ELLA BAY
Far North Queensland

Ella Bay Integrated Resort Proposal

SEIS Submission Response

Volume Two

Response to Public and Agency Comments



Contents Volume Two

1. SEIS Review of Supplementary Environmental Impact Study

1.1 Public Consultation

The Supplementary EIS was submitted to the public and government agencies for comment in April 2008.

The Supplementary EIS was available for viewing during business hours from 12th April 2008 to 16th May 2008 at:

- Cassowary Coast Regional Council (70 Rankin St Innisfail)
- Cassowary Coast Regional Library North (49 Rankin St Innisfail)
- State Development Centre in Cairns (Cnr of Hartley & Grafton St)
- State Library of Queensland, Brisbane.

A copy of the SEIS was forwarded to government agencies requesting their specific comments or advice to the Coordinator-General to be considered for inclusion as conditions or recommendations in this report. An electronic copy of the SEIS was also provided to members of the public who commented on the EIS. The SEIS was also available via the both the DIP and proponent's websites.

1.1.1 Submitter Reference

A total of 66 submissions were received from the public and government agencies. The breakdown of these submissions is as follows:

Government Agencies – 16

- Dept of housing
- DEEDI (Fisheries Queensland)
- Department of Environment and Resource Management (DERM)
- Wet Tropics Management Authority
- Queensland Health
- Queensland Transport
- DSEWPaC
- Dept Main Roads
- Dept of Employment & IR
- Dept of Communities
- Dept of Premier and Cabinet
- Dept of Tourism, regional Development
- Dept of Emergency Services
- Tourism Queensland
- CCRC
- DSEWPaC Heritage

Private individuals – 9 (5 support)

Petition (5 signatures) - 1

Pro - forma letter - 36

Environment groups - 4

Of the government agencies, the following advised that they were satisfied that all issues had been addressed, had no further comment or were in support:

- Dept Main Roads
- Dept of Employment & IR
- Dept of Communities
- Dept of Premier and Cabinet
- Dept of Tourism, regional Development
- Dept of Emergency Services

- Tourism Queensland

The following government agencies either provided advice or recommended conditions:

- Dept of housing
- DEEDI (Fisheries Queensland)

The following government agencies provided advice or recommended conditions and/or requested further information on specific issues which were addressed in additional documentation to the SEIS:

- Department of Environment and Resource Management (DERM)
- Wet Tropics Management Authority
- DSEWPaC
- CCRC
- DSEWPaC Heritage

Additionally DSEWPaC requested an independent review of the SEIS and Ella Bay Road proposal. This was conducted by:

- University of South Australia

In the following the list of submitter numbers, the 36 Pro-forma letters have been grouped together.

Submitter No	Submitter Name	Comment
Government Agencies		
1	Dept Main Roads	No Impact
4	Dept of Housing	
6	Dept of Employment & IR	All issues addressed in SEIS
28	Dept Primary Industries and Fisheries	
30	Dept Environmental Protection Agency DERM	
33	Wet Tropics Management Authority	
34	Queensland Health	Adequately addressed in EIS
36	Queensland Transport	Adequately addressed in EIS
37	DNRW	
NS	Dept of Communities	No Comment
NS	Dept of Premier and Cabinet	No Comment
NS	Dept of Tourism, regional Development	No Comment
38	Dept of Emergency Services	No further matters
39	Tourism Queensland	Supportive
40	DSEWPaC	
64	Cassowary Coast Regional Council	
65	DSEWPaC Heritage	
Individuals or environmental organisations		
2	Dimaroo Petition 5 signatures	
3	T Quirk	
5	T & D Quirk	
29	C Head & C Belbin	

31	P Rowles	
35	L Gallie C4	
61	A Millar inc. CAFNEC letter EDO NQ	
62	S Ryan CAFNEC	
63	T Jurgenson Johnstone Ecological Society	
12 to 26, 42 to 60	CAFNEC Pro-forma letter	
27	G Blackman plus CAFNEC form letter	
41	K Blackman plus CAFNEC form letter	
7 to 11	Various letters of support	Support
66	University of South Australia	Review of Ella Bay Integrated Resort Project – DSEWPaC Request

1.2 Submission Summary

The following tables relate grouped topics to submitter and reference the appropriate section in the next section.

2.0 Masterplan

Submitter Number	Submitter Name	2.1 Infrastructure Management	2.2 Visual Amenity	3.3 Beach Access	2.4 Buffers & Setbacks	2.5 Staging Plan	2.6 Resort Fencing
28	DEEDI (DPI&F)			✓	✓		
30	DERM	✓					
33	WTMA	✓	✓				
37	DNRW						
40	DSEWPaC			✓	✓	✓	✓
64	CCRC						
2	V. Dimaroo						
3	T Quirk						
5	T & D Quirk						
29	C Head & C Belbin	✓					
31	P Rowles						
35	C4						
61	EDO NQ						
62	CAFNEC						
63	Johnstone Ecological Society						
12 to 26, 42 to 60	CAFNEC form letter						
27	G Blackman plus CAFNEC form letter						
41	K Blackman plus CAFNEC form letter						
65	DSEWPaC Heritage	✓	✓				

3.0 Water Resources

Submitter Number	Submitter Name	3.1 Water Quality	3.2 Water Studies	3.3 Water Management	3.4 Hydrological Connectivity
28	DEEDI (DPI&F)				
30	DERM				
33	WTMA				
37	DNRW	✓			
40	DSEWPaC	✓	✓	✓	✓
64	CCRC				
2	V. Dimaroo				
3	T Quirk				
5	T & D Quirk				
29	C Head & C Belbin			✓	
31	P Rowles			✓	
35	C4				
61	EDO NQ			✓	
62	CAFNEC			✓	
63	Johnstone Ecological Society		✓		
12 to 26, 42 to 60	CAFNEC form letter			✓	
27	G Blackman plus CAFNEC form letter				
41	K Blackman plus CAFNEC form letter			✓	
65	DSEWPaC Heritage	✓			

4.0 Flora and Fauna

Submitter Number	Submitter Name	4.1 Post SEIS Surveys	4.2 Fauna Management	4.3 Flora & Revegetation Management	4.4 Clearing Management
28	DEEDI (DPI&F)	✓		✓	
30	DERM			✓	
33	WTMA	✓	✓		
37	DNRW				✓
40	DSEWPaC		✓		
64	CCRC				
2	V. Dimaroo				
3	T Quirk				
5	T & D Quirk				
29	C Head & C Belbin				
31	P Rowles		✓	✓	✓
35	C4		✓		
61	EDO NQ	✓	✓		✓
62	CAFNEC	✓	✓		✓
63	Johnstone Ecological Society		✓	✓	
12 to 26, 42 to 60	CAFNEC form letter	✓	✓		✓
27	G Blackman plus CAFNEC form letter				
41	K Blackman plus CAFNEC form letter		✓		
65	DSEWPaC Heritage		✓	✓	✓

5.0 Cassowary

Submitter Number	Submitter Name	5.1 Loss of Habitat Mitigation	5.2 Habitat Connectivity	5.3 Cassowary Threat Analysis	5.4 Cassowary Management
28	DEEDI (DPI&F)				
30	DERM	✓	✓	✓	
33	WTMA	✓		✓	✓
37	DNRW				
40	DSEWPaC	✓	✓	✓	✓
64	CCRC				
2	V. Dimaroo				
3	T Quirk				
5	T & D Quirk				
29	C Head & C Belbin				
31	P Rowles	✓	✓		
35	C4	✓	✓	✓	
61	EDO NQ	✓		✓	
62	CAFNEC	✓		✓	
63	Johnstone Ecological Society	✓	✓		
12- 26;42-60	CAFNEC form letter	✓		✓	
27	G Blackman plus CAFNEC form letter				
41	K Blackman plus CAFNEC form letter				
65	DSEWPaC Heritage				✓

6.0 Road and Transport

Submitter Number	Submitter Name	6.1 Ella Bay Road Alignment	6.2 Road Safety	6.3 Cycleway	6.4 Visual Impact	6.5 Fauna Impact & Mitigation	6.6 Road Edge Effects	6.7 Local Community Impact	6.8 Transport
28	DEEDI (DPI&F)								
30	DERM					✓			
33	WTMA	✓			✓	✓	✓		
37	DNRW								
40	DSEWPaC	✓				✓	✓		✓
64	CCRC	✓							✓
2	V. Dimaroo	✓						✓	
3	T Quirk	✓		✓				✓	✓
5	T & D Quirk							✓	
29	C Head & C Belbin	✓		✓		✓		✓	✓
31	P Rowles				✓	✓			✓
35	C4				✓	✓	✓		✓
61	EDO NQ								
62	CAFNEC	✓						✓	
63	Johnstone Ecological Society					✓			
12 to 26, 42 to 60	CAFNEC form letter	✓						✓	
27	G Blackman								
41	K Blackman								
65	DSEWPaC Heritage								
66	Uni SA	✓	✓					✓	✓

7.0 Energy, Water Supply, Sewerage and Waste Management

Submitter Number	Submitter Name	7.1 Water Supply	7.2 Sewerage	7.3 Power Supply
28	DEEDI (DPI&F)			
30	DERM			
33	WTMA			
37	DNRW			
40	DSEWPaC			
64	CCRC	✓	✓	
2	V. Dimaroo			
3	T Quirk			
5	T & D Quirk			
29	C Head & C Belbin			
31	P Rowles		✓	
35	C4			
61	EDO NQ			
62	CAFNEC			
63	Johnstone Ecological Society		✓	
12 to 26, 42 to 60	CAFNEC form letter			
27	G Blackman			✓
41	K Blackman			✓
65	DSEWPaC Heritage			

8.0 Socio-economic Issues

Submitter Number	Submitter Name	8.1 Council Maintenance	8.2 Indigenous Employment	8.3 Local Real Estate	8.4 Town and Regional Planning Issues	8.5 Public Consultation
28	DEEDI (DPI&F)					
30	DERM				✓	
33	WTMA					
37	DNRW					
40	DSEWPaC	✓			✓	
64	CCRC					
2	V. Dimaroo			✓		
3	T Quirk					
5	T & D Quirk					
29	C Head & C Belbin				✓	✓
31	P Rowles				✓	
35	C4	✓				
61	EDO NQ	✓				
62	CAFNEC	✓				
63	Johnstone Ecological Society				✓	
12 to 26, 42 to 60	CAFNEC form letter	✓				
27	G Blackman					
41	K Blackman					
4	Dept of Housing			✓		
6	Dept of Employ & IR		✓			
65	DSEWPaC Heritage					
66	Uni SA					

9.0 Additional Issues

Submitter Number	Submitter Name	9.1 Acid Sulphate Soil	9.2 Emergency Management	9.3 FNQ Plan 2031	9.4 Offsets
28	DEEDI (DPI&F)	✓			
30	DERM				✓
33	WTMA				
37	DNRW	✓			✓
40	DSEWPaC		✓		✓
64	CCRC				
2	V. Dimaroo				
3	T Quirk		✓		
5	T & D Quirk				
29	C Head & C Belbin				
31	P Rowles		✓		✓
35	C4			✓	
61	EDO NQ			✓	
62	CAFNEC	✓		✓	
63	Johnstone Ecological Society				✓
12 to 26, 42 to 60	CAFNEC form letter			✓	
27	G Blackman plus CAFNEC form letter				
41	K Blackman plus CAFNEC form letter	✓			
38	Dept of Emergency Services		✓		
65	DSEWPaC Heritage				

2. Master Plan

The Master Plan responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Infrastructure Management;
- Visual Amenity;
- Beach Access;
- Buffers and Setbacks;
- Staging Plan; and
- Resort Fencing.

2.1 Submitter Issue: Infrastructure Management

2.1.1 Natural Hazard Planning and Management

Issues were raised over development and construction of areas where it could be subject to:

- Erosion Prone Area
- Inundation
- Storm Surge

"If resort development is proposed within the Natural Hazard Management Area it would have to be demonstrated that there is a low risk of inundation, or alternatively development should be set-back further from the coast." DERM

SEIS/EIS Reference: SEIS 1.7.6 Coastal Management, SEIS (Addenda A) 1.8.10. Storm Surge

Submitter Reference: DERM (30), C Head and C Belbin (29)

Proponent Response

The Masterplan design has been modified to account for coastal management issues, including climate change, inundation levels and storm surge. The proponent has undertaken inundation studies for the development area and raised the habitable floor level +300mm greater than the calculated climate change 100yearARI storm surge inundation level.

Refer to:

- Volume 6 – Consultant and Ella Bay Reports;
  - 6.4 a Coastal Inundation study;
  - 6.5 a Local Area Plan; and
  - 6.5 c Architectural Inundation Study.
- Volume 7 – Drawings;
  - Ella Bay Setbacks Dwg. 9;
- SEIS - A.2.8 - Coastal Management Report.

2.1.2 Further Development

Clarification regarding possible further development plans for the Ella Bay area?

Exec Summary indicates that the 'golf course will commence midway through the project and should it not proceed for whatever reason, ……. indicates the potential for increased development than what is presented in the documentation." DSEWPaC Heritage

SEIS/EIS Reference: SEIS (Addenda A) 1.8.11 Golf Course, EIS (Volume 1) Introduction, EIS (Volume 3) 3.2 Construction

Submitter Reference: DSEWPaC Heritage (65), WTMA (33)

Proponent Response

The development will be limited to 1400 dwellings. The proponent has withdrawn the option of removal of golf course.

2.1.3 Erosion prone area

"…..infrastructure associated with the "eco spa facilities" proposed in the south-eastern corner of the site requires further investigation to determine whether the site is within the erosion prone area…." DERM

SEIS/EIS Reference: SEIS Masterplan Report p34, SEIS 1.7.6 Coastal Management, SEIS (Addenda A) 1.8.10. Storm Surge, EIS (Volume 4) 4.12 Hazard and Risk

Submitter Reference: DERM (30)

Proponent Response

The "eco spa facilities" is located outside the erosion prone area. Additionally the usage of the "eco spa facilities" is non-residential and will not require erosion defence.

- Volume 6 Consultant and Ella Bay Reports;
  - 6.5 a Local Area Plan.
- Volume 7 - Drawings:
  - Ella Bay Setbacks Dwg. 9.
- SEIS - A.2.8 - Coastal Management Report.

2.2 Submitter Issue: Visual Amenity

2.2.1 Visibility from World Heritage Areas

- WTWHA – Wet Tropics World Heritage Area
- GBRWHA – Great Barrier Reef World Heritage Area

"…Visual impact study only shows the view west from the water (i.e. from GBRWHA). Does not show visual impact from the WTQWHA….." DSEWPaC Heritage

'….Lighter colours (e.g. off-white and cream) will be clearly visible against the darker background of the rainforest and will have a greater visual impact." DSEWPaC Heritage

SEIS/EIS Reference: EIS (Volume 4) 4.1.1.8 Visual Amenity, SEIS Executive Summary, SEIS (Volume 1) 1.7.5 Visual Impact, SEIS (Volume 2) 2.3 Living at Ella Bay

Submitter Reference: DSEWPaC Heritage (65)

Proponent Response

The Ella Bay property can only be viewed by the public from the water or by air. There are no roads, or walking tracks that allow for public view from the west. From the Heath Point road lookout looking North, Ella Bay property is not visible as it is shielded by the smaller headlands (refer Volume 7 Dwg. 19). When viewed from the sea a foreshore fringe of trees of 10 to 25m high shields the cleared areas from view. Only the farm homestead and southern hill will be visible from the sea. The built environment in these locations will be screened by vegetation and

will utilise muted colours and natural textures to minimise impact and will be enforced through design codes of the body corporate.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Appendix 1. Visual Landscape Assessment Ella Bay Road.
- Volume 6 – Consultant and Ella Bay Reports:
  - 6.5 a Local Area Plan; and
  - 6.5 b Visual Assessment and Mitigation.
- Volume 7 – Drawings:
  - World Heritage Area Visual Amenity From Heath Point Road Vista Dwg. 19;
  - World Heritage Area Visual Amenity from Shore Dwg. 20

2.2.2 Design control to reduce impact to visual amenity

"…The majority of dwellings are private dwellings, so there will be less control over implementation of design code etc to be confident that there will be no visual impact on these heritage places." WTMA

SEIS/EIS Reference: EIS (Volume 4) 4.1.1.8 Visual Amenity, SEIS Executive Summary, SEIS (Volume 1) 1.7.5 Visual Impact, SEIS (Volume 2) 2.3 Living at Ella Bay

Submitter Reference: DSEWPaC Heritage (65), WTMA (33)

Proponent Response

The Ella Bay Design Committee and the Body Corporate will impose residential design codes on private lots to ensure development is appropriate for the surrounding natural environment and the Integrated Resort plans.

Refer to:

- Volume 6 - Consultant and Ella Bay Reports:
  - 6.5 b Visual Assessment and Mitigation.
- Volume 7 – Drawings
  - World Heritage Area Visual Amenity from Shore Dwg. 20.

2.3 Submitter Issue: Beach Access

2.3.1 Beach Access Points and design

"The beach access and other infrastructure required to be placed within the wetland and foreshore dunal systems is to avoid disturbance to marine plants and fish habitats, where alternative locations are possible." DEEDI (DPI&F)

SEIS/EIS Reference: Volume 1 - 1.2.10.4

Submitter Reference: DEEDI (DPI&F) (28), DSEWPaC (40)

Proponent Response

Six (6) beach access points have been surveyed as suitable with minimal disturbance ie. no clearing required of native vegetation – only hand pruning). The walkways will consist of on ground, and raised timber walkways, timber corduroy slats or suitable material. A nominal width of 2m has been used to locate a path of least disturbance across the foreshore dunal system to avoid disturbance to marine plants and fish habitats. Prior to establishment of any of these access paths, DEEDI will be contacted and an operational works approval will be obtained. In a number of areas the clearing of Pond Apple will provide the required alignment.

Refer to:

- Volume 6 – Consultant and Ella Bay Reports
  - 6.2 d Weed Mapping Survey; and

- 6.5 d Beach Access Report.

2.4 Submitter Issue: Buffers & Setbacks

2.4.1 Vegetation buffers, setbacks areas and conservation zones.

"There is no provision of a 100 metre wide buffer proposed between the north south fauna corridor and the southernmost creek, abutting the Little Cove site." DSEWPaC

SEIS/EIS Reference: Volume 3, and Section 4.3. 1.1

Submitter Reference: DSEWPaC (40), DEEDI (DPI&F) (28)

Proponent Response

The Masterplan has been updated to include a 100m buffer to the western and southern boundaries to the National Park. A 50m buffer has been included between the Northern resort Precinct and the vegetation of conservation zone B.

Refer to:

- Volume 1 – MNES.
- Volume 5 – Offset Package Proposal.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.5 f - Conservation Zones and Covenants.
- Volume 7 – Drawings -
  - Ella Bay Conservation Zones Dwg 11;
  - Ella Bay Setbacks Dwg 9.

2.5 Submitter Issue: Staging Plan

2.5.1 Development and construction Staging Plans

"A staging plan and detailed design drawings for each stage need to be provided prior to consideration of approval under the Act….." DSEWPaC

SEIS/EIS Reference: EIS (Volume 1) 1.3.5

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent has modified the staging of the road and of the Masterplan development. The Northern Residential and Resort Precincts (Stage 1) have been analysed in detail in the Integrated Water Plan and Storm water management plan. The Local Area Plan details the building footprint and heights.

Refer to:

- Volume 1 - MNES Report:
  - Chapter 2 – Figure 2.4 Proposed Precinct,
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 10 – Construction Methodology.
- Volume 6 – Consultant and Ella Bay Reports:
  - 6.5 a Local Area Plan.
- Volume 7 – Drawings
  - Ella Bay Precinct Staging Plan Dwg 16; and
  - Ella Bay Revegetation Staging Dwg 11.

2.6 Submitter Issue: Resort Fencing

2.6.1 Precinct Fencing design and implementation

"The information does not satisfactorily address …….Fencing strategy within the development area" DSEWPaC

SEIS/EIS Reference: SEIS (Volume 2) 2.2.9.1, EIS (Volume 5)

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent has proposed a detailed cassowary fencing strategy which describes where, when and what temporary and permanent fencing will be used.

Refer to:

- Volume 6 – Consultant and Ella Bay Reports:
  - 6.1 k Cassowary Fencing Strategy.
- Volume 7
  - Drawing Cassowary Access Dwg. 14.

3. Water Resources

The Water Resources responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Water Quality;
- Water Studies;
- Water Management; and
- Hydrological Connectivity of Wetlands.

Post SEIS, the proponent engaged consultants to conduct additional surface and groundwater studies and modelling to assist in updating the Ella Bay Water Management and Controls.

3.1 Submitter Issue: Water Quality

3.1.1 Surface and groundwater monitoring programme

"The water quality monitoring undertaken for the Ella Bay Development site was limited to a single sampling during a dry season (June 2007)…." DSEWPaC

SEIS/EIS Reference: SEIS (1.1 Water Resources), SEIS (Appendix) A.2.1

Submitter Reference: DSEWPaC (40) DNRW (37)

Proponent Response

Further surface and groundwater water quality monitoring has been undertaken.

The proponent has developed a Stormwater strategy based on WSUD principles using performance objectives as described in the *State Planning Policy for Healthy Waters* (DERM, 2010). Design of Water Sensitive

Refer to:

- Volume 1 - MNES Report:
  - Chapter 3
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 6 Hydrology, Catchment Integrity and Water Quality.
- Volume 6 – Consultant and Ella Bay Reports:
  - 6.4 b Integrated Water Management Plan;
  - 6.4 c WSUD Stormwater Objectives;
  - 6.4 d Northern Precinct Stormwater Management Plan;
  - 6.4 e Groundwater Resource Evaluation; and
  - 6.4 g Water Monitoring Results.

3.1.2 Golf Course Water Management Practices

"Only 3 holes of the golf course will 'experiment' with organic green management techniques." DSEWPaC Heritage

SEIS/EIS Reference: EIS (Volume 3), SEIS (1.2 Flora and Fauna) 1.2.2.4, SEIS (Volume 2) 2.2.8

Submitter Reference: DSEWPaC Heritage (65)

Proponent Response

Three holes of the golf course which drain north towards the Ella Bay Swamp will experiment with organic techniques. The Stormwater runoff from all golf course fairways, greens and tees will be treated through whole of catchment stormwater management plan using constructed wetlands or Bioretention Filters including the three holes draining north.

Pesticides, herbicides and fertilisers will be regulated in all areas of open space ensuring compliance with the Water Quality Guideline for the GBMP, (GBMPA, 2008).

Refer to:

- Volume 6 – Consultant and Ella Bay Reports:
  - 6.4 b - Integrated Water Management Plan;
  - 6.4 d - WSUD Stormwater Objectives; and
  - 6.4 e - Northern Precinct Stormwater Management Plan.

3.2 Submitter Issue: Water Studies

3.2.1 Groundwater Abstraction Studies

"The beachfront wetland swales are considered to play an important role in maintaining a natural groundwater divide…..a detailed groundwater study must be undertaken to assess potential impacts of vegetation from groundwater abstraction." DSEWPaC

SEIS/EIS Reference: SEIS (1.1 Water Resources) 1.1.3

Submitter Reference: DSEWPaC (40), Johnstone Ecological Society (63).

Proponent Response

Groundwater and aquifer extraction tests have been undertaken from a number of test bores and have shown that groundwater abstraction is feasible without impact on the beachfront wetland swales. The studies have shown that the shallow aquifers above the groundwater abstraction aquifer are (semi-)confined aquifers charged by tidal forcing (Groundwater resource evaluation Fig 22). The submarine groundwater discharge from the aquifer has been observed by Stieglitz, (2005) at Ella Bay.

Refer to:

- Volume 6 - Consultant and Ella Bay Reports:
  - 6.4 b Integrated Water Management Plan; and
  - 6.4 e,f Groundwater Resource Evaluation.
- Stieglitz, T., 2005, Submarine groundwater discharge into the near-shore zone of the Great Barrier Reef, Australia, Marine Pollution Bulletin 51: 51-59.

3.2.2 Quantitative hydrologic assessment

"If all rainwater is to be collected in rainwater tanks, what are the downstream hydrological impacts?" DSEWPaC

SEIS/EIS Reference: SEIS (1.1 Water Resources) 1.1

Submitter Reference: DSEWPaC (40)

Proponent Response

Quantitative hydrologic impact has been assessed in design of the Integrated Water Management Plan and the Constructed Wetlands which have simulations of hydrological change.

Refer to:

- Volume 6 – Consultant and Ella Bay Reports:
  - 6.4 b - Integrated Water Management Plan;
  - 6.4 c - WSUD Stormwater Objectives; and
  - 6.4 d - Northern Precinct Stormwater Management Plan.

3.3 Submitter Issue: Water Management

3.3.1 Water Runoff and Erosion Control Management practices

- Ella Bay Access Road
- Ella Bay Development site

"Run-off from roads, clearing and construction-sites will need to be controlled to prevent sediment reaching creeks and the sea. Oil and similar will be washed from roads into waterways." P Rowles

SEIS/EIS Reference: SEIS (1.1 Water Resources) The whole doc is relevant, EIS (Volume 3) 3.5.4.2

Submitter Reference: P Rowles (31)

Proponent Response

The construction and operation of Ella Bay Road and Ella Bay Development will incorporate Erosion and Sediment Control practices and WSUD features to minimise pollutants and sediments reaching the creeks. Ella Bay Development will incorporate WSUD storm water management with constructed wetlands and Bioretention Filters.

Refer to:

- Volume 3 – Environmental Management Plans.
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 6 Hydrology, Catchment Integrity and Water Quality.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.4 b Integrated Water Management Plan;
  - 6.4 c WSUD Stormwater Objectives; and
  - 6.4 d Northern Precinct Stormwater Management Plan.
- SEIS Appendix_A.2.6 Access Road Strategy

3.3.2 Ella Bay Access Road Bypass Drainage Design

"The 'over the ridge route' as outlined in drawings/diagrams of the SEIS does not clearly show drainage – needs to be directed away from residences, preferably towards the west and into the Sandfly Creek catchment;" C Head & C Belbin

SEIS/EIS Reference: SEIS (1.1 Water Resources)

Submitter Reference: C Head & C Belbin (29)

Proponent Response

This section of the proposed Ella Bay Road will be constructed in Stage 2.

Management of run-off from the road has not been finalised in detail, however runoff from the Western side of the range will drain to Sandfly Creek (as per current), run-off from the Eastern side of the range (western side of the road) will be directed to culvert 1 (upgraded in stage 2) and follow existing drainage lines to avoid residences (as per current).

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 6 Hydrology, Catchment Integrity and Water Quality.
- Volume 7b- Ella Bay Road Drawings
  - EBR1CE-PD05 Longitudinal Plan
  - EBR1CE-PD06 Stormwater Management Plan

3.3.3 Stormwater Treatment and Wetlands Management

"To control pollution of stormwater … important that the design details of at least one stage of the development incorporating all features be provided to understand the scale and nature of the development." DSEWPaC

SEIS/EIS Reference: SEIS (1.1 Water Resources)

Submitter Reference: DSEWPaC (40), EDO NQ (61), CAFNEC (62), CAFNEC form Letter (12-27, 42-60), K Blackman (41)

Proponent Response

The proponent has developed a Stormwater strategy based on WSUD principles using performance objectives as described in the *State Planning Policy for Healthy Waters* (DERM, 2010). The constructed wetlands for the Northern Precinct have been preliminary designed.

Refer to:

- Volume 6 - Consultant and Ella Bay Reports:
  - 6.4 b Integrated Water Management Plan;
  - 6.4 c WSUD Stormwater Objectives; and
  - 6.4 d Northern Precinct Stormwater Management Plan.
- Volume 7 - Drawings:
  - Drawing Stormwater Quality Management Strategy Dwg.18.

3.3.4 Air-conditioning Geo Exchange Issues

"…Geo-exchange for air conditioning units and potential thermal pollution of sensitive groundwater systems …" DSEWPaC

SEIS/EIS Reference: SEIS (Appendix) A.2.2, EIS (Volume 5) 5.4.4

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent has chosen not to undertake this option.

3.4 Submitter Issue: Hydrological Connectivity of Wetlands

3.4.1 Hydrological Connectivity of Wetlands

"The hydrological studies undertaken by Golder Associates which concluded that there is minor runoff from the site to the wetland areas and that there is no significant ground water connection between the site and the wetland is limited to desktop studies". DSEWPaC

SEIS/EIS Reference: SEIS (1.1 Water Resources)

Submitter Reference: DSEWPaC (40)

Proponent Response

The Stormwater Management Plan has taken the approach of maintaining balanced flows into the wetland areas through the use of the constructed wetlands to maintain predevelopment flows; Low Flow Duration, Low Flow Spells Frequency and High Flow Duration. All surface flows from the development will be treated.

The ground water studies have shown that the shallow groundwater aquifer has a periodic movement close to tidal frequency, even at monitoring bores greater than 1km from the shore (Groundwater resource evaluation Fig 22). The tidal forcing of (semi-)confined aquifers and subsequent submarine groundwater discharge has been observed by Stieglitz, (2005) at Ella Bay. The tidal movement of this aquifer infers that there is no significant connection.

Refer to:

- Volume 6 - Consultant and Ella Bay Reports
  - 6.4 c - WSUD Stormwater Objectives
  - 6.4 d - Groundwater Resource Evaluation
- Stieglitz, T., 2005, Submarine groundwater discharge into the near-shore zone of the Great Barrier Reef, Australia, Marine Pollution Bulletin 51: 51-59.

4. Flora and Fauna

The Flora and Fauna responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Post SEIS Surveys & Studies;
- Fauna Management;
- Flora and Revegetation Management; and
- Clearing Management.

Post SEIS, the proponent engaged consultants to conduct additional studies and surveys to assist in updating the Ella Bay Fauna and Flora knowledge. The proponent used this new information to make changes and update its Masterplan and access road design to further reduce fauna and flora impact.

4.1 Submitter Issue: Post SEIS Surveys & Studies

4.1.1 Post SEIS Flora and Fauna Surveys

"The Authority believes there is a need for more detailed investigation of fauna and flora in the vicinity of the proposal…" WTMA

SEIS/EIS Reference: SEIS (Submission Response) 1.2.2, SEIS (Volume 5), EIS (Section 4) 4.7.1.2

Submitter Reference: WTMA (33), CAFNEC (62), CAFNEC form Letter (12-27, 42-60), EDO NQ (61)

Proponent Response

The proponent has undertaken extensive follow-up surveys.

Refer to:

Fauna

- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 b Cassowary Survey Feb. 2009;
  - 6.1 c Cassowary Survey Nov. 2009;
  - 6.1 d Cassowary Survey Apr. 2010;
  - 6.1 e Cassowary Survey Nov. 2010;
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
  - 6.3a Fauna Survey Report Nov 2008;
  - 6.3b Chytrid Fungus Survey Aug 2009; and
  - 6.3c Marine Turtle Review Mar 2009.

Flora

- Volume 6 - Consultant and Ella Bay Reports:
  - 6.2 a Vegetation Survey Report;
  - 6.2 b Baseline Vegetation Monitoring of Edge Effect;
  - 6.2 c Revegetation and Weed Management Issues;
  - 6.2 d Weed Mapping Survey;
  - 6.2 e Vegetation management plan for the littoral rainforest and coastal vine thicket; and
  - 6.2 g Pond Apple Assessment.

4.1.2 Aquatic Vertebrate Surveys

"A preferred outcome would be for further aquatic vertebrate investigations to occur as a research project" DEEDI (DPI&F)

SEIS/EIS Reference: SEIS (Volume 1.2) 1.2.2.2, SEIS (Volume 1.7) 1.7.3.4, SEIS (Volume 4) Appendix A.2.3, EIS (Section 4) 4.7.1.3

Submitter Reference: DEEDI (DPI&F) (28)

Proponent Response

Further aquatic vertebrate surveys have been conducted in the BAAM Fauna survey 2008. However it is noted that this has not provided seasonal variations. Further aquatic vertebrate investigations including Ella Bay wetlands as a fish nursery are proposed as part of the research partnership with JCU.

Refer to:

- Volume 5 Offset Package Proposal.

4.2 Submitter Issue: Fauna Management

4.2.1 Management Procedures for Frog Species.

"Do the measures proposed address all the reasons these species are threatened that may be part of the development? E.g. chytrid fungus and frogs" DSEWPaC Heritage

SEIS/EIS Reference: SEIS (Volume 1) 1.8.2.1, SEIS (Volume 1) 1.2.2.1, EIS (Volume 4) 4.7.1.2

Submitter Reference: DSEWPaC (40), DSEWPaC Heritage (65)

Proponent Response

The proponent has prepared a Stream Dwelling Rainforest Frog Species Management Sub-Plan and surveyed and confirmed the existing presence of Chytrid Fungus. The impact of Chytrid Fungus on the frog population is minor – Chytridiomycosis does not fully develop.

Refer to:

- Volume 3 – Environmental Management Plans:
  - Stream Dwelling Rainforest Frog Species Management Sub-Plan.
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8 - Fauna Sensitive Road Design.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.3 a Fauna Survey Report Nov 2008; and
  - 6.3 b Chytrid Fungus Survey Aug 2009.

4.2.2 Endangered Frogs and Ella Bay Road

The Australian Lacelid *(Nyctimystes dayi)* is known to travel overland for considerable distances and increased traffic along the road will result in road kill…….fencing capable of excluding the species should be installed…" DSEWPaC

SEIS/EIS Reference: SEIS (1.1 Water Resources)

Submitter Reference: DSEWPaC (40)

Proponent Response

Suitable habitat for the Australian Lacelid (*Nyctimystes dayi)* is denoted as rainforest and studies by Rowley and Alford (2009) have reported movement of female N. dayi to 95 m from stream release sites. N. dayi was not reported in 3 surveys of Ella Bay and Ella Bay Road.

Frog fencing will be installed for 25m either side of the main creek crossings along Ella Bay Road and within the Ella Bay Development. The design of the frog fence has been based on the Tugun Bypass design 600mm high shadecloth with a rolled top.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8 Fauna Sensitive Road Design.
- Volume 6 - Consultant and Ella Bay Reports
  - 6.3 a Fauna Survey Report Nov 2008; and
  - 6.3 b Chytrid Fungus Survey Aug 2009.
- Volume 7 – Drawings:
  - EBR1CE-PD08 Fauna Fencing Management; and
  - EBR1CE-PD10 Mitigation.
- EIS Vol. 8 A6.2 Terrestrial and Freshwater Fauna Assessment.

Rowley, J. and Alford, R. (2009) *Movement and Habitat Use of the Endangered Australian Frog Nyctimystes dayi* Herpetological Review. 2009. 40(1), 29-32.

4.2.3 Management of other Ella Bay Fauna

"Sea-turtles are known to breed on this beach. On-going management is needed to reduce disturbance of laying females, eggs and hatchlings." P Rowles

SEIS/EIS Reference: SEIS (Submission Response) 1.2.2, EIS (Volume 4) 4.7.2, EIS (Volume 5)

Submitter Reference: P Rowles (31), K Blackman (41), CAFNEC (62), CAFNEC form Letter (12-26, 42-60), Johnstone Ecological Society (63).

Proponent Response

Sea turtles have been reported to nest on the beach in front of the development site, however the low shore ridge height and storm based overtopping make the nests very vulnerable and low viability. The low numbers of complete turtle nestings– most years nil, and the low viability make this area a poor nesting site. A Marine Turtle Species Management Sub-plan details procedures and mitigation if turtles and turtle nesting are present.

The proponent has developed specific fauna EMPs to manage Planning, Construction and Operations of Ella Bay Road and Ella Bay Development. A Marine Turtle Species Management Sub-plan has been written and other fauna EMP subplans will be prepared post approval.

Refer to:

- Volume 3 – Environmental Management Reports:
  - Stream Dwelling Rainforest Frog Species Management Sub-Plan;

- Spectacled Flying-Fox Management Sub-plan; and
- Marine Turtle Species Management Sub-plan;

- Volume 6 - Consultant and Ella Bay Reports:
  - 6.3 c Marine Turtle Review Mar 2009.

4.2.4 Domestic Pets

"The proposal also includes the banning of cats and more detailed work on dog management, but it would be much simpler and more effective in terms of cassowary & other wildlife management to ban dogs also." DSEWPaC Heritage

SEIS/EIS Reference: SEIS (Volume 2) 2.2.9.4, SEIS (Additional Issues) 1.8, SEIS (Submission Response) 1.3.6.5, EIS (Volume 3) 3.4.4

Submitter Reference: DSEWPaC Heritage (65), WTMA (33), C4 (35), P Rowles (31), EDO NQ (61), K Blackman (42) , Johnstone Ecological Society (63).

Proponent Response

Dogs (and cats, other then guidance assistance dogs) will be prohibited from the development. Pest management (current and future) includes the removal of wild dogs from the site.

Refer to:

- Volume 1 - MNES report

4.3 Submitter Issue: Flora and Revegetation Management

4.3.1 Weed and Feral Pests management

"Weed management plan is only proposed - no detail - this is important not only on site but also on the access road" DSEWPaC Heritage

SEIS/EIS Reference: SEIS (Volume 1) 1.2.7.3, EIS (Volume 4) 4.7.1.2.7

Submitter Reference: P Rowles (31), DEEDI (DPI&F) (28), DSEWPaC Heritage (65), Johnstone Ecological Society (63).

Proponent Response

The proponent has developed and implemented a Feral Pig Trapping and Baiting, and a Weed Management Program which is in effect. The Weed Management Sub-Plan and Weed survey have been forwarded to CCRC Coordinator Natural Environment. The proponent has commenced a weed and pest management programme focusing on managing WONS listed weeds such as Pond Apple, Hymenachne, and feral pigs and dogs. Over 100 feral pigs have been culled in the past 2 years.

Refer to:

- Volume 3 – Environmental Management Reports:
  - Environmental Management Plan;
  - Weed Management Sub-plan.
- Volume 6 – Consultant and Ella Bay Reports:
  - 6.2 c Revegetation and Weed Management Issues;
  - 6.2 d Weed Mapping Survey; and
  - 6.3 d Feral Pig Trapping and Baiting Report.

4.3.2 Revegetation Staging

"Revegetation Master plan shows areas next to WTQWHA come last - Stage 5.Suggest area to west of Stage 2 to be part of Stage 2 and area south of Stage 3 to be part of Stage 3." DSEWPaC Heritage

SEIS/EIS Reference: SEIS (Volume 1) 1.2.4.2, SEIS (Executive Summary), SEIS (The Improved Ella Bay Master Planned Community) 2.2, EIS (Volume 1)

Submitter Reference: DSEWPaC Heritage (65), DERM (30)

Proponent Response

The proponent has modified the development staging plan and the revegetation plan. The revegetation staging has been modified to focus priority on habitat connectivity, provision of additional cassowary food sources, and visual amenity screening.

Refer to:

- Volume 1 - MNES Report:
  - Appendix 3 – Staging Plan for Ella Bay Development
- Volume 7- Drawings:
  - Revegetation and rehabilitation Plan Dwg. 16; and
  - Revegetation Staging Plan Dwg. 17.

4.4 Submitter Issue: Clearing Management

4.4.1 Clearing areas

- Ella Bay Development Site
- Ella Bay Road Alignment

"The SEIS states that the impact of all proposed clearing works are to be mitigated or offset. Mitigation measures include undertaking only minor clearing, retention of a 100m buffer and construction of overpasses over the creeks." DNRW

SEIS/EIS Reference: SEIS (Executive Summary), SEIS (The Improved Ella Bay Master Planned Community) 2.2, EIS (Volume 3) 3.4.2, EIS (Volume 3) 3.5.1.2

Submitter Reference: CAFNEC (62), CAFNEC form Letter (12-26, 42-60), EDO NQ (61), DNRW (37), DSEWPaC Heritage (65), P Rowles (31)

Proponent Response

Optimisation of Ella Bay Road alignment to retain mature trees and for road user safety has increased the required clearing to 3.55 ha (increased from SEIS). Clearing for the development is 0.95 ha (reduced from EIS).

Clearing mitigation and/or offset are addressed in the Offset Proposal.

Refer to:

- Volume 1 MNES report.
  - Appendix 2 – List of Quantities
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 9 Flora Sensitive Road Design.
- Volume 5 Offset Package Proposal.
- Volume 7- Drawings:
  - Conservation Status Of Vegetation Communities and Clearing Dwg. 15: and
  - EBR1CE-PD09 Clearing Vegetation Management.

5. Cassowary

The Cassowary related responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Loss of Habitat & Mitigation;
- Habitat Connectivity;
- Increased Traffic Issues;
- Cassowary Threat Analysis; and
- Cassowary Management.

Post SEIS the proponent engaged cassowary experts (Mr Les Moore and Mr Peter Buosi) to conduct additional surveys to assist in increasing the knowledge and understanding of the resident cassowary population. The proponent has also conducted monitoring via sighting logs, remote cameras and surveys. This new information was used to modify the Masterplan and access road design to further reduce impact to cassowaries.

5.1 Submitter Issue: Loss of Habitat & Mitigation

5.1.1 Cassowary and Human Interaction

"….Of particular concern are the impacts on the cassowary population which are likely to include loss of access to highly productive coastal beach scrubs, the loss of access to breeding habitat, detrimental interactions with people leading to the removal of birds and exposure to traffic. It is considered that the level of impact is likely to adversely impact cassowary population dynamics…" WTMA

SEIS/EIS Reference: SEIS (Volume 1) 1.3, SEIS (Volume 2) 2.2.9.3, SEIS (Appendices) A.2.4, EIS (Executive Summary), EIS (Volume 5), EIS (Volume 8) A6.4

Submitter Reference: DSEWPaC (40), WTMA (33)

Proponent Response

According to Moore's PVA the Graham-Seymour Range cassowary sub-population is currently in a declining vortex whereby extinction of that sub-population appears to be inevitable. Many of the present indirect impacts of the local environment are cumulative and are contributing to this decline. That is; the current "do nothing" scenario will result in extinction of the Graham-Seymour Range cassowary sub-population within 60 years. The development of the Ella Bay property with the proposed revegetation, mitigation and research commitments proposed by the proponent the local cassowary population is likely to reverse Moore's PVA outcome.

It was concluded in Moore 2006 (Ella Bay cassowary Assessment, Part II: Impact Assessment) that the relatively small benefit to cassowaries of accessing the coastal strip of the Ella Bay Development was outweighed by the greatly increased risk of adverse cassowary human interactions. As such, it was recommended that cassowaries be excluded from the coastal vegetation surrounding the resort and the loss of this vegetation be included in approval offsets determined by DEWHA.

In Post SEIS studies it has been established that cassowaries rarely use the coastal vegetation. The dunal swale and wetland at the front of Ella Bay Development is heavily infested with Pond Apple which is providing a seasonal food source to cassowaries. The Pond Apple has a fruiting window of January to March during the wet season which also coincides with the lowest surveyed numbers of cassowaries at Ella Bay. Despite this apparent abundant food source this area has not been found to be heavily frequented by cassowaries. This is also despite additional cassowaries being recorded in surveys and possible impact on carrying capacity.

The few recorded events where cassowary evidence has been recorded in the coastal swale have been of single sets of footprints or a few scats. This did not indicate extensive usage of the area.

The proponent has recommended that access for cassowaries be maintained in this area. The Pond Apple is a WONS Class 2 weed and will be eradicated. The remaining vegetation

Melaleuca quinquenervia shrubland to closed forest and *Lepirona articulata* sedgeland of the coastal dune swales and swamps is separated from the main west-east movement corridor by non-remnant disturbed vegetation and will provide very low nutrient levels.

Assessment of the impact of the development and human interaction with cassowaries is discussed in the Volume One (*MNES Report*) and in detail in 6.1m (*Update of Habitat Assessment of Ella Bay for the Southern Cassowary*)

Refer to:

- Volume 1 MNES Report.
- Volume 3.2 Southern Cassowary Management Sub-Plan.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 a Review of EIS and SEIS Cassowary Reports;
  - 6.1 b Cassowary Survey Feb. 2009;
  - 6.1 c Cassowary Survey Nov. 2009;
  - 6.1 d Cassowary Survey Apr. 2010;
  - 6.1 e Cassowary Survey Nov. 2010;
  - 6.1 f Cassowary Identification Drawings;
  - 6.1 g Cassowary Water Survey;
  - 6.1 h Cassowary Underpass Survey 2008, 2009;
  - 6.1 i Cassowary Gate Trial;
  - 6.1 j Cassowary Fence Trial;
  - 6.1 k Cassowary Fencing Strategy; and
  - 6.1 l EIS and SEIS Cassowary reports Vol I, II, III, & WP3.
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary

5.1.2 Potential loss of access to coastal strip habitat, habitat for breeding.

"While the on-site impacts of the development will largely be mitigated over time by the extensive replanting and rehabilitation proposed, the off-site impacts may include the exclusion of cassowaries from the coastal corridor between the new road and the coast from Flying Fish Point through to the proposed development site." DERM (EPA)

SEIS/EIS Reference: SEIS Executive Summary, SEIS (Volume 1) 1.3, SEIS (Appendices) A.2.4, EIS (Volume 8) A6.4, EIS (Volume 4) 4.7.1.2.3

Submitter Reference: DSEWPaC (40), WTMA (33), DERM (30), Johnstone Ecological Society (63).

Proponent Response

The proponent has developed extensive mitigation featuring "fence and funnel" to fauna underpasses (3 bridges) and a fauna overpass for Ella Bay Road upgrade to prevent isolation of coastal corridor. A survey of similarly dimensioned bridges has established that cassowaries utilise this type of bridge underpass in other locations.

The onsite monitoring and surveys around the Ella Bay Development site has established that cassowaries almost exclusively utilise the riparian corridors or immediately adjacent to the riparian strips and bridge access will be provided at all existing riparian corridors.

Refer to:

- Volume 1 MNES Report.
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8 - Fauna Sensitive Road Design.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 h Cassowary Underpass Survey 2008, 2009.
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
- Volume 7- Drawings:

- Cassowary Access Dwg. 14; and
- EBR1CE-PD08 Fauna Fencing Management.

5.1.3 Impact on the cassowary population.

"Intensive development, fencing, dogs and traffic will further erode an already vulnerable local, remnant cassowary population." CAFNEC

SEIS/EIS Reference: SEIS (Appendices) A.2.4

Submitter Reference: DSEWPaC (40), CAFNEC form Letter (12-26, 42-60), EDONQ (61), CAFNEC (62), C4 (35)

Proponent Response

The proponent has surveyed cassowaries along the road alignment and around the Ella Bay site since 2007 and reported a more than doubling in cassowary numbers of adults and sub-adults from 6 to 15 coinciding with a change in management practices. (see Volume 1 MNES Table 5.1)

The proponent has proposed:

- Mitigation for the road and Ella Bay site to ensure continued access to foraging and potential breeding areas and safety from road traffic;
- Precinct fencing to maintain cassowary habitat access;
- Extensive revegetation of riparian corridors and the provision of additional corridors to enhance food availability;
- Researched and planted a 12,000 tree cassowary "orchid" protected by cyclone resistant trees in the first revegetation; and
- Banned cats and dogs and is controlling feral pigs.

The proponent's mitigation measures will ensure the minimal impact to those local individuals. In particular the offset property will provide an important corridor to strengthen the connectivity paths and longevity of the remnant Graham Seymour Cassowary population.

Refer to:

- Volume 1 MNES Report;
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8 - Fauna Sensitive Road Design.
- Volume 5 Offsets Proposal:
  - Appendix 1: Regional Corridors Report Terrain NRM;
  - Appendix 2: Revegetation Strategy for Ella Bay Offset Property; and
  - Appendix 3: Research Proposals.
- Volume 6 - Consultant and Ella Bay Reports
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
  - 6.2 f Cassowary Specific Revegetation -A Cyclone Tolerant Orchard.
- Volume 7- Drawings
  - Cassowary Access Dwg 14;
  - Offset Revegetation Plan Dwg 21;
  - Regional Cassowary Habitat Corridor Dwg 22; and
  - EBR1CE-PD08 Fauna Fencing Management.

5.1.4 Loss of habitat from road clearing and fenced areas.

"Impact of Fencing. The widening of the road and the construction of a fauna fence and associated maintenance lanes would inevitably create changes in vegetation structure and composition as a result of alterations in light and humidity and would likely result in the introduction of weeds. The assessment of the impact zone of the road must include the road surface, road shoulders and fauna fencing. The area between the fences will be inaccessible as usable habitat for most terrestrial fauna and would therefore need to be considered in any calculations of areas of habitat impacted by the proposed upgrade." DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.2.6, SEIS (Volume 1) 1.4, SEIS (Volume 1) 1.3.4

Submitter Reference: WTMA (33), P Rowles (31)

Proponent Response

The proponent has included the area of the fencing and edge effect in the assessment for the Offset Package Proposal. The cassowary fence has been designed and trialled within vegetation under extended wet season including cyclonic conditions with no increase in weed invasion.

Refer to:

- Volume 1 MNES
- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 12 Operational Management and Monitoring
- Volume 5 Offsets Proposal
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 i Cassowary Gate Trial;
  - 6.1 j Cassowary Fence Trial; and
  - 6.1 k Cassowary Fencing Strategy.
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
- Volume 7 - Masterplan Report:
  - EBR1CE-PD08 Fauna Fencing Management.

5.1.5 Net loss of habitat.

"Any benefits from restoring foraging habitat on-site (84 ha. is proposed) will not be evident for many years because many of the fruits utilised by cassowaries are secondary and tertiary species which take twenty or more years to bear significant amounts of fruit. The proposed development is therefore expected to result in a net loss of cassowary habitat for at least ten to fifteen years, conservatively." DERM

SEIS/EIS Reference: SEIS (Volume 1) 1.8

Submitter Reference: DERM (30),

Proponent Response

There will be loss or isolation of essential and general habitat of less than 2ha (of which 1ha is heavily infested with Pond apple).

Newly planted trees and shrubs will take 7-12 years to be individually productive fruit-wise. It should be emphasised that the sum of the plantings will have an immediate effect by increasing the available food supply from 2-3 years. A second significant benefit to the revegetation will be the increase the habitat quality by reduction of edge effects of adjoining vegetation along the narrow riparian corridors. There will be between up to 50,000 trees, shrubs and vines planted per year. Even during the first couple of years the number of trees planted will contribute to overall food supply. The current revegetation trial plantings are attracting cassowaries to the early fruiting shrubs after 12 months.

Refer to:

- Volume 1 - MNES Report:
  - Chapter 2 – Figure 2.4 Proposed Precinct Staging;
- Volume 6 - Consultant and Ella Bay Reports
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
  - 6.2 c Revegetation and Weed Management Issues; and
  - 6.2 f Cassowary Specific Revegetation – A Cyclone Tolerant Orchard.

5.2 Submitter Issue: Habitat Connectivity

5.2.1 Cassowary movements restrictions

"It is expected that for at least the first 5 years, development would adversely affect wildlife movement in comparison with the present cattle property which provides unimpeded access by cassowaries in search of food resources along the coastal corridor."

SEIS/EIS Reference: SEIS (Volume 1) 1.3.4, EIS (Volume 3) 3.4.3

Submitter Reference: DERM (30), DSEWPaC (40), P Rowles (31), Johnstone Ecological Society (63).

Proponent Response

Cattle were removed from the Ella Bay Property in February 2008, prior to that the cattle, barb wire fences and farming practices impacted on the "free movement" of cassowaries at Ella Bay. Since then the proponent has changed the management practices and removed the barb wire fences, totally removed any barrier to movement through the cleared areas, culled pigs and removed hunting dogs. The surveyed numbers of cassowaries (all photographed) has increased since that time from 6 to 15 adults and subadults.

Multiple surveys, remote wildlife cameras surveillance, and staff observation indicates that the cassowaries choose almost exclusively to use the riparian areas for movement. Very rarely are the cassowaries seen in open paddocks and if they are it is generally to an isolated tree. The master plan design proposes to rehabilitate and improve those riparian corridors. It is expected that any barrier to movement through the riparian areas and hence to the coastal area will only be during the dry season construction phase of the bridge crossings.

Refer to:

- Volume 1 – MNES Report.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 b Cassowary Survey Feb. 2009;
  - 6.1 c Cassowary Survey Nov. 2009;
  - 6.1 d Cassowary Survey Apr. 2010;
  - 6.1 e Cassowary Survey Nov. 2010.
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary

5.2.2 Cassowary home range impact

"The development will result in numerous direct, indirect and consequential impacts on the cassowary. The key impacts are associated with

- reduced carrying capacity leading to pressures on reproductive productivity and recruitment
- barriers to traditional movement paths,
- injury or death to cassowaries from vehicle strikes and dogs…." DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.3.4, SEIS (Appendices) A.2.4, EIS (Volume 3) 3.4.3

Submitter Reference: DSEWPaC (40), C4 (35)

Proponent Response

The proponent has surveyed an increase the number of cassowaries using Ella Bay site after changing management practices to more than double the number of adults and juveniles (from 6 to 15). It is expected that the increase in food availability from the revegetation, continued control of feral pigs, removal of hunting dogs and permanent water availability from the constructed wetlands will at least maintain the carrying capacity.

The submission compares direct, indirect and consequential impacts to that of the previous agricultural management practices. Freehold ownership includes an 'as of right' entitlement to agricultural activities within the property, with few, if any, mitigation strategies to conserve cassowaries outside the requirement for controlling the weed; pond apple. Moreover, there is no statutory obligation on the landowner to fence off remnant vegetation to prevent further habitat degradation and there is no obligation to revegetate already cleared land or restore degraded habitat.

It has been shown by the reported increase in cassowary numbers over 5 surveys that these practices were restrictive.

In contrast, mitigation and management strategies will be an integral component of the Ella Bay Development. Under the Southern Cassowary Management Sub-Plan a regular monitoring program will identify negative (or positive) cassowary population trends and likely causal factors and implement contingency plans in the event performance criteria are not met.

Refer to:

- Volume 1 - MNES Report.
- Volume 3 – Environmental Management Plans:
  - Southern Cassowary Management Sub-Plan.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 b Cassowary Survey Feb. 2009;
  - 6.1 c Cassowary Survey Nov. 2009;
  - 6.1 d Cassowary Survey Apr. 2010;
  - 6.1 e Cassowary Survey Nov. 2010;
  - 6.1 L EIS and SEIS Cassowary reports Vol I, II, III, & WP3; and
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
- Volume 7- Drawings
  - Cassowary Access Dwg 14

5.3 Submitter Issue: Cassowary Threat Analysis

5.3.1 Threats to the cassowary population

"In our view the existing Ella Bay site is freely available to several cassowaries, possibly providing breeding habitat for the species, and is one of the most important coastal habitat areas for the long term survival of the Graham Seymour cassowary population. In addition to the threats posed to the development on cassowaries, the proposed access road has the potential to force the species to brink of extinction from road kill associated with traffic." DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.8.2, SEIS (Volume 1) 1.4.3.2, SEIS (Volume 2) 2.1, SEIS (Volume 2) 2.2.9.2, SEIS (Appendices) A.2.4, EIS (Volume 3) 3.5, EIS (Volume 4) 4.7.1.2.3

Submitter Reference: DSEWPaC (40), WTMA (33), DERM (30), C4 (35)

Proponent Response

The Ella Bay property has 241 ha of clearing; the riparian corridors are thin and the majority of sections are regrowth; the vegetated coastal strip is narrow with weed invaded vegetated fragments. Cassowaries will have free access and no restriction through the development along all existing riparian corridors that provide food sources. Additionally the East-West and North-South fauna corridors will be protected and revegetated to 100m width and a new North-South corridor added. Based on the increase in surveyed cassowary numbers from changed management practices and the proposed increase in cassowary fruiting revegetation there will be an ongoing greater carrying capacity and a lower threat level than that of the previous agricultural practice.

To decrease the risk of cassowary road mortality the proponent has designed mitigation in terms of "fence and funnel" preventing access to the road and directing cassowaries through bridge underpasses both along Ella Bay Road and within the development along all existing riparian corridors. The eastern side of Ella Bay Road provides an area of approximately 37 ha within the USL reserve that has cassowary habitat which will remain accessible via a fauna underpass.

On a regional scale Moore (SEIS & Volume Six 6.1L) reported that the Graham-Seymour Range cassowary population

> *"is a linear subpopulation which has lost all connectivity with the larger cassowary populations to the west, the Graham Seymour Range population is currently experiencing high levels of anthropogenic impact, and declining rapidly as a result."*

The time frame predicted by Moore's modelling for extinction is 60 years for isolated populations with the current levels of threat: (SEIS & Volume Six 6.1L - PVA page 28 Summary of all Models)

> *"In the absence of future dispersal between the two currently connected coastal populations of Graham Range and Seymour Range, all PVA models indicate there is a high probability that both populations will die out within 60 years."*

Moore also concluded that "Natural catastrophes in the form of severe cyclones and the environmental uncertainties of climate change, are hastening this decline."

According to Moore's PVA the Graham-Seymour Range cassowary sub-population is currently in a declining vortex whereby extinction of that sub-population appears to be inevitable. Many of the present indirect impacts of the local environment are cumulative and are contributing to this decline. That is; the current "do nothing" scenario will result in extinction of the Graham-Seymour Range cassowary sub-population. It has been shown that changed management practices can provide an increase in surveyed cassowary numbers especially sub-adults, and the Offset Package Proposal details a significant corridor package connecting the Graham Seymour Range to the Eubenangee Swamp National Park.

- Volume 1 - MNES Report
- Volume 3 – Southern Cassowary Management Sub-Plan
- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 8 - Fauna Sensitive Road Design
- Volume 6 - Consultant and Ella Bay Reports
  - 6.1 b Cassowary Survey Feb. 2009;
  - 6.1 c Cassowary Survey Nov. 2009;
  - 6.1 d Cassowary Survey Apr. 2010;
  - 6.1 e Cassowary Survey Nov. 2010;
  - 6.1 L EIS and SEIS Cassowary reports Vol I, II, III, & WP3; and
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
  - Volume 7- Drawings - EBR1CE-PD08

5.3.2 Introduced threats from the development

"…. threat analysis carried out by the developer's cassowary expert (LA Moore) indicates that a change in land use for the site will result in the introduction of many new and significant threats to cassowaries, further compromising this key species…" DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.3.6.1, SEIS (Volume 1) 1.8.7, EIS (Volume 4) 4.7.1.2.3

Submitter Reference: DSEWPaC (40), C4 (35), CAFNEC (62), EDO NQ (61), CAFNEC form Letter (12-26, 42-60)

Proponent Response

The threat analysis and comments by LA Moore in SEIS Vol II (collated into Volume 6 6.1L) were made prior to many of the proposed mitigation measures being included. The highest impacts related to traffic flow, road deaths and dog attacks all of which predated mitigation of fauna bridge underpasses, cassowary fencing and banning of dogs (except guide and assistance dogs). The increase in cassowary numbers with changed management practices show that the agricultural practices did indeed provide a high impact level.

- Volume 1 - MNES Report
- Volume 6 - Consultant and Ella Bay Reports
  - 6.1 L EIS and SEIS Cassowary reports Vol I, II, III, & WP3;
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary

5.4 Submitter Issue: Cassowary Management

5.4.1 Cassowary management plan

"A cassowary management plan and a road management plan be developed addressing all direct, indirect and consequential impacts of the development on the local cassowary population" DSEWPaC

SEIS/EIS Reference: SEIS (Volume 2) 2.2.9, EIS (Volume 5)

Submitter Reference: DSEWPaC (40), DSEWPaC Heritage (65), WTMA (33)

Proponent Response

The proponent has prepared a cassowary management plan and procedures to ensure the cassowaries and mitigation strategies are managed accordantly during the development and road upgrade construction. A specific road construction management plan (Ella Bay Road Construction Management Sub-Plan) will be developed and approved prior to construction.

  - Volume 3 - Southern Cassowary Management Sub-Plan.
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 10 – Construction Methodology; and
  - Chapter 12 – Operational Management and Monitoring.
- Volume 6 - Consultant and Ella Bay Reports

6. Road and Transport

The Road and Transport responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Ella Bay Road Design and Preferred Alignment;
- Road Safety;
- Cycleway;
- Visual Impact;
- Fauna Impact & Mitigation;
- Road Edge Effects;
- Local Community Impact; and
- Transport.

Post SEIS, the proponent commissioned specialist consultants to optimise the road alignment and aid in preparing the Ella Bay Road Design and Environmental Management Plan.

6.1 Submitter Issue: Ella Bay Road Design and Preferred Alignment

6.1.1 Preferred alignment and a multi criteria analysis

"The Department (DSEWPaC) in its previous submission (18/1/08) requested that the multi criteria analysis similar to that used for the previous 7 options be applied for the suggested option". DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, EIS (Volume 2) 2.2.4

Submitter Reference: DSEWPaC (40), WTMA (33) Uni SA (66)

Proponent Response

DSEWPaC commissioned the University of South Australia to conduct an independent review of the EIS, SEIS documentation and Multi Criteria Analysis in relation to the proposed Ella Bay Access Road. The UniSA recommended that the MCA method should be modified.

The Proponent has prepared an additional MCA on the alternative options for this section of road based on the recommended MCA methodology. The score standardisation and aggregation for each attribute has been calculated as per the Uni of SA report recommendation. All scores were benchmarked to Ella Bay Rd at its current condition (Uni of SA report recommendation)and the determination based on a sensitivity analysis of weightings of important attributes.

The new MCA overall highest scoring road alignment option was Option D2 (current Ella Bay road alignment), which was the same option as per SEIS. The MCA concluded that the upgrade of the existing road alignment option was the most environmentally, socially and economic option. The analysis was also confirmed with a weighting of a factor of 6 in favour of cassowary criteria.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - APPENDIX 2 Revision to Multi Criteria Analysis of Ella Bay Road Options; and
  - APPENDIX 3 Revision to Road Usage Demographics for Ella Bay Road.
- Volume 7- Drawings
  - EBR1CE-PD02 Overall Layout

6.1.2 Alternate alignment selection

"It is the Department's view that the RB1 option could be adequately mitigated to reduce acoustic and other social impacts to the FFP community. Given the limited criteria used in the assessment of the road options, we believe that a thorough and balanced assessment of environmental and social impacts has not been undertaken for the justification of the preferred option (expansion of the existing Ella Bay Road).

…- no effort has been made to identify measures to mitigate potential impacts of the road on the FFP community, except complete elimination by proposing a road away from the township.

- no effort has been made to investigate engineering and other road treatment solutions, such as existing and future road re-alignments, to eliminate engineering and efficiency issues associated with other more sustainable options to mitigated social impacts on the FFP community.." DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, SEIS (Appendix) A.2.6, EIS (Volume 2) 2.2.4

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent prepared multiple options for the EIS and SEIS and evaluated these through discussion with authorities and the MCA process. Post SEIS, the proponent has prepared an additional detailed MCA for the short section of road adjacent to the reserve. The result of this final assessment was that the existing road alignment with the proposed mitigation provided the most environmentally, socially and economic preferred outcome.

In summarising the MCA options:

- Ella Bay Rd (in its current form) is not feasible due to traffic numbers, safety and Level of Service. It was marked down because the risk of cassowary mortality is highest and flora and fauna connectivity is not improved.
- Option D (upgrade current alignment) rated highest, rates high in all transport and social attributes and highly in environmental and due to the mitigation, rates highly in cassowary risk attributes. This option is marked lowest in Flora and Fauna Connectivity which is not improved, constructability which is difficult in maintaining access during construction and the cost is high.
- Option RB1 is the lowest cost option, utilising an existing road alignment through Flying Fish Point and it scores highest in improving flora and fauna connectivity. However it scores lowest in all attributes of transport and social amenity that reflects on the proximity and impact on residences. Additionally it is not a viable option due to LOS (Level of Service) and risk of flooding.
- Option RB2 rates highly in improving flora and fauna connectivity and is potentially a lesser risk to cassowary mortality. This option requires the largest area of clearing which also contains vulnerable flora. This option rates moderate in all attributes that reflect on the proximity and impact on residences. However there are many construction issues and technical problems of building this alignment road through an ephemeral wetland.

The Flying Fish Point bypass road alignment has been modified:

- To realign the tunnel removing the sharp corners and any potential future re-alignments;
- To minimise visual impact to the World Heritage Areas and Flying Fish Point; and
- To reduce noise impact to Flying Fish Point residents.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Appendix 2 Revision to Multi Criteria Analysis of Ella Bay Road Options; and
  - Appendix 3 Revision to Road Usage Demographics for Ella Bay Road.
- Volume 7- Drawings:
  - EBR1CE-PD02 Overall Layout; and
  - EBR1CE-DD55 MCA Road Options.

6.1.3 Cassowary impact and preferred alignment

"Les Moore in his cassowary report suggested that any route alignment between the Ella Bay National Park to the west and cassowary habitat within the Unallocated State Land (USL) to the east (existing Ella Bay Road) to support the Ella Bay project would be detrimental to cassowaries as they are known to cross the existing road at several locations to utilise coastal foraging habitat Les Moore suggested that other options need to be considered and the existing Ella Bay Road should be closed and the Cassowary habitat on the USL should be incorporated into the Ella Bay National Park. This recommendation has not been seriously considered in the assessment of the road options.

……. the importance of the access road study area for the cassowaries has been under estimated" DSEWPaC

SEIS/EIS Reference: SEIS (Appendix) A.2.4

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent believes the importance of the access road study area for the cassowaries has not been under estimated. Les Moore provided a detailed assessment of the habitat values of the study areas. In summary Les Moore found (SEIS Appendix A.2.6, Working Paper 3) that the proposed "fence and funnel to a bridge underpass" mitigation would reduce the current high risk of road death for local cassowaries along the entire length of the Ella Bay access road. Along the southern road section, the construction of exclusion fencing and raised bridges will permit cassowaries to safely cross the road and access food and water resources within Flying Fish Point Reserve. In doing so it will increase the value of the cassowary habitat in the Reserve from its current assessment as Negative Value Habitat i.e.. High Risk (0.2), to Moderate Value Habitat i.e. Moderate to Low Risk (>1.0). Moore states

> *"High risk habitat will be mitigated to Category B (Moderate Value Habitat) with raised bridges and fencing proposed by proponent"*

Moore further stated, (L.Moore pers.comms email 9.10.2007)

> *"Along the access road a fauna crossing opposite the reserve is to be constructed as a raised bridge that cassowaries can cross beneath. The road can then be fenced both sides and birds can be funnelled into it - we would only need the one road crossing point. This mitigation strategy would remove ALL the current risk for road crossing birds at the reserve, and raise the reserve's habitat value significantly."*

At a round table workshop of road-fauna experts and stakeholders held at Cairns to discuss this and other road issues associated with the Ella Bay project (October 2008), the following conclusions were reached:

1. The option of a raised bridge to facilitate cassowary movement in and out of the Flying Fish Point Reserve was supported i.e., it was concluded that a specifically-designed bridge had a high probability of providing safe and effective connectivity to the Reserve for cassowaries.
2. Fencing options along the road were also well received including the concept of cassowary escape gate in the event that birds managed to enter the road corridor.

The Proponent has subsequently surveyed similar cassowary bridges and shown that cassowaries use these as underpasses.

Refer to:

- Volume 6 – Consultant and Ella Bay Reports:
  - 6.1 h Cassowary Underpass Survey 2008, 2009;
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:

- Chapter 8 Fauna Sensitive Road Design.

6.1.4 Construction staging

"It is noted that the access from Flying Fish Point Road to the development will now minimise impacts on the Flying Fish Point Community and this alternate access should be constructed as part of the Initial stages of development". CCRC

SEIS/EIS Reference: SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5

Submitter Reference: CCRC (64) C Head & C Belbin (29), CAFNEC (62), CAFNEC form Letter (12-26, 42-60), T Quirk (3), Dimaroo (2)

Proponent Response

The staging of the road construction has been changed from the SEIS. In the SEIS a narrow unmitigated road was proposed as stage 1 based on the DA approval for Little Cove with the full detailed road as stage 2.

This submission has Ella Bay Road upgrade and construction divided into two stages. Stage 1 (upgrade of current alignment) will be constructed at the start of the project. Stage 2 will be constructed after the traffic to Ella Bay has increased to 1,000 v/d. An upgrade to the FFP road network and a traffic management plan has also been detailed to minimise impacts to FFP community.

Refer to:

- Volume 4 – Ella Bay Road Design and Environmental Management Plan:
  - Chapter 3, 10, 11;
  - Figure 10.1 - Schedule Stage 1;
  - Figure 10.2 - Schedule Stage 2; and
  - APPENDIX 3 Revision to Road Usage Demographics for Ella Bay Road.

6.1.5 Road design drawings and figures

"A clearly labelled figure should be provided for the full length of the proposed road showing locations of all creeks in the study area, fauna underpasses, overpasses, traffic calming measures and the roadside fencing. Dimensions of the overpass and underpasses and fencing should also be detailed". DSEWPaC

SEIS/EIS Reference: SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent has prepared an Ella Bay Road Design and Environmental Management Plan which details the road design. The Ella Bay Road upgrade drawings are found in Volume 7

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Figure 3:1, 3:2 - Ella Bay Road Alignment DWG. EBRCE-PD01;
  - Table 8:2, 8:3 – All Fauna Mitigation by chainage.
- Volume 7 – Drawings:
  - EBR1CE-PD01 to EBR1CE-PD10 Presentation Drawings;
  - EBR1CE-DD01 - 22 Road Layout Drawings; and
  - EBR1CE-DD30 to EBR1CE-DD70 Road Detail Drawings.

6.1.6 Road design recommendations by the Uni SA

"the review team believes that option D may remain the preferred access route option provided the following recommendations are taken into consideration…..

"Ella Bay access road to be constructed as a single carriageway with two traffic lanes (one in each direction) with 3.5 metres width;

- Total road shoulder to be 2.5 metres with the shoulder sealed of 1.5 metres;
- Target level of service to be B (e.g. no road narrowing);
- Conduct additional assessment of the hourly volume rates since they will influence road design features other than road widths;
- Conduct more detailed analysis of the vehicle profiles (especially heavy vehicle volumes during construction);
- Use a higher estimates for average annual daily traffic (AADT) (e.g. 4,082-4,772 instead of less than 3,000);
- If one of the access options through the Flying Fish Point is selected, check whether intersection capacity analysis is necessary based on expected volumes as per Table 4.9; and
- Since Ella Bay Resort will generate additional traffic on road section between Innisfail and Coconut, conduct capacity and safety studies and necessary upgrades to that road section and the bridge at Innisfail. " Uni SA

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, EIS (Volume 2) 2.2.4

Submitter Reference: Uni SA (66)

Proponent Response

The proponent has prepared an Ella Bay Road Design and Environmental Management Plan which details the road design.

The design optimisation based on the Queensland Road Planning and Design Manual, Austroads and a Road Safety study produced a different road specification to that of the UniSA. The road would need to have a 1.5m sealed shoulder with additional localised road widening of the shoulder and/or the roadwidth required around the tight corners of Heath Point.

The following design criteria will be applied:

- Traffic lanes (60km/hr) minimum 2 x 3.5m lanes;
- Shoulder/Bikeway nominal 1.5m sealed shoulder;
- Design Level of Service B;

The road alignment has been straightened and additional features such as pulloff lanes added to improve Level of Service and safety. However while the design level of service will be B; the LOS will be impacted by localised traffic calming for cassowary safety.

More detailed analysis of hourly rates and construction vehicles were estimated. The proponent has re-estimated the road usage demographics and does not agree with the conclusion of the UniSA results with regards to traffic numbers due to the seasonal nature of the FNQ tourism industry and the internal traffic generation numbers. (refer to response 6.1.7)

Ella Bay Resort access through Flying Fish Point will only be used in the initial years until traffic usage of over 1000v/d triggers the construction of the Flying Fish Point Bypass (tunnel).

Refer to point 6.1.9 for the impact of the road through Innisfail and the single lane bridge.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 5;
- Volume 7 – Design Drawings:
  - EBR1CE-PD01 to EBR1CE-PD10 Presentation Drawings;
  - EBR1CE-DD01 - 22 Road Layout Drawings; and

- EBR1CE-DD30 to EBR1CE-DD70 Road Detail Drawings.

6.1.7 SEIS Trip generation

" Traffic generation figures used in Ella Bay Integrated Resort Impact Statement were based on “Resort Traffic Surveys (1989)” conducted by Main Roads Queensland at 22 resorts and comparison drown between three similar resorts Port Douglas, Capricorn Iwasaki and Kooralbyn Valley.....

……..Although, the comparison between similar resorts can give some indications of the likely resort traffic generation, it should be noted that almost every resort is unique and it is possible that some under/over estimation of traffic is to be expected. ". Uni SA

SEIS/EIS Reference: SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5.1.2.2

Submitter Reference: Uni SA (66)

Proponent Response

The Proponent has revised the Road Usage Demographics for Ella Bay Road. This analysis has been prepared based on the Australian Bureau of Statistics Census 2006 for Palm Cove, Port Douglas with comparison to Flying Fish Point.

This revision did not agree with data generated by the UniSA in particular the demographic and traffic comparison that UniSA made to Flying Fish Point. The demographics of age, employment, car ownership and transport usage of Flying Fish Point is totally different to that of the resort based centres.

The proponent believes that the use of Institute of Transportation Engineers (ITE) (USA based) data without consideration of the seasonal aspects of the Wet Tropics as used in Queensland Main Roads data generated from Queensland resorts which also includes the high proportion of international tourism: all of which change the road use demographics; is not a valid comparison.

- Volume 4 – Ella Bay Road Design and Environmental Management Plan:
  - APPENDIX 3 Revision to Road Usage Demographics for Ella Bay Road.

6.2 Submitter Issue: Road Safety

6.2.1 The Uni SA review of Road Safety

"As all the proposed access routes will involve some tight curvatures due to the physical environment, the SEIS failed to address this issue. As a result of tight curvature sections, sight distances will be limited and may have more road crash potentials".

"establishing the full cross section of the upgraded road could result in substantial earthworks, requiring clearing and disturbance of existing steep cuttings and embankments. This impact could be reduced by the judicious use of retaining structures as well as other techniques".

"the use of construction difficulty as a reason to narrowing road cross section is unacceptable;" Uni SA

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, EIS (Volume 3) 3.5.1.2

Submitter Reference: Uni SA (66)

Proponent Response

The proponent has prepared a more detailed design of the Ella Bay Road upgrade including increase in radii of tight corners, design for stopping and manoeuvre sight distances, clear zone width, trailer swept width, and maintenance safety pulloff lanes. The roadwidth has been locally widened where necessary. Minor additional clearing, revegetation with low height species and embankment reshaping has been included for sight distance improvement.

The design has been subject to an independent safety analysis (Road Safety Audits Pty Ltd) where “The revised plans have incorporated most of the recommended actions whereby wider lanes and shoulders have been provided” (RSA 2010).

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 5 Road Design and Design Criteria; and
  - Appendix 4 – Road Safety Audit of Ella Bay Road.
- Volume 7 - Drawings:
  - EBR1CE-PD01 to EBR1CE-PD10 Presentation Drawings
  - EBR1CE-DD01 - 22 Road Layout Drawings

6.2.2 Uni SA review of Speed Limit

"The review team believe that frequently changing the posted speed limit may cause confusions among drivers, in particular, for such a short road section". Uni SA

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, EIS (Volume 3) 3.5.1.2

Submitter Reference: Uni SA (66)

Proponent Response

The road alignment has been modified to reduce tight curvature sections and instances of advisory speed reduction. The speed limit will be 60km/hr along Ella Bay Road from Bay Road to Little Cove except where designated for three horizontal curves which are less than 60m radius.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan;
  - Chapter 5 Road Design and Design Criteria.
- Volume 7 - Masterplan Report:
  - Road Detail Drawings – EBR1CE-DD(01-22), EBR2CE-DD(01-08).

6.3 Submitter Issue: Cycleway

6.3.1 Cycleway design

“Any new development for vehicle traffic must incorporate shoulder facilities for use by cyclists. This is an essential requirement and part of Australia’s move to sustainable transport.” Head & Belbin

"the proposed cyclist and pedestrian route along the coastline is not reasonable;" Uni SA

SEIS/EIS Reference: SEIS (Volume 1) 1.4.7.2, SEIS (Appendix) A.2.6

Submitter Reference: T Quirk (3), C Head & C Belbin (29)

Proponent Response

The road alignment incorporates a 1.5m cycleway on the side of each lane from Bay Road to Ella Bay Development entry. The cycleway will conform to Australian standards and local council requirements.

The proposed pedestrian and cycleway along the coast from Flying Fish Point and around Heath Point has been removed from the design. This would have required more extensive clearing.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan;
  - Chapter 3, 5.
- Volume 7 – Design Drawings:
  - EBR1CE-PD01 to EBR1CE-PD10 Presentation Drawings; and
  - EBR1CE-DD01 - 22 Road Layout Drawings.

6.4 Submitter Issue: Visual Impact

6.4.1 Visual impact of Ella Bay Road upgrade

"The greatest impact on visual amenity is the road-widening and bank-battering through the National Park around Heath Point. This scar on the landscape will be visible for a very long time from the coastlines north and south as well as from the sea". Rowles

SEIS/EIS Reference: SEIS Submission Response 1.4, EIS (Volume 2) 2.2.4 Road Alternatives

Submitter Reference: C4 (35), WTMA (33), P Rowles (31)

Proponent Response

The Ella Bay Road upgrade has been designed to utilise the existing road clearing with additional clearing requirements minimised or modified to retain as many of the mature trees and road canopy connectivity as possible.

An extensive revegetation and weed control strategy will mitigate the visual impacts post road construction. The revegetation strategy will include vegetating the embankments and gabion rockwalls with native plants to further reduce visual concerns from the sea and coastline.

Refer to:

- Volume 1 – MNES Reply
  - Appendix 4
- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 4 Environmental Significance and Potential Impact to WHA
  - Chapter 9 Flora Sensitive Road Design
  - Chapter 12 Operational Management and Monitoring
  - Appendix 1 Visual Landscape Assessment Ella Bay Road

6.5 Submitter Issue: Fauna Impact and Mitigation

6.5.1 Graham Seymour southern cassowary population

It is DWEHA's view that the preferred access route alignment and Flying Fish Point by-pass route would result in a significant impact on the Graham Seymour southern cassowary population.

"According to the Population Viability Analysis (PVA), the Graham Seymour Cassowary population (estimated at a total of 61 individuals) is already in decline. Even under current threat levels, the population size of the Graham – Seymour population is predicted to be extinct in 62 years where as the isolated Seymour population (estimated at a total of 34 individuals) is predicted to be extinct in <50 years. On this basis, any additional threat to the Seymour population by the proposed road which has a high likelihood of death of cassowaries would accelerate the decline of the local cassowary population. According to the limited survey, the access route area is utilised by at least 3 adult cassowaries and one chick. The potential loss of these birds will constitute approximately 12% of the Seymour Range population."

SEIS/EIS Reference: SEIS (Appendix) A.2.6, SEIS (Appendix) A.2.4, EIS (Volume 8) A6.4

Submitter Reference: DSEWPaC (40), Johnstone Ecological Society (63).

Proponent Response

Three adult cassowaries comprise approximately 9% of the tentatively estimated adult population of Seymour Range and 4.5% of the estimated Graham-Seymour Range population. As these two populations are still connected the latter percentage is more appropriate i.e., 4.5%. It is emphasised that the population figures used in the PVA are desktop estimates only and, apart from the forested areas surrounding the EBIR and Flying Fish Point, field surveys of the ranges have not been undertaken. The results of PVA are just one factor in any social and decision-making context and should always be considered only as a precursor to good judgment (Brook et al. 2002).

It is important to recognise that the quantitative analyses in predictive population modelling are based on probabilities rather than certainties. Thus the results of the PVA study at Ella Bay can only provide information on the 'probability' of extinction or decline given certain assumptions about the biology and status of the cassowary population. Thus, extinction of the Graham-Seymour Range cassowary population is not certain but it does have a high probability of occurring. This is particularly so given the imminent fragmentation of the Graham-Seymour Range cassowary population at three separate locations.

The potential loss of cassowaries due to road death on the Ella Bay access road while also not a certainty, is a possible outcome, and as such has been addressed by the development, implementation, and monitoring of effective mitigation. The mitigation strategy for the Ella Bay access road aims to reduce or remove the risk of any collision between cassowaries with cars. Intensive monitoring and inspection programs detailed in the Southern Cassowary Management Sub-Plan will allow for corrective actions to be taken in the event that mitigation does not meet performance criteria i.e., no cassowary road death. Currently there are no mitigation strategies for the existing road.

The southern end of Seymour Range is classified as "Negative Value Habitat' i.e., there is an unacceptably high risk of road death and dog attacks for those cassowaries making use of it (Moore 2006, 2007). Subsequent to Moore's warning that dog attacks on cassowaries in this area were certain and that exclusion fencing should be considered, an adult cassowary was mauled to death by dogs.

It was recommended in the cassowary road alignment assessment (Moore, 2007) that exclusion fencing should be constructed at the point of the range bypass/cut & cover crossing to prevent cassowaries from accessing the residential area and the Flying Fish Point Roads. This management would involve the loss of an extremely small area of low quality and high risk habitat to the south of the proposed range crossing and is considered to be an essential action to prevent further anthropogenic cassowary death.

This option of fencing above the tunnel has not been adopted by the proponent as it is independent of the Ella Bay access road and is about prevention of access to the "higher risk" township which is a DERM responsibility.

Since Moore's surveys and analysis, regular surveys have continued and shown an increase in the number of cassowaries in the area of the access road and Ella Bay property. The PVA was based on Moore's survey showing 6 adult and sub-adults birds in the area whereas the latest surveys have identified 15 confirmed adult and sub-adult birds coinciding with changed management practices on Ella Bay property. This increase shows that the population could be viable and together with the Offset Package Proposal property, and mitigation will further ensure the viability of the population.

Refer to:

- Volume 1 – MNES Report;
- Volume 3 – Environmental Management Plans:
  - Southern Cassowary Management Sub-Plan
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 b Cassowary Survey Feb. 2009;
  - 6.1 c Cassowary Survey Nov. 2009;
  - 6.1 d Cassowary Survey Apr. 2010;
  - 6.1 e Cassowary Survey Nov. 2010; and
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary

6.5.2 Cassowary Exclusion Fence

"There is a lack of certainty on the design and likely construction methodologies for the 'cassowary proof fence'. The Authority believes that any fence would also need to exclude other terrestrial fauna from accessing the Ella Bay Road". WTMA

"Details must also be provided in regard to the type of fencing and timing of the installation of the fence to ensure that cassowaries are kept away from the road during construction works". DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.3, SEIS (Volume 1) 1.8.3 SEIS (Volume 2) 2.2.9.1, EIS (Volume 5)

Submitter Reference: DSEWPaC (40), DERM (30), C4 (35), WTMA (33)

Proponent Response

The proponent has designed and tested a prototype cassowary fence and escape gate; and conducted several field trials with promising and effective results. The design of the fence was a result of the stakeholder's workshop in Cairns 2008 in which basic details for the fence were discussed and selected. An effective method of excluding cassowaries from the road will be required to integrate with the underpasses to provide the most comprehensive mortality risk avoidance. The cassowary fence and barriers will be required to prevent the cassowary both visually and physically. The outcome of the stakeholder's workshop was that the fence should be shadecloth 1800mm high and constructed with a nominal 100mm lower gap to ensure that the fence did not form a dam to overland flows. Ownership and maintenance are addressed in the MNES report and Ella Bay Road Design and Environmental Management Plan. The timing of construction of the fence has been addressed in the road construction methodology and 6.1 k Cassowary Fencing Strategy

Refer to:

- Volume 1 – MNES reply:
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8 Fauna Sensitive Road Design;
  - Chapter 10 Construction Methodology; and
  - Chapter12 Operational Management and Monitoring.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.1 i Cassowary Gate Trial;
  - 6.1 j Cassowary Fence Trial;
  - 6.1 k Cassowary Fencing Strategy; and
  - 6.1m Update of Habitat Assessment of Ella Bay for the Southern Cassowary

6.5.3 Road alignment construction methodologies, mitigation and monitoring strategies

"To ensure that the habitat for these species will not be significantly impacted, details of bridge structure across creeks, buffer areas and construction methodologies and specific mitigation and monitoring strategies should be provided". DSEWPaC

SEIS/EIS Reference: SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent has prepared the Ella Bay Road Design and Environmental Management Plan which details the mitigation strategies, construction and revegetation methodologies of the bridges

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 8 Fauna Sensitive Road Design;

- Chapter 9 Flora Sensitive Road Design;
- Chapter 10 Construction Methodology; and
- Chapter12 Operational Management and Monitoring.

- Volume 7 - Drawings
  - EBR1CE-DD30 to EBR1CE-DD62 Road Detail Drawings

6.5.4 Cassowary Underpass

"A number of road underpasses are proposed to enable safe passage for cassowaries across the new road to the coastal corridor. It is not known whether cassowaries will use these underpasses" DERM

SEIS/EIS Reference: SEIS (Volume 1) 1.3, SEIS (Volume 2) 2.2.9.1

Submitter Reference: WTMA (33), DSEWPaC (40), C4 (35), DERM (30), P Rowles (31), C Head & C Belbin (29)

Proponent Response

One of the outcomes of the stakeholder's workshop in Cairns 2008 was that there had been no research into monitoring or the design of suitable underpasses. It was thought that the "openness" of the underpass was important and that culverts were unsuitable, however there was no evidence of the suitability of certain structure or dimensions to cassowaries.

Subsequently the proponent surveyed both culverts and bridges in the area and confirmed that two bridges near Mission Beach; North Hull Bridge and Wongaling Bridge were used by cassowaries. The visual orientation and "openness" have been used for the design of Bridges 1,2 and 3.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8 Fauna Sensitive Road Design;
- Volume 6 – Consultant and Ella Bay Reports
  - 6.1h - Cassowary Underpass Survey 2008, 2009
- Volume 3 - EMP Ella Bay Environmental Management Plan
  - Southern Cassowary Management Sub-plan

6.5.5 Little Cove habitat loss and fragmentation

"…given the issues associated with the location of the road within part of the Little Cove site, and noting that this area supports important cassowary habitat…" DSEWPaC

SEIS/EIS Reference: SEIS (Appendix) A.2.6, SEIS (Appendix) A.2.4, EIS (Volume 8) A6.4

Submitter Reference: DSEWPaC (40)

Proponent Response

The road design through Little Cove has two (2) Fauna underpass bridges located at Little Cove at identified Cassowary paths. These paths were identified by Les Moore and Peter Buosi in their cassowary surveys and Ella Bay in-house monitoring. The monitoring has shown that cassowaries cross the creek at the bridge sites to the existing Covenanted land B at Little Cove.

- Fauna Bridge 2: CH2981-3011, 30m long x 3.7m height
- Fauna Bridge 3: CH3227-3257, 30m long x 5.1m height

The cassowary fence in this area has been modified since the SEIS to exclude cassowaries from the Little Cove Resort development site.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 8, Figure 3:2 - Ella Bay Road Alignment DWG.
- Volume 7- Drawings:

- EBR1CE-PD02 - Overall layout;
- EBR1CE-PD08 Fauna Fencing Management; and
- EBR1CE-DD01 - 22 Stage 1 - Road Layout.

6.6 Submitter Issue: Road Edge Effects

6.6.1 Edge Effects Impact

"The edge effects of the 9 m wide road will potentially impact on a 100m corridor (approximately 50 m on either side of the road shoulders). Given that the WTQWHA is only 50 metres away from the proposed road, what measures are proposed to ensure that Zone B area, including the values listed above would not be impacted as a result of the construction and operation of the road?

…. We believe that the areas to be impacted should include the overall area that may be indirectly impacted by vehicle movement and edge effects" DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.4, SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5

Submitter Reference: WTMA (33), DSEWPaC (40), C4 (35)

Proponent Response

The Ella Bay Road Design and Environmental Management Plan includes discussion on the impact to WTQWHA. The road alignment has been finetuned to minimise the clearing of mature trees. A noise survey concluded that the road noise at 33.5m to 40m would be equivalent to that of the existing Kuranda Range Road at 100m. Additional flora and fauna surveys of the proposed road alignment have been undertaken post SEIS.

The extended area of isolation attributed to the cassowary fence and possible edge effect due to the road have been included in the Offset Package Proposal calculations.

Refer to:

- Volume 1 - MNES Report.
- Volume 4 - Ella Bay Road Design and Environmental Management Plan.
- Volume 5 – Offset Package Proposal.
- Volume 6 - Consultant and Ella Bay Reports:
  - 6.2a Vegetation Survey Report;
  - 6.2b Baseline Vegetation Monitoring of Edge Effect ; and
  - 6.3a Fauna Survey Report Nov 2008.

6.6.2 Vehicle noise impact

"Given that there is a lack of scientific information in regard to noise impacts specifically on cassowaries, and noting that the proposed access road will go through a known cassowary area, and the WTQWHA, taking a precautionary approach, the proposed fauna fencing should also incorporate noise control design". DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.4, SEIS (Volume 1) 1.8 Addenda A, SEIS (Appendix) A.2.6, EIS (Volume 4) 4.6.2

Submitter Reference: DSEWPaC (40)

Proponent Response

Studies at Mission Beach (Moore pers comm.) indicate that cassowaries appear to have habituated to the sound of cars and trucks on the roads. This is illustrated by many observations of cassowaries standing by the roadside waiting for an adequate break in the traffic flow to allow them to cross. They take little notice of cars even when birds are foraging close to the road corridor, but loud trucks, noisy trailers, or sudden noise do startle them. In these situations they move away from the road initially but generally come back if the source of the unexpected noise ceases.

The home range of a male and a female cassowary crosses Ella Bay Road between Flying Fish Point and Heath Point. (Moore 2007, Buosi 2009, 2010) The birds travel beside, and along the road and have become habituated to the road noise of the corrugated gravel surface. These birds are not startled by approaching vehicles. It should be noted that the difference to Mission Beach is that the coastal side of Ella Bay Road is limited to the edge of only 2 possibly 3 cassowary home ranges.

The proponent has used noise consultants ASK Consulting Engineers to prepare a preliminary analysis of the noise impacts of the proposed upgraded Ella Bay Road. To provide a comparison to known road noise Ella Bay Road was compared to Kuranda Range Road. The lower traffic speed, geometry of the roads and lower heavy vehicle usage resulted in noise levels significantly less than the of the current Kuranda Range Highway by approximately 7 dB(A) at the same distance from the edge of the nearest traffic lane.

“Therefore it has been calculated that the L10(18 hour) noise level at 100m from the Kuranda Range Road in 2003 is approximately equal to the noise level at 33.5m and 40m from Ella Bay Road for traffic flows of 3,000 vehicles per day 4,000 vehicles per day respectively.”

It is not considered necessary given the lower noise and apparent indifference to noise by cassowaries that noise control is required.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Appendix 6 - Noise report
- Volume 6 - Consultant and Ella Bay Reports
  - 6.1 b Cassowary Survey Feb. 2009
  - 6.1 c Cassowary Survey Nov. 2009
  - 6.1 d Cassowary Survey Apr. 2010
  - 6.1 e Cassowary Survey Nov. 2010

6.7 Submitter Issue: Local Community Impact

6.7.1 Town traffic impact during construction

The Uni SA raised issues over the social impacts which the increased traffic using the existing town road system during the construction period.
"The review team believe:
As a matter of fact, all kind of township route options will affect scenic amenity and further will become social issue.
Heavy construction vehicles travelling through Ruby Street will create considerable traffic noise." Uni SA

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, SEIS (Appendix) A.2.6, EIS (Volume 2) 2.2.4, EIS (Volume 3) 3.5.1.2

Submitter Reference: Uni SA (66), T & D Quirk (5), C Head & C Belbin (29), , CAFNEC (62), CAFNEC form Letter (12-26, 42-60)

Proponent Response

The proponent has developed a Local Traffic Management Plan through the Flying Fish Point road network. The most intense construction activity will be during the upgrade of Ella Bay Road and during this period a construction marshalling and heavy load control strategy will be utilised.

After construction of the Flying Fish Point Bypass, no Ella Bay bound traffic will be able to travel through Flying Fish Point to Ella Bay Road as the intersection between Ruby Street and Ella Bay Road will restricted to oversize and maintenance vehicles only.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 10

- Chapter 11

6.7.2 Ruby St Issues

The UniSA has questioned issues regarding the traffic moments on Ruby St Flying Fish Point.

"service/construction vehicles using Ruby Street as access should be further investigated;"

"the closure of Ruby Street during operation stage could isolate the Flying Fish Point community;" Uni SA

SEIS/EIS Reference: SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5.1.2.2

Submitter Reference: Uni SA (66)

Proponent Response

During construction to mitigate and regulate the construction traffic impact, the proponent will establish a Local Traffic Management Plan and the Flying Fish Point road network to be used will be upgraded.

The closure of Ruby St post the construction of the Flying Fish Point bypass and tunnel was a suggestion by the Flying Fish Point community. With Ella Bay bound traffic being directed to use the bypass at Alice St via a roundabout. The old entrance on to Ella Bay Road at Ruby St will be restricted for oversize and maintenance vehicles only.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 11

6.7.3 Impact to Coconuts Community.

“Our greatest concern is the road to service the development. In the latest proposal the road when completed will bypass Flying Fish Point but The Coconuts will have the full impact of an estimated 2,500 to 3500 vehicles per day.” Petition Response

SEIS/EIS Reference: SEIS (Volume 1) 1.4.2, SEIS (Appendix) A.2.6, EIS (Volume 2) 2.2.4, EIS (Volume 3) 3.5.1.2

Submitter Reference: Petition Response (2,) C Head & C Belbin (29), CAFNEC (62), CAFNEC form Letter (12-26, 42-60), T & D Quirk (5)

Proponent Response

The proponent investigated alternative options to bypass Coconuts and Flying Fish Point. In the EIS stage, the access road options accessing Ella Bay from the West over the range were discarded by the Queensland Environmental Protection Agency and the Department of the Environment and Heritage. All of these options were evaluated and it was decided not to pursue further as the options involved passing through Wet Tropics World Heritage Rainforest and environmentally sensitive vegetation.
The current traffic volume through The Coconuts is 1,500v/d. (CCRC engineering reports)

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan

6.8 Submitter Issue: Transport

6.8.1 Traffic Impact Study: Innisfail to Ella Bay

"the only available means of accessing the development is by road transport and the only connection from the Bruce Highway is through Innisfail streets and Flying fish Point Road".

…. a detail traffic Impact Study be undertaken to determine the real needs for Road and transport infrastructure, identify where shortfalls exist and consider the requirements for upgrades to existing roads and bridges and perhaps, alternate access routes. Because of the involvement of the state Government in both projects it would seem appropriate for Main Roads and Queensland Transport to commit to carrying out this Investigation and study". CCRC

SEIS/EIS Reference: SEIS (Volume 1) 1.4.5, SEIS (Appendix) A.2.6, EIS (Volume 3) 3.5

Submitter Reference: CCRC (64), T Quirk (3), C Head & C Belbin (29), Uni SA (66)

Proponent Response

The proponent agrees that a transport study should be completed to include the recent relocation of the Innisfail High School, Technical College and recent council approvals of a number of developments in East Innisfail and the development areas approved as part of the Far North Queensland Regional Plan – all of which require access over the existing road and bridge. The CCRC has proposed that as the State Government is involved in all projects it would seem appropriate that Main Roads and QLD Transport commit to carrying out a detailed Traffic Impact Study to determine the real needs for the road and transport infrastructure.

6.8.2 Ella Bay Transport Strategy

"The project proposes smart bike and buggy transport system within the site to reduce vehicle usage. The Ella Bay area experiences high rainfall. Under this scenario what is the success of the proposed transport strategy to use bikes and buggies?" DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.4.7, SEIS (Volume 2) 2.2.6, EIS (Volume 3) 3.5.1

Submitter Reference: DSEWPaC (40)

Proponent Response

The proponent is committed to providing "green" and efficient transport methods within Ella Bay. The use of electric Golf Carts/Buggies for internal trips has successfully been adopted by various similar communities in SE QLD and FNQ including Hamilton Island and is common in tropical resort areas of Thailand and Bali. The Masterplan includes specific designed pathways network to promote bicycle, walking and buggy use. The use of buggies within these communities is almost universally adopted.

6.8.3 Public Carparking strategy

"It is proposed that all vehicles will be parked in a common vehicle park area. Is this supported by house, villa and apartment designs not containing garaging facilities for vehicles?" DSEWPaC

SEIS/EIS Reference: SEIS (Executive Summary), SEIS (Appendix A.2.9) 3.2, EIS (Volume 1) 1.2.1, EIS (Volume 3) 3.2.2

Submitter Reference: DSEWPaC (40)

Proponent Response

The Masterplan design has carparking in a central multi story carpark located at the Villa Precinct, this carpark is designed to be used by short term and day visitors to Ella Bay. Resort precincts will also provide carparks for guests. The detached dwellings (houses) in the residential precincts will provide their own garage/carpark facilities.

7. Energy, Water Supply, Sewerage and Waste Management

The Energy, Water Supply, Sewerage and Waste Management responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Water Supply;
- Sewerage; and
- Power Supply.

Post SEIS, specialist consultants were engaged for water management studies.

7.1 Submitter Issue: Water Supply

7.1.1 CCRC water supply

"In a 1 in 100 event will the Innisfail Water Supply Scheme have sufficient capacity to supply? Proponent will be required to meet the full costs of infrastructure upgrades." CCRC

SEIS/EIS Reference: SEIS (Volume 1) 1.1, SEIS (Volume 1) 1.5.3.3, EIS (Volume 3) 3.5.3, EIS (Volume 4) 4.3

Submitter Reference: CCRC (64)

Proponent Response

The proponent has held preliminary discussion with CCRC and decided that the trickle feed is not feasible and will not install the pipeline. The requirement for public safety meant that water would have to be continuously drawn from the pipe and the current infrastructure would not be sufficient to provide the service leading to duplication of water sources.
Groundwater testing has indicated that there is sufficient capability for the deep aquifer to supplement water supply in below average rainfall events.
Refer to:

- Volume 6 – Consultant and Ella Bay Reports:
  - 6.4b Integrated Water Management Plan;
  - 6.4f Groundwater Resource Evaluation Report .

7.2 Submitter Issue: Sewerage

7.2.1 Sewerage Management Infrastructure

"It is assumed that the site will be totally self contained, as far as sewerage and waste water treatment and dispose is concerned" CCRC

SEIS/EIS Reference: SEIS (Volume 1) 1.5.4, EIS (Volume 3) 3.5.5, EIS (Volume 4) 4.5

Submitter Reference: CCRC (64), P Rowles (31), Johnstone Ecological Society (63).

Proponent Response

The proponent identifies that there will be no connection to the CCRC sewerage infrastructure and that Ella Bay development sewerage and water treatment system will be self contained. A Membrane Bio-Reactor is proposed to be used. This process has been used with success on Magnetic Island with treated effluent being used for the golf course.

Any services contracted to third parties such as infrastructure management will be required to adhere to the conditions of approval, and the Environmental Management Plans.

Refer to:

- Volume 6 – Consultant and Ella Bay Reports:
  - 6.4b – Integrated Water Management Plan.

7.3 Submitter Issue: Power Supply

7.3.1 Power Supply Infrastructure

"no information in regard to route for grid-connected power and the environmental impact this will have;" Blackman

SEIS/EIS Reference: SEIS (Volume 1) 1.5.4, EIS (Volume 3) 3.5.5, EIS (Volume 4) 4.5

Submitter Reference: G Blackman (27),K Blackman (41)

Proponent Response

In the EIS and SEIS the proponent had proposed that connection to the Ergon grid would be located under Ella Bay Road in the shoulder alignment and excess power generated during the day would be fed back into the grid and grid power used of a night. This option has been withdrawn as not being feasible and there will be no connection to the Ergon grid.

Ella Bay will be self sufficient in its energy requirements via the use of up to date solar energy design and natural gas powered stations.

8. Socio-economic Issues

The Socio-economic Issues responses have been developed taking into consideration specific submitter concerns on the following key areas:

- Council Ella Bay Road Concerns;
- Indigenous Employment;
- Local Real Estate;
- Town and Regional Planning Issues; and
- Public Consultation.

8.1 Submitter Issue: Council Maintenance of Ella Bay Rd

8.1.1 Responsibility, and maintenance of Ella Bay Road

"Whilst a potential rate base may evolve from the proposed development at some stage in the future (up to 10-15 years hence) Council stands to inherit large costs for maintaining access to the site via Flying Fish Point following access upgrades (i.e. within 12 months); and thus be liable for ongoing maintenance and repair costs. This is an unacceptable burden for the Council - where costs clearly have a real potential to outweigh revenue gains." CAFNEC form Letter

SEIS/EIS Reference: SEIS (Volume 1) 1.4, SEIS (Volume 1) 1.7.9

Submitter Reference: CAFNEC (62), CAFNEC form Letter (12-26, 42-60), EDO NQ (61), C4 (35), DSEWPaC (40)

Proponent Response

Cassowary Coast Mayor Bill Shannon said: "Ella Bay project was crucial to diversifying the economic base of the region and, if approved, would help ease the burden on ratepayers in the long-term by significantly increasing the number of rateable properties in the Innisfail area". Source: Weekend Advocate Newspaper 09.10.2010

In a normal subdivision approval the council takes over the road maintenance. The rate base and any fees that the developer pays are to compensate for the increase in infrastructure. The flow-on effects of introducing a major tourism centre into Innisfail are much greater to the wider community.

The proponent will fund the Ella Bay access road upgrade, and on completion of the road and signage maintenance will be handed over to Cassowary Coast Council. The proponent and its body corporate will maintain and remain responsible for the Cassowary fence and escape gates.

Refer to:

- Volume 4 - Ella Bay Road Design and Environmental Management Plan
  - Chapter 12

8.2 Submitter Issue: Indigenous Employment

8.2.1 Indigenous Employment and communities relations

"…the proponent has been liaising with the departments Indigenous Employment and Training Manager ….To ensure that pathways to sustainable employment are negotiated for this group, I would encourage ongoing discussions between the proponent, the department and community members…" Dept of Employment & IR

SEIS/EIS Reference: SEIS (Volume 1) 1.6, EIS (Volume 4) 4.8

Submitter Reference: Dept of Employment & IR (6)

Proponent Response

The Proponent has maintained a continuous involvement with the local Traditional Owners. The proponent has negotiated a Heads of Agreement with the Bagirbarra people to develop indigenous employment and tourism based indigenous opportunities.

Refer to:

- Volume 1 - MNES Report

8.3 Submitter Issue: Local Real Estate

8.3.1 Housing Impacts

The Department of Housing and some local residents have expressed their concerns of the possible Negative impact on house affordability for area, and the issue of Increase in rates to the local community.

"There remains, however, some concern that mitigating measures to negate the adverse impact of an influx of well-paid construction workers on rental accommodation within the region should be addressed in further detail In particular, the department would like reassurance that low to medium Income households in the Cassowary Coast region will not be displaced and that the impact on affordable housing will be minimised." Dept of Housing

SEIS/EIS Reference: SEIS (Volume 1) 1.6, EIS (Volume 4) 4.9

Submitter Reference: Dept of Housing (4), Petition Response #2

Proponent Response

The Proponent has revised the construction schedule and modified the predicted workforce requirement. The maximum number of construction workers has been significantly reduced from that proposed in the EIS Appendix A6.6 as an average of 990 positions required each year for a ten year project. The predicted number of construction workers has been reduced to 350 to 404 workers for the project duration of 15 years. The proponent believes that combined with the reduction in workforce these issues were addressed in the SEIS and EIS. Additionally it should be noted that this workforce and infrastructure spend rate is significantly less than that during the aftermath of Cyclone Larry (approximately 10% of the rebuild costs p/a) where there was an influx of workers combined with destroyed accommodation.

Refer to:

- SEIS, Volume 1, Section 1.6 - Socio-economic Issues.
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Appendix 3. Revision to Road Usage Demographics for Ella Bay Road

8.4 Submitter Issue: Town and Regional Planning Issues

8.4.1 Security/Environmental Bond

"In the event the project is abandoned mid way, the Department would expect that Satori will provide a substantial security bond to cover rehabilitation and other environmental aspects of the project." DSEWPaC

Submitter Reference: DSEWPaC (40), C Head & C Belbin (29), DERM(30), Johnstone Ecological Society (63), P Rowles (31)

Proponent Response

The proponent has proposed a staged development project with strict environmental construction guidelines including mitigation at every stage of development. The project has planned revegetation along all fauna corridors preceding development of the respective precinct.

All conservation covenants, land gifted to National Parks, and offsite land package will be in place prior to construction. The net environmental benefit prior to development of a precinct will be substantial. The proponent believes that any security bond should be commensurate with normal business.

Refer to:

- Volume 1 - MNES Report.
- Volume 5 - Offset Proposal.

8.4.2 Community Land tenure

"The proposed university, research, school, church and indigenous areas/precincts need to be secured by permanent tenure (in perpetuity), defined as 'Community purposes, …specifically before construction work begins." C Head & C Belbin

SEIS/EIS Reference: SEIS (Volume 1) 1.7.10, EIS (Volume 3) 3.4

Submitter Reference: C Head & C Belbin (29)

Proponent Response

The community services infrastructure will be planned in the detail design of the staging approval for the Village Precinct which will be approved by Cassowary Coast Regional Council.

Community infrastructure will be managed by the body corporate.

8.5 Submitter Issue: Public Consultation

8.5.1 Public consultation

"- The community needs more than speculation and last minute changes to respond to for their submissions! Any last minute, ad hoc etc changes need to be publicised, with adequate time to consider;." C Head & C Belbin

Submitter Reference: C Head & C Belbin (29)

Proponent Response

The proponent held 3 public consultation meetings for the SEIS with advertising in the local media and in strategic locations within Flying Fish Point (local post office/café). The proponent prepared new drawings of certain aspects of the SEIS for clarity which were interpreted by this submitter that there were ad hoc changes. The drawing commented on was in reference to a bike path in the SEIS. The proponent rejects this assertion.

The proponent is required to provide further consultation with regards to approvals for the upgrade of Ella Bay Road:

- WTMA permit approval process Guideline 3 Consultation with Aboriginal People,
- WTMA permit approval process Guideline 6 Consultation with Community, and
- (DERM) DNRW requirements of a secondary access to enhance a private development requiring further consultation with Community and Aboriginal People.

9. Additional Issues

The Additional Issues response has been developed taking into consideration specific submitter concerns on the following key areas:

- Acid Sulphate Soil;
- Emergency Management; and
- Offsets.

9.1 Submitter Issue: Acid Sulphate Soil

9.1.1 Potential Acid Sulphate Soil.

"….mapping undertaken by the proponent does indicate that acid sulphate soils are present on the site and as such it should be assumed that any development on this site will trigger the State Planning Policy 2/02 Planning and Managing Development involving acid sulphate soils…." DNRW

SEIS/EIS Reference: SEIS (Volume 1) 1.1.5, EIS (Volume 4) 4.1.1.3, EIS (Volume 5) 5.3.4.1

Submitter Reference: CAFNEC (62), DNRW (37), DEEDI (DPI&F) (28), K Blackman plus CAFNEC form Letter (41)

Proponent Response

The proponent acknowledges that Acid Sulphate soils may be present and prior to the start of construction an Acid Sulphate Soil Management Plan will be prepared and implemented to ensure protection of local waterways and wetlands, and the GBRWHA.

The proponent's preliminary investigation and testing did not indicate that there may be an extensive Acid Sulphate soil problem.

- Preliminary testing for Acid Sulphate soils in the EIS (Vol 8 A6.3 Preliminary Environmental and Geotechnical Investigation p.ii) concluded that

  "Field test results on soil samples collected from the boreholes generally indicated a low potential of being potential acid sulphate soil. Chromium reducible sulphur concentrations in all analysed soil samples were below detection levels. These results confirmed that no potential acidity was present in the samples tested."

- Additionally in the former Johnstone Shire Planning Scheme, the proposed development site, lot 320 on Plan N157629 does not fall within an area of potential acid sulfate soil.

Acid Sulphate Soil testing will be conducted at the operational works approval phase for each of the proposed development stages, in accordance with the State Planning Policy. PASS and ASS will be managed in accordance with Queensland legislative and policy requirements (i.e. Environmental Protection Act 1994 and State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulphate Soils).

Excavation below 5mAHD and fill greater than 500m³ below 5mAHD will occur during the construction of Bioretention filters, constructed wetlands, pools and with basement construction which will trigger the conditions of testing under SPP 2/02.

9.2 Submitter Issue: Emergency Management

9.2.1 Emergency Disaster Management

"Given that the site will be serviced by one access road what strategies are in place to deal with emergency situations? This should also take into consideration any potential impacts due to climate change as the location of the site is in a highly vulnerable area in terms of exposure to extreme weather conditions." DSEWPaC

SEIS/EIS Reference: SEIS (Volume 1) 1.7.7, EIS (Volume 3) 3.2.5

Submitter Reference: Dept of Emergency Services (38), P Rowles (31), T Quirk (3) DSEWPaC (40)

Proponent Response

The Ella Bay Road upgrade has been proposed at a minimum elevation of 5mAHD for the whole length of the road to Ella Bay.

To place this in context:

- Existing roads within Flying Fish Point are at a minimum elevation of 2.7mAHD.
- The 100year ARI storm surge inundation level for the development life including predicted sea level rise for climate change is 2.57mAHD which was increased to 3.1mAHD at Ella Bay Development for the area behind the dune due to the possible wave run-up and inundation of the dunal swale.

Each Residential Precinct will have a community centre which will be designed to the mechanical guidelines for category 5 cyclones (refer to Design Guidelines of Queensland Public Cyclone Shelters). The shelters will be sited within the precinct (above the storm surge and flood inundation levels) and will be large enough to accommodate the projected population of the precinct at the recommended 1m² per person.
The resort buildings will be required to be constructed to appropriate Cyclone Rating for Region C building codes and will be required to include a shelter to Cyclone Rating 5 for guests and staff.

Management of services during and recovery from a disaster will be aided by the sustainability features of the development:

- Each building will be required to have rainwater supply tanks;
- Each building will be required to generate solar electricity;
- The backup and night time power supply will be by distributed generators;
- All power, and backup water supplies will be below ground; and
- Communications will be by fibre-optic cable and 3G network.

Additional emergency access options will include a helipad.

Queensland Transport and The Department of Emergency Services were satisfied with the EIS and SEIS, and had no further comments. The proponent will continue consultation with the Department of Emergency Services during the project development, in particular with the Disaster Management Strategies and construction of shelter buildings.

Refer to:

- Volume 1 - MNES Report:
  - Chapter 2. Project Description (The Action).
- Volume 4 - Ella Bay Road Design and Environmental Management Plan:
  - Chapter 5 Road Design and Design Criteria;
  - Chapter 11 Traffic Management Plan.

9.3 FNQ Regional Plan

9.3.1 FNQ Regional Plan

Questions were raised by community groups regarding consideration of the FNQ Regional Plan

SEIS/EIS Reference: SEIS (Volume 1) 1.7.4, EIS (Volume 2) 2.1

Submitter Reference: CAFNEC (62), CAFNEC form Letter (12-26, 42-60), C4 (35), EDO NQ (61

Proponent Response

The Ella Bay Integrated Master Planned Community project was started and declared a "Significant Project" prior to the implementation of the FNQ Regional Plan. Projects of state significance are specifically excluded under the plan and are managed by the EIS process.

The FNQ Regional plan for this area is based on no additional employment base and as a result does not predict growth for Innisfail. Ella Bay would provide substantial additional employment.

9.4 OFFSETS

9.4.1 Land handover to National Parks.

"…incorporation of these two areas into the National Park… should occur prior to consideration of proposal for approval" DSEWPaC

SEIS/EIS Reference: SEIS (Submission Response) 1.8.8, EIS (Volume 3) 3.4.2

Submitter Reference: DSEWPaC (40), DERM (30)

Proponent Response

The proponent has proposed that the property bordering Ella Bay National Park to the total of 62.8 ha will be transferred as part of the approval commitments. This land is part of the proponent's state based Offset Package Proposal based on the Queensland Government Policy for Biodiversity Offsets.

Refer to:

- Volume 5 Offset Package Proposal
- Volume 6 – Consultant and Ella Bay Reports:
  - 6.5 f Conservation Zones and Covenants

9.4.2 Seymour Range Corridor Offset

"….engaged Terrain Natural Resource Management to work with EPA and WTMA to identify priority blocks for purchases to safeguard such linkages. " DERM

SEIS/EIS Reference: SEIS (Submission Response) 1.8.8, EIS (Volume 3) 3.4.2

Submitter Reference: DSEWPaC (40), DERM (30), DNRW (37), Johnstone Ecological Society (63), P Rowles (31)

Proponent Response

The proponent engaged Terrain NRM to identify suitable offset properties that would provide connectivity between cassowary sub-populations within the region. The proponent has proposed a property based on the Terrain report. This land is part of the Ella Bay Offset Proposal. Refer to:

- Volume 1 – MNES Report
- Volume 5 – Offset Proposal:
  - Appendix 1 - Regional Corridors Report Terrain NRM;
  - Appendix 2 - Revegetation Strategy for Ella Bay Offset Property.