B14

VOLUME B: AIRPORT AND SURROUNDS

Environmental Management Framework

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14.1 Background and Scope of the Environmental Management Framework

14.1.1 Introduction

This Environmental Management Framework (EMF) is an integral part of the Draft Environmental Impact Statement and Major Development Plan (Draft EIS/MDP) for the New Parallel Runway (NPR) project. It establishes the blueprint for how environmental issues will be managed throughout the stages of development. The EMF specifically relates to the Airport site and surrounding land and marine areas. Full details of the impacts are discussed in Volume B of the Draft EIS/MDP.

14.1.2 Purpose of the EMF

The objective of the EMF is to provide a framework specification which presents the requirements Brisbane Airport Corporation (BAC) will set for the project through its tender contract documentation.

It serves to guide best practice environmental management in line with BAC's corporate goals for the management of its site and offsite works.

This first EMF (or EMF (Draft)) is prepared as a draft document. An EMF (Final) will be prepared at the conclusion of the draft EIS/MDP process, taking into account comments on the Draft EIS/MDP as part of the public notification stage. The EMF (Final) will be part of the EIS/MDP documentation submitted to the Australian Government for approval.

The approved EMF (Final) will provide the framework and form the basis for the preparation of detailed Environmental Management Plans (EMPs) for the construction phase of the project. These more detailed plans will be prepared by the successful construction contractor(s) for the project and will be referred to as EMPs (Construction) within this Chapter. This process is shown below:

EMF (Draft) ⟶ EMF (Final) ⟶ EMPs (Construction)

Accordingly, the environmental management and mitigation measures contained within the EMF (Final) will guide and inform BAC's tender documentation for selecting construction contractors following completion of the EIS/MDP approval process.

14.1.3 Structure of the EMF

This EMF comprises the following:

- A description of the project and relevant legislative requirements; and
- Environmental management measures which will be addressed during the proposed works.

This document has been prepared in accordance with relevant Commonwealth, state and local legislation and with the requirements of the BAC Airport Master Plan, the Brisbane Airport Environment Strategy 2004 (AES) and the Brisbane Airport Environmental Management System (EMS).

14.1.4 Structure and Responsibilities for the EMP (Construction)

14.1.4.1 BAC Environmental Management System

BAC's approach to managing environmental aspects for which it is responsible is embodied in the development and implementation of its Environmental Management System (EMS).

BAC's EMS has been developed to be consistent with the internationally recognised EMS standard ISO 14001. It is a systematic approach to manage environmental issues across all activities, products and services BAC undertake in operating and managing the airport site and assess the level of environmental risk that each activity may pose.

ISO 14001 outlines the requirement to then manage any of those risks identified to be significant. Following this, an audit protocol and review process is implemented to allow for future amendments to the system and to provide opportunities for continuous improvement.

14.1.4.2 BAC Project Manager

The BAC Project Manager will generally be responsible for:

- Reviewing for acceptance all EMP's (Construction) and that they are developed in accordance with the requirements of this EMF;
- Ensuring all BAC supervisory and management staff are aware of and understand their responsibilities under the EMP's (Construction);

- Ensuring periodic reviews of environmental performance in line with the EMP's (Construction) are conducted;
- Receiving for review all required monitoring and reporting from the Construction Contractor;
- Ensuring the development and implementation of best practice environmental management procedures;
- Reporting back to BAC Project Director on environmental performance and any major environmental incidents that may have a significant impact on the environment; and
- Ensuring appropriate and adequate resources are allocated to implement and monitor the EMP's (Construction).

Specific responsibilities are noted in section 14.3 of this document.

14.1.4.3 Construction Contractor

The Construction Contractor will be responsible for:

- Complying with the requirements of the contract and conditions, which will include the requirement for the successful contractor to develop an EMP (Construction) to be consistent with section 14.3 of this EMF. The EMP (Construction) will also be in accordance with BAC's Guidelines for EMP's;
- Complying with all the provisions of the EMP (Construction) as applicable;
- Complying with any and all licences and approvals under relevant legislation.

14.1.4.4 BAC Approval Process

In addition to the legislative requirements for an EMP (Construction), BAC has environmental management processes under its EMS for all development projects on Brisbane Airport.

The requirement is that the EMP (Construction) is submitted to BAC in the development assessment phase for review and approval in accordance with the requirements of the Airport Environment Strategy 2004 (AES). Once approved by BAC, the Plan is submitted to the Airport Environment Officer (AEO), the on-site Australian Government regulator for environment, for final approval prior to BAC being able to issue a Permit to Commence Works (PTCW). The BAC Project Manager makes use of a Contractor EMP Check Form to ensure that all relevant issues are addressed by the Contractor's EMP and to create a record of review of this planning document.

14.1.4.5 Review, update and improvement of EMP

A copy of the EMP (Construction) will be required to be kept on-site and be easily obtainable at all times. During the construction works, the BAC Project Manager would hold an additional copy. The EMP (Construction) will be regularly reviewed in relation to conditions encountered and updated as appropriate.

14.1.4.6 Competence, Training and Awareness

The EMP (Construction) will outline the required measures to be undertaken to prevent harm to the environment during project works. In order for these measures to be implemented effectively staff, contractors and subcontractors will be made aware of the existence of the EMP (Construction) and its requirements. This is to include the following:

General Induction

Prior to the commencement of works on the site, staff will be required to undergo induction training outlining all aspects of:

- Safety and security;
- Responsibilities on-site;
- Housekeeping in relation to the construction compound;
- Equipment operation;
- First aid;
- Work procedures;
- Spill response training; and
- Awareness of the EMP (Construction).

Environmental Responsibilities Training

Environmental training for staff will be carried out prior to commencement of the works. The training would address the following issues:

- The importance of conformance with procedures outlined in the EMP (Construction);
- The significant environmental impacts (actual and potential) of their work activities;
- The environmental benefits of improved performance;
- Their role and responsibility in the EMP (Construction); and
- The potential consequences of departure from specified operating procedures.

14.1.5 Project Overview and Scope

BAC intends to construct a new parallel runway at Brisbane Airport, at a location 2,000 m west of the Airport's existing main runway. The new runway will have a design length of 3,600 m and width of 60 m, with twin parallel taxiways designed to accommodate very large (i.e. Code F) aircraft.

The major construction elements of this project are noted in **Table 14.1a**.

Full details of the proposed works are presented in Chapter A4 of the Draft EIS/MDP.

Figure 14.1 shows the Brisbane Airport site in relation to its surrounds and shows the names of local natural features such as rivers and creeks used throughout this section. The figure also shows existing built features On-airport land including the proposed NPR layout and other major infrastructure projects proposed in the local region such as the Gateway Upgrade Project (GUP) and Northern Access Road Project (NARP).

This EMF presents management procedures for relevant issues covering the activities of the Airport and surrounds works as described in **Table 14.1a**.

The EMF does not cover issues associated with the sand extraction activities at Middle Banks and associated works including the construction and operation of the mooring structure at Luggage Point (these matters are covered in Chapter C9 of the Draft EIS/MDP). However, construction issues involving placement and operation of the proposed dredge pipeline from the mooring location to the reclamation site On-airport land are addressed in this document as they principally relate to the Airport and Surrounds.

14.2 Legislation and Statutory Obligations

14.2.1 Commonwealth Legislation

The following Commonwealth legislation is relevant to the proposed works. A description of each Act is presented in Chapter A1 of the Draft EIS/MDP.

- *Airports Act 1996;*
- Airports (Environment Protection) Regulation 1997 (AEPR);
- *Environment Protection and Biodiversity Conservation Act 1999;* and
- *Native Title Act 1993.*

14.2.2 State Legislation and Policies

The following State legislation and planning policies are relevant to the proposed works.

- *Integrated Planning Act 1997* and Regulations;
- *Environment Protection Act 1994* and Environment Protection Policies;
- *Coastal Protection and Management Act 1995;*
- *Fisheries Act 1994* and Regulations;
- *Marine Parks Act 2004* and Moreton Bay Zoning Plan;
- *Transport Infrastructure Act 1994;*
- *Aboriginal Cultural Heritage Act 2003;*
- *Nature Conservation Act 1992* and conservation plans;
- *Transport Operations (Marine Safety) Act 1994* (Qld) and Transport Operations (Marine Safety) Regulation 2004 (Qld);
- State Planning Policy 2/02 for Planning and Managing Development involving Acid Sulfate Soils (Qld);

Table 14.1a: Development Activities Associated with the New Parallel Runway and Their Purpose.

	Development activity	Purpose	Duration
Activities covered by the DMP Chapter C9	Excavation of sand from Middle Banks.	The dredge vessel removes the material from Middle Banks and transports the material to a defined mooring facility for pump-out.	Temporary
	Construction of a mooring jetty in the vicinity of Luggage Point.	Allows the dredge vessel operating at Middle Banks to moor and pump-out the collected sand from Middle Banks to the Airport site where the new runway is to be constructed.	Temporary
	Alignment of the dredge pipeline from the mooring jetty to the Airport site[1]. *[1] Construction and operational issues relevant to the dredge pipeline are covered in this EMF as indicated below.*	The pipeline conveys the sand (in a water-sand slurry) from the dredge vessel to the areas required to be filled for the new runway On-airport.	Temporary
Activities covered by the EMF Chapter B15	Construction of two tidal discharge channels into Kedron Brook Floodway and Serpentine Inlet (Bramble Bay).	The drainage channels will convey tailwater (associated with the dredge operation) and stormwater off the Airport site during construction and operational phases of the project.	Permanent
	Re-construction of a seawall along a portion of the northern coastline of the airport site.	To upgrade the existing poor quality seawall to protect the runway system from erosion from the sea particularly in storm events.	Permanent
	Construction of a dredge pipeline and associated maintenance road from the mooring jetty to the Airport site.	The pipeline conveys the sand (in a water-sand slurry) from the dredge vessel to the areas required to be filled for the new runway On-airport. The maintenance road is required for establishment, monitoring and maintenance for the pipeline whilst in operation.	Temporary
	Construction of an approach lighting structure extending into Bramble Bay.	To provide approach lighting to aircraft landing on the new runway when operating over Moreton Bay.	Permanent
	Construction of bunds and embankments to prevent run-off from the site during construction. Removing Casuarina and mangrove vegetation contained within the new runway footprint.	To prepare the site for receiving the dredged sand from Middle Banks, Moreton Bay.	Temporary Permanent
	Filling of land and waterways for the new runway.	To fill the ground area where the new runway and associated facilities are proposed. A range of ground treatment methods (e.g. surcharge, wick drains) will be implemented to ensure that the site settles uniformly prior to commencing the civil works stage.	Permanent
	Construction of the runway, taxiways, tunnel, associated aviation facilities, access roads and stormwater drainage infrastructure.	This final stage of civil works will facilitate the opening of the runway for air traffic.	Permanent

Figure 14.1: *Proposed Scheme: Brisbane Airport and Surrounds.*

- State Planning Policy 1/02 Development in the Vicinity of Certain Airports and Aviation Facilities (Qld);
- State Planning Policy 1/03 Mitigating the Adverse Impacts of Floods, Bushfire and Landslide (Qld);
- State Coastal Management Plan (2001) and South East Queensland Regional Coastal Management Plan (2006); and
- South East Queensland Regional Plan 2005-2026.

14.2.3 Other Relevant Policy, Guidelines, Codes and Best Practice

In addition, the following documents are relevant to the proposed works and have been used when preparing this EMF:

- Brisbane Airport Corporation Master Plan 2003;
- Brisbane Airport Environment Strategy 2004 (AES); and
- BAC Environmental Management System (EMS) and other Airport management strategies.

14.2.4 Permit and Licence Approvals

The Department of Transport and Regional Services (DOTARS) is the Australian Government Agency responsible for administering the *Airports Act 1996* and subordinate legislation. DOTARS appoint two positions, the Airport Environment Officer (AEO) and the Airport Building Controller (ABC) to administer the airport legislation on behalf of the Australian Government. Both of the AEO and ABC have offices at the Brisbane Airport. Under the Airports (Building Control) Regulations 1996, activities wholly contained on the Airport site related to the construction of the NPR such as the reclamation and filling process, construction of drainage infrastructure and other engineering works will require building approval. The ABC and AEO assess the applications for approval in accordance with the requirements set out in the Regulation. Any approval must be consistent with the Airport Master Plan, Airport Environment Strategy and the Major Development Plan (MDP) approved for the project including any conditions.

Land use, building and environmental matters are principally administered by the Commonwealth Airport legislation. The relevance of State legislation on the Airport site depends on the application of the *Airports Act*, Part 5, Division 5 which excludes State laws relating to land use planning and the regulation of building activities and Part 6 which provides that State environmental laws do not apply if certain prescrlbed matters are covered by a Regulation made pursuant to the *Airports Act* (the relevant statute being the Airports *(*Environment Protection) Regulations 1997).

Based on this, the table below presents the relevant Australian Government and State approvals that may be required for the works.

Table 14.2a: Permit and Licence Approvals.

Approval		Administering Agency	Activities Relevant to the EMF	Legislation
1. On-Airport Works				
(a)	Building Approvals	DOTARS ABC and AEO	Culverts and other works to facilitate placement of the dredge pipeline across the Airport site. Upgrading the 14-32 runway and construction of the Serpentine Inlet drain. Construction of the Kedron Brook Floodway Drain. Construction of a bund. Reclamation and filling activities. Those parts of the proposed seawall upgrade and approach lighting structure that are situated on the Airport site. Civil works (runway and taxiway, runway drainage system, other pavements and transport infrastructure).	*Airports Act 1996* Airport (Environment Protection) Regulations 1997 Airport (Building Control) Regulation 1996
2. Kedron Brook Tidal Drainage Channel[1]				
(a)	Development Permit for Operational Works (that is tidal works)	Brisbane City Council (involves prescribed tidal works) Environmental Protection Agency Maritime Safety Queensland	Excavation of material from land under tidal water associated with the Kedron Brook Drainage Channel.	*Coastal Protection and Management Act 1995* and Regulations *Integrated Planning Act 1997* and Regulation *Transport Operations (Marine Safety) Act 1994*
(b)	Development Permit for Material Change of Use for an Environmentally Relevant Activity	Environmental Protection Agency	Dredging material from the bed of waters associated with the Kedron Brook Drainage Channel.	*Environmental Protection Act 1994* *Integrated Planning Act 1997* and Regulation
(c)	Registration Certificate for an Environmentally Relevant Activity	Environmental Protection Agency	Dredging material from the bed of waters associated with the Kedron Brook Drainage Channel.	*Environmental Protection Act 1994*
(d)	Development Permit for Operational Works that is the removal, destruction or damage of a marine plant	Department of Primary Industries and Fisheries	Works associated with the removal, destruction or damage of a marine plant.	*Fisheries Act 1994* *Integrated Planning Act 1997* and Regulation
(e)	Development Permit for Material Change of Use (assessed against planning scheme)	Brisbane City Council	Commencement of a new use assessable against the Brisbane City Plan 2000.	*Integrated Planning Act 1997*
(f)	Development Permit for Operational Works (assessed against planning scheme)	Brisbane City Council	Filling and excavation associated with the Kedron Brook Tidal Drainage Channel. Assessable against the Brisbane City Plan 2000.	*Integrated Planning Act 1997*

Approval		Administering Agency	Activities Relevant to the EMF	Legislation
3. Approach Lighting Structure[1]				
(a)	Development Permit for Operational Works (that is tidal works)	Brisbane City Council (prescribed tidal works code) Environmental Protection Agency Maritime Safety Queensland Port of Brisbane Corporation	All works associated with the construction of the lighting structure on land under tidal water.	*Coastal Protection and Management Act 1995* and Regulations *Integrated Planning Act 1997* and Regulation *Transport Operations (Marine Safety) Act 1994* *Transport Infrastructure Act 1994*
(b)	Marine Park Permit to construct minor works	Queensland Parks and Wildlife Service / Environmental Protection Agency	Permission to undertake minor works in a habitat zone.	*Marine Parks Act 2004* Marine Park Regulations 1990 Moreton Bay Zoning Plan 1997
4. Seawall[1]				
(a)	Development Permit for Operational Works (that is tidal works)	Brisbane City Council (prescribed tidal works code) Environmental Protection Agency Maritime Safety Queensland Port of Brisbane Corporation	All works associated with the construction of the seawall in land under tidal water.	*Coastal Protection and Management Act 1995* and Regulations *Integrated Planning Act 1997* and Regulation *Transport Operations (Marine Safety) Act 1994* *Transport Infrastructure Act 1994*
(b)	Marine Park Permit to construct minor works	Queensland Parks and Wildlife Service/ Environmental Protection Agency	Permission to undertake minor works in a habitat zone.	*Marine Parks Act 2004* Marine Park Regulations 1990 Moreton Bay Zoning Plan 1997

[1] *This is in relation to the part of the development that is not contained On-airport land.*

14.3 Environmental Issues

14.3.1 Introduction

The following sections present key issues to be addressed during the construction of the project. In addition, comments regarding site-specific management for operations on-site are included below. It should be noted that management during the operational phase in many aspects will be governed by existing BAC guidelines and management measures. This includes BAC's:

- Environmental Management System;
- Airport Environment Strategy (AES), 2004, which covers air quality and ozone depleting substances, water quality, soil quality, waste, natural resources, energy, noise, flora and fauna and cultural heritage;
- Biodiversity Management Strategy (BMS), 2006;
- Water Quality Monitoring Master Plan;
- Noise Management Strategies, 2003;
- Bird and Animal Hazard Management Strategy, 2006;
- Draft Mosquito Management Strategy, 2005; and
- Draft Weed Management Strategy.

Related Chapter in Airport and Surrounds Section of EIS		Relevant EMF Section
B2	**Land Use and Planning**	Details of the Land Use and Planning issues are presented within section 2 of this EMP.
B3	**Geology, Soils and Groundwater**	**Acid Sulfate Soil management (3.2).** **Contaminated land management (3.3).** **Sediment and erosion control (3.4).**
B4	**Coastal Processes and Natural Features**	No mitigation or management measures are proposed for the seawall or approach lighting structure. Refer Chapter B4 for details of the assessment. Relevant management issues for the dredge pump-out facility are dealt with under the Dredge Management Plan, Chapter C9.
B5	**Terrestrial and Marine Ecology**	**Terrestrial flora and fauna management (3.5).** **Marine ecology management (3.6).**
B6	**Cultural Heritage**	**Cultural heritage management (3.7).**
B7	**Surface Hydrology**	No mitigation or management measures are proposed for Surface Hydrology. Refer Chapter B7.
B8	**Water Quality**	**Water quality management (3.8).**
B9	**Social Impact Assessment**	**Community complaints register (3.9).**
B10	**Surface transport**	No mitigation or management measures are proposed for Surface Transport. Refer Chapter B10.
B11	**Construction and Traffic Noise**	**Ground noise management (3.10).**
B12	**Construction and Traffic Air Emissions**	**Air emissions management (3.11).**
B13	**Landscape and Visual**	No mitigation or management measures are proposed for Landscape and Visual issues. Refer to Chapter B13.
B14	**Environmental Management Framework**	**Waste management (3.12).**

14.3.2 Acid Sulfate Soil Management

14.3.2.1 Introduction

To address potential acid sulfate soil issues in the construction phase as outlined in Chapter B3, a detailed **Acid Sulfate Soil Management Plan** has been prepared and is contained in **Appendix A**.

This includes details of work staging, in situ lime treatment strategies and proposed location of Acid Sulfate Soil (ASS) Treatment Areas.

The related issue of groundwater management is also detailed in the Acid Sulfate Soil Management Plan.

Full details of the site investigation and assessment are presented in Chapter B3.

14.3.3 Contaminated Land Management

14.3.3.1 Introduction

To address the potential contaminated land issues in the construction phase as outlined in Chapter B3, a detailed **Contaminated Land Management Plan** has been prepared and is attached in **Appendix A**.

There are proposed construction activities within close proximity of sites that contain contaminated material. The risk therefore has to be managed through implementing the measures detailed in the Contaminated Land Management Plan.

14.3.3.2 Management During Operation

Routine groundwater monitoring will continue to be conducted after completion of the works in accordance with the BAC's water quality monitoring programme, as outlined in the Airport Environment Strategy.

14.3.4 Sediment and Erosion Control

14.3.4.1 Introduction

During construction, there are a number of ground disturbing activities that will require proper management to control the potential movement (runoff) of sediment into the site drainage channels, Serpentine Inlet, Kedron Brook Floodway and ultimately Moreton Bay.

The main activities are:

- Site clearing;
- Bulk filling and construction of a NPR and linked taxiway;
- Construction of new major drains and connecting minor drainage channels; and
- Construction of a tunnel under the new 'linked taxiway' connecting to the future aviation facilities.

Management will be undertaken by implementing erosion and sediment control measures as outlined in the following table.

14.3.4.2 Management During Construction

Table 14.3a: Sediment and Erosion Control – Construction.

Topic	Sediment and Erosion Control – Construction
Management Objective	To minimise the impacts caused by erosion and sedimentation during the works.
Statutory Requirement	• *Environment Protection and Biodiversity Conservation Act, 1999* • AEPR 1997
Performance Criteria	• Compliance with the erosion and sedimentation control provisions in the EMP (Construction). • Erosion to be controlled and sediment control devices used to treat all site discharges with the potential for particle export. • All areas disturbed within the site to be protected with temporary and permanent erosion control measures.
Implementation Strategy	**Clearing** **Casuarina plantation and Other Non-Mangrove Communities** • Rate of clearing anticipated to be about one hectare per day as the ground conditions are suitable for mechanical clearing. • Site will be cleared, levelled and groomed, with the trees removed by excavators. This includes tree stumps, root balls and major roots greater than 100 mm in size. • Minor organic materials and grass mats will be left in place. **Mangroves** • Clearing of the mangroves will generally be undertaken manually by a labour force. • Rate of clearing anticipated to be relatively low at 0.25 hectare per day. • Mangroves to be felled with chainsaws and removed using small excavators with wide plates (and mats if required) and swamp dozers with winches. The felled vegetation will be removed from the estuarine areas and transported to the perimeter of the work area where it will be mulched and either re-used on-site or trucked offsite to the disposal stockpiles. **Erosion and Sediment Control** • An erosion and sediment control plan will be developed for each of the separate stages of the contract i.e. site clearing, reclamation period, surcharge period and civil construction period as noted below.

Topic	Sediment and Erosion Control – Construction
Implementation Strategy	**Site Clearing** • Perimeter bunds will be constructed as early works to contain stormwater runoff within the site during the site clearing and preparation. • Sediment ponds will be used to treat stormwater runoff from cleared areas of the site. • Local erosion and sediment control devices will be used as required. **Reclamation Period** • Perimeter bunds will be constructed as early works to contain stormwater runoff and supernatant water within the site. • Sediment ponds will be used to treat supernatant water during reclamation. • Stormwater runoff will be treated using sediment ponds. • The exposed surface of sand stockpiles will be chemically stabilised to minimise erosion. **Surcharge Period** • The exposed surface of sand stockpiles will be chemically stabilised to minimise erosion. Local sediment control devices will be maintained during the surcharge period. • Sediment ponds will remain in place to treat runoff from the site along with other sediment treatment devices as required. **Civil Construction Period** • Local sediment control devices will be maintained during civil works (sediment fences, etc). • Stormwater runoff from within the NPR construction site will be treated through sediment ponds. • Final surface following civil works construction will be topsoiled and hydraulically seeded/ mulched to minimise erosion. Local sediment control measures will be maintained until vegetation is suitably established to control erosion.
Monitoring	**Erosion and Sediment Control** Erosion and sediment control devices will be monitored by the Contractor at each of the separate stages of the contract i.e. site clearing, reclamation period, surcharge period and civil construction period. Site inspections will be undertaken to ensure devices are adequately constructed and identify the requirement for repairs. **Site Clearing** • Bund stability and erosion will be monitored by the site clearing Contractor during clearing. **Reclamation Period** • Discharge from sediment ponds will be monitored by the reclamation Contractor to ensure compliance with regulatory requirements. (Refer section 14.3.8, Water Quality Management.)
Auditing and Reporting	• The Contractor will periodically submit an inspection inventory of erosion and sediment control devices established at each of the separate stages of the contract. For each device, the Contractor will include on the inventory: – Inspection Date; – Condition Report; – Restoration Actions Required; and – Date of Restoration.
Corrective Action	• Repair and restoration of erosion and sediment control devices will be undertaken as required.
Responsibility	• Contractor (at each stage of the works i.e. site clearing, reclamation period, surcharge period, civil construction period.)
Timing	• Throughout Construction phase – reclamation, surcharge and civil construction periods.

14.3.5 Terrestrial Flora and Fauna Management

14.3.5.1 Introduction

The primary impact processes associated with the proposed development during construction are:

- Vegetation clearing and waterway reclamation activities;
- Discharge of waters from the site into Kedron Brook and Serpentine Inlet;
- Noise and physical disturbance as a result of construction activities;
- Construction of the approach lighting system; and
- Seawall upgrade and foreshore protection works.

Full details of the impact assessment are presented in Chapter B5. This section presents the management measures to deal with these potential impacts.

In support of the mitigation/management initiatives outlined in the AES and BAC Biodiversity Management Strategy 2006 (BMS), three mitigation programs will be implemented, namely:

- Fauna Movement and Animal Welfare;
- Foreshore Stabilisation Works; and
- Lighting Structure.

All these programs will be undertaken during the construction phase.

14.3.5.2 Management During Construction

Table 14.3b: Terrestrial Flora and Fauna – Construction.

Topic	Terrestrial Flora and Fauna – Construction
Management Objective	• To minimise impacts to terrestrial flora and fauna resulting from clearing of vegetation and construction activities. • To ensure that terrestrial fauna are not adversely affected by construction activities. • To effectively manage and control clearing operations within construction areas. • To protect all habitat outside construction areas designated for protection during clearing and development. • To control the introduction and spread of weed and pest species as a result of construction works. • To minimise the direct adverse effects on a variety of terrestrial fauna during construction operations.
Statutory Requirement	• *Environment Protection and Biodiversity Conservation Act, 1999.* • *Nature Conservation Act, 1992* and conservation plans. • AEPR 1997.
Performance Criteria	• Compliance with the management provisions in this EMF. • Clearing of approved areas undertaken in an environmentally sensitive manner. • No clearing of vegetation or habitat designated for protection. • Ensure that best practice is used to minimise potential adverse impacts on fauna and that biodiversity values of the wider site are protected. • No new weed or pest species and no spread of pest species. • Minimal fauna mortality and disturbance to terrestrial fauna.

Topic	Terrestrial Flora and Fauna – Construction
Implementation Strategy	**Fauna Movement and Animal Welfare Plan (Project Area)** • Develop and implement a Fauna Movement and Animal Welfare Plan with strategies including: – Engagement of wildlife assessment/rescue services prior to vegetation clearing, to assess appropriate site clearing approaches to minimise deleterious impacts to fauna; – Employment of spotter/catcher services until all clearing has ceased; – Development and implementation of protocols with the relevant agencies for any displaced fauna; – Establishment of fauna exclusion fences to prevent fauna inadvertently re-entering the construction site. **Foreshore Stabilisation Works (Migratory Shorebirds)** • Implementation of construction schedules which wherever possible minimise potential disturbance to migratory wader birds during periods when they are most vulnerable to disturbance, i.e. March/April and September/October. • Note observations of shorebird response to construction and operations and develop, if required, further mitigation strategies to ensure minimal impact to feeding shorebird activity and feeding habitat quality. **Lighting Structure (Migratory Shorebirds)** • Implementation of construction schedules which wherever possible minimise potential disturbance to migratory wader birds. Construction of nearshore (intertidal) sections of the lighting structure are to commence during periods outside where migratory wader birds are most vulnerable to disturbance, i.e. March/April and September/October. • Implement construction methods which result in minimal displacement and disturbance of marine sediments. • Note observations of shorebird response to construction and develop, if required, further mitigation strategies to ensure minimal impact to feeding shorebird activity and feeding habitat quality.
Monitoring	• Full details to be provided in Plans noted above. • Implementation of strategies to be monitored under the Construction Contractor's quality assurance system. • Site inspection of vegetation clearance and impact by Construction Contractor to be conducted on a daily basis during clearing program. • BAC to actively monitor effectiveness of measures in regard to impacts on habitat and native fauna. Capture and release records for species of conservation significance to be maintained by BAC. • With respect to migratory shorebirds, monthly monitoring events of usage of intertidal feeding habitats and roost habitat to be conducted during construction activities. • Initial monitoring results to be provided to the BAC Project Manager within one week of surveys.
Auditing and Reporting	• Construction Contractor will keep records of monthly inspections of the specified areas and report any non-compliance incidents and required corrective actions on a Contractor EMP Check Form. • Monitoring results to be provided to BAC Project Manager by responsible Contractor. • BAC Project Manager to review data and ensure database in maintained.
Corrective Action	• In the event that monitoring identifies practices inconsistent with the strategies developed for this EMF, the Construction Contractor shall take the necessary corrective steps and note them in the weekly site report. • Remedial action to be developed in consultation with relevant agencies.
Responsibility	• Construction Contractor for site inspection. • BAC Project Manager for collation and review of monitoring results.
Timing	• Throughout construction phase.

14.3.5.3 Management During Operation

Terrestrial Flora and Fauna Management is currently addressed by the AES, 2004 and BAC BMS, 2006. The BMS sets out a range of actions to retain and enhance where practicable, biodiversity values on the Airport site. This includes the BAC Bird and Animal Hazard Strategy. The BMS is an evolutionary document that will be implemented throughout the operational phase of the project.

14.3.6 Marine Ecology Management

14.3.6.1 Introduction

Full details of the impact assessment are presented in Chapter B5. This section presents the management measures in the form of three mitigation programs, namely:

- Estuarine Fauna Management Program for the Reclamation Area;
- Megafauna Management Program; and
- Mangrove Establishment Program.

It should also be noted that several elements of the terrestrial flora and fauna section 14.3.5 are also relevant to marine ecology. The following tables outline specific elements from a marine ecology perspective.

14.3.6.2 Management During Construction

Table 14.3c: Marine Ecology – Construction.

Topic	Marine Ecology – Construction
Management Objectives	• To minimise harm to marine flora and fauna, and their habitats, situated in the works footprint. • To ensure that marine megafauna are not adversely affected by construction activities. • To develop functional mangrove ecosystems within the main discharge channels.
Statutory Requirement	• *Environment Protection and Biodiversity Conservation Act, 1999.* • *Nature Conservation Act, 1992* and conservation plans. • AEPR 1997.
Performance Criteria	• Compliance with the management provisions in the EMF. • Relocation of fish, sharks, rays and large crustacean species (i.e. mud and sand crabs) from the reclamation area. • No injury to marine megafauna during reclamation and construction of sea wall and lighting structure. • Development of mangroves within major discharge channels.
Implementation Strategy	**Estuarine Fauna Management in Reclamation Area** • Measures will be devised and implemented to minimise the number of fish and other fauna within the mangroves and subtidal channels in the project area prior to the closing of Jacksons Channel by the bund structure. • A netting program will be implemented in the bunded area to translocate marine fauna into adjacent environments. This program will primarily target adult fish, any sharks and rays, and some crustacean species (i.e. mud and sand crabs) within the bunded area using a combination of non-destruction fishing techniques (e.g. seine netting, crab pots). • Implementation of fauna handling procedures for the transfer of marine fauna into adjacent waterways will be undertaken following best management practices. Detailed handling procedures, including the handling and management of injured fish or shellfish, will be developed in conjunction with regulatory authorities.

Topic	Marine Ecology – Construction
Implementation Strategy	**Megafauna Management** • Should works occur at high tide, a spotter (land-based) will undertake regular inspections to identify marine megafauna in the works areas of the lighting structure, seawall area and/or drain channel outlets. • Any injury to marine megafauna to be recorded and reported immediately. **Mangrove Establishment** • Develop and Implement Mangrove Establishment Program for growing mangroves along the main drainage channels in consultation with the Department of Primary Industries and Fisheries (DPIF). **General** • Ensure all site personnel and management are aware of the EMP (Construction) objectives, and the need to comply with best practice at all times and that the potential environmental consequences of poor performance are understood.
Monitoring	**Estuarine Fauna Management in Reclamation Area** • The number and species of protected fauna (e.g. Sygnathid fish species and turtles) and sharks captured during the marine fauna relocation program will be documented. • The number of injured protected fauna or sharks, and any management actions taken, will be recorded. **Megafauna Management** • Any injury to marine megafauna to be recorded and reported immediately. • Dugong/turtle monitoring information/data to be collated and stored in a central database. • Monitoring results (sightings and injuries) to be provided to the BAC Project Manager on a six monthly basis. **Drainage Channel Mangrove Establishment** • Mangrove Establishment monitoring programme to be developed in consultation with DPIF.
Auditing and Reporting	**Estuarine Fauna Management in Reclamation Area** • Surveys results, including fauna removal success, will be outlined in a report to be provided to the Construction Contractor, and then to the BAC Project Manager. • BAC Project Manager to review data and report where required. • Suitable benchmarks to be developed in the EMP (Construction) to determine the need or otherwise for corrective actions. **Megafauna Management** • Construction Contractor will regularly visually monitor the works area for dugong/turtles during reclamation works. • Construction Contractor to report any injuries immediately to BAC Project Manager. • BAC Project Manager to review dugong/turtle monitoring data. **Drainage Channel Mangrove Rehabilitation** • Construction Contractor will monitor mangrove rehabilitation at nominated intervals and report to BAC Project Manager. • Suitable benchmarks and corrective actions to be developed in EMP (Construction) in consultation with DPIF.

Topic	Marine Ecology – Construction
Corrective Action	**Estuarine Fauna Management in Reclamation Area** • Re-implement netting program if program success benchmark is not achieved. Benchmark to be established prior to commencement of program. **Megafauna Management** • If injury to marine megafauna occurs, liaise with EPA immediately to identify rescue options and develop future corrective strategy. • If dugong/turtles are regularly recorded in close proximity to works areas (within 50 m), the BAC Project Manager is to contact EPA for advice on any necessary modification to operations. **Drainage Channel Mangrove Rehabilitation** • Re-implement or re-design rehabilitation program if success benchmark, developed in consultation with DPIF, is not achieved.
Responsibility	• Construction Contractor for implementation of strategies. • BAC Project Manager for collation and review of monitoring results.
Timing	Throughout Construction phase.

14.3.6.3 Management During Operation

The proposed Mangrove Establishment Program in the main drainage channels noted above will continue into the operational phases to evaluate program success, and the need for any follow-up correction actions.

The management of other marine ecology issues on the Airport site are currently addressed by the AES and BMS respectively.

14.3.7 Cultural Heritage Management

14.3.7.1 Introduction

The degree to which the proposed development is likely to impact on Indigenous and non-Indigenous cultural heritage and the potential level of cultural significance is presented in Chapter B6.

A Cultural Heritage Management Plan (CHMP) also exists between BAC and the Jagera People.

The management controls presented here are based on the outputs from the EIS and the CHMP.

14.3.7.2 Management During Construction

Table 14.3d: Cultural Heritage – Construction.

Topic	Cultural Heritage – Construction
Management Objective	• To minimise the potential for damaging any significant Aboriginal cultural heritage items that may exist in the area. • To comply with the cultural heritage duty of care to Aboriginal cultural heritage, and to provide protection to Aboriginal and historical heritage values.
Statutory Requirement	• *Environment Protection and Biodiversity Conservation Act, 1999.* • *Aboriginal Cultural Heritage Act, 2003.*
Performance Criteria	• Compliance with the management provisions in the EMP (Construction) and CHMP. • No harm to Aboriginal cultural heritage. • No diminution of historical heritage values.
Implementation Strategy	• Construction Contractor must comply with the requirements under the CHMP, with the Aboriginal Parties, and with the need to protect historical heritage values; • The basic measures established under the CHMP for minimising harm to Aboriginal cultural heritage involves the following processes: – BAC will first give notice to the Jagera that it intends to conduct project activities within a nominated part of the project area; – The Jagera will then have 7 days to respond to such notice by advising whether or not they first wish to undertake a cultural heritage survey in the area to determine if there are any significant Aboriginal cultural heritage items in the area – if there are, then the Jagera will collect such items to avoid them being impacted upon by project activities; – The survey and recovery process is to be completed within the nominated area within a period of two days; – After completion of any survey and recovery activities, BAC may commence project activities in the area. BAC may also commence project activities in the area if the Jagera People advised BAC they did not wish to conduct a prior survey of the area; and – The CHMP provides that BAC may undertake project activities in 'excluded areas' without first having to go through a survey process with the Jagera People. Excluded areas are areas to be agreed which, because of past disturbance, are unlikely to contain any existing Aboriginal cultural heritage items.
Monitoring	• Monitoring for possible Aboriginal cultural heritage will occur pursuant to the CHMP with the Aboriginal Parties.
Corrective Action	• The CHMP provides a method for dealing with items of Aboriginal cultural heritage which are found subsequent to cultural heritage surveys being undertaken (i.e. items which may have been missed during the survey). Essentially, if BAC discovers an item of Aboriginal cultural heritage, it is to notify the Jagera People who will then have an opportunity to relocate the item so it is not impacted by the project activities.
Responsibility	• BAC Project Manager for the implementing the strategy outlined above and the other measures prescribed in the CHMP.
Timing	• Throughout construction phase.

14.3.7.3 Management During Operation

There are no specific cultural heritage management measures required for the site. If any areas or items of cultural heritage significance are identified during the construction phase then in the operational phase management of these will be in accordance with the Airport Environment Strategy, 2004.

14.3.8 Water Quality Management

14.3.8.1 Introduction

During construction, there are a number of activities that will require proper management to control the potential impacts to water quality.

The main activities are:

- Site clearing;
- Construction of new major drains and connecting minor drainage channels; and
- Bulk filling and construction of a NPR and linked taxiway.

Management will be undertaken by implementing the control measures presented in section 14.3.4 Erosion and Sediment Control and monitored in accordance with the procedures outlined in **Table 14.3e**.

14.3.8.2 Management During Construction

Table 14.3e: Water Quality Management – Construction.

Topic	Water Quality Management - Construction
Management Objective	Minimise changes to water quality from construction activities.
Statutory Requirement	• *Environment Protection and Biodiversity Conservation Act, 1999.* • Airports (Environment Protection) Regulations 1997.
Performance Criteria	• Compliance with the management provisions in the CEMP. • The Total Suspended Solids (TSS) weekly monitoring at the outlet of the sediment pond will be based on the 80th percentile expected basin performance TSS concentration. For the sedimentation pond configuration, this has been calculated as 80 mg/L. • No change in Annual (Queensland) Ecosystem Health Monitoring Program (EHMP) Report Card rating for EHMP sites E00902, E00905 and E00906.
Implementation Strategy	• Ensure best practice erosion and sediment controls used on-site to minimise excess sediment being liberated during storm events. (Further details are presented in section 14.4.4 Erosion and Sediment Control). • Ensure sediment ponds are operating at optimum efficiency.
Monitoring	• Monitoring of supernatant discharge from sediment ponds (at the weir outlet) to be conducted on a daily basis for pH, Dissolved Oxygen and Turbidity and on a weekly basis for total iron, total nitrogen, total phosphorus and total suspended solids as tabulated below. • In addition, visual observations will be conducted to check for scum formation, oil films etc. which may suggest spillage of construction materials/substances. • Weekly monitoring of locations at the mouth of Kedron Brook and Serpentine Inlet and at EHMP monitoring sites E00905, E00906 and E00902 for turbidity, total suspended solids, total nitrogen and total phosphorus for the first two months of construction, thereafter relying on routine monthly sampling as part of the EHMP monitoring episodes conducted by the Queensland EPA.

<table>
<tr><th>Topic</th><th>Water Quality Management - Construction</th></tr>
<tr><td>Monitoring</td><td>
<table>
<tr><th></th><th>Test type</th><th>Frequency</th></tr>
<tr><td>Total Iron (Fe)</td><td>Laboratory</td><td>Weekly</td></tr>
<tr><td>Total Nitrogen (TN)</td><td>Laboratory</td><td>Weekly</td></tr>
<tr><td>Total Phosporus (TP)</td><td>Laboratory</td><td>Weekly</td></tr>
<tr><td>Total Suspended Solids (TSS)</td><td>Laboratory</td><td>Weekly</td></tr>
<tr><td>pH</td><td>On-site</td><td>Daily</td></tr>
<tr><td>Dissolved Oxygen (O_2)</td><td>On-site</td><td>Daily</td></tr>
<tr><td>Turbidity (NTU)</td><td>On-site</td><td>Daily</td></tr>
</table>
</td></tr>
<tr><td>Auditing and Reporting</td><td>• Weekly reporting of pH, Dissolved Oxygen and Turbidity to the BAC Project Manager for review.
• Monthly reporting of Total Fe, TN, TP and TSS to BAC Project Manager for review.
• A post-construction monitoring report will be prepared at the end of the reclamation process.</td></tr>
<tr><td>Corrective Action</td><td>• The normal procedure will be to discharge the supernatant directly over the weir outlet.
• If exceedance of the 80th percentile TSS concentration is noted for two consecutive days then the following hierarchy of contingency will be implemented:
– Allow supernatant from the filling cells to be redirected to the sediment pond via other cells to allow further settlement before discharge.
– Continue monitoring. If further exceedance of the 80th percentile objective is noted on the subsequent day, then install silt curtains where the filling cell is being discharged into subsequent cells, and at the inlet to the sediment pond.
– Continue monitoring. If exceedance is still occurring on the subsequent day then flocculation of the sediment pond and/or subsequent cells will be performed.
– Continue monitoring. If exceedance of the 80th percentile is still occurring on the subsequent day, consider ceasing or reducing dredging to allow further settlement.</td></tr>
<tr><td>Responsibility</td><td>Construction Contractor.</td></tr>
<tr><td>Timing</td><td>Throughout construction phase.</td></tr>
</table>

14.3.8.3 Management During Operation

When the new runway, associated taxiways and other infrastructure are completed, the new impervious surfaces will have the potential to generate greater amounts of stormwater than the existing, mostly vegetated site. This stormwater is to be managed through grassed swales which will act as both the treatment and conveyance mechanisms for the operational phase.

Surface water quality monitoring will continue as per the AES, 2004

14.3.9 Community Complaint Register

14.3.9.1 Introduction

Construction of the runway will require certain on- and off-airport works which will have a social impact.

Full details of the impacts are presented in Chapter B9. The measures presented in the following table are designed to control and monitor these impacts.

14.3.9.2 Community Complaints During Construction

Table 14.3f: Community Complaints – Construction.

Topic	Community Complaints – Construction
Management Objective	• To maximise awareness in the local and regional community of construction activities. • To maintain positive relations with the local community. • To respond quickly and effectively to community complaints.
Statutory Requirement	No statutory requirements but consideration will be in line with: • Queensland Government's Directions Statement for community engagement – Principles of Engagement; • BAC 2004 Brisbane Airport Environment Strategy; and • BAC 2003 Noise Management Strategy.
Performance Criteria	• Compliance with the management provisions in the EMP (Construction). • Information regarding construction activities is regularly provided in an accessible manner. • All complaints are investigated and replied to within acceptable timeframes.
Implementation Strategy	• Implementing an effective communication program during the construction phase, including: – Regular publication and distribution of information on construction activities, their timing, duration and any temporary access arrangements. Distribution will account for the needs of airport users, the local communities as well as the broader metropolitan community; – Maintaining a 24 hour 7 day free call information line for the community to contact BAC; – Maintaining a complaints register which also records actions taken in response to complaints. Whenever possible complaints are to be investigated within 24 hours. Protocols are to be established that ensure the actions taken in response are reported back to the complainant; – Monthly reporting of all communication activities including issues raised and actions taken; and – Regular briefings of Construction Contractor by BAC Project Manager on all community complaints.
Monitoring	• Complaints register (monthly reporting).
Auditing and Reporting	• Maintain a Register of Complaints. • Conduct regular project control meetings.
Corrective Action	• Investigate corrective actions if appropriate otherwise instigate more detailed investigation. • Advise complainant of corrective action being taken, wherever possible within 24 hours.
Responsibility	• BAC Project Manager and appointed community liaison contractor for implementation of strategies. • Construction Contractor for adherence to strategy.
Timing	• Throughout construction phase.

14.3.9.3 Community Complaints During Operation

Community engagement once the NPR is operational will be undertaken in accordance with the BAC's existing community liaison plans.

14.3.10 Ground Noise Management

14.3.10.1 Introduction

Noise associated with the construction of the NPR can impact adversely on the acoustic amenity of nearby residences. This section outlines the measures to control these potentially adverse impacts identified in the Draft EIS/MDP.

Full details of the assessment can be found in Chapter B11.

In the case of construction noise emissions, the activities that have been identified as requiring attention will need to be addressed through planning, monitoring and community consultation.

14.3.10.2 Management During Construction

Table 14.3g: Ground Noise – Construction.

Topic	Ground Noise – Construction
Management Objective	• To protect the acoustic amenity of surrounding residences. • To minimise noise emissions from construction activities. • To respond proactively to noise issues. • Take all reasonable and practicable measures to prevent or minimise exceedance of construction noise goals.
Statutory Requirement	• Airports (Environment Protection) Regulations, 1997.
Performance Criteria	• Compliance with the management provisions in the EMP (Construction). • Requirements of the Airports (Environment Protection) Regulations 1997.
Implementation Strategy	Compliance with the provision of the EMP (Construction). **Permissible Times of Work** • Normal hours of operation will occur, with extensions linked to type of activity. **Noise Sensitive Sites** • The quietest available plant and equipment that can economically undertake the work required will be selected. Mobile plant such as excavators, front-end loaders and other diesel-engined equipment will be fitted with residential class mufflers and other silencing equipment, as applicable. **Equipment Selection** • All fixed plant at the work sites will be appropriately selected, and where necessary, fitted with silencers, acoustical enclosures and other noise attenuation measures. **Site Noise Planning** • Where practical, the layout and positioning of noise-producing plant and activities on each work site will be optimised to minimise noise emission levels to surrounding residential communities.
Monitoring	**Noise Monitoring Programme** • A well planned noise monitoring programme will be implemented to assist in identifying the site-specific potential for disturbance at particularly sensitive localities as the works progress. • Monitoring of overall noise emission from critical work sites will be carried out in order to check compliance with the established construction noise emission guidelines, which have been adopted for this project. This will also provide feedback to guide improvements in procedures or equipment selections to minimise noise.
Auditing and Reporting	**Plant Noise Audit** • If required, noise emission levels of mobile plant and equipment will be checked for compliance with noise limits appropriate to those items prior to the equipment going into regular service.
Corrective Action	• In the event that noise monitoring identifies practices inconsistent with the Noise Management Plan, the Construction Contractor will take the necessary corrective steps and note them in the weekly site report.
Responsibility	• Construction Contractor.
Timing	• Throughout the construction phase.

14.3.10.3 Management During Operation

Airside operational noise is currently addressed by the AES, 2004 that incorporates strategies and controls for noise producing activities such as engine ground running. As no change to these activities is proposed the existing strategy is applicable. It should be noted that this strategy is reviewed every five years.

Operational phase complaint procedures will be incorporated and managed in accordance with the BAC EMS and incident reporting framework.

14.3.11 Air Emissions Management

14.3.11.1 Introduction

This section summarises the controls and mitigation measures that will be used to minimise potential air quality impacts during construction and operation of the NPR.

The most significant potential impacts during construction will be dust from wind erosion of exposed areas, earthworks and road haulage. Odours from diesel equipment and asphalt plants can also occur but these will be localised.

While impacts on people are the primary concern, dust sensitive industries in the vicinity of the activities also need to be identified. Full details of the assessment are presented in Chapter B12.

14.3.11.2 Management During Construction

Table 14.3h: Air Emissions – Construction.

Topic	Air Emissions – Construction
Management Objective	• To minimise offsite dust and odour impacts during the construction phase of the project. • To control as far as practicable dust emissions from wind erosion, earthmoving activities and road haulage. • To ensure that air emissions from plant and equipment comply with regulatory limits.
Statutory Requirement	Air quality goals promulgated by: • Airport (Environment Protection) Regulations 1997. • Queensland Environment Protection Agency (EPA). • National Environment Protection Council (NEPC). • In addition dust deposition goals utilised in New South Wales are used to assess dust deposition impacts.
Performance Criteria	• Compliance with the management provisions in the EMP (Construction). • Particulate matter less than 10 µm (PM_{10}), 24 hour 150 µg/m^3, Annual average 50 µg/m^3. • Total suspended particulate matter: Annual average 90 µg/m^3. • Dust deposition: 4 g/m^2/month.
Implementation Strategy	• Prepare and implement a dust and odour management plan for the duration of the construction phase of the project. Generally, this plan will cover: – Management of dust and odour emissions; – Monitoring of impacts; and – Consultation with local community on issues associated with construction activities.

Topic	Air Emissions – Construction
Implementation Strategy	• Prescriptive measures within the plan will detail the following: – All disturbed areas will be stabilised as soon as practicable to prevent or minimise wind blown dust; – All unsealed trafficable areas will be kept sufficiently damp during working hours to minimise wind blown or traffic generated dust emissions; – Water sprays, sprinklers and water carts will be employed if needed to adequately dampen stockpiles, work areas and exposed soils to prevent the emission of dust from the site; – Stockpiles and handling areas will be maintained in a condition that minimises wind blown or traffic generated dust. Areas that may be inaccessible by water carts will be kept in a condition which minimises wind blown or traffic generated dust using other means; – All equipment for dust control will be kept in good operating condition. The equipment will be operable at all times with the exception of shutdowns required for maintenance; – Silt will be removed from behind filter fences and other erosion control structures on a regular basis, so that collected silt did not become a source of dust; and – Any dust, soil or mud deposited on public roads caused by construction vehicle movements will be removed immediately and disposed of appropriately. • Diesel exhaust emission controls will include: – Avoiding queuing of construction vehicles in the streets adjacent to worksites; and – Fitting vehicles and machinery with appropriate emission control equipment and maintaining this equipment to comply with manufacturers' specifications.
Monitoring	• Establish dust monitors at strategic locations on the site boundary or at nearest sensitive receptors. Special consideration should be given to dust sensitive industries in the vicinity of the airport. • In addition to ambient air quality monitoring which will include dust deposition gauges, there will be inspection of the work areas and work practices to ensure that the management plan is implemented.
Auditing and Reporting	• There will be formal inspections of the construction site and reporting should be undertaken on a regular basis. Specifics of this will be developed during development of the EMP (Construction) prepared by the Construction Contractor.
Corrective Action	• Modify work practices as required, for example avoid operating dust generating equipment during high winds.
Responsibility	• Construction Contractor.
Timing	• Throughout construction phase.

14.3.11.3 Management During Operation

The operation of the NPR is predicted to have minimal effects on air quality in the vicinity of the airport. Air monitoring indicates that the airport is not having a substantial effect on existing air quality. Controls on air emissions are currently addressed by the AES, 2004 which will be continued and reinforced to ensure continuing performance with respect to compliance with air quality goals.

14.3.12 Waste Management

14.3.12.1 Introduction

The project has the potential to generate a range of solid, liquid and gaseous wastes, including regulated wastes, during construction. Regulated wastes are generally industrial wastes that have the potential to cause environmental harm and require certain controls when they are stored, transported and disposed.

The following table details out the management procedures to control this waste.

14.3.12.2 Management During Construction

Table 14.3i: Waste Management – Construction.

Topic	Waste Management – Construction
Management Objective	• To minimise the volumes, as far as possible, of hazardous and non-hazardous waste generated. • To minimise the use of hazardous substances. • To minimise waste generation in line with the principles of the waste hierarchy: i.e. avoid, reduce, re-use, recycle, treat and dispose. • To comply with relevant regulations and /or policies.
Statutory Requirement	• *Environment Protection and Biodiversity Conservation Act, 1999.* • Airports (Environment Protection) Regulations, 1997. • *Environmental Protection Act 1994 (Qld).* • Environmental Protection (Waste Management) Regulation 2000 (Qld). • Environmental Protection (Waste Management) Policy 2000 (Qld).
Performance Criteria	• Compliance with the management provisions in the CEMP. • All wastes appropriately segregated and stored in suitable on-site storage compound. • All regulated wastes sealed, correctly labelled and contained within bunded areas prior to collection/removal. • Construction material quantities accurately estimated to reduce over-ordering and on-site stockpiling of materials. • No waste materials left on-site post construction. • Regulated wastes correctly tracked through waste tracking. • All hazardous materials and dangerous goods waste containers appropriately labelled and collected by licensed contractors. • All collectable recyclable materials taken to recycling centres. • No Environmental Harm or Environmental Nuisance as defined under the *Environmental Protection Act 1994* occurs due to the storage and handling of wastes on-site.
Implementation Strategy	**Waste Management Plan** The Construction Contractor will be required to prepare a Waste Management Plan (WMP). As a minimum, it will consider the following: – AES waste objectives; – Any key performance indicators, in addition to that listed above, to assess achievement of AES waste objectives; – Principles of the Waste Management Hierarchy; – Procedures to handle, collect and dispose of wastes maximising opportunities to minimise waste wherever practicable; – Details of training with respect to the WMP; – Designated areas on-site for the segregation and storage of different waste streams in order to enhance recovery rates of reusable and recyclable materials; – Implementation of cleaner technologies where they are available and are found to be cost and performance competitive against current technologies; and – Spill and Emergency Response Plans for uncontrolled release of any Hazardous Materials including disposal of clean up wastes.

Topic	Waste Management – Construction
Implementation Strategy	**Storage** • Wastes will be segregated and stored in designated on-site waste collection areas. • Putrescible wastes will be stored in a manner not to attract birds. • All wastes will be stored in appropriate receptacles such as skips, containers or trucks prior to disposal. • Any hazardous materials or dangerous goods (e.g. petroleum, oils, bitumen) and containers will be stored according to the Australian Dangerous Goods Code and relevant Australian Standards. • Any areas where hazardous materials or dangerous goods are transferred will be bunded in accordance with the relevant standards. • Appropriate spill and emergency response plans for hazardous materials or dangerous goods will be prepared and referenced in the WMP. • Any stockpiles of acid sulfate soil or cleared vegetation suspected to contain acid sulfate soil will not be left for periods exceeding those specified in the Queensland Acid Sulfate Soil Technical Manual Soil Management Guidelines (v. 3.8 or later). A leachate collection system will be placed around stockpiles to contain any contaminated runoff. Refer to section 4.2 for more detail regarding acid sulfate soil management including on-site treatment of runoff before discharge. **Transport and Movement Controls** • Where practical, off-site transport of wastes will be conducted during non-peak times to minimise the possibility of traffic congestion and associated risks. • Any waste material transported off-site will be by EPA-licensed contractors. • Some regulated wastes will be subject to waste tracking under the Environmental Protection (Waste Management) Regulation 2000. • All materials will be handled according to the conditions of the Brisbane Airport Fire Ant Risk Management Plan (on-site) to the extent that it applies at the time of construction. **Off-site Disposal/Discharge** • Any solid wastes that cannot be reused or recycled in a practicable and feasible manner will be disposed of in off-site licensed landfill sites. • If contamination of waste soil not treated and reused on-site is found to exceed landfill criteria, the soil will be treated before being transported to the landfill site (see Contaminated Land Management Plan – **Appendix A**).
Monitoring	• BAC Project Manager to undertake monthly inspections of construction works in accordance with the AES to ensure compliance to the WMP. The monitoring program including monitoring parameters will be detailed within the WMP. • Areas designated for waste storage will be inspected by the Construction Contractor as part of the weekly works site inspection to verify adherence with the WMP.
Auditing and Reporting	• Observations made during the inspections should be incorporated into a Construction Contractor's site report.
Corrective Action	• In the event that the monitoring identifies practices inconsistent with the WMP, action will be undertaken to remedy the situation. Non-conformance notices and corrective action notices will be prepared and actioned.
Responsibility	• Construction Contractor for implementation of strategies. • BAC Project Manager for monitoring and review.
Timing	• Throughout construction phase.

14.3.12.3 Management During Operation

Limited wastes will be generated by the operation of the runway once construction is complete.

Once the NPR is operational, waste management procedures will be in line with BAC's AES, 2004 and EMS.