HOTEL DEVELOPMENT
DRAFT MAJOR DEVELOPMENT PLAN
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1.0 INTRODUCTION

1.1 Background

Brisbane is one of Australia’s fastest growing cities, located in one of the fastest growing regions in the world. With advantages in relation to its location and good planning, the Brisbane 24/7 airport has been a catalyst in the unprecedented growth and prosperity of South East Queensland (SEQ). Its role as the most important public infrastructure asset in Queensland has seen the need for an articulated clear vision regarding sustainable growth to be at the forefront of its land planning.

In supporting this growth in a sustainable way the approved BAC's 2009 Master Plan and 2009 Airport Environment Strategy (AES) delineates the vision for long-term development of the Brisbane Airport. The proposal described in this Draft Major Development Plan (MDP) represents a continuation of the planned vision for the Domestic Terminal Precinct as prepared under the approved BAC 2009 Master Plan.

The proposal includes the construction of two multi-level hotel towers, a conference centre and additional ancillary infrastructure within the Brisbane Domestic Terminal Precinct. The proposed development footprint and layout is provided in Appendix A.

The proposed hotel development site is located on Dryandra Drive on a relatively level asphalt paved existing car park currently being used for a public pick up waiting area and over height vehicle parking. It is located beside the long stay multi-level car park at the Brisbane Domestic Terminal. The key aspects of the hotel development include:

- An iconic 5 star hotel that is to include 10 levels of accommodation and offer in the region of 125 rooms;
- A proposed 9 level 3.5 star hotel offering in the region of 225 rooms;
- State-of-the-art conference facilities (an estimated 1400sqm) and ancillary uses as suggested in the 2009 Airport Master Plan’s intended uses for the precinct;
- An innovative, flexible building design that will incorporate best practice sustainability strategies; and
- A sizeable shared basement car park (approximately 133 car spaces);

The proposed development will generally be in accordance with the location, dimension and specifications outlined in this report.

1.2 Report Structure

Section 2 outlines the proposed development that is the subject of this MDP in terms of its architectural design, car parking and vehicle access arrangements, and landscaping. Section 3 outlines the statutory framework within which the MDP sits, having regard to relevant federal, state and local legislation and policy. Section 4 defines the scope of the assessment and the methodology used in the assessment of possible impacts associated with the proposal. Section 5 outlines the baseline environmental and social conditions on the proposed site and classifies the potential environmental and social impacts of the proposed development. Sections 6 & 7 conclude the report by providing a summary of the sustainability elements and environmental effects of the proposal.

1.3 Project Proponent

All works associated with the proposed development are on land within the existing boundary of the Brisbane Airport. Brisbane Airport Corporation (BAC) is an “airport-lessee-company” under the Airports Act 1996. The proponent for this proposed MDP as defined under the Act is:

Brisbane Airport Corporation Limited
11 The Circuit
Brisbane Airport Qld 4008

The contact in connection with this proposal is Terry Rossitto, Infrastructure Development Manager, telephone (07) 3406 3000.
2.0 PROJECT DESCRIPTION

2.1 Project Summary

The proposed hotel development site is located on Dryandra Road and currently used for car-parking. The site is located beside the multi-level car park at the Brisbane Domestic Terminal.

The key aspects of the hotel development include:

- An iconic 5 star hotel that is to include 10 levels of accommodation and offer in the region of 125 rooms;
- A proposed 9 level 3.5 star hotel offering in the region of 225 rooms;
- State-of-the-art conference facilities (an estimated 1400sqm) and ancillary uses (as suggested in the 2009 Airport Master Plan’s intended uses for the precinct); and
- A sizeable shared basement car park (approximately 133 car spaces).

Detailed plans of the proposed development are provided in Appendix A. These components of the development are discussed in further detail in the following sections.

Key drivers for the location and configuration of the proposed development site include:

- Direct access to the Brisbane Domestic Terminal;
- Consistency with the objectives of the Brisbane Domestic Precinct, as outlined in the 2009 Master Plan;
- Minimal overall effect on existing environmental values recognised on the airport site and uniformity with the Airport Environment Strategy 2009-2014 (AES);
- Location does not compromise the long-term operational and safety needs of the airport;
- Complementary to adjoining existing and proposed land uses;
- Convenient and easy access to transport options to the Brisbane CBD and surrounding suburbs;
- An access design that ensures the safe and convenient vehicular access whilst not compromising the safe access to exiting parking arrangements at the Domestic Terminal; and
- The ability to respond to key market segments in the visitor and conference segments of the tourism markets.

2.1.1 Hotel Development

At the heart of the new development will stand two short-term accommodation (hotel) towers with ancillary uses. The proposed 5 star hotel, at a height of 47m, will have capacity for around 125 rooms. A 3.5 star hotel, at a slightly lower height (9 accommodation levels), will cater for an estimated 225 rooms.

The innovative flexible building design incorporates a large mutual basement car parking arrangement. The main entry levels of both hotels have been impressively designed to include a main foyer (with overlooking mezzanine floors) and food and beverage outlets. The remaining levels of the buildings have been designed to include a range of accommodation room types.

2.1.2 Conference Facilities and Associated Uses

A key marker in the development will be the conference facilities with ancillary uses. The impressive ground level design will represent a benchmark in sustainable architecture incorporating landscape features reflective of the key objectives of the Brisbane the BAC Landscape Master Plan July 2009 (rev. January 2012).

The design accommodates a number of possible configurations (e.g. combination of conference rooms, boardrooms and small meeting rooms etc.). It is expected that most functions would accommodate between 10 and 200 people. It is anticipated that the demand for the use of the small meeting room configuration will be greater than the full use of the conference rooms for the gathering of large groups in excess of 200.
2.1.3 Car Parking and Access Arrangements

The development proposes a primary point of access from Dryandra Road with the secondary driveway proposed on Alpinia Drive. The Alpinia Drive driveway will be restricted to service vehicles exiting the site. All vehicles (i.e. taxis, shuttle bus, coach etc.) moving guests from the Domestic Terminal to the hotel will likely approach the site from the south on Dryandra Road. A roundabout is proposed on Dryandra Road just north of the hotel to allow these motorists to perform a u-turn and access the site.

The proposal includes a basement car park comprising of approximately 133 spaces with the potential for a further 10 -15 spaces (including set-down) at ground level. The total parking supply is approximately 143 spaces. With the majority of guests arriving by aircraft and BAC providing a car park for staff working at the Airport, there should be sufficient parking to accommodate the anticipated demand. The parking layout and servicing area has been designed generally in accordance with AS2890.1 “Off-street car parking” and BAC’s Development Control Document.

2.2 Project Justification and Objectives

The ability of BAC to continue to provide robust financial returns for its shareholders and the ability for the airport to maintain its important position as a regional employment generator within the Australia Trade Coast area relies heavily on timely and efficient growth occurring at the airport. To achieve these goals, BAC recognises that diverse revenue streams, in addition to proficient use of its resources is required during the life span of the 2009 Master Plan.

BAC’s vision for the airport states that the Brisbane Airport will:

- continue its development as a Premier Gateway Airport, serving as a major intermodal transport hub for passengers and freight in the Asia-Pacific region;
- continue to develop as a major centre for aviation maintenance and training for the Asia-Pacific region;
- be one of the principle generators of economic growth and employment for the South-East Queensland region; and
- achieve a balance between the economic benefits of growth and development and the environmental and social impacts of such growth.

Brisbane Airport is a significant place of employment in the region with forecasts indicated that the airport will have over 50,000 employees by 2029 and will contribute some $2 billion to the regional and state economies.

The proposed development is set to create a viable and much needed service facility at the airport and has a nexus with the Domestic Terminal operation and aviation services. Its inclusion within the Domestic Terminal precinct will continue to maintain the overarching planning objective of the airport as a key regional employment generator.

BAC’s vision for the site will allow for the productive use of the land, supporting economic development and employment creation in the Brisbane Region. It is estimated that the hotel and conference uses will create in excess of 300 staff positions post-construction, creating a strong viable business to support the airport objectives. An example of possible full-time/part time and casual staffing requirements for the development post construction are shown below:

<table>
<thead>
<tr>
<th>Department</th>
<th>Staffing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>14</td>
</tr>
<tr>
<td>Finances/HR/Marketing</td>
<td>17</td>
</tr>
<tr>
<td>Purchasing/IT</td>
<td>4</td>
</tr>
<tr>
<td>Front Office Housekeeping</td>
<td>130</td>
</tr>
<tr>
<td>Kitchen</td>
<td>52</td>
</tr>
<tr>
<td>Banquets/Food Beverage</td>
<td>81</td>
</tr>
<tr>
<td>Maintenance/Gardens</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total estimate staffing</strong></td>
<td><strong>304</strong></td>
</tr>
</tbody>
</table>
It is estimated that approximately 200 job opportunities are likely to also be generated during the construction phase of the development, both on and off the site. Not only will the proposed hotel development contribute towards job creation on site, but will additionally support the local and regional economies through the demand for day to day goods and services needed to operate the proposed facilities.

During 2012, Brisbane Marketing, working closely with the State Government through the Department of Tourism, Major Events, Small Business and the Commonwealth Games (DTESB), commissioned research which forms part of a newly released ‘Guide to Hotel Investment in Brisbane’. The report suggests that the Brisbane hotel market is currently not keeping up with demand for accommodation. To meet the predicated forecast demand an additional 300 rooms per year to the year 2022 will be necessary. Further to this, to meet the State Government’s growth targets of doubling overnight visitor expenditure by 2020, Brisbane will need 450 extra rooms per year. The report also confirms that in 2012 business travellers accounted for 52.7 per cent of the hotel visitor market.

In addition, March 2013 figures from the ABS indicate occupancy rates of existing Brisbane City hotels are typically above 75% through the year. Occupancy at this level strongly suggests that the market is ripe for new development.

Research also implies that business travellers look for full service branded hotels, so increasing hotels that capture and cater to the business traveller is more important than ever. Over the last few years, holiday and leisure travellers staying in hotels have also seen an increase in growth with a 10 percent growth recorded between 2011 and 2012. Although a decline has been seen in recent times due to discretionary spending being tightened in general, it is expected that tourist growth figures will return in the near future.

The proposed development will relieve the accommodation demand recognised throughout the Brisbane Region. The location of the hotel development at the airport site will in particular cater for business and international travellers who would not have normally used Brisbane as a stopover due to the lack of accommodation catered for in close proximity to the airport.

Although some of these business travellers may not necessarily venture into the Brisbane CBD to further their holiday, it is noted that the research indicates that domestic overnight visitors spend five times more than day trip visitors while international visitors spend three times more than domestic overnight visitors.

With these figures in mind, the domestic terminal is considered to be the ideal location for additional accommodation for the Brisbane region.

2.3 Location of Proposed Development

The proposed development site is located in the Domestic Terminal Precinct on Lot 2 RP84411, as per Figure 1 in close proximity to the Domestic Terminal. The site has frontage to Dryandra Road and Alpinia Drive.
2.4 Proposed Design

The design comprises of two buildings one being a 5 star hotel and the second building being a 3.5 star hotel and are set within a raised landscaped plaza. This plaza is the entry level for guests to the hotel foyers and conference centre which is positioned in between the hotel wings. The hotel car park is located in a partially buried basement concealed with landscaped earth berms. The orientation of the hotel wings maximizes city views and reduces the overall building mass.

The buildings have been orientated to maximise the amount of natural light entering the building and take advantage of the surrounding vistas while keeping airport safety at the forefront of all design decisions. The proposed building heights have been designed to respect the Inner Horizontal Surface of the Obstacle Limitation Surface limits.

The hotel proposal incorporates a covered pedestrian link which commences at the hotel entries at podium level. A covered wheelchair compliant ramp is situated along the south eastern boundary and meets up with the existing link to the terminal. **Figure 2** locates the pedestrian link to the terminal building from the proposed development.
2.4.1 Building Materials

The contemporary design and exterior material selections reflect the building location within a modern, fast-paced airport environment. The proposed external finishes schedule in Table 1 below.

**TABLE 1: PROPOSED EXTERNAL MATERIAL SELECTION**

<table>
<thead>
<tr>
<th>Item/Location</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(1) 5 STAR HOTEL</strong></td>
<td></td>
</tr>
<tr>
<td>External Walls</td>
<td>Texture Paint on walls/ tinted Reinforced Concrete</td>
</tr>
<tr>
<td>Ground floor glazing</td>
<td>Clear toughened glass in powder coated aluminium frame</td>
</tr>
<tr>
<td>Level 1 -10 glazing</td>
<td>Tinted glass with external glass sunscreens in power coated aluminium frame</td>
</tr>
<tr>
<td>Roof plant walls</td>
<td>Powder coated aluminium screen/louvers</td>
</tr>
<tr>
<td>Roof slab</td>
<td>Exposed waterproof membrane on Reinforced Concrete slab/Colourbond metal deck roof</td>
</tr>
<tr>
<td><strong>(2) 3.5 STAR HOTEL</strong></td>
<td></td>
</tr>
<tr>
<td>External Walls</td>
<td>Texture paint on walls/tinted Reinforced Concrete</td>
</tr>
<tr>
<td>Ground Floor glazing</td>
<td>Clear toughened glass in powder coated aluminium frame</td>
</tr>
<tr>
<td>Level 1 -10 glazing</td>
<td>Tinted glass in powder coated aluminium frame</td>
</tr>
<tr>
<td>Roof Slab</td>
<td>Exposed waterproof membrane on Reinforced Concrete slab/Colourbond metal deck roof</td>
</tr>
</tbody>
</table>
TABLE 1: PROPOSED EXTERNAL MATERIAL SELECTION

<table>
<thead>
<tr>
<th>Item/Location</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) CONFERENCE</td>
<td></td>
</tr>
<tr>
<td>External walls</td>
<td>Texture paint on reinforced concrete walls</td>
</tr>
<tr>
<td>Ground floor glazing</td>
<td>Clear toughened glass in powder coated aluminium frame</td>
</tr>
<tr>
<td>Roof plant walls</td>
<td>Power coated aluminium screen/louvers</td>
</tr>
<tr>
<td>Roof Slab</td>
<td>Exposed waterproof membrane on Reinforced Concrete Slab/Colourbond metal deck roof</td>
</tr>
<tr>
<td>(4) GENERAL</td>
<td></td>
</tr>
<tr>
<td>Car park walls</td>
<td>Textured paint on reinforced concrete</td>
</tr>
<tr>
<td>Podium floor finishes</td>
<td>Floor paving/tiles/stones/coloured concrete/soft landscaping</td>
</tr>
</tbody>
</table>

2.4.2 Occupational Health and Safety

Occupational health and safety requirements within and adjacent to the proposed development site will be in accordance with relevant BAC, Commonwealth Federal Government Agency Requirements and all applicable statutory requirements including the Queensland work health and safety legislation; the Work Health and Safety Act 2011, and Work Health and Safety Regulations 2011 and the 11 new national codes of practices that have been adopted within Queensland as part of the harmonisation process.

2.4.3 Equity of Access

Provisions for mobility-impaired people within the building will comply with the applicable codes, including the Premises Standards and Disability Access provisions of the BCA.

2.4.4 Energy Efficiency Considerations

The building will be designed having regard to the mandatory performance requirements. During the design process, the development will investigate means of adopting energy efficiency techniques in the building design where cost effective.

2.4.5 Landscaping

The landscaping of the site will be in accordance with Appendix A (a) of the BAC Landscape Master Plan July 2009 (revised January 2012, Rev 3) and will utilise a selection of planting imperative to the character and operational safety of the airport.

2.5 Project Development Phases

2.5.1 Roads and Services

The proposed development will involve, but not limited to, major earthworks, installation of services, construction of building foundations, basement infrastructure, construction of internal pavements for vehicular circulation and parking and all associated kerbs, associated road works, footpaths, landscaping, lighting and security fencing that meet industry standards.

Earthworks will involve the adjustment of existing ground levels as required. The proposed development will meet Minimal Development Levels for flood immunity. Prior to the large excavation works required for the basement car parking and ancillary uses, the appropriate approvals will be sourced from the Airport Building Controller to ensure that no disruption to existing airport services occurs.
2.5.2 Building Works and Site Works

Foundations for structures will be typical for this type of building and may require piled solutions. All floor levels will be set to the minimum development level for flood immunity.

Services including sewer, water, power and communications will be extended from connections at the perimeter of the site. It is proposed that these services will be installed in trenches and will extend into and under the proposed building structures. Works will include installation of conduits, cables, pipes and fittings as well as the construction of manholes, substation and ancillary infrastructure.

Stormwater drainage infrastructure will be constructed to service the building and will likely involve infrastructure such as pipework, manholes, gully pits and water sensitive design measures.

External yard and crossovers to the site will be constructed to the standards of BAC.

Water Sensitive Urban Design (WSUD) principles will be considered in the development of the detailed drainage concept and designed in accordance with the relevant BAC strategies and documentation. The intention of incorporating water sensitive design principles will be to give due consideration to the likely receiving waters and to satisfy current practice in terms of standard development requirements.

Finishing works will include planting and landscaping, security fencing, access control equipment and the commissioning of services.

Building compound/site office options include use of vacant BAC land across both Alpinia Drive and Dryandra Road. A number of potential compound sites may be possible across Dryandra Road where impacts can be readily contained and/or mitigated and providing ready access to the development site. Depending on the timing of future projects adjoining the site, the opportunity also exists to co-locate a building compound with contractors associated with those future development projects.

2.5.3 Indicative Timing of Proposal

Subject to approvals, the cumulative design and construction program is as shown in Table 2 below is suggested:

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Design and Documentation Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Detailed Design</td>
<td>December QTR 2013</td>
</tr>
<tr>
<td>- Construction Documentation (including approval phase)</td>
<td>June QTR 2014</td>
</tr>
</tbody>
</table>

| Phase 2 | Construction Phase | July 2014 – February 2016 |

| Phase 3 | Transitional Phase and Commissioning | March 2016 |


3.0 LEGISLATIVE CONTEXT

The following sections provide an overview of relevant legislation and policy for the hotel development domestic terminal precinct. As BAC holds a long-term lease over the Brisbane Airport from the Commonwealth Government all building and development activities are regulated by Commonwealth legislation consisting of, but not limited to:

- **Airports Act 1996 (Cth);**
- **Airports Regulations 1997 (Cth);**
- **Airports (Building Control) Regulations 1996 (Cth);**
- **Airports (Environment Protection) Regulations 1997 (Cth);**
- **Environment Protection and Biodiversity Conservation Act 1999 (Cth);**
- **Workplace Health and Safety Act 2011 (Qld);**
- **Environmental Protection Act 1994 (Qld)**
- **Airport (Protection of Airspace) Regulations 1996**
- **Civil Aviation Safety Authority Manual of Standards – Part 139 Aerodromes**

3.1 Consistency with Commonwealth Legislation

3.1.1 Airports Act 1996

The **Airports Act 1996** requires an MDP to be prepared for each major development at a regulated airport. Section 89 of the Act prescribes those activities that are included as a ‘major airport development’. The proposed development outlined in this MDP is defined as a ‘major development’ by virtue of Section 89(1):

(e) constructing a new building, where:

(i) the building is not wholly or principally for use as a passenger terminal; and

(ii) the cost of construction exceeds $20 million or such higher amount as is prescribed.

Section 90 of the **Airports Act 1996** provides that major airport developments must not be carried out except in accordance with an approved MDP.

This document has been prepared in accordance with and in order to meet the requirements of **Airport Act 1996**.

The key steps in the approved process for an MDP is presented in **Figure 3**. An MDP checklist is provided in **Appendix B** to demonstrate the compliance this proposed development with Section 91 of the **Airports Act 1996**.
FIGURE 3: MDP APPROVAL PROCESS

Note: The MDP approval protocols subject to provisions contained under the Commonwealth Airports Act 1996. The Minister is responsible for deciding whether to grant approval or refuse the MDP.
3.1.2 Environmental Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the Act as matters of national environmental significance which include:

- World Heritage properties;
- National Heritage properties;
- Wetlands of international importance;
- Nationally threatened species and communities;
- Migratory species;
- Nuclear actions;
- Commonwealth marine environment; and
- Any additional matters specified by the regulations.

The EPBC Act also protects the environment on Commonwealth land and regulates those actions of Commonwealth departments and agencies that may have a significant impact on the environment. As Brisbane Airport is located on Commonwealth land it is subject to the provisions of the EPBC Act. Advice received from the Department of the Environment confirms that the proposed development will not require assessment under subdivision A of Division 4 of Part 11 of the EPBC Act.

3.2 Pre-existing Airport Land

When BAC became the airport-lessee company for Brisbane Airport in July 1997, it assumed certain pre-existing lessee obligations under various leases. BAC also became the head-lessee under the airport lease subject to a number of other interests in the airport land (such as easements). Some of those contractual and other rights remain in existence. Others have expired.

There are no such contractual or other rights affecting the site of the proposed hotel development.

3.3 Consistency with Airport Lease

An essential requirement of the lease is that the lessee must comply with all legislation relating to the airport site. In particular, Section 91 (1A) of the Airport Act states that all major development is to be consistent with the airport lease.

BAC, as the Airport Lessee Company for Brisbane Airport, has an obligation to ensure all developments on airport land are consistent with the legislation and development to maintain appropriate urban planning and ensure safe and sustainable outcomes. In particular, BAC must confirm that any proposal on airport land is consistent with:

- The final Master Plan for the airport;
- Any approved Major Development Plan for the airport (Airports Act 1996, section 89), if applicable;
- The approved Airport Environment Strategy;
- BAC’s planning objectives for the airport; and

The proposed hotel development contained in this MDP is deemed consistent with the above documents and in particular the Brisbane Airport Master Plan 2009 and its land use intents.

With BAC’s guidance, the development will be constructed in line with the provisions of the Airports (Building Control) Regulations 1997 and Airports (Environment Protection) Regulations 1997 in accordance with lease requirements.
3.4 Consistency with the Brisbane Airport Master Plan

The 2009 Brisbane Airport Master Plan provides the planning framework for the development of the site until 2029. Approved by the Federal Minister on 16 September 2009 the Master Plan sets out land use zonings that reflect the intended uses within the leased airport site.

The proposed hotel development is located within the Domestic Terminal Precinct (which has a total development area of approximately 49 hectares (not including roads and easements). The overall outcomes of the Precinct are as follows:

The Brisbane Domestic Terminal is the focal point of this precinct. This precinct is expanding to service the expected significant growth of domestic passengers and freight through Brisbane Airport. The Common User Terminal is a significant component of the Domestic Terminal expansion. This Special Purpose Centre allows for a range of land uses to efficiently serve Airport users and aviation activity, including commercial office building, retail, hotel and additional car parking.

The proposed hotel development will include a range of intended uses as set out in the Master Plan and may include the following ancillary uses – hotel, restaurant, food premises, function centre, visitor accommodation, car park etc.

The proposed development is considered to achieve the intent of the Brisbane Airport Master Plan by:

- Improving the range of services and facilities available in the Domestic Terminal Precinct to both on-airport workforce and visitors;
- Servicing the expected growth of domestic and international passengers;
- Addressing the needs of car parking demands at the Domestic Precinct by providing alternative car parking arrangements for users of the proposed development;
- Continuing to allow the control tower to function at the highest safety level;
- Contributing to future employment projections for the Australia Trade Coast by creating an estimated employment base in excess of 300 employees;
- Creating a built form that creates a strong sense of place while at the same time enhances the scenic amenity of the Brisbane Domestic Precinct;
- Providing highly visible directional signage that will guide traffic movement to the terminal in the safest manner possible;
- Providing a development that achieves BAC’s overall vision for the Domestic Terminal Precinct and the development objectives for the Brisbane Airport.

The proposed development of the site for accommodation and conference facilitation (with ancillary uses) are considered appropriate land uses that will efficiently serve airport users and aviation employees.

It is concluded that the proposed development achieves satisfactory compliance with the land use intent for the Special Purpose Centre Airport zone and the zoning outcomes of the Domestic Terminal Precinct.

3.5 Consistency with Brisbane Airport Environmental Strategy

The 2009 Brisbane Airport Environment Strategy (2009 AES) approved on 19 August 2009, provides a framework for environmental management at Brisbane Airport. The 2009 AES was prepared in accordance with Part Division 2 of the Airports Act 1996. It addresses issues such as environmentally significant areas, sources of environmental impact and environmental management.

The proposed development is consistent with the 2009 AES and does not affect areas identified as ‘environmental significant sites’.

BAC accepts responsibility for ensuring the implementation of environmental management measures proposed to mitigate environmental impacts identified in this MDP during construction and operation. This is to be achieved through the submission of this MDP and requiring a construction environmental management plan (CEMP) to be prepared and implemented by the construction contractor. The CEMP will be endorsed by BAC prior to issue to the AEO.
3.6 Consistency with State and Local Government Planning

Being Commonwealth land, planning requirements for the airport land are administered under the Airports Act 1996 and other relevant legislation such as the EPBC Act. As a result, state and local planning development provisions are not applicable to development occurring at the airport.

The Act, does however, require that a MDP must address where possible, the extent (if any) of any inconsistencies with planning schemes in force under a law of a State or Territory in which the airport is located. This requirement is addressed below.

3.6.1 State Planning Policies

In the preparation of this MDP, regard has been given to the State Planning Policies (SPPs) that would apply to the Brisbane Airport if it were governed by State legislation.

- State Planning Policy 1/02: Development in the Vicinity of Certain Airports and Aviation Facilities (SPP1/02)
- State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulphate Soils (SPP2/02)
- State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP1/03);
- State Planning Policy 4/10: Healthy Waters (SPP4/10); and

The Queensland Government is currently committed to establishing a simplified approach to SPP’s. This commitment has involved a review of all SPP’s and the consolidation of them into one single SPP. The single SPP is currently in draft form and is undergoing a review process (public consultation closed on the 12 June 2013). For the purpose of this draft MDP, reference is made to the existing single SPP arrangement. The final SPP is not expected to be released until late 2013.

3.6.1.1 State Planning Policy 1/02: Development in the Vicinity of Certain Airports and Aviation Facilities

The State Government recognises that development can adversely affect airports, aircraft operations and the functioning of aviation facilities both directly and indirectly. It is therefore essential that airports together with aviation facilities are protected from development for safety and operational efficiency reasons.

Compliance of the proposed development with SPP1/02 is demonstrated below:

- BAC has addressed the requirements of the SPP 1/02 through their 2009 Brisbane Airport Master Plan;
- The proposed development is located within an area identified in the Master Plan as being suitable for commercial building purposes;
- The building’s design and location does not affect or impact the safety, operational efficiency and aviation facilities; and
- The proposed development will not result in any people or hazardous materials being located within any approved public safety areas of the Brisbane Airport.

3.6.1.2 State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulphate Soils

The purpose of SPP 2/02 is to ensure that development involving sulphate soils (ASS) in low-lying coastal areas is planned and managed to avoid adverse effects on the natural and built environment and human health.

The coastal location of the Brisbane airport pertains to ASS conditions occurring commonly across the site. BAC’s approach to the management of ASS is consistent with SPP2/02 in that thorough on site investigations are carried out for all development. Where ASS is identified, a detailed ASS Management Plan is required to be included as part of an Environmental Management Plan (EMP) for the project.
Any detailed ASS Management Plan will be developed in accordance with the following Queensland Government standards and guidelines:

- The Queensland Acid Sulphate Soil Technical Manual; and

BAC Airport Environmental Strategy 2009 also implements management guidelines to address acid sulphate soil issues.

3.6.1.3 State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

This SPP 1/03 is intended to ensure that the natural hazards of flood, bushfire and landslide are adequately considered when making development related decisions. In the case of Brisbane Airport, the conceivable natural hazard events are flood and storm tide.

BAC has undertaken detailed flood assessment as part of the 2009 Airport Master Plan and with the 2007 MDP associated with the proposed new parallel runway. The detailed flood assessment work has provided the year 2100 flood immunity levels at which the hotels will be constructed to. It should be noted that minor flooding will occur in some areas of the existing car park. It is expected that BAC will carry out rectification works in the future to resolve any potential flooding issues which may occur. The Minimum Development Level is approximately 4.5m (metres airport datum) (refer to section 5.1.1.1).

3.6.1.4 State Planning Policy 4/10: Healthy Waters

The SPP for Healthy Waters seeks to improve water quality in waterways by ensuring planning and development assessment under the Sustainable Planning Act 2009 incorporates the environmental values of the Environmental Protection (Water) Policy 2009.

The SPP is triggered for a material change of use for urban purposes that involves greater than 2500 m2 of land. The policy outcome is achieved for development where it “avoids or minimises development impacts arising from altered stormwater quality of flow by providing for development and construction activities in accordance with acceptable design objectives”.

Part A of the Development Assessment code sets out performance outcomes PO 1-4 which are to be satisfied. These performance outcomes cover water quality protection and protection of natural flows. Existing systems are in place across the airport address both of these issues. Any changes as a result of this proposed development have been addressed in the Section 5.3 of this report.

3.6.1.5 State Planning Policy 5/10 Air, Noise and Hazardous Materials

The SPP for Air, Noise and Hazardous Materials (5/10) ultimately seeks to ensure that industrial land is located to protect communities and individuals from the impacts of air, noise and odour emissions and the impacts from hazardous materials as to protect industrial land from the encroachment by incompatible land uses.

Any impacts as a result of this proposed development have been addressed in the Section 5.4 of this report.

3.6.1.6 Coastal Protection State Planning Regulatory Provisions

The Coastal Protection State Planning Regulatory Provision (the SPRP) sets out the requirements for ensuring coastal protection in Queensland and came into effect on 26 April 2013. The SPRP is intended to be in effect until late 2013.

BAC appreciates the sensitive nature of the coastal environment in which the airport is located. As a result, strong cooperative relationships have been formed with a number of environmental parties with interests and expertise in coastal management matters (including marine habitat issues, migratory shorebirds and water quality).

As outlined in the 2009 Brisbane Airport Master Plan, BAC’s internal planning processes and the Airport’s Environment Strategy are consistent with the coastal management outcomes sought by the State Coastal Plans.
The AES in particular sets out key objectives in protecting and maintaining both water quality as well as coastal ecosystems. The proposed development is considered consistent with the Airport’s Environment Strategy.

3.6.2 Brisbane City Plan 2000

The Brisbane City Council (BCC) is currently committed to the release of a new City Plan known as the (ePlan). The current draft in circulation highlights Council’s plan for the future development of Brisbane. It guides how land in Brisbane can be used and developed and the planning of infrastructure.

Council has recently completed the statutory public notification period. Given the current review status of the draft ePlan, assessment against the current City Plan 2000 has been completed below:

According to the Brisbane City Plan 2000, airport land is designated a “Special Purpose Centre” within its land use categories. A Special Purpose Centre, as designated by the City Plan, is used for an area that is designated for a very Specific Purpose. Some examples of ‘Special Purpose Centres’ include (but not limited to) major hospital and medical facilities, major educational and research facility, major defence and communications facility, sporting stadiums, entertainment centre, airport and port facilities.

In particular, the Brisbane City Plan refers to the Airport land as SP6. This refers to a use of premises for:

- the landing and/or departure of aircraft;
- the housing, servicing, maintenance and repair of aircraft;
- the assembly and dispersal of passengers/goods on or from aircraft; and
- any ancillary activities serving the needs of passengers and visitors to the airport, such as shopping, food outlets and tourism services extracted from Brisbane City Plan 2000).

As the proposed development is an extension to existing ancillary services in the Domestic Terminal Precinct and will service the needs of visitors and the airport workforce, it is considered compliant with the relevant Desired Environmental Outcomes for Special Purpose Centres.

The desired environmental outcomes (DEO’s) for a Special Purpose Centre are listed in the Table 3 below:

<table>
<thead>
<tr>
<th>DEO’s for a Special Purpose Centre</th>
<th>Hotel Development in Brisbane Domestic Terminal Precinct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special purpose development is clustered in Special Purpose Centres with developments in each Centre contributing to the primary focus specified for that Centre on the Scheme Maps.</td>
<td>The proposed hotel development will act as an ancillary activity on the airport site which will serve the needs of passengers and visitors using the airport’s facilities. The primary focus of the airport as a facility for the landing and/or departure of aircraft will remain unchanged and will continue to be the primary focus of the airport land.</td>
</tr>
<tr>
<td>Special Purpose Centres are supported and promoted by infrastructure and ancillary uses and support services of an appropriate size to directly serve the employees and activities of the Centre.</td>
<td>As mentioned above, the proposed hotel development will be an ancillary use to the airport terminal and will align with existing activities at the airport. The proposed addition of a hotel on the airport site is entirely consistent with the strategic policy direction of both the SEQ Regional Plan as well as the Brisbane City Plan 2000 as it provides an avenue for the generation of employment in a recognised Specialist Activity Centre.</td>
</tr>
<tr>
<td>Public transport, bike and pedestrian access to the centre is maximised and, where abutting a Multi-purpose Centre, well integrated by way of these forms of access, vehicular access and through common urban design themes.</td>
<td>The proposed design and location of the hotel development has carefully considered the public transport availability at the airport. The proposed site location enables an integrated access to the Airtrain to the CBD. The Airtrain domestic station being located just outside the domestic terminal building. The proposed development also recognises the bike and pedestrian access routes outlined in the 2009 Master Plan.</td>
</tr>
</tbody>
</table>
The airport is also recognised in the *Brisbane City Plan 2000* as being within the boundaries of the Australia Trade Coast. Within this local area, the land is zoned as the ‘Airport Precinct’ and ownership by BAC is recognised. The City Plan acknowledges the importance the Master Plan plays in determining the appropriate land use on the site and highlights that development should have a nexus with airport activities.

Further, as the proposed development is consistent with the intended land uses outlined in the Brisbane Airport 2009 Master Plan, the proposal is considered to comply with the Australia Trade Coast Local Area Plan (Airport Precinct).

### 3.7 Airport Development and Building Approvals

Any proposed new development on Brisbane Airport land is subject to an internal BAC approval process and a Building/Works Permit Application to the appointed Airport Building Controller (ABC).

This cannot be issued without consent from BAC as required under the Airports (Building Control) Regulations 1996 confirming that the new development is consistent with:

- Brisbane Airport Master Plan;
- Brisbane Airport Environment Strategy (AES);
- Approved Major Development Plan; and
- Planning Objectives for the Airport.
4.0 ASSESSMENT METHODOLOGY

4.1 Assessment Scope

This section of the report discusses the potential environmental and socio-economic impacts of the proposed development during the construction and operational phases. Mitigation measures for managing impacts are discussed and are based on recognised current best practises.

The scope of the assessment includes consideration of the following environmental and social factors:

- Geology, Soils and Topography;
- Ecology;
- Hydrology and Water Quality;
- Air Quality and Odour;
- Noise;
- Land Use;
- Landscape;
- Social and Economic Issues;
- Cultural Heritage;
- Waste;
- Traffic and Parking;
- Hazardous Goods;
- Aviation Safety;
- Sustainability Considerations.

4.2 Document Review

The majority of the assessment of impacts in this report has been undertaken with reference to previous studies undertaken for approved MDPs on Airport Land, the 2009 Master Plan developed for Brisbane Airport and additional site specific studies. In addition, the legislation and literature outlined in Section 4.2.1 has been reviewed in the development of this MDP.

4.2.1 Literature

A desktop review was carried out of the following documentation:

- BAC (2009) Airport Environment Strategy (2009 AES);
- ERM (2002) *Brisbane Airport Vegetation and Condition Assessment*;
- Brisbane City Plan 2000;
- BAC Noise Impact Assessment Policy;
- BAC (2012) Ground Transport Plan;
- Cambray Consulting (2013) *Airport No 2 Traffic Report*;
- Douglas Partners Pty Ltd (2013) Report on Site Contamination Investigation for the Proposed Domestic Hotel and Commercial Precinct, Dryandra Road, Brisbane Airport;
- Queensland State Planning Policies;
- Brisbane Airport Corporation (2009) Landscape Master Plan July 2009 (Rev 2012);
- CASA Manual of Standards Part 139 – Aerodromes;
- CASA Advisory Circular No AC 139-5(1);
- Airports (Environment Protection) Regulations 1997 Sect. 4.01, 4.03, 4.04, 6.02, 6.03, 6.04, 6.05, 6.06, Schedule 1;
- Ozone Protection Act 1989;
- National Greenhouse and Energy Reporting Act 2007 (NGER Act);
- National Environmental Protection Measure (NEPM) for Ambient Air Quality;
- Airports Act 1996;
4.2.2 Assessment Technique

To assist in the assessment of potential impacts identified in this report and to ensure consistency between topics, significance criteria have been defined which follow the generic framework shown in Table 4. The use of significance criteria to assess impacts is a standard technique applied in impact assessments of this nature and is an approach that has been consistently used by BAC in MDPs at Brisbane Airport. This approach enables different topics (i.e. noise and ecology) to be assessed in a consistent manner against the same criteria which are set in an ascending scale of potential impact and ability to mitigate those impacts.

<table>
<thead>
<tr>
<th>Significance</th>
<th>Impact Classification</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Impact a major problem</td>
<td>Environmental effects are likely to be important considerations at a local scale but if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision making process. Considerable adverse change to current amenity, lifestyle and everyday community activities. Mitigation measures and detailed design work are unlikely to remove all the effects upon the affected communities or interests. Residual effects would predominate.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Impact moderate but liveable for most people</td>
<td>These effects, if adverse, while important at a local scale, are not likely to be key decision making issues. Nevertheless, the cumulative effects of such issues may lead to an increase in the overall effects upon a particular area or on a particular resource. Noticeable adverse change to current amenity, lifestyle and everyday community activities but with scope for mitigation. They represent issues where effects would be experienced but mitigation measures and detailed design work may ameliorate/enhance some of the consequences upon affected communities or interests. Some residual effects would still arise.</td>
</tr>
<tr>
<td>Low</td>
<td>Impact recognisable but acceptable</td>
<td>These effects may be raised as local issues, but are unlikely to be of importance in the decision making process. Nevertheless, they are of relevance in enhancing the subsequent design of the project and consideration of mitigation measures. There may be localised or limited noticeable change to current amenity, lifestyle or everyday community activities.</td>
</tr>
<tr>
<td>Negligible</td>
<td>Minimal Change</td>
<td>No effects or those which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.</td>
</tr>
</tbody>
</table>
5.0 ENVIRONMENTAL ASSESSMENT

This section discusses the potential environmental and socio-economic impacts of the proposed development during the construction and operational phases of the proposed development. Mitigation measures for minimising and/or managing these impacts are discussed as required under Section 91 of the Airports Act 1996.

BAC accepts responsibility for ensuring the implementation of environmental management measures proposed to manage environmental impacts identified during construction and operational phases of the development. Such is achieved through the approval of this MDP and the preparation of and implementation of a Construction Environmental Management Plan (CEMP) by the construction contractor. BAC will review and approve the CEMP documentation prior to issue to the AEO.

During operation of the development, BAC will be responsible for environmental management, monitoring and reporting.

5.1 Geology, Soils and Topography

5.1.1 Baseline Conditions

5.1.1.1 Topography

The proposed site is a developed site that has been subject to previous earthwork activities which have altered the site’s natural topographical profile. The existing site has a surface elevation of approximately 4.5m AD (metres airport datum) on the eastern boundary and slopes gently to approximately 3.5m AD towards the western boundary. The Minimum Development Level is approximately 4.5 AD. The finished floor level (FFL) must be determined by carrying out the appropriate risk assessment.

5.1.1.2 Geology

The proposed development site is part of the deltaic coastal plain shaped by the Brisbane River. The coastal sediments of the plain comprise of clay, silt and sand, sometimes with gravels near the base, and are of Quaternary age. The underlying geology is ascribed to the Petrie Formation of tertiary age. Beneath the Brisbane River delta this formation consists mainly of basalt and mudstone.

In particular, the subsurface conditions on the proposed site generally comprises of filling underlain by silty clay. Generally, the soils encountered during field work by Douglas Partners (2013) are considered to be alluvial in original and are in general agreement with the above soil description for the whole airport land (Douglas Partners Pty Ltd, 2013). No potential asbestos containing materials, asbestos fibres, soil staining or odours were observed during drilling or sampling.

5.1.1.3 Acid Sulphate Soils

Previous soil studies on the airport site have indicated the existence of acid sulphate soils (ASS) across the airport site as a whole. The proposed hotel site is located within the Domestic Terminal Precinct which is underlain by a layer of sand fill material between 1.5m and 2m deep across the site. There is a high chance that ASS will be present underneath the fill material. Consequently, it is imperative that soil conditions are identified at the preliminary stages of a development and are managed accordingly.

5.1.1.4 Contamination

As well as the management of ASS, a priority is the identification of contaminated soils on airport land. BAC retains a register outlining current or previously contaminated areas on airport land in line with National Environment Protection Measures.

The proposed development is located as part of Lot 2 on RP84416 which is currently listed on the Department of Environment and Heritage Protection (EHP) Environmental Management Register (EMR) for being subject to the following Notifiable Activity pursuant to section 374 of the Environmental Protection Act 1994:
Douglas Partners Pty Ltd (DP) was commissioned in April 2013 by BAC to conduct a site contamination investigation for the proposed hotel development site. The investigation aimed to identify if contamination existed on the site as a result of previous and or current land uses. The investigation was conducted through a desktop review of the site history, a visual site inspection, as well as sampling and laboratory analysis of soil and groundwater.


Field investigations, soil sampling and groundwater investigation were carried out in accordance with Australian Standards and regulations and the following conclusions were made:

• The available historical information indicated a potential for contamination related to imported filling material of unknown origin. However, sampling and testing of the filling material did not identify any contamination.
• No contamination has been identified in soil at the site.
• Some elevated concentrations of cobalt, manganese and nickel were identified in groundwater from MW1 and MW3 located on the western part of the site. However the concentrations of these metals do not correlate with soil samples taken in the vicinity.
• The source of elevated heavy metal concentrations discovered in a number of boreholes taken on the western side of the site could not be determined, however acid sulphate soil conditions may be the contributing factor.

5.1.2 Assessment of Impacts

The development will involve significant earthworks on the site to cater for the proposed shared car parking arrangement and proposed building design. The impact of the project on the soils during the:

• Construction Phase is considered a Low Risk (due to likely ASS); and
• Operational phase is considered a Negligible Risk.

Potential impacts of earthworks associated with a development of this nature and scale would be:

• Exposure of actual acid sulphate soils
• Potential undiscovered contaminated soils
• Erosion and sedimentation

These potential issues are further discussed below:

5.1.2.1 Acid Sulphate Soils

As with all development projects in the vicinity of the Airport the potential for ASS to occur is Moderate Risk if earthworks are not suitably managed. However this is a Manageable Risk. In the event that ASS is encountered during the proposed construction works this will be mitigated through the measures as outlined in Section 5.1.3.1

5.1.2.2 Contaminated Soils

Potential contaminated soils are considered Extremely Low as confirmed by site investigations outlined in Section 5.1.1.4.

5.1.2.3 Erosion and sedimentation

Beyond the discovery of ASS, the potential impacts during construction identified on the site with regards to the soil relates to potential movement and erosion either into waterways or through wind erosion. Management and
control actions shall be employed to meet the requirements of the 2009 Airport Environmental Strategy and the site-specific Erosion and Sediment Control Plan prepared as part of the CEMP. Any CEMP documentation will be prepared with BAC specifications in mind and the requirements the SPP4/10 Healthy Waters.

There are not expected to be any impacts to geology and soils during the operational phases as the site will have landscaping and no exposed soils. Thus the impact of the project on soils during operational phase is considered Negligible.

5.1.3 Mitigation Measures

As suggested in Section 5.1.2 the potential impacts of earthworks associated with the proposed development are:

- The high exposure of potential ASS during earthworks;
- Risk that additional contamination might be discovered during earthworks or excavations not identified during soil and groundwater monitoring; and
- The potential movement and erosion of soil either into waterways or through wind erosion.

The following mitigation measures are proposed to manage impacts upon the site’s soils during the project’s construction and operational phases.

5.1.3.1 Acid Sulphate Soils

As the basement works will require excavating greater than 2m depth there is a greater potential to generate ASS during construction works. In the event that ASS is encountered during the works, appropriate measures will be put into play to minimise and manage the ASS situation. Detailed mitigation measures (including location of stockpile treatment piles) will be included in the CEMP provided by any earthworks contractor and will be required to be approved by BAC prior to the start of any earthworks.

In the event that ASS is encountered during the works, best practice procedures such as the following will be utilised as a mitigation measure by approved contractors.

- The use of a lime trench adjacent to the site to prevent movement of acidic water into the adjoining drainage channel;
- Monitoring, and if necessary, treatment of groundwater discharged from the site;
- Monitoring of water in drainage surrounding during and following construction to check effectiveness of ASS management; and
- Lime neutralisation activities for exposed ASS.

In certain circumstances, BAC may consider alternative methodologies for the management and treatment of PASS/AASS conditions following consultation with relevant bodies in line with appropriate industry standards,

5.1.3.2 Contaminated Land

Although potential contaminated soil is considered negligible, adherence to procedures in the approved CEMP will minimise the risk of construction personnel being exposed to any potential discovered contaminants during construction and ensure the impacted area is remediated and validated.

5.1.3.3 Erosion and Sediment Control

Construction contractors will be required to develop a site-specific Erosion and Sediment Control Plan (ESCP) aimed at minimising stormwater water quality impacts from soil movement. These controls will be included in the CEMP and may involve the following where practicable:

- Compliance with the Queensland Urban Drainage Manual And Best Practice Erosion and Sediment Control (International Erosion Control Association);
- Minimisation of exposed areas of soil by earthwork staging;
- Establishment of temporary drainage controls in the construction areas;
- Establishment of silt fencing;
Stockpiling of potential pollutants away from sensitive drainage channels or stormwater drainage;
Cleaning of equipment or vehicles will not take place in location where polluted wash water can enter drainage;
Sediment fences along upstream and downstream edges to the site; and
Monitoring of water quality impacts as appropriate.

In summary, landscaping will be established on the site as soon as practicable following construction. The implementation of Water Sensitive Urban Design (WSUD) will reduce the amount of overland runoff and possible erosion during the operational phase of the development.

5.2 Ecology

5.2.1 Baseline Conditions

The site of the proposed hotel development has been utilised as a hard-stand car parking area for the Domestic Terminal for some time. Two main ecological studies have been undertaken at the Brisbane Airport site which specifically includes the Domestic Terminal Precinct.

• Brisbane Airport Vegetation and Condition Assessment, ERM September 2002; and
• Brisbane Airport Fauna Study, Lambert & Rehbein, December 2004

The reviewed fauna reports generally highlight a variety of terrestrial vertebrate species of bird, mammal, reptile and amphibian within or near the Brisbane Airport site, with a total of 45 being defined as “significant”. The habitats that generally support these “significant” species are not in close proximity to the proposed development and given the modified footprint as a car park, with low vegetation habitat options, it is unlikely that any significant fauna species would be found at the site.

The red imported fire ant is an invasive species that is a ‘Notifiable Pest’ under the Plant Protection Act 1989. Although recent surveys have not identified the presence of fire ants at the airport, the Airport is still a declared Fire Ant Restricted Zone and as such there are strict controls in place by the Department of Primary Industries (DPI) for the movement of materials to and from the airport site to prevent the spread of fire ants.

5.2.2 Assessment of Impacts

As discussed in section 5.2.1, the development site is highly modified with only limited landscaping plantings around the sites edges and a number of individual trees systemically planted between car spaces. Due to the low conservation value of the existing limited landscape, the clearing of this vegetation as part of the construction phases of the development has been assessed as Negligible.

The import and export of materials such as soil and mulch from the site will be undertaken in accordance with a DPI approved Risk Management Plan to prevent the spread of Fire Ants and will form part of the CEMP documentation.

During the operational phase, the proximity of the site to the domestic terminal will likely avert the establishment of any ecologically significant species. As a result the operational impact on ecology has been assessed as Negligible.

5.2.3 Mitigation Measures

The following mitigation measures are to be implemented as a minimum by the construction contractor throughout the construction phase and will form part of the CEMP documentation:

• The contractor will comply with Queensland Department of Employment, Economic Development and Innovation guidelines for the transport of soils and materials to prevent movement of Fire Ants onto the airport site, and to enable early treatment of Fire Ants should any be identified;
• Fill brought to the site will be certified clean fill in accordance with the requirements of the Airports Regulations and be free from weeds;
• No dogs or other animals will be taken on site;
• In the event that native fauna are injured or found during the works Queensland Parks and Wildlife will be contacted on (07) 3202 0200;
• Any weeds present on the site during construction will be identified and removed to prevent their establishment or spread; and
• The site will be landscaped with appropriate native species following construction to prevent the establishment of weeds and will be in accordance with the BAC Landscape Master Plan (2009).

5.3 Hydrology and Water Quality

5.3.1 Baseline Controls

Brisbane Airport is located between the Boggy Creek/Brisbane River and Kedron Brook catchments which discharge to Moreton Bay. These large catchments are subject to hydrology and water quality effects from sources upstream of the airport and therefore identifying the net effect of airport water quality downstream is difficult. BAC has therefore implemented a water quality monitoring programme to establish the general character of waters entering and leaving the airport.

The BAC 2009 Airport Environmental Strategy and its Water Management Action Plan indicates that BAC will:

“Proactively manage water in every facet of BAC activities including delivery, development and using water ‘fit for purpose’ … and minimising the impact of Brisbane Airport operations on surface water and ground water quality”

The Action Plan sets out the approach to maintain the BAC Water Quality Monitoring Program, the Water Efficiency Management Plan and achieving water sensitive urban design (WSUD) measures to proposed developments on the Brisbane Airport Site.

The closest monitoring location for the proposed hotel site is located at KB4 as per the BAC approved mapping. However the receiving environment for the site (where the water will flow) from the site to Moreton Bay is located at KB7.

5.3.2 Assessment of Impacts

The potential impact to water quality from the construction of the proposed development would be related to the potential for soil erosion and resultant sediment and or other pollutants to be discharged to stormwater.

Given the depth of excavation required for the basement structures, the interaction with groundwater flow regime will be closely monitored. Given the slightly greater potential for soil erosion, sediment runoff and pollutant runoff during construction, the impact on water quality during construction is considered Low Adverse.

In the operational phase, runoff would arise from hardstand areas surrounding the proposed development. This runoff may contain pollutants such as oils, fuels, hydrocarbon and phosphates. The proposed Water Sensitive Urban Design (WSUD) measures finalised during the design period will include measures that will reduce the amount of water released into stormwater systems.

The impact of the operation of the proposed development and on hydrology and water quality has been assessed as Negligible.

5.3.3 Mitigation Measures

WSUD measures will be incorporated into the detailed design of the proposed development. Any hydrological and stormwater quality issues that develop will be addressed, such as:

• Site flows to discharge points will be maintained;
• Minimum Development Level (MDL) is to be applied, unless the local drainage system has higher flood level constraints; and
• Site flows will discharge to existing WSUD measures or new measures provided.

Mitigation measures to minimise the impact to hydrology and water quality at the site during the construction phase will be implemented by the contractor and include as a minimum:
• Adherence to the erosion and sediment control measures outlined in Section 5.1.3 which will require construction contractors to develop site specific Erosion and Sediment Control Plan which may include such controls as the following:
  - Minimise exposed areas by staging earthworks were practicable;
  - Establishing temporary drainage controls in the construction area;
  - Establishing and maintaining silt fences; and
  - Stockpiles of potential pollutants to be located such that potential contaminants cannot enter drainage channels or stormwater drains.

• Machinery and equipment will not be washed at the site but excess sediment will be removed from wheels to prevent entrainment of sediment onto airport roads;

• Any chemicals, fuels or paints at the site will be stored in a designated bunded area to prevent spills from entering storm water channels;

• Refuelling of vehicles at the site will be conducted away from drainage lines and a spill kit will be kept on site to appropriately mitigate any spills; and

• In the event that groundwater is encountered during the works, it will be retained for testing prior to discharge from the site, and if necessary will be treated to prevent discharge of acidic waters from the site.

• Water quality objectives for the proposed development will align with the draft BAC Landside Stormwater Quality Management Strategy and be consistent with Technical Guidelines – Water by Design (Water Sensitive Urban Design Guidelines).

• During operation the installed WSUD devices will be maintained to ensure they function correctly to minimise and filter runoff from the site.

5.4 Air Quality and Odour

Air quality relevant to the Brisbane Airport is currently monitored by the Department of Environment and Heritage Protection (EHP) Pinkenba Station. Relevant Commonwealth Obligations pertain to:

• Airports (Environment Protection) Regulations 1997 Sect. 4.01, 4.03, 4.04, 6.02, 6.03, 6.04, 6.05, 6.06, Schedule 1;
• Ozone Protection Act 1989;
• National Greenhouse and Energy Reporting Act 2007 (NGER Act); and
• National Environmental Protection Measure (NEPM) for Ambient Air Quality.

5.4.1 Baseline Conditions

Brisbane Airport is situated next to some of Brisbane’s major industrial precincts which include oil refineries, chemical manufacturers and the Port of Brisbane. Pollutants discharged from these industrial facilities contribute to the quality of the local Brisbane Airport airshed.

BAC reviews the monthly air quality monitoring data from the Queensland Environmental Protection Agency’s (EPA) Pinkenba Site. Air pollutants monitored at the site include ozone, nitrogen oxides and sulphur dioxide, visibility reducing particulate matter and PM10.

As the development site is located within the bounds of the Brisbane Airport domestic terminal area the local airshed is primarily affected by emissions from aircraft engine exhausts and motor vehicle exhaust emissions. Industrial uses including oil refineries, major manufacturing industry and marine based industry (Port of Brisbane) are located to the southeast of the Airport.

5.4.2 Assessment of Impacts

During the construction works there is the potential for air quality to be impacted through the generation of dust. ‘Sensitive receptors’ to dust or noise impacts would include residential areas, hospitals and such developments as schools and childcare facilities. The subject site is well removed from sensitive receptors.

The commercial receptors around the domestic terminal and associated uses are unlikely to be affected by air quality emissions from the subject site.
The bulk construction earthworks will have appropriate control measures implemented using industry standard control measures which will minimize the potential for dust generation. Likely dust control measures during earthworks will include:

- Use of water cart to dampen exposed areas;
- Restricting operation of dust generation works of significance during periods of high winds;
- Minimise travel speeds on site; and
- Use of water sprays to unsealed areas as necessary.

Minor emissions will be generated as a result of construction machinery travelling to and from the site however in the context of existing traffic on adjacent roadways these impacts are not expected to be noticeable.

The impact of the construction on air quality during the construction phase has been assessed as Negligible Risk.

The Regulations (Part 2 Division 1) identify 'objectionable odour' as a form of air pollution. As the development will include commercial kitchens there is potential for odour generation from the following point sources:

- Vents from kitchen areas: these would have filtration devices installed to minimise odour generation;
- The storage and disposal of putrescible waste from the site waste will be stored in appropriate lidded bins in undercover areas and will be regularly removed from the site such that odour generated is not likely to be detectable offsite; and
- The disposal of grease from any grease trap associated with the kitchens will be conducted at regulator intervals by licensed waste contractors. These contractors will employ necessary measures to minimise any odours from pump out operations as is necessary and common to most commercial waste collection activities of this type.

The impact of odour generated from the development will depend on the following elements:

- The height at which the emission occurs — higher source of emission minimises the potential for the odour to be detectable at ground level. The emission vents from kitchen areas will be likely roof mounted with appropriate vertical velocity to maximize dispersion. Kitchens will be located at the lower levels of the facility, with emission points likely to be above roof level for the lower level components of the development. This is a matter for detailed design; and
- The management measures required for odour control such as cooking range hood filter types and necessary maintenance regime in conjunction with exhaust velocities to promote dispersion will be determined during the detailed design phase of the project.

Given the nature of the odours likely to be generated from the facility and the distance of the facility from sensitive receptors (greater than 2.5km to residential areas), the facility is not likely to have an odour impact at sensitive receptors. Assessed as Low Risk.

Odour impacts would be managed through the installation of appropriate filtration devices as outlined above and through timely response to any complaints received. Mitigation measures for air quality and odour are described below in Section 5.4.4.

5.4.3 CASA Plume Rise Assessment

Section 182 (f) of the *Airports Act 1996* identifies activities that are ‘controlled activities’ in relation to airspace. This includes:

(f) an activity that results in air turbulence, where:

(i) the level of the turbulence exceeds the level ascertained in accordance with the regulations; and (ii) the turbulence is capable of affecting the normal flight of aircraft operating in the prescribed airspace;

(g) an activity that results in the emission of smoke, dust or other particulate matter, where:

(i) the emission exceeds the level ascertained in accordance with the regulations; and
(ii) the smoke, dust or particulate matter is capable of affecting the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules;

(h) an activity that results in the emission of steam or other gas, where:
   (i) the emission exceeds the level ascertained in accordance with the regulations; and
   (ii) the steam or gas is capable of affecting the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules.

The Airports (Protection of Airspace) Regulations 1996 identify that an exhaust plume with a vertical gust in excess of 4.3 metres/second (m/s) may cause damage to an aircraft airframe, or upset an aircraft when flying at low levels.

5.4.4 Mitigation Measures

As mentioned in Section 5.4.3 above, any vertical exhaust plumes from the proposed development will be approved during future design phases according to the Assessment Processes outlined in the CASA Advisory Circular No AC 139-5(1) and will target that a plume rise of 4.3m/s at the OLS inner horizontal surface level of 47.5 AHD is not exceeded. The use of diffusion devices and other mitigating considerations will be used at the point of discharge to minimise velocity and temperature of the plume were required.

The proposed design currently provides for the major air conditioning heat rejection air discharges to be directed horizontally at the roof plant level for both accommodation towers. The systems will utilise multiple modular condensers distributed around the perimeter of the roof plant area to avoid single large discharges. Figure 4 illustrates the proposed configuration and predicated velocities.

The discharges will have no vertical velocity component at the point of discharge. Some vertical velocity component will be attained remote from the discharge point due to the effects of diffusion with ambient air and buoyancy, however this component will be significantly less than 4m/s.

The proposed design will assure that these discharges will not contain smoke, dust or steam.

The discharges are from air cooled condensers and will have no added moisture as experienced with cooling towers or other evaporative cooling processes. The discharges will therefore not result in vapour plumes as experienced with cooling towers in winter months.
Under the guidelines sent out in an approved CEMP the following measures will likely be implemented by the contractor during construction to ensure that air quality impacts are minimised:

- Air quality monitoring will be undertaken at the site during construction works to check compliance with the ambient air quality limits defined in the Regulations, this will include dust deposition;
- All machinery and equipment used at the site will be maintained to relevant standards to reduce emissions to as low as possible;
- Disturbed areas will be re-vegetated as soon as practicable after the construction of the works;
- Earth wetting using water cart and water sprays will be undertaken as required during construction to minimise dust generation at the site;
- Long term stockpiles will be covered or vegetated to prevent wind erosion;
- A site shakedown/grid will be installed to remove bulk particulate from truck tyres prior to exit from the site;
- Trucks travelling to or from the site will be covered to prevent wind-blown dust; and
- Roads will be cleaned regularly to prevent the spread of dirt on roads surrounding the site.

During operation, the mitigation measures to be implemented include:

- Storage of any putrescible wastes in lidded bins in covered areas;
- Regular waste removal from the site to minimise the likelihood of odour generation;
- Regular replacement or cleaning of filtration systems in kitchen areas; and
- The installation of additional filtration or devices if further odour sources are identified during detailed design of the facility.
5.5 Noise

Aircraft noise associated with the Brisbane Airport is regulated by standards/legislation including the following:

- Airports Act 1996
- Airports (Environmental Protection) regulations 1997
- Air Navigation (Aircraft Engine Emissions) Regulations
- Air Navigation (Aircraft Noise) Regulations
- CASA Manual of Standards – part 129 Aerodromes; and
- The BAC Noise Impact Assessment Policy.

Regulation 2.04 of the Airports (Environmental Protection) Regulations 1997 defines offensive noise as:

1. For these Regulations, noise that is offensive occurs when noise is generated at a volume, or in a way, or under a circumstance, that in the opinion of an airport environment officer, offensively intrudes on individual, community or commercial amenity.

2. In forming an opinion, an airport environment officer must have regard to:
   a. the volume, tonality and impulsive character (if any) of the noise; and
   b. the time of day, and duration, of the noise; and
   c. background noise levels at the time the noise is generated; and
   d. the location, in relation to the source of the noise, of:
      i. sensitive receptors; or
      ii. if there is no affected sensitive receptor — commercial receptors; and
   e. the excessive noise guidelines in Schedule 4.

3. For subregulation (2):
   commercial receptor means a business operation, whether for profit, or not.
   sensitive receptor means:
   a. a dwelling; or
   b. an impermanent dwelling in a place designed, or reserved, for impermanent dwellings (for example, a caravan park or residential marina); or
   c. a hotel, motel or hostel; or
   d. a child care institution, kindergarten, school, college, university or other educational institution; or
   e. a hospital, medical centre or nursing home; or
   f. a building that is a church or similar place of worship.

5.5.1 Baseline Conditions

The above thus identifies that in assessing the proposed development, consideration be given to noise that the use will generate (considering the use as a commercial receptor) and noise impact that may occur upon the use (sensitive receptor: hotel, motel).

The location of the proposed development at the Brisbane Airport is such that acoustic design of the development must consider both the impact of external noise sources upon the development plus the potential effect of noise generated by the development upon surrounding land uses.

The external noise sources of significance include aircraft noise from both operations on the tarmac areas (i.e. ground running and movement) and overflights, noise from rail traffic on the Airtrain line, noise from motor vehicle traffic on surrounding roadways and noise from car parking activities on nearby airport parking areas (short and long term). In addition noise from plant and equipment associated with existing and potential future airport buildings must be considered.
5.5.2  Assessment of Impacts

The establishment of hotel accommodation uses of the standard proposed necessitates appropriate acoustic grade construction of the proposed buildings so as to achieve an appropriate internal level of acoustic amenity for both guests and workers.

The Brisbane Airport Master Plan 2009 provides the Ultimate Capacity ANEF (Aircraft Noise Exposure Forecast). The ANEF indicates that the subject development site is located between the ANEF 25 and ANEF 30 contours.

Aircraft noise intrusion relates to both ground based aircraft operations and to aircraft take-off and landings and overflights associated with operation of the Brisbane Airport. The Brisbane Airport in the vicinity of the subject site is presently an environment subjected to elevated noise levels primarily from aircraft operations (ground and air operations) plus existing building plant and equipment noise, noise from intermittent Airtrain movements and noise at the station including public address system operation and noise associated with vehicular traffic operations.

The Airports Act require a MDP to identify how aircraft noise intrusion is to be managed in areas forecast to be subjected to aircraft noise exposure above significant Aircraft Noise Exposure Forecast (ANEF) levels. The Act (Part 1 Section 5) defines the Significant ANEF level as 30. The proposed hotel development is located between the ANEF 25 and ANEF 30 contours as per the Ultimate ANEF Contour in the Airport Master Plan, therefore specific management of noise intrusion is not required under the Act.

However, the primary guidance with respect to appropriate internal amenity associated with aircraft operations is Australian Standard AS2021:2000 “Acoustics – Aircraft Noise – Building Siting and Construction.” This standard provides assessment methodology, appropriate and inappropriate uses within ANEF areas and design internal aircraft noise levels for differing uses.

According to the standard, development of hotel uses on the site within ANEF 25 to ANEF 30 area is conditionally acceptable. This requires that specific acoustic design be provided to achieve acceptable internal amenity standards. The standards state the development rooms (that for hotel/motel uses relaxing and sleeping areas) are to be designed to a maximum aircraft noise level of 55 dB(A). With higher levels for social areas (70 dB(A)) and service areas (75 dB(A)).

5.5.2.1  Road Traffic Noise

Brisbane Airport Corporation Pty Ltd (BAC) has developed the Brisbane Airport Landside Noise Model (BALNM), which has been purposely configured for Brisbane Airport and fulfils the requirements set out by the Airports (Environmental Protection) Regulations 1997.

The contents of this advice are extracted from the BALNM and Brisbane Airport’s Australian Noise Exposure Forecast (ANEF) as published in the 2009 MASTERPLAN.

The Airports (Environmental Protection) Regulations 1997 specify the following:

- Noise generated from road traffic on the site of an operator of an undertaking at an airport should not exceed:
  - 60 dB(A) 24 hr, calculated as the equivalent continuous A-weighted sound pressure level for a 24 hour period of measurement; and
  - 55 dB(A)8 hr, calculated as the equivalent continuous A-weighted sound pressure level for an 8 hour period of measurement from 22:00 hours on a particular day to 06:00 hours on the following day.

For the proposed hotel Site, located on Dryandra Rd, Domestic Terminal Precinct, Brisbane Airport, the BALNM calculates:

The predicted road noise levels at L_Aeq(24hr) (estimated at 2m above ground level) for the site ranges from 55 to approximately 61 dB as predicted at year 2029.

The predicted road noise levels at L_Aeq(8hr) (estimated at 2m above ground level) for the site ranges is 55 to 60 dB as predicted at year 2029.
As a result of the predicted noise level generated from road traffic for 2029 exceeds the external noise criteria and hence acoustic design and necessary construction of the proposed buildings will be required to achieve appropriate internal design noise levels and to provide external areas which are shielded and achieve the road traffic noise limit criteria.

5.5.2.2 Rail Noise

The Airports (Environmental Protection) Regulations 1997 specify the following:

*Noise generated from rail traffic operated at an airport should not exceed:*

- 87 dB(A), calculated as the average maximum A-weighted sound pressure level for a period of at least 15 minutes measurement; and
- 60 dB(A), calculated as the equivalent continuous A-weighted sound pressure level for a 24 hour period of measurement; and
- 55 dB(A), calculated as the equivalent continuous A-weighted sound pressure level for an 8 hour period of measurement from 22:00 hours on a particular day to 06:00 hours on the following day.

For the proposed hotel site, located on Dryandra Rd, Domestic Terminal Precinct, Brisbane Airport, the BALNM calculates:

- The predicted rail noise levels at LAeq(24hr) (estimated at 2.0 m above ground level) for the site ranges from 45 to approximately 52 dB as predicted at year 2029.
- The predicted road noise levels at LAmx (estimated at 2.0 m above ground level) for the site ranges from 60 to 74 dB as predicted at year 2029.

As a result of the predicted noise level generated from rail traffic for 2029 is less than the nominated exceedances listed then there is no additional treatment required above what has defined as necessary by the road noise assessment.

5.5.2.3 Impacts on Sensitive Receptors

There are no other sensitive receptors in proximity to the site of the proposed development.

It is considered that any potential noise impacts from the proposed development either during construction or in the operation phase will establish an indiscernible change from existing noise conditions and as such are considered to be a Negligible Risk.

Given the type of development proposed, noise from the operational phase has a Low Risk of resulting in off-site noise nuisance.

5.5.3 Mitigation Measures

Noise mitigation measures for the construction phase will be included in the contractor’s EMP which would be in place prior to the commencement of construction and would include:

- Construction will occur from Monday to Saturday. Where after hours work is required this would be specified in the CEMP with further mitigation measures if required;
- Equipment and vehicles used during the works are to be adequately maintained and serviced to ensure that noise levels associated with operation are as low as can reasonably be achieved; and
- Locate stationary plant and equipment such that noise emissions can be attenuated to an acceptable degree by the provision of acoustic enclosures, acoustic barriers or other practical acoustic controls.

Noise mitigation measures for the operational phase of the project will include necessary design and installation of fixed plant and equipment to meet appropriate regulatory noise standards. This will involve plant selection to meet both operational and noise requirements as means of selection for this project. Fixed plant i.e. fans, air
conditioning plant, pumps and the like will be located and fitted with necessary acoustic treatment to meet regulatory noise standards and importantly not result in adverse noise impact to persons on site i.e. hotel guests.

To achieve acceptable internal amenity within the proposed site buildings, detailed acoustic design will be required prior to building commencement. This will include site specific noise testing, assessment and design works. Aircraft noise and vehicular traffic noise (road and rail) are the primary external noise impacts (as identified above) which will require specific assessment to ensure internal amenity achieves necessary standards. Acoustic design will focus of providing appropriate building external façade elements, i.e. walls, glazing, door and roof elements to achieve appropriate sound transmission loss to achieve acceptable levels of internal amenity as required by relevant Australian Standards.

5.6 Land Use

The proposed development is located in the Airport Central Precinct on Lot 2 RP84411 as per Figure 1, in Section 2.2 of this report.

The site currently comprises of a relatively level asphalt paved existing car park with landscaped areas around the perimeter located south of the multi-level car park at the Brisbane Domestic Terminal. This is within the area identified for hotel development within the Master Plan 2009 in the Domestic Terminal Precinct.

5.6.1 Baseline Conditions

The BAC 2009 Master Plan has prepared land use zonings and accompanying land use tables to reflect intended use of land across the entire Airport. The BAC 2009 Master Plan predominately includes the site within the Domestic Terminal Precinct. The overall outcomes of the Precinct are as follows:

*The Brisbane Domestic Terminal is the focal point of this precinct. This precinct is expanding to service the expected significant growth of domestic passengers and freight through Brisbane Airport. The Common User Terminal is a significant component of the Domestic Terminal expansion. This Special Purpose Centre allows for a range of land uses to efficiently serve Airport users and aviation activity, including commercial office building, retail, hotel and additional car parking.* (emphasis added)

The BAC 2009 Master plan identifies objectives for all future development within designated Special Purpose Centres. As outlined in Section 3 of this report, the proposed development is consistent with the outcomes in that:

- It will not interfere with the ability of the precinct to provide appropriate and planned aviation activities;
- The proposed uses are listed as intended uses under the 2009 Brisbane Airport Master Plan;
- The proposed location of the development will continue to allow the Brisbane Domestic Terminal to be a focal point of the precinct;
- The viability of long term aviation precinct development such as the Common User, Qantas and Virgin Terminals will remain protected;
- The operational efficiency of the control tower which forms an important part of the Brisbane Domestic Precinct will continue to function at the highest level;
- The proposed 3.5 and 5 star hotel development (with ancillary uses) will service the expected significant growth of domestic and international passengers by providing contemporary accommodation;
- The proposed development which will involve increase employment opportunities during and post construction demonstrates BAC commitment to the region’s growth goals.

5.6.2 Assessment of Impacts

The proposed development aligns with the outcomes sought by the Brisbane Airport 2009 Master Plan as the future use of the site will cater for airport visitors and workers and is in keeping with the uses deemed appropriate in the Domestic Terminal Precinct.

As such, Land Use impacts associated with the project are considered to be **Negligible Risk.**
5.6.3 Mitigation Measures
Recognising the compatibility of the development with the BAC 2009 Master Plan and existing and future surrounding land uses, it is considered that no mitigation measures are required.

5.7 Economic Impacts

5.7.1 Baseline Conditions
The site is within an urban environment which is central to the busy and expanding domestic terminal precinct. It is surrounded by road and parking infrastructure, and will be central to both the existing and proposed runways.

5.7.2 Assessment of Impacts
The main socio-economic impacts that may arise (if any) from the proposed development during construction are:

- Some manageable impact to surrounding land uses as a result of dust and noise generated during construction;
- Minor disruptions to traffic in the precinct during the construction phase as a result of construction vehicles; and
- Safety during construction (for workers and the public).

These impacts are considered to be manageable through appropriate measures during the construction phase.

As suggested in Section 2.1 of this report, the development of this site will allow for the productive use of the land, supporting economic development and employment creation in the Brisbane Region. It is estimated that the hotel and conference uses will create in excess of 300 staff positions post construction creating a strong viable business to support the airport objectives.

A beneficial impact of the construction of the facility is the generation of employment and contracting opportunities for construction and building contractors. It is estimated that in excess of 200 job opportunities will be likely to be generated during the construction phase of the development both on and off the site. The impact of the development on socioeconomic issues during construction has been assessed as Negligible Risk.

During operational phase, the development will have the following beneficial impacts:

- Contribute towards job creation supporting the regional economy;
- Additionally support the local economy through the subsequent additional demand for incidental day to day goods and services needed to operate the proposed facilities;
- Provide a much needed service orientated business for passengers as well as supporting services to other industries at the airport; and
- Continue to support the business objective of the Brisbane Airport as a major employment generator.

The impact during this phase has been assessed as Low Beneficial.

5.7.3 Mitigation Measures
No mitigation measures have been identified as the proposed development is considered to have little or negligible impact on the greater Brisbane community.

5.8 Landscape
Brisbane Airport 2009 Landscape Master Plan sets out principles and objectives relating to landscape sustainability and landscape values which support the development of the various Airport Precincts. In accordance with the BAC Landscape Master Plan July 2009 (revJan2012), the site is located within Landscape Area 3 on the Landscape Areas Map.
5.8.1 Baseline Conditions

The proposed development will result in minimal loss of vegetation. Vegetation earmarked for removal includes garden beds associated with the existing use of the land as a car park.

The landscaping of the site will be in accordance with Appendix A (a) of the BAC Landscape Master Plan July 2009 (revised January 2012, Rev 3) and will utilise a selection of planting to ensure operational safety of the airport and in particular the retention of the site line to the control tower.

Further resolution of the actual landscaping and species composition will be resolved at the detailed design stage. It will have consideration for the following key objectives:

- Drought tolerance;
- Non-bird and flying fox attracting
- Subtropical design; and
- Cost-effective maintenance.

Most importantly, the proposed landscaping design will contribute to the image, identity and sense of place of Brisbane.

5.8.2 Assessment of Impacts

During construction the general landscape of the site will be affected through the presence of construction machinery and equipment. This will be visible from the Airtrain, Airport Drive and by users of the domestic terminal. These will be short term effects and will be manageable through appropriate screening during the construction phase. The impact of this issue has been assessed as Low Risk in this phase.

Overall the impact of the proposed development on landscape during operation is considered to be Negligible Risk.

5.8.3 Mitigation Measures

During the construction phase screening will be used by the contractor where necessary to prevent the spread of dust. This screening will also serve to screen the construction site from surrounding land uses and mitigate potential landscape impacts.

The site will be appropriately landscaped following construction. The landscaping will be in accordance with the BAC Landscape Master Plan July 2009 (revised January 2012, Rev 3) and will incorporate BAC approved species, WSUD and other elements that do not form habitat for bird or bat species. Landscaping will also serve to minimise weed establishment.

5.9 Cultural Heritage

The Queensland Heritage Act 1992 provides for the conservation of Queensland cultural heritage for the benefit of the community and future generations. The Queensland Heritage Register provides a list of places of cultural heritage significant to Queensland. The Brisbane City Council's City Plan Register lists local places of cultural heritage significance.

5.9.1 Baseline Conditions

Although no cultural heritage survey was carried out prior to the construction of the hard stand car park currently on the site, the airport does have a history as a resource area of Indigenous communities in the region. Given the close proximity the site is to the domestic terminal and the high level of ground disturbance, it is highly unlikely that physical remains of traditional Aboriginal activities would be present on the site.

5.9.2 Assessment of Impacts

The site has been modified a number of times during the life of the Domestic Terminal. As such, it is unlikely that any items of cultural heritage would be present and the impact of the proposed development on indigenous or non-indigenous cultural heritage items is considered Negligible Risk.
5.9.3 Mitigation Measures

Although the likelihood of cultural/archaeological material at the site is low, works will cease and BAC’s Environment Manager and the AEO will be informed immediately and in writing by the contractor if any materials resembling indigenous cultural/heritage items or human skeletal remains are identified during the course of construction. This is consistent with the requirements of the Airports (Environment Protection) Regulations 1997.

5.10 Waste

Under the 2009 Airport Environment Strategy, the action plan for waste management seeks to achieve the sustainable management of waste through initiatives such as waste minimisation and segregation of waste and recycling.

5.10.1 Baseline Conditions

All airport users are responsible for appropriate management practices and disposal of all forms of waste generated by their operations. The Environment Protection Act 1994 and the Environmental Protection (Waste Management) Policy 2000 are the applicable waste legislation at the airport.

5.10.2 Assessment of Impacts

Waste during the construction stage will generally consist of construction waste in the form of metals and other synthetic materials. A small quantity of oils and paints and general waste will be expected. Collection, storage and disposal of waste will be managed to avoid impact in accordance with an approved CEMP. Additional waste generated during the commencement of the operations will be managed to satisfy the 2009 Airport Environmental Strategy.

Although there is the potential for large quantities of waste to be generated on the site, the extent of waste management techniques available, will limit the possible if any impacts during both construction and operation phases. Accordingly, the impact of waste generation is considered to be a Low Risk.

5.10.3 Mitigation Measures

The proposal recognises that further clarification regarding waste management will be required once an appointed contractor is approved. Until a contract is let, it is difficult to articulate the type of waste management techniques that will be required. However possible waste management practices are likely to be:

- Designate specific areas on site for the temporary management of waste; i.e. general domestic waste, works waste and contaminated waste;
- Waste streams will be segregated to enhance recycling opportunities where practicable i.e. general domestic waste, works waste and contaminated waste;
- All domestic and industrial waste to be disposed of in dedicated industrial bins;
- Waste bin lids to be closed at all times to avoid, littering, access by birds and scavenging by vermin, birds or native wildlife;
- Waste oils to be recycled where practicable; and
- No waste will be burnt on site.

Construction waste mitigation measures will be finalised and approved in the contractor’s EMP documentation prior to commencement of construction works on site.

Once operational, care will be taken to ensure that trade waste is disposed of in accordance with the trade waste licence approval process.

5.11 Traffic and Parking

The proposed hotel site forms part of a larger land holding “Stage 1 site” for which Brisbane Airport Corporation (BAC) have prepared a Property Development Master Plan. As part of this master planning exercise detailed traffic studies have been completed. These studies estimate the traffic generated by all development associated with the Stage 1 site, which includes the proposed hotel and future commercial offices. These studies also take
into consideration the broader transport planning requirements of the Airport. This approach has been taken to ensure that development occurs in a co-ordinated and considered approach.

5.11.1 Baseline Conditions

The access strategy for the proposed site must take into consideration the operational needs of the hotel without impacting upon the operation of other traffic.

The design of the internal layout (parking, servicing etc.) is to comply with the principles of AS2890.1 “Off-street parking”, AS2890.2 “Off-street commercial vehicle facilities”.

A traffic and car parking assessment for the facility has been carried out which includes the following:

- Site Access;
- Parking Provision;
- Servicing Provision;
- Layout / Geometry

5.11.1.1 Parking and Circulation

The parking layout and servicing area has been designed generally in accordance with AS2890.1 “Off-street car parking” and BCC Transport, Access, Parking and Servicing Policy where appropriate.

5.11.1.1.1 Hotel Guests

The average occupancy is expected to be 75% with the peak rarely exceeding 85%. As a consequence, it is unlikely that more than 300 rooms would be occupied at any time;

- 50% of guests are assumed to business travelling, of this 50%:
  - 70% are expected to arrive by aircraft and are likely to use taxi for local trips (e.g. for business trips to the city); and
  - 30% are expected to be local business travellers (i.e. within South East Queensland) and may use their private car for when travelling.
- 50% of guests are assumed to leisure travellers. The operator expects all of these guests to be domestic or international travellers arriving by aircraft. These guests are expected to use hire car for day trips as required. The hire cars can be collected and returned to the facility within the adjacent multi-level car park. As such the need to accommodate these vehicles on-site is limited. For the purpose of this assessment we have assumed that only a quarter of the hire cars would be parked on-site at any time.

Table 5 provides an estimate of the on-site parking demand predicted for hotel guests:

**TABLE 5: ESTIMATED PARKING REQUIREMENTS OF GUESTS**

<table>
<thead>
<tr>
<th>Guests</th>
<th>Occupied Rooms</th>
<th>%</th>
<th>Day Travel</th>
<th>car spaces required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>Domestic / International (arriving/departing by aircraft)</td>
<td>105</td>
<td>35%</td>
<td>Taxi</td>
</tr>
<tr>
<td></td>
<td>Local – South East Qld (arriving/departing by private car)</td>
<td>45</td>
<td>15%</td>
<td>Private Car</td>
</tr>
<tr>
<td>Leisure</td>
<td>Domestic / International (arriving/departing by aircraft)</td>
<td>150</td>
<td>50%</td>
<td>Hire Car (25% assumed to be parked on-site at any time)</td>
</tr>
<tr>
<td>TOTAL (assumes 85% occupancy)</td>
<td>300</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.11.1.1.2 Conference Facilities

The ground floor of the 3.5 star hotel has conference facilities over 1,391 m². The design accommodates a number of possible configurations (e.g. combination of conference rooms, boardrooms etc.). The operator expects that most functions would accommodate between 10 and 200 people. Rarely would they expect more than two (2) major functions to be occurring simultaneously and that the majority of attendees will also be staying at the hotel. Only a limited number of spaces (approximately 40-50 spaces) will be provided on-site for people attending functions. This number can be increased during times of lower room occupancy.

Based on the assessment above we expect the following parking requirements:

- Guests 83 spaces
- Staff 10 spaces
- Conference 40 - 50 spaces

This equates to a parking requirement in the order of 130-140. The maximum number of spaces that can be accommodated within one basement level is 133 spaces. In addition to this there is potential for a further 10-15 spaces (including set – down) on ground. On the proviso that the operator manages the use of parking on-site, there should be sufficient parking to accommodate the anticipated demand. An example would be the operator making additional parking spaces available to conference facility guests outside of peak occupancy. Any shortfall (i.e. during major conferences) would be managed by way of the operator.

5.11.1.2 Staff Vehicle Movements

During typical operation the hotel expects to have a maximum of 190 staff working on-site at any time. BAC provides a car park for staff working at the Airport. Notwithstanding this, some management staff and late night staff may be provided with parking on site. The operator has identified a need for 10 staff spaces.

5.11.1.3 Public Transport

The domestic terminal is currently serviced by public and private transport services. Air train services between Brisbane City and Brisbane Airport (Domestic Terminal) take 22 minutes and depart every 15 minutes during business hours.

Translink bus services currently service the Airport Village Precinct at approximately 15 to 30 rate through the day. A free shuttle bus operates between the International Terminal and Domestic Terminal and the Airport Village DFO shops. Passengers can interchange Airport Village for Translink connections to off airport.

5.11.1.4 Proposed Vehicular Access Arrangements

The external roadworks identified in Figure 6 (in Section 5.11.2.2 (i.e. the roundabout) will be constructed prior to the operation of the development. This will provide a safe location for vehicles approaching the site from the south to perform a u-turn and access the site.

5.11.1.5 Service Vehicles Movement and Facilities

Servicing will occur in the basement with vehicles entering at Dryandra Road and exiting at Alpinia Drive. The design is based on:

- Regular access by a Medium Rigid Vehicle (MRV); and
- Occasional access by a Heavy Rigid Vehicle (HRV).

The design can accommodate up to four (4) delivery vehicles loading/unloading concurrently. For example:

- 1 Heavy Rigid Vehicle (HRV);
- 1 Medium Rigid Vehicle (MRV); and
- 2 Small Rigid Vehicles (SRV).
5.11.2 Assessment of Impacts

Construction vehicle access will be via routes defined in CEMP documentation to minimise the disturbance to the traffic flow across the precinct. As a consequence the impact of the development on traffic during the construction phase is expected to be negligible risk.

5.11.2.1 Development Generated Traffic

The traffic generated by this site has been assessed as part of BAC’s master planning along with the future commercial office buildings contemplated to the north. The proposed roundabout on Dryandra Rd will manage any traffic impacts associated with the proposed hotel whilst remaining consistent with BAC’s master planning intent.

Dryandra Rd is a two lane undivided road between Moreton Dr and Airport Dr, with an estimated capacity of approximately 1350veh/hr in each direction. The dominant flow of traffic is the outbound direction (south-westbound). Figure 5 attached shows a future year scenario with outbound traffic volumes on Dryandra Rd increased to 1000 vehicles in both the AM and PM peak hours. These volumes are unlikely to be reached prior to 2019 but will be dependent upon the timing of other development.

The hotel is assumed to generate 155 trip ends coincident with both the AM and PM peak hours. These rates are based on a first principle assessment assuming

- 50% of guest arrivals and departures are assumed to occur during the peak hours;
- 10% of staff arrivals and departures are assumed to occur during the peak hours.
- Occupancy rate of 85%;

The hotel traffic has been added to the background 2019 traffic volumes to estimate the 2019 design volumes.

Intersection analysis using Sidra Intersection 6 was then carried out for the proposed roundabout. The results are shown in Figure 6. The proposed roundabout is discussed further in Section 5.11.2.2.

The desirable limits of operation for a roundabout is 85% degree of saturation with capacity being reached at 100%. The results show the roundabout performing within the desirable limits for the 2019 PM peak hour and just beyond for the 2019 AM peak hour.

From this we conclude that the timing of the duplication of Dryandra Road and the life expectancy of the roundabout are closely aligned. At such a stage where the roundabout would operate close to capacity, options to upgrade Dryandra Road will be developed which may include traffic signals. These volumes are unlikely to be reached prior to 2019 but will be dependent upon the timing of other development.
FIGURE 5: 2019 DESIGN VOLUMES – DRYANDRA ROAD
5.11.2.2 External Road Network Connections

Access to the subject site (refer Figure 7) is proposed at two (2) locations:

**Dryandra Road**

The primary point of access/egress will be from Dryandra Road via a new crossover located on the northern boundary of the subject site. This crossover will be used by all guests, staff, coaches and taxis entering and leaving the subject site. Service vehicles will also use this crossover to access the site. Access to the hotel at this crossover will be limited to left-in left-out.

**Alpinia Drive**

A new crossover is proposed on Alpinia Drive and will be restricted to service vehicles only exiting the site (i.e. no entry permitted).
A significant proportion of guests staying at the hotel are expected to arrive by aircraft at the domestic terminal. All vehicles (i.e. taxis, shuttle bus, coach etc.) moving guests from the Domestic Terminal to the hotel will likely approach the site from the south on Dryandra Road. Because the hotel crossover will be restricted to left-in left-out movements, provision must be made for these vehicles to safely and conveniently turn around. As mentioned in the previous section, a proposed roundabout will be constructed just north of the hotel’s crossover to accommodate the U-turn.

The roundabout is expected to provide the following benefits:

- vehicles approaching the hotel from the south on Dryandra Road can safely and conveniently perform a u-turn;
- the terminating leg of the roundabout can provide access to the existing short-term parking;
- vehicles exiting the multi-level car park can use the roundabout to turn around and travel north;
- the terminating leg of the roundabout will provide the future commercial offices with all movements access to Dryandra Road.

The location of the roundabout is consistent with the location of a future road infrastructure plans. The roundabout may be an interim solution for access purposes. Longer term planning advice is that this design solution will have a lifespan to approximately 2019 (subject to further development of the precinct and surrounds). In order to achieve a ‘quasi right hand in’ from Dryandra Rd, any future road access arrangement will need to be designed with a U-Turn provision.

FIGURE 7: SITE ACCESS AND EXTERNAL ROADWORKS

5.11.3 Mitigation Measures

The external roadworks identified in Figure 6 (i.e. the roundabout) will be constructed prior to the operation of the development. This will provide a safe location for vehicles approaching the site from the south to perform a u-turn and access the site.
The hotel operator will manage the use of parking on-site. An example would be the operator making additional parking spaces available to conference facility guests outside of peak occupancy. Any shortfall (i.e. during major conferences) would be managed by the operator.

Construction vehicle access will be via routes defined in the approved CEMP documentation to minimise the disturbance to the traffic flow across the precinct. As a consequence the impact of the development on traffic during the construction phase is expected to be manageable.

5.12 Hazardous Goods

All airport tenants are responsible for appropriate management and disposal of all forms of waste generated by their operations. The management of hazardous goods must be in accordance with the Hazardous Goods Safety Management Act 2001.

During the construction phase the Contractor will be responsible for any licenses required under the Work Health and Safety Act 2011 for the storage of hazardous goods at the site. Hazardous goods that may be present at the site during the construction phase include:

- Waste oils from machinery or equipment;
- Waste paint products; and
- Small quantities of fuel

During the operational phase, housing-keeping stores are proposed for the site where amounts of cleaning fluids and associated detergents will be stored in a safe environment. Other hazardous goods that are likely to be stored on the site include LPG tanks for the provision of gas at the facilities as well as fuel storage for backup diesel generators.

The operators of the facilities will be responsible for the storage of these substances in accordance with the Dangerous Goods Safety Management Act 2001. The facility would also have a trade waste licence from BCC for the disposal of any trade waste from the facility.

With appropriate management and storage the impact of hazardous goods at the proposed development in both the construction and operational phases is considered to be negligible.

If hazardous goods are needed to be brought to site from time to time, they will be stored, transport and disposed of in accordance with Australian Standards and will be undertaken by appropriately licensed drivers and vehicles.

The operators of the facilities will be responsible for the storage of any substances considered hazardous in nature in accordance with the Dangerous Goods Safety Management Act 2001. The facility would also have a trade waste licence from BCC for the disposal of any trade waste from the facility.

5.13 Aviation Safety

Airport guidelines and regulations regarding building design and height restrictions have been considered when planning the location and height of the proposed development. In accordance with the requirements of the Civil Aviation Safety Regulations 1998, a Safety Management System (SMS) operates at the Brisbane Airport to manage existing and future aviation safety risks. Given the potential for any new buildings on airport land to create a hazard to aviation safety (depending upon their height, size and location), consideration has been given to whether any such impacts arise from the proposed development and in particular the proposed towers height.

Potential consideration include impacts on sightlines from the control tower, plume rise from the heat generation or emissions, and general distraction to air traffic controllers in the course of the daily duties. Plume issues are addressed in section 5.4.

Liaison with Airservices Australia and BAC during finalisation of building design will occur regarding matters associated with the following design elements:

- Clearance including line of sight;
- Flight instrument terminal approaches, radar or navigation aid performance; and
- Instrument flight surfaces associated with Brisbane Airport.
5.13.1 Prescribed Airspace

Certain airspace around Brisbane Airport (known as ‘prescribed airspace”) is protected under the Airports (Protection of Airspace) Regulations 1996.

The Obstacle Limitation Surfaces plan indicates the maximum allowable height of any obstacle relative to the OLS planes. Any obstacle close to or penetrating the OLS may need to be marked and/or lit in accordance with CASA requirements. The final design will recognise that there should not be any penetration of the OLS by chimneys, aerials etc. in accordance with Airservices Australia requirements.

The State Government also recognises that development can adversely affect airports, aircraft operations and the functioning of aviation facilities both directly and indirectly. It is therefore essential that these airports together with aviation facilities are protected from development for safety and operational efficiency reasons. The SPP1/02 specifies safety areas at ends of runways at 1000m from the runway end and a specified distance either side of the extended runway centreline.

BAC has addressed the requirements of the SPP 1/02 through their 2009 Brisbane Airport Master Plan which provides Local and State Authorities the necessary evidence when undertaking land use planning in close proximity to the airport leasehold land. Through the designated precincts set out in the Master plan, BAC has assured that the risk to public safety associated with airport operations is limited. The proposed development is located well outside of the recognised public safety areas.

5.13.2 Airport Navigation and Radar Systems

The development is to the NNE of the control tower and approx. 150 metres from the control tower. The viewing deck of the control tower is approx. 25 meters from the top of the development. Initial line of site assessment review has been undertaken and provided to AirServices for consideration. It should be noted that the proposed development is below the Inner Horizontal Surface however it is likely that cranes used during construction activities (erection, dismantling and operational activities) will penetrate to airspace and therefore will required approval as a controlled activity. It is expected that this will be addressed prior to construction commencement on site.

It is anticipated that the construction activities, and in particular the accommodation towers, will be undertaken using traditional build methods. With this in mind, it is anticipated at this point of time, prior to detailed design stage that 2 cranes are likely to be required on the site at any one time. These cranes are likely to be positioned for a period of between 16 to 18 months. Each crane is likely to have crane sweep minimum of 55m and be in excess of 47m above ground level.

If is noted that during detailed design phase, crane types will be clarified and the need for electric cranes (due to noise impacts on diesel machines) may impact on the lifting capacities and sweep distances required during construction. Prior to construction occurring on site, liaison will occur with BAC, CASA and Air Services Australia to set a maximum allowable height for construction cranes.

The initial assessment has assessed the development risk on airport navigation or radar systems Negligible Risk.

5.13.3 Flight Paths

5.13.3.1 Potential Wind Shear

The development site is located:

- Approximately 1000 metres to the side of the existing runway and the future parallel runway;
- Approximately 1700 metres from the northeast of the existing runway (perpendicular to runway end);
- Approximately 1650 metres from the southwest end of the existing runway (perpendicular to runway end); and
- Approximately 50 metres from the Southwest end of the new parallel runway (perpendicular to the runway end).
With the above in mind, the assessment of the potential Wind Shear impacts have been assessed with respect to in accordance with the National Airport Safeguarding Framework Guideline B – Managing the Risk of Building Generated Windshear and Turbulence at Airports as per the following Figure 8.

In accordance, with the guidelines assessment of the hotel against the main runway location determined that the proposed development will not interfere with the landing and departure of aircrafts on this runway. With this in mind, no further assessment is required for the main runway.

The site however requires further assessment with regards to the new location of the parallel runway (figure 9). An assessment has been undertaken considering this finding.
In undertaking this, wind statistics for Brisbane Airport from the years 1995 to 2013 have been summarised. It can be seen from the attached figure 9 which overlays the wind rose of an aerial photo that the incidence of winds blowing from the hotel site to the new parallel or even the existing runway is quite low. Using the assessment methodology outlined by the relevant guidelines, detailed calculations have been conducted. The following outlines the results of the screening assessment.

**FIGURE 9: WIND ROSE DATA: OCTOBER 1995 TO AUGUST 2013**

**Considering ESE Wind Directions (Perpendicular – worst case)**

Mean Wind Speed 4.4 m/s  
Calculated BWD at 7 knot limit requires a wind speed of approximately 7.5m/s i.e. well above the mean wind speed. Thus the BWD 7 knot limit does not occur for mean wind speed. Even with a wind speed of 7.5m/s or greater, the downwind distance that a 7 knot deficit may occur is less than 105 metres for a wind speed of 10m/s (upper limit). The new parallel runway is approximately 1000 metres distant.

**Considering ENE Wind Directions**

Mean Wind Speed 4.3m/s  
Calculated BWD at 7 knot limit requires a wind speed of approximately 7.5m/s i.e. well above the mean wind speed. Thus the BWD 7 knot limit does not occur for mean wind speed. Even with a wind speed of 7.5m/s or greater, the downwind distance that a 7knot deficit may occur is less than 197 metres for a wind speed of 10 m/s (upper limit) The new parallel runway is approximately 1000 metres distant,
**Considering SE Wind Directions**

Mean Wind Speed 4.8ms

Calculated BWD at 7knot limit requires a wind speed of approximately 7.5m/s i.e. well above the mean wind speed. Thus the BWD 7 knot limit does not occur for mean wind speed. Even with a wind speed of 7.5m/s or greater, the downwind distance that a 7 knot deficit may occur is less than 103 metres for a wind speed of 10m/s (upper limit). The new parallel runway is approximately 1000 metres distant.

In summary, on the basis of the above findings, the 7 knot mean cross wind deficit will not occur for mean wind speeds at Brisbane Airport when wind is blowing from sectors from the proposed hotel development to the influence zone of the new parallel runway. Further, the building is located outside the influence zone for the existing runway.

For wind speeds above the mean, using Actual recorded wind data for Brisbane Airport, the available data demonstrates that 10m/s is the upper limit of recorded data for sectors relevant to the new parallel runway. For 10m/s conditions the maximum distance downwind of the development where BWD of 7 knots may occur would be less than 197 metres, i.e. less than 1/5th of the available separation distance to the runway.

The above guidelines approach thus demonstrates that by considering the development as a single block entity, the wind shear criterion (7 knot deficit) does not occur for mean wind speeds of influence at the airport for the New Parallel Runway and would occur for less than 1/5th of the separation distance to the future runway for upper limit wind speeds recorded. Further, the perpendicular wind direction to the new parallel runway occurs for only 7.8% of the time, further reducing potential conditions for the occurrence of a wind speed deficit.

Another relevant matter is that the design of the buildings with an open roof element (wing) above a concrete roof deck provides a wing effect which would alter any potential wakes by creating induced flow. It thus appears that there is an adequate margin of safety in the analysis with the separation distances from the runway being more than 5 times greater than the calculated wake affected velocity deficit zone.

5.13.4 Lighting and Reflection

It is noted that the proposed development is approximately 100 meters outside the Zone D primary zone for consideration of lighting distraction. All lighting on airport is to have no spill above the horizontal plane.

The development is also outside the zone D primary zone for the proposed new parallel runway as indicated in the 2009 Brisbane Airport Master Plan. Based on the above data, the development is assessed as having a Negligible Risk on existing and future airport flight paths.

Lighting will comply with Australian Standards and requirements of BAC, CASA and Airservices Australia. In particular, there will be no spill of light above the horizontal.

External lights including signage on the building facing the control tower will have vertical intensity control to avoid glare to the control tower. This will include selection of the fittings with appropriate photometrics and the use of shielding devices or louvers or the like.

In particular, hotel illuminated signage will be designed so that the luminaries are shielded from having any direct light intensity above the horizontal. Lighting options for major signage to achieve this will include:

- Backlit LED;
- Lightbox LED with translucent diffusers; and
- Front lit with no direct component above horizontal and low reflectance surfaces

Internal lighting will be designed such that luminaries will be shielded by building construction, facades and shading devices so that there is no direct emission from the luminaries above the horizontal. Diffuses or reflected light at windows will be low intensity and further minimised by the inclusion of both sheer sight blocking and full light blockout operable curtains on the windows.

External road and landscape lighting will be of an acceptable standard and utilise fittings specifically designed to prevent zero intensity above the horizontal.
All lighting proposals including proposed colours will be developed in consultation with CASA and AirServices Australia. Lighting triggered under Part 139 – Aerodromes Manual of Standards “lighting within the vicinity of aerodromes” will meet the appropriate requirements under the standards.

Further resolution of lighting design will occur at the detailed design stage and will have consideration of mitigation measures for lowering the risk of wildlife attraction to the development. The final design will ensure that the intensity of light from the development within the Primary Area will not exceed the maximum intensities indicated in Figure 9.21.1 of the Manual of Standards Part 138.
6.0 BUILDING SUSTAINABILITY

6.1 Water Efficiency

Measures to reduce water use in the proposed development may include:

- Inclusion of minimum AAA rated water efficient fittings except where shown that AAA rated fittings cannot provide sufficient flow or pressure (perhaps for kitchen applications);
- Very low flow urinals such as the Caroma Cube 0.8L smartflush or similar;
- Water metering for all major water usages in building, including bathroom/amenities, cooling systems, irrigation and hot water services;
- Irrigation water will be primarily sourced from either harvested rainwater or existing reticulated grey water system if accessible; and
- Rainwater harvesting and storage and fire test system water storage.

6.2 Energy Efficiency

The building will be designed having regard to the mandatory performance requirements and applicable optional provisions of Volume 1 Section J - Energy Efficiency of the BCA and will satisfy the criteria established for as appropriate for Classes of building.

Design consideration will take into account the relevant Federal Government obligations for energy efficiency and sustainable design including the Airports (Environmental Protection) Regulations 1997 and the National Greenhouse and Energy Report Act 2007.

Possible means of adopting energy efficiency techniques in the building design may include:

- HVAC systems to consider energy efficient methods and to closely match space requirements;
- HVAC system shall be zoned to enable inactive areas to be shut down when not in use;
- Hotel rooms will have a night time heating demand that and the HVAC systems shall consider efficient heat sources;
- CO2 control for outside air control to HVAC systems shall be utilised for conference room facilities to minimise outside air loads on the spaces when under low occupancy modes;
- Economy mode control for HVAC systems shall be utilised for conference facilities to utilise free cooling when outside air conditions permit;
- Common areas shall consider mixed mode ventilation or economy cycles to reduce central plant running hours and maximise periods of natural comfort;
- High efficient lighting design and light selection shall be the basis of the lighting design;
- Further minimisation of lighting energy shall be through effective zoning and controls to ensure unoccupied areas are not unnecessarily lit;
- Daylight linking to common areas where good natural light design may minimise the use of artificial lighting;
- Preference for solar preheat and natural gas hot water or heat pump hot water shall be utilised instead of electric resistance hot water systems. Solar panels installation will be considerate of requirements regarding the control tower line of site and distraction and will be faced north so as to not be a nuisance; and
- Energy sub metering system shall be designed to allow for future active management of energy consumption within the facilities.

Preliminary calculations indicate that the maximum electrical demand for the development is 2240KVA. Power will be provided through BAC’s extensive 11kv HV network which is capable of supporting the predicated demand.
## 7.0 SUMMARY OF IMPACTS

### TABLE 6: SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACT

<table>
<thead>
<tr>
<th>Section</th>
<th>Environmental and Social Factors</th>
<th>Impacts</th>
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<tr>
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<td>5.2</td>
<td>Ecology</td>
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<td>5.4</td>
<td>Air Quality and Odour</td>
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<td>5.5</td>
<td>Noise</td>
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<td>5.6</td>
<td>Land Use</td>
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<td>5.7</td>
<td>Economic Issues</td>
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<td>5.8</td>
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<td>Cultural Heritage</td>
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<td>5.10</td>
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<td>5.11</td>
<td>Traffic and Parking</td>
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<tr>
<td>5.12</td>
<td>Hazardous Goods</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
8.0 REFERENCES


Brisbane City Council (2000) City Plan.


CASA Manual of Standards Part 139 – Aerodromes

CASA Advisory Circular No AC 139-5(1)


DRAFT MAJOR DEVELOPMENT PLAN
HOTEL DEVELOPMENT – DOMESTIC TERMINAL PRECINCT

APPENDIX A:
CONCEPT PLANS
DRAFT MAJOR DEVELOPMENT PLAN
HOTEL DEVELOPMENT – DOMESTIC TERMINAL PRECINCT

NORTH-WEST ELEVATION
DRAFT MAJOR DEVELOPMENT PLAN
HOTEL DEVELOPMENT – DOMESTIC TERMINAL PRECINCT

Brisbane Airport Corporation Pty Ltd
APPENDIX B:

AIRPORTS ACT REQUIREMENTS FOR A MAJOR DEVELOPMENT PLAN
This Appendix indicates the requirements under Section 91 of the *Airports Act 1996* for the contents of an MDP and demonstrates that this MDP is consistent with these requirements.

### Contents of a Major Development Plan

<table>
<thead>
<tr>
<th>Contents of a Major Development Plan</th>
<th>Section(s) of MDP</th>
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</thead>
</table>
| (1A) The purpose of a major development plan in relation to an airport is to establish the details of a major airport development that:  
*relates to the airport; and* | Section 3.3 and 3.4 |
| is consistent with the airport lease for the airport and the final master plan for the airport. | |
| A major development plan, or a draft of such a plan, must set out: | |
| The airport lessee company’s objectives for the development; and | Section 3.3 |
| The airport-lessee company’s assessment of the extent to which the future needs of civil aviation users of the airport, and other users of the airport, will be met by the development; and | Section 2.1 & 3.2 |
| a detailed outline of the development; and | Section 2 |
|  
  ca) whether or not the development is consistent with the airport lease for the airport; and | Section 3.4 |
| if a final master plan for the airport is in force—whether or not the development is consistent with the final master plan; and | Section 3.4 |
| if the development could affect noise exposure levels at the airport—the effect that the development would be likely to have on those levels; and | Section 5.5 |
|  
  ea) if the development could affect flight paths at the airport— the effect that the development would be likely to have on those flight paths; and | Section 5.13.13 |
| the airport lessee company’s plans, developed following consultations with the airlines that use the airport, local government bodies in the vicinity of the airport and—if the airport is a joint user airport—the Department of Defence, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; and | Section 5.5.2 |
| an outline of the approvals that the airport-lessee company, or any other person, has sought, is seeking or proposes to seek under Division 5 or Part 12 in respect of elements of the development; and | Section 3 |
| ga) the likely effect of the proposed developments that are set out in the major development plan, or the draft of the major development plan, on:  
  
  traffic flows at the airport and surrounding the airport; and  
  employment levels at the airport; and  
  
  the local and regional economy and community, including an analysis of how the proposed developments fit within the local planning schemes for commercial and retail development in the adjacent area; and | Section 3  
Section 5 |
### Contents of a Major Development Plan

<table>
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<th>Description</th>
<th>Section(s) of MDP</th>
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<td>the airport lessee company’s assessment of the environmental impacts that might reasonably be expected to be associated with the development; and</td>
<td>Section 5</td>
</tr>
<tr>
<td>the airport lessee company’s plans for dealing with the environmental impacts mentioned in paragraph (h) (including plans for ameliorating or preventing environmental impacts); and</td>
<td>Section 5</td>
</tr>
<tr>
<td>if the plan relates to a sensitive development - the exceptional circumstances that the airport-lessee company claims will justify the development of the sensitive development at the airport; and</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>such other matters (if any) as are specified in the Regulations.</td>
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