed to improving the habitat in this particular locality.
- an assessment pursuant to s.5A of the EP&A Act requires the identification of the likelihood of "*a significant effect*", not just any "*effect*".

The Response to the Submission of DUAP considered that there is no likelihood of "*a significant effect*" being imposed upon the Black Flying-fox, and no 8 Part Test is required for the species. This due to the following factors:

- the proposed Pacific Highway Upgrade cannot conceivably involve a direct or indirect impact upon the roost for the colony.
- Black Flying-foxes are not likely to occur along the roadway, or near moving vehicles.
- few foraging resources for this species will be removed as a result of the Proposal.
- the Black Flying-fox is a highly mobile and wide-ranging species, and the proposal will involve neither an impediment to its movements or any notable reduction in its habitat requirements.
- given the nature and location of the proposal and the habitat requirements of the Black Flying-fox, it is not likely that any adverse impacts will be imposed upon this species at all.

8-Part tests were undertaken for the Eastern Grass Owl and Long-nosed Potoroo as part of the SIS Addendum Report (see section 6.6 above). The assessment indicated that the proposal is not likely to impose a significant effect upon these species or their habitats.

6.8.2 Outcomes of the Response to the Submission of DUAP

The outcomes of the Review of Flora/ Fauna Issues for DUAP are as follows:

Additional issues addressed: Concerns raised following the exhibition of the EIS regarding flora and fauna matters have been addressed.

TSC matters addressed: Additional discussion has been provided in order to address matters contained the Threatened Species Conservation Act 1995 (TSC Act).

Additional SIS not required: The RTA is not required to undertake an additional SIS for the project.

6.9 Archaeological Subsurface Testing

The specialist heritage study undertaken for the EIS (Working Paper No. 7) identified 7 Potential Archaeological Deposits sites (PADs). An application was made for a Preliminary Research Permit from NPWS subsequent to the study in order to assess whether sub-surface cultural material was within the line of the proposed Highway Upgrade. This was provided on 15 May 1998.

The RTA commissioned Robynne Mills Archaeological and Heritage Services (through the principal consultants, Sinclair Knight Merz) to undertake the archaeological subsurface testing. (see Appendix 11 of this Report).

6.9.1 Results of Archaeological Subsurface Testing

A total of 106 artefacts were recovered from the seven PAD areas, 96% of which were recovered from the spurline PADs (4-7), and 4% of which were from the creekbank PADs (1-3).

The archaeological significance of the PADs range from low to moderate. PADs 1-3 are heavily disturbed through European occupation and farming, and it is likely that archaeological evidence from these PAD areas has been destroyed. These sites have been assessed as having low archaeological, educational and Aboriginal significance, and no further investigation is recommended.

PADs 4-7 are representative of a transient level of occupation. There is a potential for additional artefacts to be found, however additional subsurface investigation is not recommended because of the low density of artefacts and the poor condition of the artefacts (due to grazing). The scientific significance of these sites have been assessed as low-moderate. They have low significance as individual entities but moderate significance in their ability to contribute information to current research questions regarding Aboriginal use and settlement patterns in the area.

The ridgeline to the east of PAD 7 has been identified as a highly sensitive archaeological site, but is outside the impact zone of the current proposal. This ridgeline has the potential to contribute new evidence of the prehistory of the area, and would be a valuable resource for scientific investigation if it could be preserved within the Billinudgel Nature Reserve.

During the sub-surface testing, additional oral information was provided regarding the existence of a railway workers 'tent township' (Hainsville) in the vicinity of the Salad Bowl Caravan Park, including a hotel and post office in the vicinity of the junction of Coolamon Scenic Drive and the current Pacific Highway. However archaeological evidence of this previous settlement in the vicinity of PADs 1, 2 and 3 was limited to two pieces of rusty wire and ten pieces of crockery dated between 1862 and 1944 and this site is not assessed as being of significance.

6.9.2 Outcomes of Archaeological Subsurface Testing

Representations addressed: Concerns raised in the Representations to the EIS regarding potential archaeological significance have been addressed.

Statutory Obligations Fulfilled: The sub-surface testing program has fulfilled the RTA's obligations under the National Parks and Wildlife Act 1974, the NSW Heritage Act 1977 and the Environmental Planning and Assessment Act 1979 to determine if the proposed Road development would impact upon indigenous and non-indigenous heritage which would require implementation of recommended management actions.

Archaeological significance: PADs 1-3 are of low archaeological, educational and Aboriginal significance, and no further investigation is recommended. PADs 4-7 are of low-moderate scientific significance and no further investigation is recommended.

Consent to destroy PADs 1-6: The RTA will make an application to NPWS to a Consent to Destroy Permit for PADs 1-6. This will involve consultation with the Tweed Byron LALC. The LALC has applied for and received a Care and Control Permit from NPWS for excavated artefacts removed by the consultant for analysis from PADs 1-3. The RTA will advise the Tweed Byron LALC that if it wishes to collect any other artefacts, it should apply for a Care and Control Permit from NPWS.

Consent to destroy PAD 7: The RTA will make an application to NPWS for a Consent to Destroy Permit for PAD 7 with no further investigations provided that the spurline near PAD 7 is able to be purchased and included in the Billinudgel Nature Reserve (see the following paragraph). Tweed Byron LALC will be invited to be involved in this process. The RTA will advise the Tweed Byron LALC that if it wishes to collect the artefacts, it should apply for a Care and Control Permit from NPWS.

Spurline inclusion in Nature Reserve: The RTA will negotiate with the landholder to purchase the 'spurline' located near PAD 7 for inclusion in the Billinudgel Nature Reserve. If the landholder is not willing to sell the whole of this land or if the land is not otherwise able to be purchased, NPWS will be informed that it should consider a salvage of PAD 7. (Note: part of the spurline is already part of the Billinudgel Nature Reserve. The remainder in the ownership of one property holder).

Railway workers settlement: The RTA will provide some recognition of the existence of the railway workers' settlement and the history of the construction of the tunnels provided that a suitable site is available (for example, remnant land in the vicinity of the Salad Bowl Caravan Park) and Council agrees to such a proposal. The RTA will provide a sign or other form or recognition, but would not maintain the site. The RTA will undertaken negotiations with Council or an otherwise appropriate group (such as a local heritage group) to take over and maintain the heritage marker.

LALC Sign off: The Tweed-Byron LALC has advised that it agrees with the recommendations by Robynne Mills. It also refers to a scarred tree which is not be impacted upon due to its spiritual and cultural significance. See Appendix 14 of this Report.

NPWS Sign off: NPWS has advised that it agrees with recommendations 1-4 by Robynne Mills (#5 relates to the railway workers settlement and is not relevant to NPWS). It also supports the mitigation measures that have been proposed by the RTA to enable the preservation of the scarred tree (presented to NPWS at a meeting on 22 October 1998). See Appendix 14 of this Report.

Mitigation Measures: As a result of the results of the Archaeological subsurface testing, the following safeguards and mitigation measures will be undertaken:

- Scarred Tree: The RTA will implement the mitigation measures proposed to protect the scarred tree.
- Monitoring: The RTA will ensure that when road construction begins in the vicinity of Coolamon Scenic Drive and the current Pacific Highway, the removal of the top metre of topsoil will be monitored by a qualified archaeologist to ensure that any remaining archaeological evidence of the hotel and its associated bottle dump is identified and recorded.

6.10 Supplementary Noise Report

A supplementary report regarding noise impacts was undertaken in response to questions raised from a number of submissions, and to clarify the RTA's proposed program of noise control.

The RTA commissioned by Wilkinson Murray Acoustical Consultants to undertake this work (through the principal consultant Sinclair Knight Merz). See Appendix 12 of this Report.

Information provided includes a review of:

- **Noise during construction:** A review of noise impacts expected and mitigation measures proposed during the temporary use of realigned highway during the construction phase.
- **Noise amelioration at Orana Road:** The resolution of noise impacts and mitigation measures required at Orana Road.
- **Noise Management Plan:** The basis for development of a Noise Management Plan.

6.10.1 Results of Supplementary Noise Report

Noise during construction: The EIS for the Proposal identified a substantial increase in noise levels for protracted periods during the construction phase. In order to augment this information, an additional assessment of potential construction noise was undertaken following the exhibition of the EIS. This assessment confirmed earlier conclusions that construction noise would be clearly audible and annoying at times at many of the closest residences, particularly in the Rajah Road area.

One main source of noise during construction would be the diverted Highway traffic, which would use a realigned local service road (existing Highway) for a period of at least 6-9 months. During this time the Highway traffic would be closer to residences in the Rajah Road area. Assuming a temporary future speed limit of 60km/h, it would be likely that vehicles would travel at 80km/h. At 80 km/hr increases in noise level of up to 2.5 dBA are predicted. If the speed limit remained at 100 km/hr then increases of up to 4 dBA could be expected.

The other main source of noise during construction would be the construction activities. Using a possible construction program for the Project, it is considered that even with noise mitigation, some residences could received noise levels higher than 70dBA and more than 10-15dBA above the EPA criteria for part of the anticipated 19 month construction period. This level of noise would interfere with normal internal domestic activities such as conversing with friends, talking on the telephone or watching television.

The combined impact of the noise from the temporary realigned Highway traffic and the noise from construction activities would mean that, where louder construction activities were taking place, an increase in overall noise levels would be expected. Also, because the characteristics of the two 'types' of noise are different, it is expected that both types of noise would be audible.

Mitigation measures, including individual housing treatments would therefore be required at several locations for this Project.

Noise Amelioration at Orana Road: Noise levels in the Orana Road area will decrease following the construction of the Upgrade but will also remain above the EPA guideline level of 55 dBA. As such, it was considered appropriate to review the efficacy and cost effectiveness of a noise mitigation at this location.

As there are many residences to the east of the proposed Highway, a noise barrier along the top of the eastern kerbline was considered cost effective. However, this barrier would also have negative impacts. It would reflect noise to the western side of the Highway, increasing noise in the Coolamon Scenic Drive area to above EPA guidelines. It would also have an unacceptable visual impact in this scenic area.

In view of the overall decrease in noise levels expected as a result of the proposal, the potential impacts of reflected noise, and the visual impacts of a barrier, it was considered that noise barrier would not be appropriate at this location. As such, no barrier is proposed to be provided.

Noise Management Plan: It will be necessary for the contractor to prepare a Noise Management Plan which will form part of their overall Environment Management Plan.

6.10.2 Outcomes of Supplementary Noise Report

Representations addressed: Concerns raised in the Representations to the EIS regarding noise issues have been addressed.

EPA Approval and EMP: The RTA will obtain approval from the EPA Prior to construction. This will include the preparation of an Environmental Management Plan (EMP) which, as a minimum, is to incorporate all the recommendations within the EIS, and the conditions listed by the Department of Urban Affairs and Planning for the approval of the project. As part of the EMP a Noise Management Plan will need to be prepared which will identify measures to minimise construction noise impact.

Mitigation Measures: As a result of the results of the supplementary noise report, the following safeguards and mitigation measures will be undertaken for noise during construction. These measures may also be used for permanent noise controls:

Noise Mitigation: The RTA will provide a solid barrier along the property boundaries between Rajah Road and Oba Place.

- In the area directly north of Rajah Road and Arika Avenue (nos 1-3), this will be a barrier of up to 2.5m.
- For residences in Oola Close, Oba Place and Weeronga Way this will be a 2m barrier.
- At the residences which have living areas overlooking the Highway and do not benefit substantially from the boundary noise barrier, the RTA will offer to provide noise mitigation at the residences in the form of mechanical ventilation/air-conditioning. These residences are:

  1 Rajah Road
  2 Rajah Road.
  2 Arika Avenue
  3 Arika Avenue
  5 Arika Avenue
  7 Arika Avenue
  1 Oola Close
  2 Oola Close
  1 Oba Place
  2 Oba Place
  23 Weeronga Way

- In addition to the Rajah Road area, other areas will require specific mitigation measures to minimise noise from construction activities. The form of these treatments would be subject to negotiations between the affected landowners and the RTA. These are:

  Oba Place/ Oola Close
  Coolamon Scenic Drive
  Tunnel Road (Villa Ruidosa Cottage)

Gilba Avenue/ Balemo Drive North
Billinudgel Industrial Area (Christian Life Centre)
Billinudgel Road

- Where possible, noise barriers would be in place before construction commences.
- All plant will be switched off at break times to minimise annoyance.

Noise Management Plan: The RTA will provide a Noise Management Plan. The following stages will be included within this plan:

- Use of the quietest construction plant available.
- Minimum noise requirements to be achieved for all plant items prior to their use on site.
- Ongoing monitoring of noise levels from plant items to ensure continual compliance and maintenance of plant occurs.
- Construction of temporary barriers in the vicinity of Rajah Road.
- Ongoing attended monitoring of noise levels at the nearest residences.
- Review of construction methodology (based on noise monitoring results) to identify and recommend mitigation measures.
- Use of temporary screens for concrete soil cutting of pavement joints where practicable.
- Notification of residents of significant changes in construction methodology or any evening or night time activities.
- Provision of a contact telephone number of site personnel to handle complaints.
- Commitment to deal with complaints promptly and investigate measures to resolve them.
- Provision of necessary data and reporting to satisfy the EPA requirements.

6.11 Batch Plant Supplementary Report

A Batch Plant Supplementary report has been undertaken in response to requests by DUAP for additional information on the location and potential environmental impacts of these facilities. This report has been prepared with reference to the newly established DUAP criteria for the location of batch plants.

The RTA commissioned Sinclair Knight Merz to undertake this work (see Appendix 13 of this Report).

6.11.1 Results of Batch Plant Supplementary Report

Exclusion zones were identified for batch plants, that is areas which should not be used to establish a batch plant. These areas comprise:

- areas around Marshalls Creek and the Brunswick River and SEPP 14 Coastal Wetlands
- areas along the Billinudgel and Brunswick Heads Nature Reserves
- residential areas such as Ocean Shores.

Three sites have been nominated as being broadly suitable for batch plants (see Appendix 13). These are

- Chainage 50000, northern interchange.

- Chainage 47750, Hall property.
- Chainage 44250, southern interchange.

A broad range of mitigation measures have been outlined for inclusion in the Project EMP.

6.11.2 Outcomes of Batch Plant Supplementary Report

DUAP's request responded to: A broad discussion of potential environmental impacts of batch plant sites has been provided in accordance with DUAP's request.

Location of Batch Plant Sites: Areas of exclusion and three potential batch plant sites have been provided. These three potential batch plant sites would not necessarily be used. Another site may be used by the Contractor provided it is not within the exclusion zone.

Additional Environmental Assessment: RTA or Contractor will prepare a site specific REF for the batch plant.

Mitigation measures: The Contractor will prepare detailed site development and management plans and have them approved by the RTA and EPA prior to the development of the site. The plans will include:

- approvals required for water, air and noise from the EPA to ensure compliance;
- sedimentation and erosion controls;
- treatment of contaminated runoff;
- waste management including disposal of contaminated liquids and solids;
- programs to reduce, recycle or reuse material including water;
- bunded storage areas for potentially contaminating materials;
- dust control including dampening of raw materials, and use of water sprays;
- traffic controls to ensure safe passage of concrete/asphalt trucks;
- landscaping to reduce visual impact;
- site rehabilitation where appropriate;
- compliance with Byron Councils Local Environmental Plan (1988) land zonings.

6.12 Additional Investigations to be Undertaken

Correspondence was received on 11 February 1999 from Humble Pie Co., a manufacturing unit and refreshment establishment located on the Pacific Highway at Billinudgel (see Appendix 14 of this report).

This correspondence related to the proprietor's concerns regarding the restricted access to the establishment during and after construction of the Upgrade, and the effect that this would have on business turnover and employment. It was suggested that the establishment be given the opportunity to relocate to the Yelgun interchange.

Concern was also raised regarding the dust likely to be generated during construction. It was considered by the proprietor that dust levels would mean that the company would not be able to comply with the Health Act for the production of food.

The RTA has commenced additional investigations on the feasibility of locating a retail outlet at the Yelgun interchange, and on the effect of dust on manufacturing operations. However,

due to the late timing of the correspondence, these studies have not been able to be finalised before the submission of this Representations Report. Both will be completed before the commencement of the detailed design stage of the Project and appropriate measures implemented in consultation with the Proprietor and any other relevant stakeholder.

6.12.1 Outcome of Additional Investigations to be Undertaken

Correspondence addressed: Concerns raised in the late correspondence to the EIS regarding access and dust issues are in the process of being addressed through the commissioning of additional investigations.

Finalisation of Reports: The RTA will finalise the additional investigations regarding the location of a retail outlet at the Yelgun interchange and dust concerns prior to the commencement of the detailed design stage of the Project.

Commitment to Mitigation Measures and Design Solutions: The RTA is committed to providing appropriate mitigation measures and/ or design solutions that arise as a result of the additional investigations in consultation with appropriate stakeholders.

7. Modifications to Proposal

7.1 Design Changes - General

Some minor development of the engineering concept design has taken place since the exhibition of the Environmental Impact Statement (EIS). Where warranted, the refined design has been presented as a new drawing (see Figure 7-1). Design details will otherwise be finalised during the detailed design phase of the project.

Design developments and other changes undertaken subsequent to the EIS exhibition are described below.

7.2 Design Changes - Stock Route Road

Location

Stock Route Road links Coolamon Scenic Drive (from Mullumbimby) with Billinudgel and areas north. It is located on the western side of the Proposal, starting at approximately chainage 4700.

Design Development

A number of residents have expressed concern that Stock Route Road will be used in preference to the service road (existing Highway) between the Pocket area/ Mullumbimby and Billinudgel. As Stock Route Road is currently unsealed, there are concerns regarding dust and safety.

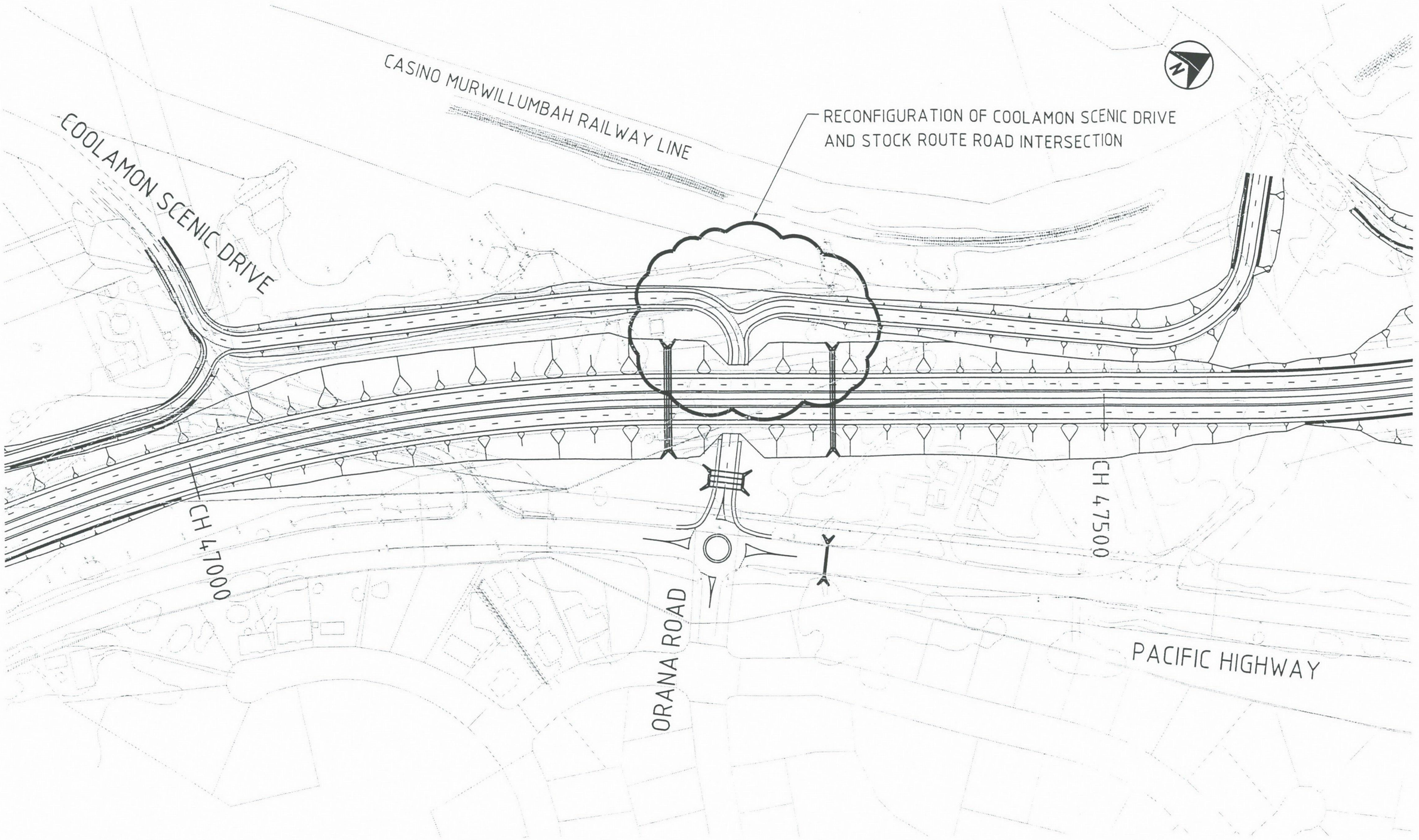
To discourage use of Stock Route Road by through traffic, the intersection at Coolamon Scenic Drive and the underpass to the local service road is now proposed to be reconfigured to reduce the attractiveness of the through movement. Signs and line markings would also be used to direct traffic to the service road. The design is shown in Figure 7-1.

The Billinudgel area is currently a focus of Byron Council's long term planning strategy. Further consideration of Stock Route Road is needed by Byron Council and the final intersection design would be chosen in consultation with Council with regard to the long term needs of the area.

Features and Impacts

- Priority at the new junction west of the proposed route would favour Coolamon Scenic Drive to encourage traffic to use the existing highway.
- Traffic flows on Stock Route Road are not expected to increase significantly as a result, and the design change would reduce the possible impact identified by the respondents.
- Further development of the area west of Billinudgel may produce major changes to existing traffic patterns (including Stock Route Road).

Figure 7–1
Design change to Stock Route Road
Brunswick Heads to Yelgun



FILE NAME: apt-1
JOB N°: en00484

LOCATION: K:\ROAD\EN00484\concept\
DATE: 15-02-1999 12:26 XREF: SURVEY, CADA-RTA

7.3 Design Changes - Brunswick Heads Bypass

Location

Brunswick Heads Bypass, south of the Brunswick River, is being duplicated as part of Proposal.

Design Development

The National Parks and Wildlife Service raised concerns that the widening of the Bypass would create a significantly increased barrier effect for the Squirrel Glider (submission no. 34)

One mitigation measure now proposed to overcome this problem is to plant an avenue of trees in the median along the Bypass. To allow enough room for mature trees to establish, the median, through the curve, will be widened by approximately one metre. This widening will not alter the road corridor which has already been defined. Alterations to the current design will be carried out during the detailed design phase of the project. Wire rope traffic barrier would be installed on both sides of the median.

Features and Impacts

- A section of the median along the Bypass would, in the long term, provide an avenue of large trees, which would provide improved visual amenity as well as ecological benefits. This modification would reduce the identified barrier effect for the squirrel glider.

7.4 Design Changes - Cut and Fill Requirements

Location

All areas in cut.

Design Development

The original earthworks balance allowed for 60,000m^3 of excess cut, which was to be transported south for construction of the Ewingsdale interchange. This fill material is no longer required and as such the earthworks volumes will need to be reviewed to ensure a balance between cut and fill requirements. This will require some regrading of the Proposal during the detailed design phase. Areas most suitable for regrading, to reduce fill volume, are at the large cut areas at chainage 46500 and 47750. Grading out of this minimal volume of material will have little impact on the longitudinal section of the Road and will not alter the road corridor boundaries.

Features and Impacts

- There may be a small reduction in truck movement during construction as this fill will no longer need to be transported south to Ewingsdale.
- Similarly this may also reduce construction and construction traffic noise slightly.

7.5 Design Changes - Waterway Openings at Billinudgel

Location

Three waterway openings currently exist under the Pacific Highway between Wilfred Street and Shara Boulevard. These are:

- 20m bridge just north of chainage 48500.
- 80m bridge at Marshalls Creek Bridge.
- 20m bridge at approximately chainage 49000.

Design Development

As part of the hydrology investigation for the EIS (Working Paper No. 5), flood modelling was carried out to assess the impact of the Proposal on flood behaviour in the Billinudgel area.

These investigations concluded that the 20 metre bridge at chainage 48500 near Wilfred Street is not required. This is because previous filling for industrial development has eliminated the floodplain upstream of the structure and construction of the Proposal would fill the small remaining flow path. This site will only need to cater for local runoff and the 20 metre opening would be replaced with a minimum 2x1800mm pipes.

The filling of the industrial area has meant that floodwaters are 'pushed' elsewhere and that an additional opening is now required to prevent any increases to existing flooding levels (that is, to achieve less than a 0.01m change in flood level upstream and downstream of the Pacific Highway in a 1% AEP flood). Preliminary investigations as reported in Working Paper No. 5 suggested that the additional opening could be placed somewhere between chainage 49000 and Shara Boulevard. Subsequent examination suggested that this new opening could be located anywhere between Marshalls Creek and Shara Boulevard with final location depending on the location of developments, costing and staging requirements.

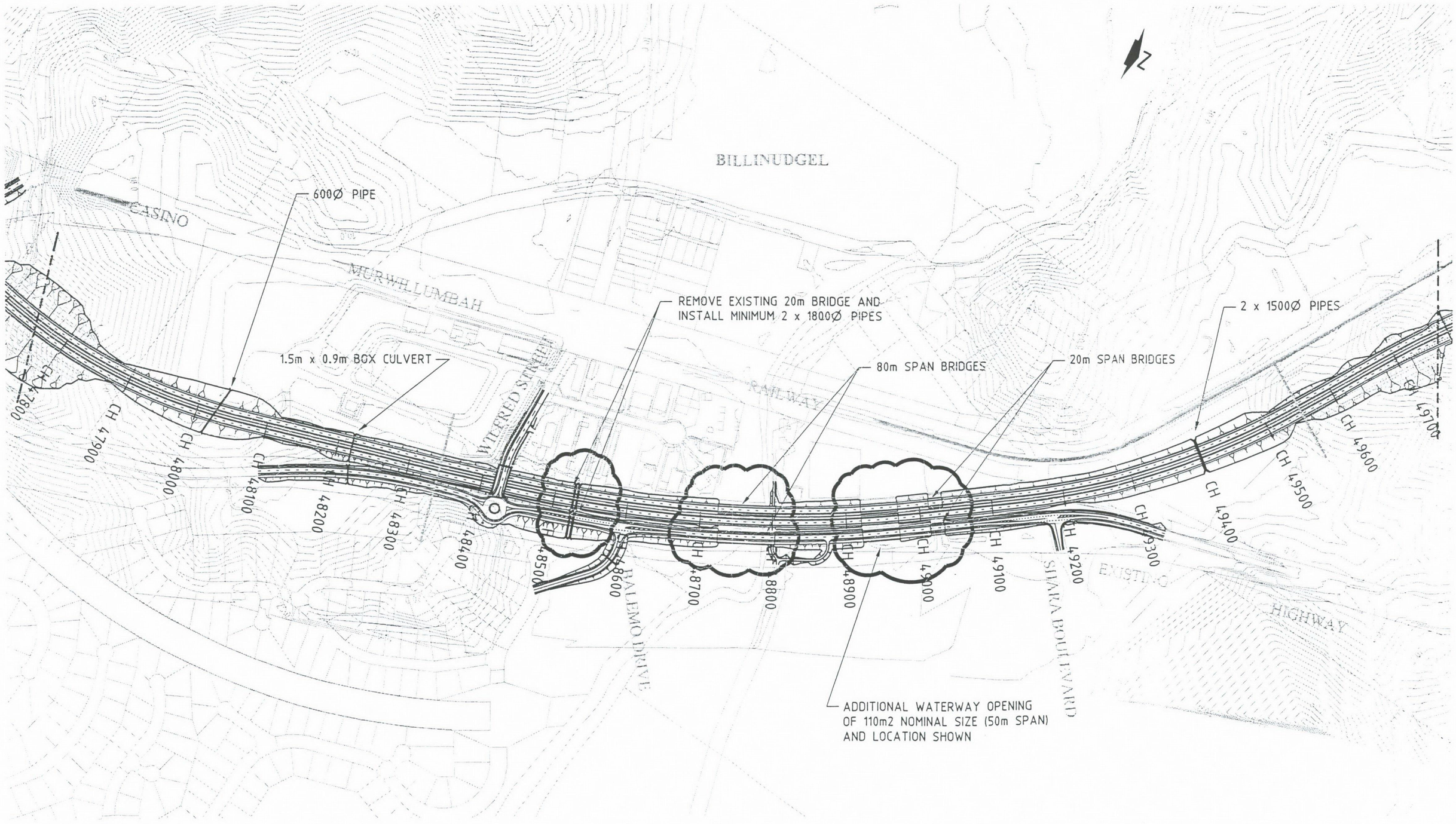
These features, while discussed in Working Paper No. 5, were not previously detailed as part of the road design as shown in Working Paper No. 2 (Road Concept Design). Further information on these design developments is contained in Working Paper No. 5. Figure 7-2 shows the location of the 2x1800mm pipes and a nominal location for the additional waterway opening.

Features and Impacts

- An additional waterway area of 110m2, below the 1% AEP flood level of 3.7 metres, will be provided between Marshalls Creek and Shara Boulevard. Preliminary modelling estimates show that this would require a bridge of approximately 50 metres. The exact length of the bridge will be determined during detailed design when a detailed ground survey is available.
- This opening has nominally been located between Marshalls Creek bridge and the 20 metre span structure at chainage 49000. It may however be preferable to situate this opening further north, which may involve the demolition of the existing 20 metre span structure and construction of a single 70 metre (approximate) opening. The final design and location will be dependent on the outcome of detailed ground survey and road design as well as staging considerations.
- The existing 20m bridge at chainage 48500 would be removed and pipes (or box culverts) of twin 1800mm diameter or greater would be required.

SINCLAIR KNIGHT MERZ

FIGURE 7–2
PACIFIC HIGHWAY UPGRADE, BRUNSWICK RIVER TO YELGUN
WATERWAY OPENINGS AT BILLINUDGEL



SCALE 1:5,000

FILE NAME: Fig_5-23
JOB N°: EN00484

LOCATION: K:\ROAD\EN00484\FIN-8198\PUBEXHIB\REPO-FIG\
DATE: 15-02-1999 14:05 XREF: SURVEY, KIN-CONT, EXKINDES, PROP-BDY, PLAN, CONTOUR1

8. Draft Recommended Conditions of Approval

8.1 Recommendation

The primary recommendation of this Report is that the Proposed Duplication of the Brunswick Heads Bypass and Upgrade of the Pacific Highway – Brunswick Heads to Yelgun should proceed as described in the EIS and section 2 of this Report, subject to modifications in section 7 of this Report and the draft recommended conditions of approval as outlined in section 8.2.

The recommendation is based on the outcome of the EIS, the representations considered in this Report and the findings of the investigations undertaken after the exhibition of the EIS which have shown that:

- Statutory obligations have been met, including section 111 of the EP&A Act which requires the RTA to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity.
- The RTA has considered all representations made to the exhibition of the EIS and provided responses to the issues raised.
- The outcome of the additional investigations undertaken by the RTA did not lead to the recommendation that the Proposal should not proceed.
- The main environmental impacts of the design modifications are beneficial. Negative impacts can be contained through mitigation measures.

8.2 Draft Recommended Conditions of Approval

8.2.1 General

(a) Works will be undertaken in accordance with mitigation measures outlined in the EIS, SIS, SIS Addendum Report and other supplementary studies.

(b) A detailed construction program will be provided during the detailed design phase. This program will determine the best method of movement and installation of materials.

(c) Final decisions regarding road signage will be determined by the RTA in accordance with its policy and in consultation with Byron Council.

(d) Consideration will be given, in accordance with the RTA's naming policy, to naming the new bridge after Matthew Devine, a local historical figure and former puntmaster at the site.

8.2.2 Approvals, Licences and Compliance

(a) Applications for required approvals and licences will be made to all appropriate authorities.

(b) Necessary notifications and approvals from Optus and Telstra will be made prior to any work being carried out.

(c) A formal application will be submitted to NSW Fisheries for the removal of mangroves and seagrasses.

(d) A licence application will be made to DLWC to monitor bores and/ or piezometers.

(e) A licence application will be made to DLWC to construct any new bores or dams.

8.2.3 Environmental Management Plan

(a) A detailed Environmental Management Plans (Construction Stage) will be prepared prior to the commencement of construction. This will be undertaken in consultation with the EPA, NPWS, NSW Fisheries, DLWC and Byron Council. The EMP will develop the conditions to approval in the detail necessary to ensure that it adequately reflects the contract requirements.

(b) The Environmental Management Plan (Construction Stage) will include details of:

- methods for dust control and monitoring;
- design discharge standards for the treatment of runoff;
- maintenance and monitoring issues;
- water quality controls for construction and operation
- seed and propagule collection, landscaping, rehabilitation programs, and other active management protocols for subject species.
- construction and demolition of the Brunswick River Bridges, including the navigable channel that is to be made available during all stages of work in and around the Brunswick River.

(c) A subset of environmental plans will be developed as part of the EMP (Construction Stage). This subset will include:

- A Soil and Water Management Plan for the construction phase. This will be used to minimise the potential of any offsite contamination of surface and groundwater and will include the protection of environmentally sensitive areas such as Nature Reserves and waterways.
- An Erosion and Sediment Control Plan. This will include smaller sediment control structures such as sediment fences and other appropriate measures. The Plan will be employed during construction to control erosion and sedimentation.
- An Acid Sulphate Soil Management Plan. This will include management of the banks and bed of the Brunswick River.
- A Noise Management Plan. This Plan will identify the potential noise impact at all affected residences and nominate methods to mitigate noise. The Plan is to be reviewed by the EPA. The following elements will be included:
  - Use of the quietest construction plant available.
  - Minimum noise requirements to be achieved for all plant items prior to use on site.
  - Ongoing monitoring of noise levels from plant items to ensure continual compliance and maintenance of plant occurs.
  - Construction of temporary barriers in the vicinity of Rajah Road.
  - Ongoing attended monitoring of noise levels at the nearest residences.
  - Review of construction methodology (based on noise monitoring results) to identify and recommend mitigation measures.
  - Use of temporary screens for soil cutting of concrete pavement joints where practicable.
  - Notification of residents of significant changes in construction methodology or any evening or night time activities.
  - Provision of a contact telephone number of site personnel to handle complaints.

- Commitment to deal with complaints promptly and investigate measures to resolve them.
- Provision of necessary data and reporting to satisfy the EPA.

(d) An Environmental Management Plan (Operation Stage) will be prepared prior to the commencement of operation. The Plan will be prepared in consultation with EPA, DLWC, NSW Fisheries, Byron Council, and any other relevant government agency nominated by the Director-General.

(e) The Environmental Management Plan (Operation Stage) will be prepared in accordance with the conditions of Approval, all relevant Acts and Regulations and accepted best practice management procedures.

(f) The Environmental Management Plan (Construction Stage) will include details of:

- monitoring, inspection and test plans for all activities;
- maintenance requirements;
- consultation requirements during operation.

8.2.4 Monitoring

(a) The performance of mitigation measures for air, noise, visual impacts, sediment (including aquatic sediment) and other impacts to the biophysical environment will be monitored to ensure that they are functioning correctly, according with predictions and to determine whether any further action is required.

(b) Dust monitoring will be undertaken during construction.

(c) The water quality monitoring program will be designed by the RTA and reviewed by an aquatic ecologist before implementation. The contractor will have primary responsibility for the implementation of the measures. Auditing and verification will be undertaken by independent contractors.

(d) Water quality monitoring of pH and DO will be included during the construction phase. During the operational phase, when exposed surfaces are stabilised, including the remediation of any possible acid sulphate soil problems, pH only will be periodically monitored as a precautionary measure.

(e) Noise monitoring will be conducted after the Proposal is open to traffic. Monitoring of noise levels will be undertaken at representative residential sites. At least one site representative of the Southern Stock Route Road area will be included in this programme.

(f) Pile stubs (the 'cut off' base of the demolished bridge) will be monitored annually for a period of three years. Further demolition of the piles will be carried out as necessary with appropriate assessment.

(g) Data collected by the Brunswick River Oyster Growers' Committee will be used for long term monitoring.

8.2.5 Batch Plants

(a) A site specific REF and EMP will be prepared for any batch plant required to be established for the project.

(b) Detailed batch plant site development and management plans will be prepared by the contractor and approved by the RTA and EPA prior to the development of the site. The plans will include:

- approvals required for water, air and noise from the EPA to ensure compliance;
- sedimentation and erosion controls;
- treatment of contaminated runoff;

- waste management including disposal of contaminated liquids and solids;
- programs to reduce, recycle or reuse material including water;
- bunded storage areas for potentially contaminating materials;
- dust control including dampening of raw materials, and use of water sprays;
- traffic controls to ensure safe passage of concrete/asphalt trucks;
- landscaping to reduce visual impact;
- site rehabilitation where appropriate;
- compliance with Byron Council Local Environmental Plan (1988) land zoning.

8.2.6 Community Consultation, Liaison and Negotiation

(a) An RTA representative will be available throughout the whole construction process. A contact phone number will be provided for the duration of the project.

(b) A contact telephone number will be provided to handle noise complaints. Complaints will be handled promptly and measures investigated to resolve them.

(c) Negotiations will continue with affected oyster farmers to resolve outstanding issues, including access to moorings, as quickly as possible in consultation with other relevant authorities and stakeholders.

(d) Liaison will be undertaken with oyster farmers regarding various options for adapting activities during construction including periods of pile driving.

(e) Close liaison will be maintained with the EPA throughout the project to ensure compliance will all environmental legislation, including the Protection of the Environment Operations Act.

(f) Service agreements will be negotiated between the Rail Access Corporation & RTA to ensure input from RAC into the design, documentation and construction phases.

(g) A process for the rehabilitation of Brunswick River foreshore area will be established and implemented. This will include consultation with relevant stakeholders.

8.2.7 Compensatory Habitat

(a) The compensatory habitat package will be finalised in consultation with NPWS and other stakeholders, including management details and the amount and location of land to be acquired.

8.2.8 Aquatic Habitats and Wetlands

(a) A joint inspection of the bridge site over the Brunswick River will be carried out with NSW Fisheries to assess the potential impact on seagrasses and to determine the most appropriate management strategy (eg mitigation measures, habitat rehabilitation and environmental components).

(b) A study will undertaken of the saltmarsh area by a qualified expert in consultation with NPWS and NSW Fisheries to determine the most appropriate future management techniques and procedures for the area. The outcome of the study will lead to a 'Plan of Management', which will include an appropriate hydrological regime and vegetation management strategy and monitoring. This plan of management will be implemented as part of the works.

8.2.9 Flora

(a) Mitigation measures found in the Flora and Fauna Assessment (Working Paper No. 7 of the EIS), the Species Impact Statement, the SIS Addendum and the SIS Addendum Supplementary Information will be implemented as part of the Project.

(b) The working area/ extent of any activity will be fenced using paraweb or similar. Activity will not be permitted beyond that barrier.

(c) Threatened plants outside the construction area will be flagged or protected as considered appropriate by NPWS.

8.2.10 Fauna and Habitat

(a) Hollow logs and other habitat features will be reinstated as soon as practicable during construction.

(b) Glider poles and plantings will be provided at locations to be confirmed with NPWS.

(c) Appropriate exclusion fencing will be implemented as per the plans for these controls.

(d) Care will be taken to minimise impacts to riparian zones.

8.2.11 Noise

(a) Noise barriers will be provided for the project along the property boundaries between Rajah Road and Oba Place. In the area directly north of Rajah Road and Arika Avenue (nos 1-3), this will be a barrier of up to 2.5m. For residences in Oola Close, Oba Place and Weeronga Way this will be a 2m barrier.

(b) Noise mitigation in the form of mechanical ventilation/air-conditioning will be offered at residences adjacent to the Highway that have living areas overlooking the Highway but do not benefit substantially from the boundary noise barrier. These residences are located at:

- 1 Rajah Road
- 2 Rajah Road
- 2 Arika Avenue
- 3 Arika Avenue
- 5 Arika Avenue
- 7 Arika Avenue
- 1 Oola Close
- 2 Oola Close
- 1 Oba Place
- 2 Oba Place
- 23 Weeronga Way

(c) Areas in addition to the Rajah Road area will require specific mitigation measures to minimise noise from construction activities. The form of these treatments will be subject to negotiations between the affected landowners and the RTA. These areas are:

- Oba Place/ Oola Close
- Coolamon Scenic Drive
- Tunnel Road (Villa Ruidosa Cottage)
- Gilba Avenue/ Balemo Drive North
- Billinudgel Industrial Area (Christian Life Centre)

- Billinudgel Road

(d) Noise will be minimised during construction through the implementation of the following controls:

- Where practical, noise barriers will be in place before construction commences.
- Suitable noise amelioration measures will be offered for shift workers as part of the negotiations with the affected residents.
- The special requirements of the Al-Manro family will be dealt with as part of the negotiations between the RTA and residents.
- The quietest suitable construction plant available will be used.
- Minimum noise requirements will be achieved for all plant items prior to use on site.
- Temporary screens around plant will be used where practicable.
- All plant will be switched off at break times to minimise annoyance.
- Ongoing monitoring of noise levels from plant items will be undertaken to ensure the continual compliance and maintenance of plant.
- Construction methodology will be reviewed (based on noise monitoring results) to identify and recommend mitigation measures.
- Residents will be notified of significant changes in construction methodology or any evening or night time activities.
- All required data and reporting will be provided to satisfy the EPA.

8.2.12 Vibration

(a) If blasting on Saturdays is required, appropriate approvals and variations to any licence conditions will be first sought from the EPA.

(b) For events such as blasting adequate notice will be given to affected residents so that preparations, such as containing cattle, can be made.

(c) Oyster growers will be notified of pile driving well in advance of the construction schedule to make any alterations to their operations.

8.2.13 Property Access

(a) Access will be available to properties at all times.

(a) Existing access points to properties will be maintained where possible. Where existing access is no longer available, an alternative arrangement will be offered in consultation with the landholder. An alternative permanent access will be provided at the Allardice property. Details of design will be finalised during the detailed design phase and in consultation with the landholder.

(b) Access to the Boyle property will be maintained via an underpass and access road. The access road will provide safe turning movements as it is separated from other traffic on both the proposed upgrade and the existing highway alignment. Negotiation will also be undertaken with RAC to provide an alternative high clearance flood access. If this is not possible, an alternative access will be provided.

(c) Access arrangements for oyster growers will be finalised in consultation with the growers, the Brunswick Heads Fishing Cooperative and DLWC.

(d) The Wilfred Street entrance to Humble Pie premises will be regraded to match the new level of Wilfred Street. The front entrance to the property will remain.

8.2.14 Traffic Management and Access

(a) Traffic management considerations will be finalised with Byron Council as part of the detailed design process.

(b) Access to Ocean Shores Sewage Treatment Plant via the underpass will have a standard 5.3m clearance.

(c) Clearance of 5.3m will be provided at the Coolamon Scenic Drive Underpass. Bicycle/pedestrian access will be provided, with details addressed during the detailed design stage.

(d) Access will be available into the Brunswick Heads Nature Reserve at all times during construction. Temporary arrangements may be required. Controls will be required for traffic turning into the Nature Reserve when construction activity is in the area. Details of this access will be resolved during the detailed design stage of the project.

(e) Final access into the Nature Reserve will be via an upgraded entrance. Alterations will include regrading of the access to meet the new road level. Disturbance in this area will be limited to the road footprint only as shown in the EIS and in the Working Paper No. 2 Road Concept Design Report.

(f) A sheltered right turn bay will be provided at Balemo Drive and Shara Boulevard.

(g) Requirements for bicyclists and pedestrians will be finalised during detailed design.

(h) A review of speed limits along the existing highway will be carried out by the RTA in consultation with Council Traffic Committee prior to project completion.

8.2.15 Design

(a) Council's requirements for road design widths at intersections with the existing Pacific Highway will be addressed during detailed design.

(b) Dilapidation surveys of existing Rail tunnels and structures will be carried out in conjunction with the final design.

(c) Discussion will be held with Council to ensure that the design of Stock Route Road will suit both short and long term needs.

(d) Fill batter slopes will be 1:3 where possible. A steeper slope will be required in many places to minimise footprint and reduce landtake. A steeper slope will only be used where it can be successfully implemented.

(e) The design of new culverts, the extension of existing culverts and general works will be undertaken using the NSW Fisheries Guidelines and in consultation with NSW Fisheries.

8.2.16 Property Acquisition, Adjustments and Land Use

(a) Property acquisition will be negotiated between the landholder and the RTA during the detailed design phase. This will be done under the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991.*

(b) Compensation for loss of oyster lease area will be negotiated directly between the RTA and lease holder. The owner of the lease will be given at least 6 months notice prior to works to allow any alterations in normal operations to be carried out.

(c) Portions of land isolated by the road design will be assessed and dealt with during the land acquisition process.

(d) Details such as stock proof fencing will be directly discussed and negotiated between landholders and the RTA as part of acquisition negotiation.

(e) Arrangements regarding long term maintenance of local roads will be resolved with Council prior to handover.

(f) Issues of boundaries, zonings, fencing and uses relating to saleable residues will be negotiated with Byron Council and NPWS.

8.2.17 Utilities

(a) Standard arrangements will apply for the relocation of assets, with the RTA responsible for the cost of movement or alteration of assets. Removal of utilities from the existing bridge, however, is subject to an agreement which requires the owner of the utility to remove them on demand. The RTA will negotiate with utilities owners regarding the form, cost and timing of the relocation from the Brunswick River bridge.

(b) Further investigation into any alteration or relocation of water mains will be carried out during the detailed design stage in consultation with Rous County Council.

8.2.18 Erosion and Sedimentation

(a) Mitigation measures set out in the Water Quality and Hydrology Assessment (Working Paper No. 5 of the EIS) will be implemented as part of the Project.

(b) Sediment basins will be designed in accordance with the NSW Government publication 'Managing Urban Stormwater: Soils and Construction' (1998) in consultation with EPA.

(c) The appropriate location, size and retention volume of sediment control basins will be determined at detailed design stage in consultation with EPA

(d) Appropriate erosion controls such as silt curtains will be used to limit the amount of sediment released into the Brunswick River during the construction of the Bridge.

(e) Sediment fences and silt curtains will be regularly maintained.

8.2.19 Drainage and Water Quality

(a) All runoff from construction activities will receive treatment prior to discharging into SEPP 14 or other Coastal Wetlands.

(b) Surface drainage issues adjacent to the Railway will be resolved in consultation with RAC during the final design stage.

(b) Good water quality will be maintained in all waterways during the construction phases.

(c) A means of catching debris falling from the bridges during demolition and construction will be installed.

8.2.20 Air Quality

(a) Stabilisation will take place as quickly as possible during construction to minimise dust.

(b) Water sprays and other suppression techniques will be used to suppress dust. In extreme wind conditions construction activities will be halted.

8.2.21 Waste Management and Recycling

(a) All aspects of the road construction will meet waste minimisation and management criteria, including ancillary works such as landscaping. The Industrial Waste Directory will be used as an information source for these works.

(b) Treated effluent wastewater will be used for dust suppression, landscaping works and other associated uses (makeup water for concrete or asphalt plants) wherever practicable.

(c) A closed water recycling system will be incorporated for use in concrete or asphalt plants.

(d) Alternative disposal methods will be used in preference to the burning of vegetation. Any burning will be in accordance with EPA requirements.

8.2.22 Contaminated Sites

(a) Further investigation into old cattle dip sites will be undertaken prior to work being undertaken. This investigation and assessment will consist of gathering a history of the site usage as well as taking soil samples from each potential contaminated site and analysing these for possible contaminants. If a contaminated cattle dip site is found, the site will be left undisturbed and then encased during works.

(b) If the service station is required for the works, the RTA will undertake appropriate testing for contamination and remediation in consultation with the EPA.

(c) Any material removed from the river bed will be assessed for potential acid sulphate soil.

8.2.23 Landscaping, Rehabilitation and Maintenance

(a) A detailed plan of plantings will be prepared.

(b) The landscape architect contracted during the detailed design phase will be required to liaise with the Taylors when preparing the detailed planting plans. The advice received on planting will be considered in conjunction with safety and other functional landscaping requirements.

(c) Native species will be used unless there are safety or other issues. Native species may not be preferred in some areas such as town gateways and the final scheme will depend on the outcome of liaison with the communities and government. Selected species will be planted within natural ecotones.

(d) Plants will be propagated as appropriate in advance of roadworks using locally sourced propagation material. This will be incorporated at the detailed design phase.

(e) Propagation, planting and translocation will be used for site rehabilitation where appropriate under the supervision of an appropriate expert and in accordance with the appropriate guidelines.

(f) In addition to planting within the road easement, additional planting will be carried out at or close to the point of viewing, ie around the house and or in the homestead garden. Such planting would retain existing desirable views, but screen out undesirable views. To assist this, general guidelines will be prepared as required by the landscape architect when preparing detailed plans for the road easement. More detail for this type of planting will be developed as part of the detailed landscape plans for the Proposal.

(g) The RTA will also offer assistance to landowners adjacent to the Proposal by providing tubestock and other plant stock to be used for screening residences at or close to the point of viewing.

(h) Where the median has a wire rope safety barrier planting of low shrubs will be undertaken to provide headlight glare screening.

8.2.24 Heritage

(a) Applications for Consent to Destroy Permits will be made to NPWS as follows:

- PADs 1-6. This will be undertaken in consultation with Tweed Byron LALC. The LALC is to be advised that that if it wishes to collect any artefacts from PADs 4-6, it should apply for a Care and Control Permit from NPWS (TBLALC already has a Care and Control Permit for PADs 1-3).
- PAD 7. No further investigation will be required provided that the spurline near PAD 7 is able to be purchased and included in the Billinudgel Nature Reserve. If the landholder is not willing to sell the whole of this land at a suitable price, or if the land is not otherwise able to be purchased, NPWS will be informed that it should consider a salvage of PAD 7. Tweed Byron LALC will be invited to be involved in the process. The RTA will advise the Tweed Byron LALC that if it wishes to collect the artefacts, it should apply for a Care and Control Permit from NPWS.

(b) A display, sign or other form or recognition of the existence of the railway workers' settlement and the history of the construction of the tunnels will be provided if a suitable site can be found (for example, remnant land in the vicinity of the Salad Bowl Caravan Park), and Council agrees to the proposal. The RTA will not maintain the site. The RTA will undertaken negotiations with Council or an otherwise appropriate group (such as a local heritage group) to take over and maintain any heritage marker.

(c) An appropriately trained or otherwise appropriate Tweed-Byron LALC member will be invited to be present during initial site clearing and disturbance.

(d) The removal of the top metre of topsoil will be monitored by a qualified archaeologist in vicinity of Coolamon Scenic Drive and the current Pacific Highway. The archaeologist will ensure that any remaining archaeological evidence of the hotel and its associated bottle dump is identified and recorded.

(e) Mitigation measures will be implemented to protect the scarred tree in accordance with LALC and NPWS requirements.

(f) Measures and controls such as protective measures and recovery plans shall be implemented should any heritage sites or items be found during construction.

Appendix 1 – Summary of Representations Made to the EIS Exhibition

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Rep No*	Name	Group type	Property affected*
1	Optus communications	Business	No
2	Eggin Wayne	Individual	No
3	Watson Mark	Individual	No
4	Rous County Council	Council	No
5	Environment Protection Authority	State government	No
6	Jagwen Pty Ltd	Individual	Yes
7	Department of Transport	State government	No
8	Jagwen Pty Ltd	Individual	Yes
9	Brook Lynette	Individual	Yes
10	Department of Land and Water Conservation	State government	No
11	Hall Geological Services	Business	Yes
12	Nolan Jane	Individual	No
13	Executive Council Strata Plan 3147	Interest group	Yes
14	Jagwen Pty Ltd	Individual	Yes
15	Duff David and Robin	Individual	No
16	Nolan Marguerite	Individual	No
17	NSW Department of Mineral Resources	State government	No
18	NSW Fisheries	State government	No
19	Brown and Irvine Maggie and Graham	Individual	No
20	Beacon Inc.	Interest group	No
21	Coffee Linda	Individual	No
22	Oyster Farmers (submission to remain confidential)	Interest group	No
23	Lewis John	Individual	No
24	New Brighton Progress Association Inc.	Interest group	No
25	Byron Shire Council	Council	No
26	Al-Manro, Watson & Henderson	Individual	Yes
27	NSW National Parks and Wildlife Service	State government	Yes
28	RTA Grafton	State government	No
29	Taylor John and Hazel	Individual	No
30	Oehlman R.	Individual	No
31	Watson and Henderson	Individual	Yes
32	Al-Manro	Individual	Yes
33	Conservation of North Ocean Shores (CONOS)	Interest group	No
34	NSW National Parks and Wildlife Service	State government	Yes
35	Ocean Shores Urban Association	Interest group	Yes
36	Dey Duncan	Individual	No
37	Telstra	Business	No
38	Brunswick Heads Village Committee	Interest group	No
39	Environment Australia	Commonwealth gov	No
40	Devine Susan	Individual	No
41	Rolfe RF	Individual	No
42	Rail Services Australia	State government	Yes
43	Rail Services Australia	State government	Yes
44	NSW Agriculture	State government	No
45	NRMA	Interest group	No
46	Humble Pie Co.	Business	No

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