BRISBANE AIRPORT CORPORATION

DOMESTIC TERMINAL MULTI-LEVEL CAR PARK (P2) EXTENSION

Preliminary Draft – Major Development Plan

Version B | 6 June 2023

Document Control

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EXECUTIVE SUMMARY

Brisbane Airport Corporation Pty Ltd (**BAC**) has prepared this Major Development Plan (**MDP**) for the construction and operation of an extension to the existing P2 Multi-Level Car Park (**MLCP**) located at the Domestic Terminal at Brisbane Airport. The extension to the P2 MLCP will primarily accommodate the increasing demand for terminal carparking at the Domestic Terminal.

BAC, as the Airport Lessee Company (**ALC**) under the Airports Act 1996 (**Airports Act**), is responsible for the submission of the MDP.

Key findings

Operational assessment

Aviation operations and safety

Prescribed Airspace, Airservices Communications, Navigation, Surveillance and Air Traffic Control operations, vertical plume rises, lighting, reflections and wind shear have been assessed across the Project site and no adverse impacts to aviation operations and safety have been identified for the construction or operational phases.

The aviation operational and safety impacts associated with the construction and operation of the proposed development is considered to be nil.

Ground transport operations

During the construction phase of the extension to the P2 MLCP, there will be some loss of capacity at the existing P2 carpark (<5% of bays). No impact will be caused to the capacity of the P1 car park. Construction impacts will be mitigated through the implementation of a traffic management plan.

The existing road network has been analysed for the opening of the P2 extension and there is sufficient capacity for the estimated additional traffic generated from the Project.

The traffic impact associated with the construction and operation of the proposed development is considered to be negligible.

Environment assessment

The environmental impacts from the construction and operation of the extension to the P2 MLCP were assessed, including soils, ground and surface water, air quality, ecology, noise and vibration, waste, hazardous chemicals and dangerous goods and cultural heritage.

The assessment has identified a limited number of areas where impacts may be low during construction and operation of the extension to the P2 MLCP. During the construction phase, there is potential for noise and vibration impacts and groundwater containing contaminants (such as acid sulfate, or PFAS) to be exposed. All other relevant environmental areas have been assessed and impacts are considered to be negligible.

A site-specific risk assessment will be undertaken to inform the design of the development and Environmental Management Plan/s (**EMP**). EMPs appropriate for the development will be approved and a CEMP (**Construction EMP**) implemented prior to the commencement of construction.

With the identification and incorporation of mitigation and management measures to be addressed as part of the design and EMP development, the residual environmental impacts are considered to be low to negligible.

1. INTRODUCTION

1.1 Background

Brisbane Airport Corporation Pty Ltd (BAC) is the operator of Brisbane Airport which serves as the premier aviation gateway to Queensland. Brisbane Airport currently consists of two runways, two major passenger terminals, and immediately prior to the COVID-19 pandemic accommodated 35 airlines flying to 84 domestic and international destinations.

Brisbane Airport is the largest capital city airport in Australia by land size with 2,700 hectares of land and is located approximately 12km from the Brisbane central business district (CBD).

BAC's extensive landholding in close proximity to Brisbane CBD offers a unique planning opportunity to capitalise on BAC's aim to become a major multimodal transport base and to provide world class commercial development opportunities.

Over the past three decades, Brisbane Airport has seen growth and diversification of land uses to complement its ongoing aviation development and function.

To support this growth and as documented in the 2020 Brisbane Airport Master Plan (M**aster Plan)**, the airport has been organised into definable separate neighbourhoods aligned with the vision of the Brisbane 2022 New World City Action Plan (refer to Figure 1). These neighbourhoods have been designed to create strong complementary communities of interest where businesses located together have the potential to derive benefits from the location in terms of shared or common services and facilities. These neighbourhoods include the Terminals neighbourhood located at the northern centre of the airport.

Figure 1 Airport neighbourhoods

The Terminals form part of the area designated as Special Purpose Airport Zone. The Special Purpose Airport Zone applies to the aeronautical operational areas of Brisbane Airport, including airside activities,

runways, and associated infrastructure, the Domestic and International Terminals and landside areas providing necessary, compatible, and complementary land uses, such as carparking.

Brisbane Airport's passenger movements are seeing sustained growth. Over 14 million passengers passed through the Domestic Terminal 2022, with passenger numbers expected to grow to over 25 million by 2034. The increased growth in passenger numbers will place increased pressure on the capacity of existing landside infrastructure, particularly the demand for terminal-based parking facilities.

The Domestic Terminal Building (DTB) is currently serviced by the Domestic P1 and P2 Multi-Level Car Park (MLCP) structures providing short and long-term parking products. During peak travel periods, these parking facilities are experiencing demand in excess of capacity. Continued growth in passenger movements will place pressure on these existing parking facilities.

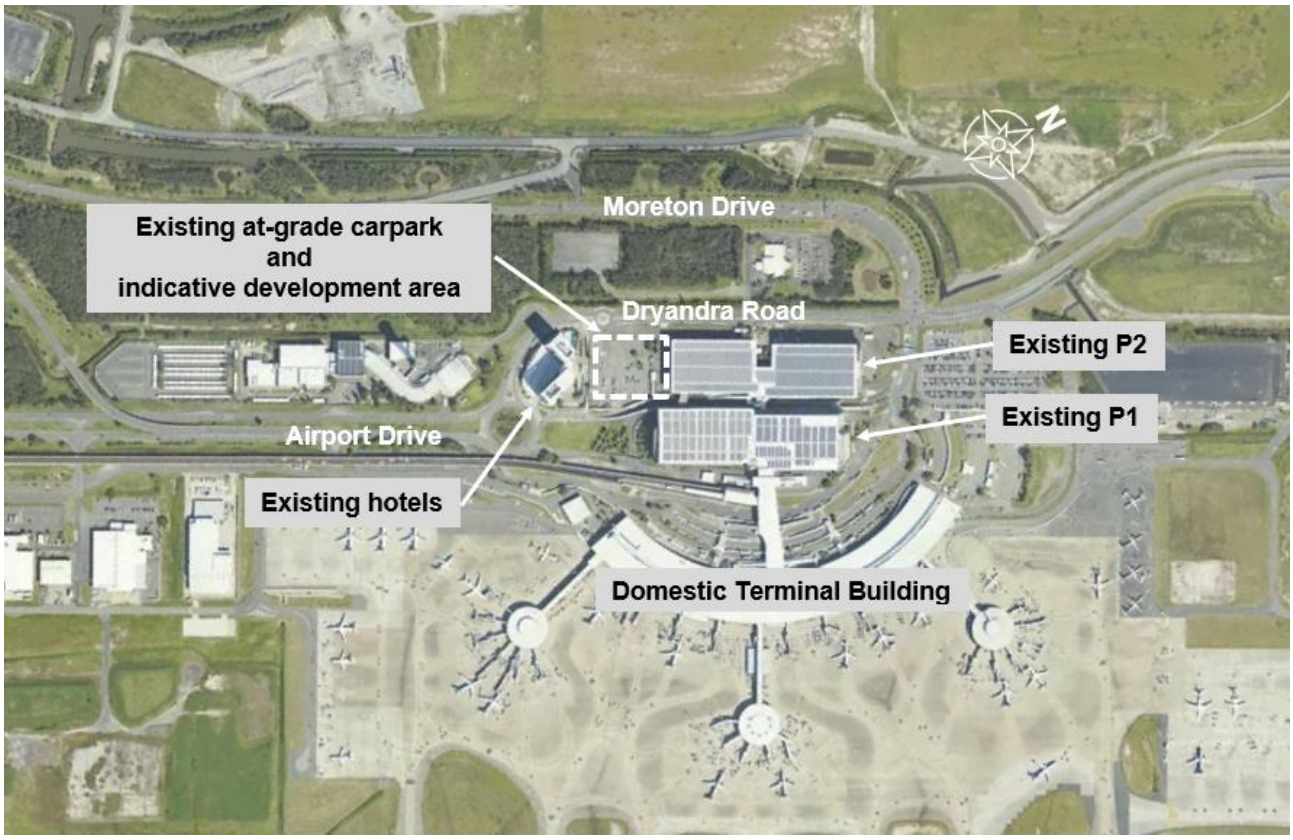
To address the current and projected growth in terminal parking, Brisbane Airport Corporation (BAC) is seeking to develop an extension to the existing P2 MLCP to service the DTB, the subject of this Major Development Plan (**MDP**).

1.2 Development plan

This MDP has been prepared for the development of a proposed extension to the existing P2 MLCP (**DTB P2X**, or the **Project**). Total site area of the development is approximately 1ha.

Figure 2 Project Locality Plan

Figure 3 Indicative development area



The DTB P2X project is expected to be delivered in two phases:

Phase 1
Q3 2023 to Q3 2024
MDP Approvals and Detailed Design

Phase 2
Q3 2024 - Q4 2025
Construction

1.3 Project summary

The proposed DTB P2X project scope is primarily a functional extension to the existing P2 carparking structure. The proposed Project will provide additional secure, undercover parking to meet the future demand for parking associated with the increasing passenger movements at the DTB, whilst utilising the available capacity within the existing transport and pedestrian infrastructure. BAC has investigated the potential design of DTB P2X to a conceptual level and has used this conceptual design as the basis for this MDP. This MDP is therefore based on an indicative building envelope which has been identified during the conceptual design phase (refer to Figure 4).

The ground level is expected to be similar to the existing at-grade carpark levels, minimising cut and fill materials. Excavations are expected to be limited to trenching activities (such as in-ground services) or piling activities.

Upon completion, the Project development will deliver approximately 1,700 additional public carparking bays.

Figure 4 Indicative Project MDP footprint

Figure 5 Indicative aerial render

Figure 6 Indicative southern façade render

1.4 Location of proposed development

The Project is located within the Terminals Neighbourhood adjacent to the DTB. The proposed Project site is currently used as an at-grade car park for over-height vehicles and Public Waiting Area (PWA). The proposed Project is bounded by Dryandra Road and the exit ramp from P1 towards Airport Drive. The existing site consists of asphalt surfaces, minor landscaping, and concrete edging.

There is an existing paved at-grade area to the west of the site that has previously been used as a site compound/staging area for the construction of the adjacent hotels (refer to Figure 7). This area may be available for BAC's appointed contractor to use during construction of the Project.

Figure 7 Existing paved at-grade area

1.5 Project objectives and justification

The overall Project objective is to provide sufficient car parking capacity at the DTB to cater for the expected growth in passenger movements. An assessment of landside parking in 2022 identified that in peak travel periods the existing parking facilities are already experiencing capacity constraints. As the forecast parking demands at the DTB are expected to increase with the increasing forecast passenger movements, the demand for terminal-based parking is exceeding the current available capacity.

DTB P2X is intended to be a seamless, functionally integrated extension of the existing P2 structure. The proposed Project provides an opportunity to add substantial additional parking capacity at the DTB with minimal alterations to operations.

Whilst BAC continues to implement the Ground Transport Plan to increase the use of public transport across the airport, improving parking is an initiative included in the 2020 Master Plan for delivery by 2025. Continued growth in passenger movements through the DTB will see a corresponding increase in vehicle traffic. To address the current and projected growth in short and long-term parking, BAC is seeking to extend the P2 MLCP.

1.6 MDP purpose

This MDP has been prepared as part of the approvals phase for the delivery of the Project by BAC. The Airports Act 1996 (**Airports Act**), section 91 (1A) states that the purpose of an MDP in relation to an airport is to establish the details of a major airport development that:

a. relates to the airport, and

b. is consistent with the airport lease for the airport and the final Master Plan for the airport.

An MDP must be prepared by the airport-lessee company in accordance with the content requirements outlined in section 91 of the Airports Act and submitted to the Minister for Infrastructure, Transport, Regional Development and Local Government (the **Minister**) for approval.

Accordingly, this MDP outlines:

- Details of the development including design considerations, supported infrastructure, and staging.
- Legislative requirements.
- Operational and environment assessment.

1.7 Project proponent

All works associated with the proposed development are on land within the existing boundary of the Brisbane Airport. BAC is an “Airport Lessee Company” under the Airports Act. The proponent for this proposed MDP as defined under the Act is:

Brisbane Airport Corporation Pty Ltd
11 The Circuit
Brisbane Airport Qld 4008

The contact in connection with this proposal is Angela Hili, Development Manager.

2. PROJECT DETAILS

2.1 Consistency with Brisbane Airport 2020 Master Plan

The Master Plan considers all aspects of airport operations for the next five years, including the planning framework for new development and aviation activity, environmental management, and transport planning. The Master Plan also considers strategic investment opportunities and initiatives at Brisbane Airport over a 20-year planning horizon.

The Master Plan provides a foundation for BAC to plan for growth and to create Brisbane Airport's future. To create this, the Master Plan focusses on four key areas:

- Growing aviation markets.
- Excellence in customer satisfaction.
- Supporting business growth.
- Driving economic prosperity.

The Project is consistent with the Master Plan and aligns with the overarching development objectives as outlined in Table 1.

Table 1 MDP alignment with development objectives

Development objectives	Alignment
Growing aviation markets: • Increasing connectivity. • Delivering capacity to meet demand. • Secure, safe, and efficient airport operation. • Investing in collaborative partnerships.	Demand for parking at Brisbane Airport continues to increase. The Master Plan and associated Ground Transport Plan identify the need to provide additional parking facilities in the Domestic Terminal Precinct.
Excellence in customer satisfaction: • Smarter journeys. • Better journeys. • Accessibility for all.	The Project will supply additional long term parking capacity with minimal changes to customer experience. A guiding principle for BAC is that facilities are accessible to passengers, staff, and visitors. Site-specific accessibility will be addressed through the development approval process. The 30-minute free Public Waiting Area (PWA) will be transferred to 30 minutes of free parking in P1, ensuring the continuation of this service for customers. Customers currently parking over height vehicles at the PWA will be able to park at AIRPARK in the Airport West neighbourhood.
Supporting business growth: • Creating collaborative business neighbourhoods. • Maximising ground connectivity. • Investing in sustainability. • Connecting business.	The Project will deliver additional parking capacity in the Domestic Terminal precinct which is currently not meeting the demand. The site has been chosen as it fits with longer term planning for terminal expansion in the precinct and is located to avoid impacting terminal face roads and connection points for public and active transport.

Development objectives	Alignment
Driving economic prosperity: • Enabling growth in economic wealth. • Proactive community engagement. • Enabling long term job creation. • Connecting Brisbane to the world.	The Project will continue to provide direct employment for local communities, during both construction and operational phases, thereby continuing to support long-term job creation in Queensland.

2.1.1 Land use and the Terminals Precinct

The Terminals precinct is located between the parallel runways and airfield and is zoned as Special Purpose Airport Zone.

This zone allows for a range of possible uses such as:

- Car parks.
- Transport depot or public transport facility.
- Aircraft movement areas and associated infrastructure.
- Terminal operations including the International, Domestic and General Aviation terminals.
- Landside areas providing necessary, compatible, and complementary support for aeronautical operations such as food and drink outlets, works depots, office space.

The Master Plan sets out specific development objectives for the Special Purpose Airport Zone and the Project is expected to meet the specific objectives for the Special Purpose Zone outlined in Table 2.

Table 2 Development objectives – Special Purpose Airport Zone

Development objective	Alignment
Development contributes to the function of the Brisbane Airport aeronautical facilities to maximise the operational efficiency of airport infrastructure.	The Project has been sited to supply additional carparking capacity while ensuring it does not hinder future terminal expansion in the Domestic Precinct.
Development provides housing, servicing, maintenance, and repair of aircraft; landing and departure of aircraft; assembly and dispersal of passengers and goods on or from aircraft.	The Project does not extend to aircraft related activities however will facilitate passengers to utilise long term car parking close to the Terminal.
Ancillary activities serving the needs of workers, passengers, and visitors to an airport, including shops, food, and drink outlets; tourism services; freight handling and shipping; training, education and aviation facilities.	This Project will provide additional parking for passengers and visitors. Ancillary support will be supplied by existing infrastructure in the surrounding Terminal precinct.
Development is appropriately located and has a function, scale, height, and bulk compatible with the aeronautical functions of the airport.	The Project fits within the land use and existing operations of the Terminals precinct. The height and bulk of the Project is consistent with the existing P2 car park.
Development provides goods and services to domestic and international travellers at a standard and quality which meets expectations for a world-class transport hub.	The intent of this Project is to fulfil a high demand for long term car park capacity at the Domestic Terminal.

Development objective	Alignment
Development facilitates high quality road, rail, public transport, and active transport connections enabling efficient and safe movement of people, goods and freight.	The Project will be able to accommodate the increase in traffic volumes without impacting on the road operations. Further information is set out in Section 4.2. The Project will not impact existing rail, public transport, or active transport connections.
Developments are compliant with aviation standards and relevant regulations and guidelines.	The Project will comply with aviation standards. Further information is set out in Section 4.1.
Development creates a variety of high-quality building forms, materials and façade treatments that contribute positively to passenger experiences.	The Project will be designed to seamlessly fit in with the existing surroundings and will consider where improvements to façade treatments could be incorporated.
Complementary uses are of an appropriate scale to serve the needs to employees, passengers, and visitors within the zone.	The Project will be designed to a high standard in keeping with adjoining terminal operations and land uses for passenger facilitation.
Development achieves a high standard of environmental performance by incorporating principles of sustainable and efficient design in both the construction and operational phases.	Section 2.2.1.3 sets out the approach for incorporating sustainability principles in the Project.
Development supports efficient movement of goods and freight through the airport to facilitate trade and employment growth.	The focus of this Project will be the facilitation of domestic passengers who wish to park close to the Terminal.
Development is designed, constructed, and operated to maintain the safety and security of people and property.	The Project will provide a safe and secure environment for visitors, customers, and employees. The specific security measures will be confirmed during the detailed design phase.
Interim land uses which do not prejudice future development are supported prior to land being needed for its ultimate land use.	The current use of the at-grade car park on the proposed site is considered to be the interim use of the site. Once complete, the Project will be the ultimate land use for this site.
Development complies with the National Airports Safeguarding Framework.	The development will comply with the National Airports Safeguarding Framework requirements. Further detail on this can be found in Section 4.1.

2.1.2 Ground Transport Plan

The Master Plan also contains the Ground Transport Plan (GTP). The GTP sets out the three guiding principles for future planning for ground transport facilities.

Table 3 Ground Transport Plan - Guiding principles

Future planning: Guiding Principle	Alignment
Meeting customer needs: a primary driver of all activities at the airport is to provide the highest level of satisfaction to all passengers, employees and visitors.	A focus on accessibility for all remains paramount in all future investment decisions. The Project will deliver additional car parking capacity close to the DTB and will include additional disabled parking spaces.

Future planning: Guiding Principle	Alignment
Vision and resilience: Retaining a focus on customers, Brisbane Airport Corporation will seek to address the needs of visitors and all members of the airport community when planning, designing and delivering future ground transport solutions.	The Project provides additional parking capacity to support the growth of passenger movements at the airport. The Project will provide an attractive southern façade to enhance the visual aspect at the Domestic Terminal.
Performance and partnership: In planning future ground transport services, Brisbane Airport Corporation will work in continued partnership with Government bodies	This Project is a key initiative proposed in BAC's Ground Transport Plan. BAC hold regular forums with Government bodies to plan for future growth in the ground transport network and to develop BAC's future Ground Transport Plans.

The GTP sets out key initiatives proposed by 2025. One of the key initiatives is the development of new parking facilities around the Domestic terminal. This Project will be delivering approximately 1,700 additional parking bays to the Domestic Terminal.

2.1.3 Airport Environment Strategy

The Master Plan also contains the Airport Environment Strategy (**AES**). The AES assesses the environmental values of the airport and provides specific action plans and measurable goals for the ongoing management and improvement of environmental outcomes. The proposed development is not located in the Brisbane Airport Biodiversity Zone, or any Environmentally Significant Areas identified in the AES.

BAC will ensure reasonable and practicable efforts are made to mitigate any environmental impacts identified in this MDP during construction and operation. During construction, a CEMP will be implemented to mitigate any potential adverse impact.

2.2 Project design

All design elements will be undertaken in accordance with overarching guidelines which include:

- Brisbane Airport Planning Guidelines.
- BAC's suite of technical and design guidelines (**Airport Technical Guidelines**).
- BAC's BNE Sustainability Strategy.
- BAC's Sustainable Design Guideline.
- Airport Environmental Strategy.

Further to the indicative concept designs prepared, BAC has undertaken engineering assessments to understand the impacts and constraints applicable to the Project. Key considerations to be addressed in future design development are outlined in the following sections.

2.2.1 Design

All works will be designed in accordance with:

- All relevant Australian Standards.
- All relevant Design Standards including National Construction Code (NCC) and National Fire Protection Association (NFPA).
- Brisbane Airport Planning Guidelines.
- Airport Technical Guidelines.

- Brisbane Airport Landscape Setting Strategy.

The development will be designed within the constraints of the site along with BAC's relevant standards and guidelines.

2.2.1.1 Materials

All prospective developments must comply with all appropriate and relevant BAC guidelines and requirements. The development is an extension to the existing P2 MLCP and will be consistent with the existing structure. Generally, the external building materials will be concrete with galvanised steel web-forge grating façade and a metal deck roof structure designed to accommodate solar roof panels. The building will have a non-reflective finish to ensure that glare from the buildings do not impact the safe operation of aircraft and air traffic control.

2.2.1.2 Development heights

Safe aviation operations rely on maintaining an airport environment as free as practical from obstacles that might impede the safety, efficiency, or regularity of current and future aircraft operations.

Under the *Airports (Protection of Airspace) Regulations 1996*, the 'prescribed airspace' for Brisbane Airport is made up of the obstacle limitation surface (OLS) and procedures for air navigation services – aircraft operations (PANS-OPS) surfaces. To ensure that there is no impact to aircraft and air traffic control operations the developments must not create a permanent obstruction into the airspace above the OLS and PANS-OPS surfaces.

Proposed developments will be reviewed against the airspace requirements to ensure no impairment of aircraft operations.

2.2.1.3 Sustainability

BAC recognises that sustainability is essential not just in ensuring long-term, responsible growth, but also in safeguarding the environment for future generations. BAC's BNE Sustainability Strategy builds on a long history of achievements, while developing partnerships with key stakeholders and aligning with the United Nations Sustainable Development Goals.

This provides an exciting future pathway for BAC, through a holistic approach that commits to delivering positive, sustainable outcomes through three actionable pillars:

1. Protect our planet.
2. Grow responsibly.
3. Support our communities.

BAC aims to achieve best practice economic sustainability performance for development projects at Brisbane Airport by incorporating principles of sustainable and efficient design in both the construction and operational phases.

2.2.2 Environmental

The Master Plan includes the Airport Environment Strategy (**AES**). The AES outlines BAC's continuing commitment to world best practice in environmental compliance and sustainability. It also includes details of affirmative measures and actions to be implemented from 2020 to 2025 at Brisbane Airport to ensure continuous improvement in all aspects of environmental management.

In addition to the AES, the Project will be developed in accordance with applicable standards and guidelines.

While environmental aspects are principally administered by Federal legislation relevant to airports, State laws may be applicable in certain circumstances. In practice, the application of State laws is resolved using two principles:

- Commonwealth legislation is always paramount, and State law is excluded where there is direct or indirect inconsistency between Commonwealth and State law.
- State legislation is applicable in specific circumstances (e.g., where no Commonwealth law exists or where State law can operate concurrently).

Whilst the following list is not comprehensive, relevant legislation, standards and guidelines may include:

- *Environment Protection and Biodiversity Conservation Act 1999 (the EPCB Act)*
- *Airports (Environmental Protection) Regulations 1997* (AEPR 1997)
- AS 4482.1:2005, Guide to the investigation and sampling of sites with potentially contaminated soil – Non-volatile and semi-volatile compounds
- AS 4482.2:1999, Guide to the investigation and sampling of sites with potentially contaminated soil – Volatile substances
- AS/NZS 5667.1:1998, Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples
- AS/NZS 5667.11:1998, Water Quality – Sampling, Part 11, Guidance on Sampling of Groundwaters
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)
- Brisbane Airport Corporation BAC Landside Stormwater Quality Management Strategy, Version 2.1, November 2013.
- Brisbane Airport Corporation Construction Environmental Management Plan Guidelines, Version 7, August 2020.
- Brisbane Airport Corporation PFAS and Contamination Sampling Analysis Guideline, Version 1.0, April 2021
- Brisbane Airport Corporation PFAS Management Framework, Version 2.0, April 2022
- Brisbane Airport Corporation Stormwater Quality Management Guideline, Version 1, January 2022
- CRC CARE 2011, Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (*Friebel and Nadebaum*)
- *Environmental Protection Act 1994* (Qld) *(EP Act)*
- *Environmental Protection Regulation 2019* (Qld)
- Heads of Environmental Protection Agencies (HEPA) Australia and New Zealand 2020, PFAS National Environmental Management Plan (PFAS NEMP), Version 2.0, January 2020
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (amendment 1, 2013) (ASC NEPM)
- National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual (Sullivan et al. 2018a)
- National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual (Sullivan et al. 2018b)
- National Uniform Drillers Licensing Committee (NUDLC), Minimum Construction Requirements for Water Bores in Australia 2011 (4th Edition 2020)
- Western Australia Department of Environment Regulation (2017), Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

2.2.3 Aviation

The Project development will be designed to comply with the requirements of the following guidelines and standards:

- National Airports Safeguarding Framework:
  - Guideline A: Measures for Managing Impacts of Aircraft Noise
  - Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
  - Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports
  - Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
  - Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
  - Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports
  - Guideline G: Protecting Aviation Facilities — Communications, Navigation and Surveillance (CNS)
  - Guideline H: Protecting Strategically Important Helicopter Landing Sites
  - Guideline I: Managing the Risk in Public Safety Areas at the Ends of Runways
- Civil Aviation Safety Authority Part 139 (Aerodromes) Manual of Standards 2019 (**MOS 139**).
- International Civil Aviation Organisation Annex 14.
- Queensland State Planning Policy.
- Civil Aviation Safety Authority Advisory Circular AC 139-05 Plume Rise Assessments.

2.2.4 Civil infrastructure

The Project development will ensure that the proposed development and the surrounding civil infrastructure are able to support the increased traffic volumes. All civil infrastructure developed will be consistent with the Master Plan and be designed and delivered in accordance with the relevant Austroads and Australian Standards.

Access road

As the existing road network has sufficient capacity to support the increase in traffic generated from the additional parking bays delivered under this Project, there are minimal modifications required to the road network surrounding the proposed Project. Alterations to the existing road network is limited to the access and egress points to the existing Project footprint (refer Figure 27). The design will be consistent with the Master Plan, Austroads and relevant Australian Standards. Further detail is provided in Section 4.2.

Pedestrian, and active transport network

This Project is being implemented to supply additional capacity for the current and future forecast demand for parking at the DTB. As the only mode of transport for this development will be private and commercial vehicles, it is unlikely this development will increase the demand for active transport.

The active transport network in and around the Terminals neighbourhood is considered in the Master Plan, and the Ground Transport Plan.

Pedestrian movements within the new carpark extension will be integrated with existing facilities and will be designed to facilitate safe movements of pedestrians. The facilities will be developed in accordance with Brisbane Airport Planning Guidelines and relevant Australian Standards.

Stormwater quality

BAC's contractors will be required to comply with BAC's Landside and Airside Stormwater Quality Management Strategy and consider water-sensitive urban design within the scope of the development.

2.2.5 Landscaping

Landscaping around the development will be consistent with the Brisbane Airport Landscape Setting Strategy focusing on providing the following characteristics:

- Adopts a use of a naturalistic and limited palette of native species.
- The structure of planting is to be used to clearly define and articulate precinct 'gateways'.
- Careful consideration of species choice, to:
  - Provide shade.
  - Minimise wildlife attraction (i.e., non-edible, non-roosting).
  - Minimise maintenance requirements.

The Project is located within the 'BNE Destinations' area as defined in the current BAC Landscape Setting Strategy. This designation will guide the landscaping design for the area.

The Project is considering the inclusion of a green wall on the southern façade to provide increased amenity within the precinct.

2.2.6 Work health and safety

Work health and safety requirements within and adjacent to the Project will be in accordance with relevant BAC requirements, Federal Government requirements and all applicable statutory requirements including the *Work Health and Safety Act 2011 (Cth), Work Health and Safety Act 2011 (Qld), Electrical Safety Act 2002 (Qld),* applicable subordinate legislation and National and State Codes of Practice.

2.2.7 Equity of access

All proposed buildings will be designed and constructed to meet the applicable requirements of the *Disability Discrimination Act 1992*. Provisions for mobility-impaired people within the building will comply with the applicable codes, including the *Disability (Access to Premises – Buildings) Standards 2010* and the National Construction Code (NCC).

2.2.8 Security

Developments within the Project will provide a safe and secure environment for visitors, customers, and employees. The detailed security measures will be confirmed during the detailed design phase; however, will need to comply with any aviation security requirements and for general property purposes align with the relevant principles contained in the *Crime Prevention Through Environmental Design: Guidelines for Queensland (Queensland Government, 2007), Aviation Transport Security Act 2004, Aviation Transport Security Regulations 2005* and BAC Technical Guidelines related to security.

2.3 Economic and social contribution

2.3.1 Brisbane Airport

Brisbane Airport continues to be an economic driver in Queensland and is home to more than 400 businesses employing thousands of people. The airport's location, combined with 24/7 operations, means Brisbane Airport is a critical enabler for both the Brisbane and Queensland economies. In recent years,

Brisbane Airport has contributed $4 billion to the Queensland economy annually. The main components that made up Brisbane Airport's contribution to the economy included:

- Direct inputs (in $) from wages and added business value of the airport businesses.
- Indirect contributions or associated flow-on benefits (in $) from the business transactions between airport businesses and the broader economy.

Just prior to the COVID-19 pandemic, over 23,000 people were employed at Brisbane Airport in aviation, light industry, retail, and freight sectors although employment at Brisbane Airport covers most industries of the Australian economy. Direct employment at Brisbane Airport also has an indirect economic contribution in the supply chain industries that provide goods and services to businesses that operate from Brisbane Airport. This indirect impact occurs both in Queensland and throughout Australia.

While the COVID-19 pandemic had significant impacts on the number of airline services and the number of passenger utilising Brisbane Airport, Brisbane Airport is experiencing a strong recovery in domestic travel which has a flow on effect to the broader economy.

2.3.2 Terminals Precinct

BAC anticipates that the Project will create approximately 100 jobs in the construction phase which will likely be filled by local residents. Jobs created by this development will create economic growth in the local community.

2.3.3 Local community

Brisbane Airport is vital to connecting families and local communities across Queensland and Australia. With an estimated 50 per cent of Queenslanders living outside Greater Brisbane, Brisbane Airport provides a vital link for businesses, freight, export, tourism as well as aeromedical services. BAC expect the jobs created during the construction and operation of the Project will be filled by people living in Brisbane. This means the indirect effects of higher employment in the local areas will also be reflected in the local economy.

Brisbane Airport values our community and will ensure that the 30 minutes of free parking that is currently available within the PWA will be transferred into the P1 carpark. When the PWA is no longer available for use, car park customers will be able to park for up to 30 minutes free within P1. Over height vehicles that currently use the PWA will be able to park at the AIRPARK carpark, located in the Airport West neighbourhood.

3. LEGISLATIVE CONTEXT

3.1 Commonwealth Legislation

3.1.1 Airport Act 1996

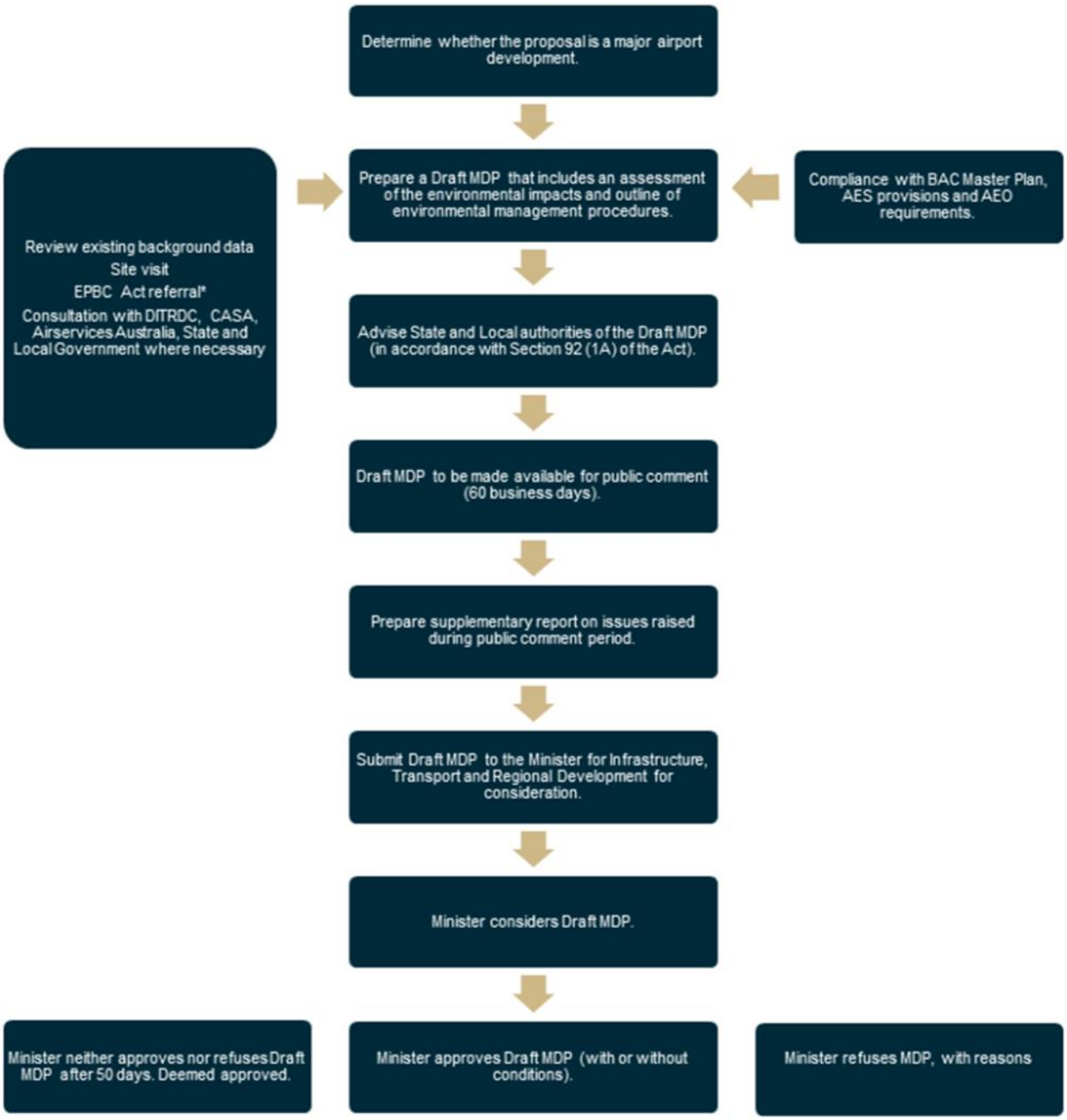
The Airports Act requires an MDP to be prepared for each “major airport development” at Brisbane Airport. Section 89 of the Act prescribes those activities that are included as a major airport development. The proposed development outlined in this MDP is defined as a ‘major airport development’ by virtue of Section 89(1)(e), defined as constructing a new building where:

- The building is not wholly or principally for use as a passenger terminal; and
- The cost of construction exceeds the threshold amount (which is currently $25 million).

Section 90 of the Airports Act 1996 states 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 the Airports Act. The key steps in the approvals process for an MDP are presented in Figure 8. An MDP checklist is provided in Appendix A to demonstrate the compliance with Section 91 of the Airports Act, which sets out the matters which must be included in an MDP.

Figure 8 Key steps in the MDP development process



It is also a requirement of the Airports Act that this MDP address whether the proposed development affects any subleases or other interests which existed prior to the Airport Lease commencing. BAC confirms that no such leases or interests currently exist which are affected by the Project.

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 (MNES). There are nine MNES currently protected under the EPBC Act, these are:

- World Heritage properties.
- National Heritage properties.
- Wetlands of international importance.
- Nationally threatened species and communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions.
- A water resource, in relation to coal seam gas development and large coal mining development.

The EPBC Act also protects the environment where actions are on or will affect 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.

Under the EPBC Act, if an action will have or is likely to have a significant impact on MNES or is deemed to require approval under Section 26 or 28 of the EPBC Act by nature of a potential significant impact on Commonwealth land or by a Commonwealth agency, a referral should be made to the Minister for the Environment. The Minister decides if the impacts are significant and whether an approval is required. The Minister's response to the referral determines the level and nature of environmental assessment required for final approval by the Minister for Infrastructure, Transport, Regional Development and Local Government.

Based on the assessment detailed in Section 5.6 the proposed development, including construction and operation, the proposed development will not a significant impact on a MNES or the environment.

3.2 Consistency with Airport Lease

A requirement of BAC's lease of the airport site from the Commonwealth is that the lessee must comply with all legislation relating to the airport site. This includes sections 91(1A), 91(1)(ca) and 91(1)(d) of the Airports Act which require that all major airport developments must be consistent with the airport lease and the final Master Plan.

BAC, as the airport lessee company for Brisbane Airport, has an obligation to ensure all developments on airport land comply with applicable legislation. BAC must confirm that any proposal on airport land is consistent with:

- The final Master Plan for the airport (current the 2020 Brisbane Airport Master Plan).
- The approved Airport Environment Strategy contained within the final Master Plan.
- Any approved Major Development Plan for the airport, if applicable.

The Project as described in this MDP, is consistent with the above documents and the 2020 Master Plan's land use intents. With BAC's guidance, the development will be constructed in line with the provisions of the

Airports (Building Control) Regulations 1996 and *Airports (Environment Protection) Regulations 1997* and in accordance with the relevant airport lease requirements.

As to the airport lease, it a requirement of that document that:

- Under clause 3, BAC must:
  - use the Brisbane Airport site as an airport;
  - provide for access to Brisbane Airport by interstate and intrastate air transport; and
- Under clause 12, BAC must develop the Brisbane Airport site having regard to the anticipated future growth in, and pattern of, traffic demand and in accordance with good business practice.

The Project will facilitate private vehicle parking and associated pedestrian connectivity to the Domestic Terminal. Furthermore, the Project has been sited to ensure it will not hinder future terminal expansion. Accordingly, the Project development is consistent with the airport lease for Brisbane Airport.

3.3 Consistency with state and local government planning

Being Commonwealth land, planning requirements for airport land is administrated under the Airports Act and other relevant Commonwealth legislation such as the EPBC Act. Under the Airports Act, state and local planning development provisions are not applicable to development occurring at the airport.

The Airports Act, does however, require that an MDP address where possible, the extent (if applicable) of any inconsistencies with planning schemes in force under a law of a state or territory in which the airport is located. The commentary in the following sections details the Project's consistency with relevant planning policies/schemes applicable in Queensland.

3.3.1 State Planning Policy

In preparing this MDP, consideration has been given to the Queensland State Planning Policy (**SPP**) which became effective on 3 July 2017. The SPP outlines the Queensland Government's interests in planning and development, as well as how these interests are dealt with in planning schemes, council development assessment processes and in designating land for infrastructure.

The SPP sets out a range of guiding principles, to which any plan making and development decisions in Queensland need to align. The state interests expressed in the SPP consist of a state interest statement, state interest policies, and assessment benchmarks.

The State interest statements, which should be considered in the context of the guiding principles, which this Project supports include:

- Development and Construction - Facilitating a range of commercial, retail, industrial, and mixed-use development opportunities to support economic growth and employment.
- Strategic Airports - Strategic airports and aviation facilities, including that development and associated activities will not adversely impact existing aviation operations and facilities.
- Water Quality - Water quality, including that the development is located, designed, constructed, and operated to avoid or minimise adverse impacts on environmental values of Queensland waters.
- Natural Hazards, risk, and resilience – The risks of natural hazards, including climate change, are mitigated to protect people and property.
- Infrastructure Integration - the planned infrastructure fits with surrounding infrastructure to achieve efficient and effective use of existing infrastructure, realise economic, social, and environmental benefits as well as considering future needs.

The state interest policies and assessment benchmarks express the outcomes for planning and development and underpin the overarching state interest statement. The state has a specific interest in planning for infrastructure including strategic airports and aviation facilities. On this basis, the operation of strategic airports and aviation facilities is protected, and the growth and development of Queensland's aviation industry is supported. Brisbane Airport is identified in the SPP as a strategic airport and is therefore protected in the SPP through the National Airports Safeguarding Framework (NASF) guidelines and associated mapping overlays. Section 4 sets out the assessment of this development itself against the NASF guidelines to ensure it is compatible with current and future airport operations.

The Project will be developed to ensure that the final design meets the above SPP interest statements, policies, assessment benchmarks and will therefore be consistent with the intent and outcomes of the SPP.

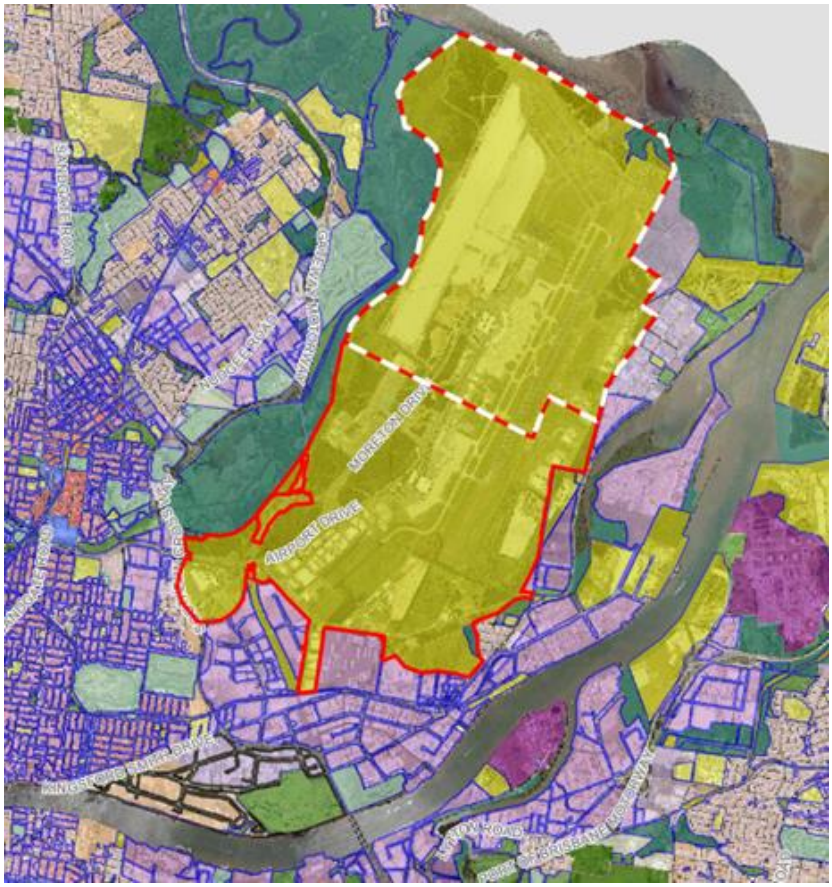
3.3.2 Brisbane City Plan 2014

Brisbane Airport is located within the "Special Purpose (Airport) Zone" under Brisbane City Plan 2014 (**City Plan**). Council's Strategic Plan within the City Plan acknowledges the airport as a major industrial location (as part of the broader Australia TradeCoast region) which is a key centre in the city and provides major air access to and from the city for passengers and freight.

Brisbane Airport (shaded yellow) is broadly surrounded by two different land uses set out in the City Plan and shown in Figure 9.

1. Industrial land along the eastern and southern boundaries (shaded purple).
2. Conservation land along the western boundary adjacent to the Kedron Brook Floodway (shaded green).

Figure 9 Extract of the 2014 Brisbane City Plan



The objective of the Special Purpose (airport) Zone in the City Plan is to facilitate:

- Housing, servicing, maintenance, and repair of aircraft.
- Landing and departure of aircraft.
- Assembly and dispersal of passengers and goods on or from aircraft.
- Ancillary activities serving the needs of workers, passengers, and visitors to an airport, such as shopping, food and drink outlets and tourism services.
- Associated training, education, and aviation facilities.

The proposed development is consistent with the land use intent of the Special Purpose (Airport) Zone as it facilitates the assembly and dispersal of passengers from the terminal through the provision of sufficient car parking capacity..

3.4 Building Approvals

In addition to the preparation and approval of an MDP, new development is subject to a Building Approval from the Airport Building Controller (ABC) under the *Airports (Building Control) Regulations 1996*.

The Building Approval cannot be issued by the ABC unless the ABC is satisfied that the proposed development is consistent with:

- The Brisbane Airport Master Plan.
- The Brisbane Airport Environment Strategy.
- BAC Planning Objectives.
- An approved MDP (where required).

BAC will ensure that any application for a Building Approval for the Project will meet these requirements.

4. OPERATIONAL ASSESSMENT

4.1 Aviation operations and safety

Developing land near an aerodrome has the potential to impact aviation operations and safety. In accordance with the requirements of Section 91 of the Airports Act, an assessment of the aviation operational and safety impacts of the Project has been performed.

The Project has been assessed against the National Airports Safeguarding Framework (NASF). The findings of the assessment have been summarised in Table 4.

Table 4 Assessment against NASF Guidelines

NASF	Comment
Guideline A: Measures for Managing Impacts of Aircraft Noise	Not applicable Aircraft noise is discussed in Section 4.1.1.
Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports	Not applicable Windshear and turbulence are discussed in Section 4.1.2.
Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports	Applicable Wildlife strikes are discussed in Section 4.1.3.
Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation	Not applicable The Project is not a wind turbine farm.
Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports	Applicable Distraction from lighting and/or reflection are discussed in Section 4.1.4.
Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports	Applicable Protected Airspace for operation and construction are discussed in Sections 4.1.5.
Guideline G: Protecting Aviation Facilities — Communications, Navigation and Surveillance (CNS)	Applicable CNS and Air Traffic Control are discussed in Section 4.1.6.
Guideline H: Protecting Strategically Important Helicopter Landing Sites	Not applicable The Project is not located within the vicinity of a Strategically Important Helicopter Landing Sites.
Guideline I: Managing the Risk in Public Safety Areas at the Ends of Runways	Not applicable The Project is not located within the public safety areas at Brisbane Airport.

4.1.1 Aircraft Noise – Australian Noise Exposure Forecast

NASF Guideline A, 2018 – Measures for Mapping Impacts of Aircraft Noises contains guidelines to manage the impacts of noise around airports including assessing the suitability of new building development or building expansion.

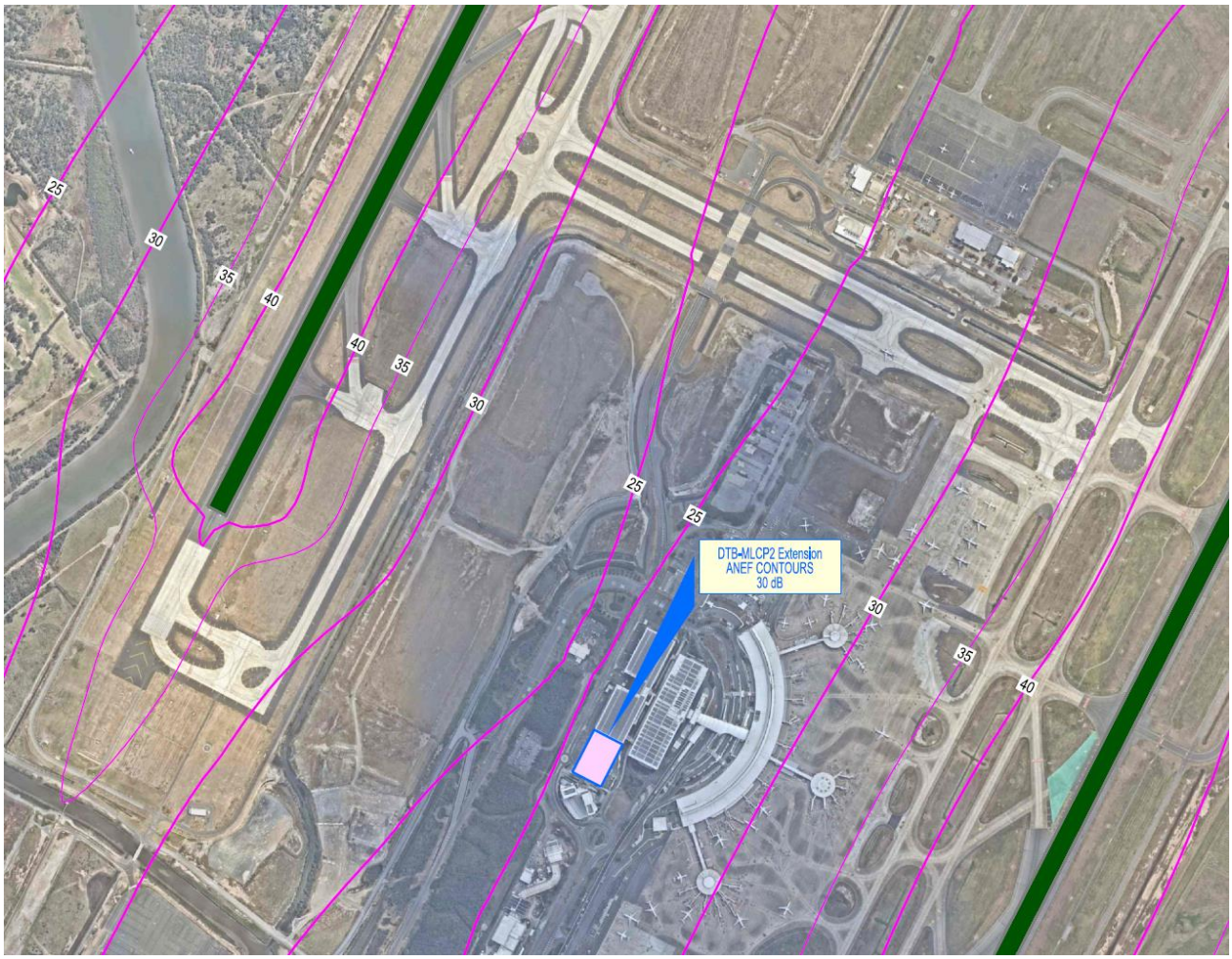
The Project is zoned as Special Purpose Airport Zone in the 2020 Master Plan which provides for permitted uses including passenger terminals and supporting infrastructure such as car parking. The 2020 ANEF contours are shown in Figure 10 and shows that the Project site is located within the ANEF 25-30 noise

contours, below the significant ANEF level of 30. This project does not intrude into areas forecast to be subject to exposure above the significant ANEF levels.

Under the Australian Standard for aircraft noise intrusion associated with building siting and construction (AS 2021-2015), there are no noise level or siting requirements for carparks.

The Project will not affect noise exposure levels at the airport and will not impact on ANEF Forecasts.

Figure 10 2020 ANEF Contours



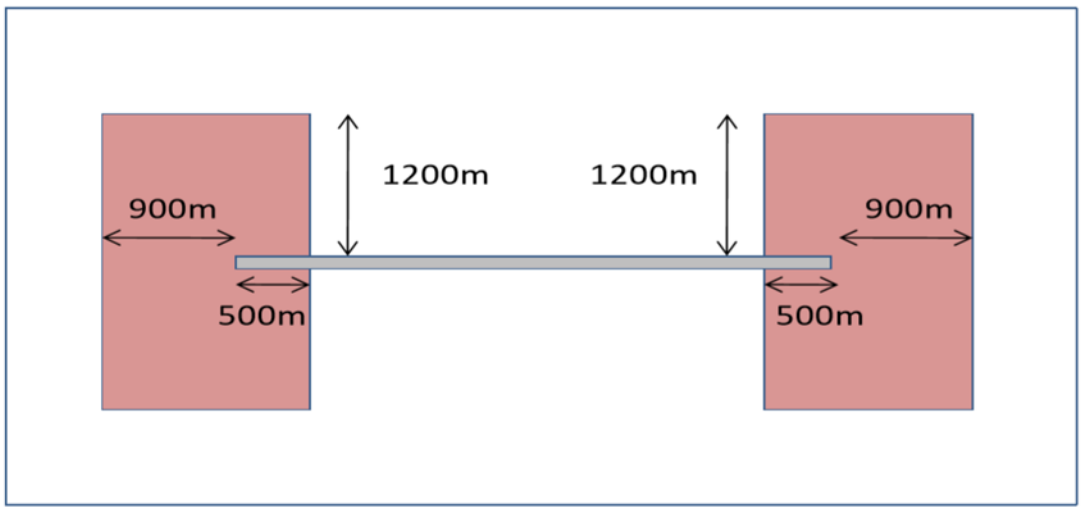
4.1.2 Windshear

NASF Guideline B, 2018 – Managing the Risk of Building Generated Windshear and Turbulence at Airports contains guidelines to manage the risk of building generated windshear (i.e., changes in wind speed and/or direction between two points) and building generated turbulence (i.e., rapid irregular changes in wind speed and/or direction at a fixed point) at airports.

The Project has been reviewed against the 'assessment trigger area' defined in NASF Guideline B (Refer Figure 11). The assessment trigger area extends:

- 1200m or closer perpendicular from the runway centreline (or extended runway centreline).
- 900m or closer in front of runway threshold (towards the landside of the airport).
- 500m or closer from the runway threshold along the runway.

Figure 11 NASF Guideline B assessment trigger area

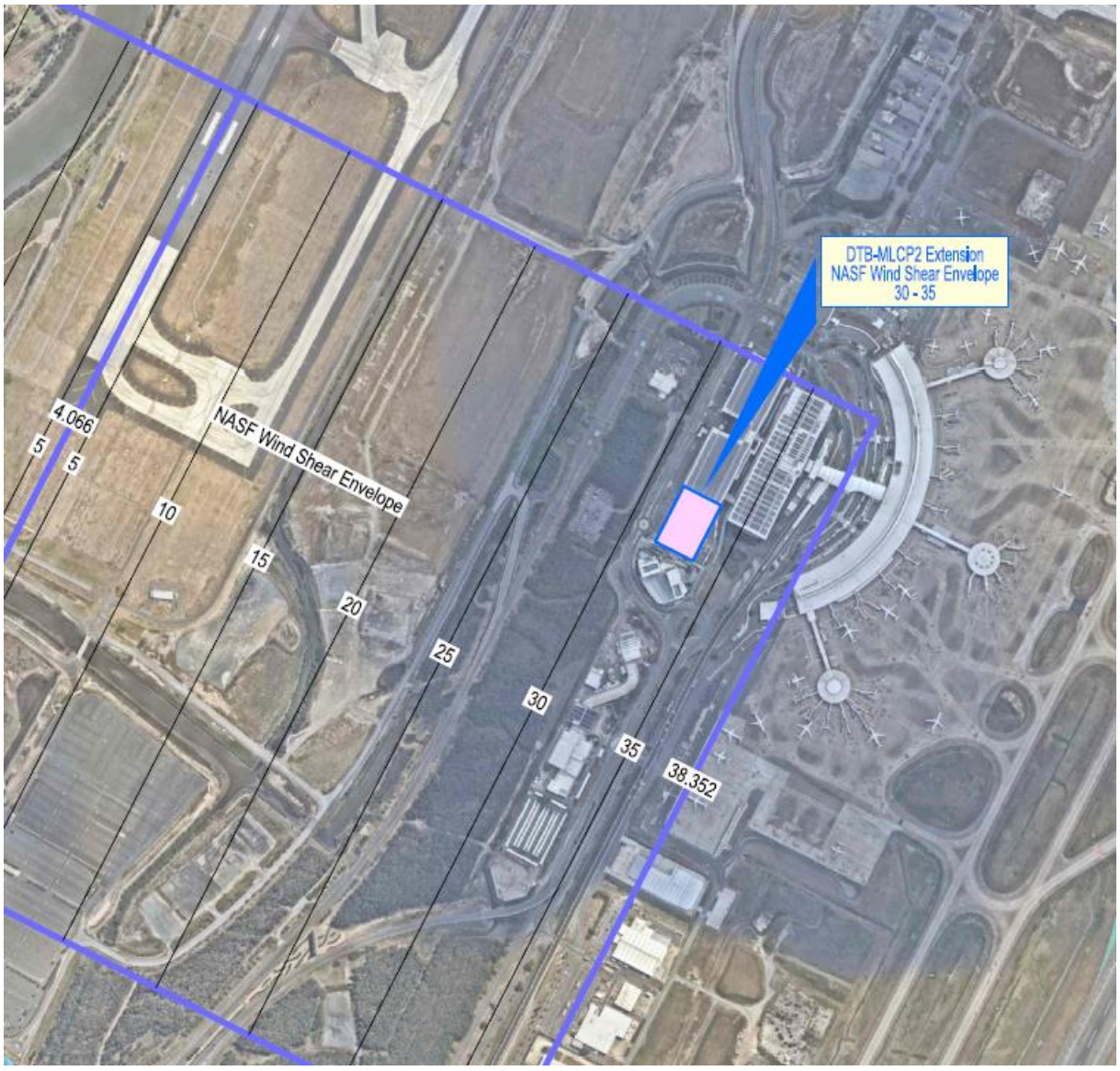


The defined assessment trigger area is shown in Figure 12.

The Project site is approximately 1000m from Runway 01L end. This places the development within the trigger assessment area. The NASF trigger assessment area (1:35) surface for the Project site is within a range RL 30-35m AHD. The proposed building is not expected to exceed RL 23.13m AHD and will not infringe on the 1:35 surface, therefore no windshear and turbulence assessment is required.

The Project site is located outside the trigger assessment areas for Runway 01R, 19L and 19R ends.

Figure 12 NASF Guideline B assessment trigger area



4.1.3 Management of Wildlife

NASF Guideline C, 2014 – Managing the Risk of Wildlife Strikes in the Vicinity of Airports contains guidelines to manage the risk of collisions between wildlife and aircraft at or near airports where that risk may be increased by the presence of wildlife-attracting land uses.

As referred to in section 2.2.5 landscaping around the Project will be consistent with the Brisbane Airport Landscape Setting Strategy. This includes wildlife attraction mitigation measures, such as:

- Plant selection to minimise bird and flying fox attraction.
- Minimise available food from rubbish bins.
- Avoid bird roosting potential.

The Landscaping Setting Strategy requirements will be addressed in the detailed design stages of the development sites.

4.1.4 Pilot distraction from lighting and reflections

NASF Guideline E, 2014 – Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports contains guidelines to manage the risk of distractions to pilots of aircraft from lighting and light fixtures near airports.

Light emissions near runways are a potential cause for concern to the safe operation of landing aircraft. Potential issues include:

- Pilots momentarily dazzled by bright lights.
- Light patterns that could be confused with approach and runway lighting particularly for pilots unfamiliar with the airport.
- Lighting that may reduce the night vision of air traffic controllers.

There are three potential sources of glint and glare from the proposed development:

1. Solar panels.
2. Building and street lighting.
3. Reflectivity of building materials.

4.1.4.1 Solar panels

The MOS 139 requires any proposed installation of equipment that would reflect sunlight, including solar panels, to be reviewed by CASA to determine that it will not cause a hazard to aircraft operations. The main consideration would be glare towards the air traffic controllers and glare experienced by pilots on approach and take off.

As solar panels are proposed as part of the building design, the following considerations will be included within the detailed design:

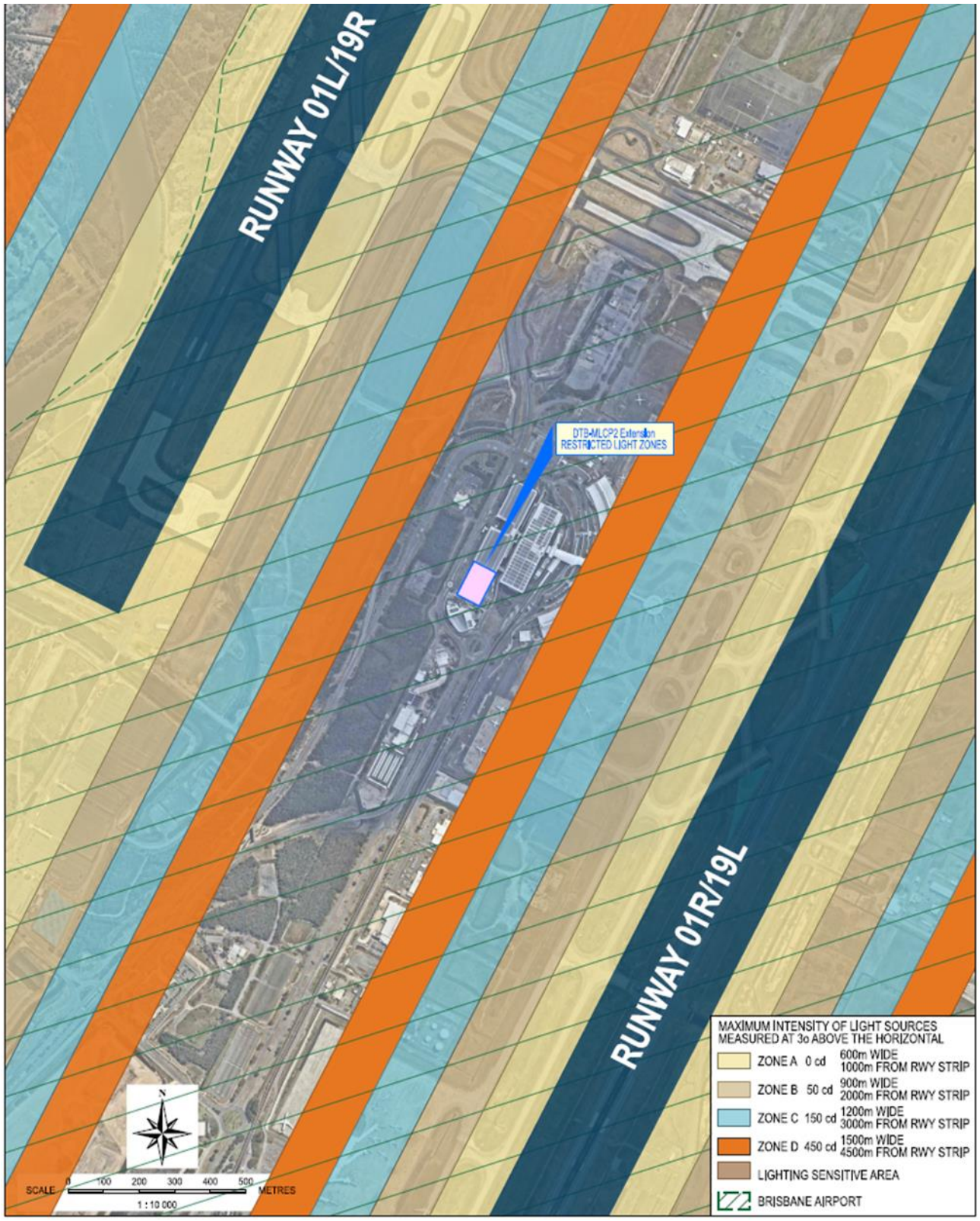
- Solar panels are to be installed so that their location, orientation, and angle of incidence will avoid glare to air traffic controllers as well as landing, taking off and manoeuvring aircraft.
- A glare analysis will be conducted using a recognised assessment tool (e.g., the Sandia Laboratories Glare Assessment Tool) as per US Federal Aviation Administration (FAA) Guidelines. The assessment will consider various solar panel configurations (including tilt, orientation, inclination, shape, and location) to mitigate glare but also maximise energy production.
- Consideration to use anti-reflective coating or textured glass noting that modern solar panels generally are designed to absorb light rather than reflect it.
- Any impact to the operation of radio equipment.

Further consultation with the relevant aviation agencies will be undertaken on an as-needed basis during the building detailed design phases.

4.1.4.2 Building and street lighting

The Project site is positioned outside of the light control zones as outlined within the NASF Guideline as shown in Figure 13. The Project will be developed in accordance Regulation 94 of the Civil Aviation Regulations 1988, Part 139 (Aerodromes) Manual of Standards 2019 including Sections 9.143 and 9.144, Australian Standards and BAC technical guidelines.

Figure 13 Maximum Intensity of light sources



4.1.4.3 Reflectivity of building materials

The external surfaces of the Project building will be constructed from materials with low reflectivity to minimise the risk of reflected glare impacting the safe operation of aircraft or air traffic controllers. Further

consultation with the relevant aviation agencies will be undertaken on an as-needed basis during the building detailed design phases.

4.1.5 Prescribed airspace – operation

NASF Guideline F, 2012 – Managing the risk of intrusions into the protected Operational airspace of airports contains guidelines to manage the risk of intrusions into the operational airspace of airports by tall structures, such as buildings and cranes, as well as trees in the vicinity of airports. The guidelines are also designed to address the following risks:

- activities that could cause air turbulence, where the turbulence could affect the normal flight of aircraft operating in the prescribed airspace; and
- activities that could cause the emission of steam, other gas, smoke, dust or other particulate matter, where the smoke, dust or particulate matter could affect the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules (VFR).

The potential impact of the operational phase of the Project to Brisbane Airport's prescribed airspace has been assessed and is detailed in the following sections.

The assessment is based on the operation of the parallel runway system at Brisbane Airport that includes the potential extension of Runway 01R/19L and Runway 01L/19R and the future airspace surfaces.

The potential runway extension is to create an increased take off length for 01 operations (take off from the southern end) to accommodate future aircraft models. It should be noted that this assessment is a safeguard, and at present there is no known future aircraft models that require an increased take-off length.

The 01L and 01R thresholds are not planned to be moved from the current locations for arrivals, and as such, the runway thresholds would be displaced in any future configuration. The potential future airspace extension to the runways are:

- Runway 01L/19R 300m to the south.
- Runway 01R/19L 500m to the south.

4.1.5.1 Obstacle Limitation Surface

As defined in CASA MOS 139 Chapter 7, an obstacle limitation surface (**OLS**) is a conceptual surface that sets the maximum height limits of objects within an aerodrome airspace to protect aircraft operations and safety in clear weather conditions. Any object that breaches the OLS will potentially become an obstacle to aircraft operations.

The relevant OLS surface for the assessment of the Project is the surface associated with potential future airspace surface as described in section 4.1.5. The relevant OLS surface for the assessment of the Project is the Inner Horizontal Surface.

Figure 14 illustrates the OLS across the Project site area. The OLS surface at the Project site is RL 48.5m AHD (Australian Height Datum). The Project building is not expected to exceed RL23.13m AHD. At that height, the Project building will not impact on the OLS surface.

Figure 14 Future OLS

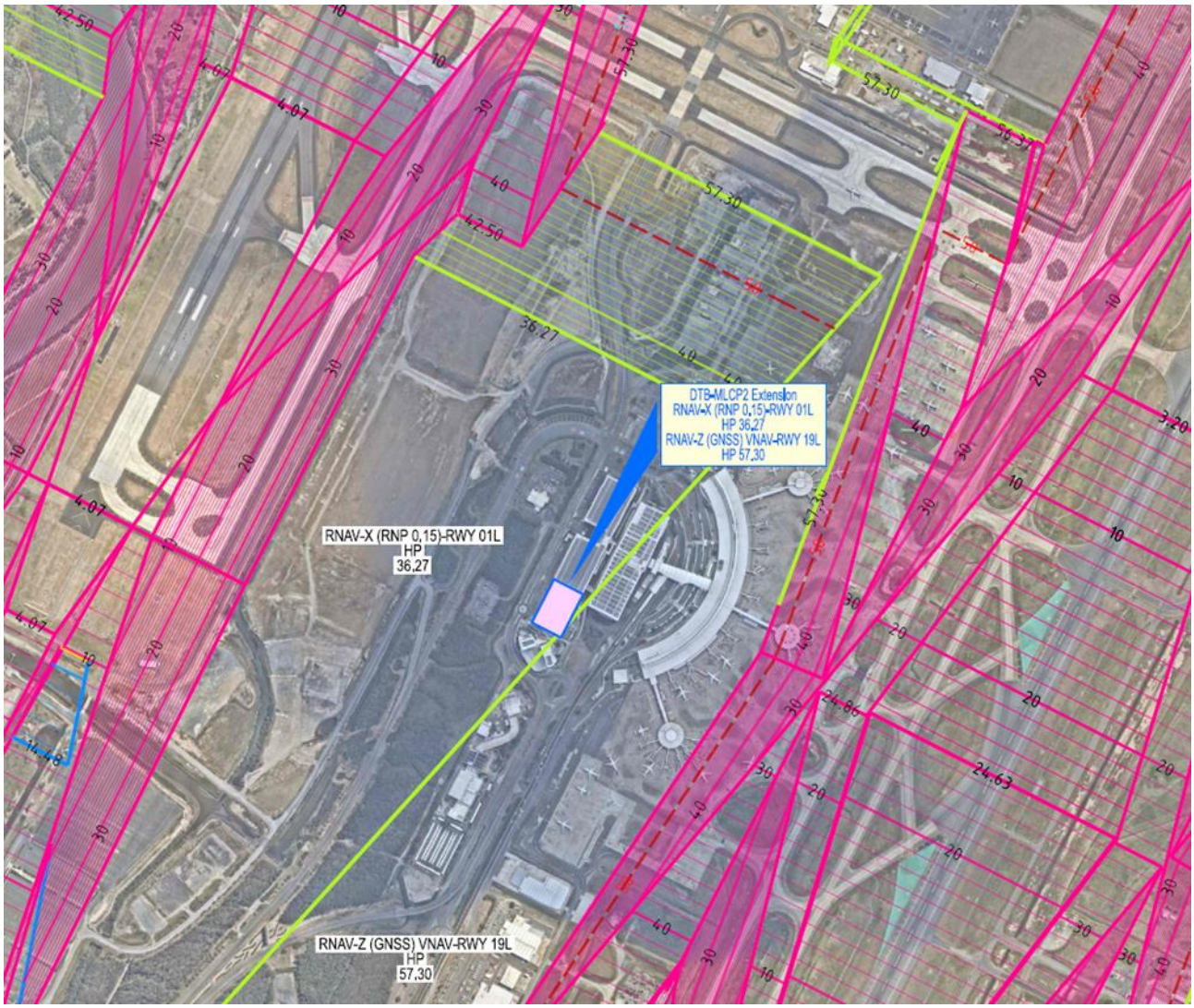
4.1.5.2 PANS-OPS surface

PANS-OPS surface refers to a conceptual surface which is intended to protect aircraft operations in poor weather or non-visual conditions (i.e., operating in instrument meteorological conditions). In these conditions, visibility can be significantly compromised due to cloud or fog. To avoid collisions, pilots need assurance that the airspace is free of obstacles. This is achieved by ensuring that no permanent structures are to penetrate the PANS-OPS surfaces.

The current PANS-OPS surfaces for Brisbane Airport were established in accordance with the *Airports (Protection of Airspace) Regulations 1996*, following the procedures published in ICAO Document 8168 OPS-611, Procedures for Air Navigation Services, Aircraft Operations.

The potential future PANS-OPS surface across the Project site is illustrated in Figure 15. The future PANS-OPS surface is RL 36.27m AHD. The Project building is not expected to exceed RL23.13m AHD. At that height, the Project building will not impact on the potential future PAN-OPS surface.

Figure 15 Future PANS-OPS



4.1.6 Protecting Aviation Facilities — operations

NASF Guideline G, 2016 – Protecting Aviation Facilities Communication, Navigation And Surveillance (CNS) contains guidelines to safely manage the flow of aircraft into, out of and across Australian airspace.

The potential impact of the operational phase of the Project to Brisbane Airport's aviation facilities for communication, navigation, surveillance, and emergency access has been assessed and is detailed in the following sections.

Airservices Australia has undertaken a preliminary assessment and have advised that the Project will not have an impact on any Airservices designed instrument procedures, CNS facilities or ATC operations at Brisbane aerodrome.

4.1.6.1 Communication, Navigation and Surveillance

Communication, Navigation and Surveillance (CNS) systems facilitate the safe management of aircraft flow into, out of and across Australian airspace. The CNS facilities are crucial to the safety of aviation. There are a number of CNS systems installed across Brisbane Airport. These systems are essential tools of the air transport system and rely on the transmission of radio waves. The efficiency and reliability of these systems can be affected by structures such as large buildings.

Airservices Australia has advised that the Project is unlikely to impact the performance of the CNS and has no objections to the Project.

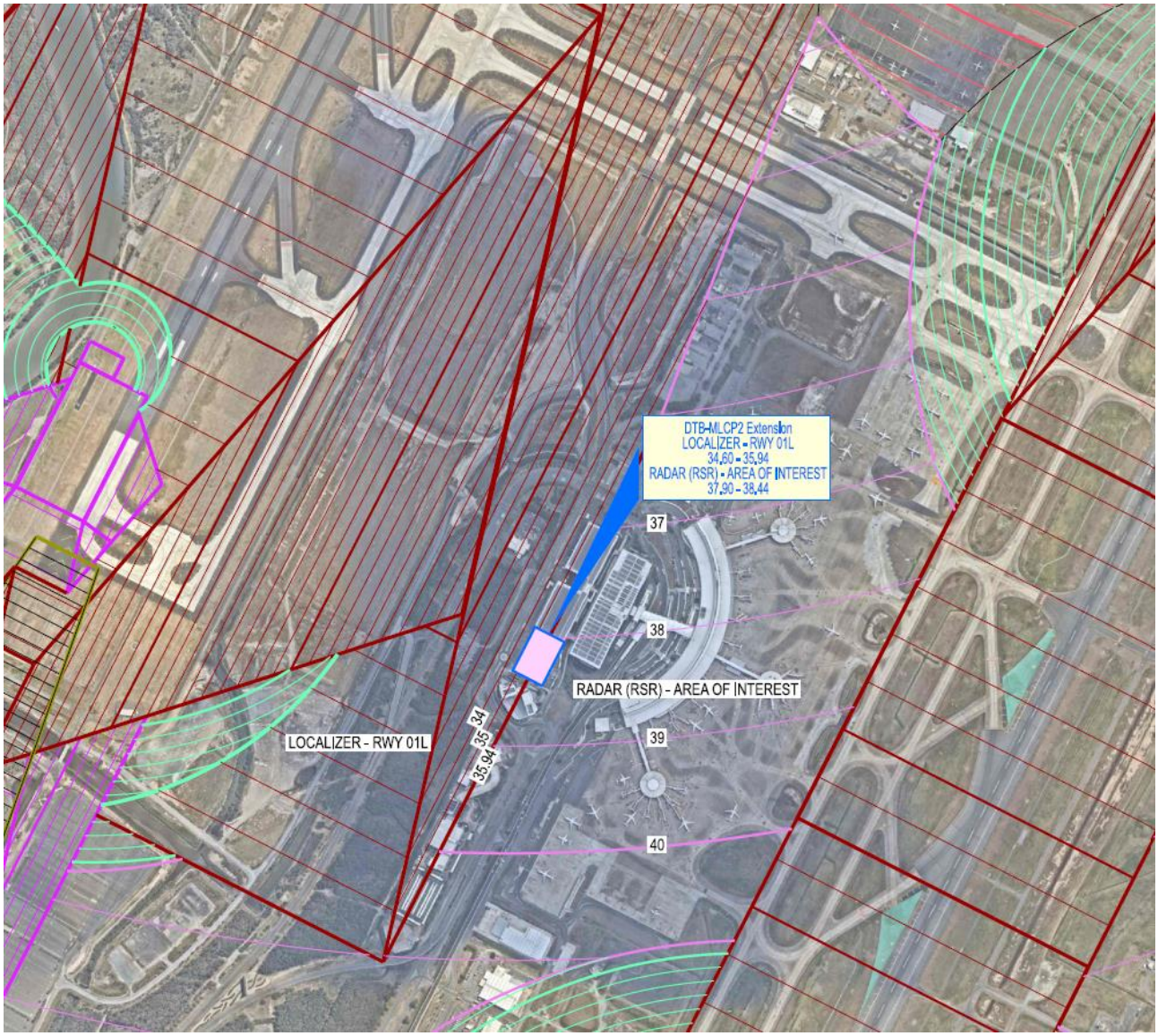
4.1.6.2 Instrument Landing System and en-Route Surveillance Radar

The Project is located within a number of Instrument Landing System (ILS) Surfaces and the en-Route Surveillance Radar (RSR). The existing ILS and RSR surfaces cross the Project site are illustrated in Figure 16.

The Project is located within both the Localizer surface, for Runway 01L and RSR surface. The Runway 01L ILS surface height is RL 34.6m – 35.94m AHD, and RSR surface height is RL 37.90m – 38.44M AHD. Project building is not expected to exceed RL23.13m AHD. At that height, the Project building will not impact these surfaces.

In the future Airservices Australia is planning to operate a Ground Based Augmentation System (GBAS) Landing System. The GBAS VHF Data Broadcast (GBAS-VDB) sensitive zone surface does not cross the Project site. The surface is located north of the Project site where it meets the Runway 01L Localizer and RSR surfaces. The Project building will have no impact as the structure is not expected to exceed RL23.13m AHD.

Figure 16 Potential future ILS and RSR



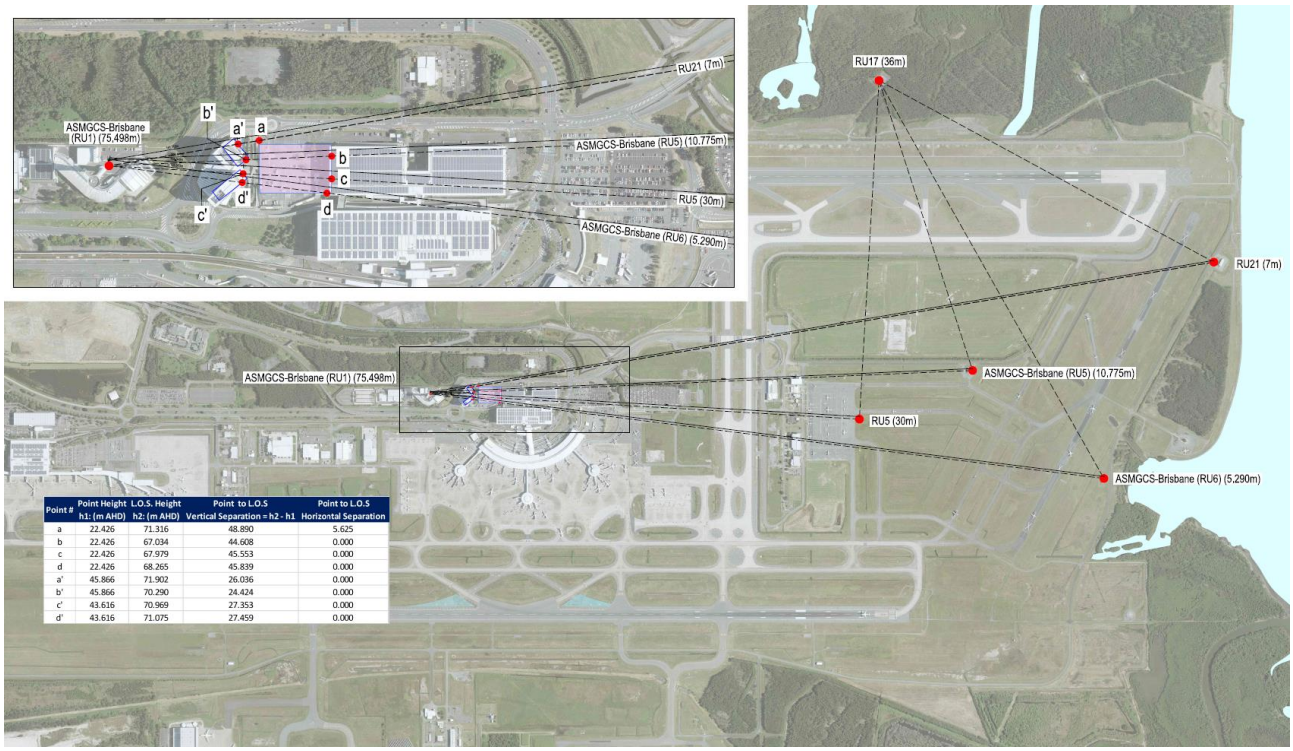
4.1.6.3 Advance Surface Movement Guidance and Control System

Airservices Australia has established an Advance Surface Movement Guidance and Control System (A-SMGCS) at Brisbane Airport. The system operates via a surface movement radar (SMR) with remote units (RUs) to triangulate and manage movements within the aircraft operating areas.

The Project site has a number of RU sight lines that cross the site. Figure 17 illustrates the RU sight lines. The lowest of these is the sight line between RSM Brisbane 1 – RU5 having a vertical offset of 43.90m. At that vertical offset, the Project building will not impact this system.

A preliminary assessment undertaken by Airservices Australia identified that it is unlikely that the Project will impact on the performance of the A-SMGCS. The Project will be progressed against a work plan notification with Air Traffic Control Operations (ATC).

Figure 17 A-SMGCS sight lines



Point #	Point Height h1: (m AHD)	L.O.S. Height h2: (m AHD)	Point to L.O.S Vertical Separation = h2 - h1	Point to L.O.S Horizontal Separation
a	22.426	71.316	48.890	5.625
b	22.426	67.034	44.608	0.000
c	22.426	67.979	45.553	0.000
d	22.426	68.265	45.839	0.000
a'	45.866	71.902	26.036	0.000
b'	45.866	70.290	24.424	0.000
c'	43.616	70.969	27.353	0.000
d'	43.616	71.075	27.459	0.000

4.1.6.4 Automatic Terminal Information Service

One form of delivery of Automatic Terminal Information Service (ATIS) information to aircraft is via VHF signal. Existing radio repeaters and antenna are located approximately 150m from the Project site. Airservices Australia has undertaken a preliminary assessment and advised that the Project is unlikely to impact the performance of the ATIS and has no objections to the Project.

4.1.6.5 Emergency access

Emergency access will be considered and maintained in the development of the Project. The Project will not impede existing emergency response routes for ARFF on the public road network.

4.1.7 Prescribed airspace – construction

The construction methodologies proposed for the Project will be assessed as they are developed to ensure the approved methodologies do not materially impact aviation operations and/or safety. The main aviation impacts from construction are anticipated to be:

- Dust generated during the earthworks phase of the Project.

- Maintaining access for emergency vehicles.
- Construction craneage activity in proximity to the operating airspace surfaces.

Following consultation and approval, BAC will monitor construction activities to ensure there are no material impacts to airport operations. Any such impacts will be limited in time and extent and will be agreed with BAC Airfield Operations and other relevant stakeholders. This includes obtaining all necessary approvals under the *Airports (Protection of Airspace) Regulations 1996* in the event that construction craneage will penetrate the prescribed airspace for Brisbane Airport.

4.1.8 Air traffic control line of sight

A review of the air traffic control tower line of sight against the Project site has indicated no impacts to the line of sight to existing manoeuvring areas within the airfield.

The air traffic control tower line of sight against the Project is illustrated in Figure 18 and Figure 19.

Figure 18 Air traffic control tower line of sight

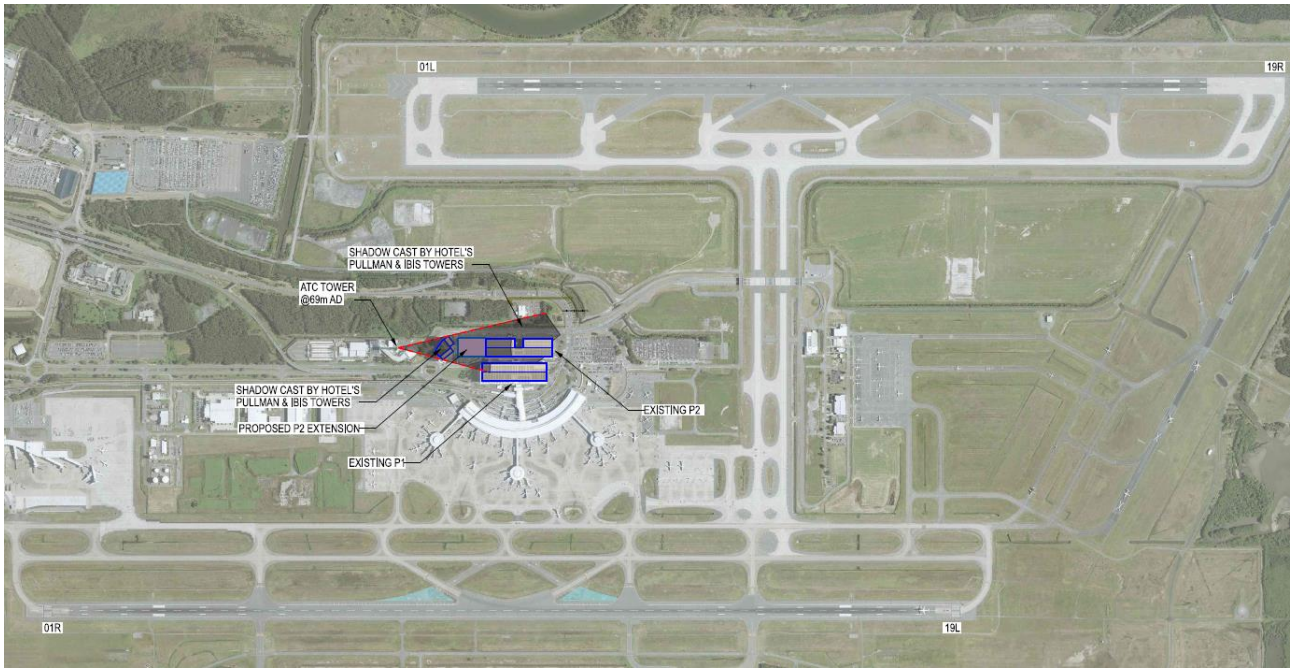
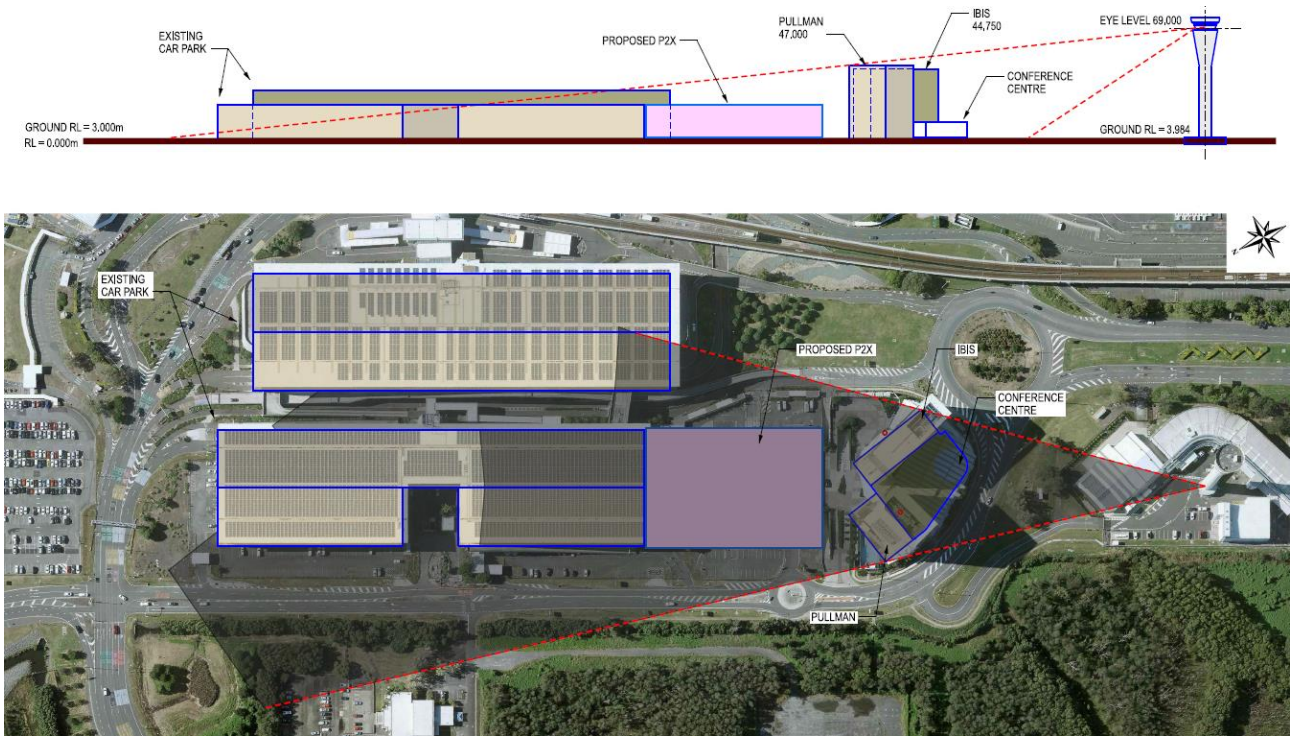


Figure 19 Air traffic control tower line of sight – elevation and detailed plan



As the structure is located central to the runways, positioned within the shadow of the existing hotel buildings, there will be no impact from the development on the air traffic control tower line of sight.

4.1.9 Vertical gas plume rise and dust

Regulation 139.180 of the Civil Aviation Safety Regulations 1998 (along with Civil Aviation Safety Authority Advisory Circular AC 139-5(v3.0)) and the *Airports (Protection of Airspace) Regulations 1996* identify the need to assess potential hazards to aviation posed by vertical exhaust plumes greater than 4.3 metres per second (m/s) velocity at the point of emission. The types of activities that are likely to generate such vertical exhaust plumes include power stations, smelters or activities requiring the use of pressurised gas systems.

The Project building will not include infrastructure or activities that would generate vertical exhaust plumes greater than 4.3m/s at the point of emission.

4.1.10 Public Safety Area

NASF Guideline I, 2018 – Managing the Risk in Public Safety Areas at the Ends of Runways contains guidelines on the assessment and treatment of potential increases in risk to public safety which could result from an aircraft incident or development proposal in areas near the end of an airport runway.

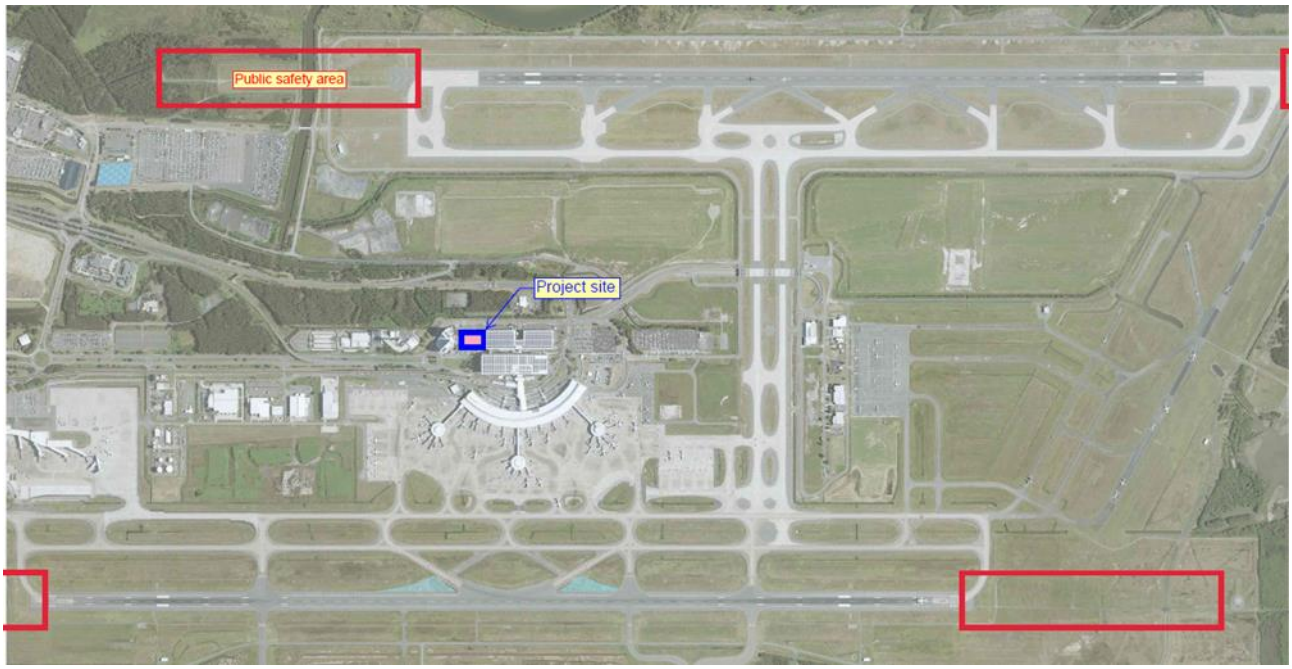
Public Safety Area (**PSA**) is a designated area of land at the end of an airport runway where development may be restricted to minimise risk to the public in the event of an aircraft accident on take-off or landing.

The PSA implemented at Brisbane Airport is based on the Queensland State Planning Policy (**SPP**), Public Safety Area (PSA) definition documented in the SPP guidance document for strategic airports and aviation facilities. This model applies a single defined PSA template and is shown for runway end 19L in Figure 21Figure 20.

Figure 20 Queensland SPP Public Safety Area

The Project site is located outside all Runway PSA's. Figure 21 shows the Project position in relation to runway ends and PSAs.

Figure 21 Public Safety Area



4.1.11 Mitigation measures

The completed Project building will not infringe airspace, CNS systems or control tower line of sight surfaces and will be subject to detailed review as part of the respective building approval submissions.

Other mitigation measures related to aviation operations and safety include:

- BAC will continue to engage with Airservices Australia during the detailed design phase to ensure there will be no disruption to existing or future communications, navigation and surveillance systems (CNS) equipment, Navigational Aids (NAVAIDs) protection surfaces, the continuous line of sight for air traffic controllers (both current and future), and A-SMGCS (SMR shadowing).
- BAC will engage with Airservices Australia during the detailed design phase to ensure there is no impact to the safe operation of aircraft or air traffic controllers from glint and glare generated from solar panels and reflectivity of building materials.
- BAC will follow the requirements outlined in *Guidelines for Operators of Federal Leased Airports Processing Applications under the Airports (Protection of airspace) Regulations 1996*. If through the development of the Project, potential controlled activities (excluding construction activities for the movement area of the aerodrome) are required, BAC will forward APAR application/s to the Department for consideration.
- BAC will engage with CASA and Airservices Australia as the various construction stages are progressed to ensure that any crane or elevated plant operations comply with the maximum operating height requirements on airport. Should any proposed construction methodology consider that cranes will penetrate the prescribed airspace, approvals under the *Airports (Protection of Airspace) Regulations 1996* will be sought.
- Dust suppression activities will be undertaken throughout construction to maintain line of sight and visibility for aircraft and air traffic controllers.

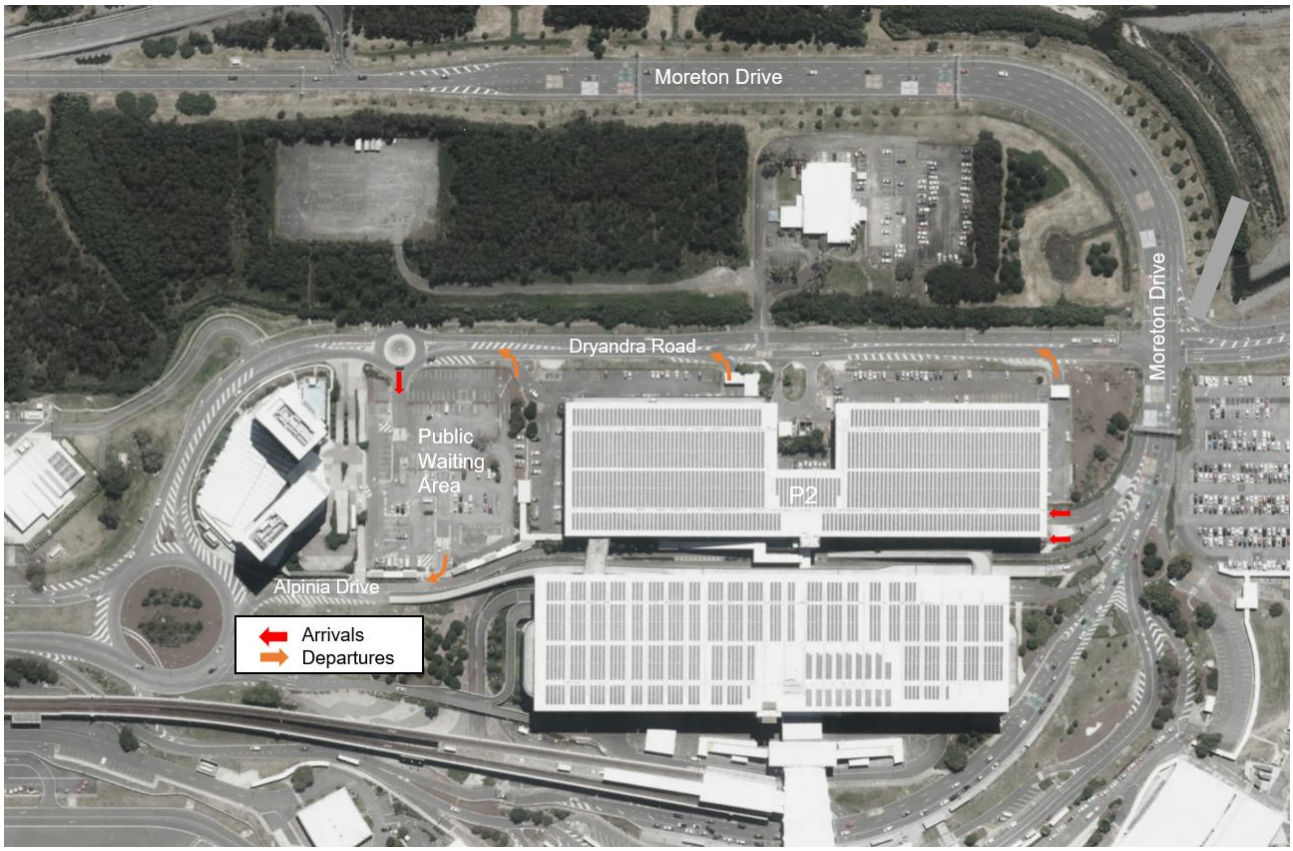
4.2 Road network

The development and operation of the Project has the potential to generate traffic and transport impacts within the road network surrounding the development. Accordingly, a traffic impact assessment has been completed by GHD Pty Ltd to assess the impact of this Project and address the requirements of Section 91 of the Airports Act.

4.2.1 Baseline conditions

The existing P2 is accessible via Dryandra Road or Moreton Drive. The existing P2 carpark has one entrance point from Moreton Drive and three exit points along Dryandra Road. The existing PWA has a dedicated access from the roundabout on Dryandra Road with an exit point onto Alpinia Drive.

Figure 22 Existing road access and egress locations



All roads in the surrounding road network are under the management of BAC.

4.2.1.1 Existing traffic volumes

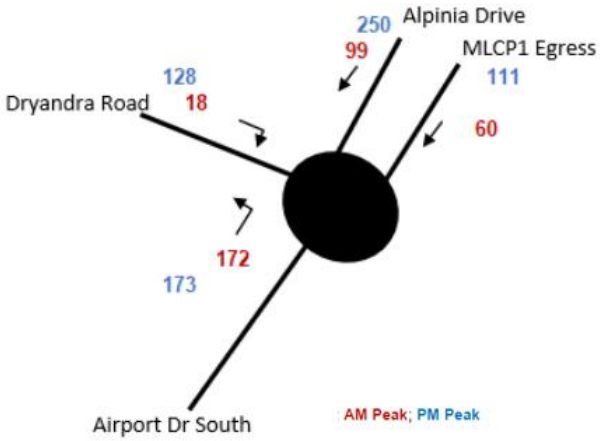
Owing to a reduction in vehicle traffic across the airport due to the impacts of the COVID-19 pandemic, it was not possible to accurately collect recent traffic counts on the roads surrounding the proposed site. Instead, background traffic volumes have been obtained from the most recent available traffic survey undertaken in 2020, prior to impacts from COVID-19. This is considered to be an appropriate comparative condition to the approximate current conditions for this development.

The traffic data showed that the busiest day at the DTB is typically Friday with over 35,000 vehicles per day travelling through the intersection of Moreton Drive and Dryandra Road. Under existing conditions, the peak hours are 5:00 – 6:00 am (AM peak demand with approximately 2,300 vehicles per hour) and 3:30 – 4:30 pm (PM peak demand with approximately 2,500 vehicles per hour).

The roundabout of Dryandra Road / Airport Drive / Alpinia Drive currently caters for the existing car parking facilities and the local traffic movements along Dryandra Road (including the hotels, air traffic control tower and the Black and White Cabs facility). The outbound traffic from DTB bypasses the roundabout via a slip lane and does not impact on the performance of the Dryandra Rd / Airport Drive / Alpinia Drive roundabout.

Existing demands at the roundabout are depicted in Figure 23. Under current traffic volumes, the roundabout operates within capacity.

Figure 23 Dryandra Road and Airport Drive roundabout: existing peak hour traffic volumes

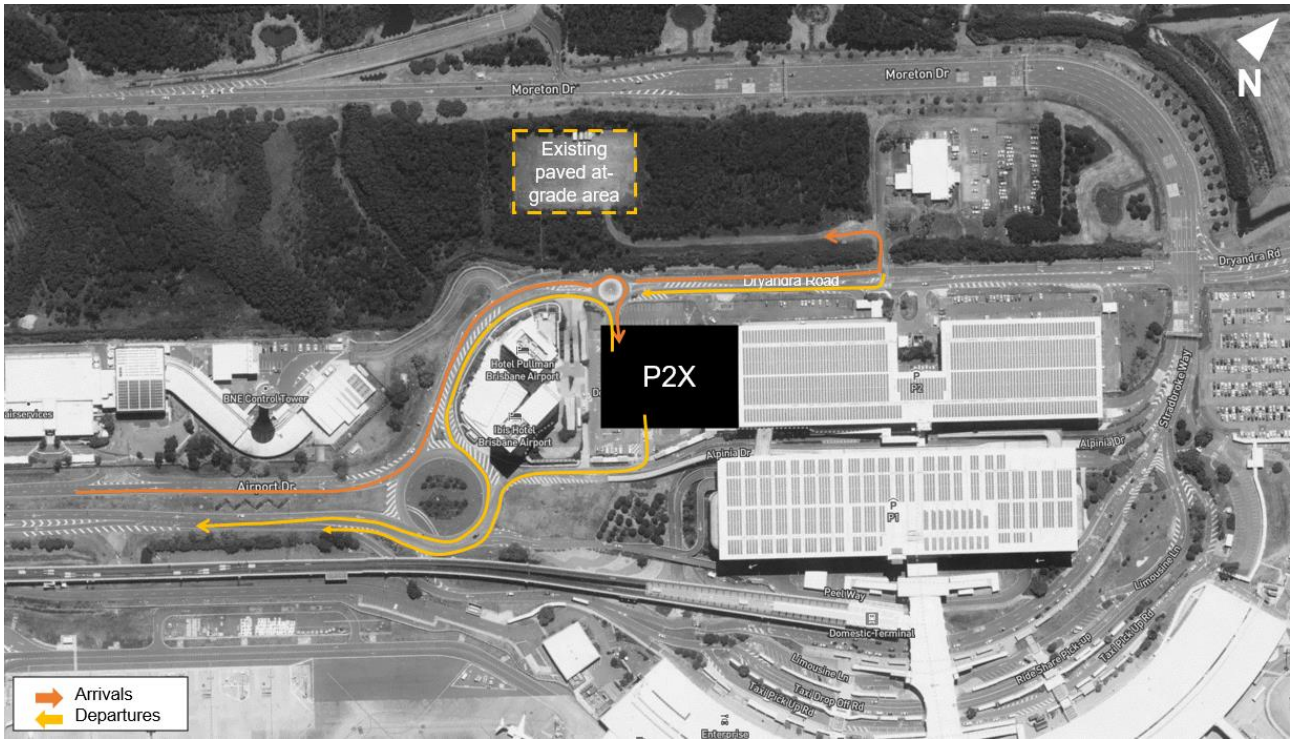


4.2.2 Assessment of construction impacts

Construction is expected to take place in line with the target development program. Prior to construction works commencing a traffic management plan will be prepared to minimise the impacts of the construction works on the surrounding road network.

Access routes to the sites will be managed during the construction phase to ensure there is no impact during peak periods, particularly for terminal-bound traffic. Construction routes are expected to be via Airport Drive, as indicated in Figure 24.

Figure 24 Anticipated construction access routes



Previous carpark projects have recorded a typical peak of 150 light vehicles (construction staff) and 35 heavy vehicles per day. Conservatively, the peak hour trips have been estimated to be 155 trips per peak hour accessing the site in the AM peak and egressing the site in the PM peak as shown in Figure 25 and Figure 26. It has been assumed that most of the traffic will exit the site via Dryandra Road.

The Dryandra Road and Airport Drive roundabout has been assessed against the estimated additional construction traffic.

Figure 25 Dryandra Road and Airport Drive roundabout: expected construction generated peak hour traffic demand

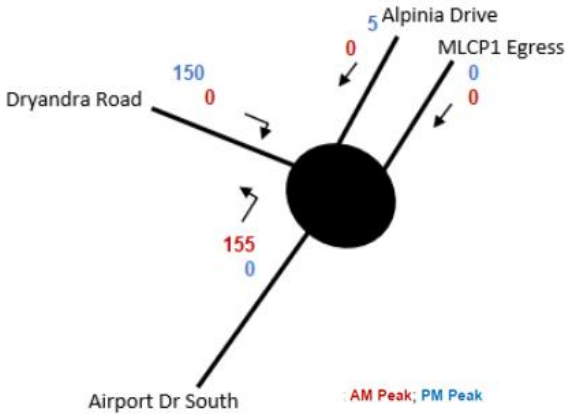
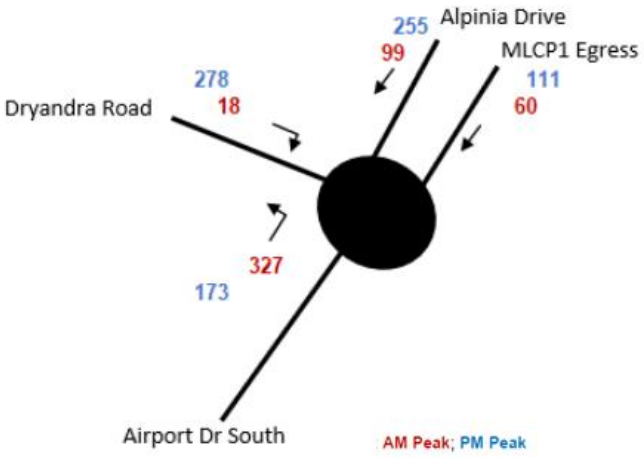


Figure 26 Dryandra Road and Airport Drive roundabout: total expected construction peak hour traffic demand



The existing intersection has been assessed and is determined to have sufficient capacity to accommodate the required volumes.

It is not expected that there will be any significant impacts to the existing intersection to access the existing paved at-grade area as shown in Figure 24. The construction generated traffic accessing this area are expected to be staff parking. As such, these movements will be managed during the construction phase to minimise adverse impacts to the surrounding road network.

The road network has adequate spare capacity in the near term to cater for the expected construction traffic. It is considered that the short-term impacts of the construction traffic, when carefully managed, will have low impact to the surrounding road network.

4.2.3 Assessment of operational impacts

When the Project is operational, there will be some minor changes required to the access and egress points. Due to the proposed development, the access to the existing PWA area from Dryandra Road will no longer be required. All access to the P2 (existing and extended) will be via the current access points on Moreton Drive. There is potential that the existing egress point from the PWA could be retained, however this is dependent on detailed design. As the removal of the egress point provides a 'worst-case' analysis for the traffic operation, it is assumed that the existing egress from the PWA has been removed. Figure 27 provides a diagrammatic representation of the changes to the access and egress points from P2 and the existing PWA.

Figure 27 Expected changes to access and egress points

P2 is primarily a long-term parking facility. As such, the hourly vehicle movements are relatively low. Based on the additional parking capacity, it is anticipated that the additional peak hour movements generated by the Project are:

Table 5 Estimated AM peak hour traffic volumes

AM peak	Existing volume	Expected additional volume	Total volume	Increase in traffic
Access (via Moreton Dr)	236	106	342	45%
Egress (via Dryandra Road)	24	11	35	46%

Table 6 Estimated PM peak hour traffic volumes

PM Peak	Existing volume	Expected additional volume	Total volume	Increase in traffic
Access (via Moreton Dr)	86	29	116	33%
Egress (via Dryandra Road)	87	58	145	67%

As the existing traffic volumes on Moreton Drive are in excess of 2,000 vehicles in the AM and PM peak hours, the anticipated increase in traffic generated from P2X is less than 5%, and unlikely to have any significant impact to the operation of the road network.

Dryandra Road is a low-utilised corridor, particularly in the outbound direction, therefore offering adequate resilience to cater to the additional demands.

The Dryandra Road and Airport Drive roundabout has been assessed against the estimated additional operational traffic.

Figure 28 Dryandra Road and Airport Drive roundabout: expected operational generated peak hour traffic demand

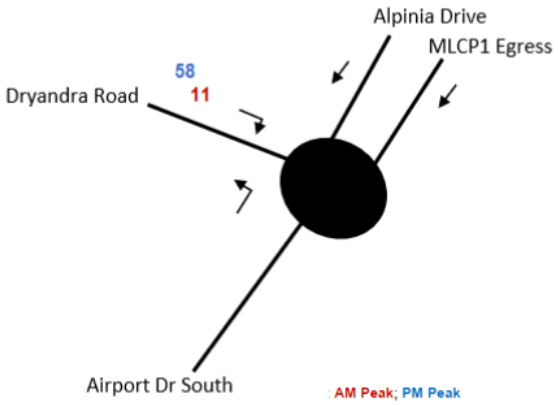
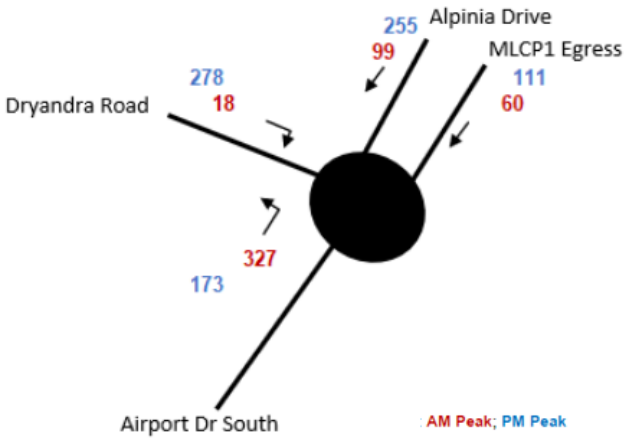


Figure 29 Dryandra Road and Airport Drive roundabout: total expected operational peak hour traffic demands



The Dryandra Road and Airport Drive roundabout has been analysed and there is sufficient capacity to cater for the anticipated additional traffic generated from operation of the Project.

The operation of the road network surrounding the expanded P2 (following completion of the Project) is expected to have negligible impact to the surrounding road network.

4.3 Other infrastructure and services

4.3.1 Stormwater

The Project development site is located within the Airside Drain catchment of Brisbane Airport. Master drainage planning across the airport has been carried out which considers the proposed long-term development across the site and identifies trunk drainage requirements and associated Minimum Development Levels (MDLs). MDLs are set to ensure an appropriate level of flood immunity is achieved and maintained over the design life of the proposed development.

The Project site is drained through a series of constructed channels to the discharge point into Moreton Bay at Serpentine Inlet. The drainage requirements for the development have been assessed to determine the

drainage requirements and MDL (based on 1per cent Annual Exceedance Probability at 2100) for the Project. This information will be used to inform and guide the detailed design, ensuring it remains compliant.

4.3.2 Utility requirements

The supply requirements of energy, water, sewer services and telecommunications for the Project will require an extension of the existing distribution networks.

The intended extensions are consistent with the projected rate of utilities network development at the airport and the key objectives contained in the 'Plan for Utilities Development' as part of the Master Plan. The objectives include:

- Ensuring distribution networks meet the required future demand and continue to improve network performance.
- Promote energy efficiency and sustainability by harnessing available technologies and encouraging tenants to adopt sustainable operations.
- Active engagement with utility suppliers to ensure that the development is in line with agreed future plans.
- Establish collaborative relationships with the local, state, and federal governments if required.
- Meet all legal, compliance and corporate governance obligations.

5. ENVIRONMENT ASSESSMENT

5.1 Environment management overview

Primary environmental compliance at Brisbane Airport is governed by the *Airports Act 1996 (Cth)*, the *Airports Regulations 1997 (Cth)* and the *Airports (Environment Protection) Regulations 1997 (Cth)* (AEPR). Locally, the Airport Environment Officer (AEO), appointed by the Department of Infrastructure, Transport, Regional Development, Communications, and the Arts is responsible for administering the AEPR.

The Brisbane Airport Master Plan includes the Airport Environment Strategy (AES) that covers certain environmental matters arising from the operation and ongoing development of the airport. The AES outlines BAC's commitment to best practice in environmental compliance and sustainability with documented affirmative measures to ensure continuous improvement in all aspects of environmental management.

The hierarchy of environmental guidance for development plans including MDPs is illustrated in Figure 30.

Figure 30 BAC environmental overarching framework

BAC's commitment to environmental responsibility extends beyond ensuring strict compliance with regulatory standards and controls. Maintaining long-term environmental sustainability is a fundamental tenet of BAC's operating philosophy. The AES includes specific and detailed plans of action across several categories, The areas in this report discussing the AES categories have been summarised in Table 7.

Table 7 AES Categories

AES Categories	Comment

1	Cleaner air: Reducing the sources of ground-based air quality emissions and supporting sustainable transport and active living options	Air quality if discussed in section 5.5
2	Best practice water quality management: Protecting surrounding waterways and ecosystems from adverse stormwater run-off and pollution.	Water quality management is discussed in section 5.3
3	Soil and groundwater management: Driving improvements in soil and groundwater quality through research, tenant engagement and risk management.	Soil and groundwater management is discussed in sections 5.3 and 5.4
4	Minimising ground-based noise: Ensuring sources of ground-based noise have minimal impact on airport workers, the local community and the environment through appropriate planning, design, and operations.	Ground-based noise is discussed in section 5.7
5	Sustainable development: Minimising the impact on the environment, local community, and airport workers from airport development through responsible planning, construction, and procurement practices.	Sustainability is discussed in section 2.2.1.3 and outlined in BNE Sustainability Strategy
6	Reducing greenhouse gas emissions: Reducing carbon emissions and taking steps to manage related issues across all airport operations.	Reducing greenhouse emissions is outlined in BNE Sustainability Strategy
7	Climate change adaptation: Addressing climate change impacts across all levels of normal airport operations and development activities.	Climate change adaptations is outlined in BNE Sustainability Strategy
8	Water conservation: Ensuring the reduction and efficient use of potable water and increased use of recycled water on airport.	Water conservation is outlined in BNE Sustainability Strategy
9	Reducing waste: Reducing waste to landfill by encouraging recycling and the reuse of resources.	Waste is discussed in section 5.8
10	Protecting biodiversity: Maintaining the airport's biodiversity values and contributing to Brisbane's biodiversity.	Biodiversity is discussed in 5.6
11	Preserving and promoting our heritage: Ensuring that the airport's heritage values are maintained and promoted.	Heritage is discussed in section 5.10
12	Tenant and contractor obligations: Ensuring airport tenants and contractors are aware of their obligations to develop and implement Operational Environment Management Plans.	Not applicable This is an operational requirement, not discussed in this document

5.2 Airport site environmental context

Brisbane Airport is situated on a reclaimed portion of a river delta at the mouth of the Brisbane River. The area surrounding Brisbane Airport is largely industrialised. With a coastal location the airport also contains and is adjacent to some areas of environmental importance.

More than 10 per cent of the 2,700-hectare Brisbane Airport site is dedicated to biodiversity conservation, including the foreshore, mangrove and saltmarsh communities, casuarina plantations and Phragmites wetlands/unmanaged grasslands that are home to locally significant bird species, the Lewin's Rail, Eastern Grass Owl and King Quail.

Areas of environmental value within and adjacent to the airport (Figure 31) include:

1. Moreton Bay Marine Park – a wetland of international importance under the Ramsar Convention on Wetlands.
2. The Brisbane Airport foreshore – feeding grounds for international migratory shorebirds.
3. Mangrove and saltmarsh communities under Serpentine Inlet, Jackson's Creek, Jubilee Creek and Pinkenba.
4. The Boondall Wetlands – listed under the Ramsar Convention as an internationally important wetland for international migratory shorebirds.
5. Bulwer Island and Boggy Creek wetlands.

Figure 31 Areas of environmental value withing or adjacent to the airport

The airport site is also seen as culturally and spiritually significant to the Traditional Owners of the land and has European historic heritage significance.

Aboriginal cultural and spiritual significance within and adjacent to Brisbane Airport include Dreaming Tracks and Dreaming Sites (an integral part of Aboriginal people's connection to country), the Nudgee to Eagle Farm Pathway (which connected ceremonial sites, hunting grounds and camp sites in the local area),

ceremonial grounds, food and water resources, temporary campsites, isolated archaeological finds, and a former burial site.

European historic heritage sites at Brisbane Airport include remnants of the former Cribb Island residential community, the former Cribb Island school site, the Kingsford Smith Memorial, Southern Cross aircraft, a memorial to the 460-bomber squadron from WWII, and an unofficial memorial garden for the scattering of ashes.

There are no Aboriginal or European cultural sites on or adjacent to the Project site.

Significant industrial neighbours include the Port of Brisbane, the Luggage Point Wastewater Treatment Plant, the BP jet fuel import terminal at Bulwer Island, the Viva Energy fuel storage and distribution terminal at Pinkenba, Caltex oil refinery at Lytton and heavy industries including fertilizer and concrete manufacturing plants.

The Project is located adjacent to the existing P1 and P2 MLCPs that service the DTB passenger parking demand and its operations.

Currently, the Project site is predominantly asphalt surfacing that is generally flat, sloping down towards the open drain to the north/west of Dryandra Road, which flows into Serpentine creek to the north and Kedron Brook Floodway to the west. Both waterways are tidally influenced and ultimately flow into Moreton Bay.

5.3 Groundwater and surface water

5.3.1 Baseline conditions

Site history

A review of historical aerial imagery of the Project site was undertaken to document the site history – aerial photographs from 1951, 1958, 1964, 1972, 1982, 1987, 1997, 2002 and 2017 were available from the Queensland Government online collection of photographs (QImagery, 2022). Select images are included below in Figure 32, Figure 33, Figure 34, Figure 35 and Figure 36 for reference.

Key milestone observations

The site is shown to be undeveloped until 1972 when minor building and road developments can be seen on the site. The larger disturbances can be seen in the 1981 imagery that shows clearing works across a large portion of the site. The 1982 imagery shows the construction of the Brisbane Domestic Terminal. The imagery from 1987 shows that the Project site has been developed into an at-grade carpark and remains largely unchanged when compared to present day.

Figure 32 1972 historic aerial, the Project site (source: QImagery, 2022)

Figure 32 shows minor changes in areas surrounding the site, such as building and road developments.

Figure 33 1981 historic aerial, the Project site (source: QImagery, 2022)

Figure 33 shows land disturbances and clearing works have occurred over a significant portion of the site. Unsealed roads can also be seen. North-west of the site clearing works have occurred and the Kedron Brook Floodway has been significantly altered and widened west of the site.

Figure 34 1982 historic aerial, the Project site (source: QImagery, 2022)

Figure 34 shows filling works have begun within the Serpentine Creek and significant vegetation clearance has occurred on site. The development of the terminals, runway and carpark of the Brisbane Domestic Terminal has begun.

Figure 35 1987 historic aerial, the Project site (source: QImagery, 2022)

Figure 35 shows the Serpentine Creek has been infilled and the remaining vegetation has been cleared. The Domestic Terminal, runways, roads, and carparks have been developed and the investigation area is now a car park.

Figure 36 2022 historic aerial, the Project site (source: Metromaps, 2022)

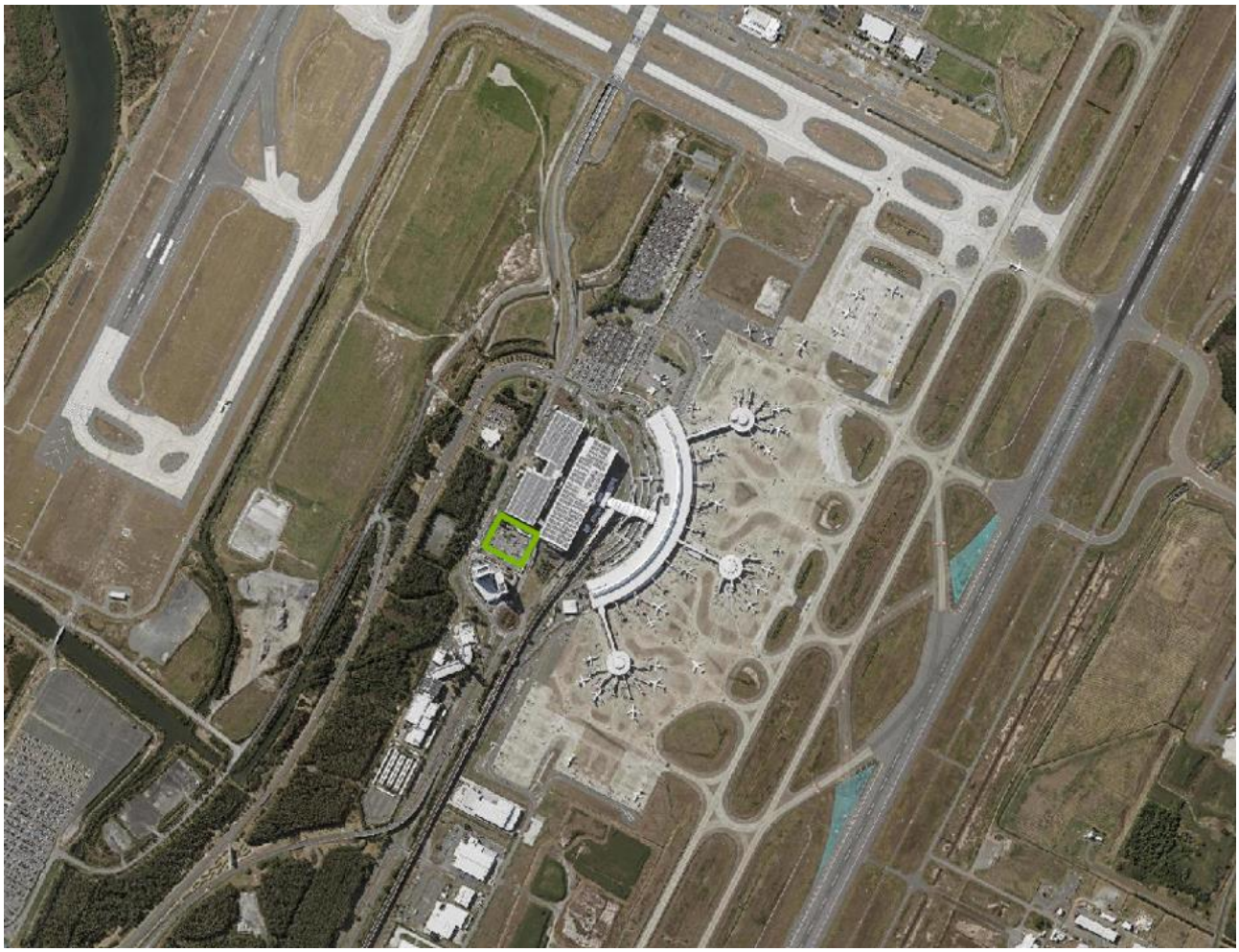


Figure 36 shows the status of the site at October 2022. No notable changes are apparent within the site boundary. The P2 multi-level carpark has been constructed to the immediate north of the site and the domestic airport has been further developed in the surrounding areas including runways, carparks and buildings.

Groundwater conditions

Groundwater monitoring was conducted by Aurecon (2022) across three monitoring rounds in total from three groundwater wells across the Project site. Groundwater quality is summarised as follows:

- Groundwater level at the site ranged from 1.1 m bTOC to 1.8 m bTOC (2.1 to 2.2 m AD). Level logger data was recorded over a period of three weeks and minimal tidal influence on groundwater levels was measured.
- The pH in the groundwater indicated neutral conditions.
- Groundwater alkalinity ranged from <20 mg/L to 1,000 mg/L.
- Groundwater electrical conductivity indicated freshwater to brackish conditions.
- Dissolved iron concentrations were relatively low and ranged between 0.28 mg/L and 6.4 mg/L.
- Dissolved aluminium was not detected in any groundwater sample.
- The chloride:sulfate ratio ($Cl:SO42_4^{2-}$) ratio of the groundwater samples identified that the groundwater was not influenced by past oxidation of ASS.

Metals/metalloids including arsenic, chromium and nickel were detected in groundwater, although at low concentrations below adopted screening criteria. Copper was detected in one sample above the adopted screening criteria for 95% species protection and AEPR 1997 limits for fresh waters. Hydrocarbons in the C_{10}-C_{40} fraction range were detected in groundwater below adopted screening criteria for most samples. Concentrations of total recoverable hydrocarbons (TRH) C_{10}-C_{36} were reported above the AEPR 1997 limits for marine and fresh waters in four samples.

It should be noted that multiple studies have consistently found elevated concentrations of metals including copper, zinc, nickel, chromium, and lead, as well as some hydrocarbons in the waters and sediments of Moreton Bay, particularly Bramble Bay which is immediately adjacent to the Brisbane Airport site (Arakel and Hongjun, 1992; Brady 2015; Morelli and Gasparon, 2019). These contaminants in the marine waters may be partially due to heavy shipping traffic in Moreton Bay, from leaching of multiple historic landfills built on the floodplains adjacent to Moreton Bay, as well as from industries in the wider area (Arakel and Hongjun, 1992; Brady 2015; Morelli and Gasparon, 2019). It is possible that these contaminants have slowly migrated from Moreton Bay to the groundwater underlying the Domestic Terminal and the wider Brisbane Airport (Arakel and Hongjun, 1992; Brady 2015; Morelli and Gasparon, 2019).

Queensland soils are also well known to contain relatively elevated levels of various metals/metalloids (Brady, 2015) and it is highly likely that this is significantly contributing to the levels of metals/metalloids detected in the groundwater at the Brisbane Airport.

All groundwater samples detected perfluorooctane sulfonate (PFOS) concentrations above the adopted ecological screening criteria for 99% species protection for fresh and marine water while six groundwater samples contained PFOS concentrations above the adopted ecological screening criteria for 95% species protection for fresh and marine water. All groundwater samples contained per- and poly- fluoroalkyl substance (PFAS) concentrations below the human health (recreational water) screening criteria.

Surface water conditions

Surface water monitoring was conducted by Aurecon (2022) across three monitoring rounds in total from three locations along the existing drainage channel to the west of Dryandra Road (upstream, downstream and adjacent to the Project site). Surface water quality is summarised as follows:

- Metals/metalloids including arsenic, chromium and nickel were detected in the surface water but at concentrations below the adopted screening criteria.
- Copper concentrations were above the adopted screening criteria for 95% species protection and AEPR 1997 limits for marine waters in five samples.
- Zinc concentrations from all sampling locations were above the adopted AEPR 1997 limits for freshwater and above the 95% species protection criteria in two samples.
- All samples collected from all three surface water sampling locations detected PFOS concentrations above the adopted ecological screen criteria for 99% species protection for fresh and marine water while one sample contained PFOS concentrations above the adopted ecological screen criteria for 95% species protection for fresh and marine water.
- All surface water samples contained PFAS concentrations below the human health (recreational water) screening criteria.

5.3.2 Assessment of impacts

Groundwater

The contaminated land investigation undertaken by Aurecon (2022) identified contaminants in groundwater at concentrations above the adopted screening criteria, including:

- Perfluorooctane sulfonic acid (PFOS) above the ecological screening criteria under the PFAS National Environmental Management Plan (NEMP) (2020).

- Iron, copper and total recoverable hydrocarbons above the Airports (Environment Protection) Regulations 1997 (AEPR) water pollution guidelines.
- Copper above the Australia New Zealand Guidelines (ANZG) (2018) for freshwater guidelines for 95% species protection.

In addition, while there is no indication of past acid sulfate soil influence in the groundwater, any exposure to oxidised ASS material will increase the acidity in the groundwater and potentially cause downstream impacts to the aquatic ecosystem.

While the construction works impact the groundwater is expected to be limited, there may be some construction activities that require dewatering (such as trenching for services or some piling activities). Any dewatering of excavations (if required) may result in impacts to the local groundwater aquifer and downstream receptors. The groundwater may become acidic through oxidation of ASS and contains elevated contaminant concentrations requiring management and/or treatment.

Surface water

Surface water quality impacts that have potential to occur during construction and operation of the proposed P2 multi-level carpark development include:

- Stormwater run-off and resultant sedimentation of the open drain and downstream aquatic ecosystem during construction activities due to inadequate erosion and sediment control measures, particularly during heavy rainfall events.
- There is limited potential that stormwater run-off from any soil disturbance areas may mobilise PFAS into the open drain.
- Potential disturbance of ASS and migration of acidic groundwater, resulting in a decline in water quality in the open drain and downstream aquatic ecosystem.
- Hydrocarbon and chemical spills during construction and operation due to inadequate storage and handling.
- Poor waste management resulting in litter and rubbish entering the open drain.

5.3.3 Mitigation measures

Groundwater

Given the shallow nature of the groundwater at the site, there is potential for groundwater to enter any excavations during construction. If dewatering of groundwater is required, a Dewatering Management Plan will be developed and implemented, which will include requirements for testing groundwater quality (i.e., pH, acidity, metals/metalloids, PFAS) and will consider options for management, including reinjection of extracted groundwater. Treatment and/or disposal of groundwater will also be considered where required to prevent unacceptable and/or increased risks to the environment and human health. Dewatering of groundwater that has seeped into excavations will be undertaken within minimal timeframes to allow recharge as soon as practicable.

Surface water

An Erosion and Sediment Control Plan will be developed as part of the Construction Environmental Management Plan (CEMP) for each construction stage to manage potential erosion and sedimentation impacts. Mitigation measures relating to erosion and sediment control are further detailed in Section 5.4.3.

On-going monitoring

A surface and groundwater monitoring program will be established to monitor concentrations of PFAS, metals/metalloids and acidity throughout the construction phase of the proposed development monitor the effectiveness of mitigation measures.

Pre-construction monitoring is required to establish baseline groundwater and surface water conditions. Monitoring frequency during construction to be revised as per changes in the site conditions and/or failure of performance criteria. If after 6 months from the commencement of construction, monitoring demonstrates that levels are consistently below performance criteria, then reduction of the frequency of monitoring should be considered.

The surface water monitoring will include three sampling locations along the existing open drain west of Dryandra Road – one upstream, one downstream and one adjacent to the site. The in-situ water quality parameters (pH, dissolved oxygen, electrical conductivity, turbidity, and total suspended solids) will be monitored at the three locations on a weekly basis during construction. Surface water sampling will be conducted at the three locations, including for PFAS, metals/metalloids, acidity parameters (pH, total titratable acidity, total alkalinity, chloride, sulfate, dissolved aluminium and dissolved iron) on a monthly basis and following heavy rainfall (20 mm in a 24-hour period).

Groundwater monitoring will continue at the three existing groundwater wells on a monthly basis during construction.

Groundwater will be monitored for the following:

- In-situ water quality parameters (groundwater level, pH, dissolved oxygen, electrical conductivity, turbidity, and total suspended solids).
- PFAS.
- Metals/metalloids.
- Acidity parameters (pH, total titratable acidity, total alkalinity, chloride, sulfate, dissolved aluminium (filtered) and dissolved iron (filtered)).

Performance criteria for surface water and groundwater monitoring will be developed as part of the CEMP and will be based on the water quality objectives and baseline values to be established prior to construction. These performance criteria will be used to identify whether failure of the mitigation measures (e.g., erosion and sediment controls etc) has occurred to identify whether corrective actions are required.

5.4 Soil and land contamination

5.4.1 Baseline conditions

Topography, geology, and soils

The overall site is relatively flat with an elevation ranging from 3.4 m to 4.0 m Airport Datum (AD). Based on geological mapping, the site is mostly underlain by Holocene alluvial soils comprising two alluvial layers consisting of mud and clays overlying the Lower Holocene deposits of silt, mud, sand and minor coastal tidal flats, mangrove flats, supratidal flats, saltpans, and grassland.

Contamination Status

A total of 76 primary soil samples were collected across 19 sampling locations within the Project site during the Aurecon (2022) investigation. Sampling density is in accordance with AS4482.1-2005 to characterise the nature and extent of contamination on site. Soil samples were analysed for PFAS, metals/metalloids, TRH, benzene, toluene, ethyl benzene, xylene, naphthalene (BTEXN) and polycyclic aromatic hydrocarbons (PAH). Concentrations of arsenic, chromium, copper, lead, mercury, nickel and zinc were detected in samples from all borehole locations; however no concentrations were above the adopted screening criteria for human health and ecological protection. It should be noted that background levels of arsenic in Queensland soils are naturally elevated, with concentrations of up to 30 mg/kg for urban soils and up to 50 mg/kg for rural soils being common and considered normal (AusIMM, 2011).

Minor TRH concentrations were also detected within twelve samples; however, the results were all below the screening criteria and do not pose a risk to human health and the environment. The source of these trace hydrocarbon concentrations is unknown.

Concentrations of PFAS were detected in one primary soil sample at a depth of 3.0 m below ground level (bgl) though at concentrations below adopted screening criteria for human health and ecological exposure. Soil leachate analysis for PFAS identified leachable concentrations of PFOS in one sample at a depth of 3.0 m bgl, at a concentration above the adopted ecological screening criteria for 99% species protection but below 95% species protection and human health (recreational) criteria.

Acid sulfate soils

Acid sulfate soil (ASS) investigations conducted within the Project site included four locations from the Aurecon (2022) investigation.

The presence of potential acid sulfate soils (PASS) was identified all four boreholes drilled across the Project site, predominately within the natural alluvium from depths of 2.0 m bgl to at least 5.0 m bgl. Actual acidity was identified in four samples collected within the Project site, although below the action criterion.

5.4.2 Assessment of impacts

Topography, geology, and soils

Potential impacts relating to construction works on topography, geology and soils include:

- Erosion of the adjacent open drain, particularly during rainfall events.
- Sedimentation due to stormwater runoff during high rainfall events, with impacts to the adjacent drain and downstream aquatic ecosystems.
- Tracking of sediment along the Airport access roads (e.g., Dryandra Road) during construction vehicle movement.
- Stormwater run-off and sedimentation into the stormwater drains from any stockpiled soil and waste material.
- Dust generation off any exposed surfaces, including stockpiles, which will impact sensitive receptors, users of the existing P2 carpark, Pullman and Ibis Hotels, and adjacent airfield operations.

Acid sulfate soils

The ASS investigation undertaken (to a maximum depth of 5.0 m bgl) identified potential ASS across the proposed P2 carpark extension area that contained ASS at depths from approximately 2.0 m bgl (Aurecon 2022). Any excavations within the development area have the potential to disturb ASS and create acid generation and as such, an ASS Management Plan is required to be developed.

As minimal impacts to groundwater are expected during piling and minor excavations of surface materials, it is not likely that the groundwater aquifer will be impacted by ASS. Further assessment of impacts to groundwater are discussed in Section 5.3.2. Contaminated soils.

The contamination investigation did not identify any contamination within the soils within the investigation area that pose a risk to human health (for commercial/industrial land uses) or to the environment.

There were only two samples (BH06 and BH11, both at 3.0 m) where PFAS was detected above the laboratory LORs, although these concentrations remain below the adopted screening criteria. There was only one sample where PFAS was detected in soil leachate (BH11 at 3.0 m), although concentrations were below the adopted screening criteria. Due to the minor nature of these concentrations and the depths at which they were detected, it is likely that this PFAS has originated from groundwater migration.

Any excavation of soil to depths below the groundwater table has potential to be contaminated with PFAS and will require management if being moved elsewhere on Brisbane Airport or off-site.

The operation of the car park will involve vehicle movement and general maintenance. It will not involve the storage and use of fuels, oils, solvents, and other potentially hazardous chemicals. As such, the risk of contamination during operation is considered to be negligible.

5.4.3 Mitigation measures

Topography, geology, and soils

Erosion and sedimentation impact during construction will be managed through an erosion and sediment control plan (ESCP) and will form part of the Construction Environmental Management Plan (CEMP). Specific mitigation measures relating to erosion and sediment control include, but are not limited to:

- Minimise exposure of disturbed soils at any time and progressive stabilisation of earthworks as practicable.
- Divert 'clean' stormwater run-off from undisturbed areas around disturbed areas.
- All erosion and sediment control measures will be constructed and maintained as per International Erosion Control Association (IECA) (2008) standard drawings and BAC Erosion and Sediment Control Guidelines.
- All erosion and sediment control devices will remain in place until site stabilisation has been achieved and approved by the BAC Environmental Advisor.
- Any potentially sediment-laden stormwater runoff will pass through a sediment control device prior to entering the adjacent open drain.
- Uncontaminated sediment removed from erosion and sediment control devices may be stockpiled and reused in landscaping or other fill projects, otherwise must be disposed of in an approved environmentally safe manner.
- Maintenance of erosion and sediment control measures will continue until the Project site has been suitably stabilised and further disturbance of soil by erosion is prevented.

Any potential movement of fill material will be managed through the CEMP. Vehicles transporting fill material will be adequately covered to reduce the generation of dust while in transit. In addition, site access/egress points during construction may include rock surfaced roadways, rumble/shaker grids and/or asphalt surfacing to limit tracking of soil onto airport roads. Further information relating to dust suppression and control is outlined in Section 5.5.

Acid sulfate soils

Soils across the investigation area, in particular within the natural clay soils, exhibited values indicative of the presence of potential ASS. An ASS Management Plan is required to be developed and implemented in accordance with the Queensland Acid Sulfate Soils Technical Manual – Soils Management Guidelines (v4.0) (Dear et al. 2014) to ensure that any adverse impacts caused by disturbance of ASS and/or an increase in acidity in groundwater and stormwater run-off are avoided. The ASS Management Plan will set-out measures for construction phase to ensure any generated acidic leachate, runoff or groundwater is treated prior to leaving the site.

Soil material is assumed to be ASS until proven otherwise and is to be managed by stockpiling within a nominated location and neutralised by lime treatment in accordance with the ASS Management Plan. Liming rates for the soils analysed have been calculated and will be incorporated into the ASS Management Plan to ensure appropriate treatment of soil material.

Detailed design of the Project will also consider potential impacts upon built infrastructure resulting from potential increased acidity in the soil and groundwater in the event of oxidation of ASS.

Contamination

During excavation works, if any unexpected contamination is encountered (e.g. odours, staining, asbestos or other signs of contamination), a suitably qualified consultant will be commissioned to assess the potential impact and recommend additional management strategies if required.

The CEMP will include procedures for assessing and managing contaminated soil, groundwater and surface water and will include an unexpected finds procedure. The CEMP will also include:

- An assessment of the expected volume of soil to be excavated and the concentration of contaminants in the soil and excavated spoil.
- A commitment and plan to manage any re-use and / or disposal of PFAS-impacted soils or water in accordance with the PFAS NEMP 2.0 (HEPA 2020, as amended from time to time).
- A commitment and plan to ensuring that the management, transport, and temporary storage of PFAS-impacted materials are consistent with the PFAS NEMP 2.0 (HEPA 2020, as amended from time to time.

Storage, transport, and use of any contaminants following construction such as fuels, oils and solvents must be carried out according to environmental legislative requirements and guidelines.

5.5 Air quality and odour

5.5.1 Baseline conditions

Brisbane Airport is surrounded by heavy industry including the Port of Brisbane, Viva Energy fuel storage and distribution terminal at Pinkenba, the Caltex oil refinery, and an Advanced Wastewater Treatment Plant at Luggage Point. Major roadways (including the Gateway Motorway) also border the site, impacting the local air quality.

Within the airport boundary, local air quality impacts associated with ground-based operations are regulated by the *Airports (Environment Protection) Regulations 1997 (AEPR)*. Air quality associated with emissions from aircraft (excluding aircraft ground-running and idling on aprons) is regulated under the Air Navigation *(Aircraft Engine Emissions) Regulations (AEPR)* 1995.

Air quality outside the boundary is regulated by the Queensland Government in accordance with the National Environment Protection (Ambient Air Quality) Measure with the nearest air quality monitoring stations located in the Wynnum area (including Lytton).

Regional air quality monitoring results are reviewed annually by BAC with assessment undertaken in accordance with the regulations. There has been no recent exceedance of Schedule 1 of the AEPR limits from nearby monitoring stations.

Air quality goals are to be defined based on legislation and approved as part of any CEMP or OEMP.

5.5.2 Assessment of impacts

During construction there is potential for dust and vehicle emissions to result in an impact on air quality. Activities such as general vehicle movements across exposed surfaces or wind erosion from exposed surfaces are likely to be the most significant activities in relation to dust emissions. During operation, vehicle emissions are the most likely source of emissions that have the potential to result in an impact to air quality.

5.5.3 Mitigation measures

The following mitigation measures will be implemented to manage any potential air quality and odour impacts:

- Dust generated during the construction phases will be controlled through a CEMP for each construction contracts. Example control measures in the CEMPs may include dust monitoring, dust suppression techniques and plant maintenance.
- Project equipment, machinery and vehicles will meet exhaust air quality standards in the normal manner for all vehicles sold in Australia and will be maintained to relevant standards to reduce emissions to as low as reasonably practicable.
- The Project will be designed and constructed to ensure appropriate ventilation within the structure.

Subject to the implementation of the above mitigation measures, the risk of air quality impact from Project is considered to be negligible for both construction and operations.

5.6 Ecology

5.6.1 Baseline conditions

The current condition of the Project site is illustrated in Figure 36. The site was filled with sand in the early 1980s and since this placement has been developed into a hardstand carpark. The site has been largely unchanged since the early 1980s.

A desktop review did not identify any potential threatened flora or vegetation communities associated with the Project site. A single vulnerable fauna species, the White-throated needletail (*Hirundapus caudacutus*), and two migratory species, the Fork-tailed swift (*Apus pacificus*) and the White-throated Needletail, were identified as having a low potential to occur within the airspace above the Project area.

5.6.2 Assessment of impacts

Flora

As there are no significant flora species identified within the Project site, the development will not have any adverse consequences to significant flora.

Fauna

There are no significant fauna species or suitable habitat for fauna species identified within the Project site, with the exception of two migratory species that have a low potential to use the airspace above the Project site. However, the habitat for these species would only constitute the airspace above the area of proposed disturbance, which is considered to be in poor condition as a result of existing anthropogenic activities and the heavily urbanised surrounding areas. Potential impacts from the Project on fauna species are therefore considered to be negligible. A self-assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was conducted and concluded that the Project will not have any adverse consequences to significant fauna.

5.6.3 Mitigation measures

The primary ecological impacts are expected to occur during the earthworks phase of the Project however all construction works will consider ecological impacts.

A CEMP is to be developed that will identify the ecological impact risks and mitigation measures to be implemented to manage and minimise any ecological impacts to the site. These include consideration to:

- Undertaking works in accordance with a site-specific ASS Management Plan as part of the CEMP.
- Development and implementation of a pest and weed management plan as part of the CEMP including reporting of suspected outbreaks of declared weed species and declared pest animals (as listed under the provisions of the EPBC Act and NC Act). The works management should also not deliberately

introduce declared weed and/or pest species as listed under the provisions of the EPBC Act and/or Biosecurity Act. Measures are to be implemented to ensure that all plant and materials brought into the development are certified free of declared pests.

- Waste management measures are to be planned and implemented to avoid increased abundance of pests and opportunistic native fauna.

5.7 Noise and vibration

Ground-based noise sources associated with Brisbane Airport are regulated principally by the *Airports Act 1996* and the *Airports (Environment Protection) Regulations 1997* (AEPR).

The AEPR defines commercial and sensitive receptors and provides guidelines for excessive noise for a range of noise sources including from construction, road traffic and airport operations.

The AES recognises that any noise issues, if unmanaged, can potentially have an impact on the local community, airport tenants and the environment. Activities identified in the AES and relevant to the Project as potential sources include:

- Road traffic.
- Construction activities.
- Operation of plant and equipment.
- Operation of alarms and warning systems.

Regulation 2.04 of the AEPR defines offensive noise as noise that 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." The determination of an offensive noise includes consideration of the following:

- The volume, tonality, and impulsive character (if any) of the noise.
- The time of day, and duration, of the noise.
- Background noise levels at the time the noise is generated.
- The location, in relation to the source of the noise, of:
  - Sensitive receptors, or
  - If there is no affected sensitive receptor — commercial receptors.
- The excessive noise guidelines in Schedule 4 of the AEPR.

A commercial receptor is defined in the AEPR as "a business operation, whether for profit, or not".

A sensitive receptor "means:

- A dwelling; or
- An impermanent dwelling in a place designed, or reserved, for impermanent dwellings (for example, a caravan park or residential marina); or
- A hotel, motel, or hostel; or
- A childcare institution, kindergarten, school, college, university, or other educational institution; or
- A hospital, medical centre, or nursing home; or
- A building that is a church or similar place of worship."

No vibration related goals are discussed in the AEPR.

The Australian Standard AS 2436 “Guide to noise and vibration control on construction, demolition and maintenance sites” also does not provide vibration goals. However, it provides guidance on how vibration control should be undertaken on construction sites.

AS 2436 recommends implementing time restrictions on processes involving exposure to potentially hazardous vibration, low-vibration plant, and equipment, and signposting of vibration hazardous areas. AS 2436 identifies monitoring as an essential component in the effective control of vibration from construction sites.

The Queensland Department of Transport and Main Road (TMR) Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration (2016) provides ground vibrations and recommends safe vibration levels that should be used in construction activities.

5.7.1 Baseline conditions

The Project site is located within a high noise environment with high levels of daytime, evening, and night-time ambient noise from a variety of sources including aircraft movements and the existing operational activities within the precinct.

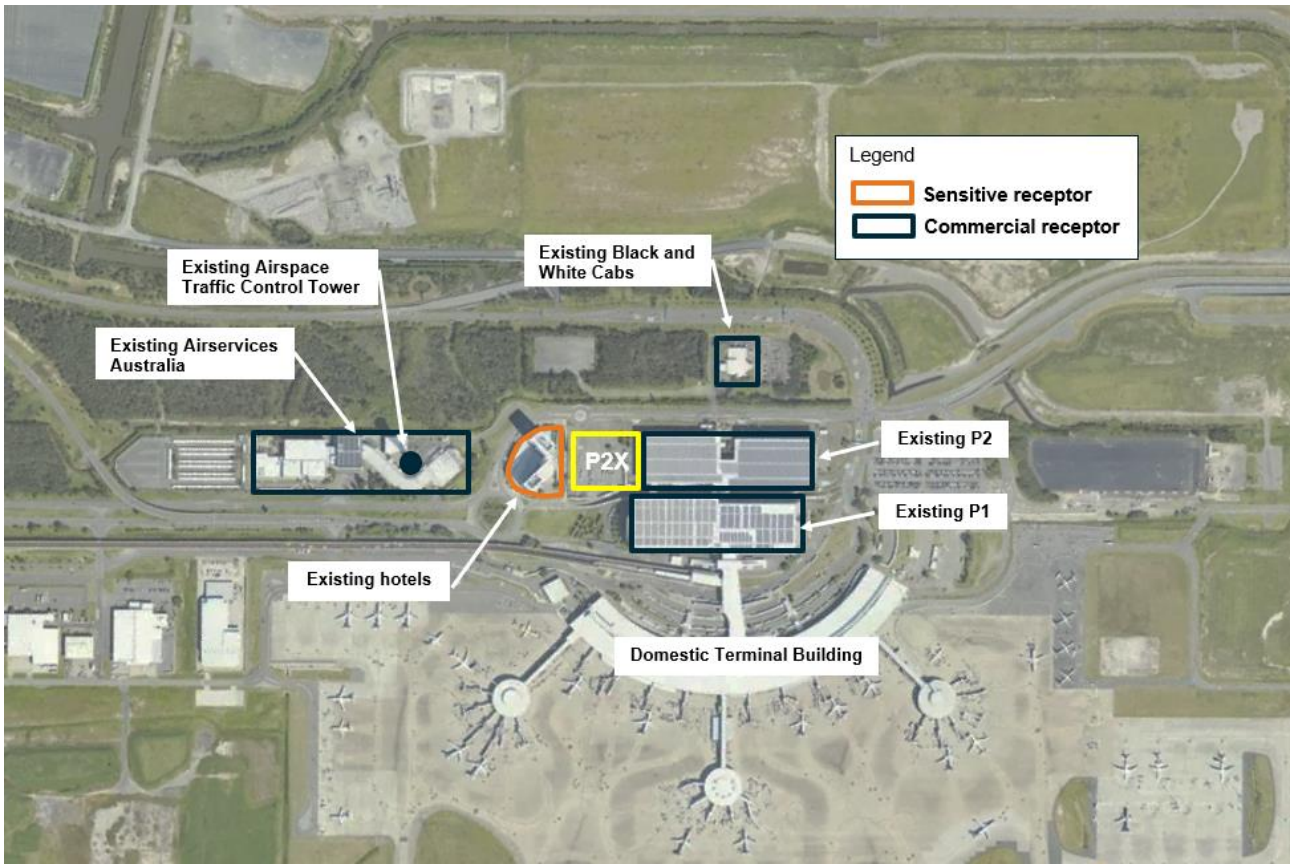
The Project site is directly adjacent to the existing P1 and P2 carparking structures, and the existing Hotels (Ibis and Pullman).

For the purposes of any noise assessment, the closest commercial receptors are:

- To the north: The existing P1 parking structure is located to the north of the site. The new development and the adjacent P1 structure will be operationally connected.
- To the south: The existing hotels, a sensitive receptor, are located adjacent to the proposed site. The hotels share a property boundary with the carpark.

These key receptors for noise and vibration are shown in Figure 37 below.

Figure 37 Key Project noise and vibration receptors



5.7.1.1 Australian noise exposure forecast contours

The ANEF noise assessment is outlined in Section 4.1.1 with the Project site located within the ANEF 25 – 30 contours.

As the site and surrounding commercial receptors are located within or in close proximity to the high noise levels associated with these ANEF contours, this will influence the level of sensitivity to additional noise generated during construction and future operations relating to the development.

5.7.2 Assessment of impacts

5.7.2.1 Potential noise Impact

The likely noise producing activities arising from the construction of the Project include construction traffic, piling and building activities. Given the existing background noise at the development site, the majority of noise emissions from the construction of the proposed development are manageable and do not constitute a discernible change in current noise conditions experienced at the site. There is potential that piling activities could produce a higher level of noise emissions.

Noise during construction is required to meet the requirements of Schedule 4 of the *Airports (Environment Protection) Regulations 1997*, as presented in Table 8. Construction noise will be managed through the measures outlined in 5.7.3.1.

Table 8 Noise limits

Noise source	Maximum allowable noise levels at sensitive receptors
Construction, maintenance, and demolition	75dB(A) L10 (15 min)
Road traffic	60dB(A) Leq (24 hour) 55dB(A) Leq (24 hour)
Rail traffic	87dB(A) Lmax (15 min) 60dB(A) Leq (24 hour) 55dB(A) Leq (24 hour)
Other airport operations	7:00am to 10:00pm background noise level plus 5dB 10:00pm to 7:00am background noise level plus 3dB

5.7.2.2 Potential vibration impacts

Annoyance to sensitive receptors from vibration is possible during construction. Construction activities have the potential to generate ground vibration, the effects of which are influenced by proximity to the vibration source, the energy output of the equipment used and local geological conditions.

The ground vibration levels due to construction work are difficult to accurately predict due to the dependence of vibration transmissibility on soil type (soft or hard), intervening geology (i.e., the coupling loss between the soil and the building foundation), the nature of the building foundations and the location of the construction equipment.

The Transport and Main Roads Technical Note 03, Measurement of Ground Vibrations and Airblast (2013) references a user guide applicable to a vibrating roller which approximates the recommended limit of 5 mm/sec.

Due to the proximity of the existing hotels and P1 structure, the contractor will be required to provide a plan to assess, monitor and manage any works that generate vibration.

5.7.3 Mitigation measures

5.7.3.1 Construction

A Construction Noise and Vibration Management Plan (CNVMP) is considered to be the best practicable option to mitigate the construction noise and any possible vibration effects on the adjacent receptors and to minimise disruption to existing airport facilities and operations.

The CNVMP will, as a minimum, identify the following:

- Baseline noise and vibration assessment.
- Proposed construction activities and associated noise and vibration levels.
- Days and hours of site operation.
- Identification of affected neighbours.
- Noise mitigation measures.
- Construction noise monitoring requirements.
- Procedures for community liaison (e.g., distribution of site contact information etc.).
- The CNVMP will adopt mitigation measures outlined in AS2436, Guide to noise and vibration control on construction, demolition, and maintenance sites.

5.7.3.2 Operation

The operation of the proposed development will be an extension to the existing activities and is not expected to cause additional nuisance to surrounding receptors and airport users.

5.8 Waste

5.8.1 Baseline conditions

Waste is defined in the AEPR and includes refuse of any form, discarded or disused plant or equipment, and industrial by-products. Examples include waste oil and oil containers, surplus or spent chemicals, paints and solvents and their containers, sewage, and wastepaper, litter, and food scraps.

In the AES (BAC 2020), the key objectives for 2020-2025 include:

- Reducing waste to landfill by encouraging recycling and the reuse of resources.
- Supporting Government policies on sustainable waste management.
- Progress towards zero waste and circular economy operations.

5.8.2 Assessment of impacts

During construction and operation of the Project, a number of waste products are expected to be generated, including:

- Construction / demolition waste – including vegetation, asphalt, signage and concrete kerbing.
- Packaging materials – any materials used on site that are delivered in packaging material. This includes pallets, crates, cartons, plastics and wrapping materials. All packaging material will need to be disposed of once the product has been used.
- Wastes from construction equipment maintenance – various heavy vehicles and construction equipment will be used during the construction phase. Liquid hazardous wastes from cleaning, repairing and maintenance of equipment may be generated. Leakage or spillage of fuels/oils within the site needs to be managed and wastes disposed of appropriately.
- Regulated wastes – including hydrocarbon waste such as waste oil, oily water, oily sludge, grease, coolant, oily rags, oil filters, drums, detergent, solvents, batteries, tyres, paints, and resins.
- General wastes – this includes retail waste, scrap materials and biodegradable wastes.

Additional waste likely to be generated during construction includes vegetation, fill material and construction equipment waste.

Potential impacts associated with the inappropriate management of waste generated from the above can include, if not managed, contamination of soils, surface water and groundwater.

5.8.3 Mitigation measures

Collection, storage, and disposal of waste will be managed under a EMP to avoid impact or nuisance on and off the identified development site. Appropriate measures will be employed to satisfy the sustainable management of waste generation and disposal in accordance with the AES.

Mitigation measures relating to waste management to be addressed in an EMP include:

- Vegetation wastes from site clearing will be mulched and used in on site landscaping and erosion and sediment control activities.
- Identify possible secondary uses for construction wastes prior to and during construction.

- Designate location of construction compounds and areas for each waste stream to allow for waste segregation and directed into recycling waste streams for recycling or re-use.
- Ensure construction and industrial waste is stored in industrial covered skips/bins.
- Contain and capture runoff from designated waste areas.
- No waste is to be burnt on site.
- Ensure waste bin lids are closed and work sites kept tidy to avoid littering and attraction of birds, vermin, and other wildlife.
- Any packaging materials to be collected separately and re-used or recycled including timber, paper, cardboard, pallets, and plastics.
- Waste disposal is to occur at approved facilities.
- Engage the services of a licensed waste contractor and recycler if removing regulated wastes from the Project.

To align with the AES, a KPI of “no waste impacting surrounding environment” will be included in the EMP. The EMP mitigation measures will need to consider the hierarchy of waste management.

During the operation of the proposed Project, the facility is expected to generate a number of waste streams. Waste generated is anticipated to be typical of the facility and will include:

1. General waste.
2. Recyclable wastes.
3. Wastewater and sewage.
4. Food scraps.

Subject to the implementation of mitigation measures, the potential impact of the development with regard to the management of waste is considered negligible.

5.9 Hazardous chemicals and dangerous goods

5.9.1 Baseline conditions

The management of hazardous chemicals must be in accordance with the *Work Health and Safety Act 2011* (Qld) (*WHS Act*), *Work Health and Safety Regulation 2011* (Qld) (*WHS Regulation*) and relevant Australian Standards. There are currently no hazardous goods stored or used in the proposed development area.

5.9.2 Assessment of impacts

The storage of dangerous or hazardous materials during the operational phase is unlikely. Hazardous waste that could be generated during the construction phase includes waste oils from machinery or equipment, waste paint products and fuel. During the construction phase the contractor will be responsible for any licences required under the Work Health and Safety Act 2011 (QLD) for the storage or disposal of hazardous or dangerous goods at the site. Compliance with these requirements is monitored by BAC authorised personnel. Inappropriate storage and handling of hazardous or dangerous goods has the potential to impact ecosystems and human health, through potential contamination of soils, water, or air.

5.9.3 Mitigation measures

With the implementation of the following management and mitigation measures, impacts associated with hazardous materials and dangerous goods will be negligible during both the construction and operational phases of the Project:

- A detailed risk assessment be completed according to the nature and scale of hazardous chemicals present and submitted to BAC (including identification of any hazardous areas and ignition sources).
- All hazardous chemicals will be stored with an up-to-date Australian safety data sheet (SDS), Prepared according to WorkSafe Queensland Codes of Practice. A SDS register will be maintained adjacent to the hazardous chemical storage area with the location clearly signed.
- Contractors and tenants are responsible for any licences and/or registrations required under the WHS Act.
- Hazardous chemicals and dangerous goods will be handled, stored, and disposed of in accordance with the WHS Act, WHS Regulation, relevant Australian Standards, and the Brisbane City Plan SC6.28.

5.10 Cultural heritage

5.10.1 Baseline conditions

Brisbane Airport is located on Commonwealth land and is therefore subject to Commonwealth legislation. For Culture heritage, this includes the *Environment Protection and Biodiversity Conservation Act 1999,* the *Airports Act 1996*, and the *Airports (Environment Protection) Regulations 1997*.

The Brisbane Airport Heritage Management Plan was finalised in March 2016 in consultation with Traditional Owners and heritage consultants, outlining Aboriginal cultural heritage and European historic heritage of the airport site, compliant with the EPBC Act.

The 2020 Airport Environment Strategy summarises the sites with known cultural or historic heritage significance at Brisbane Airport. Based on this review, there are no known heritage sites identified within the Project site.

A review of historic aerial photography detailed in section 5.3.1 outlines that the Project site has been subject to extensive impacts from past land development.

The site is identified as having little to no heritage value.

5.10.2 Assessment of impacts

The construction phase will involve clearing of the site that has been disturbed as part of past land management. The excavation requirements are expected to be limited. There will be Nil impact on cultural heritage.

5.10.3 Mitigation measures

Not required.

6. SUMMARY OF IMPACTS

The assessment component of the MDP has been undertaken to meet the requirements of Section 91 (1) (h) of the Airports Act 1996 (Cth). Table 9 provides a summary of the potential operational, environmental, and social impacts considered in the assessment.

Table 9 Sustainable, responsible and impact investing objectives and commitments

Section	Environmental and social factors	Impacts	
		Construction	Operations
4.1	Aviation operations and safety	Nil	Nil
4.2	Road Network	Low	Negligible
5.3	Groundwater	Low	Negligible
5.3	Surface water	Negligible	Negligible
5.4	Soil and land contamination	Negligible	Negligible
5.5	Air quality and odour	Negligible	Negligible
5.6	Ecology	Nil	Nil
5.7	Noise and vibration	Low	Negligible
5.8	Waste	Negligible	Negligible
5.9	Hazardous chemicals and dangerous goods	Negligible	Negligible
5.10	Cultural heritage	Negligible	Negligible

7. REFERENCES

Aurecon (2022)	Brisbane Airport DTB P2X EPBC Act Self Assessment of Impacts, October 2022
Aurecon (2022)	Brisbane Airport DTB P2X Contaminated Land and Acid Sulfate Soil Investigation Report, November 2022
GHD (2023)	DTB P2X Concept Design Report
GHD (2023)	DTB P2X Traffic Impact Statement
BAC (2018)	Landscape Setting Strategy
BAC (2020)	2020 Brisbane Airport Master Plan
BAC 2020	2020 Airport Environment Strategy
BAC 2021	BACEMS-PRO-044 Firefighting Foam Management Plan Guidelines V2
BAC (2022)	BNE Sustainability Strategy

BAC Airport Technical Guidelines

BAC Noise Impact Assessment Policy

Brisbane Airport Planning Guidelines

MDP CHECKLIST

This Appendix indicates the requirements under Section 91 of the Airports Act 1996 for the contents of an MDP and demonstrates that this MDP addresses these requirements:

Contents of a Major Development Plan		Section(s) of MDP
Airports Act 1996, Section 91		
(1A)	The purpose of a major development plan in relation to an airport is to establish the details of a major airport development that:	
(a)	relates to the airport; and	
(b)	is consistent with the airport lease for the airport and the final master plan for the airport.	2.1 2.2 3.2
(1)	A major development plan, or a draft of such a plan, must set out:	
(a)	the airport-lessee company's objectives for the development; and	1.5
(b)	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	1.1 1.3 1.5
(c)	a detailed outline of the development; and	1.3 1.4
(ca)	whether or not the development is consistent with the airport lease for the airport; and	3.2
(d)	if a final master plan for the airport is in force—whether or not the development is consistent with the final master plan; and	2.1
(e)	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	4.1.1
(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	4.1
(f)	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 Defence Department, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; and	4.1.1
(g)	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	3.4 4.1.5 4.1.7
(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:	
	i. traffic flows at the airport and surrounding the airport; and	4.2
	ii. employment levels at the airport; and	2.3

Contents of a Major Development Plan		Section(s) of MDP
	iii. 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	2.3
(h)	the airport-lessee company's assessment of the environmental impacts that might reasonably be expected to be associated with the development; and	5
(j)	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	5
(k)	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	NA
(4)	In relation to paragraphs (1)(a), (c) or (ga) above, the extent (if any) of consistency with planning schemes in force under a law of the State in which the airport is located; and if the major development plan is not consistent with those planning schemes—the justification for the inconsistencies.	3.3
(6)	In developing plans referred to in paragraph (1)(f), an airport-lessee company must have regard to Australian Standard AS 2021—2000 ("Acoustics—Aircraft noise intrusion—Building siting and construction") as in force or existing at that time.	4.1.1
Airports Regulations 1997, Regulation 5.04		
	A major development plan must address obligations arising under pre-existing property interests in the airport.	3.1.1