



## **6.5 f Conservation Zones at Ella Bay Ella Bay**

# Conservation Zones

at

Ella Bay

Volume Six

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# Executive Summary

The conservation zones on the Ella Bay Integrated Resort will be divided into 4 zones based on integrity, remoteness from disturbance, intended physical, social setting and management purpose of different parts of the area. Zone A will comprise part of the Offset Package Proposal and will be transferred to National Park.

The zones follow the methodology used by the Wet Tropics Management Authority (WTMA) Management Plan (WTMA, 2009)

The zones are

<b>Conservation Zone</b>	<b>Purpose</b>	<b>Area ha</b>
<b>Zone A</b>	Transfer to National Park	62.8 ha
<b>Zone B</b>	Nature Conservation	67.8 ha
<b>Zone C</b>	Fauna Corridor	87.3 ha
<b>Zone D</b>	Setback & Easement	58.9 ha
<b>Total</b>		276.8 ha



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## 1. Conservation Management Zones

The protected areas of the Ella Bay Development will be managed according to the following Conservation Management Zones:

- Zone A – National Park;
- Zone B;
- Zone C;
- Zone D.

The zones have been established according to the integrity, remoteness from disturbance, intended physical, social setting and management purpose of different parts of the area. The zones follow the methodology used by the Wet Tropics Management Authority (WTMA) Management Plan (WTMA, 2009).

An extensive recreational walking trail network will be developed to promote aspects of Ella Bay's natural and cultural heritage for Ecotourism. The tracks are classified according to:

*Track Classification System (2001) WTMA; and*  
*Walking Strategies (2001) WTMA.*

Refer to Volume 6.5e *Ella Bay Walking Tracks Report*.

### Extent of Conservation Zones

- The Conservation Zone boundaries are shown on the Conservation Zone map (Figure 2.1);
- The zones do not overlap.
- The combined area of the Conservation Zones on Ella Bay will protect over 90% of the existing vegetation on site

Conservation Zone	Purpose	Area ha
<b>Zone A</b>	Transfer to National Park	62.8 ha
<b>Zone B</b>	Nature Conservation	67.8 ha
<b>Zone C</b>	Fauna Corridor	87.3 ha
<b>Zone D</b>	Setback & Easement	58.9 ha
<b>Total</b>		276.8 ha

ella

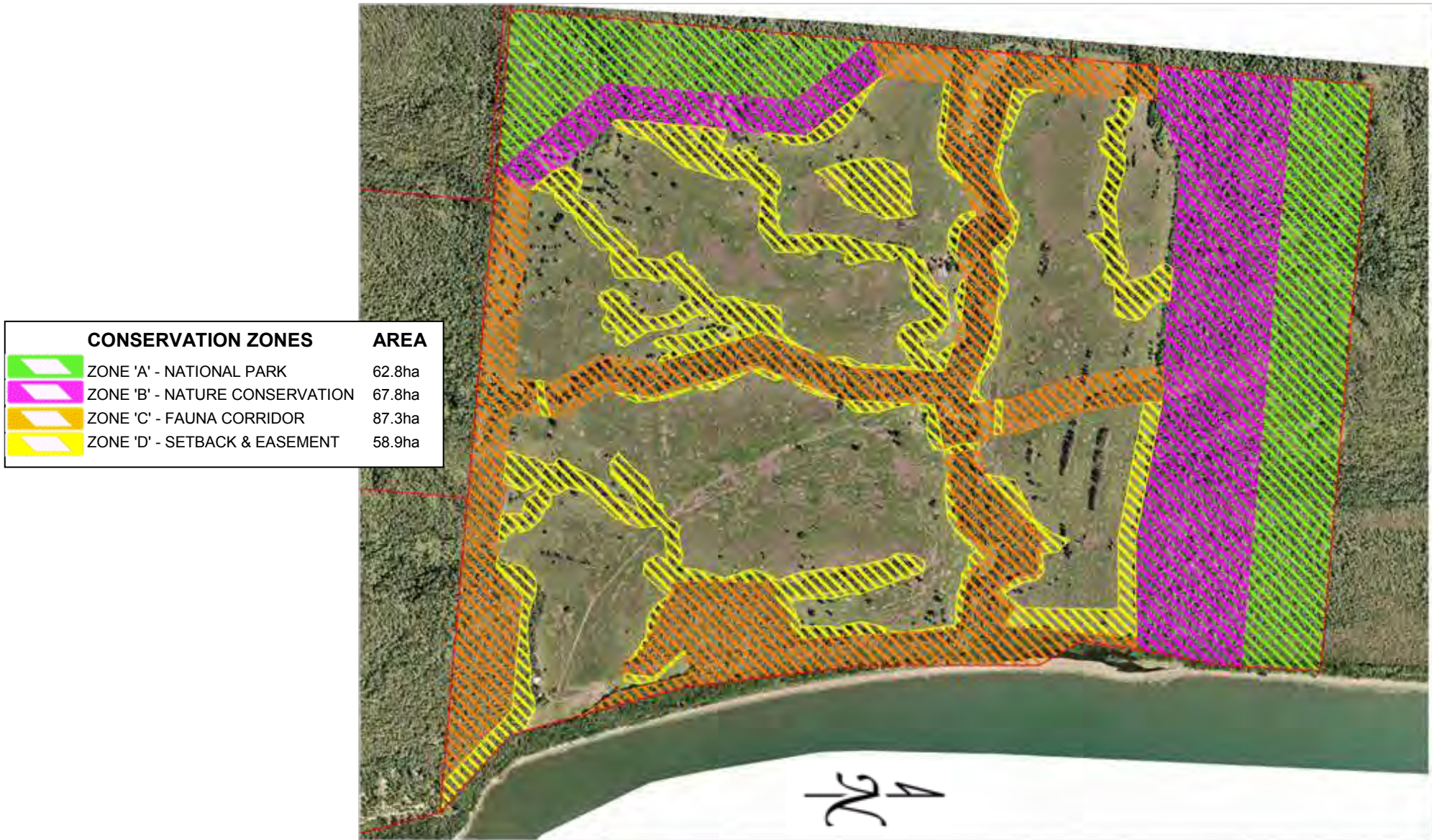


Figure 1.1 Ella Bay Conservation Zones

## 2. Zone A – National Park

The 62.8ha of high integrity land will be transferred and incorporated into Ella Bay National Park as part of the Offset Package (Refer to Volume 5).

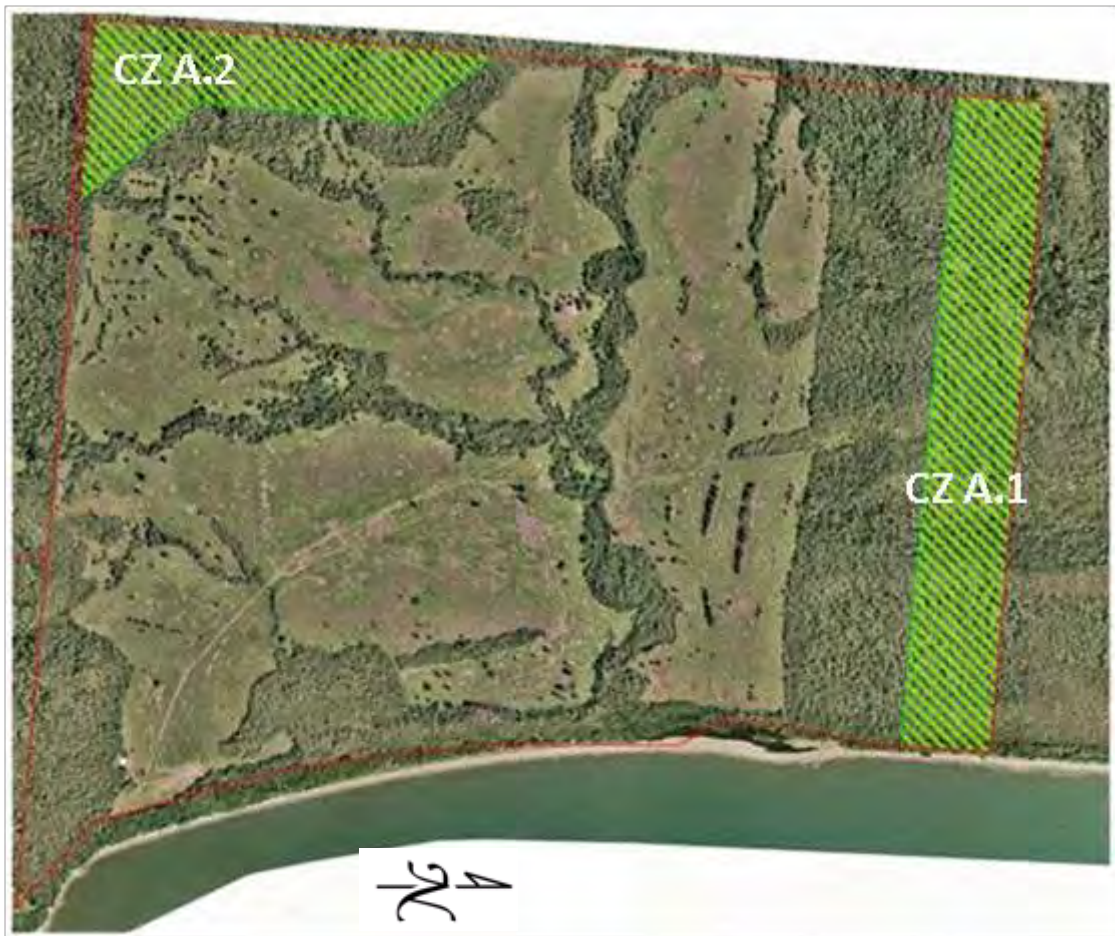


Figure 2.1 Zone A National Park

### Conservation Purpose

The primary purpose of Zone A is protection of endangered vegetation, essential cassowary habitat, and Ella Bay Swamp through transfer to National Park.

The 40.18ha (CZ A.1) in the northern area will:

- Include the southern most extent of the Nationally Significant Wetland; Ella Bay Swamp. (DSEWPaC, Protected Matters Search Tool);
- Support and assist the Southern Cassowary Recovery Plan (Latch 2007) by conserving essential cassowary habitat; and
- Protect EPBC Critically Endangered, VMA Endangered and Of Concern vegetation communities.

The Regional Ecosystems classified as essential cassowary habitat present in this area are 7.11.1; 7.3.3a; 7.2.1i; 7.3.10c; 7.2.9; 7.2.4; 7.2.1; 7.2.1d; 7.2.7a (3D 2009a)

### Conservation Status:

- EPBC Critically Endangered RE's: 7.2.1; 7.2.1i; 7.2.1d
- VMA Endangered RE's: 7.2.1; 7.2.1i; 7.2.1d
- VMA of Concern RE's: 7.3.3a; 7.3.10c; 7.2.9; 7.2.4; 7.2.7a

The 22.62 ha (CZ A.2) in the south western area will:

- Widen the existing narrow World Heritage Area linkage;
- Add a section of land to the Ella Bay National Park to provide a near contiguous linkage to the geographically isolated southern section of Ella Bay National Park; and
- Support and assist the Southern Cassowary Recovery Plan (Latch 2007) by conserving essential cassowary habitat and protecting an important regional cassowary habitat corridor.



**Figure 2.2 Zone A and relationship to WTWHA, Ella Bay National Park and Ella Bay Swamp.**

The Regional Ecosystems classified as essential cassowary habitat present in this area are 7.11.1; and a small area of 7.11.1b.

This area's conservation status is Not of Concern (VMA).

Both Zone A areas are vegetated but have been subject to logging activities and associated tracks in the past. Anecdotal evidence is that this logging took place prior to 1970 and would meet the criteria of Zone B of the Wet Tropics Management Plan.

## Physical and Social setting

In Zone A the land is of high integrity, remote from disturbance by activities associated with modern technological society. A visitor may expect opportunities for solitude in a natural area requiring a degree of self reliance. To facilitate visitation, prior to handover a minimal impact walking track (Marked Route), including narrow timber bridge/boardwalks over water bodies, were identified. Refer to Volume 6.5e *Ella Bay Walking Tracks Report*.





## Management purpose

The management purpose of Zone A is, to the greatest possible extent:

- (a) To protect and enhance the integrity of land in the zone;
- (b) To restore land in the zone to its natural state; and
- (c) To provide management limited to activities for the rehabilitation of the zone and provision of minimal impact walking tracks;

### 3. Zone B – Nature Conservation

This area of 67.8 ha is adjacent to and borders Zone A. Zone B will be registered as a conservation covenant under the *Land Title Act 1994* (Part 6 Division 4A).



Figure 3.1 Zone B

#### Conservation Purpose

The primary purpose of Zone B is protection of endangered vegetation, essential cassowary habitat and as a buffer to Zone A land transferred to National Park.

The 55.8ha (CZ B.1) in the northern area will:

- Serve as a 300m (minimum) buffer to Zone A (CZ B.1) in the North and to the Nationally Significant Wetland; Ella Bay Swamp;
- Support and assist the Southern Cassowary Recovery Plan (Latch 2007) by conserving essential cassowary habitat; and
- Protect EPBC Critically Endangered, VMA Endangered and Of Concern vegetation communities.

The Regional Ecosystems classified as essential cassowary habitat present in this area are 7.11.1; 7.3.3a; 7.2.1i; 7.3.10c; 7.2.9; 7.2.4; 7.2.1; 7.2.1d; 7.2.7a. (3D 2009a)

#### Conservation Status:

- EPBC Critically Endangered RE's: 7.2.1; 7.2.1i; 7.2.1d
- VMA Endangered RE's: 7.2.1; 7.2.1i; 7.2.1d
- VMA of Concern RE's: 7.3.3a; 7.3.10c; 7.2.9; 7.2.4; 7.2.7a



The 12.0 ha (CZ B.2) in the south western area will:

- Serve as a 100m buffer to Zone A (CZ B.1) on the west; and
- Support and assist the Southern Cassowary Recovery Plan (Latch 2007) by conserving essential cassowary habitat and protecting an important regional cassowary habitat corridor.

## **Physical and Social Setting**

Zone B is comprised of land that is mostly of high integrity but not necessarily remote from disturbance. A visitor may expect opportunities for solitude in a natural area requiring a degree of self reliance. To facilitate visitation, a minimal impact walking track (Marked Route), including narrow timber bridge/boardwalks over water bodies, were identified. Refer to Volume 6.5e *Ella Bay Walking Tracks Report*.

## **Management Purpose**

The management purpose of Zone B is, to the greatest possible extent:

- (a) To protect and enhance the integrity of land in the zone; and
- (b) To restore land in the zone to its natural state;
- (c) To provide management limited to activities for the rehabilitation of the zone and provision of minimal impact walking tracks and recreational low impact structures; and
- (d) To control Feral, exotic and domestic Pests.

## 4. Zone C – Fauna Corridors

The area of 87.3 ha comprises 100m wide buffers and fauna corridors. Zone C will be registered as a conservation covenant under the *Land Title Act 1994* (Part 6 Division 4A).

Zone C is comprised of land on which, or adjacent to which, there is disturbance associated with community services infrastructure.



Figure 4.1 Zone C Fauna Corridors

### Conservation Purpose

The primary purpose of Zone C is for rehabilitation and protection of vegetation, cassowary habitat and as a buffer to the National Park.

The Western boundary will:

- Serve as a 100m buffer to Ella Bay National Park; and
- Be revegetated to support and assist the Southern Cassowary Recovery Plan (Latch 2007) and by conserving essential cassowary habitat;

The Southern boundary will:

- Serve as a 100m (minimum) buffer to Ella Bay National Park;
- Be revegetated to support and assist the Southern Cassowary Recovery Plan (Latch 2007); and
- Protect Of Concern vegetation communities.



The East West corridor will:

- Serve as a 100m (minimum) riparian fauna corridor;
- Be revegetated and rehabilitated to support and assist the Southern Cassowary Recovery Plan (Latch 2007); and
- Protect Of Concern vegetation communities.

The North South corridor will:

- Serve as a 100m (minimum) riparian fauna corridor;
- Be revegetated and rehabilitated to support and assist the Southern Cassowary Recovery Plan (Latch 2007); and
- Protect Of Concern vegetation communities.

The Coastal corridor will:

- Serve as a coastal fauna corridor;
- Be revegetated and rehabilitated to support and assist the Southern Cassowary Recovery Plan (Latch 2007) by conserving essential cassowary habitat; and
- Protect EPBC Endangered and Of Concern vegetation communities.

The Regional Ecosystems classified as essential cassowary habitat present in this area are: 7.3.3a; 7.3.10a; 7.11.1a; 7.11.1b; (3D 2009a)

### **Conservation Status**

Western Boundary

- VMA of Concern RE 7.3.10a;
- VMA Not of Concern RE 7.11.1.

Southern Boundary

- VMA of Concern RE's 7.3.10a; 7.11.8b; 7.11.24a;
- VMA Not of Concern RE's 7.11.1a; 7.11.1b;

East West Corridor

- VMA of Concern RE's 7.3.10a; 7.3.25a;
- Non-remnant

North South Corridor

- VMA of Concern RE's 7.2.9; 7.3.10a;
- Non-remnant

Coastal Dune

- EPBC Critically Endangered RE 7.2.5;
- VMA of Concern RE's 7.2.4; 7.2.5; 7.2.8; 7.2.9; 7.3.3a;
- Non-remnant

## **Physical and Social Setting**

Zone C is comprised of land that either requires extensive rehabilitation due to weed infestation or requires revegetation to provide an effective buffer. Zone C is comprised of land on which, or adjacent to which, there is disturbance associated with community services infrastructure.

A visitor may expect various opportunities for nature appreciation and social interaction in a natural setting, but with some disturbance by activities associated with modern technological society, services infrastructure and the land will be undergoing recovery or rehabilitation towards its natural state. To facilitate visitation, graded, timber, or concrete multi-use pathways will cross through or border vegetation.



## Management Purpose

The management purpose of Zone C is:

- (a) To allow vegetated, unimpeded passage for all native fauna across the site;
  - (b) To restore land in the zone to its natural state, through revegetation or rehabilitation;
  - (c) To provide visitation facilities;
  - (d) To control Feral, exotic and domestic Pests;
  - (e) To accommodate services infrastructure; but
- To the greatest possible extent—
- (i) To ensure any adverse impact of activities carried out in the zone on the area's integrity is minimal and acceptable under this plan; and
  - (ii) To otherwise protect and enhance the integrity of land in the zone.

## 5. Zone D – Setback & Easement

The area of 58.9 ha comprises setbacks and easements and will be protected by body corporate bylaws and under the Regional Vegetation Management Code for Coastal Bioregions. The area will be defined by surveyed boundary.

Zone D is comprised of land on which, or adjacent to which community services infrastructure will be located.



Figure 5.1 Zone D – Setback & Easement

### Conservation Purpose

This area provides

- A setback from the riparian border of identified watercourses on the site;
- A 50m setback in the north-east between vegetation (Zone B) and the resort; and
- A 20m easement through Zone C to connect the precincts across covenanted areas.

The waterway setbacks for all minor tributaries within Ella Bay site will be maintained in accordance with the Regional Vegetation Management Code for Coastal Bioregions (DERM 2009), which requires that clearing does not occur within 25 metres from each high bank of a stream of a waterway of stream order between one and four.

In addition the waterway envelope design methodology has been applied to all creeks and in some cases the widths of the setbacks have been increased. The waterway envelope design incorporates the sum of 4 criteria:



- Potential waterway capacity increases;
- Bank stability;
- Stream migration; and
- Water quality.

Where the waterway envelope design has exceeded the 25m waterway setback the greater of the two distances have been used as for Zone D.

The area within the waterway setback or waterway envelope will have values for biodiversity, ecological values, wildlife corridors, open space, and amenity.

Clearing of native vegetation within the waterway buffer will only occur for required infrastructure, for which no suitable alternative exists e.g. bridges (including co-located pipes and cables), storm water treatment infrastructure in particular discharge outlets. Creek crossings (bridges) have been chosen at existing disturbed areas within the waterway to minimise clearing.

The waterway buffer Conservation Zone D will be revegetated with site endemic vegetation and grassed swathes to minimise sediment runoff.

### **Conservation Status**

The majority of the area comprises Non-remnant vegetation and grassed swathes.

Small isolated patches or bordering edges of the following RE's have been included in this area:

- VMA of Concern RE 7.3.3a; 7.3.10a; 7.11.8b; 7.2.8; 7.2.4;
- VMA Not of Concern RE 7.11.1; RE 7.11.1a; RE 7.11.1b.

## **Physical and Social Setting**

Zone D is comprised of grassed areas or land that either requires extensive rehabilitation due to weed infestation or requires revegetation to provide an effective buffer. Zone D is comprised of land on which there is disturbance associated with community services infrastructure.

A visitor may expect opportunities for nature appreciation and social interaction in a natural setting, but with some disturbance by activities associated with modern technological society, services infrastructure and the land will be undergoing recovery or rehabilitation towards its natural state. To facilitate visitation, a network of graded, timber, concrete multi-use pathways walking and cycling paths will be incorporated internal within the revegetation.

## **Management Purpose**

The management purpose of Zone D is:

- (a) To accommodate facilities for:
  - (i) Minimal impact fauna research activities and basic support infrastructure;
  - (ii) Presenting the area to visitors;
  - (iii) Enable vehicular access between precincts and with fauna sensitive road bridges for creek crossings ; and
  - (iv) Enabling visitors to enjoy land in the zone and in nearby parts of the area; and
- (b) To the greatest possible extent:
  - (i) To ensure any adverse impact of activities carried out in the zone on the area's integrity is minimal and acceptable under this plan;
  - (ii) To ensure fauna corridor connectivity remains intact; and
  - (iii) To otherwise protect and enhance the integrity of the land in the zone.
- (c) If the land is disturbed, restore to its natural state or use a high grass swathe to filter overland flows to assist with water quality control.





- (d) To allow for flood, erosion and stream bank stability control; and
- (e) To enable control of Feral, exotic and domestic Pests.



## 6. Conservation Zone Management and Permitted Activities

The primary maintenance activities of the conservation zones are weed control, feral pest culling and access path maintenance.

Greater than 90% of existing vegetation will be protected by the conservation zones including all riparian areas. The management of the conservation zones will be based on protecting, improving and rehabilitating vegetation and fauna habitat in particular essential cassowary habitat. This will involve removal of exotic flora. The weed problem at Ella Bay is severe enough to be threatening to Ella Bay National Park with 7 of the top 20 weeds identified as a serious environmental risk in the Wet Tropics present. In order of threat: Pond Apple (*Annona glabra*), Singapore Daisy (*Sphagneticola trilobata*), Hymenachne (*Hymenachne amplexicaulis*), Guinea Grass (*Panicum maximum*), Mango (*Mangifera indica*), Snakeweed (*Stachytarpheta cayennensis*), Sicklepod (*Senna obtusifolia*) (Werren, 2001).

The rehabilitation will be extensive with greater than 64 ha requiring weed removal and replanting with an additional revegetation of 50 ha. The Ella Bay Integrated Resort Development will be staged over 15 years and during that construction time the rehabilitation and revegetation will be completed as per the staging presented in Volume 1 MNES appendix 2. The timing of revegetation and isolation or construction in the covenanted areas will be based on adaptive management of cassowary food supplies. The aim will be to stage the revegetation and rehabilitation of cassowary food trees so that there will be a net gain in accessible fruit during the development.

The impact of exotic and feral animals is dominated by wild pigs (*Sus scrofa*) and wild domestic dogs. Over 100 feral pigs have been culled in the past 2½ years (Volume 6.3 d Feral Pig trapping and Baiting Report). The result of pig culling and changes in management practices at Ella Bay have resulted in more than doubling of the number of cassowaries surveyed.

Access path impact and management requirements will be restricted by the conservation zoning with minimal impact tracks a requirement of Zone A and B, (based on the *Track Classification System* (2001) WTMA & *Walking Strategies* (2001) WTMA) and graded, timber, concrete multi-use pathways permitted in Zone C and D. Refer to Appendix 6.5 e Ella Bay Walking Track Design Report.

### Permitted Activities

Permitted activities will be restricted by the conservation zoning.

In Conservation A, any impact activity will only be undertaken with relevant permit or permission from Wet Tropics Management Authority (WTMA) or Queensland Parks and Wildlife Services (QPWS).

In Zone B and C, permitted activities will be restricted by the registered conservation covenant.

In Zone D permitted activities will be restricted by relevant environmental laws and though the body corporate by-laws.

The permitted activities within Conservation Zones are presented in Table 6.1 below.



Activities Permitted within Conservation Zones	Zone A Transfer to National Park	Zone B Nature Conservation	Zone C Fauna Corridor	Zone D Setback & Easement
Resort/Residential Buildings				
Golf Course				✓(limited)
Road Infrastructure				✓
Fauna Monitoring Research Station				✓
Precinct Fencing				✓
Above Ground Service Infrastructure (AGSI) ★			✓	✓
Access Track to AGSI			✓	✓
Constructed Wetland Bio-System			✓	✓
Graded Track/Concrete★★			✓	✓
Dark-Sky lighting for walkway			✓	✓
Buried Service Infrastructure			✓	✓
Rough Track★★		✓	✓	✓
Viewing Platforms		✓	✓	✓
Rest Shelter		✓	✓	✓
Weed Control★★★		✓	✓	✓
Revegetation/Rehabilitation★★★		✓	✓	✓
Interpretive Signage		✓ (limited)	✓	✓
Walking Track - Marked Route★★	✓	✓	✓	✓
Seed Collection★★★★	✓	✓	✓	✓
Feral Animal Control★★★	✓	✓	✓	✓
EMP Monitoring	✓	✓	✓	✓
Research Project Activities★★★★	✓	✓	✓	✓

- ★ **Above Ground Service Infrastructure**  
Water Tanks (inc. access and stairs), bores, pipes and conduits for reticulation of services  
Telecommunications building and mast inc. solar power panels and storage batteries
- ★★ Classification based on the *Track Classification System* (2001) WTMA & *Walking Strategies* (2001) WTMA – See Appendix 6.5 e Ella Bay Walking Track Design Report
- ★★★ Undertaken in accordance to Environmental Management Plan (EMP) parameters
- ★★★★ With relevant permit from authorities eg: Wet Tropics Management Authority (WTMA) or Queensland Parks and Wildlife Services (QPWS)

**Table 6.1 Conservation Zone permitted activities**



## 7. References

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