Hobart Airport

Terminal Expansion Project

Major Development Plan

October 2019

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Glossary

A-SMGCS	Advanced-Surface Movement Guidance and Control Systems
ABC	Airport Building Controller
AEO	Airport Environment Officer
ANEF	Australian Noise Exposure Forecast
ADS-B	Automatic Dependent Surveillance Broadcast
BCA	Building Code of Australia
CBD	Central Business District
CASA	Civil Aviation Safety Authority
CASR	*Civil Aviation Safety Regulations 1998*
CEMP	Construction Environmental Management Plan
DoEE	Department of the Environment and Energy
DoIRDC	Department of Infrastructure, Regional Development and Cities
EES	Environmental Effects Statement
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Significant Areas
GSE	Ground Support Equipment
HIAPL	Hobart International Airport Pty Ltd
HF/VHF	High Frequency / Very High Frequency
JUHI	Joint User Hydrant Installation
MAGS	Movement Area Guidance Signs
MDP	Major Development Plan
MNES	Matters of National Environmental Significance
MUPs	Make-up Positions
NASAG	National Airports Safeguarding Advisory Group
NASF	National Airports Safeguarding Framework
NEPM	National Environment Protection (Assessment of Site Contamination) Measure
NEMP	PFAS National Environmental Management Plan
NOTAM	Notice to Airmen
NVA	Tasmanian Natural Values Atlas
OLS	Obstacle Limitation Surface
PANS-OPS	Procedures for Air Navigational Services – Aircraft Operations
PFAS	Per- and Polyfluorinated Alkyl Substances
PRM	Precision Runway Monitor
WAM	Wide Area Multilateration
WSUD	Water Sensitive Urban Design

Executive Summary

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Executive Summary

Hobart International Airport is located on land leased from the Commonwealth and is operated by Hobart International Airport Pty Ltd (HIAPL), a joint venture between Macquarie Global Infrastructure Fund III and local industry superannuation fund, Tasplan. It is a joint domestic and international airport and accounts for over 60% of all scheduled air traffic to Tasmania. Over the past 60 years, Hobart International Airport has operated on the same site, strategically located to serve many of the fastest growing residential and business areas in Tasmania and the greater Hobart area.

Hobart International Airport is the ninth busiest Airport in Australia and was the third-fastest growing airport in 2016-2017. The proposed terminal expansion is set to accommodate domestic passenger growth which is forecast to increase by more than 30% by 2030 along with international services that will bring an additional 91,000 passengers by FY2021, growing to 574,000 by FY2030. Combined, this is a 50% increase in the annual number of passengers passing through the airport by 2030, and therefore accommodating these additional passengers and air services is vital for Hobart International Airport.

The *Hobart International Airport 2015 Master Plan* (2015 Master Plan) sets out the vision for growth and delivery of strategic infrastructure to allow the airport to meet demand and better connect Tasmania to the rest of Australia and the world to the year 2035. It identifies a number of landside, terminal and airside infrastructure improvements that are required to accommodate forecast passenger growth at Hobart International Airport over the 20-year timeframe.

Key facilities for international passenger and freight services at Hobart International Airport have included the $40 million runway extension and enabling works, completed in 2018, to extend the runway to 2,727m and enable larger aircraft to travel to and from Asia, the Pacific and Antarctica directly and the recently completed freight precinct with full international exporting capabilities.

The Terminal Expansion Project will offer an improved experience for airport visitors and cater for projected domestic passenger growth and the additional international services since the runway extension. The Project will upgrade the airport in two stages to accommodate domestic growth and Code E international operations. By the end of 2026 this will include:

- Expanded domestic departures footprint to facilitate passenger growth;
- An international processing facility for Code C and Code E aircraft operations;
- Expanded retail and food & beverage (concessionaire) offers;
- Expanded baggage handling services;
- Capacity to meet new enhanced security requirements for passengers and baggage; and
- A new lounge for Qantas and a lounge for passengers of other airlines.

The Terminal Expansion Project aims to enhance passenger experience by making arrivals and departures more efficient and seamless. The redevelopment of the terminal building provides the opportunity to express some of Tasmania's unique culture and create an atmosphere that enhances the first and last impression of Tasmania as visitors embark on their journey. The terminal expansion has been designed to cohesively transition into the existing structure, reflecting a strong sense of place and essence of Tasmania.

As a major development within the terms of the *Airports Act 1996,* a Major Development Plan (MDP) must be submitted to the Commonwealth Infrastructure and Transport Minister.

An assessment of the potential impacts on the physical, biological, cultural and social environments of the project area has been undertaken, with the likely impacts resulting from construction and operational activities, the proposed mitigation measures and residual impacts comprehensively documented in the MDP.

1.0 Introduction

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1.0 Introduction

1.1 Overview

Hobart International Airport Pty Ltd (HIAPL) has prepared this Major Development Plan (MDP) for the construction of the Terminal Expansion Project (the Project).

Pursuant to Section 88 of the *Airports Act 1996,* an MDP is '*required for each major development at an airport*'. In accordance with Section 89 of the *Airports Act 1996, a* major development is defined as

> *…a development that is carried out at an airport site and that consists of…* (d) *Extending a building that is wholly or principally for use as a passenger terminal, where the extension increases the building's gross floor space by more than 10%.*

The abovementioned clause of the *Airports Act 1996* triggers the need for this MDP.

The *Hobart International Airport 2015 Master Plan* (2015 Master Plan) sets out the vision for growth and delivery of strategic infrastructure to allow the airport to meet demand and better connect Tasmania to the rest of Australia and the world to the year 2035. It identifies a number of landside, terminal and airside infrastructure improvements that are required to accommodate forecast passenger growth at Hobart International Airport over the 20-year timeframe.

Within the 2015 Master Plan, the already completed runway extension project and works proposed as a part of the Project were identified as being required within the next five years to cater for forecast domestic passenger growth, facilitate direct flights from South East Asia for international passengers and freight and to service the Antarctic sector. Key facilities for international passenger and freight services at Hobart International Airport that are completed or underway include:

- $40 million runway extension and enabling works, completed in 2018, to extend the runway to 2,727m to enable larger aircraft to travel to and from Asia, the Pacific and Antarctica directly;
- $14 million new freight precinct with full international exporting capabilities (now operational).

Enhancements to terminal infrastructure will seek to address the increase in passenger numbers and offer additional capacity to support growth in domestic and international aircraft traffic. The Project will upgrade the airport to accommodate domestic growth and Code E international operations. This will include:

- Expanded domestic departures footprint to facilitate passenger growth;
- An international processing facility for Code C and Code E aircraft operations;
- Expanded retail and food & beverage (concessionaire) offers;
- Baggage handling services expansion;
- New enhanced security requirements for passengers and baggage; and
- A new lounge for Qantas and a lounge for other airlines.

Under the 2015 Master Plan, the Project works will occur predominantly within the Terminal Precinct and partially within the Runway Precinct.

The Project will not require additional uptake of land beyond the existing Hobart International Airport site and will not impact upon the ability of HIAPL to cater for the needs of passengers and airlines during construction.

Accordingly, this MDP provides details of the Project, with detailed descriptions of each component provided in Section 5 of this MDP (refer to Appendix A for detailed development plans).

1.1.1 Construction Timeframe and Staging

The design of the Project components is currently underway and will progress through to detailed design following completion of this MDP. It is expected that construction will commence immediately following approval of the MDP. The Project will be constructed in two stages:

- Stage 1 consists of the construction of the new swing gate international processor and a departure lounge expansion:
  - 1A anticipated for commencement in December 2019 and completion by December 2020;
  - 1B anticipated for commencement in January 2021 and completion by December 2021;
  - 1C anticipated for commencement in January 2022 and completion by December 2022;
- Stage 2 consists of the baggage handling system relocation, due for commencement in mid-2025, and completion by late 2026.

Further details are outlined in Section 3.

1.2 Background and Project Justification

1.2.1 Context

Operated by HIAPL and owned by the Commonwealth Government, Hobart International Airport is a joint domestic and international airport and accounts for over 60% of all scheduled air traffic to Tasmania (refer Figure 1. Over the past 60 years, Hobart International Airport has operated on the same site, strategically located to serve many of the fastest growing residential and business areas in Tasmania and the greater Hobart area.

Hobart International Airport is the ninth busiest Airport in Australia, servicing over 2.6 million passengers in 2017[1] . It was the third-fastest growing airport in 2016-17, with a growth in passengers of 5.5%, compared to Australia, which was 2.7%[2]. The airport is a critical piece of State infrastructure and a primary aviation gateway into the city of Hobart and southern Tasmania and remains one of the fastest growing airports within Australia.

The proposed terminal expansion is set to accommodate significant forecast domestic passenger growth of 30% by FY2030 and international services that have the potential to attract an additional 91,000 passengers by FY2021, growing to 574,000 by FY2030. Combined, it is anticipated that in excess of 4 million passengers will utilise the airport per annum by 2030. This is a considerable increase of more than 50% in the number of passengers currently passing through the airport each year, and therefore suitably accommodating these additional passenger and air services is vital for Hobart International Airport.

[1] Hobart International Airport Pty Ltd., 2018
[2] Hobart International Airport Pty Ltd., 2018

Figure 1 General Location Plan Hobart International Airport

In 2017, 1.26 million people visited Tasmania, generating employment for 38,000 people and tourism revenue of $2.33 billion. Tourism revenue supported a total economic contribution of $3 billion to Tasmania. Tasmania is the only state or territory that does not have regular international passenger services, with international flights limited to a small number of charter operations and flights to Antarctica. Further, Hobart is the only Australian capital city without direct international flights.

Between 2012 and 2017, tourism revenue in Tasmania grew on average by 10.3% per annum, driven by strong growth in visitation and an increase in average visitor spend. Employment in tourism-related sectors (accommodation and food services, and art and recreation services) contributed more than half the increase in total employment in Tasmania over the five years to 2017. Across the airport precinct, Hobart International Airport has more than 700 direct and indirect employees and is a key economic hub for Tasmania.

There is still capacity in the labour market for further employment, with a relatively high unemployment rate in Tasmania[3] . Tourism growth is driving significant accommodation construction activity in Hobart, with several large hotel complexes under construction or completed in recent years.

Following a runway extension in 1966 to accommodate commercial aircraft flying at the time the airport quickly began struggling to cope with demand. By 1974 plans for a terminal expansion had been announced by the Federal Government that would see the original terminal demolished and replaced with a new 3500 passenger capacity terminal. The new terminal opened in 1976 and offered a concession area, general lounge, VIP lounge and a baggage carousel.

Since then, the terminal building has seen a number of extensions and refurbishments. As the result of growth in passenger numbers, the existing terminal is now insufficient in size to meet current passenger demand at an optimum level of service. This condition will be exacerbated by the forecast increase in domestic passenger movements and the introduction of new international services.

To address the current shortfall and prepare for future growth the current terminal must be expanded to provide additional accommodation and enhance current facilities. Specifically, enhancements to terminal infrastructure will seek to address the increase in passenger numbers and offer additional capacity to support growth in domestic and international aircraft traffic.

1.2.2 Project Objectives

The primary objectives for HIAPL in undertaking the terminal expansion project are to:

- Maximise the growth of Hobart International Airport and in so doing support growth for the Tasmanian and Hobart economies;

[3] Department of Treasury and Finance, 2018

- Enable the future growth of both the airport and the Tasmanian economy by planning and delivering a key piece of airport infrastructure to meet demand and to set the conditions to readily enable growth beyond the current planning horizon;
- Support Hobart International Airport's role as a port to service domestic and international passengers travelling for tourism, business and personal reasons and in doing so improve Tasmania's connectivity and economic success;
- Support Hobart International Airport's role as an important freight port to service both domestic and international import and export requirements with a focus on the high value perishable market;
- Provide enhanced terminal facilities to ensure that Hobart International Airport is operated and developed in a manner that is safe, secure, customer focused and sustainable, with a culture focused on quality and customer service;
- Provide enhanced terminal facilities to ensure a business environment with associated infrastructure that enables Hobart International Airport and its partners to reach their potential;
- Be an engaged and responsive member of the local community.

The commencement of international operations is scheduled for November/ December 2020, pending confirmation of the approvals and construction program, and subject to airline agreement, however the terminal expansion is also needed to meet the domestic demand which is the key contributor to growth.

1.2.3 Project Benefits

HIAPL and Tourism Tasmania are exploring a number of prospects for international services, including wide-bodied direct flights to Asia, and narrow-bodied services to New Zealand.

Facilitating flights to New Zealand creates direct tourism benefits estimated at $52 million per annum, which will also generate indirect benefits through the Tasmanian economy. Facilitating direct flights to Asia generates an estimated $68 million of direct tourism benefits per annum (based on a full-year operation). The passenger flights to Asia will also provide an opportunity for air freight from Tasmania to Asia for high-value, perishable products, which will generate greater export returns.

The terminal expansion is expected to result in over $120 million per annum of direct benefits to the Tasmanian economy by providing a direct link to Asia. Further, the accommodation of international flights as a result of the Project will increase international visitation, contributing to tourism revenue, one of Tasmania's key sectors. The recently announced Hobart City Deal[4] states:

> *International flights will stimulate regional economic growth and employment opportunities. It is estimated the total economic benefit is $128 million per annum with 680 additional jobs[5] . As well as increased tourism, it will open up opportunities for Tasmanian primary producers and exporters to directly export to international markets, guaranteeing products are delivered faster and fresher, increasing Tasmania's competitive advantage.*

It is expected that in the future, other international services will become feasible for Hobart International Airport as it would be able to accommodate direct flights from Asia and the Pacific without a refuelling stop. When combined with Hobart International Airport's new freight handling facility, international flight capacity also opens up airfreight opportunities for Tasmania to Asia for high-value, perishable products, generating greater export returns for local producers. International airfreight from Tasmania will enable faster delivery to export markets and in turn, higher premiums for exports such as live seafood, cherries, berries, flowers, milk and meat.

There will also be benefits to the wider regional area, including rural areas due to increased tourist dispersal and greater export opportunities for agricultural products. The project would have a major social benefit, allowing increased accessibility for residents overseas to connect with family and friends, educational destinations or holiday opportunities.

[4] Hobart City Deal, Commonwealth of Australia, 2019
[5] Based on direct and indirect benefits and a year-round, daily service

A summary of the key Project benefits is:

- Increased value of tourism revenue and employment for Tasmania;
- Increased non-tourism export revenue and employment;
- Regional and rural benefits within Tasmania; and
- Social benefits to Tasmanians as a result of international services.

1.3 Proponent Details

The Project will be located entirely within the Hobart International Airport site which is Commonwealth-owned land. In accordance with Section 4 of the *Airports Act 1996* a *'Commonwealth-owned airport can only be leased to a company'* (an airport-lessee company).

Hobart International Airport was privatised in June 1998, with HIAPL entering into a 99-year land lease with the Commonwealth Government (50 years plus a 49-year option). HIAPL originally comprised a mix of international and local owners, then under full State ownership from 2004 as a component part of Tasmanian Ports Corporation Pty Ltd (TasPorts). In 2007, the State Government of Tasmania took the decision to sell HIAPL to its current owners.

Since January 2008, HIAPL has been owned by the Tasmanian Gateway Consortium. From 2008 to 2017 this was comprised of Macquarie Global Infrastructure Fund III, a Macquarie managed unlisted infrastructure fund with a 50.1 percent interest in the Tasmanian Gateway Consortium. The remaining 49.9 percent interest in the Tasmanian Gateway Consortium was held by the Retirement Benefits Fund. On 31 March 2017 Tasplan, a Tasmanian superannuation fund and the Retirement Benefits Fund merged with Tasplan taking ownership of the 49.9 percent interest in the Tasmanian Gateway Consortium.

Under the terms of the land lease, HIAPL is mandated to operate the airport, to effect capital improvements in accordance with the Airport Master Plan, protect the environment and maintain the Airport in good repair. As the "airport-lessee company" the details of the proponent for this MDP are set out below:

Hobart International Airport Pty Ltd
Contact: Joshua Harley-Hill – Terminal Expansion Project Director
Hobart International Airport
6 Hinkler Road
Cambridge Tasmania Australia 7170

1.4 Statutory Approvals Context

1.4.1 Major Development Plan

Pursuant to Section 88 of the *Airports Act 1996*, a MDP is *'required for each major development at an airport'*. Section 89 of the *Airports Act 1996* outlines the development triggers for a major development. Pursuant to Section 89(1) the Project is a major airport development as it is a development that is carried out at an airport site that consists of:

> *… (d) extending a building that is wholly or principally for use as a passenger terminal, where the extension increases the building's gross floor space by more than 10%.*

It is therefore a requirement of the *Airports Act 1996* that a MDP be prepared and submitted to the Commonwealth Infrastructure Minister. Pursuant to Section 5 of the *Airports Act 1996,* the *'Infrastructure Minister means the Minister who administer this Act'.* The Commonwealth Minister for Infrastructure, Transport and Regional Development (the Honourable Michael McCormack MP) is responsible for all decisions in relation to an MDP for a major airport development.

In accordance with Section 71A(2) of the *Airports Act 1996,* it is noted the Project is not classified as a *sensitive development*.

Pursuant to Section 91(1A) of the *Airports Act 1996,* the overarching purpose of an MDP is to establish the details of a major airport development that relates to the airport and is consistent with the airport lease for the airport and the final master plan for the airport.

In accordance with Section 91(1) of the *Airports Act 1996,* the preparation of a MDP consists of a number of stages and requirements, noting that an Exposure Draft MDP is not a formal requirement of the MDP approval process under the *Airports Act 1996*. These are outlined below:

- Prepare an Exposure Draft MDP which is a comprehensive report about the project comprising the following sections:
  - The objectives of the proposal;
  - An assessment of the proposal against the extent to which the future needs of airports users will be met;
  - A detailed description of the proposal;
  - Demonstration of the proposal with the airport lease for the airport;
  - Demonstration of the proposals consistency with the final Master Plan for the airport including the Environment Strategy;
  - An explanation of the impact the development will have on:
    - Noise exposure levels at the airport
    - Flight paths at the airport
    - Traffic flows at the airport and surrounding the airport
    - The local and regional economy and community;
  - An analysis of how the project complies with State and Local planning policies; and
  - The environmental impacts of the proposal and the mitigation measures to deal with them.
- Submit the Exposure Draft to key stakeholders, including the Department of Infrastructure, Regional Development and Cities (DoIRDC) and Department of Environment and Energy (DoEE), State and Local Government, CASA and Airservices, to enable early comment on the Project.
- Prepare a Preliminary Draft MDP to incorporate feedback on the Exposure Draft MDP in accordance with the feedback received from the Department.
- Publicly exhibit a Preliminary Draft of the MDP and revise the document in accordance with the feedback received from the public during the exhibition period.
- Submit a Draft MDP to the Commonwealth Minister for Infrastructure, Transport and Regional Development. The Minister will then refer the Draft MDP to relevant agencies and departments to receive advice prior to making a decision to approve or refuse the application.

The proponent is also required to comply with the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) in relation to potential environmental impacts and the assessment of projects on Commonwealth land and / or projects which may have a significant impact on a Matter of National Environmental Significance (MNES).

In accordance with Section 160 of the EPBC Act, advice must be sought from the DoEE on the adoption or implementation of a MDP. However, pursuant to Section 161 of the EPBC Act, the Minister of the Environment (the Honourable Melissa Price MP) may determine that further advice is not required, for the purposes of the EPBC Act, on environmental aspects of the MDP.

The MDP process requirements are depicted in Figure 2.

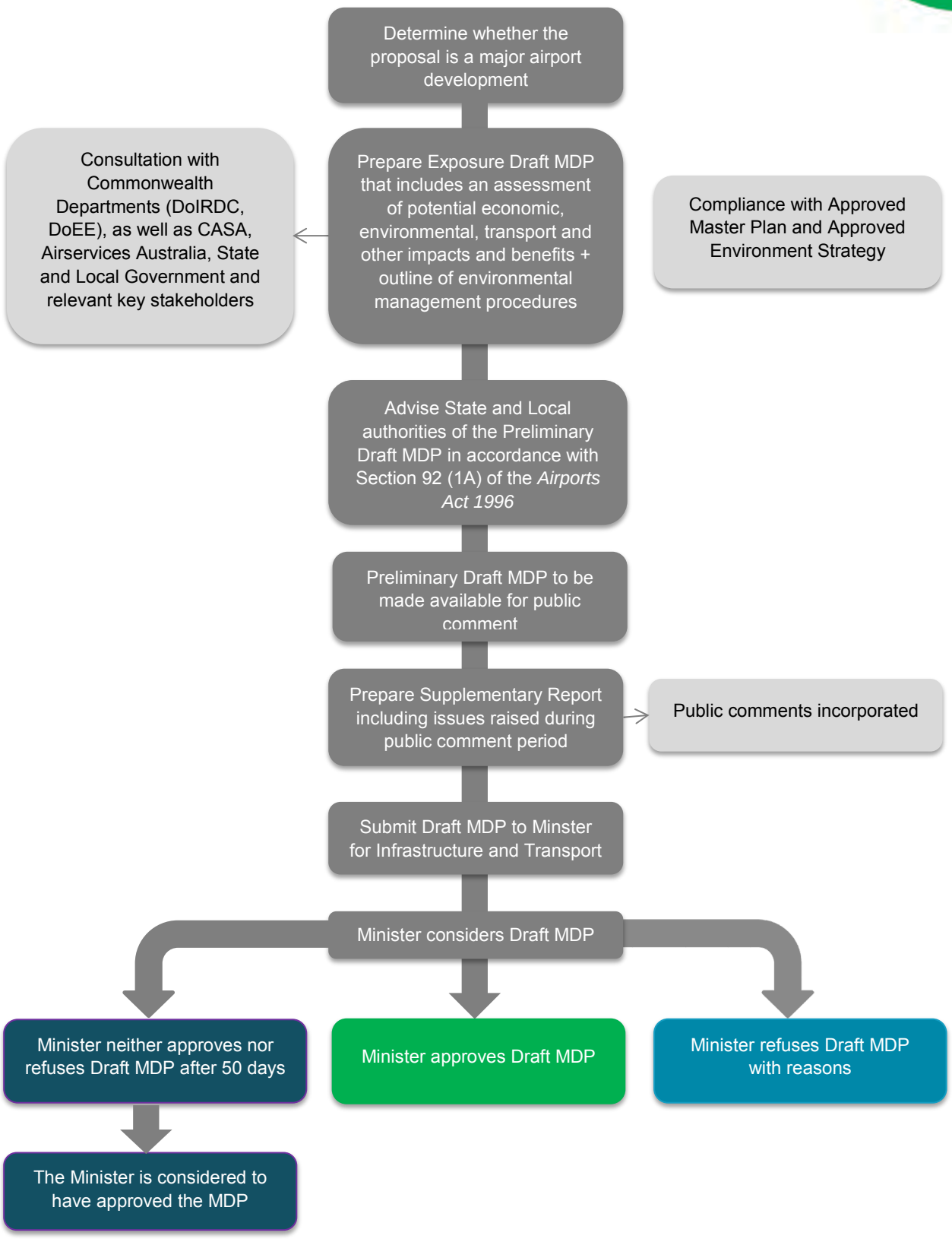

Figure 2 Major Development Plan Proces

1.4.2 Other Project Approvals

Should the MDP be approved by the Minister for Infrastructure, Transport and Regional Development, further approvals are required under the *Airports Act 1996* prior to construction commencing. New developments and building works at Hobart International Airport are subject to an internal approval process, whereby individual proposals are assessed by building and environmental officers to ensure consistency with the *Airports Act 1996*, the 2015 Master Plan and other relevant Airport policies and plans. Independent approvals for construction of the Project components will be sought through:

- The **Airport Building Controller** (ABC): The ABC exercises the power and functions prescribed by the *Airport (Building Control) Regulations 1996*, made under **Division 5** of the *Airports Act 1996*. The Project components should be designed in accordance with all relevant building codes and Tasmanian standards. Pending approval of the proposed development, all designs, plans and specifications will then require the approval of the ABC.

  Relevant legislation enacted through the *Disability Discrimination Act 1992* [Section 31] introduced the Disability Standards for Accessible Public Transport 2002 that applies to transport buildings such as an airport terminal buildings. Implementation of these standards has been adopted through Building Code of Australia and the Disability [Access to Premises Buildings] Standard 2010. In progressing to detailed design of the Project, these compliance requirements will be addressed to the satisfaction of the ABC.

- The **Airport Environment Officer** (AEO): The AEO assess the proposal against the environmental requirements of the *Airports Act 1996* and the *Airports (Environment Protection) Regulations 1997,* which provides the overarching environmental legislation for airports in Australia). All activities undertaken on the Hobart International Airport site must comply with the *Airports (Environment Protection) Regulations 1997*, including the environmental commitments set out in the 2015 Master Plan and the Environment Strategy 2015. The AEO will also examine Construction and Operational Environmental Management Plans.

The internal approval process comprises the following components:

- Airport Operator's consent granted;
- Building permit issued by the ABC;
- Permit to commence work issued by Hobart International Airport;
- Assessment of the proposal by the AEO and review of the Construction Environmental Management Plan (CEMP) to be prepared by the construction contractor; and
- Certificate of Compliance issued by the ABC upon completion of the works.

1.5 Structure of the MDP

This MDP is structured as follows:

- **Section 1** provides an overview of the Project and outlines the statutory approvals context.
- **Section 2** provides a description of the site and surrounding environment.
- **Section 3** provides a detailed description of the Project.
- **Section 4** identifies the statutory and policy context and provides assessment of the proposal against relevant airport planning documents, State and Local policy.
- **Section 5** provides an assessment of the impacts of the Project, including the mitigation measures
- **Section 6** describes the consultation process undertaken for the MDP.
- **Section 7** concludes the report.

2.0 Site and Surrounds

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2.0 Site and Surrounds

Located 17 kilometres east of the city of Hobart, the airport is comprised of approximately 498 hectares of Commonwealth land (refer Figure 3). The Airport is within the City of Clarence, which is overseen by the Clarence City Council and is served by arterial roads linking it to the Hobart CBD and via the regional highway network to other locations in Tasmania.

The airport is bounded by Frederick Henry Bay to the south, Barilla Bay to the north and agricultural / residential / light industrial land to the east and west. Located on the boundary of a coastal spit, the airport site contains areas of both Commonwealth and State significance, particularly in relation to biodiversity values.

Hobart International Airport consists of a single terminal building, with the runway, taxiways, apron and airport stands sited to the north-east (refer Figure 4) and the terminal forecourt, car parking and associated support facilities located to the south-west (refer Figures 5 & 5.1).

Figure 7 shows the Project area within the broader context of the Hobart International Airport site and its location within the existing built environment of the airport.

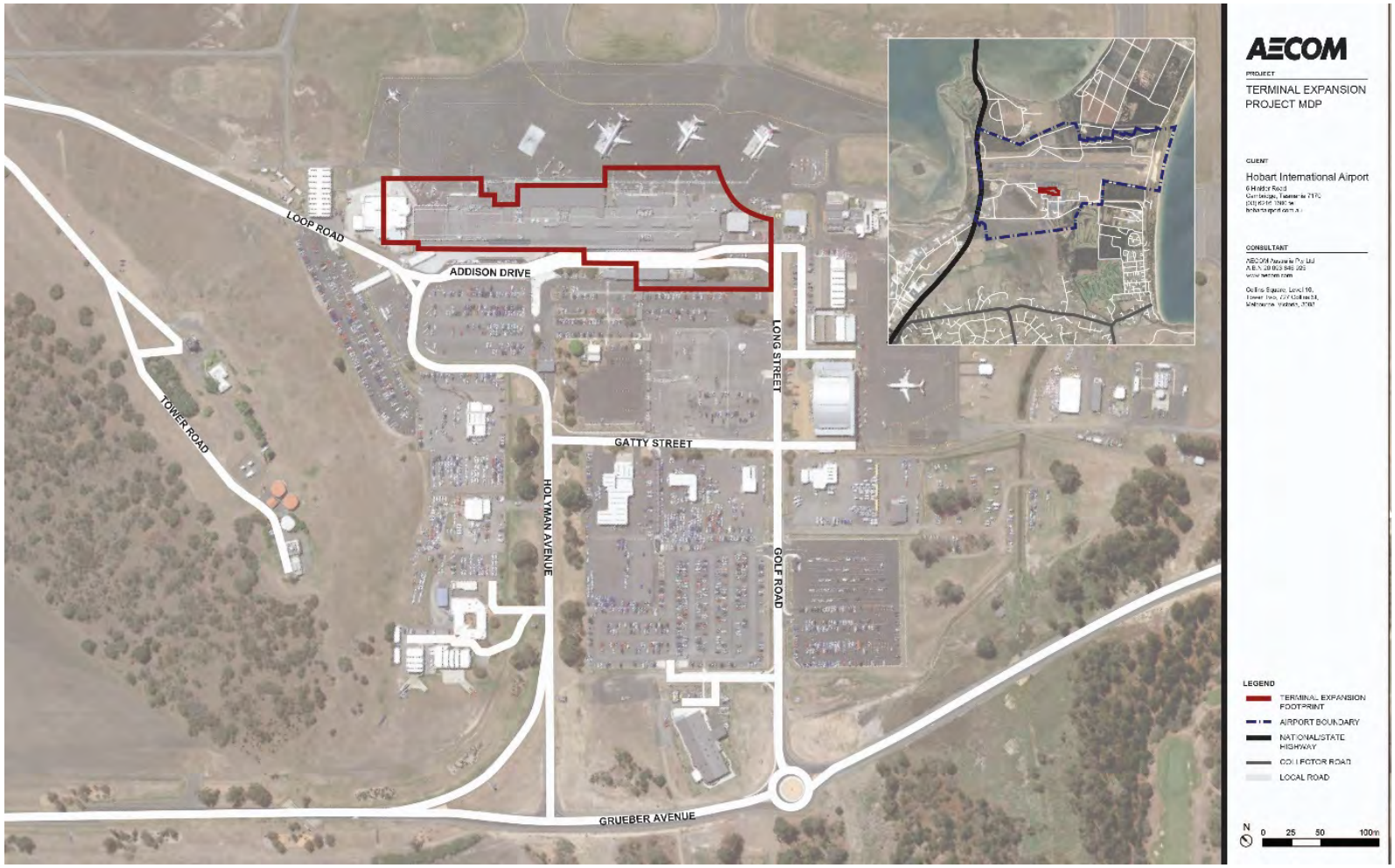
Figure 3 Hobart International Airport (looking south)

Figure 4 Existing Terminal Building and Apron

Figures 5 and 5.1 Existing Terminal Building Forecourt and Parking Subject to Terminal Expansion Works

Figure 6 Hobart International Airport Site and Surrounds

Figure 7 Indicative Project Area within Hobart International Airport



3.0 Proposed Development

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3.0 Proposed Development

3.1 Design Overview

Hobart International Airport consists of a single level terminal. Hobart has stringent quarantine requirements which impact the terminal layout and design as all inbound passengers are screened by quarantine. The terminal will therefore accommodate passenger growth by design, expansion and technical innovation.

The current domestic terminal was opened in 1976 and, since then, the building has seen a number of extensions and refurbishments. Figure 8 and Figure 9 show the existing terminal layout, incorporating:

- Baggage Handling System (BHS) (for transporting passenger luggage from the check-in counter onto the plane cargo hold and then to a collection point at an arrival airport;
- Administration facilities;
- Arrivals area;
- Departures area with associated lounges.

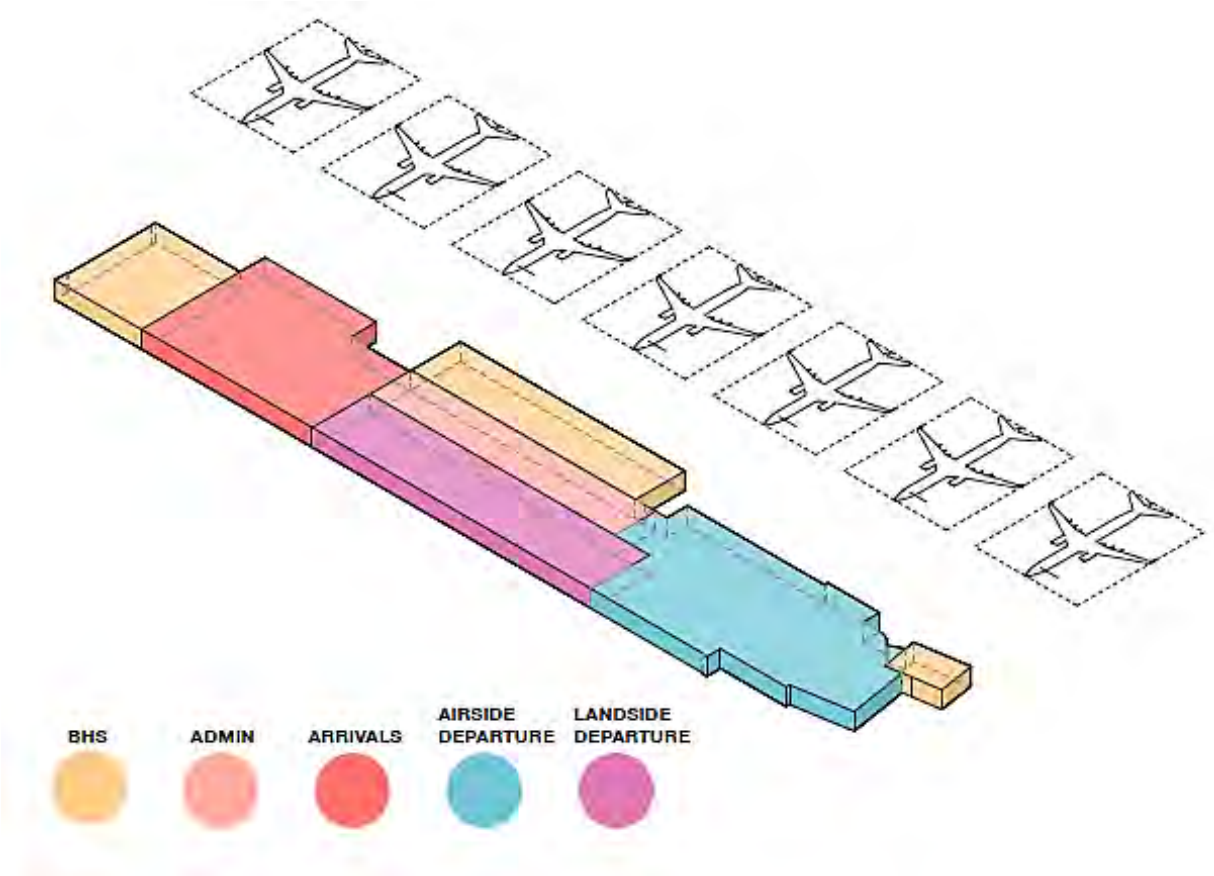
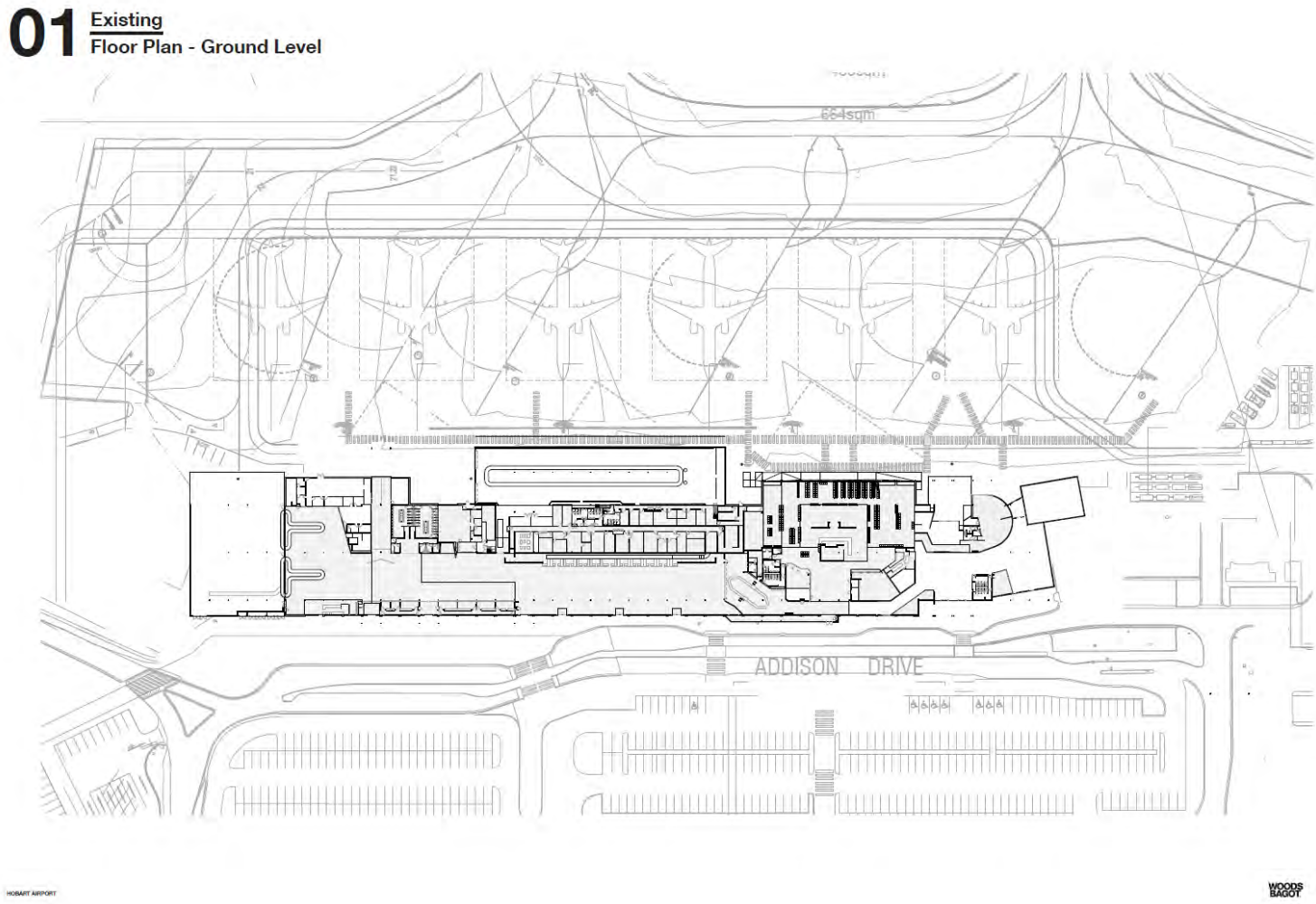


Figure 8 Existing Terminal Layout

Figure 9 Existing Hobart International Airport Passenger Terminal Layout



The approach to the terminal redevelopment has supported a holistic vision and a non-generic approach where the design intent reflects a sense of place which celebrates the uniqueness of Hobart and Tasmania. The project will develop over a number of stages and sub-stages, with a future infill stage (refer Figure 10). Stage 1 is the first part of an overall extrusion in section; linking to Stage 2 and the future connective infill stage (refer Figure 11).

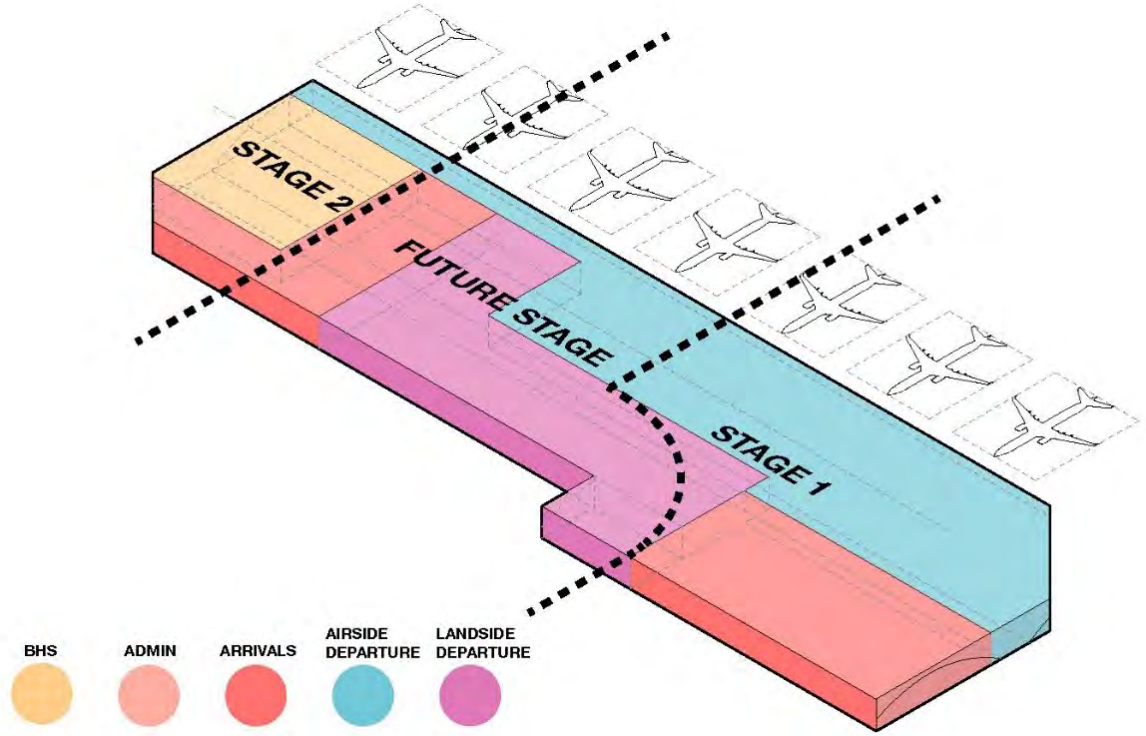


Figure 10 Indicative Ultimate Terminal Layout by 2030

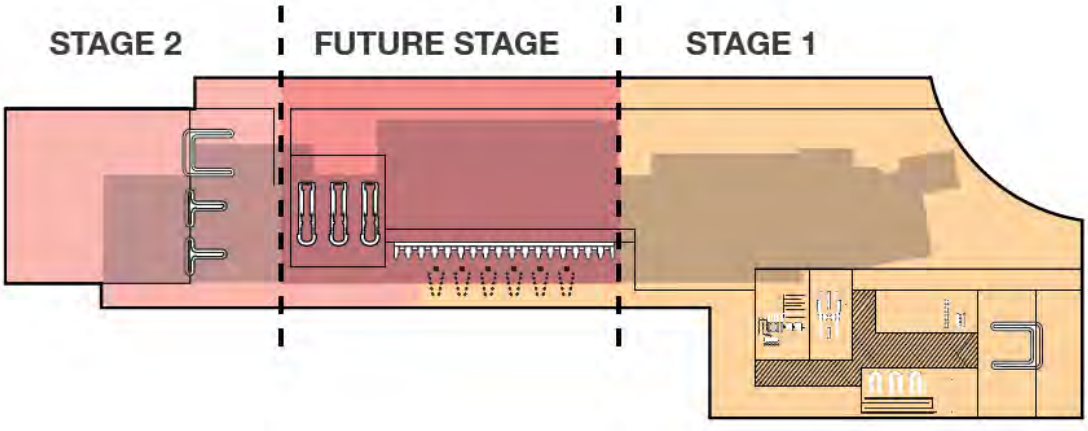


Figure 11 Existing Terminal Building (Shadow) Overlayed with Indicative Staged Project Expansion Area

The architectural expression has a rational simplicity which originates from the current airport footprint and its staged expansion.

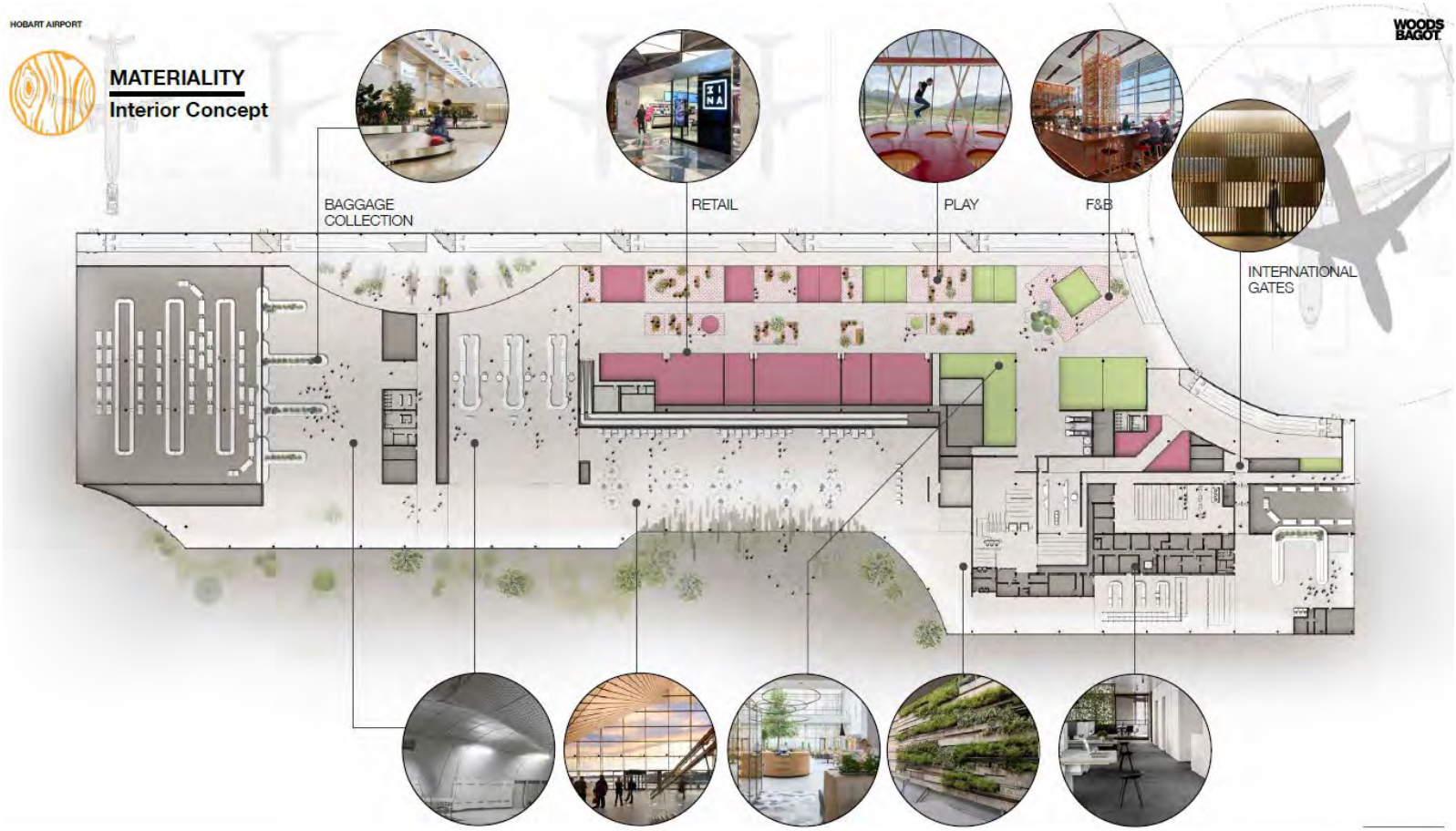
Subject to further design development, exterior materiality will respond to the locality, and is expected to utilise grey metal to façades, fascia and roof sheeting. The glazing will be transparent to link the architecture of the exterior to the sculptured timber interior, reflective of nature. The new departure hall will be a continuous space embraced by an undulating timber ceiling opening up airside to the surrounding landscape. A panoramic window at the east and north façades creates connectivity to nature and natural daylight, creating an atmosphere reflective of the weather, season and time of day.

The design will capture aspirational airport design themes with the foremost consideration being the uniqueness of Tasmania and Hobart. This is to be translated through infrastructure and the passenger experience to create a positive first and last impression at the Airport. Figure 12 provides an indicative interior concept design in relation to potential materiality, reflective of Hobart International Airport's design and style aspirations for the expanded terminal. The overarching principles driving the design include:

- Adopting style and design themes which are an expression of Hobart and Tasmania:
  - Interior design themes based on the Tasmania's natural environment and unique culture;
  - Landside forecourt and all high dwell passenger areas to be similarly themed;
  - Employ a strong local food culture to form part of the commercial strategy;
  - Consider Indigenous cultural expression of the Palawa people, and in particular the local Muwinina people of the South East Tribe of Lutruwita;
  - Sourcing local materials that demonstrate unique craftsmanship of Tasmanian industries;
- A design that addresses the airport's immediate needs for:
  - An expanded domestic departures footprint to facilitate domestic passenger growth;
  - An international processing facility for Code C and Code E aircraft operations;
  - Expanded concessionaire offers;
  - New enhanced security screening for passengers and baggage;
  - Baggage handling services;
  - New lounges for airlines.
- Proposing a palette of materials and a fit out that provides a high level of durability with an ease of maintenance while achieving high public amenity outcomes of safety, security and acoustic performance;
- Creating a terminal building with flexible design to allow multi-level expansion for future stages;
- Responding to both domestic and international passenger demand forecasts, with an expanded domestic departures footprint to facilitate passenger growth;
- Driving commercial performance of retail and property;
- Upgrading the terminal to provide facilities in line with an International Air Transport Association (IATA) Level of Service "Optimum";
- Maintaining sight lines between retail and gate;
- Enhancing security to meet legislative changes;
- Delivering Code E aircraft capability through creation of a Code E swing gate capable of handling both domestic and international passengers to support the future growth of international airlines, delivering capacity and growth at the best cost to the airlines.
- Making provision for airline lounge requirements;
- Incorporating flexible operation for domestic and international swing gate operations;

- Adhering to local planning scheme and urban design directives;
- Designing building services to allow for ease of maintenance and equipment replacement;
- Adhering to current aviation regulations and standards;
- Having regard to options for off-site pre-fabrication of elements of the works, with a view to maximising off-site construction activities.

Figure 12 Indicative Interior Concept Design - Potential Materiality



3.2 Passenger Journey

Passenger experience, comfort and well-being have been key drivers of the design throughout. The layout of the existing terminal and the staged expansion enhances transparency and open space increasing visual legibility and intuitive wayfinding. Passenger flow paths for each stage of the Project are provided in the Development Plans at Appendix A.

All departing passengers, both domestic and international, will pass through the existing check-in hall which will be fitted with additional self-service kiosks and bag drop points to handle increased traffic. Some of the existing check-in counters will be replaced with automated bag drop points to further increase processing speed and volume and the baggage conveyor system will be amended and upgraded to accommodate the phased introduction of further automated bag drop points over time.

The existing security screening point will be expanded from the current two lane configuration to four lanes to increase capacity and to mitigate the anticipated reduction in processing rates arising from changes to mandatory screening procedures. The existing domestic departures lounge will be extended to the east (towards the apron) to increase current holding capacity, create new boarding zones and provide additional retail outlets. Further capacity will be added through the removal of the redundant baggage handling facility at the southern end of the terminal and construction of new departure lounge accommodation.

The Project will see the creation of a Code E swing gate capable of handling both domestic and international passengers. Using doors and operable walls to segregate domestic from international passengers, the swing departure lounge will allow the space to be used more efficiently and avoid over-provision of built area and duplication of facilities which could otherwise be underutilised.

Duty free retail will be available in the departure lounge when it is in international mode. Arriving international passengers will enter the terminal through a separate international arrivals corridor which will isolate them from domestic and departing international passengers. A duty-free collection point may be provided in the arrivals corridor to allow arriving passengers to pick up pre-ordered duty-free goods prior to reaching the inbound immigration point.

3.3 Development Phase: Stage 1

Stage 1 consists of the construction of a new swing gate international processing facility (1A), departure lounge expansion (1B) and lounge refurbishment (1C). In the southwest corner of the existing terminal a new international processor will be created to facilitate the reintroduction of international flights. The ground floor of the two-storey processor will accommodate:

- Inbound and outbound passport control;
- Security screening for outbound international and transit passengers;
- International baggage reclaim;
- Quarantine and customs examination areas and associated technical support rooms; and
- A domestic / international (swing gate) departure lounge and boarding gate.

The upper floor will accommodate Australian Border Force support facilities and offices, and two lounges for airline use. The location of the lounges will offer the potential for views to the apron and beyond, allowing visual connectivity to the runway and the aircraft on the apron.

On the eastern side of the terminal the existing departure lounge will be extended to provide:

- Additional departure lounge space;
- Retail outlets;
- Food and beverage outlets; and
- Boarding zones.

The provision of dedicated boarding zones will allow more controlled management of departing passengers and alleviate potential congestion within the main body of the departure lounge. Figure 13 shows the extent of Stage 1 works.

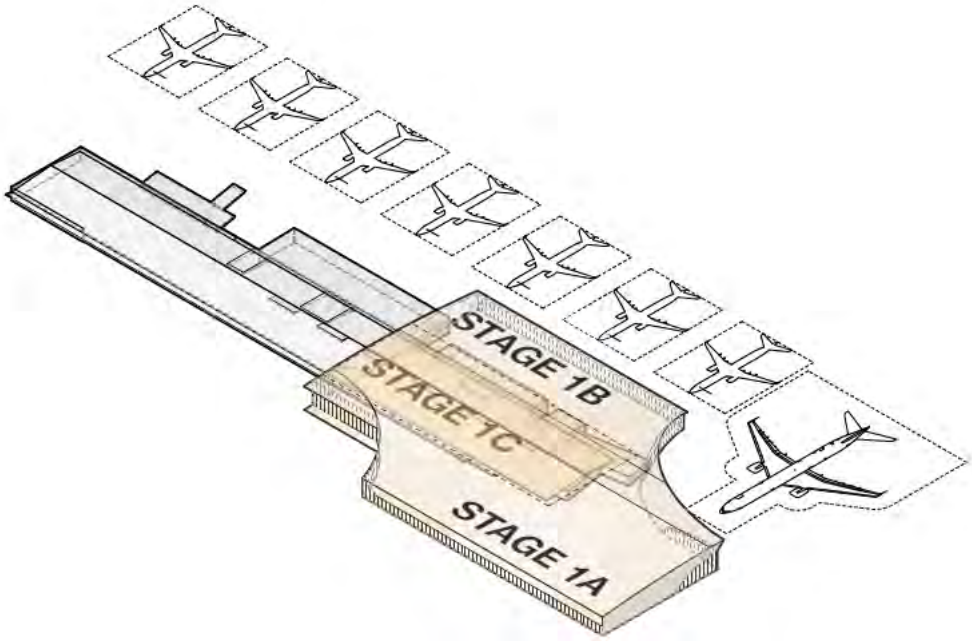


Figure 13 Swing Gate International Processor (Stage 1a) and Departure Lounge Expansion (Stage 1B)

3.4 Development Phase: Stage 2

Stage 2 consists of changes to the baggage handling system (BHS). At the northern end of the terminal, the baggage handling facilities will be expanded to accommodate additional make-up positions for both domestic and international flights as well as domestic break-down / reclaim carousels.

Relocating the bag room to the northern end removes the crossover – and potential conflict - between baggage traffic and arriving / departing passengers which exists with the current centrally-located baggage facility. This relocation also makes possible the future expansion of the departure lounge and boarding gates into the space currently occupied by the baggage handling system and facilitates the relocation and expansion of the security screening area to process increased passenger numbers.

Extension of the boarding zone brings the boarding gates closer to the aircraft door, reducing the distance departing and arriving passengers are required to walk outside the terminal. Figure 14 shows the extent of Stage 2 works.

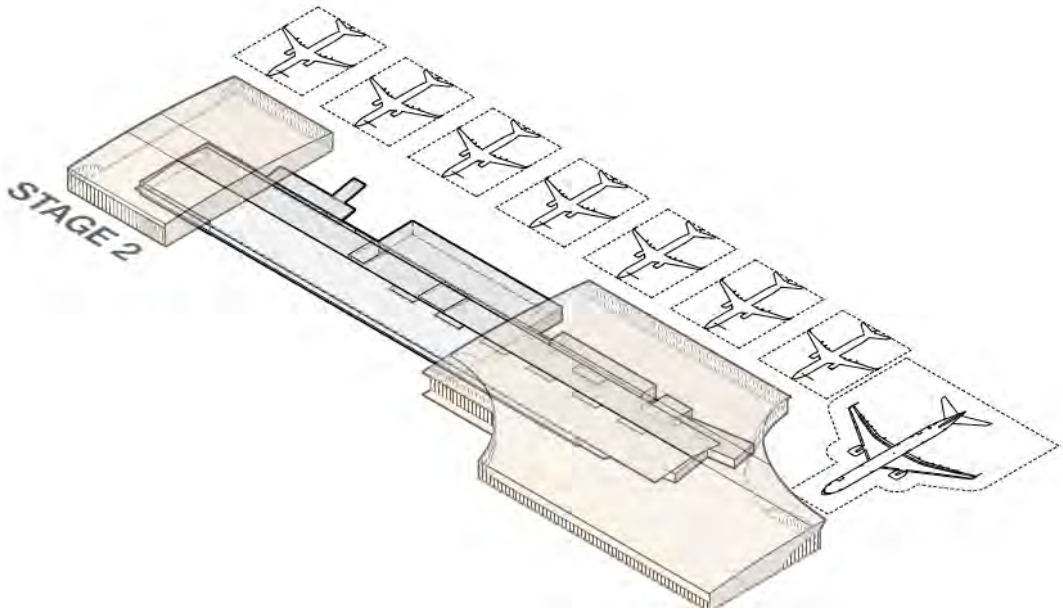


Figure 14 Baggage Handling System Changes (Stage 2)

3.5 Associated Works

A series of works are being undertaken at the airport ahead of the terminal expansion. These works comprise stand-alone projects that are not reliant upon the terminal expansion Project, though the works are cognisant of and will support the future terminal expansion. The works are not considered to trigger an MDP requirement nor do they form part of this MDP.

It is assumed these works will be completed by the time construction of the terminal expansion commences. The works, which will enhance airfield ground support equipment (GSE) capacity include:

- Power-in / Push-back: The works are being undertaken on the apron to allow adequate space for aircraft to be pushed back from the existing airport gates. These works have commenced and should be completed by June 2019;
- Airside Infill: A section of the airside between existing taxiways will be infilled with material. This is being undertaken to support the power in / push back project (and ultimately the proposed terminal expansion) and will commence in 2019.

4.0 Statutory and Policy Compliance

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4.0 Statutory and Policy Compliance

4.1 Commonwealth Legislation and Policy

4.1.1 Airports Act 1996

Hobart International Airport is subject to Commonwealth legislation to regulate its operations and those of other businesses located on the Airport. The *Airports Act 1996* is the primary legislative instrument and governs planning, operation and development on the Airport.

The *Airports Act 1996* provides the basis for the operation and development of Hobart International Airport. Importantly, the *Airports Act 1996* establishes the primacy of the use of land for the delivery of aviation activities. Section 3 of the *Airports Act 1996* outlines the objectives of the Act, of which the following are of relevance to the MDP:

a. To promote the sound development of civil aviation in Australia;

b. To establish a system for the regulation of airports that has due regard to the interests of airport users and the general community;

c. To promote the efficient and economic development and operation of airports;

d. To facilitate the comparison of airport performance in a transparent manner.

Section 88 of the *Airports Act 1996* requires that a MDP be prepared where a major airport development is proposed. The Project is considered to be a 'major development' and triggers the requirement for a MDP under Section 89(d) …*extending a building that is wholly or principally for use as a passenger terminal, where the extension increases the building's gross floor space by more than 10%.* The project triggers the requirement for a MDP as the terminal expansion will increase the building's floor space by more than 10%.

Section 90 of the *Airports Act 1996* provides that major airport developments must not be carried out except in accordance with an approved MDP. The information requirements of a MDP and the associated public consultation process are described in Part 5, Division 4 of the *Airports Act* 1996. Section 91 of the Airports Act specifies the contents of a MDP which must include:

a. the airport-lessee company's objectives for the development; and

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

c. a detailed outline of the development; and (ca) whether or not the development is consistent with the airport lease for the airport; and

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

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;

(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

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 Department of Defence, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; and

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 (ga) the likely effect of the Projects 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

(ii) employment levels at the airport; and

(iii) the local and regional economy and community, including an analysis of how the Projects fit within the local planning schemes for commercial and retail development in the adjacent area; and

h. the airport-lessee company's assessment of the environmental impacts that might reasonably be expected to be associated with the development; and

i. 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

j. 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

k. such other matters (if any) as are specified in the regulations.

Appendix B outlines the MDPs compliance with the requirements of Section 91 of the *Airports Act 1996*.

4.1.1.1 Airports Amendment Act 2018

The *Airports Amendment Act 2018* came into effect on 28 September 2018. The amendments streamline certain administrative arrangements relating to master plans (MPs) and major development plans (MDPs) to offer a more flexible, proportionate, efficiency-based regulatory approach.

Guidelines have been drafted to assist airport-lessee companies address the implementation of the new requirements to the *Airports Act 1996* including:

- A differential Master Plan submission cycle (enables some MPs to be prepared under the new eight year cycle, including Hobart beyond the Master Plan 2020) ;
- Mandatory inclusion of a new Australian Noise Exposure Forecast in each new MP;
- Increase of the MDP trigger from $20 million to $25 million and allow the Minister for Infrastructure, Transport and Regional Development to issue legislative instruments:
  - for the purpose of increasing the threshold amount (monetary trigger) for MDPs every three years, taking into account price indexations indicating changes in construction activity costs; and
  - for the purpose of specifying the costs that must be included, and must not be included, when calculating the cost of construction for an MDP;
- 15 business day statutory decision timeframe within which the Minister must consider applications from airport-lessee companies for reduced consultation periods for MDPs, with such applications deemed refused if there is no Ministerial decision within this timeframe;
- The Minister is able to extend more than once the period approved MDPs are required to be substantially completed; and
- Airport-lessee companies are able to notify the Minister if an approved MDP is not able to proceed on the basis of exceptional circumstances.

4.1.1.2 Pre-Existing Interests and Obligations – Airport Lessee

Section 91(3) of the *Airports Act 1996* and Regulation 5.04 of the *Airports Regulations 1997* require a MDP to address the obligations of the airport-lessee company as sublessor under any sub-lease of the airport site concerned, and the rights of the sublessee under any such sub-lease.

The project will be undertaken within land subject to the Airport Lease, with no works occurring outside the lease boundary.

This proposed development is consistent with the provisions of the Head Lease held by HIAPL under the *Airports Act 1996*. The project will provide for the continued use of the airport, and is consistent with HIAPL's obligations under Clause 13.1 of the Airport Lease which states that HIAPL is required to develop the Airport Site at its own cost and expense having regard to:

a. The actual and anticipated future growth in, and pattern of, traffic demand for the Airport site;

b. *The quality standards reasonably expected of such an Airport in Australia; and*

c. *Good Business Practice.*

As referenced in the 2015 Master Plan, *'the leases on the Airport in existence prior to 11 June 1998 and still current are:*

- *Airservices Australia Facilities - Control Tower, Fire Station and Car Park, Radio/Electrical Maintenance Workshop, Gym/SAR Store, Fire Training Ground, DVOR/DME, Localiser, Glidepath, SGS, Course Bars and Markers; and*
- *Bureau of Meteorology - Main Building, Instrument Site (west), Instrument Site (east – Anemometer)'.*

Since the 2015 Master Plan, HIAPL has negotiated the lease of the Qantas Domestic Terminal Lease and Aircraft Waste Facility. HIAPL now operates these facilities.

To the best of HIAPL's knowledge only the following may represent interests for the purposes of the Regulations:

- *Existence of the following trunk and other services:*
- *Telstra East Coast and Seven Mile Beach optic fibres;*
- *Telstra incoming optic fibre to Customs Kennel;*
- *Aurora optic fibre along Holyman Avenue;*
- *Water re-use inbound and outbound lines along Holyman Avenue;*
- *Airservices Australia – numerous communications;*
- *Incoming high voltage at airport metering point (Aurora);*
- *Incoming high voltage from Pittwater Road; and*
- *Numerous Aurora poles and associated assets.*

No Airservices Australia equipment will be relocated, however underground services are likely to require redirection as they currently pass underneath the terminal expansion footprint. By letter dated 25 January 2019, Airservices noted that a number of Airservices underground service cables have been identified within the current terminal footprint, which will be impacted by the proposed development. Airservices is conducting a services audit on these cables to confirm whether these should be retained.

The provision of ongoing border force services has been approved with the design of border force facilities being developed in consultation with (and for endorsement by) the Department of Agriculture and Water Resources and the Department of Home Affairs.

Sinclair Creek flows across the Airport. Sinclair Creek is relied upon by the TasWater Wastewater Treatment Plant for acceptance of treated wastewater in certain circumstances under the Environment Protection Notice governing its operation. The project will not affect the interest in this watercourse.

TasWater Wastewater Treatment Plant access will be maintained. Additional stormwater runoff will discharge into Sinclair Creek. Mitigation measures will include elements such as litter capture / litter traps and dislodgement of contaminants. A capacity study, including the new freight precinct and terminal rooflines, will be undertaken during the next phase of project design, and if required, appropriate remedial action will be undertaken.

4.1.1.3 Flight Paths

In accordance with Section 91(1)(ea) of the *Airports Act 1996,* an MDP is required to address the potential effects that the development may have on the airport flight paths.

Full details of how the proposal responds to the NASF Guidelines and the provisions of the *Airports (Protection of Airspace) Regulations 1996* is provided in section 4.1.4 and 4.1.5. A key consideration in the planning of the Project was the impact on aircraft operations at Hobart International Airport. The Project will not impact aircraft operations, noting:

- The Transitional Surface (TS) is the only OLS control surface in the vicinity of the Project. At the proposed location of the Project closest to the runway centreline, the maximum height allowable sits at an elevation of 26m AHD. The design of the building has the maximum height at less than 20m AHD.
- For construction works, construction equipment (such as cranes) may infringe on the transitional and PANS-OPS surfaces. During construction, an Authority to Work will need to be sourced from HIAPL prior to the commencement of works. This will assess the proposed works for potential impacts on OLS.
- The Project will not impact helicopter operations at Hobart International Airport (refer also to section 4.1.4 of this MDP).

4.1.2 Environment Protection and Biodiversity Conservation Act 1999

Hobart International Airport is situated on Commonwealth land and is therefore subject to the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) which regulates the actions of Commonwealth departments and agencies that may have a significant impact on the environment.

The EPBC Act 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). The objectives of the EPBC Act are to:

- *Provide for the protection of the environment, especially matters of national environmental significance;*
- *Conserve Australian biodiversity;*
- *Provide a streamlined national environmental assessment and approvals process;*
- *Enhance the protection and management of important natural and cultural places;*
- *Control the international movement of plants and animals (wildlife), wildlife specimens and products made or derived from wildlife;*
- *Promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;*
- *Recognise the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity;*
- *Promote the use of Indigenous peoples' knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge.*

The Significant Impact Guidelines 1.1 provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBC Act. The MNES protected under the EPBC Act include:

1. *World heritage properties;*
2. *National heritage places;*
3. *Ramsar wetlands of international importance;*
4. *Nationally threatened species and ecological communities;*
5. *Migratory species;*
6. *Commonwealth marine areas;*
7. *The Great Barrier Reef Marine Park;*
8. *Nuclear actions;*
9. *A water resource, in relation to coal seam gas development and large coal mining development.*

The Significant Impact Guidelines 1.2 apply to any person who proposes to take an action which is situated on or which may have an impact on Commonwealth land, or for representatives of Commonwealth agencies who propose to take an action that may impact on the environment anywhere in the world. In accordance with

EPBC Act, actions that have, or are likely to have, a significant impact on an MNES requires approval from the Commonwealth Minister for the Environment. The EPBC Act defines an action as including *'a project, a development, an undertaking and an activity or series of activities'* (section 535 of the EPBC Act).

By letter dated 5 February 2019, the DoEE confirmed that following referral of the MDP under subsection 161(1) of the EPBC Act, the proposed action (the Project) is likely to have a significant impact on the environment and therefore will require assessment via the accredited assessment process of an MDP.

Section 5 of this MDP provides an assessment of the impacts of the project and identifies that due to the location of the development in an already developed area, it will not have a significant impact on a MNES protected under the EPBC Act.

4.1.3 Australian Noise Exposure Forecast

The *Airports Act 1996* requires a Master Plan to include an Australian Noise Exposure Forecast (ANEF) to determine likely noise exposure around the airport. ANEF's are the official forecasts of future noise exposure patterns around an airport and they constitute the contours on which land use planning authorities base their controls. The system was developed as a land use planning tool aimed at controlling encroachment on airports by noise-sensitive buildings.

The 2015 Master Plan presents the forecast ultimate capacity Australian Noise Exposure Forecast (ANEF) contours for the airport. The ultimate capacity ANEF does not represent current aircraft noise exposure around the airport but it provides appropriate guidance for long-term planning considerations. The ANEF will be updated as part of the 2020 Master Plan, based on variables such as weather, aircraft type, aircraft schedules, indicative flight corridors, airline operations and air traffic control procedures.

A description of the ANEF system and the associated land use compatibility advice for areas in the vicinity of airports is contained in Australian Standard AS2021-2015, *'Acoustics – Aircraft Noise Intrusion – Building Siting and Construction'*.

Given the location of proposed works, the Project is contained within the ANEF 35 contour. The terminal building is best characterised as a "Commercial building" under Australian Standard AS2021:2015 Acoustics - Aircraft noise intrusion - Building siting and construction (AS2021), which considers a commercial building to be "Conditionally acceptable" between 25 to 35 ANEF. During ongoing design of the project, the building façade will be designed to achieve the required Aircraft Noise Reduction performance requirements of AS2021.

The Project will not affect airspace operations, the ANEC and ANEF noise forecasts and contours outlined in the 2015 Master Plan. Furthermore, the Project will not generate additional aircraft noise to sensitive receptors around Hobart International Airport.

4.1.4 Airports (Protection of Airspace) Regulations 1996

In accordance with the provisions of the *Airports Act 1996* and the *Airports (Protection of Airspace) Regulations 1996*, the airspace around airports may be declared prescribed airspace, in order to protect the airspace for safe arrival and departure of aircraft using the airport.

As identified in the 2015 Master Plan, Hobart International Airport's airspace has been declared Prescribed Airspace by the Commonwealth Government under these regulations. Pursuant to the Airports Regulations, prescribed airspace is defined as *'the airspace above any part of either an Obstacle Limitation Surface (OLS) or Procedures for Air Navigational Services – Aircraft Operations surface (PANS-OPS)'*.

The Regulations define two sets of invisible surfaces above the ground at and around an airport. The airspace above these surfaces forms the airport's protected airspace and includes:

- Obstacle Limitation Surface (OLS) – this surface is usually the lower of the two sets of surfaces that make up Prescribed Airspace and is designed to provide protection for when the pilot is flying by sight.
- Procedures for Air Navigational Services - Aircraft Operations (PANS-OPS) surface – these surfaces are usually higher than the OLS and are designed to provide protection for when the pilot is flying by instruments.

PANS-OPS are established to protect aircraft operating under instrument flight rules which requires a greater margin of error than the OLS. Consequently, the PANS-OPS surfaces are generally higher than the OLS.

The *Airports Act 1996* defines any activity resulting in an intrusion into an airport's protected airspace to be a 'controlled activity' and requires that controlled activities cannot be carried out without approval. The Regulations provide the DoIRDC or the airport operator with the ability to assess and approve applications to carry out controlled activities and to impose conditions on an approval.

The Project works relate to an expansion of the existing terminal, which are not anticipated to have a structural impact on Hobart International Airport's OLS or PANS-OPS surfaces. Hobart International Airport has completed an assessment of the Prescribed Airspace as required by the *Airports (Protection of Airspace) Regulations 1996* and provided a maximum height that the terminal structure must not exceed to ensure it is not classed as a controlled activity.

Activities that could penetrate the Protected Airspace of the Airport must be approved before the proposed penetration is permitted to occur. All construction works associated with the Project will be assessed for potential airspace impacts in consultation with Airservices Australia and CASA. This will primarily occur through the detailed design, construction planning and secondary approvals stages of the Project.

Controlled Activity approvals will need to be obtained during construction if intrusions into controlled airspace are required. Controlled Activity approvals are issued by the DoIRDC following assessment advice from Airservices Australia and CASA. DoIRDC may delegate the assessment and approval of temporary intrusions (of less than three months) to the relevant airport operator. Prior to the construction phase commencing, a 'Notice to Airmen' (NOTAM) will be issued by Hobart International Airport advising the temporary erection of obstacle(s) on or near airside (e.g. cranes) as required. Airservices Australia will work with Hobart International Airport to assess construction activities for potential intrusion into prescribed airspace and where required, Airservices Australia will issue relevant instrument flight procedure and/or other relevant NOTAMs.

Airservices Australia will be consulted with regard to any impact on the performance of Precision/Non-Precision Navigational Aids, High Frequency/Very High Frequency (HF/VHF) Communications, Advanced-Surface Movement Guidance and Control Systems (A-SMGCS), Radar, Precision Runway Monitor (PRM), Automatic Dependent Surveillance Broadcast (ADS-B), Wide Area Multilateration (WAM) or Satellite/Links to ensure that works will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Hobart International Airport.

Refer also to section 4.1.5 (National Airports Safeguarding Framework).

4.1.5 National Airports Safeguarding Framework

The National Airports Safeguarding Advisory Group (NASAG) developed the National Airports Safeguarding Framework (NASF), which has been agreed to by the States and Territories of Australia. NASF is a national land use planning framework that aims to:

- *Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms;*
- *Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning through guidelines being adopted by jurisdictions on various safety-related issues.*

The NASF seeks to enhance the current and future safety, viability and growth of aviation operations at Australian airports and provide guidance on planning requirements for development that affects aviation operations. The Tasmanian Government is a signatory to and has officially endorsed NASF and associated guidelines.

Hobart International Airport has policies and procedures in place to ensure that on-airport development addresses NASF requirements. In addition, the 2015 Master Plan has a number of policies and processes in place for ensuring on-airport developments achieve airport safeguarding requirements.

Table 1 details how the Project responds to the NASF Guidelines.

Table 1 Response to NASF Guidelines

NASF Guideline	Relevance to Project
Guideline A: Measures for Managing Impacts of Aircraft Noise	Guideline A recognises that inappropriate development around airports can result in unnecessary constraints on airport operations and negative externalities on businesses and the broader community. Guideline A provides guidance on the use of a complementary suite of noise metrics, including the ANEF system and frequency-based noise metrics to inform strategic planning and provide communities with comprehensive and understandable information about aircraft noise. Noise exposure outside the airport will not change as a result of the Project. The Project presents a terminal capacity response required to provide adequate facilities for passengers and airlines in the short to medium term. Works are generally contained to existing terminal and apron areas within the ANEF 35 contour. Specifically, works are not expected to generate noise impacts that exceed those associated with adjacent aircraft noise. The new building is best characterised as a "Commercial building" under Australian Standard AS2021:2015 Acoustics - Aircraft noise intrusion - Building siting and construction (AS2021), which considers a commercial building to be "Conditionally acceptable" between 25 to 35 ANEF. During ongoing design of the project, the building façade will be designed to achieve the required Aircraft Noise Reduction performance requirements of AS2021.
Guideline B: Managing the risk of building generated windshear and turbulence at airports	Guidelines B identifies the negative impacts that building-induced windshear can have on aviation operations in cases where structures are situated close to airport runways. The current Guideline B developed in 2011 was updated in 2018 to reflect current world's best practice and available science, and to encourage the use of existing assessment technologies and methodologies. Measures for managing the risk of building generated windshear and turbulence is generally associated with building works. When a significant obstacle is located in the path of a crosswind to an operational runway, the wind flow will be disrupted and can cause the crosswind speed to vary along the runway. Guideline B presents a layered risk approach to the siting and design of buildings near airport runways to reduce building generated windshear and turbulence. A windshear assessment was undertaken (refer Appendix E). The first stage of the assessment determined whether the proposed building is within the 'Assessment Trigger Areas' located around the runway ends. Buildings that could pose a safety risk are those located within a rectangular 'assessment trigger area', defined by being: • 1200m or closer perpendicular from the runway centreline (or extended runway centreline); and • 900m or closer in front of runway threshold (towards the landside of the airport); and • 500m or closer from the runway threshold along the runway. The second step was to determine whether the proposed building – if within the 'assessment trigger area' – exceeds a height generated by a height limitation surface. The rule adopted proposes that buildings should not penetrate a 1:35 surface extending perpendicular from the runway centreline (or extended runway centreline within the assessment trigger area). As the proposed terminal development is outside the 500 metre trigger assessment 'box' recommended by National Airports Safeguarding Framework Guideline B , it is considered that no further assessment of windshear risk is required unless determined

NASF Guideline	Relevance to Project
	by the MDP assessment body. By letter dated 29 January 2019, CASA advised that a wind study was not required for the terminal expansion project.
Guideline C: *Managing the risk of wildlife strikes in the vicinity of airports*	Guideline C seeks 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. The Project is entirely contained within the existing built environment and does not constitute a wildlife-attracting land use. Subsequently, the Project will not increase the risk of wildlife strikes in the vicinity of the airport. Any new or replacement landscaping as a result of the Project will reflect non bird-attracting species to minimise the attraction of birds and waste management measures will be implemented to avoid increased abundance of pests and opportunistic native fauna. During construction, the collection, storage and disposal of waste will be managed under the CEMP to avoid impact or nuisance on and off the development site. Specific mitigation measures include ensuring that waste bin lids are closed and work sites kept tidy to avoid littering and attraction of birds, vermin and other wildlife. All building facades will be designed to incorporate surfaces and materials that do not encourage the roosting of birds which may compromise the safety of airport operations.
Guideline D: *Managing the risk of wind turbine farms as physical obstacles to air navigation*	Guideline D addresses risks associated with wind turbines and low flying aviation operations. Specifically, the guidelines provide guidance to address the risk to civil aviation arising from the development, presence and use of wind farms and wind monitoring towers. This guideline is not applicable to the Project.
Guideline E: *Managing the risk of distractions to pilots from lighting in the vicinity of airports*	Guideline E provides advice on the risks of lighting distractions to ensure that they are minimised or avoided. Some alternations and additional lighting will occur as a result of the Project. Any external lighting will be designed and baffled to comply with the relevant standards and will be designed to not emit upward waste light.
Guideline F: *Managing the risk of intrusions into the protected airspace of airports*	Guideline F provides advice for planners and decision makers about working within and around protected airspace, including OLS and PANS-OPS intrusions (refer also to section 4.1.3 of this MDP), and how these can be better integrated into local planning processes to protect aircraft from obstacles or activities that could be a threat to safety. All construction works associated with the Project will be assessed for potential airspace impacts in consultation with Airservices Australia and CASA. This will primarily occur through the detailed design, construction planning and secondary approvals stages of the Project. The Transitional Surface (TS) is the only OLS control surface in the vicinity of the Project. The transitional surface is an inclined plane that originates from the edge of the runway strip. At the proposed location of the Project closest to the runway centreline, the maximum height allowable sits at an elevation of 26m AHD. The design of the building has the maximum height at less than 20m AHD. For construction works, construction equipment (such as cranes) may infringe on the transitional and PANS-OPS surfaces. During construction, an Authority to Work will need to be sourced from HIAPL prior to the commencement of works. This will assess the proposed works for potential impacts on Prescribed Airspace.

NASF Guideline	Relevance to Project
	By letter dated 29 January 2019, CASA advised that that they would defer to Airservices Australia for advice in relation to PANS-OPS surfaces. By letter dated 25 January 2019, Airservices noted that with respect to airspace procedures designed by Airservices in accordance with ICAO PANS-OPS and Document 9905, at a maximum height of 14.875m (49ft) AHD, the proposed Terminal Expansion Project will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Hobart International Airport. Procedures not designed by Airservices at Hobart International Airport were not considered in their assessment.
Guideline G: *Protecting aviation facilities - communications, navigation and surveillance (CNS)*	Guideline G provides land use planning guidance to better protect Communications, Navigation and Surveillance (CNS) facilities that support the systems and processes in place by Airservices Australia, the Department of Defence or other agencies under contract with the Commonwealth Government to safely manage the flow of aircraft into, out of and across Australian airspace. Airservices Australia has been consulted with regard to any impact on the performance of : • Precision/Non-Precision Navigational Aids • High Frequency/Very High Frequency (HF/VHF) Communications • Advanced-Surface Movement Guidance and Control Systems (A-SMGCS) • Radar • Precision Runway Monitor (PRM) • Automatic Dependent Surveillance Broadcast (ADS-B) • WAM or Satellite/Links to ensure that works will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Hobart International Airport. Line of Sight: A line of sight must be maintained from the Air Traffic Control (ATC) Tower to the runway ends and taxiway network for both the operational and construction phase of the project. The Hobart International Airport air traffic control tower is sited at a vantage point that has excellent visibility of the airfield. An assessment of the lines of sight of the tower has been undertaken. This assessment has determined there would be no impact on line of sight for the air traffic control tower. During construction, it has been assessed that impacts on line of sight for the air traffic control tower may occur with regards operations of cranes; however these will be appropriately managed through the existing airport procedure, including undertaking works at night outside airport operations where appropriate. By letter dated 25 January 2019, Airservices noted that their initial assessment had not identified any significant issues (subject to further review). Airservices noted that the proposed terminal development has the potential to obstruct the line of sight visibility, and communications coverage from the Aviation Rescue Fire Fighting Services (ARFFS) Fire Control Centre (FCC). There are currently existing deficiencies in the visibility from the ARFFS FCC, which are mitigated by the use of runway viewing cameras. A line of sight analysis from the ARFFS FCC, showing the shadowing from the current terminal and the proposed terminal, will be required by Airservices to assess any potential impacts By letter dated 29 January 2019, CASA noted that construction cranes may generate line of sight issues for ATC. CASA expects Airservices Australia will assess this issue and will consult with them on possible mitigation options to achieve an acceptable level of

NASF Guideline	Relevance to Project
	safety. A Line of Sight Analysis is provided in the Development Plan package at **Appendix A**. By letter dated 25 January 2019, **Airservices** advised that the Project will not adversely impact the performance of any other Airservices Precision/Non-Precision Navigation Aids, Anemometers, HF/VHF/UHF Communications, Radar, PRM, ADS-B, WAM or Satellite/Links.
Guideline H: ***Protecting Strategically Important Helicopter Landing Sites***	Guideline H provides guidance to ensure the ongoing operation of Strategically Important Helicopter Landing Sites (SHLS), and that the use of the SHLS is not compromised by any proposed development encroaching into flight paths. In addition, new development (and associated activities) should not present a hazard to helicopters arriving or departing from the SHLS) and any new SHLS are to be appropriately located. Two helicopter landing sites associated with helicopter operations at Hobart International Airport are located approximately to the south and south-east of the terminal. The Project will not impact helicopter operations at Hobart International Airport.
Guideline I: ***Public Safety Areas***	This guideline was developed to mitigate the risk of on-ground fatalities from an aircraft incident, by informing a consistent approach to land use at the end of airport runways. Public Safety Areas are a designated area of land at the end of an airport runway within which development may be restricted in order to control the number of people on the ground at risk of injury in the event of an aircraft accident on take-off or landing. The Project area is not located within a public safety area given its location away from the end of the runways. This guideline is therefore not applicable to the Project.

4.2 State Legislation and Policy

As Commonwealth land, planning requirements for Hobart International Airport are administered under the *Airports Act 1996*, and therefore the State and local planning provisions are not directly applicable to land use and development of the Hobart International Airport site.

The *Airports Act 1996* requires Master Plans to, where possible, be consistent with the State and local planning policies relevant to the State or Territory in which the airport is located. Similarly, the preparation of an MDP is required to give consideration to the level of consistency or otherwise with prevailing State and local planning policies and controls.

This MDP has considered the Tasmanian planning framework and the zones, overlays and other planning provisions of relevance. In particular, Hobart International Airport must comply with State legislation in the context of:

- Effects on State and Local government land use planning and development policies;
- Environmental considerations (including aircraft noise, flora, fauna, cultural, heritage, drainage and wastewater issues);
- Airport access;
- The provision of telecommunications, water and electricity services; and
- Land acquisition.

4.2.1 Land Use Planning and Approvals Act 1993

The *Land Use Planning and Approvals Act 1993* (LUPA Act) sets out the planning process in Tasmania, including the roles and functions of the Minister for Planning and Local Government, the Commission and Councils. It also sets out the various requirements and timeframes that apply to the planning process in Tasmania, for example,

making an application for a permit or requesting an amendment to a planning scheme. The Act is supported by regulations.

The objectives of the planning process established by the LUPA Act are to:

- Require sound strategic planning and coordinated action by State and local government;
- Establish a system of planning instruments to be the principal way of setting objectives, policies and controls for the use, development and protection of land;
- Ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land;
- Require land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels;
- Provide for the consolidation of approvals for land use or development and related matters, and to co-ordinate planning approvals with related approvals;
- Promote the health and wellbeing of all Tasmanians and visitors to Tasmania by ensuring a pleasant, efficient and safe environment for working, living and recreation;
- Conserve those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value;
- Protect public infrastructure and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community; and
- Provide a planning framework which fully considers land capability.

The Project is considered to be entirely consistent with the objectives of LUPA Act set out above.

4.2.2 Environmental Management and Pollution Control Act 1994

The *Environmental Management and Pollution Control Act* 1994 (EMPC Act) is part of the integrated development assessment process and addresses the environmental harm associated with development activities. EMPCA provides for a variety of management tools to prevent, remediate and mitigate environmental impacts.

The objectives of the environmental management and pollution control system established by the EMPC Act are to:

a. Protect and enhance the quality of the Tasmanian environment;

b. Prevent environmental degradation and adverse risks to human and ecosystem health by promoting pollution prevention, clean production technology, reuse and recycling of materials and waste minimization programmes;

c. Regulate, reduce or eliminate the discharge of pollutants and hazardous substances to air, land or water consistent with maintaining environmental quality;

d. Allocate the costs of environmental protection and restoration equitably and in a manner that encourages responsible use of, and reduces harm to, the environment, with polluters bearing the appropriate share of the costs that arise from their activities;

e. Require persons engaging in polluting activities to make progressive environmental improvements, including reductions of pollution at source, as such improvements become practicable through technological and economic development;

f. Provide for the monitoring and reporting of environmental quality on a regular basis;

g. Control the generation, storage, collection, transportation, treatment and disposal of waste with a view to reducing, minimizing and, where practicable, eliminating harm to the environment;

h. Adopt a precautionary approach when assessing environmental risk to ensure that all aspects of environmental quality, including ecosystem sustainability and integrity and beneficial uses of the environment, are considered in assessing, and making decisions in relation to, the environment;

i. Facilitate the adoption and implementation of standards agreed upon by the State under inter-governmental arrangements for greater uniformity in environmental regulation;

j. Promote public education about the protection, restoration and enhancement of the environment; and

k. Co-ordinate all activities as are necessary to protect, restore or improve the Tasmanian environment.

The Project is considered to be entirely consistent with the objectives of EMPC Act set out above.

4.2.3 State Coastal Policy 1996

The sustainable development objectives of the Resource Management Planning System are applied by the *State Coastal Policy 1996 (State Coastal Policy)* to Tasmania's coast, guided by three main principles:

- Natural and cultural values of the coast shall be protected;
- The coast shall be used and developed in a sustainable manner; and
- Integrated management and protection of the coastal zone is a shared responsibility.

The 'Coastal Zone' is the area to which the Policy applies to, and is defined under the policy as *'…state waters and to all land to a distance of one kilometre inland from the high-water mark'.* The airport land, and the area surrounding it, is entirely within the Coastal Zone.

A number of principles and objectives apply to the airport and the surrounding land that reinforces the strategic importance of the airport, for example:

> *…the economic and social values of sea ports and airports, mineral and forest resources, agriculture, marine farming and fisheries to Tasmania, and the legitimate aspirations of individuals and communities for allocation of space and resources in the coastal zone for these activities;*

Of relevance are Outcome 2 (Sustainable Development of Coastal Area and Resources):

- *2.1 Coastal Uses and Development:*
  - *2.1.1 The coastal zone shall be used and developed in a sustainable manner subject to the objectives, principles and outcomes of this Policy. It is acknowledged that there are conservation reserves and other areas within the coastal zone which will not be available for development.*
  - *2.1.3 Siting, design, construction and maintenance of buildings, engineering works and other infrastructure, including access routes within the coastal zone will be sensitive to the natural and aesthetic qualities of the coastal environment.*
  - *2.1.5 The precautionary principle will be applied to development which may pose serious or irreversible environmental damage to ensure that environmental degradation can be avoided, remedied or mitigated. Development proposals shall include strategies to avoid or mitigate potential adverse environmental effects.*
  - *2.1.6 In determining decisions on use and development in the coastal zone, priority will be given to those which are dependent on a coastal location for spatial, social, economic, cultural or environmental reasons.*
- *2.3 Tourism:*
  - *2.3.1 Tourism use and development in the coastal zone, including visitor accommodation and other facilities, will be directed to suitable locations based on the objectives, principles and outcomes of this Policy and subject to planning controls.*
- *2.5 Transport :*
  - *2.5.1 All transport infrastructure and associated services will be planned, developed and maintained consistent with the State Coastal Policy.*

- *2.5.5 The multiple use of port areas will be encouraged but priority will be given to efficient port operations and safety requirements subject to cultural, natural and aesthetic values not being compromised.*

2.6 Public Access and Safety:

- *2.6.1 The public's common right of access to and along the coast, from both land and water, will be maintained and enhanced where it does not conflict with the protection of natural and cultural coastal values, health and safety and security requirements.*

The Project is consistent with the State Coastal Policy which recognises that strategically significant economic and social aspects need to be balanced with public access, sustainability and safety outcomes of the policy. Provision for the continuation of existing public access rights along the coast from both land and water has been considered in the planning of the terminal expansion, including the protection of natural and cultural coastal values.

4.2.4 State Policy on Water Quality Management 1997

The framework for the development of ambient water quality objectives and the management and regulation of point and diffuse sources of emissions to surface waters (including coastal waters) and groundwater is provided by the *State Policy on Water Quality Management 1997*, also known as the Water Quality Policy. The Water Quality Policy generally applies to all surface waters, including coastal waters, and ground waters.

The objectives of the Water Quality Policy are to:

- *Focus water quality management on the achievement of objectives which will maintain or enhance water quality;*
- *Ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives;*
- *Ensure efficient and effective water quality monitoring programs are carried out and that monitoring responsibility is shared by those who benefit from the resource; and*
- *Apply the precautionary principle to Part 4 of this Policy.*

It is a requirement under the Water Quality Policy that safeguards be put in place by persons undertaking activities that might affect surface water or groundwater, to minimise the impact of any direct or indirect contamination from that activity. The preparation of an environmental emergency management plan and the monitoring of effluents from the activity and/or of pollutants in receiving waters may be required for certain activities.

Assessment of the potential impacts on surface water and groundwater arising from the Project in relation to both construction and ongoing operations and the mitigation strategies are presented in Section 0 of this MDP.

Based on the assessments and the mitigation strategies proposed, the Project is consistent with the principles of the Water Quality Policy. In particular, HIAPL's pollutant monitoring program in the Sinclair Creek and associated mitigation measures are consistent with the principles in the Water Quality Policy on pollutant monitoring. Further, the operation of existing safety shut-off valves on all stormwater inlets allows HIAPL to mitigate the impact of contamination in the event of an emergency.

4.2.5 Southern Tasmania Regional Land Use Strategy 2010-2035

The facilitation and management of change, growth and development within Southern Tasmania until 2035 is documented in the *Southern Tasmania Regional Land Use Strategy 2010 - 2035*. The strategy document contains a vision, strategies and policy statements to implement those strategies.

It is intended that the Strategy be implemented through planning schemes, and scheme amendments are required to be consistent with the Strategy. The proposals set out within the 2015 Master Plan are consistent with this Strategy. The importance of Hobart International Airport to the state is noted in the document, noting in relation to “Strategic Direction 4 - Improving our Economic Infrastructure" that:

Southern Tasmania is highly dependent upon the State's three northern ports for exports and imports and Hobart International Airport for movements of passengers and time sensitive products. Maintaining a strong strategic approach to industrial land with efficient and cost effective intrastate road and rail linkages to and from the sea and airports are vitally important, particularly in this modern era of 24 hour 7 days a week freight logistics.

The protection of the operational environment of Hobart International Airport is not included in any statements in the Strategy document. The location and density of future residential and commercial development affecting areas around the airport is controlled by a strong strategic and policy context within the Strategy. Notably, no lands to the east of the airport within the Seven Mile Beach Peninsula are currently identified for future settlement/ residential development. The area west of the airport in the Acton corridor has been identified for a mix of future commercial, industrial or residential development.

The Project is consistent with the Southern Tasmania Regional Land Use Strategy 2010-2035 as it is an essential development in maintaining Hobart International Airport's status as a transport hub and international gateway.

4.2.6 Southern Tasmania Industrial Land Strategy 2013

The *Southern Tasmania Industrial Land Strategy 2013* provides a review of the southern region's industrial profile, land supply and demand projections and recommends preferred sites to meet projected demand for the next 30 years. The City of Clarence was identified in the strategy as currently having the most extensive supply of vacant industrial land at 105ha.

The Strategy also recognises parts of Hobart International Airport as being strategically placed for new industrial uses, with Precincts 3 and 9 (4ha) identified as regionally significant land and well suited to accommodate export-orientated industries within the next 15 years.

The strategy has identified Hobart International Airport as a site for potential future aeronautical purposes and states that it does not fall under the Clarence Planning Scheme, like other land areas of the airport which are on Commonwealth land.

The strategy states that '*currently the identified land is not in use, however, HIAPL has identified that opportunities exists to use the land for aeronautical purposes in the future*'. These uses include:

- Antarctic services
- Aircraft maintenance and hangars
- General Aviation, and
- Freight and logistics.

The land was identified as a potential future industrial site by Clarence City Council. Considering the intended uses of the land, it has been recommended that the land be zoned for specialty industrial use to allow for use and development of airport related functions. Aviation related uses require specific safety and quality standards and this would best be provided if it is recognised and managed as a zone for that particular purpose. The site is therefore excluded from the general industrial supply analysis. The intended uses, once realised, are expected to have positive flow-on effects for related industrial uses nearby.

The Project will support the Tasmania freight industry and is therefore consistent with the intent of the Strategy.

4.2.7 Hobart City Deal

The Hobart City Deal[6] was signed on 24 February 2019 and represents a shared 10 year vision between the Commonwealth and Tasmanian State Government and the Clarence, Glenorchy, Hobart and Kingborough Councils. The City Deal seeks to guide and encourage investment in order to leverage Hobart's natural amenity and build on its position as a vibrant, liveable and connected global city[7]. The Hobart City Deal seeks to:

- *Enhance the Hobart International Airport's role as a direct international gateway;*

[6] Hobart City Deal, Commonwealth of Australia, 2019
[7] https://citydeals.infrastructure.gov.au/hobart

- *Solidify Hobart's world class standing as a gateway to the Antarctic and Southern Ocean;*
- *Establish a reliable, sustainable and cost effective transport system;*
- *Deliver a diverse range of affordable housing options;*
- *Establish governance to support better strategic planning for the city; and*
- *Invest to support Hobart as a smart, liveable and investment ready city.*

A key focus area of the City Deal is '*Direct International Flights at Hobart International Airport'* seeking to enhance the Hobart International Airport's role as a direct international gateway, and its connection to the Antarctic and Southern Ocean.

A major commitment in establishing Hobart International Airport as an International Gateway is the Australian Government investment of $82.3 million over the life of the City Deal for border services to support international flights at Hobart International Airport, including customs, immigration and biosecurity at the airport. The investment will support international tourists visiting Tasmania and provide Tasmanian businesses with greater access to international markets.

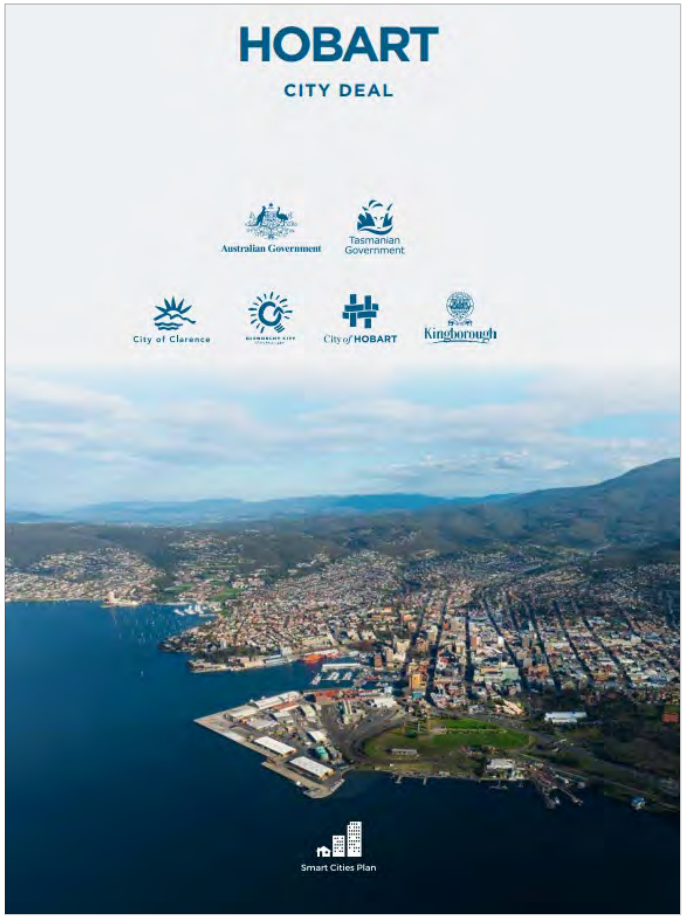


Figure 15 Hobart City Deal 2019

4.2.8 Local Provisions: Clarence Interim Planning Scheme 2015

The Tasmanian Planning Scheme is the single State-wide planning scheme which will replace the current 30 planning schemes operating in Tasmania. It will consist of State Planning Provisions (SPP) and Local Provision Schedules (LPS) which are intended to apply the State Planning Provisions while meeting local needs and objectives.

In May 2018, Clarence City Council endorsed the contents of the draft Clarence LPS and it has now been submitted to the Tasmanian Planning Commission for its consideration. In July 2018, Clarence City Council submitted the draft Clarence Local Provisions Schedule to the Tasmania Planning Commission. The Commission is currently considering the draft LPS against the applicable criteria. Therefore, the Clarence Interim Planning Scheme 2015 remains in force and regulates the way land can be used or developed in the City of Clarence.

As Commonwealth land, Hobart International Airport sits outside the formal planning jurisdiction of the City of Clarence (refer Figure 16). HIAPL acknowledges that the support of the Council is critical to future success, and the City of Clarence is a strong and active supporter of Hobart International Airport's continued development.

The economic importance of the Airport is recognised in the Interim Planning Scheme. Hobart International Airport is addressed within the Local Competitiveness Objectives of the Interim Planning Scheme in Section 3.0.9. This includes objectives for the city to help it realise its competitive advantage to achieve a number of outcomes, including:

- *Achieving economic growth associated with the city's strategic location between the air and seaport gateways to southern Tasmania; and*
- *Achieving increased product and commodity export and increased tourist visitation through Hobart International Airport.*

Further, the Interim Planning Scheme recognises that these outcomes may be achieved through *'…the separate land use planning process that applies to the Hobart International Airport site under Australian Government legislation, and the objectives under the associated Airport Master Plan, such as provision of air freight storage and handling facilities and improved passenger terminals.*

Through the 2015 Master Plan, HIAPL has focused on aligning proposed land uses on the airport site with the zone definitions and land uses in the Clarence City Council Interim 2014 Planning Scheme where alignment could be achieved.

The Project will not impact on permitted land uses in zones adjacent to the Airport or require changes to the zone boundaries set out in the Scheme, based on a review of the Interim Planning Scheme.

The exceptions where alignment could not be achieved were for land designated for aeronautical or aviation-related use, as these uses are not contemplated in the 2007 Planning Scheme or the Clarence City Council Interim 2014 Planning Scheme. Since the publication of the 2015 Master Plan, Clarence Interim Planning Scheme 2015 was adopted.

The terminal expansion Project is generally consistent with the Clarence City Council Planning Scheme to the extent that such consistency is possible, recognising that aeronautical and related uses are not covered by the scheme. It is noted that:

- The Project is consistent with the 2015 Master Plan;
- HIAPL's obligation to develop the airport under the terms of its Airport Lease is consistent with the undertaking of the Project;
- Aviation uses are integral to the operation of the Airport and the Interim Planning Scheme does not provide for or contemplate aviation uses;
- The separate land use planning process that applies to the Hobart International Airport site as Commonwealth land is recognised within the Interim Planning Scheme; and
- The Project is consistent with and supports the objectives and outcomes for the Clarence region as described in the Interim Planning Scheme;
- Significant benefits to the wider community, civil aviation users and other users of Hobart International Airport will be delivered by the proposed terminal expansion.

Overall, the Project is closely aligned with the achievement of the objectives and outcomes for the Clarence region. The terminal expansion is essential in achieving the development objectives of the Interim Planning Scheme as it will allow for increased product and commodity export and increase tourist visitation through Hobart International Airport.

4.2.8.1 Airport Buffer Overlay

The scope of the Airport Buffer Overlay to the east of the main runway has been of limited consequence in the past, as the Recreation Zoning of the land under the Clarence City Council 2007 Planning Scheme prevented residential and commercial development that would potentially give rise to conflict with airport operations.

However Draft Amendment A -2013/1 to the 2007 Planning Scheme highlighted the potential risks associated with a relaxation of the provisions of the Recreation Zone, in the absence of an overlay or other provision consistent with the National Airports Safeguarding Framework. Therefore a development control buffer around Hobart International Airport was introduced.

The aim of the overlay control is to ensure that surrounding land use and development is compatible with the operation of Hobart International Airport. This buffer zone is shown in Figure 17. Notably, the area covered by the overlay does not cover the balance of the Seven Mile Beach Spit, nor does it provide for changes to flight paths, noise exposure or airport operations.

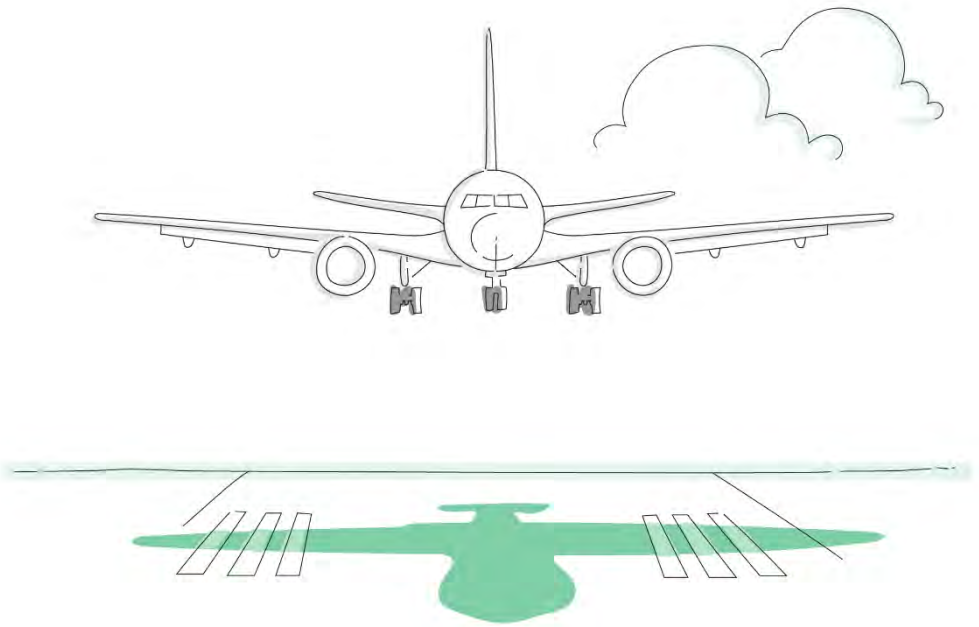


Figure 16 Clarence Interim Planning Scheme 2015, Hobart International Airport and Surrounding Land Use Zoning

Figure 17 Clarence Planning Scheme 2015 Airport Buffer Overlay

4.3 Hobart International Airport Policy

4.3.1 Hobart International Airport Master Plan

All leased federal airports are subject to the planning framework set out under the *Airports Act 1996*. The Master Plan is a 20 year strategic vision for the airport site which is renewed every eight[8] years.

4.3.1.1 2015 Master Plan

The 2015 Master Plan establishes the long term planning objectives for Hobart International Airport and provides a framework to guide appropriate aeronautical and non-aeronautical development. In accordance with the *Airports Act 1996*, the Master Plan provides the framework for Airport development for a period of 20 years up to 2035 - the forecast planning period. It defines a physical layout for the Airport for the 20-year period, 2015 to 2035, allocating future Airport land usage based on an assessment of present and forecast aviation activities, the environment, other demands and wider community expectations.

Key components of the 2015 Master Plan include a runway extension and terminal expansion, to cater for forecast domestic passenger growth and facilitate international flights for passengers, freight and to service the Antarctic sector (refer Figure 18).

The significant increase in tourism and passenger numbers travelling to Hobart meant that the 2015 terminal plan was insufficient to meet demand within its first year of implementation and work began on a new plan almost immediately. The following developments have been completed to date:

- Extension of the runway by 500m (150m to the northern end and 350m to the southern end) completed 2018;
- The closure of Surf Road to vehicle traffic
- The construction of Grueber Avenue.

The 2015 Master Plan stated that the terminal expansion would include a redevelopment of the airport's passenger terminal, including a larger departure lounge, centralised areas for arrivals, international passenger processing areas and a range of exciting new retail and dining spaces. The 2015 Master Plan sets out the scope of the Project and how its implementation aligns with the overall development objectives, land use zones and airport site uses proposed for Hobart International Airport.

The 2015 Master Plan expressly contemplates the terminal expansion proposed in this MDP (Section 4.2.2 Terminal Precinct and Section 6.1.2 2020 Terminal Design), and more generally (Chapters 5 Air Traffic Forecasts, 6 Passenger Terminal Planning, 11 Airspace Protection and 12 Aircraft Noise).

The 2015 Master Plan designates a number of Precincts within the airport (refer Figure 19). The Project will be constructed predominately within the Terminal Precinct; however, it also extends marginally into the Runway Precinct. The key development objectives for the Terminal Precinct are to:

- *Accommodate facilities for the safe, efficient and economic handling of aircraft, passengers and freight, and related services and support activities;*
- *Provide sufficient capacity for terminal facilities and related infrastructure development for airline services;*
- *Cater for the airport's role as a key tourist and business gateway to the region;*
- *Provide efficient, diverse and responsive ground transportation facilities (including car parking, hire cars, taxis, coaches); and*
- *Provide for aircraft navigation aids, radar and communications equipment, air traffic control, and meteorological services.*

The Runway Precinct primarily caters for runways, taxiways and aprons, with key development objectives relating to aircraft landing, take off and taxiing, as well as catering for navigational aids, communications

[8] Previously 5 years, amended in 2018 to 8 years via the *Airports Amendment Act 2018*

equipment, aviation rescue and firefighting. Development in this precinct needs to comply with all National and International aviation standards and regulations.

While the Project will marginally extend into the Runway Precinct, this is considered a minor inconsistency reflecting the amended terminal expansion footprint. Therefore the intrusion is considered immaterial, and will be rectified in the 202 Master Plan currently under development.

The Project is considered to be consistent with the overarching objectives of the Terminal Precinct and Runway Precinct because it will:

- Provide a modernised passenger terminal facility with increased capacity to enable the safe, efficient and economic handling of aircraft, passengers, freight, and associated services;
- Cater for the airport's role as a key tourist and business gateway to the region, offering:
  - Increased value of tourism revenue and employment for Tasmania:
  - Increased non-tourism export revenue and employment;
  - Regional and rural benefits within Tasmania; and
  - Social benefits to Tasmanians as a result of international services.
- Introduce a design that addresses the airport's immediate needs for:
  - Expanded domestic departures footprint to facilitate domestic passenger growth;
  - An international processing facility for Code C and Code E aircraft operations;
  - Expanded concessionaire offers;
  - New enhanced security screening for passengers and baggage;
  - Baggage handling services;
  - New lounges for airlines.
- Enhance the facilities and efficiencies for Airlines;
- Introduce a Code E swing gate capable of handling both domestic and international passengers.

The Master Plan states that all buildings should be of a high architectural standard and be highly functional, designed in a way that will allow for future expansion, adoption of new technologies and changes in operations. The design of buildings in the precinct should take into consideration the limitation imposed by the obstacle limitation surface (OLS), wind shear considerations and glare. Landscaping species should be chosen not to attract birds.

The Project will be designed to a high architectural standard and assessment of the proposal against the NASF guidelines is provided in Section 4.1.5. The development will comply with all National and International aviation standards and regulations.

4.3.1.2 Draft 2020 Master Plan

In accordance with the *Airports Act 1996* and *Airports Amendment Act 2018,* Hobart International Airport is required to develop a new Master Plan at least every eight years (five years for current plans) outlining the proposed development and direction of the airport precinct for the next 20 years. Master Plans for Hobart International Airport were prepared and approved in 1999, 2004, 2009 and most recently in 2015. The Draft 2020 Master Plan is currently under preparation, with anticipated timeframes for its development set out below:

- Exposure Draft Master Plan – early June 2019;
- Preliminary Draft Master Plan Public Consultation – late 2019/ early 2020;
- Master Plan Approval – by September 2020.

As the 2020 Master Plan is still under development, assessment of this MDP against the 2020 Master Plan has not been undertaken.

Figure 18 Terminal Master Plan (2015 Master Plan)

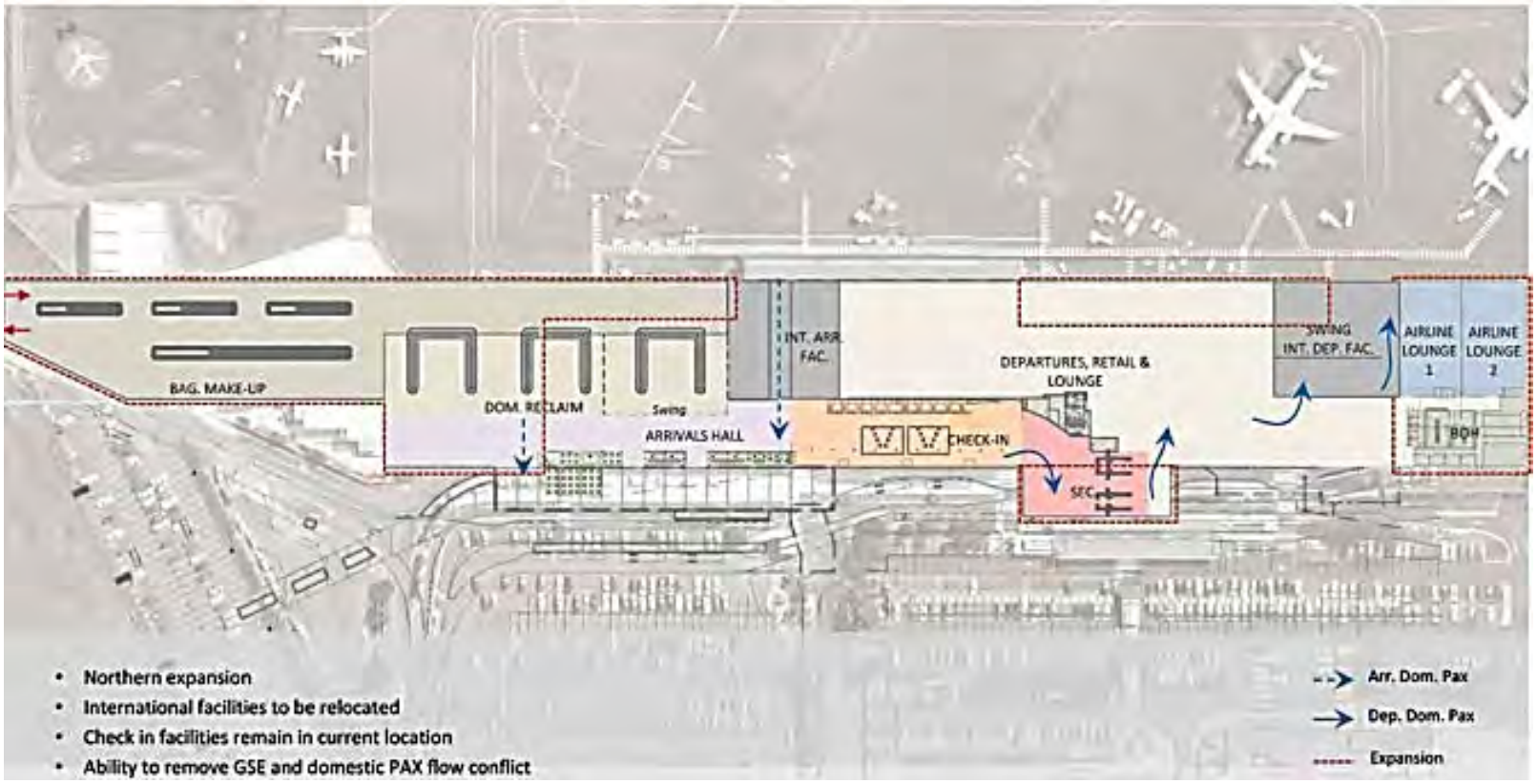
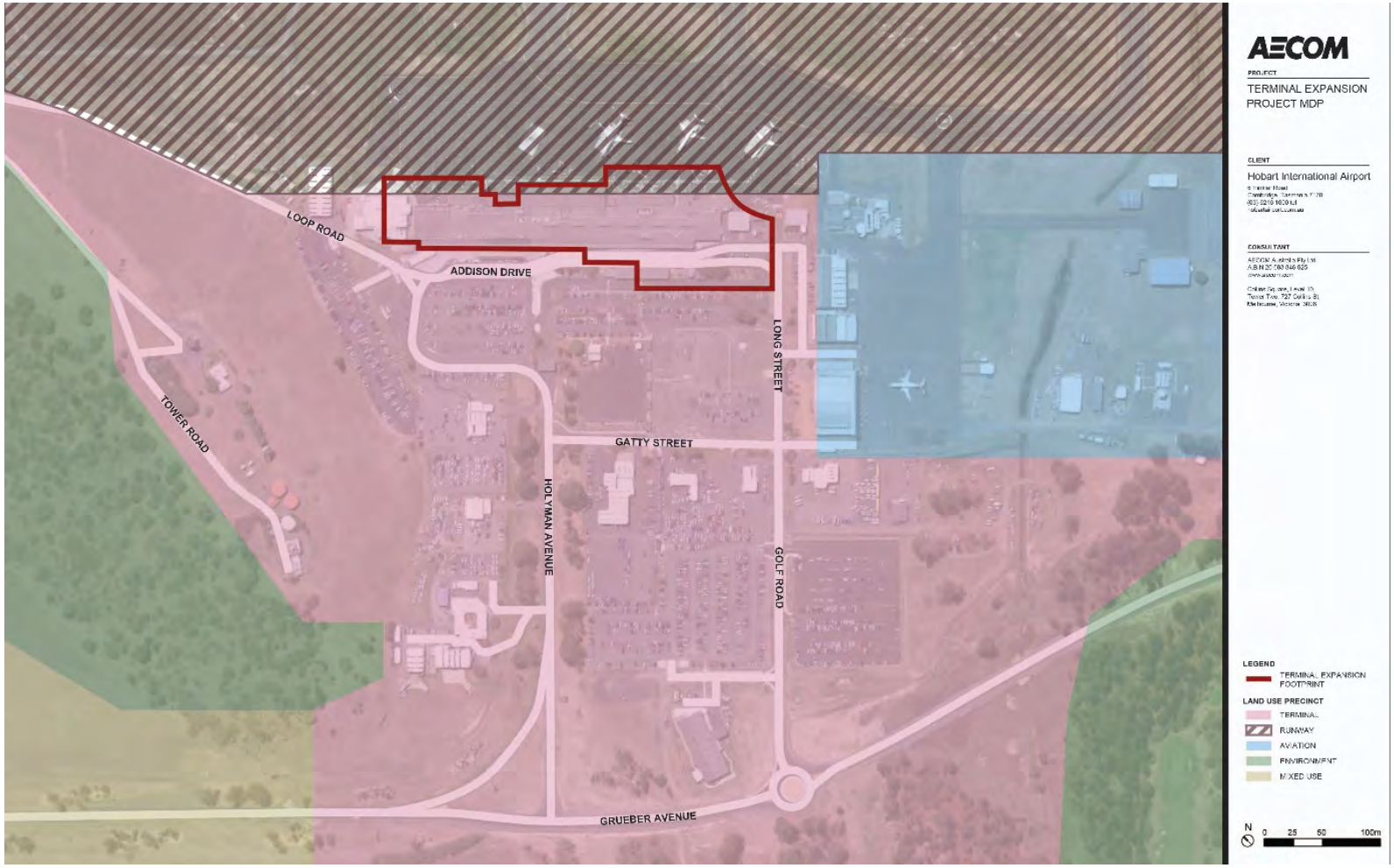


Figure 19 Hobart International Airport Land Use Precincts



4.3.2 Environment Management

HIAPL's overall objectives for environmental management are to promote continuous improvement in environmental management and minimise potential adverse environment impacts as a result of airport activities.

Located on the boundary of a coastal spit, the airport site contains areas of both Commonwealth and State significance, particularly in relation to biodiversity values. HIAPL recognises the importance of these values and strives to achieve a sustainable balance between conserving the value of environmentally important areas while still allowing for carefully planned development to facilitate future growth. Appropriate management and the implementation of mitigation measures aim to ensure that any potential impacts to environmental values resulting from development and operation of the Airport are minimised.

4.3.2.1 Environment Policy 2019

Hobart International Airport's Environment Policy sets out the principles for the environmental management of the airport (refer **Appendix C).** The policy supports the basis for which objectives, targets and environmental action plans are developed in the Environment Strategy.

4.3.2.2 Environment Strategy 2015

The long-term strategic vision for Hobart International Airport is provided in the Hobart International Airport Environment Strategy, which forms part of the 2015 Master Plan, and will be updated as part of the 2020 Master Plan. The Airport Environment Strategy's key objective is to summarise the environmental approach of the Airport to managing environmental values. The Airport Environment Strategy outlines the following environmental values:

- Heritage – Aboriginal and historic
- Biodiversity – Vegetation communities and threatened species;
- Air Quality
- Water Quality – surface and groundwater
- Soil quality – Contamination
- Energy and natural resources – including climate change, greenhouse gas emissions and water
- Waste management; and
- Noise – ground-based emissions.

The project will be constructed and operated in a manner consistent with this Strategy. Applicable targets identified within the Environment Strategy that will be promoted through the construction and operation of the new terminal include (*inter alia*):

- Resource Use:
  - Development and implementation of energy efficient strategies using information provided from reputable sources and adopt recommended actions where applicable
  - Incorporate energy efficient measures for new developments
  - Ensure Contractor CEMPs include measures to reduce generation of waste
- Land:
  - Continued investigations into PFAS, remediation measures and liaison with Airservices
  - Site investigations of potential contaminated sites prior to disturbance or development projects, including analytical testing
  - Incorporation of the PFAS National Environmental Management Plan (PFAS NEMP) (HEPA 2018)

- Appropriate mitigation measures in place where the potential for disturbance of Acid Sulfate soils exist

- Surface Water and Groundwater:
  - Continuation of surface water quality monitoring and twice yearly groundwater monitoring
  - Ensure all CEMPs on projects identify environmental risks to water quality and the appropriate mitigation measures are in place to prevent/minimise environmental harm
- Biodiversity
  - Continue to ensure that all CEMPs incorporate measures to minimise potential adverse impacts to biodiversity values
  - Ensure construction activities incorporate mitigation measures to minimise impacts to adjacent wetlands e.g. silt traps, detention facilities, run-off control
- Air Quality
  - Document and respond to air quality related complaints raised as a result of activities at the airport
  - Review of contractor CEMPs to ensure potential air quality impacts are addressed
- Ground-based noise
  - Continuation of discussions with Community Aviation Consultation Group (CACG) on potential noise related issues
  - Review and update ground based noise management procedures and implement accordingly
  - Review of contractor CEMPs to ensure potential ground based noise impacts are addressed
- Hazardous materials
  - Review of contractor CEMPs to ensure the storage and handling of contaminating substances are addressed appropriately

The Airport Environment Strategy is a guide for incorporation of sustainability into project design, defining the aspiration and targets for their operations. The Project incorporates:

- Water Efficiency:
  - Rainwater harvesting
  - Amenities to utilise solar gas boosted hot water systems
  - 'Four Star' rating for all tapware.
- Energy Efficiency
  - High efficiency LED fittings for lighting design;
  - Utilisation of daylight dimming and occupancy sensors for lighting control.

4.3.2.3 Integrated Management System and Environmental Risk Register

HIAPL operates an Integrated Management System (IMS) which incorporates Quality, Environment, Aerodrome Safety, Security and Health and Safety. At two levels in the IMS the environmental risk register is incorporated.

- All generic environmental risks are included with other enterprise wide risks for Financial, Reputational and Brand, Compliance and People and Safety at the enterprise wide level;
- Details of specific risks relating to the environment are maintained in a separate and more specific environmental risk register.

All significant environmental values are included in the HIAPL Environmental Risk Register which includes the preferred controls or procedures in place to mitigate potential environmental impacts resulting from both operational and construction activities. Using HIAPL's risk management procedure for the environment, the risks

posed from construction have been assessed. Through the implementation of appropriate mitigation measures, each of the risks identified are considered manageable.

4.3.2.4 Environment Management CEMP

Commitments to managing the environment at the airport and the mitigation measures in place to reduce potential impacts are integrated with day-to-day activities, including those undertaken by tenants and contractors on site.

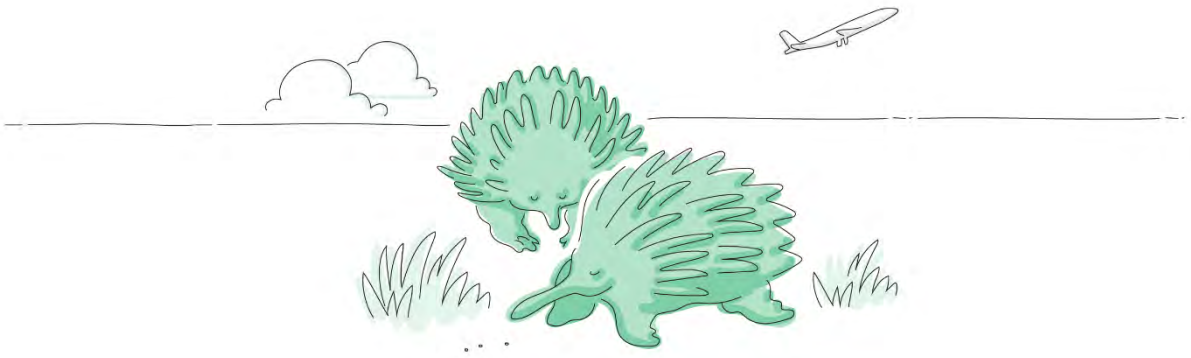
All Construction Environmental Management Plans (CEMPs) for projects on airport land are reviewed by the HIAPL Environment Manager and the Commonwealth appointed AEO to ensure that potential impacts to environmental values are captured and that appropriate management strategies are identified and implemented.

The Hobart International Airport *Construction Environmental Management Plan Guidelines for Contractors* (January 2016) sets out the requirements for the development of CEMPs. Environmental auditing, undertaken by the HIAPL Environment Manager, occurs on projects to ensure management strategies are consistent with the methods outlined within CEMPs.

The relevant works contractor will be required to prepare CEMPs prior to the commencement of any construction works associated with the project. All relevant aspects of the construction of the Project will be covered by these CEMPs, including monitoring, auditing and reporting requirements that are to be implemented throughout the duration of the project.

The CEMP and site audit activities will be reviewed by the AEO as required. Where relevant, further issue-specific plans will also be prepared. These may include:

- Erosion and Sediment Control Plans;
- Acid Sulfate Soils Management Plan;
- Waste Management Plan
- Asbestos Management Plan;
- Contaminant Management Plan;
- Dust Management Plan; and
- Risk Management Plan.



5.0 Assessment of Impacts

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5.0 Assessment of Impacts

5.1 Assessment Methodology

This section sets out the methodology by which HIAPL has assessed the impacts of the construction and operational phases of the Project on the airport and surrounding area, including in relation to the following environmental and social factors:

- Geology and Soils;
- Surface and Groundwater;
- Ecology;
- Cultural Heritage;
- Air Quality;
- Noise and Vibration;
- Hazardous Materials;
- Traffic;
- Economic and Social;
- Visual;
- Lighting;
- Services; and
- Waste Management.

Assessment criteria were designed in order to assess identified impacts in a consistent manner. For that reason, HIAPL has adopted the use of a "significant criteria assessment". This is a standard technique used in assessments of this nature that allows different topics to be addressed consistently. A description of the significance criteria used for this is set out in Table 2.

Table 2 Impact Assessment Significance Criteria

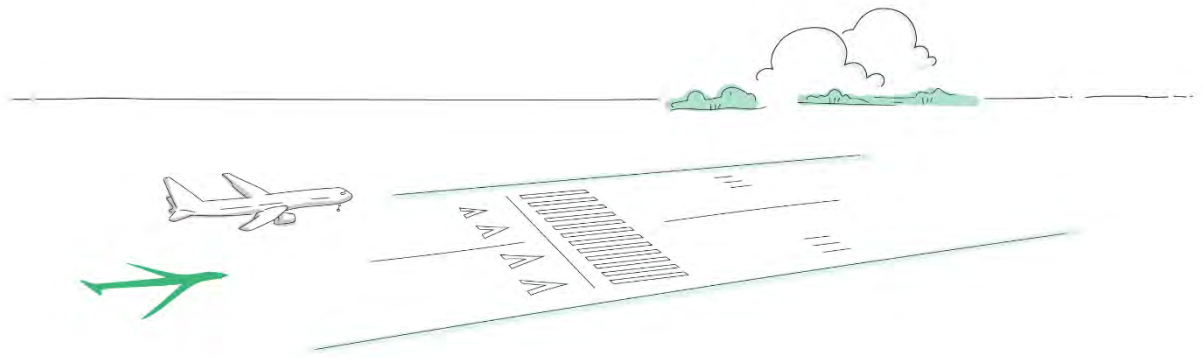
Impact Significance	Classification	Criteria Description
High	Impact is considered major	Environmental effects are likely to be important considerations at a national to international scale but if adverse, may impact the project, depending upon the relative importance attached to the issue during the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

Each identified impact considers:

- **Baseline Conditions** identifies the existing conditions of the Project area in terms of the identified impact.
- **Impact Assessment** provides an explanation of the assessment for the relevant construction and operational impact.
- **Mitigation Measures** identifies potential appropriate mitigation measures to alleviate the significance of the construction or operational impact.

The description of the existing environment and assessment of potential impacts of the project are based on existing studies. The following sources have been included in the assessment:

- Review of studies and monitoring undertaken at the airport, including groundwater monitoring, contamination testing, flora and fauna assessments;
- Review of local planning documents;
- Database information contained within EPBC Protected Matters Reports;
- State Natural Values Atlas Reports;
- State database searches (Land Information System Tasmania, TASI database);
- Existing information; and
- Other reports and relevant management plans, including:
  - Hobart International Airport Design Update (Woods Bagot, 2018)
  - Llanherne Grassland Assessment (North Barker, June 2017)
  - Light Towers Geotechnical Investigations (GHD, October 2017)
  - Hobart International Airport Draft Ground Transport Plan (Jacobs, November 2018)
  - Groundwater Monitoring Report (GHD, January 2018)
  - Water Quality Quarterly Monitoring Report (Hobart International Airport, June 2018)
  - Hobart International Airport MDP Windshear Assessment (Landrum & Brown, November 2018).



5.2 Geology and Soils

5.2.1 Baseline Conditions

5.2.1.1 Geology and Soils

The majority of airport land is underlain by Quaternary fine sands, silts and clays with some layered gravel deposits. The surface generally consists of wind-blown fine-grained sands, while coarser sands can be found in some areas southeast of the terminal area. Clayey sands and clay deposits are located within the north-eastern sector of the airport.

The airport is located on the Seven Mile beach spit, which is composed of Quaternary beach, near-shore marine and aeolian sands up to 10m or more in thickness, overlying gently seaward-dipping dark-coloured Quaternary/Tertiary clays. Overlying the beach area is estuarine and barrier swamp deposits of clay, silt and fine sand. Near-shore sediments are present along the landward edge of the spit.

The only variation in geological substrate throughout the site is Llanherne Hill which is comprised of the Upper Parmaneer Supergroup from the Mesozoic era. The soil at the airport is comprised of near-shore marine and aeolian sands.

Intrusive geotechnical ground investigations were undertaken on 20 – 22 September 2017, comprising of five geotechnical boreholes along the airside extent of the terminal, associated with light tower locations. The field investigations determined that the natural subsurface conditions over the site are consistent with the geological setting discussed above.

Acid sulfate soils (ASS) occur naturally in waterlogged environments and are sediments containing iron sulphides. ASS occur in two main forms: potential acid sulfate soils, where the pyrite is retained in a reduced state (not oxidised), and actual acid sulfate soils, where the pyrite is oxidised by exposure to air. Activities that expose PASS to air can result in leaching of acid into the environment with potential impacts to soil, water and biota.

There is the potential for ASS to be present on the site due to the low-lying nature of the land and its location in a coastal environment on the boundary of the Seven Mile Beach Spit. Generally, there is low potential for coastal ASS across the site with a small area of high potential to the north in Barilla Bay indicated by the current mapping (LIST 2014).

There are two high probability ASS sites located within the airport boundary, however these are not within the footprint of the Project.

5.2.1.2 Contaminated Land

PFAS are manufactured chemicals that are used to make products resistant to heat, stains, grease and water. Historically, foams containing PFAS were effective at putting out liquid fuel fires.

Airservices was formed in 1995 and has provided the ARFFS at Hobart International Airport since that date. Prior to that, the firefighting services were provided by former Commonwealth agencies dating back to the 1950s. These firefighting services have been using Aqueous Film Forming Foam (AFFF) since the early 1980s. These foams contain fluorosurfactants which include the contaminants perfluorooctanesulfonic acid (PFAS) and perflurooctanoic acid (PFOA). Both pollutants are considered to persist within the environment.

In 2003, Airservices changed to a different AFFF product called Ansulite to avoid Perfluorooctanesulfonic acid (PFOS), however, this was later found to also contain PFOS. In 2010, Airservices transitioned to PFAS free firefighting foam and has been using PFAS free firefighting foam at Hobart International Airport since then.

Airservices has undertaken a preliminary site investigation (PSI) at Hobart International Airport, with limited sampling on airport, which identified potential AFFF impacted area. Airservices has only investigated those areas that have been impacted by ARFFS activities.

The Airservices PSI summarises known and potential PFAS contaminated areas throughout the airport. High risk areas, where foam training has occurred in the past, have also been identified by Airservices in 2010. This information has been used to trigger on-ground investigations in accordance with Commonwealth requirements, and in areas where soil and groundwater testing has occurred, the perceived contaminated areas are accurately

represented on-ground. This provides Hobart International Airport with a high level of confidence that the perceived high-risk areas are accurate.

There is limited information on PFAS related impacts to ground or groundwater in the Project area; however the surrounding areas have some technical information that can support the risk assessment. These projects include investigation results from the following projects:

- Taxiway H Project and management of PFAS related impacts in-situ. The management approach to managing PFAS contaminated soil in this project was approved by the EPA and DoIRDC;
- Airservices stormwater monitoring data from the Fire Station Building and stormwater network (2015);
- Airservices X55 treatment trial for the Fire Station Building wash-down pad (current);
- Jet Fuel and hydrocarbon contamination risk can be ascertained from historical reports provided by Coffey Pty Ltd as a result of the Mobil fuel spill investigation (2010).

The Ramsar listed wetland Pitt Water-Orielton Lagoon is located well north of the area of proposed works. Groundwater monitoring occurs in Hobart International Airport monitoring well HA23 twice yearly. These reports provide information on PFAS concentrations in groundwater at the northern end of the airport, although this is not reflective of PFAS concentrations in the Ramsar site. Some environmental information on the Pitt Water-Orielton Lagoon can be gleaned from the ecological marine investigation undertaken in 2014 in preparation for the Runway Extension Project, although this does not include PFAS analysis.

PFAS testing of water inundating the northern end of the runway project area was undertaken as part of the Runway Extension Project, when contractors sought testing to eliminate the PFAS risk. Results indicated water present on the surface of northern airfield was non-detect for PFAS contaminants.

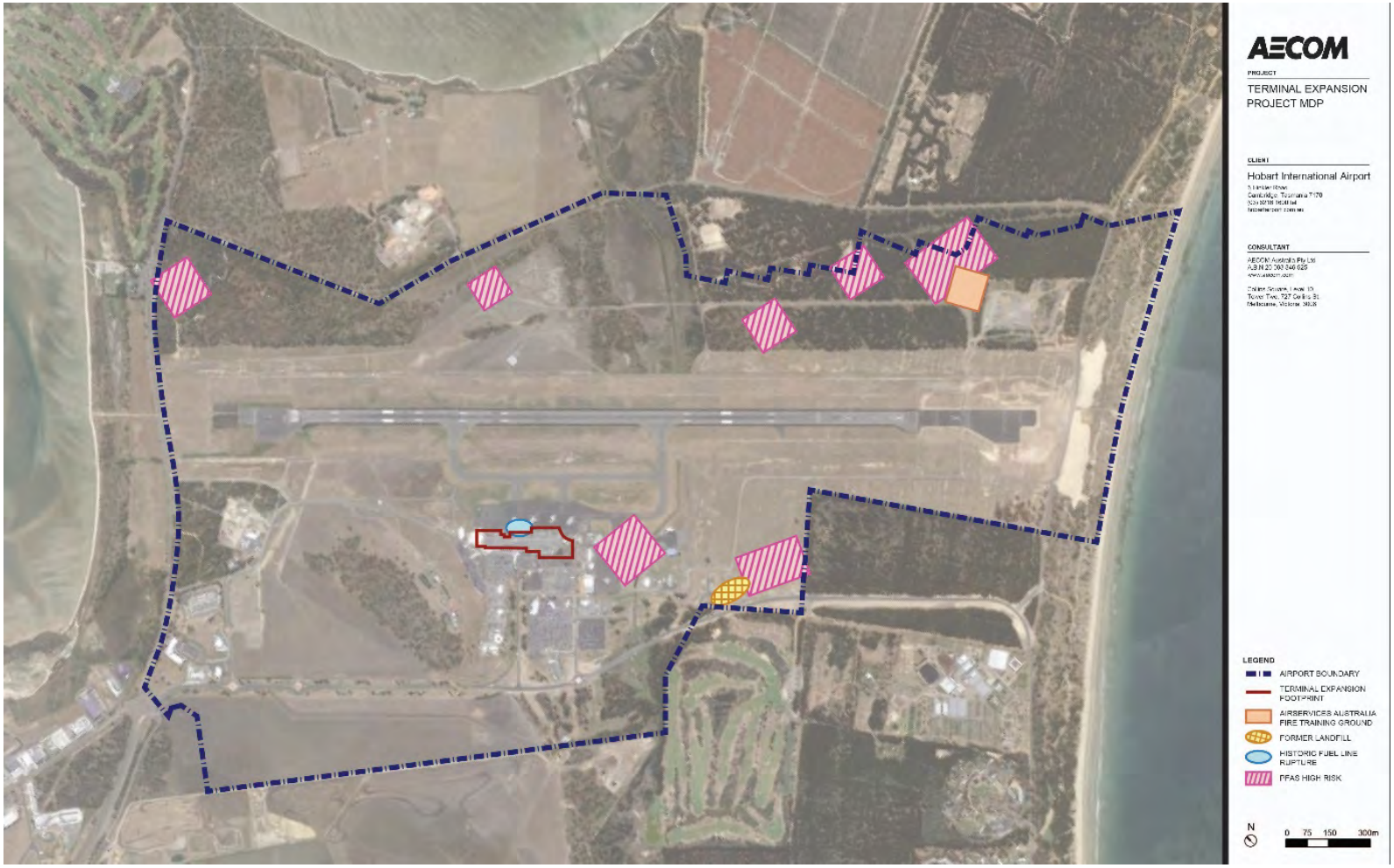
Known areas of contamination on HIAPL land is shown in Table 3 and Figure 20.

Table 3 Known Areas of Contamination – HIAPL land

Site ID	Location	Contaminant	Comments	Status
Former dumping area	Immediately south of the Cambridge WWTP	Potential asbestos	Inert landfill only comprised of building materials. Unknown whether asbestos is present at this site but is considered unlikely. PSI prepared for site. Detailed site investigations undertaken for the site.	All stockpiles tested and removed in Nov 2015. All clean stockpiles reused. Contaminated stockpiles disposed of with certification or contained on site.
ARFF Firefighting training ground	Training ground - Airside	PFAS in groundwater	Ongoing monitoring of groundwater.	Confirmed contamination
ARFF building	Airside	PFAS in groundwater	Ongoing monitoring occurring. Program under review	
		BTEX	Diesel/kerosene plume evident in groundwater	
		Total Petroleum Hydrocarbons	Diesel/kerosene plume evident in groundwater	
Land area south of ARFF Building	Airside	Potential for PFAS A contamination of soil and groundwater as a result of historical firefighting training activities.	PFAS Investigations have been undertaken at this site.	All PFAS contaminated soils have been managed in situ and remain on site.

Site ID	Location	Contaminant	Comments	Status
Apron area Bay 5 outside Virgin terminal building	Airside	Petroleum impacts in soil in the area of a historic fuel line rupture (RW100). Groundwater beneath the site is impacted by COPCs, TPH, PAH, phenols and lead	Risks for subsurface works have not been quantified	Not confirmed but expected
HIAPL Building 13 - internal soils	Landside	Unknown but potential hydrocarbon and oil surface contamination of small areas where petrol, oils and emulsions have been stored in the past	Not a confirmed contaminated site. Should excavation works occur inside the building some soil testing may be required to determine level of contamination and disposal requirements	Soil investigation undertaken of stained areas within the building. Low levels of contamination. Small stockpile retested in Jan 2016 and cleared of all contamination.
Long Street	Landside	Asbestos waste material unearthed as part of the Long Street extension.	Waste material removed and disposed of in accordance with state requirements and the HIAPL Asbestos Management Plan. Site backfilled with clean material and sealed with road surface	Visible asbestos material removed however extent of burial unknown.
Southern Runway Extension Area (30RWY end)	Airside	Asbestos and inert material unearthed as a result of the Runway Extension Works.	Site area excavated to 100mm below full supply level (FSL) and covered with topsoil.	Survey of stockpile indicates 4836m^3 was removed. Stockpile sifted and contaminated material removed. Hygienist on site at time of excavation and disposal.

Figure 20 Potentially contaminated sites (indicative locations)



5.2.2 Impact Assessment

5.2.2.1 Geology and Soils

Construction of the project will entail earthworks, including the removal of existing pavement material, underlying fill and subsurface materials depending on the depth of excavation required.

During earthworks soils will be exposed and there is a risk that erosion and sedimentation may occur. The risk of these impacts occurring during construction is considered to be low as the topography of the site is relatively flat, there will be discrete areas of disturbance, and the works are contained within the site therefore not likely to result in sedimentation of Sinclair Creek, Barilla Bay or drainage lines. These factors reduce the risk of significant erosion and sedimentation.

Where necessary, an Erosion and Sediment Control Plan will be required to be developed for the construction phase of the Project, detailing mitigation measures to be implemented.

The potential impact of the project to geology and soils during construction is considered to be **low adverse**, and during operation it would be **negligible**. Acid sulfate soils are unlikely to be encountered on the site during excavations. The potential impacts are considered **negligible**.

5.2.2.2 Contaminated Land

There are several potential sources of contamination within the airport, including soil and groundwater impacts derived from a fuel line rupture in 1999. While decommissioning of the fuel line occurred, and subsequent monitoring and remediation activities were undertaken over a period of ten years, it is likely that some residual contamination persists in groundwater and at deeper soil levels. While the risks for subsurface works have not yet been quantified, it is known that the groundwater has been impacted in the past with hydrocarbon contamination.

Given that there are several potential sources of contamination at the terminal, a contamination investigation will be undertaken to assess the risk of impact. These investigations will be undertaken in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) and the PFAS National Environmental Management Plan (PFAS NEMP). Any site remediation or management is also to be undertaken in accordance with the NEPM and PFAS NEMP.

Small quantities of fuels or other hazardous substances may be stored at the site during construction, particularly to serve construction machinery. There is the potential for spills of contaminants resulting in localised impacts to soil at the site.

While it is likely that contamination will be encountered during construction, these impacts will be managed in accordance with the appropriate guidelines, and the potential impact of the project from contamination during construction is considered to be **low adverse** and **negligible** during operation.

5.2.3 Mitigation Measures

5.2.3.1 Geology and Soils

During construction the CEMP will detail the required mitigation measures to be implemented during construction to prevent or manage impacts arising from soils or land contamination. Mitigation measures to be implemented during the construction phase for the management of erosion, sedimentation and soils include:

- Construction planning to minimise the extent of exposed ground;
- Diversion of clear water around the site;
- Installation of sediment fences to prevent mobilisation of sediments into adjacent drainage lines;
- Establishment of site entry and exit points to prevent tracking of soil on surrounding roads of entry and exit points;
- Regular checks and maintenance of erosion and sediment control and soil conditions at the site;
- Stockpiles will be placed away from nearby creeks and if long term, will be stabilised to prevent erosion.

5.2.3.2 Contaminated Land

The Hobart International Airport *PFAS Management Strategy and Implementation Plan* (January 2019) (refer Appendix D) aims to document the approach to managing per- and poly-fluorinated alkyl substances (PFAS) and associated impacted land on airport. This document identifies the organisation responsible for management of PFAS contaminated areas, and any actions required, particularly associated with:

- Proposed works or disturbance in known areas of PFAS contamination;
- Identification of new PFAS contaminated areas as a result of works;
- Data sharing from monitoring, reporting and evaluation; and
- Remediation of PFAS impacted areas.

The Plan was developed in accordance with the national program and guiding principles of the PFAS National Environmental Management Plan (NEMP) and the compliance requirements of the *Airports (Environment Protection) Regulations 1997.* The PFAS NEMP has been endorsed by Heads of EPA (HEPA) and DoIRDC, the governing Commonwealth agency for federally leased airports.

The presence of PFAS at the site will be confirmed through an assessment with reference to the (PFAS NEMP). A PFAS contamination risk assessment will be undertaken prior to the commencement of the Project. The risk assessment will be undertaken in accordance with the PFAS NEMP (2018).

The risk assessment process identifies the need for PFAS contamination investigations, i.e. where historical information depicts the moderate to high likelihood of PFAS risk, then contamination investigations on ground are undertaken. Historical information depicts a moderate risk of encountering PFAS impacted areas due to the adjacent Fire Station Building and documented PFAS contamination in and around this structure. The outcomes of these reports and analytical results determine the appropriate management actions to be applied throughout the project timeline.

A CEMP will be developed for assessing and managing contamination of soil and water by PFAS. This CEMP will be consistent with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM), the PFAS NEMP and the National Water Quality Management Strategy, including the Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

The CEMP and associated documents will reflect the outcomes of the recommended site investigations i.e. it will document appropriate measures to manage and remediate any PFAS contamination, consistent with the outcomes of the site investigation and those commitments made in the final MDP.

Mitigation measures to be implemented to prevent or minimise impacts arising from contamination include:

- All fill material imported to the project site must comply with HIAPL procedures to ensure that no contaminated materials are imported to the site;
- Hazardous goods stored at the site during construction and operation are to be stored appropriately; and
- If suspected contamination is encountered at the site, works will cease in that area and a suitably qualified specialist will advise on necessary management measures including sampling if required.
- Any PFAS contaminated material will be stored in accordance with the NEMP. Disposal of material off site will require EPA approval.

The CEMP will be finalised before site works commence.

5.3 Surface and Groundwater

5.3.1 Baseline Conditions

5.3.1.1 Surface Water

The Hobart International Airport is located within the Meehan Range catchment on a low lying plain with a largely flat topography between three to six metres above sea level. Three major water bodies surround the site and interconnect with a number of swale drains and Sinclair Creek. Sinclair Creek originates from the Meehan Range to the west and flows across the airport site as a modified open drain, discharging to Pitt Water to the east once leaving the airport land. Sinclair Creek is an important feature of a saltmarsh environment to the east of the runway which is subject to tidal inundation.

The airport has an extensive internal network of piped and open lined and unlined drains which provide for the majority of stormwater drainage throughout the site. Sinclair Creek receives a substantial amount of this drainage. A large number of operations and activities at the airport have the potential to interact with the surface water drainage system and therefore there is a potential risk of pollutants entering receiving waters and being transported beyond the boundaries of the airport land.

Water quality at the airport is also influenced by activities that occur beyond the airport boundary. The airport is surrounded by rural/residential areas and semi-industrial areas within the catchment. While sampling beyond the airport boundary does not occur, water samples are obtained from a site located on the boundary, where results are used to determine the nature of offsite influences.

Routine quarterly surface water quality monitoring is undertaken by HIAPL to ascertain whether activities on site have had any adverse environmental effects on surface water quality. In 2019, quarterly monitoring has been reduced to twice yearly due to consistency in long-term results.

Due to increased awareness of the emerging contaminant of concern, monitoring for PFAS at two sites has been undertaken since 2016 (Sites HIA06 and HIA09). These two sites represent both on site and off site (boundary) locations (Figure 12). Based on the results of the June 2018 surface water monitoring event for all sites the following conclusions can be made:

- pH levels throughout sites were within expected ranges for lowland rivers
- Levels of thermotolerant coliforms were generally higher across all sites and is likely due to the flushing effect of the recent rainfall event and the transfer of concentrations throughout the creek environment
- Levels of Total Recoverable Hydrocarbons (TRH) were within the AEP recommended limits across all sites
- Conductivity levels were average across all sites and are consistent with historical results. Site HIA09 recorded levels consistent with a marine environment.

Results of water quality monitoring of Sinclair Creek indicate water quality that is generally within the parameters of the Airport (Environment Protection) Regulations 1997, occasionally exceeding recommended levels for nutrients, bacteria and zinc. These elevated levels often coincide with stormwater events caused by heavy rainfall which is characteristic of urban waterways. HIAPL's routine monitoring ensures the early detection of potentially contaminating events and aids in determining the point or diffuse sources of pollution and implementing management and/or mitigation measures that result in long term improvement of surface water.

5.3.1.2 Groundwater

The airport's groundwater is vulnerable to the effects of contamination particularly due to the permeable nature of the sandy soils and high-water table. Groundwater has been measured between 0.28 metres (winter sampling event) and 3.455 metres (summer sampling event) below the ground surface across the site (during 2018 monitoring).

Groundwater use within the area is generally from shallow extraction systems for purposes such as irrigation. The quality of groundwater is influenced by its proximity to open water and any activity outside of the airport grounds, including extraction by other users. The airport extracts groundwater for monitoring and reporting purposes on groundwater quality. Routine groundwater monitoring is undertaken at the site on an annual basis in both targeted areas and at the perimeter of the airport boundary

Groundwater flow is to the east and north east towards Pitt Water. Nitrate, phosphorus and iron continue to be elevated across site. Both nutrients and iron appear to relatively stable in concentration.

PFAS concentrations across the site have fluctuated slightly or remained stable with the exception of HA-23, where concentrations of PFAS have increased notably (Figure 21). HA-23 has historically contained the highest concentrations of PFAS in this monitoring bore network. It is unknown what the cause of this increase is and may relate in part to seasonal variability and/or recent ground disturbance in surrounding areas (development activities). Given that there has only been one set of summer data collected so far, it is not possible to draw conclusions on trends at this time. The likely source(s) of PFAS contamination in this area also remains uncertain.

Additional testing is being undertaken in early 2019, with ongoing testing to be undertaken in winter and summer each year. Airservices has included the groundwater well HA23 in their groundwater monitoring investigation for Hobart International Airport, and through this program data collected will continue to expand on the knowledge of groundwater contamination in this area of the Airport. Airservices monitor and manage groundwater wells in high PFAS risk areas across airport which is currently monitored annually. Information sharing on analytical data occurs between Hobart International Airport and Airservices.

Concentrations of PFAS based on the June 2018 exceeded both the adopted Commonwealth management guidelines and Airservices ecological interim screen levels (75 µg/L in January 2018 compared with 24.4 µg/L in July 2017 monitoring). Concentrations of other PFAS congeners (PFOA, PFHxS, PFHxA etc.) in HA-23 have also increased since the previous two monitoring events. In comparison, concentrations in other wells across the site have remained relatively stable: HA 19 is the least impacted well, followed by HA-22, HA-21 and HA-20.

In past groundwater monitoring all petroleum hydrocarbon concentrations were below the laboratory LOR in all wells. However, in the January 2018 monitoring exercise 1.1 µg/L of Naphthalene was detected in HA-19, which just exceeds the ADWG (2015). Concentrations in the blind and split duplicate samples did not record naphthalene concentrations over the laboratory LOR. Given this, and that beneficial use of groundwater for drinking water is unlikely, the recorded concentration should be re-evaluated during the next monitoring round.

Figure 21 Groundwater and surface water monitoring locations

5.3.2 Impact Assessment

5.3.2.1 Surface Water

During construction, the potential impacts on surface water may occur from sediment generation and runoff into nearby surface water bodies. Small quantities of fuels or other hazardous substances may be stored at the site during construction and present in construction machinery. There is also the potential for contaminant runoff and pollutant discharge during the construction phase which could lead to the contamination of surface water bodies. However, this is expected to be managed by mitigation measures outlined in the CEMP. The potential impact on surface water during construction has been assessed as **low adverse**.

Water sensitive urban design (WSUD) features will be incorporated into the design to result in a **negligible** change to water quantity and quality of runoff.

5.3.2.2 Groundwater

There will be no piles required during construction. Excavation will be undertaken to a depth of approximately two metres which may interact with the groundwater table. Potential impacts would be managed through the implementation of a dewatering management plan as part of the CEMP. The impacts to groundwater during construction are expected to be **low adverse**.

During operation there are not anticipated to be any impacts on groundwater, and the potential impacts would be **negligible**.

5.3.3 Mitigation Measures

The following mitigation measures are proposed to be included in the CEMP:

- An Erosion and Sediment Control Plan should be prepared to identify measures to minimise sediment related water quality impacts. These measures may include:
  - Installation of sediment fences or sand bags prior to ground disturbance;
  - Mulching, revegetation or other measures applied to cleared areas as soon as possible to stabilise the soil; and
  - Daily checks of the site for signs of erosion and sedimentation.
- Operation and maintenance of plant and equipment to minimise the risk of spills and contamination;
- A Dust Management Plan may be required to outline dust suppression measures to be implemented during construction such as watering of access roads if required;
- Existing information regarding the airport drainage network will be utilised early in the planning phases of the project to ensure that potential impacts are identified early and managed appropriately;
- Provision of vehicle wash down areas and procedures where required;
- A Dewatering Management Plan will be implemented for construction which will specify the measures to prevent impacts arising to groundwater or surface water at the site. All groundwater is to be managed in accordance with the HEPA2018 PFAS NEMP;
- Appropriate pollutant control devices will be installed where activities produce potential contaminants; and
- Temporary soil and water management structures to be removed only after areas have been stabilised.

5.4 Biodiversity

5.4.1 Baseline Conditions

Hobart International Airport has a number of biodiversity values that require careful management and in some cases protection from future development. Land areas that have significant biodiversity values are contained within areas defined as Environmentally Significant Areas (ESAs). Threatened species outside of ESAs are mapped accordingly. Threatened fauna species observed on airport are documented with all results provided to the state government for inclusion in the Tasmanian Natural Values Atlas (NVA), and reported to the Commonwealth as part of the annual environment reporting process.

In 2016 updated mapping on listed floristic species and vegetation communities was prepared and replaced the previous mapping undertaken in 2011. The updated survey and mapping reflects the delisting of three state listed species, and the addition of the Commonwealth listed Sub-tropical and temperate saltmarsh community. Updated maps also reflect minimal change in distribution and extent of individual listed species over the five year period.

The project will be undertaken within the terminal precinct and a small section of the runway precinct areas, neither of which contain any Environmentally Significant Areas. There are some areas of landscape trees and grass areas that may be impacted during construction. These are introduced species that have been planted for landscaping and beautification purposes. There are limited habitat resources for native fauna in these landscaped areas, although the trees and shrubs may be used as nesting and foraging resources for common bird species. Common small reptiles and snakes may also use the undergrowth areas.

5.4.2 Impact Assessment

The site is already developed and while the project will require the removal of some landscape vegetation, it is unlikely to provide habitat for threatened flora or fauna species.

The existing vegetation may provide nesting and foraging habitat value for common species, however once construction of the new terminal is complete, the new landscaped areas which would partially replace this loss.

The impact to biodiversity during construction has been assessed as **low adverse**. During operation there would be **negligible** impacts to biodiversity.

5.4.3 Mitigation Measures

During construction the following mitigation measures will be included in the CEMP to manage biodiversity:

- Where possible, mature trees are to be retained;
- Fill material brought to site would be certified clean;
- Any removal of weeds will be undertaken in accordance with *Hobart International Airport Weed Management Plan* (January 2017);
- Following construction, new landscaping with native species to be established where realistic and feasible, which will align with existing Airport wide landscaping plans.

5.5 Cultural Heritage

5.5.1 Baseline Conditions

The airport contains buildings and sites of both historic and Aboriginal heritage values. Llanherne House is heritage listed under the Tasmanian *Historic Cultural Heritage Act 1995*, and the Air Traffic Control Tower has recently been listed under the EPBC Act.

These sites are located to the west of the terminal, on Llanherne Hill. The project will not extend to this area. A number of Aboriginal Heritage sites exist in the form of isolated artefacts and artefact scatters. All sites have management plans which ensure their values are maintained and managed effectively. There are no Aboriginal heritage sites recorded within the proposed development area.

5.5.2 Impact Assessment

Given the previous extent of disturbance at the site, it is unlikely that subsurface cultural heritage material would be encountered near the surface. Piling and earthworks will be required for construction of the project, which would increase the risk of encountering previously undisturbed cultural heritage, although this is still considered to be low risk.

The potential impact to Aboriginal heritage during construction has been assessed as **low adverse**. There will be negligible impact to non-Aboriginal heritage during construction. There will be **negligible** impact to cultural heritage during operation of the site.

5.5.3 Mitigation Measures

Although the likelihood of encountering heritage items at the site is low, if any materials resembling Aboriginal artefacts or human skeletal remains are encountered during construction, works will immediately cease and HIAPL's Environment Manager and the Airports Environment Officer will be informed immediately and in writing, in accordance with the *Airports (Environment Protection) Regulations 1997*.

5.6 Air Quality

5.6.1 Baseline Conditions

The airport does not carry out air quality monitoring. Mornington Station is the nearest monitoring station, located approximately 16km from the airport. Background air quality for all key pollutants (PM10, PM2.5, carbon monoxide, sulphur dioxide and nitrogen dioxide) are all well below the relevant National Environment Protection Measure (NEPM) objectives.

Meteorological conditions, particularly wind direction and strength, are also relevant for air quality impacts at Hobart International Airport. Observations from the past 50 years show that the most frequent winds in the morning occur from the NW direction. No particular wind directions dominate in the afternoon, but most frequently tend to occur from the SE and NW directions. Wind speeds are generally less than 20km/h.

As the site is located adjacent to the runway, local ambient air quality is impacted by emission from aircraft engine exhausts. The closest sensitive receptors are located over 1km from the terminal.

5.6.2 Impact Assessment

During construction works there is the potential for air quality to be impacted through the generation of dust. Dust emissions are expected to be minor during construction, arising from earthworks and the movement of machinery and equipment at the site. Dust generation will be controlled through mitigation measures specified in the CEMP.

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

There will also be a range of plant and equipment on site with the potential to generate emissions during construction. Given that the plant and equipment and/or construction methodology has not been defined at this stage and the overarching influence of aircraft emissions on the ambient air quality, the potential impact from the construction plant and equipment on air quality has been assessed as **low adverse**.

Any minor dust emissions will be controlled through mitigation measures outlined in the CEMP. During operation there will be backup diesel generators at the site which will emit minor quantities of diesel emissions when in operation, however they will only operate in the event of mains power failure and when tested on a monthly basis for approximately 30 minutes to ensure they remain in working order. The exhaust from the diesel engines when operating is expected to be a maximum of 306 m3/min and during testing at approximately 332 m3/min. The operation of these generators is not expected to significantly affect air quality at the site, nor generate significant odours that would be detectable offsite. The impact to air quality during operation has been assessed as **negligible**.

5.6.3 Mitigation Measures

Air quality mitigation measures will be specified in the CEMP and be implemented by the contractor during construction would include the following measures to ensure that potential air quality impacts are minimised:

- All machinery and equipment used at the site will be maintained to relevant standards to reduce emissions to as low as possible;
- Disturbed areas will be revegetated as soon as practicable after the construction of the works;
- Earth wetting will be undertaken as required during construction to minimise dust generation ;
- Long term stockpiles will be covered or vegetated to prevent wind erosion;
- Trucks travelling to or from the site will be covered to prevent windblown dust; and
- Roads will be cleaned regularly to prevent the spread of dirt on roads surrounding the site.

During operation, waste will be stored appropriately at the site and removed regularly in accordance with existing airport waste management practices. This will prevent any odours arising from waste storage at the site.

5.7 Noise and Vibration

5.7.1 Baseline Conditions

In accordance with Section 91(e) of the *Airports Act 1996*, a MDP is required to identify whether the Project will affect noise exposure levels at the airport. Furthermore, pursuant to the *Airports (Environment Protection) Regulations 1997,* noise generated from construction activities should not exceed 75 decibels at the site of a sensitive receptor. This limit applies to works conducted both day and night.

The Airport's location, between the waterways of Barilla Bay and Frederick Henry Bay, has minimised adverse community noise impacts due to water bodies at both runway ends, open space to the east and the distance from higher density residential areas.

Notable ground-based noise sources from Hobart International Airport have been identified as:

- Aircraft taxiing, idling and ground-running on the taxiways and aprons;
- Traffic noise from predominantly public vehicles accessing the airport terminal and car park;
- Aircraft Auxiliary Power Units (APUs); and
- Ground-based support vehicles, including generators.

Occasionally, ground-based noise sources may be audible at nearby noise sensitive receivers, including residential dwellings. Residential dwellings located more than 1 km south of the airport on Surf Road are the nearest identified area of noise sensitive receivers. Assessment has been conducted on changes in ground-based noise sources as a result of the proposed terminal expansion project.

5.7.2 Impact Assessment

5.7.2.1 Construction

It is anticipated that most of terminal expansion works will be constructed during normal working hours for the construction industry. As such, most of the construction activities are expected to be carried out in parallel with normal operations. The intent is that construction activities will accommodate current aircraft operational requirements to minimise impacts on the operation of the airport.

In order to meet critical path deadlines and avoid works that could adversely affect the operation of the airport if conducted during the day, certain night works will be considered. Activities scheduled for completion as night works may include:

- Delivery of large building elements (e.g. steel framing / roof elements fabricated off-site) to minimise traffic impacts;
- Steel erection works (particularly for the roof structure) and other construction activities where it is more efficient to conduct the works outside of peak operational periods to maintain business continuity;
- In-ground service works where trenching across roads needs to occur, these will be undertaken at night to minimise impacts on vehicle and pedestrian movements.

The nearest sensitive receptors such as residential homes, commercial buildings, and community facilities are located at a distance of approximately 1 to 2.5km from the terminal and are unlikely to be disturbed by construction noise impacts. As there is no urban development in the vicinity of the airport, the impact to the local community of any night time works will be negligible.

Construction noise impacts on external receivers are predicted to meet the Airport (Environmental Protection) Regulations 1997 which governs noise emissions from airports. Noise limits applicable to the proposed terminal expansion and identified noise sources are summarised below:

- Noise generated from construction, maintenance or demolition of a building or other structure at an airport should not exceed 75 dBLA10 at the site of a sensitive receptor for a period of at least 15 minutes, adjusted to take account of tonal character or impulsive characteristics (if any);

- Noise generated from road traffic at the site of the airport should not exceed 60 dBLAEq,24hrs and 55 dBLAeq, 2200hrs to 0600hrs; and
- Note that the Regulations specifically exclude noise generated by aircraft in flight (including take-offs and landings) or aircraft taxiing at an airport.

Construction works would be undertaken at the location of the existing terminal. Construction works would generate noise due to construction vehicles and equipment accessing and working at the terminal; these may include trucks, bulldozers, excavators and compactors. Construction work is expected to occur predominantly during the daytime, limiting night time works to works that affect airport operations.

Given the distance and significant noise attenuation between the works being undertaken on the terminal and the nearest noise sensitive receivers, it is expected that construction noise levels from works on the project will comply with the Regulations. It has been assessed that the construction of the works would have a **low adverse** impact on ground-based noise.

5.7.2.2 Operation

An assessment of the impact of aircraft noise to external receivers was not undertaken as there is no expected change to aircraft movement from the project.

The terminal is located within the ANEF 35 noise contour on the 2015 Master Plan ultimate practical capacity forecast. The new building is best characterised as a "Commercial building" under Australian Standard AS2021:2015 Acoustics - Aircraft noise intrusion - Building siting and construction (AS2021), which considers a commercial building to be "Conditionally acceptable" between 25 to 35 ANEF. During ongoing design of the project, the building façade will be designed to achieve the required Aircraft Noise Reduction performance requirements of AS2021.

The operation of the project would have **negligible** impacts on noise as the ambient noise level would be comparable to the existing terminal environment currently experienced.

5.7.3 Mitigation Measures

Significant noise attenuation is provided by the large distance between the airport and the noise sensitive properties, which will reduce noise generated by construction. Therefore, it is not expected that noise from existing major noise sources will change significantly.

The existing noise emissions will be changed by the proposed terminal expansion by a negligible amount and therefore no specific noise mitigation strategies are proposed. However, reasonable noise mitigation controls should be considered in the planning of the construction activities.

Any construction works occurring outside of standard construction hours (i.e. at night) will need to comply with the *Airports (Environmental Protection) Regulations 1997.* Applicable noise limits and identified noise sources are summarised below:

- Noise generated from construction, maintenance or demolition of a building or other structure at an airport should not exceed 75 dBLA10 at the site of a sensitive receptor for a period of at least 15 minutes, adjusted to take account of tonal character or impulsive characteristics (if any);
- Noise generated from road traffic at the site of the airport should not exceed 60 dBLAEq,24hrs and 55 dBLAeq,2200hrs to 0600hrs; and
- Note that the Regulations specifically exclude noise generated by aircraft in flight (including take-offs and landings) or aircraft taxiing at an airport.

HIAPL's Integrated Management System (IMS) will document any noise complaints received relating to the project. In response to any complaint, any mitigation actions required will be documented and implemented.

HIAPL will use a range of communication channels including its website, media releases, community notifications and other stakeholder forums to provide timely information about the airport construction, operations and plans. A communications strategy is being developed for the construction phase of this project.

5.8 Hazardous Materials

5.8.1 Baseline Conditions

A material is classified as hazardous when it has the potential to cause harm to the environment, people or property. There is the potential for hazardous materials to be present at the airport, including fuels, paints, solvents, herbicides and asbestos related material.

HIAPL have an Asbestos Register which is reviewed and updated annually. A review of the register indicates there are known asbestos floor tiles located at the Qantas Arrivals Hall however these were removed in 2017. Other areas of the terminal may include asbestos containing materials.

5.8.2 Impact Assessment

During the construction phase the Contractor will be responsible for any licenses required under the *Work Health and Safety Act 2011* for the storage of hazardous goods at the site. A review of the Asbestos Register has indicated that buildings and infrastructure on the site may have asbestos containing materials, which will require handling and removal following the demolition of existing structures.

If present on site, these goods will be handled, stored and disposed of in accordance with the Act. The impact of hazardous goods during construction has been assessed as **negligible**.

During operation, there will be no additional types of hazardous goods outside of those already present on the site. Hazardous goods will continue to be handled and stored in accordance with HIAPL procedures and regular monitoring of the new systems will be undertaken. The impact of hazardous goods during operation has therefore been assessed as **negligible**.

5.8.3 Mitigation Measures

During construction, measures for the management of hazardous goods will be specified in the CEMP, including:

- Establishment of a dangerous goods storage area, with appropriate bunding, for any hazardous goods required during the construction phase;
- Storage and handling of dangerous goods in accordance with the Work Health and Safety Act 2011 and HIAPL's Site Management Procedure for Storage and Handling of Contaminating Substances (SMP01).
- Any hazardous wastes will be collected and transported to a designated disposal site as soon as possible; and
- A spill control plan and emergency procedures will be implemented.

The management requirements outlined in the HIAPL Asbestos Management Plan will be required to be adhered to should asbestos be encountered during construction.

5.9 Traffic

5.9.1 Baseline Conditions

Hobart International Airport is well connected to the Tasman Highway and arterial road network. Access to Hobart is primarily provided from the north-west by the Tasman Highway which intersects with Holyman Avenue. The primary access point, at the intersection of Tasman Highway and Holyman Avenue, has a dual-lane roundabout configuration.

Other access roads that are part of the external road network include Pittwater Road to the north-east, Surf Road to the south-east, Estate Drive and Acton Road both to the south-west of the airport. A description of the external road network is provided in Table 4.

Holyman Avenue is a two-way road accessing the parking control system at the airport. Holyman Avenue becomes Addison Drive, which acts as a loop road running to the front of the terminal and provides access to the pick-up / drop-off area. The inner lane of the terminal is restricted to all taxi pick-ups, along with the SkyBus stop and other permitted users such as tour coaches. The outer lane of the terminal forecourt provides for all public pick-up/drop-offs including taxi drop-offs.

In addition to the pick-up/drop-off road network, there are a number of smaller internal roads that have different uses.

Table 5 describes the internal road network and the various uses. The existing internal road network is shown in Figure 22.

There is no dedicated freight route to and from the airport. Freight vehicles have access to the entire internal road network. At present, other than short term congestion at the pick-up/drop-off areas, there are no capacity issues evident across the internal road network.

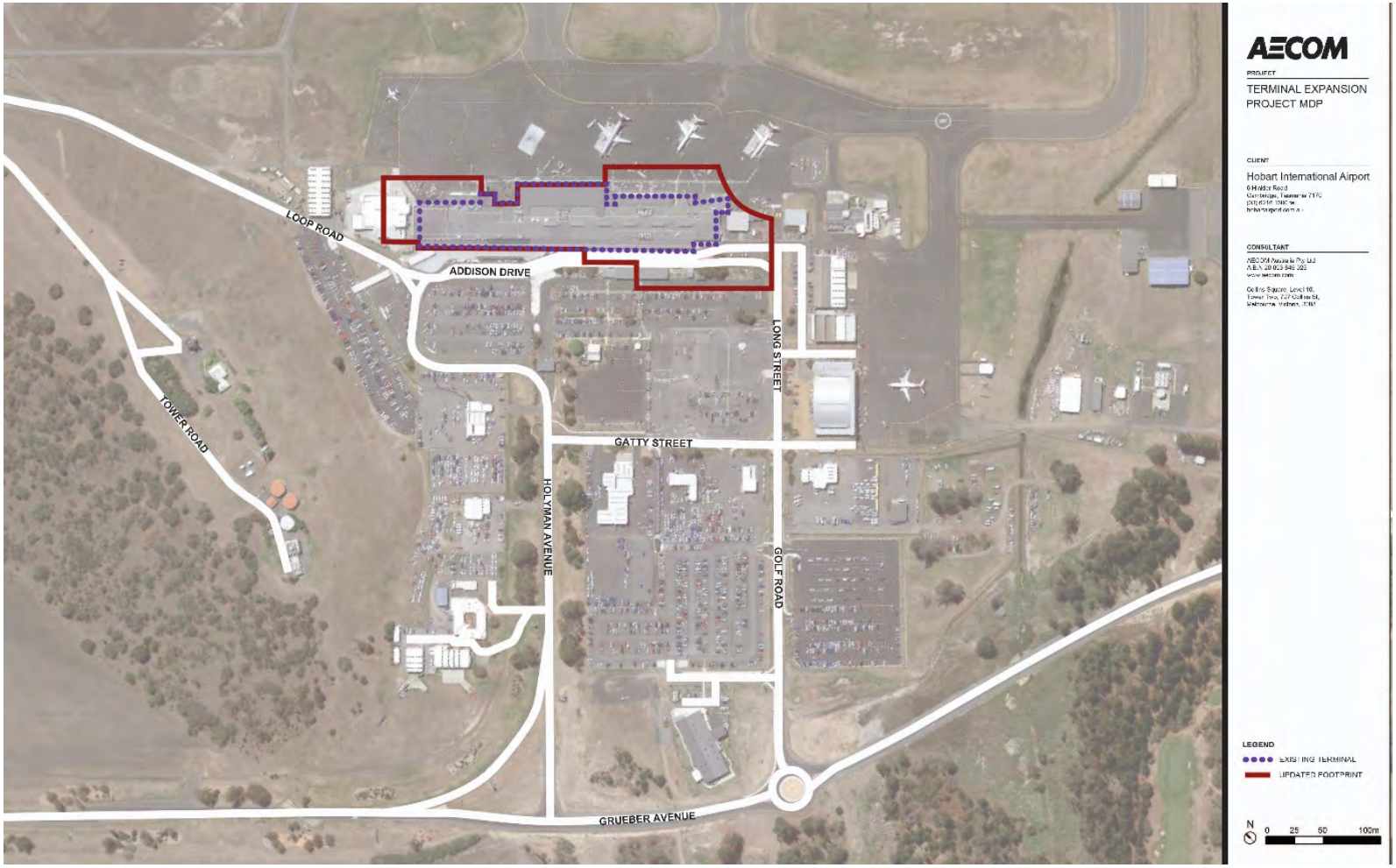
Table 4 Hobart International Airport External Road Network

Road Name	Operation	Layout	Management
Tasman Highway	Hobart CBD, Sorell, Tasman Peninsula, East Coast and circulatory East Coast to Launceston	4 lanes, two-way, divided 2 lanes, two-way, undivided in the vicinity of Airport	State
Pittwater Road	Tasman Highway to Surf Road	2 lanes, two-way, undivided	Council
Surf Road	Seven Mile Beach Road, Seven Mile Beach area	2 lanes, two-way, undivided	Council
Seven Mile Beach Road	Surf Road, Acton Road, Estate Drive, Seven Mile Beach area	2 lanes, two-way, undivided	Council
Estate Drive	Seven Mile Beach Road, Acton Road	2 lanes, two-way, undivided	Council
Acton Road	Tasman Highway, Acton Park area	2 lanes, two-way, undivided	State

Table 5 Hobart International Airport Internal Road Network

Road Name	Operation	Layout	Use
Holyman Avenue	NW-SE road from the Tasman Highway sweeping NE to the terminal building	2 lanes, two-way, undivided 4 lanes, two-way, undivided at the two roundabouts SE of the Tasman Highway	Primary access to the airport precinct from the Tasman Highway
Addison Drive	Loop road from Holyman Avenue to the front of the terminal, to Long Street	2 lanes (non-stopping lanes), one-way, divided	Access to drop-off and pick-up area adjacent to terminal and access to main car park and valet parking Inner lane of terminal forecourt restricted to taxi pick-ups, SkyBus stop and permitted users such as tour coaches Outer lane of forecourt provides for public and taxi pick-up and drop-off activity
Gatty Street	NW-SE road from Holyman Avenue to Long Street	2 lanes, two-way, undivided	Access to car rental storage areas / offices
Golf Road / Long Street	NE-SW road from Addison Drive to Grueber Avenue	2 lanes, two-way, undivided	Access to saver car park, freight business area, car rental storage / offices, taxi storage / waiting area and airport employee car park
Grueber Avenue	NW-SE road that is a continuation of Holyman Avenue. Intersects Golf Road and Surf Road	2 lanes, two-way, undivided	Access to Golf Street facilities
Johnson Street	NW-SE road from Long Street to the freight business area	2 lanes, two-way, undivided	Access to the freight business area
Tower Road	N-S road from Back Road to Airport Control Tower	2 lanes, two-way, undivided	Access to Airport Control Tower
Loop Road	N-S road from Addison Drive to Back Road	2 lanes, two-way, undivided	Alternative access to Tasman Highway
Back Road	NW-SE road from the Tasman Highway to Tower Road	2 lanes, two-way, undivided	Alternative access to Tasman Highway
Llanherne Drive	NW-SE road from Holyman Avenue to Back Road	2 lanes, two-way, undivided	Access to airport accommodation

Figure 22 Hobart International Airport Existing Internal Road Network



Accessing Hobart International Airport is done through a range of transport types that use the existing road network. Ground transport users include passengers, employees, commercial operators and freight operators. Modes of transport are split between private vehicles, the Airport bus, SkyBus, taxis (including rideshare services) and registered hire cars, rental cars, tour coaches.

Despite the rapid change within the ridesharing industry, there are no formal agreements in place between these companies and Hobart International Airport. Currently, drivers use the free parking area in the main carpark.

More than half of all passengers access the airport by private vehicle. Passengers are either picked-up or dropped-off by friends and family, or they park in one of the public carparks.

Figure 23 depicts the current mode share for air passenger related trips.

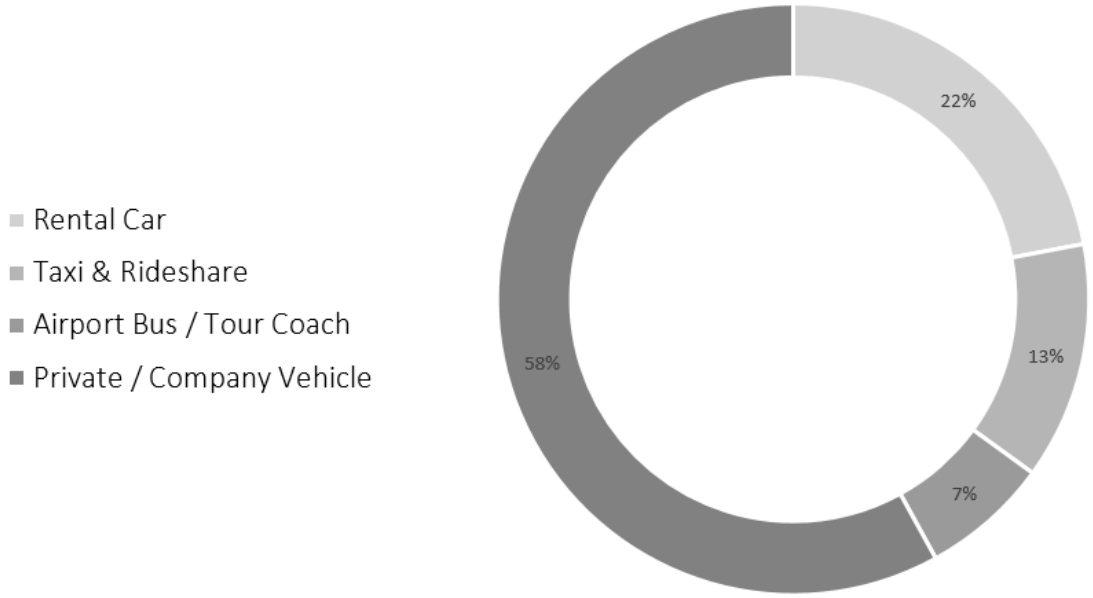


Figure 23 Passenger Modal Split[9]

Hobart International Airport currently generates an average daily volume of approximately 7,200[10] vehicle trips to and from the airport, providing access for air passengers, airport employees, and freight operators. Of these, the majority (6,650 daily vehicle trips) are attributed to travelling passengers, 400[11] daily vehicle trips (out of over 700 employees in total) are attributed to airport employees and around 150 relate to freight and logistics.

Figure 24 shows the percentage split of traffic demand to / from the airport by user type over a single day.

[9] Jacobs, 2018 *Hobart International Airport Ground Transport Traffic Modelling Report*
[10] Jacobs, 2018 *Hobart International Airport Ground Transport Traffic Modelling Report*
[11] This total daily number of airport employee vehicle trips does not take into account arrivals / departures before 7.00am.

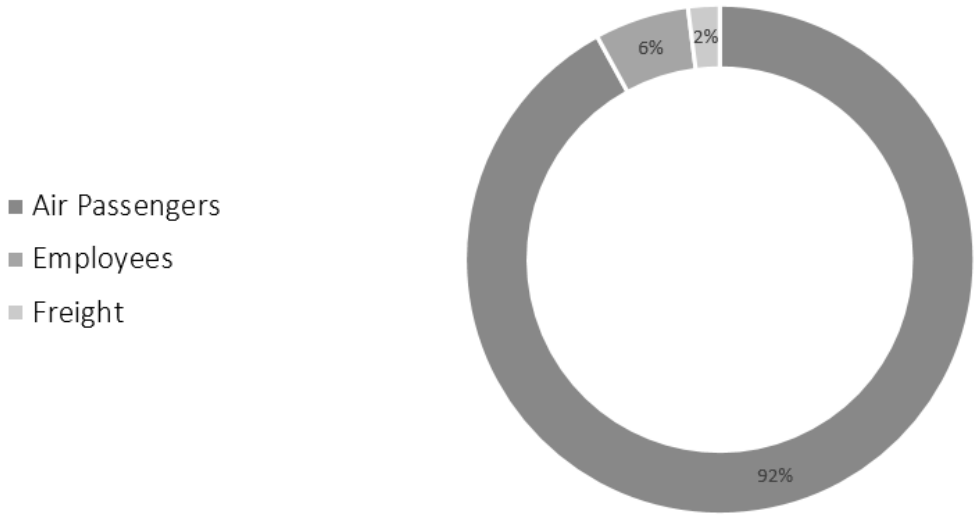


Figure 24 Daily Traffic Demand To and From Airport by User Type[12]

5.9.2 Impact Assessment

5.9.2.1 Construction

A high-level estimate for the quantity of construction vehicle traffic generated as a result of the project is an additional 20 trucks per day for the construction period, approximately two to three vehicles per hour. This is unlikely to have a significant impact on the existing traffic numbers.

Construction parking will be provided within or adjacent to the site. The location of the construction compound and parking will be confirmed during construction planning, and if it is necessary for the compound or parking to be located adjacent to the site, the location will be agreed with HIAPL with due consideration to access and potential traffic impacts

Overall the impact of the project on traffic and access during construction is assessed as low adverse.

5.9.2.2 Operation

Growth of the airport will impact on future traffic and vehicle demands. The annual domestic and international passenger forecast for Hobart International Airport estimates that the number of annual air passengers will increase from 2.6 million to 6.6 million between 2018 and 2040 (Landrum & Brown, 2018). When international flights to the Asia-Pacific region commence (anticipated FY2021), annual international passenger growth is anticipated to increase by 900,000 by 2040. As a result of this growth, mode splits for future years are likely to change from current levels due to a range of factors, many of which are uncertain.

Several passenger growth assumptions have been used to generate future expectations regarding modes of transport used by air-passengers to commute to the airport (refer Table 6). In addition, future year growth assumptions (refer Table 7) have been used to produce anticipated increases in non-air passenger movements (refer Table 8).

[12] Jacobs, 2018 *Hobart International Airport Ground Transport Traffic Modelling Report*

Table 6 Air Passenger Movements with Assumed Future Air Passenger Mode Splits

Passenger Movements / Mode	2018	2025	2030	2040
Inbound and Outbound Passenger movements (daily trips)	6,650	17,000	21,000	29,000
Mode				
Private/ company vehicle (parked)	25%	25%	24%	22%
Private/ company vehicle (kerbside)	33%	32%	32%	30%
Airport bus, tour coach or other	7%	8%	9%	11%
Taxi (includes rideshare services)	13%	17%	17%	19%
Rental car	22%	18%	18%	18%

Table 7 Non-Air Passenger Vehicular Demand (Daily Trips)

Employee Demand	2018	2025	2030	2040
Airport employee demand	400	440	470	540
Freight	150	180	205	250

Table 8 Non-Air Passenger Assumed Annual Traffic Growth Rates

Traffic Component	Annual Linear Growth Rate (%)
Airport Employees	1.7% [13]
Airport Trucks	3.1% [14]
Airport Other (excluding new development)	1.7% [15]
External Traffic – Tasman Highway	2.8% [16]
External Traffic – Other	2.8% [17]

5.9.3 Mitigation Measures

HIAPL are developing a number of options for the future internal road network to cater for the expected passenger and traffic growth at Hobart International Airport. The terminal footprint is being considered as part of these proposals, with spaces to be re-provided to meet demand. In addressing the current demands of the ground transport plan, a proposed realignment of the Front of House road aims to relieve congestion experienced in the existing lanes and will allow Hobart International Airport to manage capacity until between 2030 and 2040. The road realignment is sufficient to meet forecast growth.

In addition, other users of the internal airport road network are being consulted with and informed in a timely manner of changes, temporary or permanent, over the construction and operation phases of the Project.

As part of the construction phase of the project Hobart International Airport will liaise with relevant State and local government stakeholders to determine the need for a traffic management plan that identifies any traffic control measures for both the construction and non-construction traffic where airport related traffic interfaces with the broader road network. To minimise impact on general public traffic, pick-up and drop-off lanes would not be utilised by construction vehicles, which would be restricted to the use of Long Street and Loop Road only.

[13] HIAPL, 2015 *2015 Hobart International Airport Master Plan* [Total direct and indirect job forecasts]
[14] HIAPL, 2015 *2015 Hobart International Airport Master Plan* [Freight aircraft movement forecasts]
[15] This annual linear growth rate (% has been aligned with the Airport Employees rate
[16] Source: Department of State Growth, 2018 https://www.transport.tas.gov.au/road/projects/hobart_airport_interchange
[17] This annual linear growth rate (%) has been aligned with the External Traffic - Tasman Highway rate

5.10 Social and Economic

5.10.1 Baseline Conditions

In Tasmania, Hobart is the primary base for government and corporate businesses, health services and tertiary education as well as the State's main arrival point. The economic base of Hobart and the southern area of Tasmania is diverse, including significant aquaculture and agriculture businesses, a strong base of professional scientific institutions including CSIRO, Australian Antarctic program, the Institute for Marine and Antarctic Studies (IMAS) and the Menzies Institute, home to the University of Tasmania, public administration, health care, manufacturing and a strong and vibrant tourism and arts sectors.

For an island community such as Tasmania, Hobart International Airport plays a particularly important and essential economic and social role in the community. Developing the attractiveness of Hobart as a place to live, conduct business and build industry means it is essential for Hobart and Tasmania to have strong connectivity and access. Hobart houses the Australian Antarctic Division's aviation base and the world's largest concentration of Antarctic and Southern Ocean research, making it an Antarctic Gateway city.

Tourism is a key strength in the Tasmanian economy which generates significant export earnings for the State and supports the wider Tasmanian economy. Around 1.26 million people visited Tasmania in 2017, generating tourism revenue of $2.33 billion and employment for around 38,000. Tourism revenue supported a total economic contribution of $3 billion to Tasmania.

Over the five years to 2017 tourism revenue has grown by over 10% per annum, drive by strong growth in visitation and an increase in average visitor spend. In the same period, more than half of the increase in total employment in Tasmania was contributed by tourism related sectors.

Direct international passenger flights to Hobart International Airport will generate increased tourism revenue and employment for Tasmania. Direct flights will reduce travel time for international visitors to Tasmania, which will boost demand for visitation to Tasmania and support additional spending.

The Airport Buffer Overlay contained within the Clarence Interim Planning Scheme 2015 ensures that surrounding land use and development is compatible with the operation of Hobart International Airport. This buffer zone is shown in Figure 17.

5.10.2 Impact Assessment

During construction, temporary employment opportunities would be generated for construction staff and building contractors to support the project. Given the scope of the works it has been assumed that at any one time there will be between 50 - 120 construction workers on site with related opportunities for local businesses through the supply of building materials and off-site fabrication. This will be a beneficial economic impact and will also create flow-on economic benefits in the local area as construction workers at the site are likely to generate income for local businesses at and in the vicinity of the airport.

There is the potential for temporary disturbance that would impact negatively on users of the existing terminal during the construction works. The terminal will remain operational throughout construction, therefore access, noise and dust effects associated with construction would have the potential to impact on the amenity of passengers and employees. These impacts will be managed through the implementation of the CEMP and the assessed impact is low adverse.

Once operational, the terminal will allow the airport to accommodate Code E international operations, and HIAPL and Tourism Tasmania are exploring prospects for international services, including wide-bodied direct flights to Asia, and narrow-bodied services to New Zealand.

The introduction of flights to New Zealand is anticipated to create direct tourism benefits of around $52 million per annum. Direct flights to Asia would generate an estimated $68 million of direct tourism benefits per annum, based on a full-year operation. There is also the opportunity for air freight from Tasmania to Asia for high-value, perishable products, which will generate export returns. International air freight from Tasmania will enable faster delivery to export markets and therefore higher premiums, for exports such as live seafood, cherries, berries, flowers, milk and meat.

It is noted that due to the Airport Buffer Overlay applying to land surrounding the Airport, impacts to nearby sensitive uses are extremely limited.

These international services will also provide social benefits for Tasmanians, providing the island state with a direct connection to international destinations, improving connectivity with family and friends, holiday and educational destinations.

Once the terminal expansion is operational the Project will have a **beneficial** effect on the local economy and on the wider Tasmanian economy.

The terminal expansion of Hobart International Airport will have **negligible** impact on the resident population of areas surrounding the airport.

5.10.3 Mitigation Measures

During construction measures will be undertaken to minimise noise, dust and traffic impacts as outlined in previous sections of this MDP. Safety will be managed by the contractor under the applicable Workplace Health and Safety legislation.

The local community and stakeholders will continue to be informed of Project progress and timing for closures of roads or increased construction traffic.

5.11 Visual

5.11.1 Baseline Conditions

Hobart International Airport is the "Gateway to Tasmania" and provides a sense of place as the first and last impression of Tasmania. The terminal should be a functional but enjoyable location that allows users to enjoy and have a positive outcome during their time in the airport.

5.11.2 Impact Assessment

Construction of the terminal will result in machinery and equipment on site, as well as the potential for the spread of dust and construction debris. While industrial machinery and equipment is not uncommon on the airport, a positive first and last impression for visitors is important and potential impacts should be minimised where possible. The construction works will have a **low adverse** impact on the visual element of the airport.

The new terminal has been designed to reflect Tasmania's resilience, culture and sense of place whilst seamlessly integrating into the existing structure. The design will be functional and durable, reflecting the significant increase in passengers while also catering for the needs of the airport operation and meeting the needs of future capacity.

It is considered that the new terminal would have a **beneficial** impact on the visual amenity of the airport.

5.11.3 Mitigation Measures

Appropriate screening during the construction phase will be used by the contractor to manage dust as well as screen the construction site from surrounding visitors to Hobart International Airport. A Landscape Concept will be prepared which will specify native species which will be watered with non-potable water if possible. This will be determined during detailed design. Landscaping will also serve to minimise weed establishment, prevent sedimentation and would use species that do not attract bird species that may form a hazard to aircraft operations.

5.12 Lighting

5.12.1 Baseline Conditions

Hobart International Airport standards in relation to lighting require all new projects to implement the use of energy efficient technology (including LED lighting) to reduce energy consumption and operating costs.

5.12.2 Impact Assessment

With regard to reflectivity/glare, point 20 of the NASF Guidelines states:

> *…the potential for glare caused by reflected sunlight from structures such as buildings has been raised in some quarters as a potential source of distraction to pilots. However, CASA has advised that glare from buildings tend to be momentary and therefore unlikely to be a source of risk. The potential for risk from building glare is further attenuated by the use of sunglasses which pilots normally wear in bright daylight.*

The Project is still at concept design stage, and full details of external materials have not yet been finalised. Once confirmed, a reflectively or glare analysis may be required, noting that provided surfaces are comprised of lower reflectivity materials, a façade would be deemed to satisfy the guidelines. Similarly, any lighting associated with construction will be appropriated baffled to ensure minimal disturbance occurs. Therefore, at this stage of the Project, it is considered that the impact of lighting during construction is **low adverse** and during operation is **negligible**.

5.12.3 Mitigation Measures

Material selection for façade treatments will be carried to ensure compliance with NASF Guidelines. Lighting selection and design will be carried out to ensure compliance with CASA Manual of Standards 139.

5.13 Services

5.13.1 Baseline Conditions

5.13.1.1 Power and Communications

Hobart International Airport currently owns and operates an 11kV network on the airport. TasNetworks provides the power supply at 11kV at two intake points, dedicated feeders from Cambridge Zone substation and Pittwater Road overhead line. The HV Network is configured in two basic rings:

- Primary Ring from the TasNetworks switching station via Holyman Avenue, returning via Loop Road to the switching station.
- Secondary Ring from the TasNetworks Pittwater Road overhead reticulation network via cable network on the North East side of the runway that connects to the Primary Ring on Loop Road.

Currently there are a number of installed transformers within airport:

- Administration substation (Power House) – 2000kVA
- HAK001 (adjacent to new rental / car park) – 2000kVA
- HAB-P8 (adjacent to Hobart International Airport Administration building) – 500kVA
- HAT003 (adjacent to Waste Water treatment) – 500kVA
- T282787 (adjacent to BP Fuel Depot) - 300kVA

Hobart International Airport is serviced by Telstra cables that run from the Telstra pits on Tower Hill to the main distribution frame (MDF) and then continue to the north west of the existing terminal. The MDF room is a standalone building located towards the middle of the existing carpark.

5.13.1.2 Water and Sewerage

Domestic water is supplied to the terminal from an existing 100mm water ring main running underground within the car park, which is supplied from the 225mm water mains in Holyman Avenue. A booster pump has been

installed in the fire pump room to provide pressure boost to the domestic cold-water ring main around the airport. The terminal building is supplied by two domestic water supply points from the water ring main. One supply serves the arrivals area and the other serves the departures area.

The existing sewerage system consists of a network of gravity discharge pipes in combination with sump pumps in areas where gravity connection cannot be achieved. All sewer discharge flows to a network of underground pipes and manholes within Addison Road in front of the terminal building and within the carpark area, into the main pump station-1 located at the southern side of the car park. The sewer is then pumped out to TasWater sewerage treatment plant approximately 350m away from the site. Trade wastes are served by grease interceptors installed at the north and south of the terminal building.

5.13.1.3 Fire Services

The existing fire water system consists of two diesel pumps, one electric fire pump and two fire water storage tanks. The storage tanks located on Tower Hill supplies the fire water ring main which services the airport and proposed retail development site to the east of Holyman Avenue.

The same mains as the domestic supply are currently used to supply water for fire suppression which is stored in storage tanks located at Tower Hill . This is in line with TasWater policy.

5.13.2 Impact Assessment

5.13.2.1 Power and Communications

In line with current concepts, the final terminal load is estimated to be in the order of 4000kVA-5000kVA. It is anticipated that the current 2000kVA transformer (Powerhouse) will need to be upgraded or replaced to supply the proposed new terminal load. The existing generators within the powerhouse are also approaching capacity and will need to be upgraded to deal with the new building load. Based on the current site infrastructure, a new essential and non-essential power supply will be required for the terminal expansion.

Currently the Hobart International Airport Precinct has a mix of Multi-mode (OM3) and Single-mode (OS1) Fibre connecting the various building and services on site. It has been adequate in the past however future development would require it to be upgraded to enable a structured resilient approach.

By letter dated 25 January 2019, Airservices noted that a number of Airservices underground service cables have been identified within the current terminal footprint, which will be impacted by the proposed development. Airservices is conducting a services audit on these cables to confirm whether these should be retained.

5.13.2.2 Water and Sewerage

It is expected that, given the increased capacity of the airport by 2030, domestic water demand will increase. Additional pressure will be required to handle the increased demand from the terminal building supply and as well as the underground water ring mains around the airport. The underground water ring main along the existing departures area will be affected by the project, which will then need to be diverted.

The sewerage flow is expected to increase gradually. The capacity of the existing sewer mains to cater for current and additional demands is under assessment and is anticipated to need upgrade prior to project commencement. The project will result in the need to divert existing sewerage services from the departures area (including sewer mains from the adjacent buildings).

5.13.2.3 Fire Services

The new building structure will affect the existing underground fire water ring main within landside and airside of the terminal building. This will require diversion along with the relocation of the existing fire hydrants. The addition of a sprinkler system will have an impact on the capacity of the fire pump and water storage system. The adequacy of the existing fire services system capacity is under review and will be confirmed as part of the detailed design of the Project to ensure demand is met.

5.13.3 Mitigation Measures

5.13.3.1 Power and Communications

A separate master planning project is currently underway investigating options for the upgrading of the airport's electrical infrastructure. However, it is anticipated that multiple new switchboards, generators and substations will be required to supply the terminal expansion needs. In order to avoid lengthy airport shut downs, the electrical distribution will be set up to allow new sections of airport to be powered from new dedicated main distribution boards. Under this arrangement outage time to connect new loads to the site main switchboards are minimised as fewer higher capacity connections are required in lieu of many lower capacity connections.

While upgrade works take place out of terminal operating hours, it is anticipated that multiple temporary generators will be supplied to maintain power to critical infrastructure as these works take place as mitigation of outages running over the allowable time. This will be required during substation upgrades, switchboard upgrades and high voltage reticulation upgrades.

A telecommunication infrastructure strategy will be implemented to enable the delivery of services to existing and for future development. The deployment of telecommunication pathways will be planned to minimise the impact to future construction corridors and spaces.

Airservices is conducting a services audit on their underground cables to confirm whether these should be retained.

HIAPL will consult with all applicable service providers as relevant in order to design and implement any mitigation measures identified.

5.13.3.2 Water and Sewerage

The existing booster pump would be utilised to achieve pressure boosting where required in future, subject to condition assessment at the time of required use. A new water supply tapping point will be proposed which will be sized in full capacity to serve the entire terminal building which will minimise interruptions to airport operations. Existing Domestic Water Ring Main and Proposed Diversion are shown in Figure 25.

Existing Underground Sewerage and Proposed Diversion are shown in Figure 26.The affected underground services will be diverted outside of the building footprint to allow proper maintenance access and avoid interruption to airport operations. A new pumping station is proposed to be built to cater for current and future sewer demand. The existing pump station would be decommissioned once the new pump station was fully operational. Prior to any earthworks being undertaken for changes to services, assessments will be undertaken to understand potential impacts from contamination / PFAS / ASS etc.

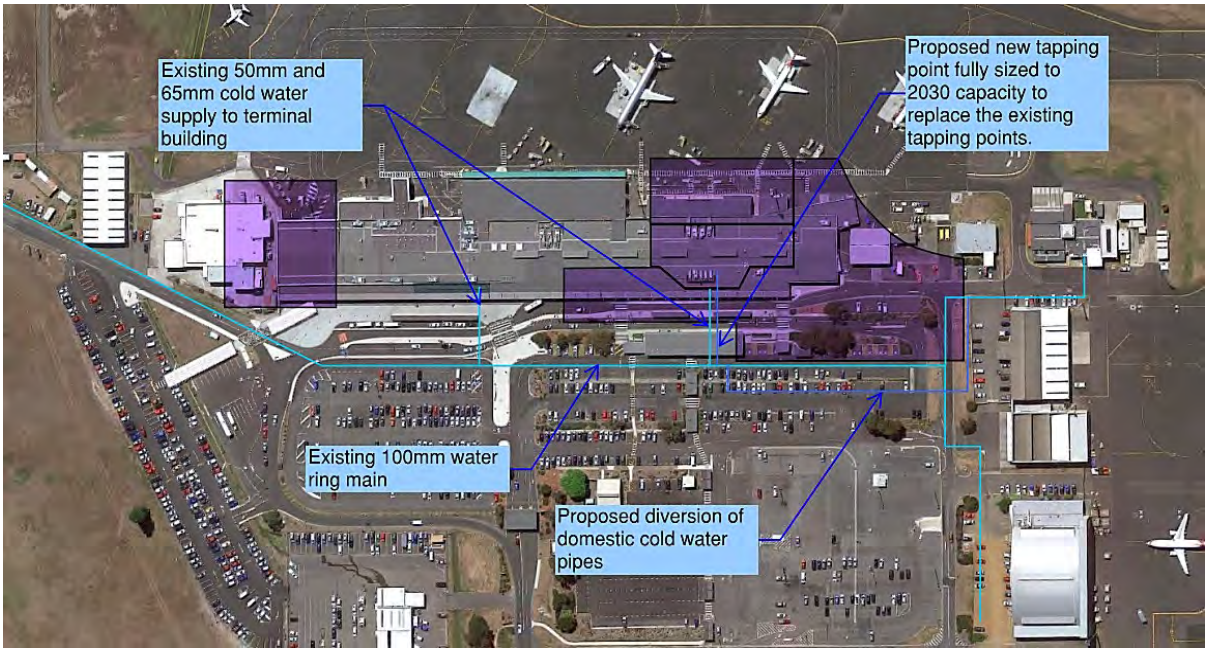


Figure 25 Existing Domestic Water Ring Main and Proposed Diversion

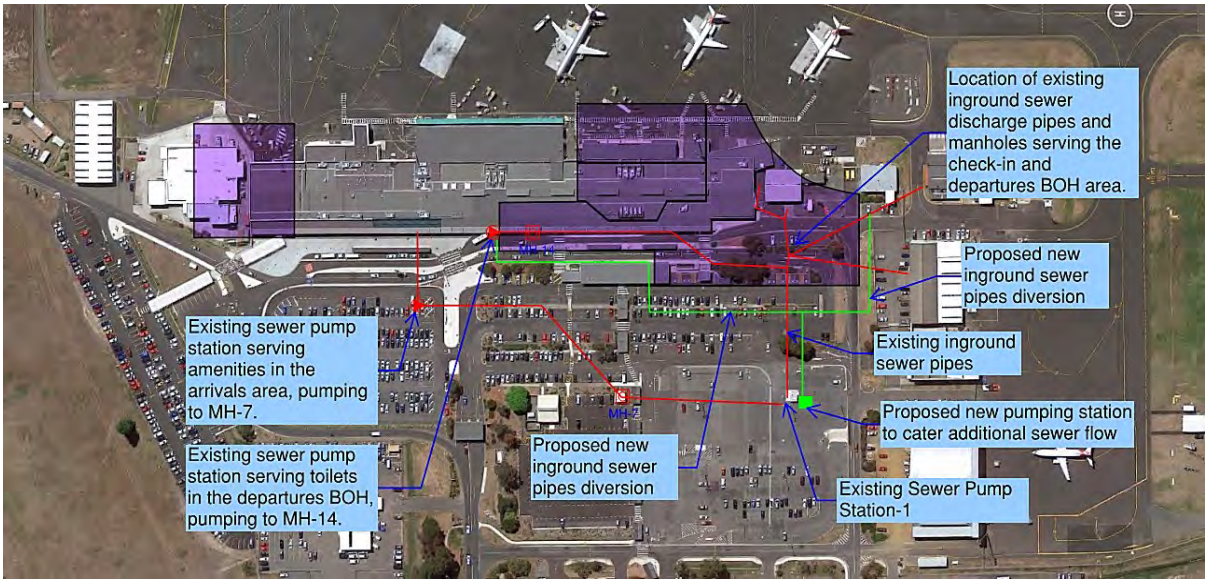


Figure 26 Existing Underground Sewerage and Proposed Diversion

5.13.3.3 Fire Services

The fire water ring main that would be affected by new structures will be diverted where required. Accordingly, the fire hydrants affected by diversion will be relocated to suit the required coverage. Prior to any earthworks being undertaken for changes to services, assessments will be undertaken to understand potential impacts from contamination / PFAS / ASS etc. Existing Fire Water Ring Main and Proposed Diversion are shown in Figure 27.

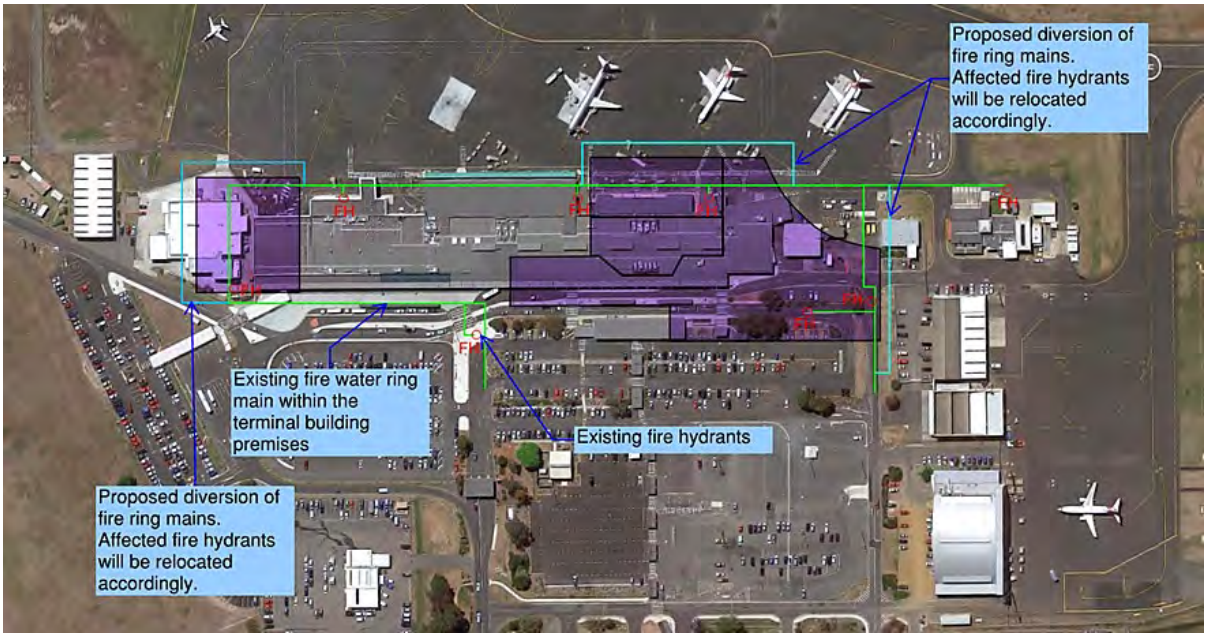


Figure 27 Existing Fire Water Ring Main and Proposed Diversion

5.14 Waste Management

5.14.1 Baseline Conditions

Hobart International Airport operations produce a wide variety of waste streams which can be categorised by solid wastes, liquid wastes, hazardous wastes and recyclables. Construction waste is also generated during construction projects at the Airport and would include waste from the abovementioned waste streams.

5.14.2 Impact Assessment

During construction and operation, there will be an increase in waste materials. All Prescribed Waste will be removed in accordance with the *Environment Protection (Prescribed Waste) Regulations 1998*. The construction waste streams that are anticipated from these works include (but not limited to):

- Demolition waste (concrete, plasterboard, glass, plastic, etc.);
- Wastewater;
- Excavated materials;
- Green waste;
- Construction waste (concrete pipe off cuts, cabling, plasterboard, packaging material, etc.);
- Domestic solid waste (food, paper, plastics, packaging, etc.);
- Hazardous waste (contaminated soil, waste oils, fuels and chemicals).

Hobart International Airport will seek to maximise recycling where possible during construction and demolition phases. Waste during the construction phase has been assessed as being low adverse. During operation, a minimal increase in waste volumes is anticipated as a direct result of the Project. The impact of the Project during operation is considered low adverse.

5.14.3 Mitigation Measures

The management of waste would be conducted in a number of ways during construction and operation. Specific procedures for the collection, storage and disposal of waste would be outlined in the CEMP and be addressed with consideration of the waste hierarchy of reduction, recycling and storage, and consistent with the HIAPL Waste Management Strategy and SMP04 Waste Management Procedure for Operational Waste.

Specific mitigation measures include ensuring that waste bin lids are closed and work sites kept tidy to avoid littering and attraction of birds, vermin and other wildlife.

Throughout construction and operation of the project sustainable supply chains and the following specifications would be promoted:

- Projects with recycled content;
- Sourcing and buying products that have credible environmental product declarations;
- Product stewardship programs; and
- Third party certifications.

To encourage responsible waste management and sustainable behaviour during operation, waste management targets and key performance indicators will be established and monitored and reported on a monthly basis.

5.15 Aircraft Management and Passenger Safety during Construction

Aircraft Management and Passenger Safety are achieved through the following processes:

- Prior to construction of works associated with the project, Hobart International Airport will seek approvals from the ABC and the AEO in accordance with the *Airports Act 1996* and associated Regulations. In addition, Hobart International Airport will consult and engage with Airservices Australia.

- Hobart International Airport will develop a method of work plan (MOWP) for each stage of the project subject to the requirements set out in Section 10.11 of the *Civil Aviation Safety Regulations 1998* (CASR) Part 139 Manual of Standards for Aerodromes.
- An Environmental Management Plan for the construction (CEMP) will be put into place in consultation with the AEO.
- Following the completion of construction, CASA will determine whether the project is compliant.

During the construction of the project, it is anticipated there will be minimal changes to existing aircraft ground movements. Therefore, it is considered the impact of the Project during construction is **low adverse**.

5.16 Summary of Impacts

The environmental assessment component of the MDP has been undertaken to meet the requirements of Section 91(1)(h) of the Airports Act. A summary of the potential environmental and social impacts considered in the assessment is provided in Table 9.

Table 9 Summary of Impacts

Section	Factor	Impacts	
		Construction	Operation
5.2	Geology and soils	Low adverse	Negligible
5.3	Surface water	Low adverse	Negligible
	Groundwater	Negligible	Negligible
5.4	Ecology	Low adverse	Negligible
5.5	Cultural Heritage	Negligible	Negligible
5.6	Air Quality	Low adverse	Negligible
5.7	Ground-based Noise and Vibration	Low adverse	Negligible
5.8	Hazardous Materials	Negligible	Negligible
5.9	Traffic	Low adverse	Negligible
5.10	Economic and Social	Low adverse	Beneficial
5.11	Visual	Low adverse	Beneficial
5.12	Lighting	Low adverse	Negligible
5.13	Services	Negligible	Negligible
5.14	Waste Management	Low adverse	Low adverse
5.15	Aircraft Management and Passenger Safety during Construction	Low adverse	N/A

6.0 Consultation and Approval Process

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6.0 Consultation and Approval Process

6.1 Consultation Objectives

The community is important to Hobart International Airport and all feedback and enquiries are valued. The Airport is committed to achieving a meaningful and open relationship with airport stakeholders and the community and meeting the requirements set out under the *Airports Act 1996* for community consultation. The consultation program for the MDP aims to:

- Provide information about the Terminal Expansion Project MDP to relevant stakeholders and community members during the preparation of the document;
- Provide opportunities for HIAPL to consult with people and groups to better understand the real and perceived impacts and benefits of the development plans; and
- Exceed the consultation requirements of the *Airports Act 1996* for the Terminal Expansion Project MDP.

6.2 Consultation Strategy

HIAPL's approach to exceeding legislated consultation requirements and delivering additional consultation actions during the preparation of the MDP are detailed below and in Table 10.

6.2.1 Exposure Draft MDP Phase

The Exposure Draft is the first version of the MDP. Although it is not a formal requirement of the *Airports Act 1996*, it is provided to the Department prior to the formal consultation process. The Exposure Draft was submitted to various key stakeholders in December 2018, including the DoIRDC DoEE, CASA and Airservices, to enable early comment on the Project.

6.2.2 Preliminary Draft MDP Phase

The Exposure Draft MDP is updated to reflect applicable feedback received from the Department and other stakeholders. Ongoing consultation will occur through the public exhibition of the Preliminary Draft MDP in accordance with Section 92(1A) of the *Airports Act 1996*. Stakeholders include Commonwealth and State Government departments and Members, Local Government, and other airport stakeholders.

6.2.3 Statutory Exhibition of the Preliminary Draft MDP

The Preliminary Draft MDP will be publicly exhibited in accordance with **Section 92** of the *Airports Act 1996*. In accordance with **Section 92(2A)** and **Section (2B)** of the *Airports Act 1996,* public consultation must be undertaken as follows:

(2A) The consultation period is:

a. a period of 60 business days after the publication of the notice; or

b. a shorter period (of not less than 15 business days after the publication of the notice) that is approved by the Minister.

In accordance with Section 92(2B) of the *Airports Act 1996*, a letter from the Honourable Michael McCormack - Minster for Infrastructure, Transport and Regional Development confirmed the approval of a 45 day reduced consultation period.

A notice is required to be placed in a Tasmanian newspaper, which is to include the following statements or information:

- A Preliminary Draft MDP has been prepared and the public exhibition period.
- Copies of the Preliminary Draft version of the MDP are available for inspection and purchase by members of the public during normal office hours throughout the consultation period specified in the notice.
- The place or places where the copies are available for inspection and purchase.

- The Preliminary Draft version of the MDP is available free of charge to members of the public on the airport's website through the consultation period specified in the notice and the details of the airport's website https://development.hobartairport.com.au/
- Inviting members of the public to give written comments about the draft version to the company within the consultation period specified in the notice.

6.2.4 Draft MDP and Submission to Minister

Following public exhibition of the Preliminary Draft MDP, the MDP may be revised in response to feedback received during the exhibition period. The Draft MDP and a Supplementary Report detailing the consultation undertaken and any MDP updates made, will be submitted to the Commonwealth Minister for Infrastructure, Transport and Regional Development who is responsible for all decisions in relation to a MDP for a major airport development.

The Minister will then refer the Draft MDP to relevant agencies and departments to receive advice prior to making a decision to approve or refuse the MDP.

6.2.5 Final MDP and Ongoing Community and Stakeholder Engagement

Subject approval of the Draft MDP, a Final MDP will be published by Hobart International Airport. A copy of the approved MDP will be available in the Airport's corporate offices and a copy of the approved MDP will be available for viewing and downloading free of charge on Airport's website.

Table 10 HIAPL Approach to Engagement – Terminal Expansion MDP

Engagement Type	Requirements and HIAPL Engagement Process
Legislated Consultation Requirements	
Preliminary consultation (2017 – ongoing)	• Informal discussions with airlines, local Government authorities and State Government representatives to discuss planned airport development • HIAPL started discussing the Terminal Expansion Plans with stakeholders in early 2017 as a topic in a range of 'business as usual' meetings and more focused airport planning discussions. Stakeholders who participated in these discussions included: - Hobart International Airport Community Aviation Consultation Group (CACG); - Hobart International Airport Planning Coordination Forum (PCF); - Clarence City Council; - Hobart City Council; - Sorell Council; - Airlines – Virgin and Qantas Group; - Cambridge Airport; - Airport tenants; - Tourism Tasmania; - Department of Planning and Local Government; - Department of Primary Industries, Parks, Water and Environment; - DIRDC; - Airservices Australia; - Border Force (Department of Home Affairs) • From these meetings and discussions HIAPL gathered information to inform the preparation of the MDP.
Formal pre-release consultation (including Exposure Draft MDP but prior to Preliminary Draft MDP)	• Consultation with the State government, an authority of a State, a local government body, an airline or other user of the airport concerned or any other person. • Airlines and local government bodies in the vicinity of the airport regarding noise • HIAPL undertook more formal pre-release consultation with a range of stakeholders to discuss the content of the Terminal Expansion MDP. Stakeholders

Engagement Type	Requirements and HIAPL Engagement Process
	included: - Hobart International Airport Community Aviation Consultation Group (CACG); - Hobart International Airport Planning Coordination Forum (PCF); - Clarence City Council; - Hobart City Council; - Sorell Council; - Southern Tasmanian Councils; - Airservices Australia; - CASA - DIRDC; and - Department of Planning and Local Government; - Department of State Growth; - Environmental Protection Authority; - State elected members; - Federal elected members; - Airlines - Virgin and Qantas Group; - Tourism Industry Council Tasmania; - Tourism Tasmania; - Tasmania Chamber of Commerce; - Airport tenants; - TasWater; - Australian Antarctic Division; - Tasmanian Polar Network; - Cambridge Airport.
Formal public consultation period	• Letter to State Minister and authority responsible for town planning and relevant local government authorities advising the release of the MDP for public comment • Advertisement to be published in relevant newspapers • Information to be placed on HIAPL website • Copies of the MDP to be available in hard and soft copy. • HIAPL will advise the following that the Terminal Expansion MDP is being released for public comment: - Roger Jaensch MP – Minister for Planning, Housing and Human Services and other relevant Ministers will be advised in writing; - Officers from the Department of Planning and Local Government will be advised in writing; - Clarence City Council will be advised in writing; - Sorell City Council will be advised in writing; - Hobart City Council will be advised in writing; - An advertisement will be placed in The Mercury; • HIAPL's website will be updated to provide information about the release of the Terminal Expansion MDP for public comment. This will include links to an electronic (soft) copy of the MDP; and • Printed copies of the MDP will be made available for viewing at Hobart International Airport, and certain locations including Sorell, Clarence and Hobart City Council offices, with any other locations to be confirmed in the public notice. • Stakeholder consultation events are proposed for: - Hobart CBD 12 April 2019 (2 sessions throughout day) - Bellerive Yacht Club 13 April 2019 - Sorell 15 April 2019 - Eaglehawk Neck 16 April 2019

Engagement Type	Requirements and HIAPL Engagement Process
	Public Consultation Map Link
Non-Legislated Consultation	
Regular consultation (2017 – ongoing)	• Informal discussions with stakeholders on a range of Terminal Expansion related topics to inform the content of the MDP • Business as usual briefings with airport stakeholders that address the Terminal Expansion process • HIAPL will continue to use a range of communication channels including its website, media releases, community meeting opportunities, other stakeholder forums to provide timely information about the airport operations and plans.
Pre-release consultation (prior to Preliminary Draft MDP)	• Additional stakeholder meetings • Business as usual briefings with airport stakeholders that address the Terminal Expansion process
Formal public period consultation	• Additional stakeholder meetings • Community Briefings • Business as usual briefings with airport stakeholders that address the Terminal Expansion process

7.0 Conclusion

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7.0 Conclusion

The Terminal Expansion Project seeks to further develop the existing infrastructure to accommodate the forecasted domestic and international growth anticipated to occur at Hobart International Airport.

The Project will offer an improved experience for airport visitors and cater for projected domestic passenger growth and the additional international services since the runway extension. The Project will upgrade the airport to accommodate domestic growth and Code E international operations and will include:

- Expanded domestic departures footprint to facilitate passenger growth;
- An international processing facility for Code C and Code E aircraft operations;
- Expanded concessionaire offers;
- Baggage handling services expansion;
- New enhanced security requirements for passengers and baggage; and
- A new lounge for Qantas and a lounge for other airlines.

The *Hobart International Airport 2015 Master Plan* (2015 Master Plan) sets out the vision for growth and delivery of strategic infrastructure to allow the airport to meet demand and better connect Tasmania to the rest of Australia and the world to the year 2035. It identifies a number of landside, terminal and airside infrastructure improvements that are required to accommodate forecast passenger growth at Hobart International Airport over the 20-year timeframe.

This MDP for the Terminal Expansion Project has confirmed that the proposal is consistent with:

- *Airports Act 1996;*
- Hobart International Airport Lease;
- *Hobart International Airport Master Plan (2015);*
- State and local planning policy and provisions;
- Hobart International Airport Ultimate Capacity Australian Noise Exposure Forecast; and
- Prescribed Airspace.

An assessment of the potential impacts on the physical, biological, cultural and social environments of the project area has also been undertaken, with the likely impacts resulting from construction and operational activities, the proposed mitigation measures and residual impacts documented.

The Project area has been subject to previous disturbance and therefore, will not affect any known sites of Aboriginal or historic cultural heritage or any areas of ecological value. As outlined, the impacts can be appropriately managed through the implementation of Project Construction Environmental Management Plan.

Appendix A

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Draft MDP Architectural Report

18th March 2019

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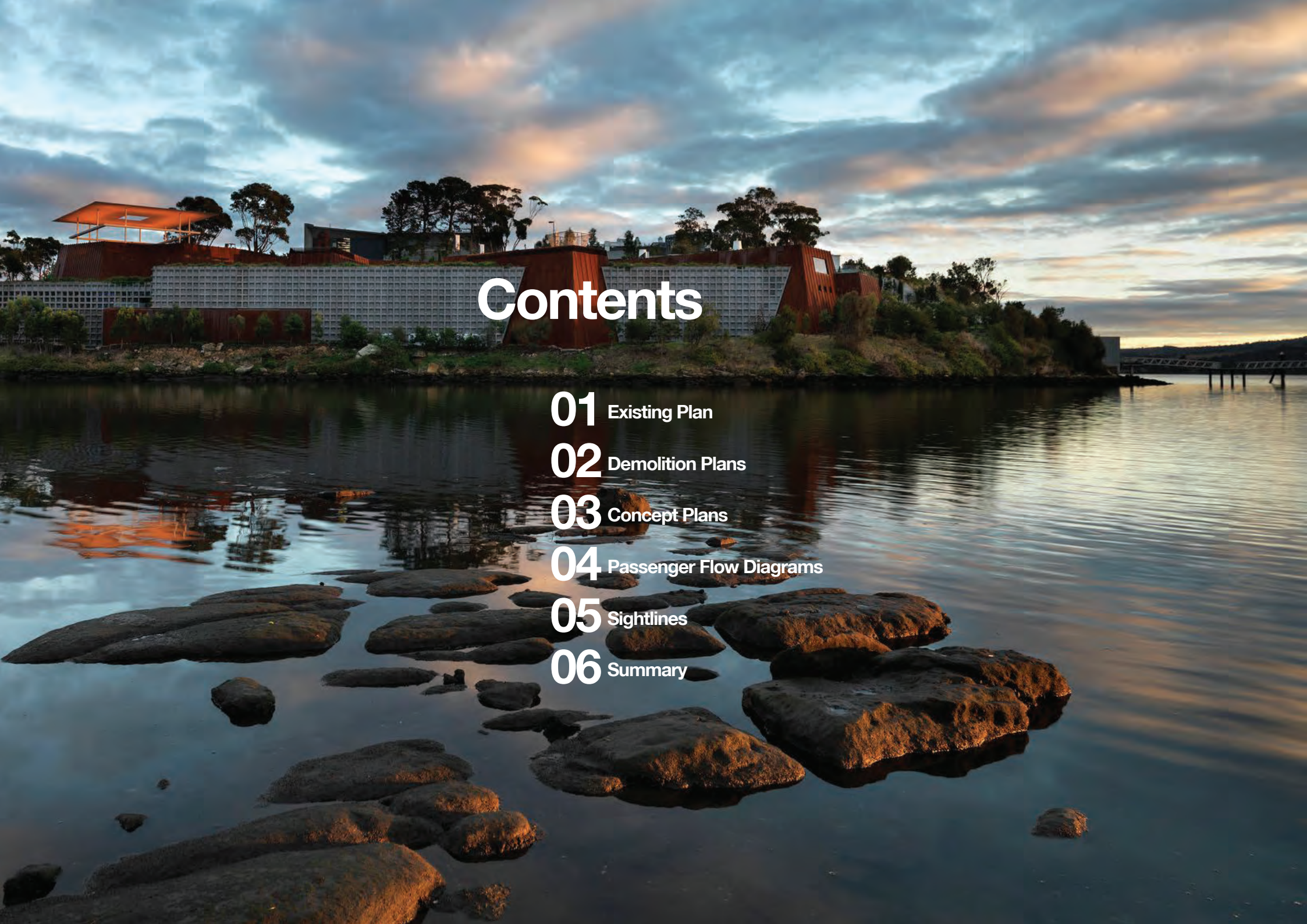
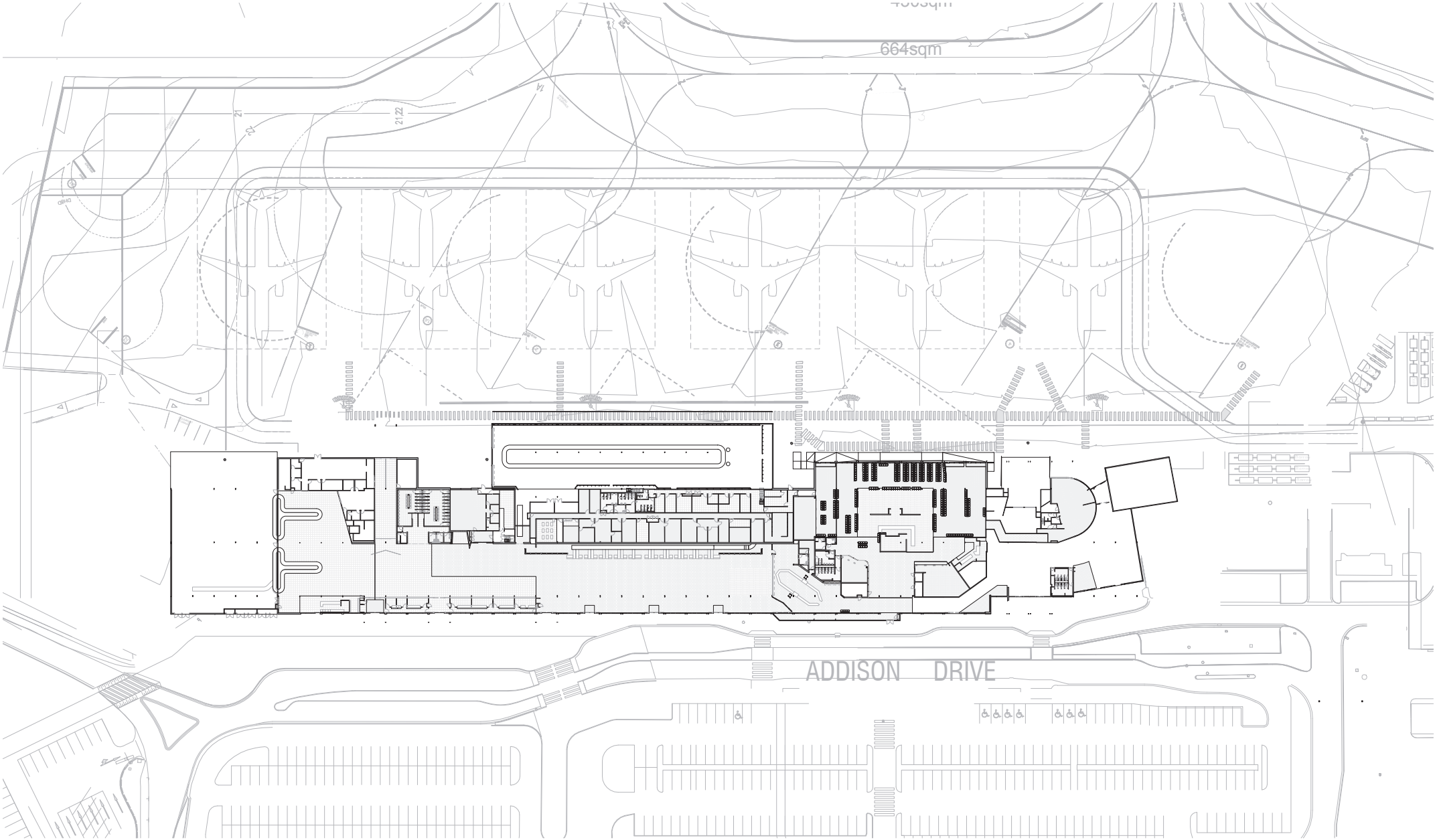


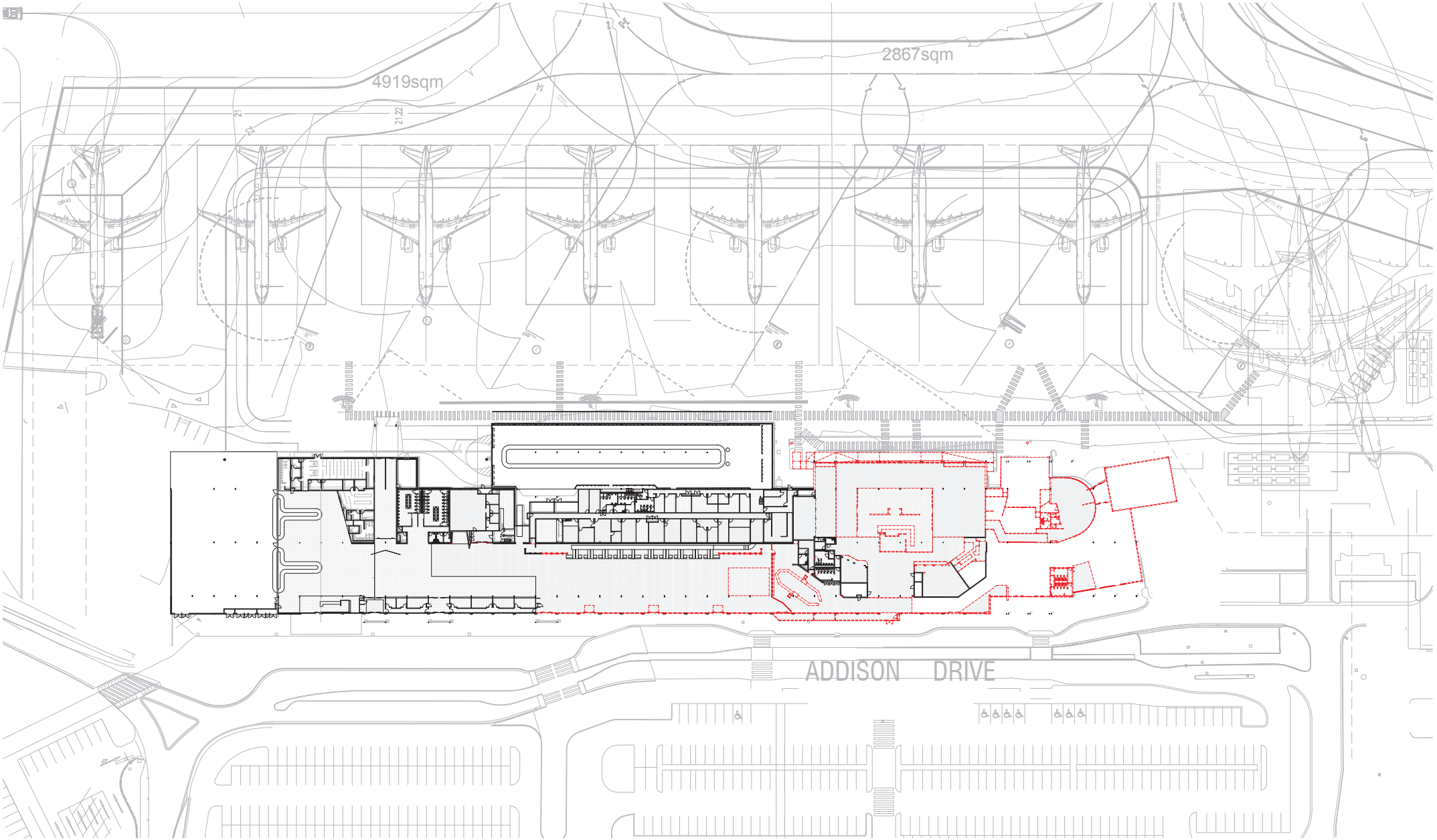
Contents

01 Existing
Floor Plan - Ground Level



02 Demolition Plans

02 Stage 1
Demolition Plan



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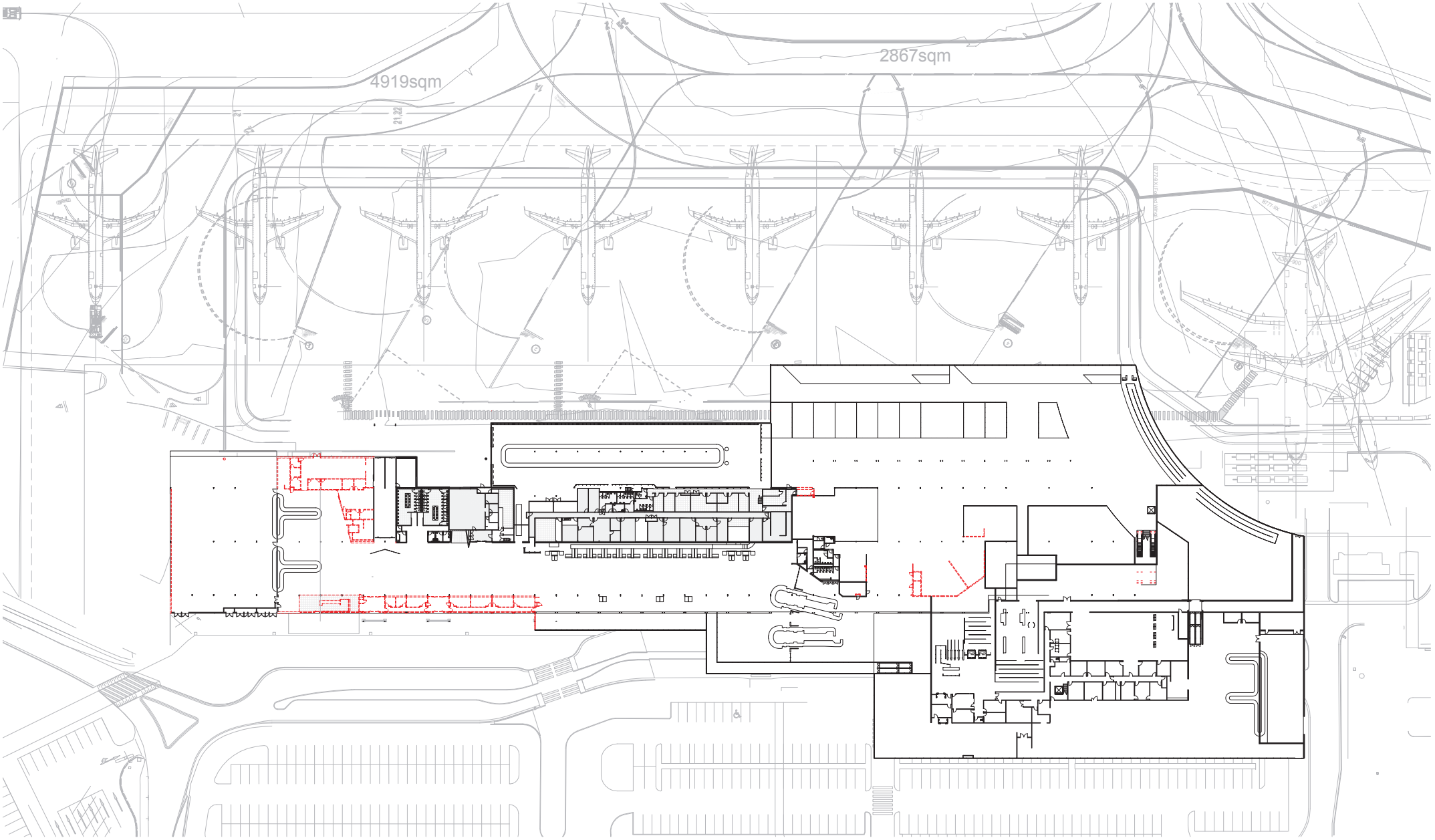
02 Stage 2
Demolition Plan



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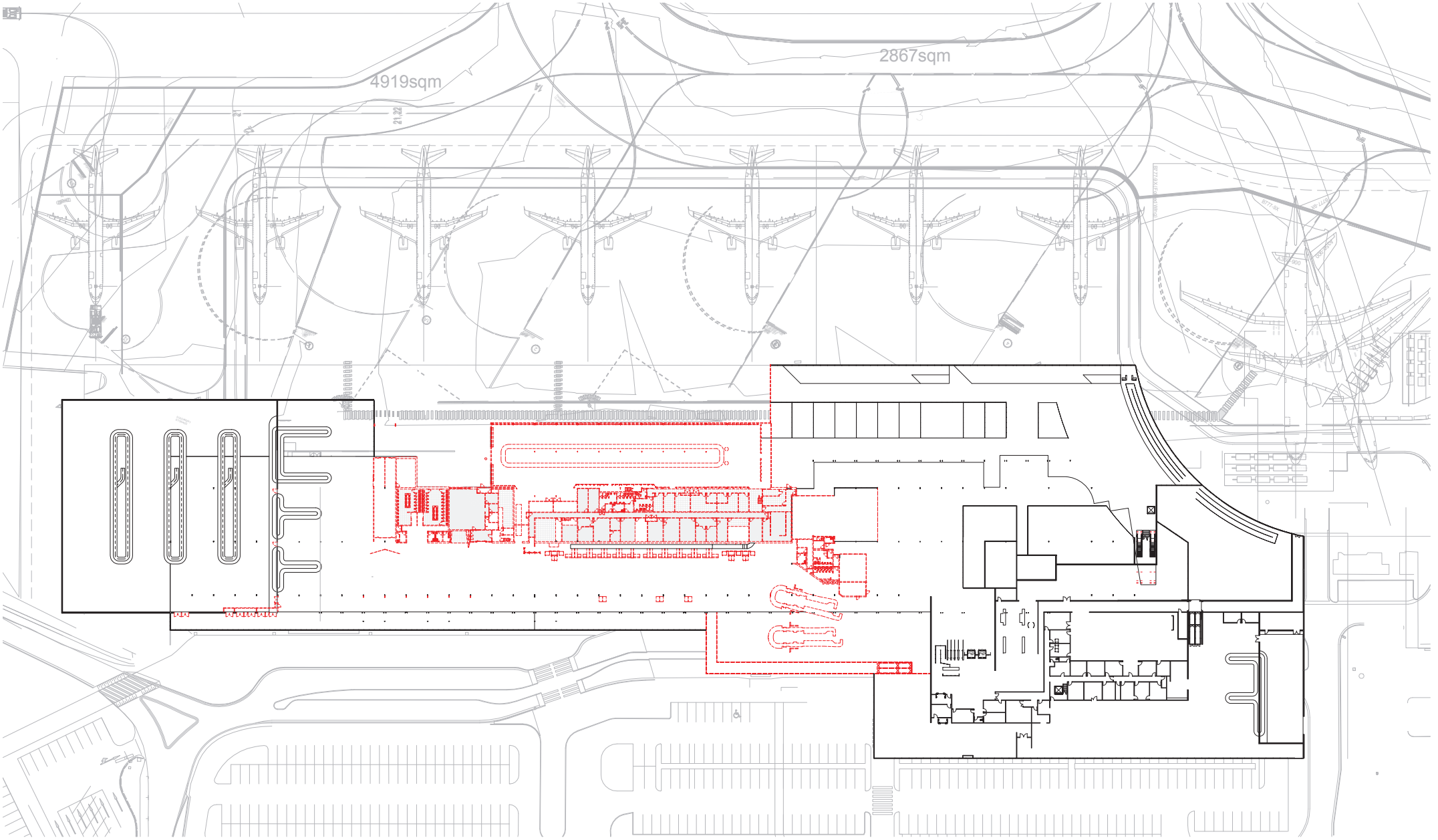

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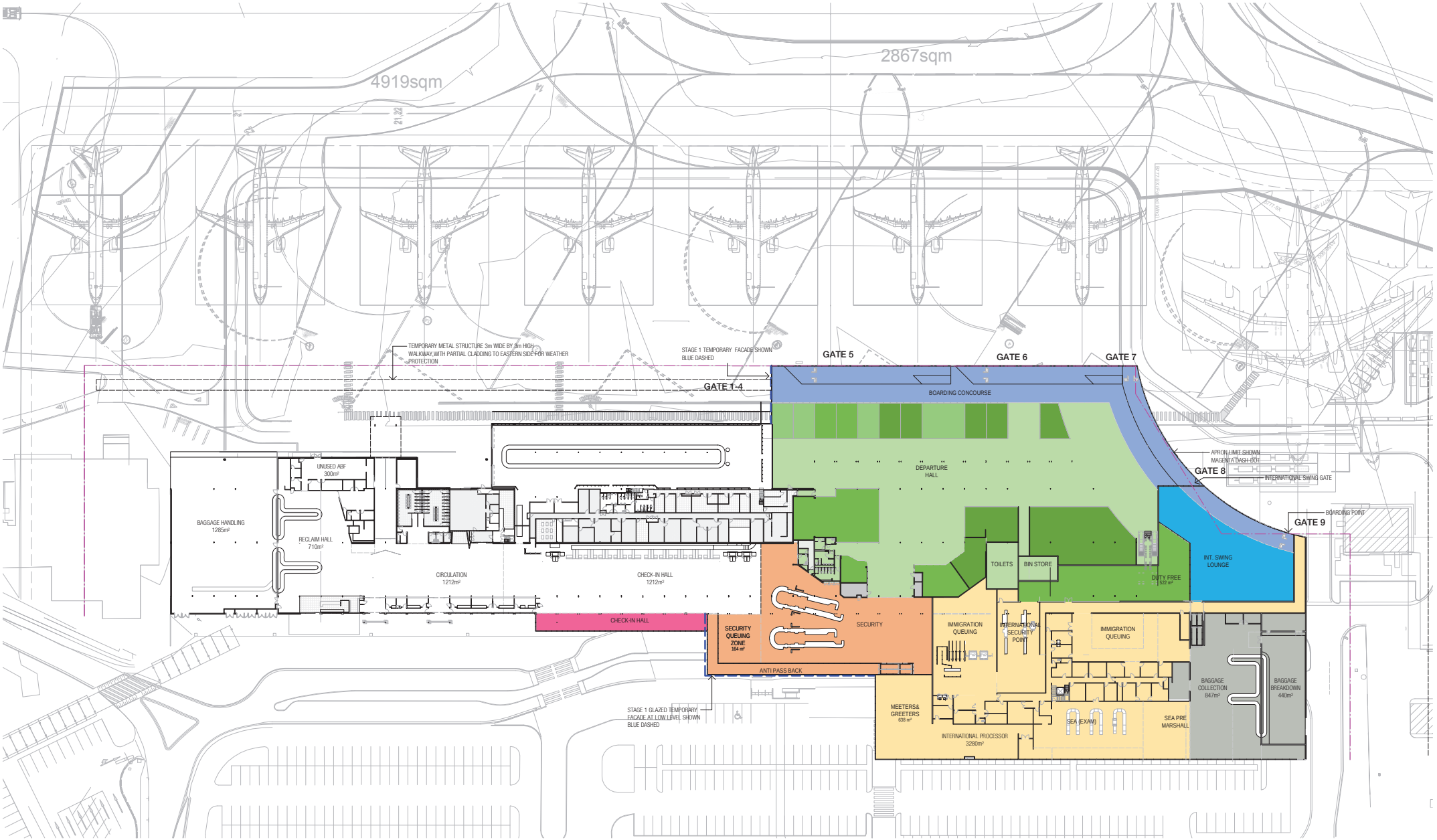
03 Concept Plans

03 Stage 1
Concept Plan - Ground Level



International Processor *International*
Baggage Collection *Domestic or International*
Swing Lounge *International*
Temporary Security *Domestic & International*
Departures Hall *Domestic & International*
Check-In Hall *Domestic & International*
Baggage Reclaim *Domestic*

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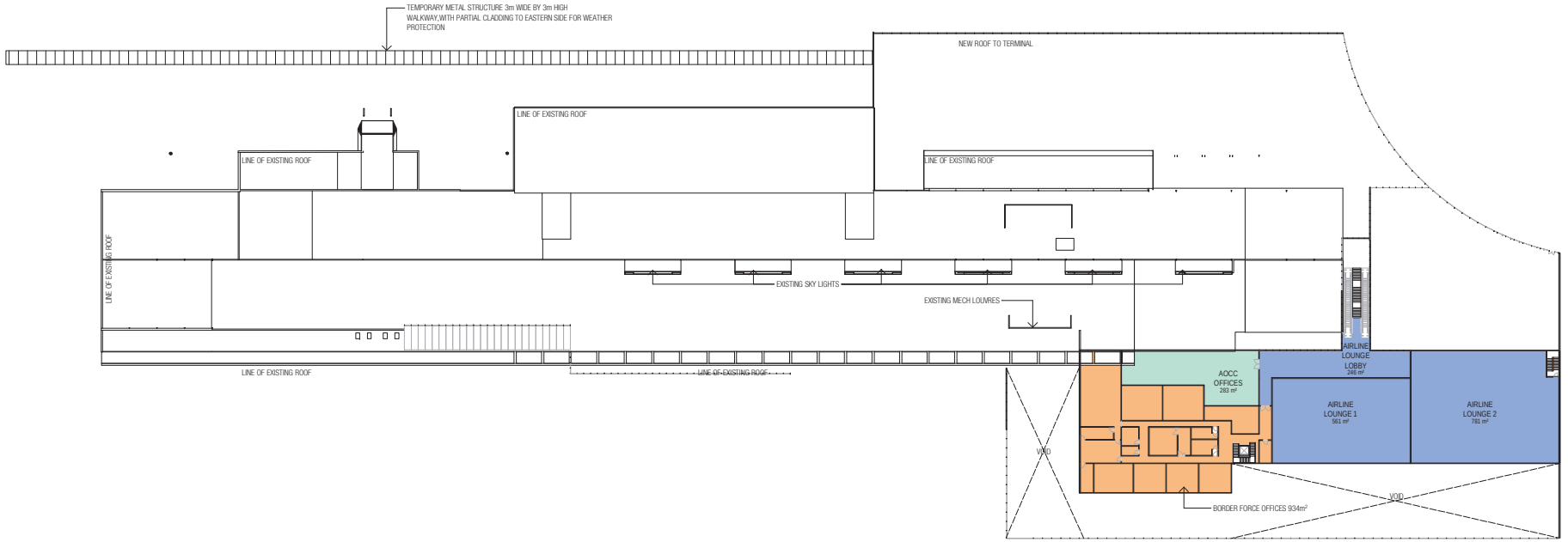
03 Stage 1
Concept Plan - Level 1



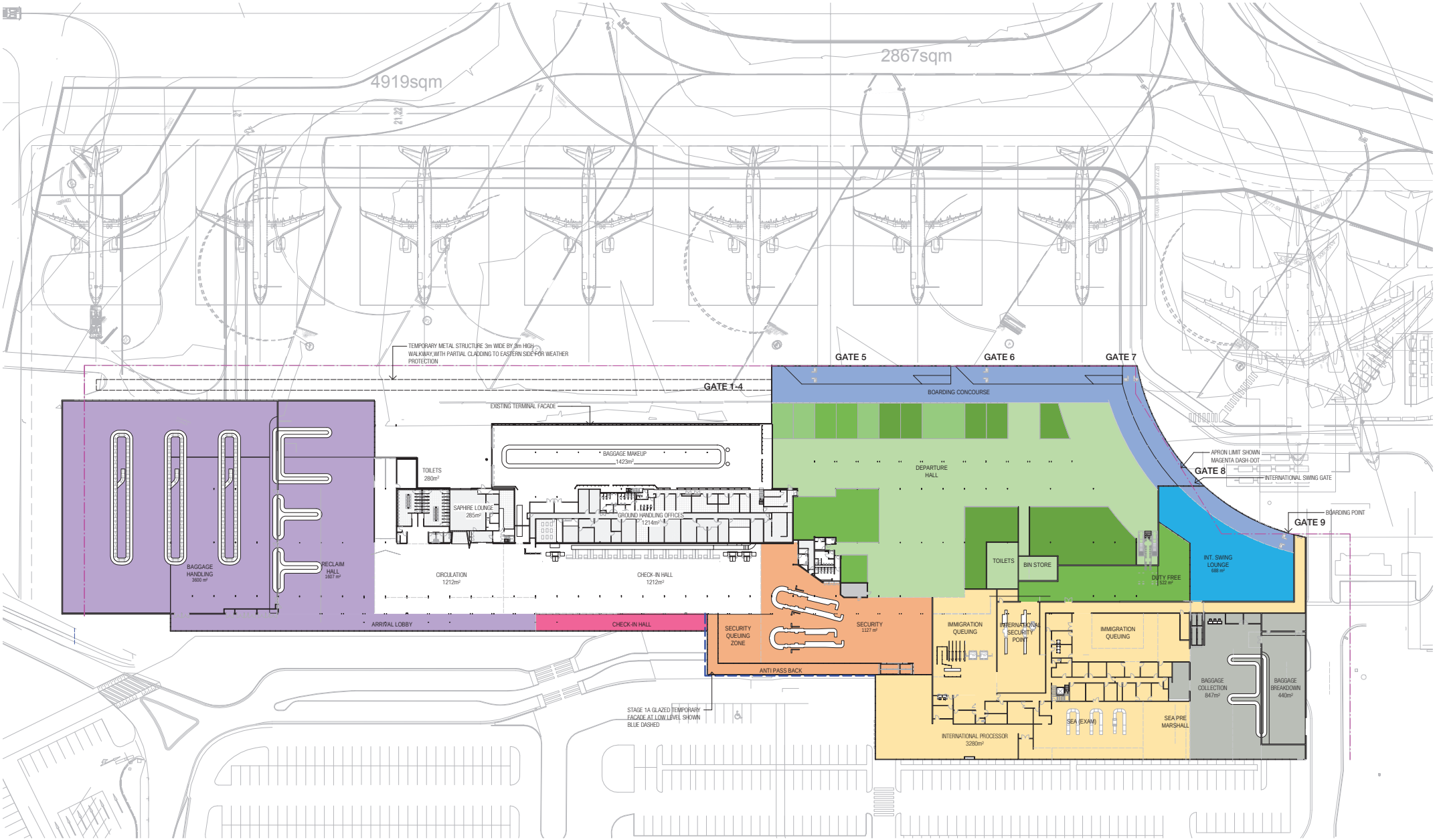
Border Force
Landside

Airline Lounges
Domestic or International

AOCC
Landside

WOODS BAGOT

03 Stage 2
Concept Plan - Ground Level



International Processor *International*
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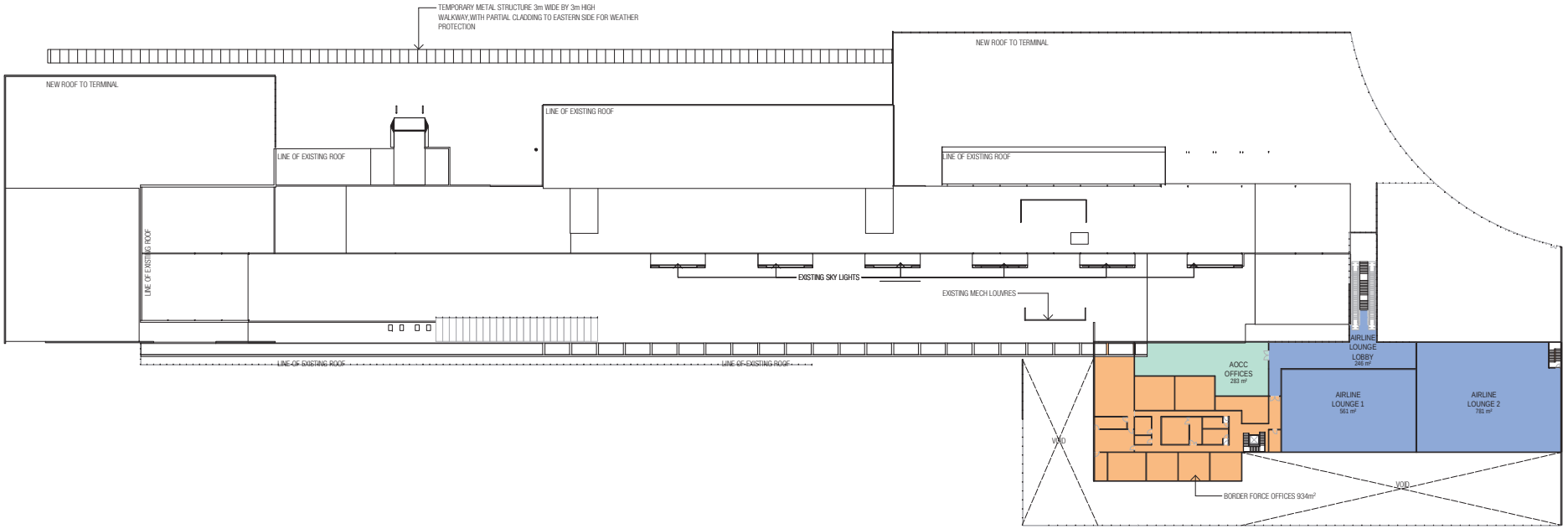
WOODS BAGOT

03 Stage 2
Concept Plan - Level 1



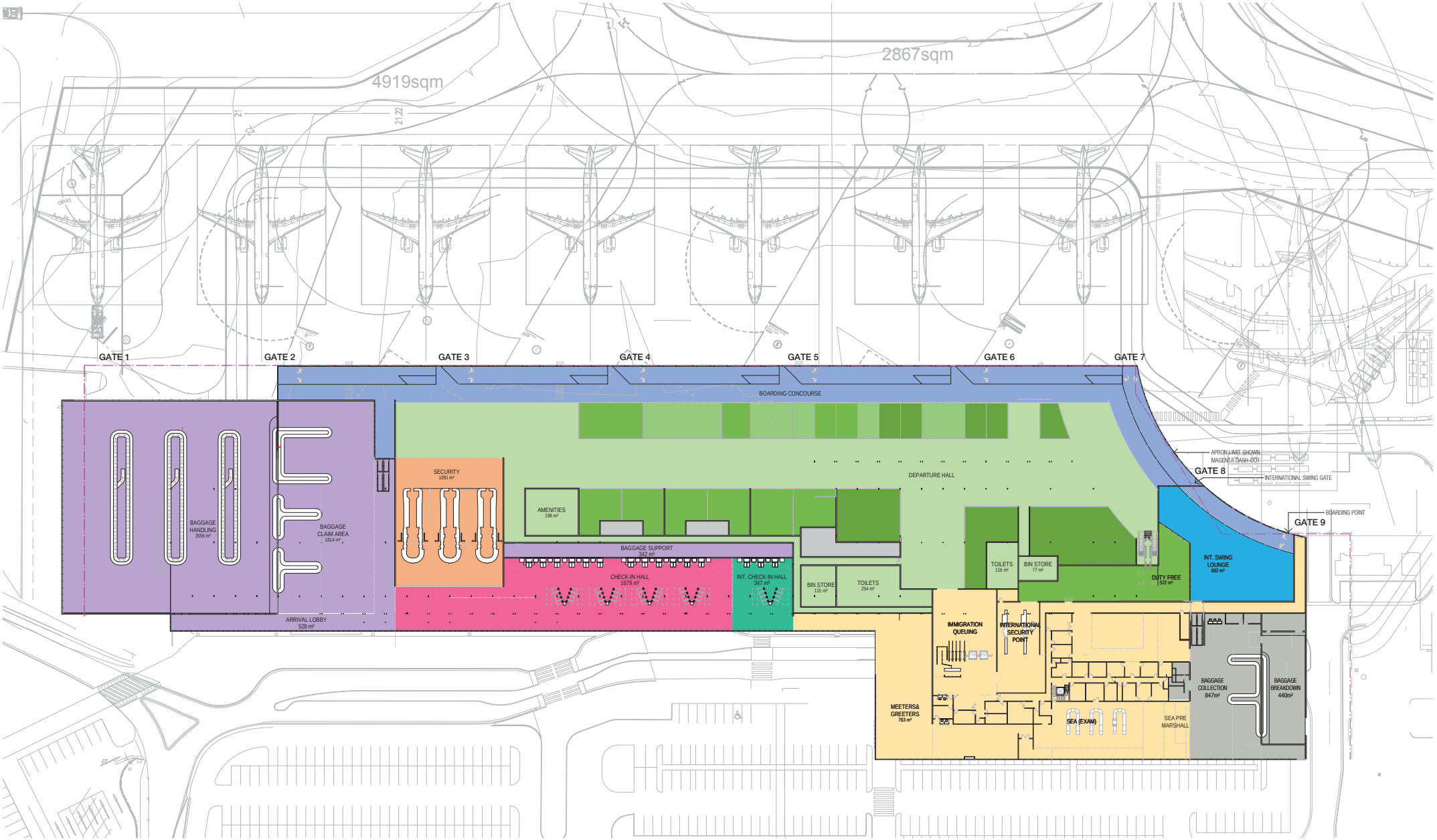
Border Force
Landside

Airline Lounges
Domestic or International

AOCC
Landside

WOODS BAGOT

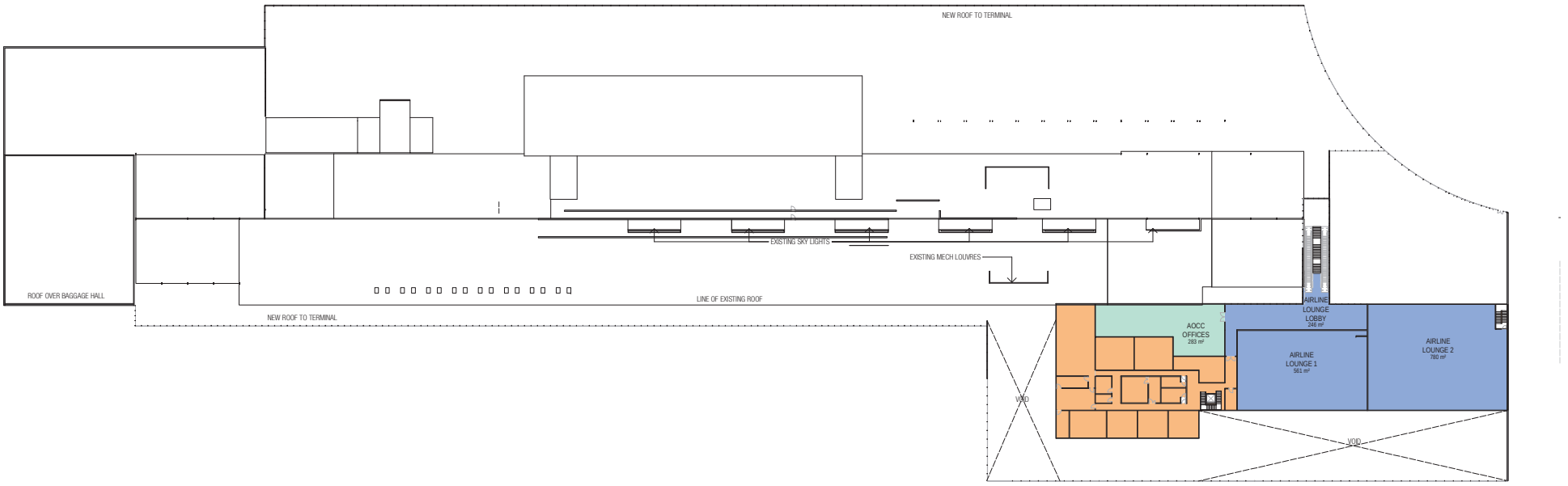
03 Future Stage 3
Concept Plan - Ground Level



International Processor *International*
Baggage Collection *Domestic or International*
Swing Lounge *International*
Temporary Security *Domestic & International*
Departures Hall *Domestic & International*
Check-In Hall *Domestic & International*
Baggage Reclaim *Domestic*

WOODS BAGOT

03 Future Stage 3
Concept Plan - Level 1



Border Force
Landside

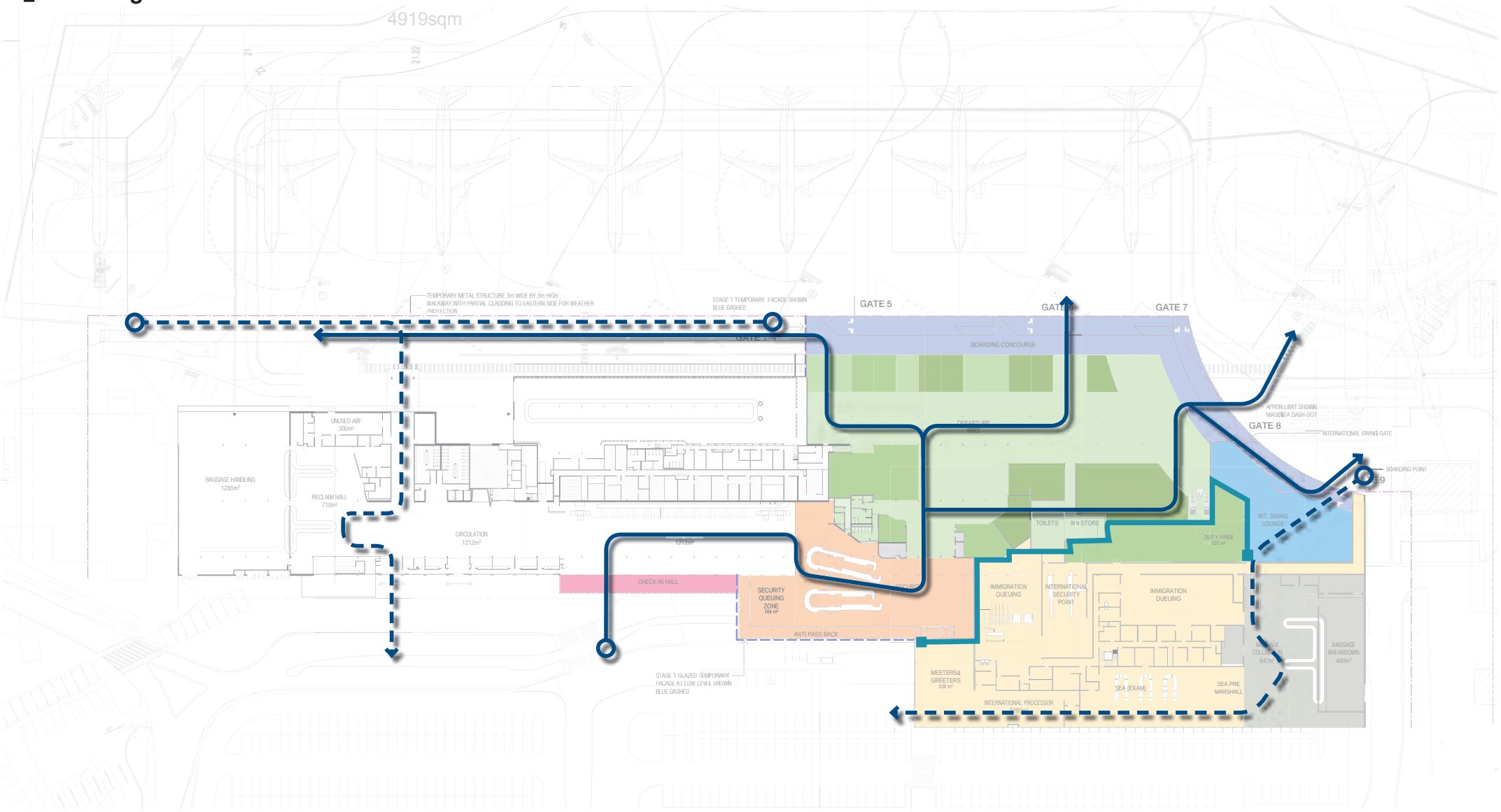
Airline Lounges
Domestic or International

AOCC
Landside

WOODS BAGOT

04 Passenger Flow

04 Stage 1
Passenger Flow



Departures Circulation *International*

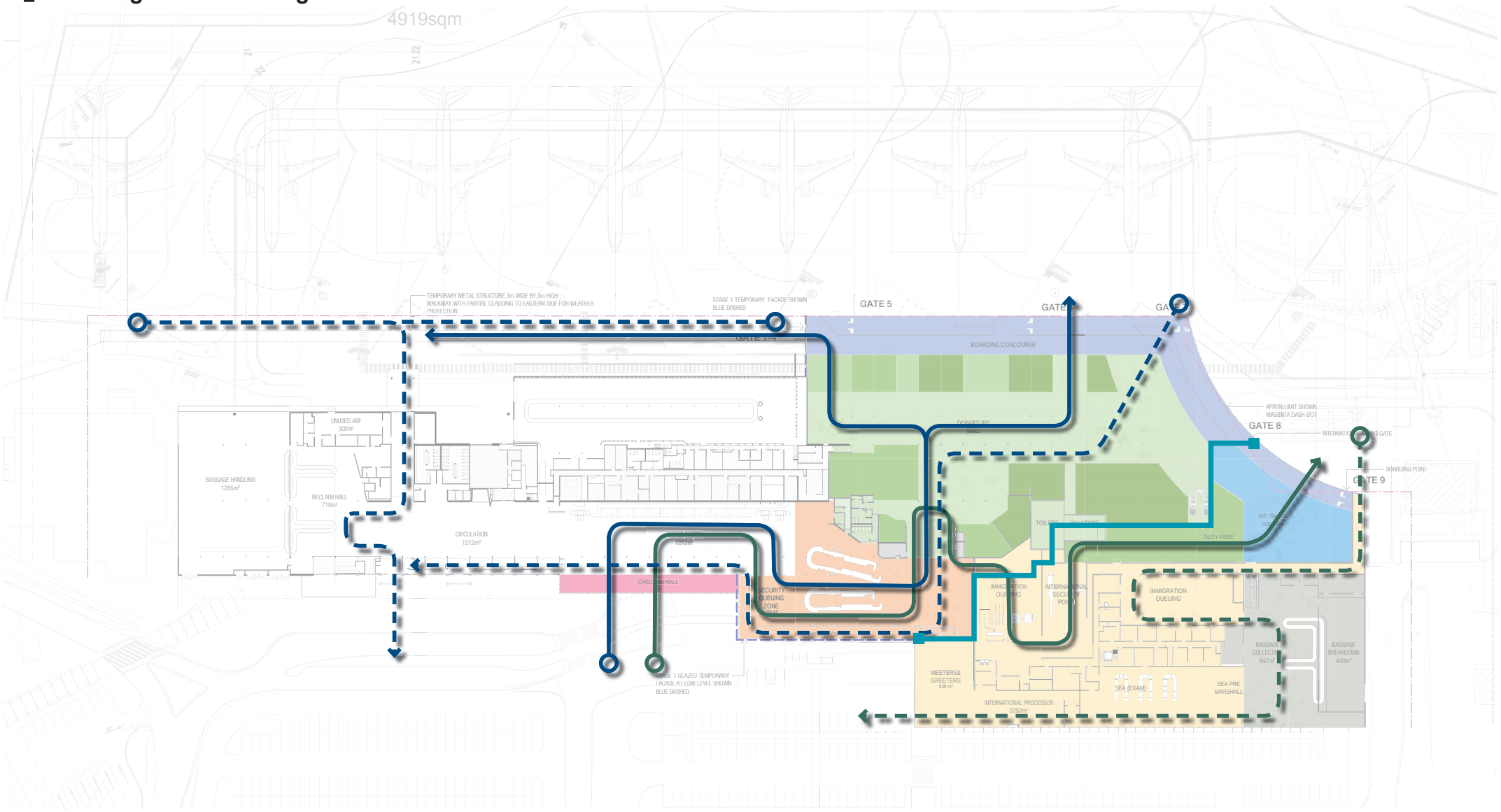
Arrivals Circulation *International*

Departures Circulation *Domestic*

Arrivals Circulation *Domestic*

Swing Lounge *International*

04 Stage 1
Passenger Flow - Swing Mode



Departures Circulation *International*

Arrivals Circulation *International*

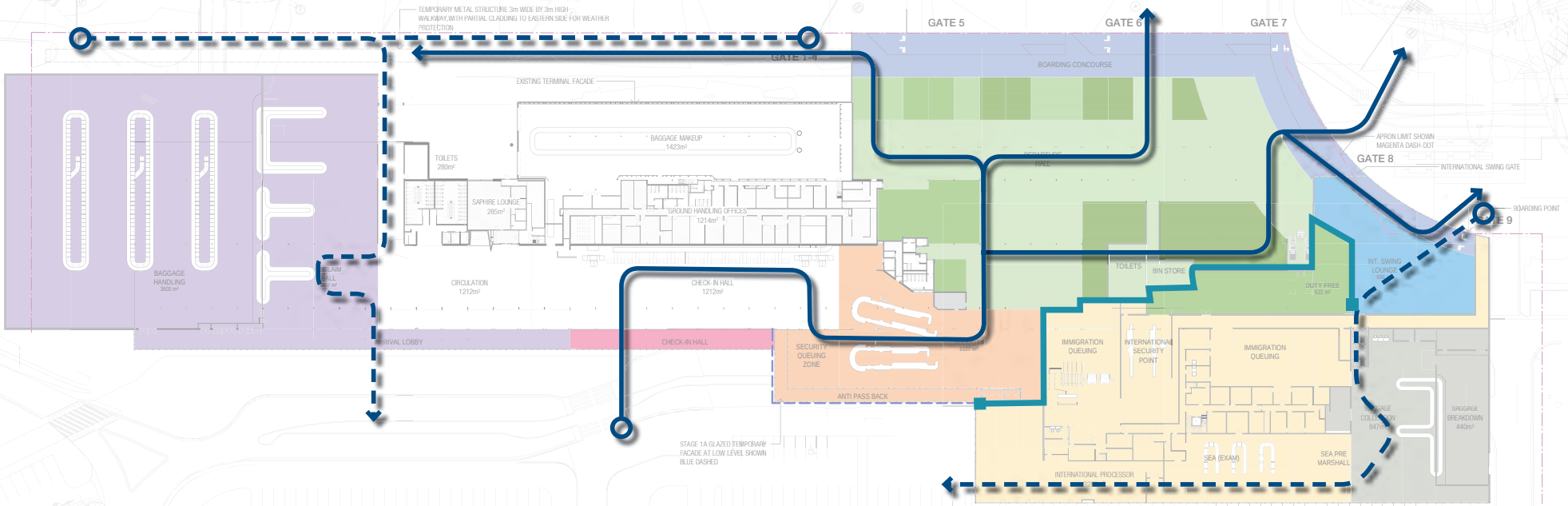
Departures Circulation *Domestic*

Arrivals Circulation *Domestic*

Swing Lounge *International*

WOODS BAGOT

04 Stage 2
Passenger Flow



Departures Circulation *International*

Arrivals Circulation *International*

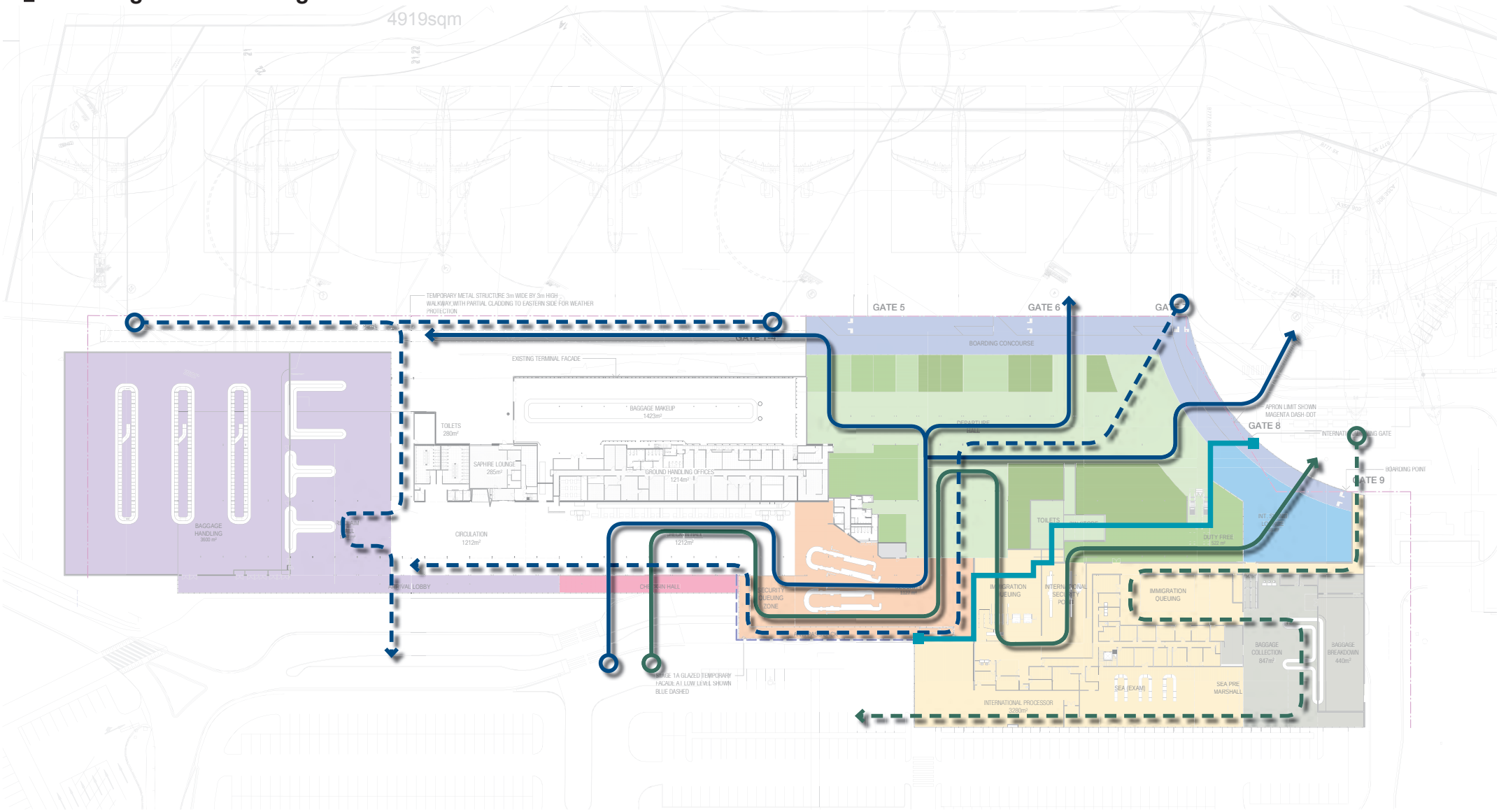
Departures Circulation *Domestic*

Arrivals Circulation *Domestic*

Swing Lounge *International*

WOODS BAGOT

04 Stage 2
Passenger Flow - Swing Mode



Departures Circulation *International*

Arrivals Circulation *International*

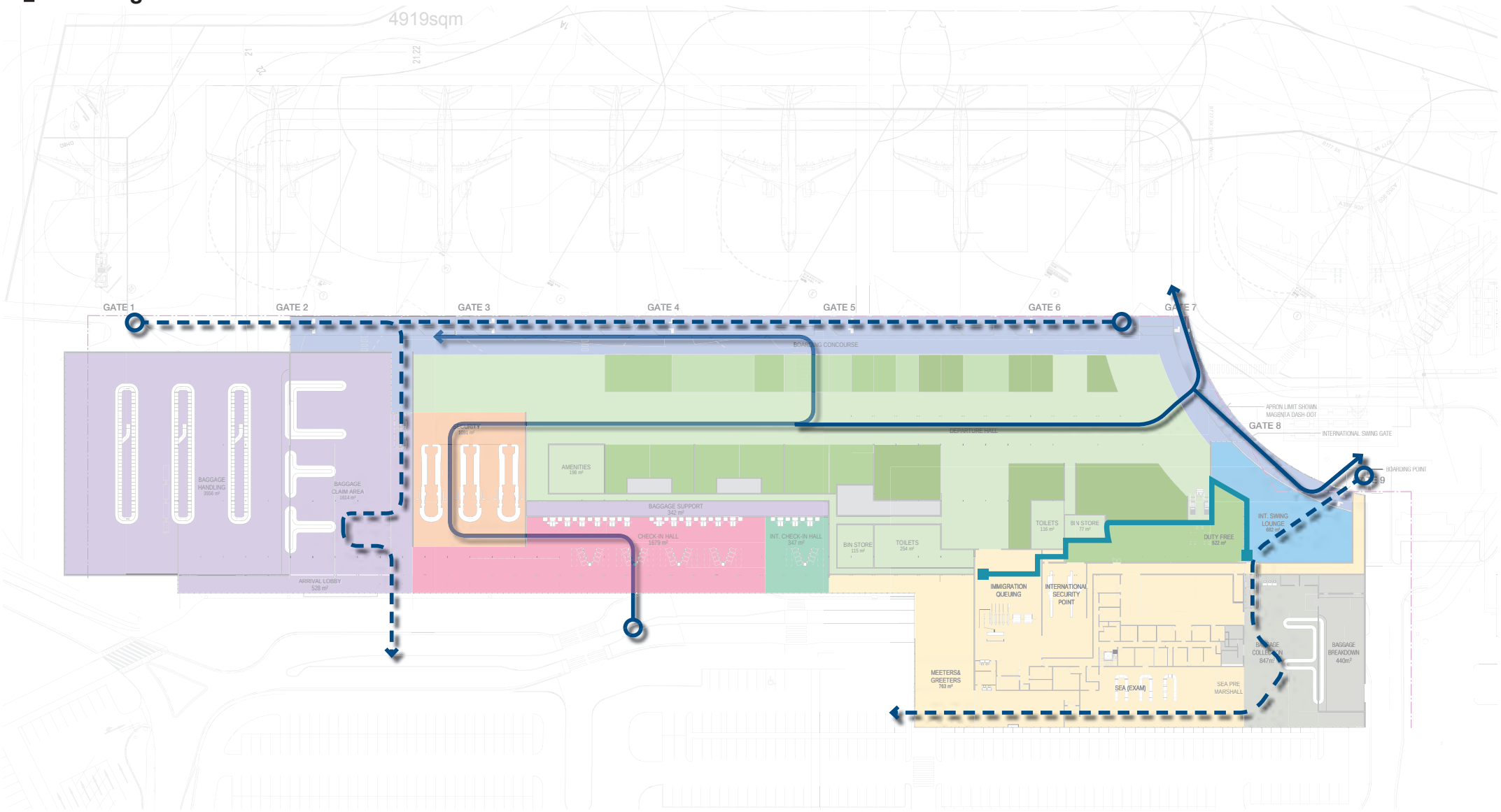
Departures Circulation *Domestic*

Arrivals Circulation *Domestic*

Swing Lounge *International*

WOODS BAGOT

04 Future Stage 3
Passenger Flow



Departures Circulation *International*

Arrivals Circulation *International*

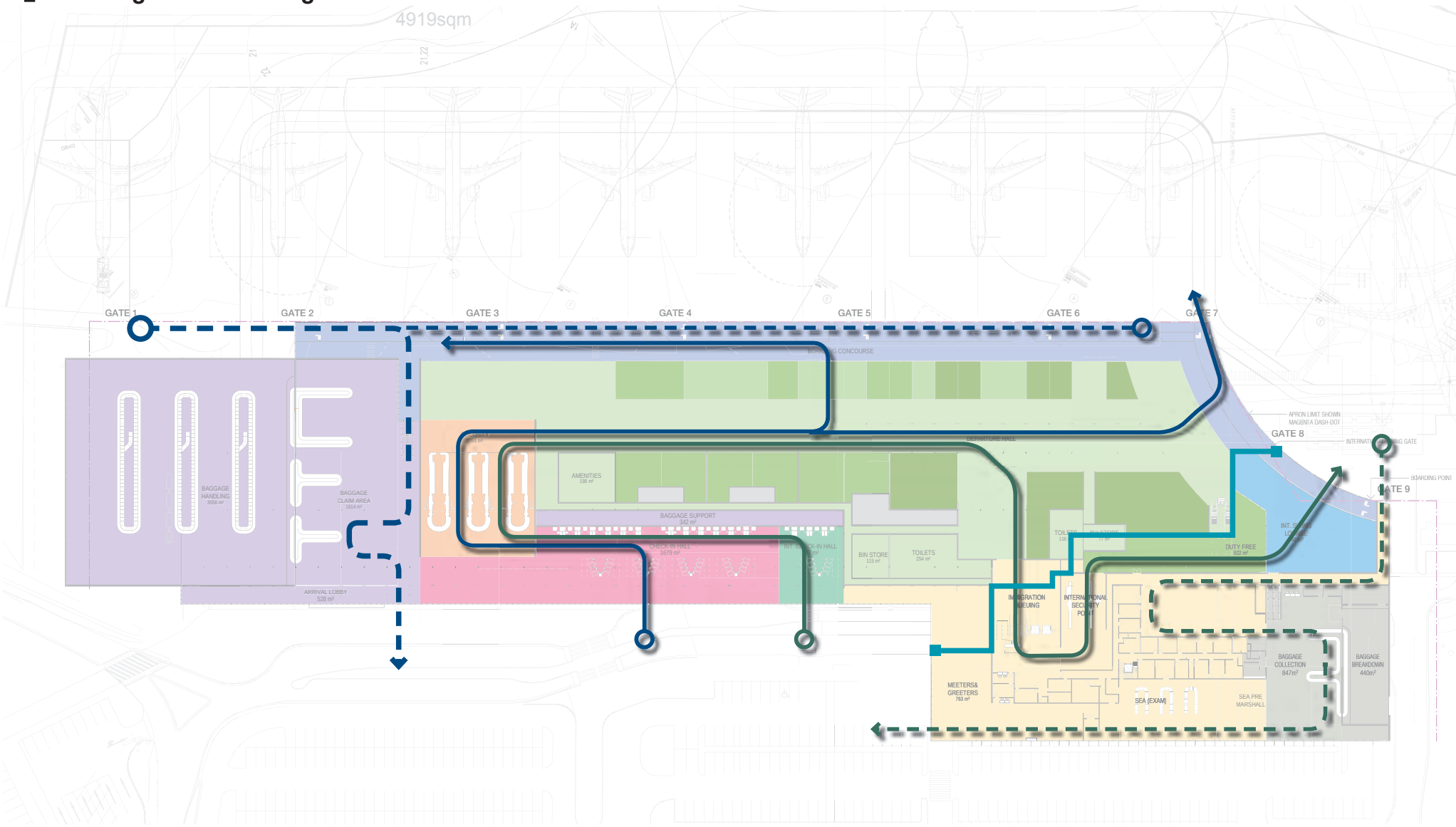
Departures Circulation *Domestic*

Arrivals Circulation *Domestic*

Swing Lounge *International*

WOODS BAGOT

04 Future Stage 3
Passenger Flow - Swing



Departures Circulation *International*

Arrivals Circulation *International*

Departures Circulation *Domestic*

Arrivals Circulation *Domestic*

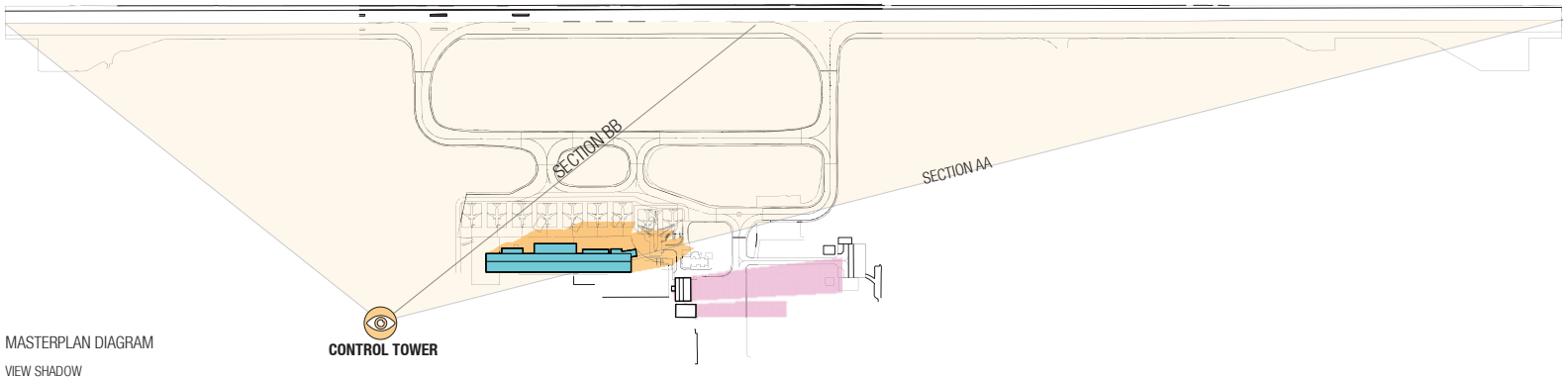
Swing Lounge *International*

WOODS BAGOT

05 Sightlines

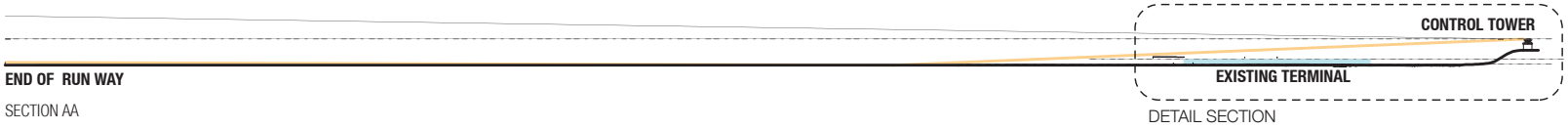
05 Sightlines
Existing Terminal +0m Above Ground

AIR TRAFFIC CONTROL TOWER VIEW DIAGRAMS



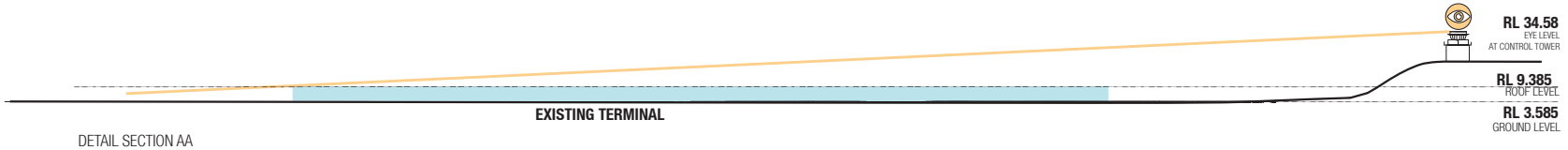
MASTERPLAN DIAGRAM

VIEW SHADOW
Caused by Terminal
Caused by Rotor Building



SECTION AA

DETAIL SECTION

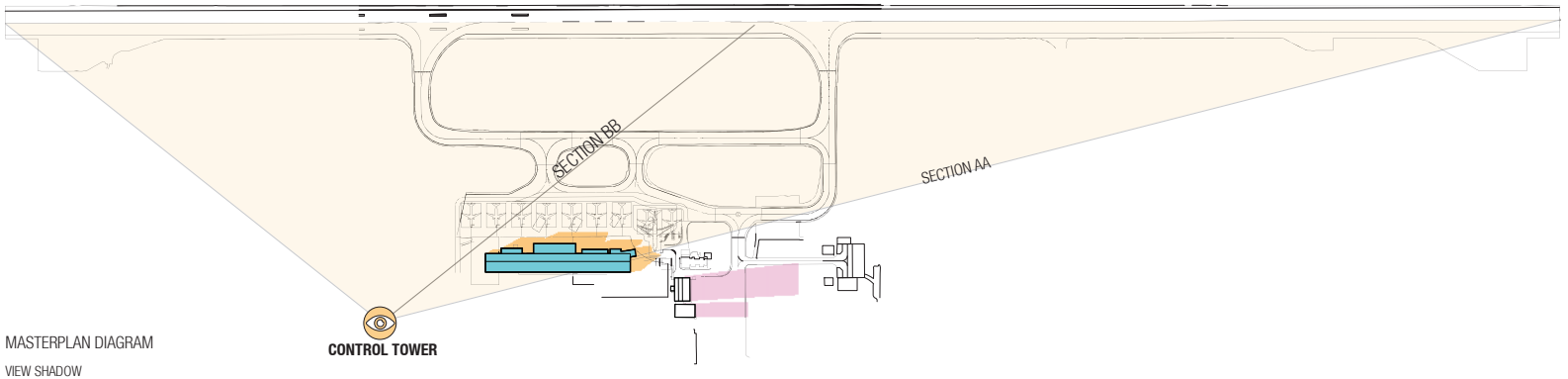


DETAIL SECTION AA

WOODS BAGOT

05 Sightlines
Existing Terminal +3m Above Ground

AIR TRAFFIC CONTROL TOWER
VIEW DIAGRAMS | 3m PLANE



MASTERPLAN DIAGRAM

VIEW SHADOW
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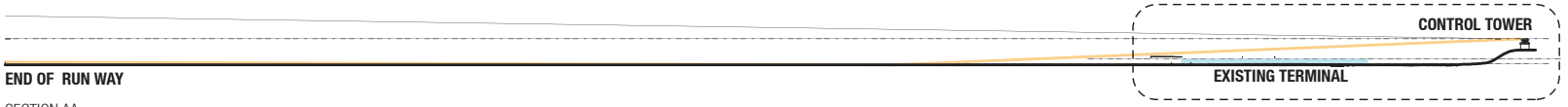
Caused by Rotor Building



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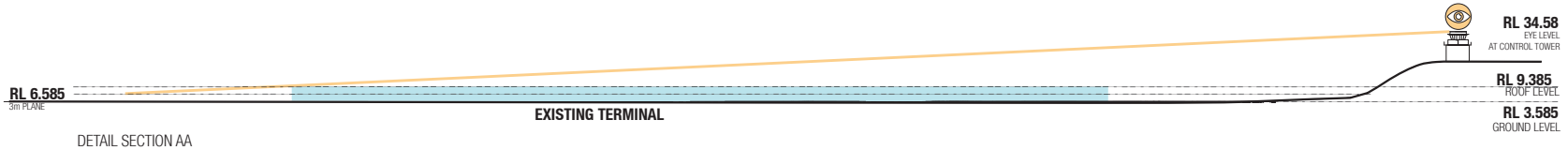
DETAIL SECTION

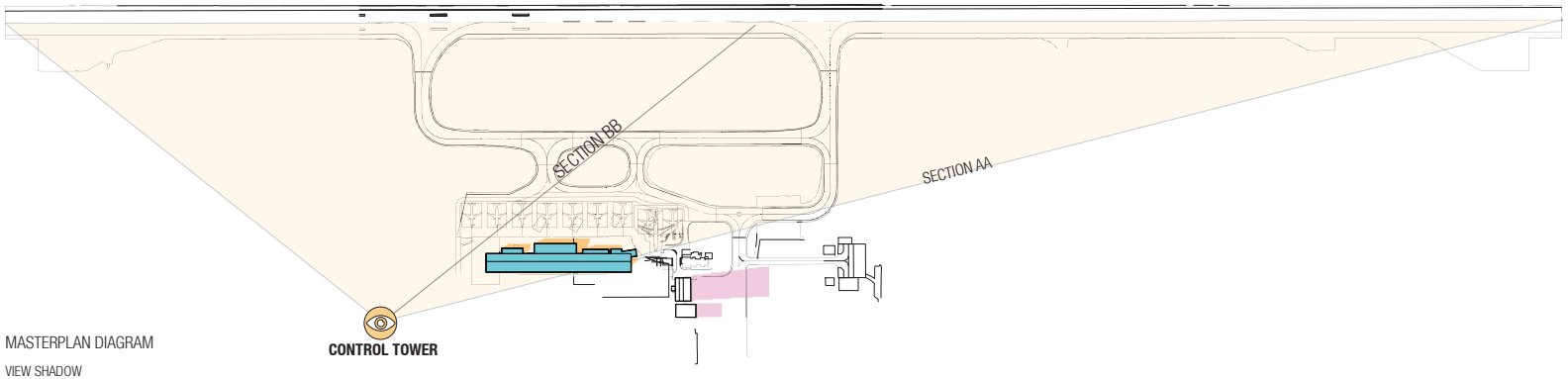


DETAIL SECTION AA

WOODS BAGOT

05 Sightlines
Existing Terminal +5m Above Ground

AIR TRAFFIC CONTROL TOWER
VIEW DIAGRAMS | 5m PLANE



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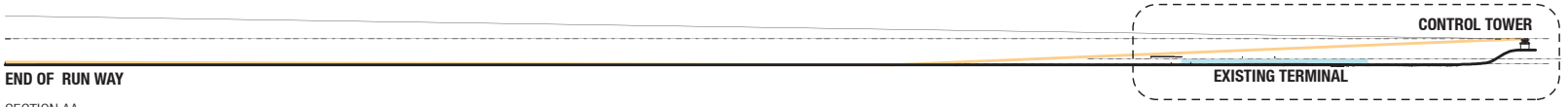
VIEW SHADOW
Caused by Terminal
Caused by Rotor Building



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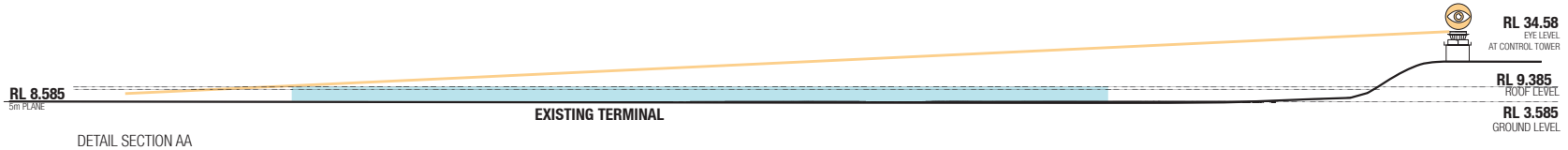
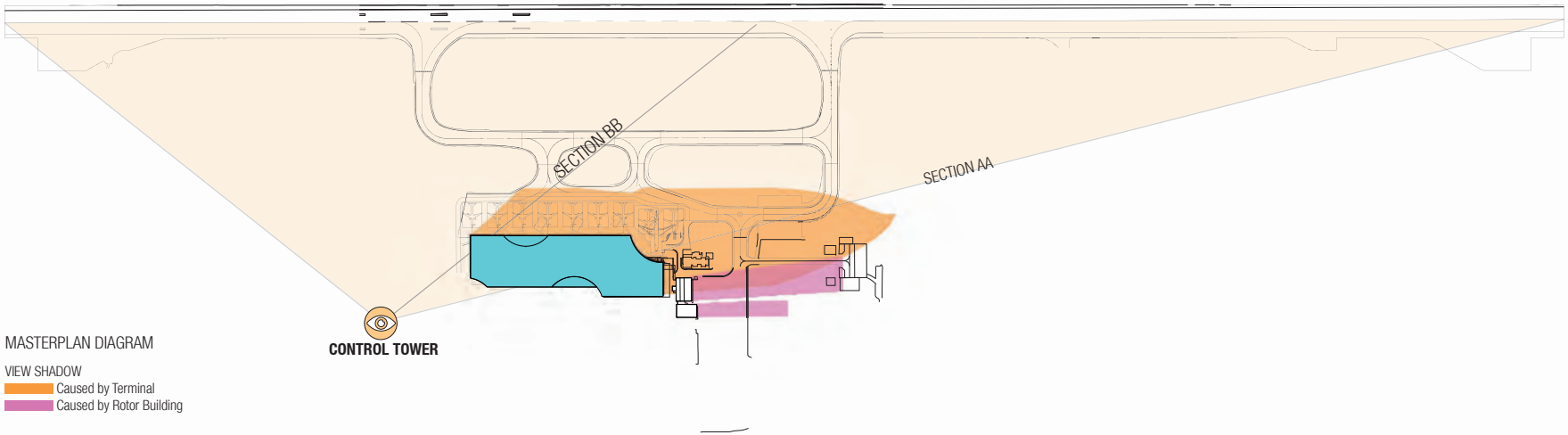
DETAIL SECTION



DETAIL SECTION AA

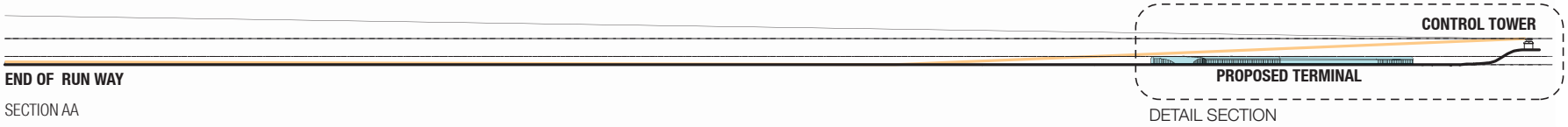
05 Sightlines
+0m Above Ground Level

AIR TRAFFIC CONTROL TOWER
VIEW DIAGRAMS | GROUND PLANE



MASTERPLAN DIAGRAM

VIEW SHADOW
Caused by Terminal
Caused by Rotor Building



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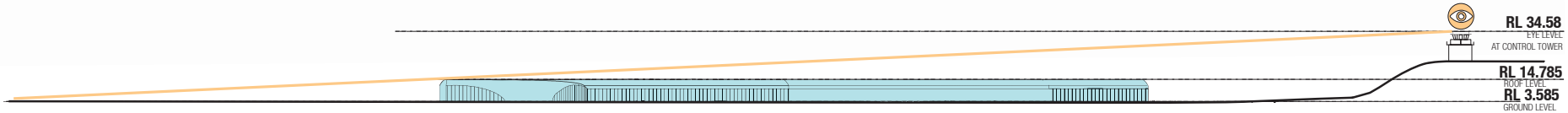
DETAIL SECTION

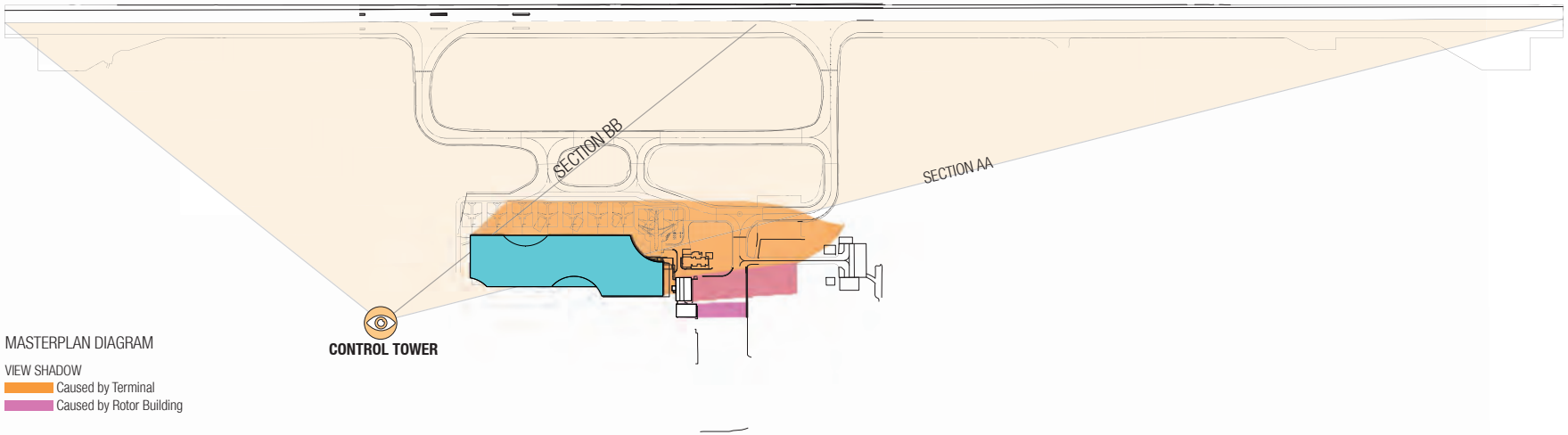


DETAIL SECTION AA

PROPOSED TERMINAL

05 Sightlines
+3m Above Ground Level

AIR TRAFFIC CONTROL TOWER
VIEW DIAGRAMS | 3m PLANE



MASTERPLAN DIAGRAM

VIEW SHADOW
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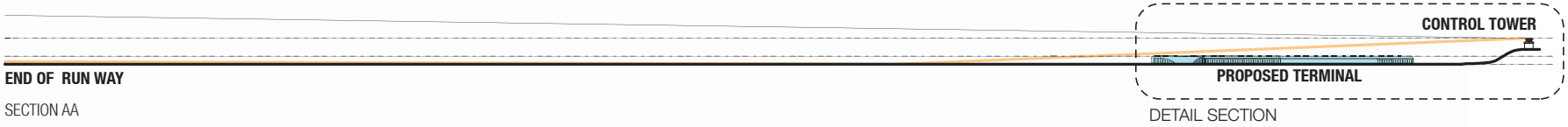
Caused by Rotor Building



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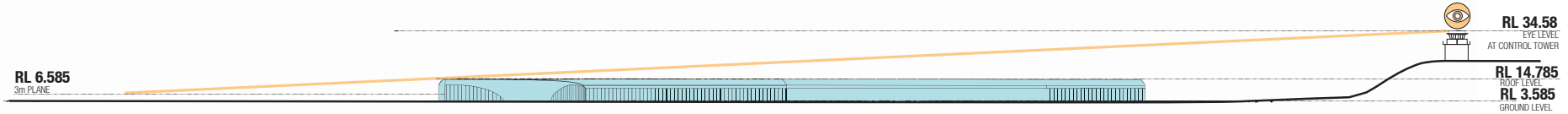
DETAIL SECTION

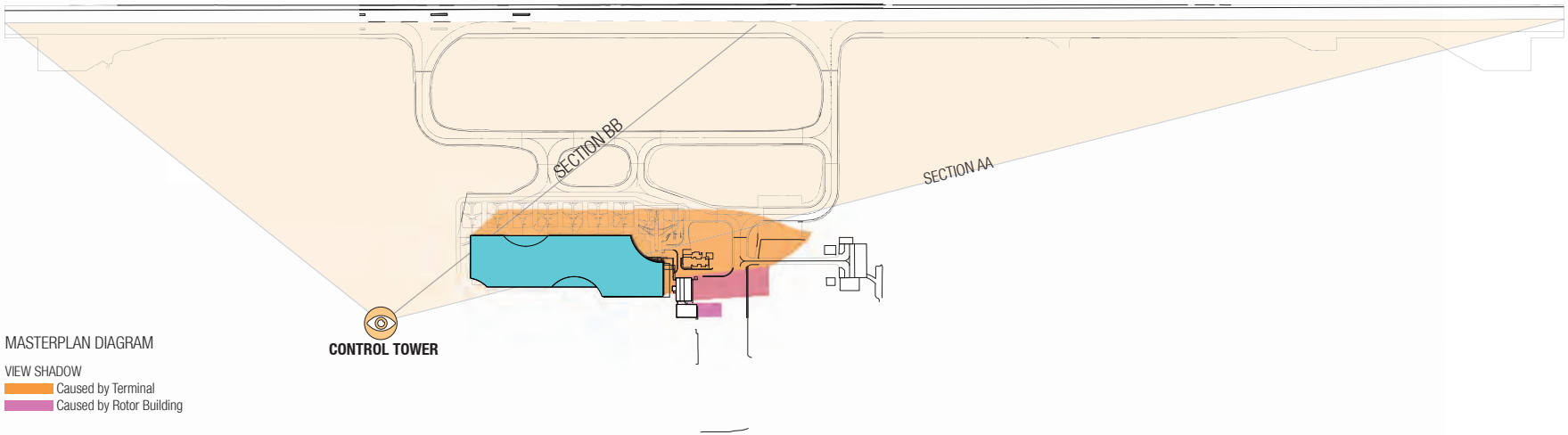


DETAIL SECTION AA

PROPOSED TERMINAL

05 Sightlines
+5m Above Ground Level

AIR TRAFFIC CONTROL TOWER
VIEW DIAGRAMS | 5m PLANE



MASTERPLAN DIAGRAM

VIEW SHADOW
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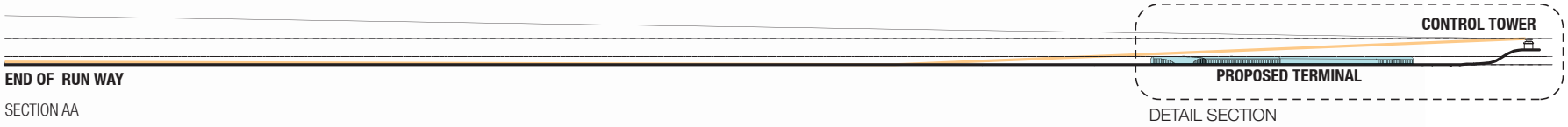
Caused by Rotor Building



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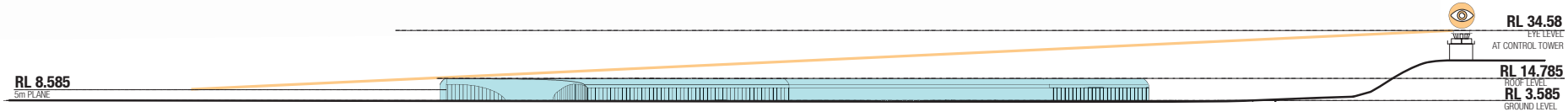
DETAIL SECTION



DETAIL SECTION AA

PROPOSED TERMINAL

06 Summary

06 Key Metrics Summary

DETAILS	QTY
EXISTING GFA	11 641m^2
STAGE 1 GFA	25 258m^2
STAGE 2 GFA	28 489m^2
FUTURE STAGE 3 GFA	31 059m^2
CHECK-IN COUNTER - STAGE 1	25
CHECK-IN COUNTER - STAGE 2	25
CHECK-IN COUNTER - STAGE 3	30
ARRIVAL / DEPARTURE GATES	9
OPERATING MODEL	AIRLINE SPECFIC

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Appendix B

Connecting Communities
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Hobart Airport
TASMANIA

Requirements	Section	Comment
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	1.2.2 & 3.0	Hobart Airport's objectives for the proposed developed are set out at Section 1.2.2 and further elaborated in Section 3.0
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	1.2	Section 1.2 outlines how the proposed development will meet the needs of users of the airport and will support the ongoing function of the airport.
c) a detailed outline of the development	3.0	A detailed description of the proposed development is detailed in Section 3.0.
ca) whether or not the development is consistent with the airport lease for the airport	4.1.1.2	The proposed development is consistent with the lease for the airport.
d) if a final master plan for the airport is in force--whether or not the development is consistent with the final master plan	4.3	The proposed development is consistent with the Master Plan 2015
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	4.1.3	The proposed development will have minimal effect on noise exposure levels at the airport.
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;	4.1.4 & 4.1.5 & 4.1.1.3	There will be minimal effect on flight paths as a result of the proposed development.
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	4.1.3 & 5.7	The ANEF contours with respect to the location of the proposed development are described under Section 4.1.3 & 5.7
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	1.4	Section 1.4 outlines the applicable approvals for the proposed development.
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	5.9	Section 5.9 details traffic impacts of the proposal.
(ii) employment levels at the airport	1.2 & 5.10	Section 5.10 outlines employment impacts.
(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	1.2 & 5.10 & 4.2	Section 5.10 outlines social and economic impacts of the proposal. Section 4.2 specifies how the proposed development fits with the State and local planning provisions and objectives.
h) the airport-lessee company's assessment of the environmental impacts that might reasonably be expected to be associated with the development	5.0	Parts of Section 5.0 provide an assessment of the environmental impacts of the proposed development.
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)	5.0	Section 5.0 outlines Hobart Airport's approach to mitigation and management of environmental effects.

Requirements	Section	Comment
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	N/A	The proposed development is not considered to be a sensitive development.
l) such other matters (if any) as are specified in the regulations		N/A
3) The regulations may provide that, in specifying a particular objective, assessment, outline or other matter covered by subsection (1), a major development plan, or a draft of such a plan, must address such things as are specified in the regulations. *Airports Regulations 1997* 5.04 For subsection 91(3) of the Act, a major development plan must address the obligations of the airport lessee company as sublessor under any sublease of the airport site concerned, and the rights of the sublessee under any such sublease, including: (a) any obligation that has passed to the relevant airport-lessee company under subsection 22 (2) of the Act or subsection 26(2) of the Transitional Act; or (b) any interest to which the relevant airport lease is subject under subsection 22(3) of the Act, or subsection 26(3) of the Transitional Act.	4.1.1.2	Section 4.1.2 describes that there are no known pre-existing interests and obligations that will be affected by the proposal.
4) In specifying a particular objective or proposal covered by paragraph (1)(a), (c) or (ga), a major development plan, or a draft of a major development plan, must address: (a) the extent (if any) of consistency with planning schemes in force under a law of the State in which the airport is located; and (b) if the major development plan is not consistent with those planning schemes – the justification for the inconsistencies.	4.2.8	Section 4.4.3 provides an assessment of the proposal against the *Clarence Interim Planning Scheme*.
6) In developing plans referred to in paragraph (l)(f), an airport-lessee company must have regard to *Australian Standard AS2021—1994* ("Acoustics—Aircraft noise intrusion—Building siting and construction") as in force or existing at that time.	4.1.3	Section 4.4.3 describes that the proposal will have regard to *Australian Standard AS2021-2015*.

Appendix C

Connecting Communities
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Environmental Policy

Hobart Airport is committed to the following environmental management principles:

- We recognise our responsibility to the Airport environment and actively manage this by integrating sustainability principles into our decision making, planning, design, development, service delivery and procurement processes.
- We minimise our environmental impact from operations by continuously improving the way in which we manage our environment. Through ongoing monitoring, we understand and strive to improve.
- We actively respond to climate change by managing our carbon emissions and work proactively to understand and reduce our carbon footprint.
- We will act sensitively and responsibly in dealing with matters of indigenous and heritage value;
- We will work responsibly to achieve compliance with relevant legislation and other standards pertaining to the environment;
- We will continuously improve our environmental management system;
- We are committed to engaging with our employees, business partners, regulators and our community on projects to ensure we balance both social and environmental needs as we grow and expand.

Sarah Renner
Chief Executive Officer
January 2019

Document Identifier:	Policy-045-Environmental Policy
Version:	1.0
Authoriser:	Gail Wilson
Publish Date:	January 2019
Last Reviewed:	

Appendix D

Connecting Communities
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PFAS Management Strategy and Implementation Plan

January 2019

Connecting Communities

Hobart Airport
TASMANIA

PFAS Management Strategy and Implementation Plan

Hobart Airport

January 2019

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Connecting Communities

Contents

1. Purpose

The Hobart Airport PFAS Management Strategy and Implementation Plan aims to document the approach to managing per- and poly-fluorinated alkyl substances (PFAS) and associated impacted land on airport. This document will identify the organisation responsible for management of PFAS contaminated areas, and any actions required, particularly associated with:

1. Proposed works or disturbance in known areas of PFAS contamination;
2. Identification of new PFAS contaminated areas as a result of works;
3. Data sharing from monitoring, reporting and evaluation; and
4. Remediation of PFAS impacted areas.

2. Scope

This management plan has been developed in accordance with the national program and guiding principles of the PFAS National Environmental Management Plan (NEMP) and the compliance requirements of the *Airports (Environment Protection) Regulations* 1997. It has been developed to assist Hobart Airport in meeting environmental and land management obligations and provide clear guidance on organisation roles and responsibilities. The PFAS NEMP has been endorsed by Heads of EPA (HEPA) and endorsed by the Department of Infrastructure, Regional Development and Cities (DIRDC), the governing Commonwealth agency for federally leased airports.

This management plan takes into consideration the controls, actions and commitments proposed within the *Hobart ARFFS PFAS Management Plan, Version A (Draft Final)*, effective 9 July 2018.

This management plan does not include Work, Health and Safety guidance recommendations or practices to reduce exposure risk from known or potentially PFAS impacted areas.

3. Background

Per- and poly-fluorinated alkyl substances (PFAS) are manufactured chemicals that have been used in a wide variety of substances and applications that include textiles and leather products, non-stick cookware, food and packaging, floor polishes, pesticides, water and stain repellents and some fire-fighting foams.

PFAS products resist physical, chemical and biological degradation, resulting in a persistent chemical that is very stable and therefore accumulates in the environment. Over time, these chemicals migrate into surrounding soils, groundwater and surface water. PFAS is both a national and international issue and subject to further research from industry and regulators, to better understand PFAS behavior in the environment and determine new ways in which to manage and remediate impacted sites.

Historically, Airservices Australia's Aviation Rescue and Fire Fighting (ARFF) used PFAS containing foams for training and isolated events. Airservices was established in 1995 and all firefighting foams containing PFAS was phased out at Hobart Airport in 2010 as Airservices transitioned to a PFAS-free

firefighting foam called Solberg Rehealing Foam, RF6) for operational responses only. All ARFF training continues using water only. Training areas are not the only sites impacted by PFAS foams at Hobart Airport. Infrastructure that provides ingress and egress from known contaminated areas is also impacted as water and soil are moved around the site.

Hobart Airport is aware of the PFAS impacted sites on airport land and manages sites in accordance with the guidance provided by the PFAS NEMP (2018). Hobart Airport liaises with Airservices Australia on projects and monitoring outcomes that relate to PFAS management and remediation, sharing data and new information to facilitate our understanding of PFAS impacted areas on airport.

4. Strategy

4.1 Aim

To understand the extent of PFAS related impacts at Hobart Airport and to work collaboratively with responsible agencies to mitigate further impacts and to support the remediation of PFAS contaminated sites. To draw on the knowledge gained from research outcomes to influence the management and remediation of PFAS impacted sites for the betterment of the environment and surrounding community.

4.2 Site Assessment

Airservices Australia has accurate and up to date information on sites where PFAS containing foams were used for historical training purposes and where isolated incidents required foam application. These sites were identified and made known to Hobart Airport in 2010 by Airservices. A site map highlighting these areas is illustrated in Figure 1.

Figure 1Known PFAS Contaminated Areas

The Commonwealth DIRDC has approved the following approach when assessing projects for PFAS contamination risk:

- A risk assessment will be undertaken on the site of proposed works and historical information on sites of AFFF use will be reviewed. If the site has a **high** risk of PFC contamination in soil and/or groundwater, then the site is in a known area where PFC foams have been used. As such, further investigations will be undertaken to determine whether levels are compliant with the criteria for investigation as defined in the PFAS NEMP (2018).
- If the site has a **moderate** risk of PFC contamination in soil and/or groundwater, then the site is in an area downgradient or adjacent to where PFC foams have been used. As such, further investigations will be undertaken to determine whether levels are compliant with the criteria for investigation as defined in the PFAS NEMP (2018).
- If the site has a **low** risk of PFC contamination in soil and/or groundwater, then the site is not within an area where PFC foams have been used. As such, no further investigations are required for compliance purposes.

The results of the risk assessment are to be communicated to the Airport Building Controller (ABC) on application for project development.

Analytical testing in High and Moderate PFAS risk areas is to be undertaken in accordance with the PFAS NEMP (2018). All samples are to be collected by qualified personnel and submitted to a NATA accredited laboratory for analysis.

4.3 Communication and Engagement

In the interest of understanding the extent and nature of PFAS contamination at Hobart Airport, analytical data is shared between the Airport and Airservices. The Commonwealth appointed Airport Environment Officer (AEO) and the HBA Executive General Manager People, Culture & Environment are included in the distribution of results.

On occasions, the EPA Tasmania may request analytical data from PFAS testing for internal purposes.

4.4 Responsibilities

It is the responsibility of the HBA Environment Manager to manage the analytical data and communication between Airservices and the AEO, in relation to the management of PFAS contaminated sites at Hobart Airport.

All external communication with stakeholders and the wider public is coordinated through the HBA Marketing and Public Affairs team.

4.5 Monitoring

Monitoring of PFAS sites may be undertaken by Hobart Airport or Airservices depending on the nature and location of the project. All monitoring undertaken by Hobart Airport will be in accordance with the PFAS NEMP (2018). The PFAS NEMP can be viewed at https://www.epa.vic.gov.au/your-environment/land-and-groundwater/pfas-in-victoria/pfas-national-environmental-management-plan

All monitoring undertaken by Airservices Australia will be undertaken in accordance with the Hobart ARFFS PFAS Management Plan, Version A (Draft Final), effective 9 July 2018. The ARFFS PFAS Management Plan is provided as Appendix A.

4.6 Reporting

All reports prepared by Hobart Airport, or prepared by consultants on behalf of Hobart Airport are to be provided to the Commonwealth appointed AEO. All reports prepared by Airservices are to be provided to Hobart Airport for review, prior to finalising, and when complete, provided to the AEO.

5. Implementation

5.1 Project Inception

The project inception stage is the critical stage where information on PFAS contamination and the risk of encountering PFAS contaminated material can be highlighted. The HIAPL Environment Manager can provide this information to the Project Delivery team during the planning phases.

5.2 Project Planning

If PFAS contaminated material will be encountered on a project, the following checklist applies to ensure the material is stored and managed in accordance with accepted guidelines.

Project Activity	Action
PFAS Material encountered	If not known previously, ensure this site is registered on the HBA contaminated sites register. All known PFAS contaminated sites are included on the register. X:\Environment\Contaminated Sites\Registers\Contaminated Sites Register_Feb_2017.xlsx
PFAS Material to be managed in situ	Ensure contractors include soil/water management in CEMP. Regular investigations by HBA Project Manager and Environment Manager to ensure no migration of contaminants or cross-contamination with PFAS free soil.
PFAS Material to be removed from site	Ensure a permit is obtained from EPA Tasmania and agreement is sought with the Copping landfill facility prior to removal.
PFAS Material is to be transferred within the Hobart Airport site	Ensure the material to be transferred between sites has been tested for PFAS concentrations. If the receiving site is not a known PFAS contaminated site, then testing will also be required to ensure no cross contamination occurs.
Project works intercept contaminated groundwater	Ensure any PFAS contaminated groundwater is contained during the dewatering phase and stored or treated in accordance with the PFAS NEMP (2018).

5.3 Guiding Documents

While there is no current legislation on PFAS management in Australia, there are guidance documents and supporting legislation that facilitates the effective management of PFAS impacted sites. These are listed below:

1. PFAS National Environmental Management Plan (NEMP), January 2018;
2. *National Framework for Responding to PFAS Contamination* (the Agreement) which includes the above NEMP;
3. *Airport (Environment Protection) Regulations* 1994;
4. Hobart ARFFS PFAS Management Plan, Draft Final, July 2018;
5. PFAS Action Plan for Tasmania, October 2018;
6. *Environmental Management and Pollution Control Act (EMPCA)*, 1994.
7. Hobart Airport CEMP Guidelines.

6. Measurement and Evaluation

The measurement and evaluation of PFAS Management at Hobart Airport is undertaken via several avenues. These include:

- Specific project Environmental Management Plans (EMPs);
- Monitoring reports;
- Annual Environmental Reporting.

7. Review

This Strategy and Implementation Plan will be reviewed annually and updated as required. All revised management plans and updated documentation and legislation will be incorporated as part of the review process.

Appendix A - ARFFS PFAS Management Plan (Draft)

Hobart ARFFS

PFAS Management Plan

HB ARFFS PMP

Version A (Draft Final)

Effective 9 July 2018

Prepared:	Craig Barnes Senior Environment Specialist, ARFFS
Authorised:	Jenny Holmesby A/g Customer value and Business Performance Manager, ARFFS

Draft Final

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Change summary

Version	Date	Change description
A	9 July 2018	Draft Final

This document was created using Generic Document Template C-TEMP0047 Version 8.

Table of contents

Draft Final

1 Purpose

The purpose of this PFAS Management Plan (**PMP**) is to outline the site-based environmental management requirements for Airservices Australia (**Airservices**) which relate specifically to per- and poly-fluorinated alkyl substance (**PFAS**) contamination and other known contamination resulting from the provision of the Aviation Rescue and Firefighting (**ARFF**) service at Hobart Airport. This includes:

1) outlining monitoring activities to ascertain the ongoing status of the impacted site(s), determine changes in the existing situation, and to assess whether natural attenuation is occurring;
2) outlining mitigation measures that are to be implemented in an attempt to lessen the impact related to existing site contamination resulting from Airservices ARFFS[1] activities; and
3) establishing management practices for non-routine activities such as on-site construction in order to prevent impacts to soil and water not already impacted.

Airservices follows a risk and evidence based approach to the management of PFAS impact. This PMP is a tool for the identification of site based risks and Airservices planned responses in the form of management actions to appropriately manage the risk associated with its operations at the airport.

2 Scope

This PMP, referred to in this PMP as the HB ARFFS PMP, has been developed to assist in meeting Airservices' environmental and site management obligations associated with PFAS and other ARFFS activity-related contamination at Hobart Airport. As such, this PMP identifies actions to appropriately manage identified contamination and activities undertaken on impacted sites. Specific actions have been identified to give effect to this PMP which can be found in the attached Appendices. For the purpose of this PMP the definition of 'site' is taken to be the ARFFS leased area(s), unless otherwise specified.

Outside the scope of the HB ARFFS PMP, Airservices has developed Work, Health and Safety (**WHS**) guidance to support the management of WHS exposures to PFASs at known or potentially impacted sites and local procedures (see section 3.1).

The PMP has been developed in accordance with the national program of management under the auspices of the PFAS Management Program Plan (**PFAS Plan**) endorsed by the Airservices Executive and Board. Integration of this PMP with initiatives under the PFAS Plan is an important consideration and may be a controlling influence in the delivery of certain actions under the HB ARFFS PMP.

3 Background

ARFF services have been provided by the Commonwealth at a number of major Australian airports, including Hobart Airport, since their opening in the 1950s. Airservices was established in 1995 and has provided the ARFF services since this time.

[1] ARFFS is the acronym of the Airservices business group (in full, Aviation Rescue Fire Fighting Services) that provides airports with the aviation rescue and firefighting (ARFF) service.

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The provision of ARFF services and the use of fire fighting equipment and fire suppressants, including the use of ICAO Class B rated foams for extinguishing aviation fuel fires, is a regulatory requirement of the Civil Aviation Safety Authority (**CASA**), as is training for their use by fire fighting personnel. Historically, the fire fighting foams used by ARFFS and their predecessors were Aqueous Film Forming Foams (**AFFF**) such as 3M LightWater™ and Ansulite™ which contained PFAS, fluorosurfactant chemicals now known to be environmentally persistent but at the time of use considered to be environmentally benign. Most notably, this included the PFAS species perfluorooctane sulfonate (**PFOS**) and perfluorooctanoic acid (**PFOA**).

ARFFS personnel used 3M Lightwater™ for operations and in training from 1995 until 2001-2003 at which time it was replaced with Ansulite™. During 2010, ARFFS transitioned to a PFAS-freefoam (Solberg Rehealing Foam, RF6) for operational responses. In addition, no foam is used during routine training (only water is used) and Solberg RF6 is only released at the training ground for vehicle maintenance or for minimal foam behaviour training in accordance with CASA requirements.

At Hobart Airport, the main ARFF facilities include a main fire station (**MFS**) and the current fire training ground (**CFTG**). The MFS is located in the central west portion of the airport near the airport buildings, and the CFTG is located in the south eastern portion of the airport (Figure 1).

In 2016, Airservices commissioned a Preliminary Site Investigation and Sampling Investigation[2] which identified the historical use of PFAS containing foam in the area of the MFS and CFTG, as well as other areas on airport including the grassed area south of the MFS and in the vicinity of a Navigational Aid building and the Control Tower.

Varying concentrations of residual PFAS and hydrocarbons have been found in soil and water (ground and surface) at and very near the ARFFS sites.

Although not confirmed in the analytical testing, it is possible that concrete infrastructure at the ARFFS sites has also been impregnated with leachable concentrations of PFASs given similar observations at other airport locations.

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[2] Hobart Airport – Aviation Rescue Fire Fighting Services Preliminary Site Investigation, Sampling Report. Report prepared by SEMF Pty Ltd for Airservices Australia dated April 2017 reference 2105.022

Figure 1: ARFFS sites at Hobart Airport

3.1 Work Health and Safety on a PFAS impacted site

Airservices current guidance in relation to Hazardous Chemicals (AA-PROC-SAF-0015) advises that, in addition to following good hygiene practices (i.e. washing hands before eating, etc.), when working on a PFAS-impacted site only the proper use of general personal protective equipment (**PPE**) such as gloves and possibly dust masks is necessary beyond normal requirements for working outdoors on a construction site (e.g. long sleeved shirts, etc.). This guidance is based on a Human Health Risk Assessment (**HHRA**) conducted by the University of Queensland for Airservices to assess the risks to intrusive construction workers on PFAS contaminated sites, which are considered to be the workers likely to be most at risk of exposure to PFAS through working conditions. Based on the findings of the HHRA, ARFFS' standard operating procedures and health and safety requirements adequately address daily operational activities. The HHRA also concluded that general operations conducted by ARFFS personnel at the ARFFS sites do not require additional management measures in relation to in-situ PFAS impacts.

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4 ARFFS Sites and Operations

4.1 Description of ARFFS Facilities

All of the ARFFS facilities at Hobart Airport are located airside (Figure 1).

Airservices has leases for the use of the MFS and CFTG until 2034.

The MFS is located south of the main Hobart International Airport (HIA) terminal and approximately 520 metres north east of the Tasmania Golf Course. The MFS comprises a single-storey main administrative building and garage with an associated vehicle wash down bay and above ground bunded fuel storage area located to the south and west respectively (see Figure 2). The MFS is surrounded by grass and open surface water drainage channels directly to the north, east and west.

Figure 2 HB ARFFS Main Fire Station.

The CFTG is located in the eastern portion of the airport and includes a large mock-up (LMU) plane located on a concrete pad with associated separator, wastewater storage tanks and collection ponds located to the east.

A 2.2kL bunded above ground storage tank (**AST**) containing the kerosene is located to the south west of the LMU. Distribution lines from this AST run underground to a fuel manifold and from there to the LMU for release out of the mock engines (Figure 3).

Residual unburnt kerosene in the associated fire fighting runoff from the concrete pad is collected in an interceptor system and stored in a former waste oil AST located adjacent to the CFTG separator, with the associated wastewater discharged to the on-site catchment pond.

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Figure 3: HB ARFFS Current Fire Training Ground.

4.2 History of ARFF Activities

Firefighting services have been present since commencement of the airport. The MFS was opened in 1956, concurrently with the Airport. The MFS is currently operated by Airservices and facilitates ARFFS primary responsibility of firefighting and rescue operations.

Airservices leases for the MFS and the CFTG commenced on 6 July 1995 and is scheduled to expire on 30 June 2034.

In order to facilitate operations, fuel is stored at the MFS. Historically, some of this storage was in underground storage tanks (**UST**), including a 1.5kL kerosene tank and an unknown volume of diesel fuel. Both UST were removed from the site in 2000 and replaced with a 6kL diesel AST located approximately 6 m southeast of the former tank pit but utilising the existing underground dispensing lines and bowser. The bowser was originally remote from the AST and consequently the supply pipework extended underground. Stock reconciliation of the product throughput indicated that approximately 1kL of diesel was lost in early 2006 via failure of the underground section of pipework (SEMF, 2017).

A former fire training ground (**FFTG**) was located to the south west of the MFS and operated until its' decommissioning in the 1970s and replacement with the existing CFTG. As such, PFAS containing foam is unlikely to have been used at this site.

ARFFS undertakes live fire training at the CFTG which includes the lighting of kerosene fires on the LMU approximately every second day. Until January 2010, AFFF was applied during training exercises through the water cannons mounted on ARFFS fire trucks. After 2010, ARFFS ceased carrying AFFF and training practices at the CFTG changed to employing only water from new trucks and hoses. Although the CFTG is designed to capture wastewater and direct it to storage via the treatment

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system, overthrow and “spray” has also resulted in PFAS impacts to the surrounds of the CFTG concrete pad.

Previous reports (SEMF 2017) have indicated that prior to installation of the concrete training pad, kerosene and unleaded petrol was dispersed directly onto the ground for training exercises. There is anecdotal evidence that the site was remediated prior to upgrading of the site (SEMF 2017).

5 Controls and Actions

Table 1 outlines the Management Actions (control measures) established under the HB ARFFS PMP to address:

- The existing risks associated with the contamination arising from the ARFFS’ legacy use of AFFF.
- Any changes to the existing risk profile associated with the ARFFS’ legacy use of AFFF as a result of construction activities on-site or near to the site, whether undertaken by Airservices or Hobart International Airport Pty Limited (HIAPL).

Detailed descriptions for each Action can be found in the nominated Appendices.

Table 1

	Control Measure	**Action**	**Appendix**
A	Groundwater Management	Develop and implement a Groundwater Monitoring Plan	A.1
		Implement an Extraction Exclusion Zone	A.2
		Assess treatment or remediation options for impacted groundwater	A.3
B	Surface Water Management	Develop and implement a Surface Water Monitoring Plan	B.1
		Prevent mobilisation of impacted sediment	B.2
		Assess treatment or remediation options for impacted surface runoff (stormwater)	B.3
C	Impacted Infrastructure Management	*Investigate options for managing impacted concrete*	C.1
		Review and assess wastewater management, including trade waste	C.2
D	Impacted Site Management	*Investigate options for managing and/or remediating the contaminated site*	D
E	Construction Activity Management	Excavation management	E.1
		Stockpile management	E.2

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		Dewatering management	E.3

Italicised entries in Table 1 are research and development (R&D) activities that may lead to further separate Actions.

To support sustainability efforts and to minimise cost implications, where reasonably possible, Airservices will undertake Actions concurrently. All Actions in the HB ARFFS PMP are subject to cost benefit analysis and risk assessment by Airservices to determine the scale of the task to be undertaken.

The requirements and extent of management Actions related to construction activities are informed by an Airservices guidance document ENV-GUIDE-0013 – *Managing PFC Contamination at Airports; Interim Contamination Management Strategy and Decision Framework*, (original document dated June 2015). This document was developed in conjunction with the Commonwealth Department of Infrastructure, Regional Development and Cities (**DIRDC**)[3] and provides guidance on the management of contaminated spoil and wastewater generated from capital and operational related projects, and approaches to groundwater management and monitoring. This guide and/or any subsequent version or regulatory requirements will be used to facilitate the development of future Actions and discussions with HIAPL and Department of the Environment and Energy on PFAS management in general.

6 Compliance and Assurance

Compliance with the HB ARFFS PMP will be verified as part of regular assurance assessments completed by the ARFFS. The Executive General Manager (**EGM**) ARFFS is accountable for leading the development and implementation of the PFAS Plan.

Any ad hoc issues or matters requiring governance attention that arise during implementation of the HB ARFFS PMP and its subsidiary Actions and plans are to be raised to ARFFS Environment (PFAS) Program Manager.

7 PMP Review and Update

The HB ARFFS PMP will be reviewed within twelve months of its commencement to ensure that it adequately addresses the identified issues and the activities being undertaken. Follow up reviews will take place every 2 years after that or following the provision of additional site information that may change the site risk profile. HIAPL will be provided opportunity to provide input as part of these reviews.

The original PMP and any updated versions will be provided to HIAPL.

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[3] Adopted as the General Environmental Management Guide – GEM 002 by DIRDC.

8 Definitions

Within this document, the following definitions apply:

Term	Definition
AEO	Airport Environment Officer
AEPR	*Airport (Environment Protection) Regulations 1997*
AFFF	Aqueous Film Forming Foam
ARFF	Aviation Rescue and Fire Fighting
ARFFS	Aviation Rescue and Fire Fighting Service (Airservices Business Group Name)
AST	Aboveground Storage Tank
CASA	Civil Aviation Safety Authority
CEO	Chief Executive Officer
CPS	Coalescing Plate Separator
DCP	Dry Chemical Powder
EMP	Environmental Management Plan
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FTG	Fire Training Ground
FFTG	Former Fire Training Ground
GWMP	Groundwater Management Plan
GME	Groundwater Monitoring Event
HIAPL	Hobart International Airport Pty Limited
LMU	Large Mock Up
MFS	Main Fire Station
MSDS	Material Safety Data Sheets
PFAS	Per- and poly- fluorinated alkyl substances, which include perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA)
PMP	PFAS Management Plan
SWMP	Surface Water Management Plan
SWME	Surface Water Monitoring Event
TWA	Trade Waste Agreement
UST	Underground Storage Tank

9 References

Airservices documents:

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Title	Number
Managing PFC Contamination at Airports; Interim Contamination Management Strategy and Decision Framework. Revision No. 1: 15 June 2015.	ENV-GUIDE-0013
Hazardous Chemicals, Appendix B	AA-PROC-SAF-0015

Other bibliographical references:

AEPR, 1997. *Airports (Environment Protection) Regulations 1997*. (Australia) No. 13 Regulations as amended, taking into account amendments up to *Airports (Environment Protection) Amendment Regulation 2012 (No. 1)*

Airports Act 1996. (Australia) No.42 as amended, taking into account amendments up to Statute Law Revision Act 2012.

ANZECC, 2000. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, National Water Quality Management Strategy, Paper No. 4, October 2000. In addition, the draft ANZECC water quality guidelines for PFOS and PFOA as outlined in the PFAS NEMP.

SEMF Pty Ltd 2017 *Hobart Airport – Aviation Rescue Fire Fighting Services Preliminary Site Investigation* prepared for Airservices Australia dated June 2017 reference 2105.022

PFAS NEMP, 2018. PFAS National Environmental Management Plan (NEMP), Heads of EPAs Australia and New Zealand (HEPA).

DoH 2017: Health Based Guidance Values for PFAS, Department of Health (Commonwealth).

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Appendix A Groundwater Management

This control measure is to:

Obtain and maintain knowledge of each Site's risk profile by identifying and monitoring any changes to the geometry and magnitude of the contaminant plume(s) at the current fire training ground and the main fire station.

The MFS and the CFTG are known to contain PFAS impacted groundwater.

The following actions are necessary to implement this control measure.

A.1 Groundwater Monitoring Plan

Ongoing groundwater monitoring and other associated sampling will be required to evaluate the stability of the contaminant plume(s) at the ARFFS sites, including identification of changes in contaminant concentrations and any migration of the contamination. This may include undertaking off-site (but otherwise on-airport) monitoring. The scope of the monitoring is intended to cover all impacted areas on airport for which Airservices may hold responsibility for the identified contamination.

Action A.1	**Develop and implement a groundwater monitoring plan (GWMP) to cover the ARFFS sites**
Description	Develop and implement a Groundwater Monitoring Plan (GWMP) to monitor and evaluate the status of the PFAS impacted sites on Hobart Airport.
Timeframe	GWMP to be developed by end of Q3 2018. The GWMP is to be provided to HIAPL and the AEO for review prior to implementation, intended for Q3/Q4.
Performance Indicators	GWMP developed. GWMP implemented.
Monitoring	Sampling location and frequency will be as discussed by Airservices and HIAPL. The frequency will be established to inform contaminant behaviour and any associated risks, but at a minimum sampling will be conducted annually.
Reporting	Reports for each groundwater monitoring event (GME) will be issued to HIAPL.
Corrective Action	To be determined on a case by case basis, including consultation with HIAPL and relevant regulatory authorities (e.g. AEO, EPA Tasmania).
Term	The duration of the GWMP will be established in consultation with HIAPL but will be a minimum of 5 years.

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Responsibility	GWMP development – ARFFS Environment (PFAS) Program Manager GWMP implementation – to be advised

Future Modification of the GWMP

The implemented GWMP will be flexible so as to accommodate future activities on or near the ARFFS sites, and to monitor the impacts of such activities on the status of each site's groundwater risk profile. Amendments to the GWMP will be communicated to HIAPL, the AEO and other regulatory authorities as identified in the GWMP.

Concurrent Implementation of Monitoring Activities

It is Airservices' intent to develop a single monitoring plan to cover groundwater, surface water and any other monitoring activity related to PFAS and other co-incident contaminant management, and where reasonably practicable, to undertake such activities concurrently.

A.2 Extraction Exclusion Zone

An extraction exclusion zone within the airport boundaries will be implemented by Airservices to ensure:

- PFAS impacted groundwater is not extracted and reused by Airservices in a manner that will represent a potential risk to human health and the environment.
- Identified contaminant plumes remain stable and are not drawn off-site towards extraction points.

Action A.2	**Establish a groundwater extraction exclusion zone around the ARFFS sites.**
Description	Implementation of a groundwater extraction exclusion zone covering each impacted site and the area within 300 metres of each site boundary. This general extraction prohibition applies to all Airservices activities with the exception of sampling for monitoring purposes. ARFFS local instructions and procedures to incorporate this prohibition. Propose to HIAPL the implementation of the 300 metres exclusion zone for other airport works with similar controls to those outlined below.
Timeframe	Immediate.
Performance Indicators	No groundwater extraction is to occur that might affect the stability of the plumes.
Monitoring	Routine compliance checks will include assurance the prohibition is being adhered to.

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Reporting	Non-compliances are to be reported as an occurrence using CIRRIS.
Corrective Action	Where extraction or dewatering is a necessity for Airservices works, ensure proper testing and waste management processes are developed and applied. Modify, adapt or otherwise include groundwater monitoring in the vicinity of the extraction to evaluate any impact extraction activities have on the stability of the identified groundwater plumes.
Term	While groundwater remains identified as impacted at each of the ARFFS sites.
Responsibility	Modification of GWMP – ARFFS Environment (PFAS) Program Manager Establishment of exclusion zone – to be advised

A.3 Assess Treatment Options for Impacted Groundwater

Note: This is not a one-off activity specific to Hobart Airport, but part of an ongoing R&D program under Airservices PFAS Management Program Plan.

Likely treatment and/or remediation options for PFAS impacted groundwater are to be assessed by Airservices for effectiveness, practicability and suitability for implementation. Although, such R&D activities may not be undertaken at Hobart Airport, the specific nature of impacted groundwater at Hobart Airport will be considered when completing such assessments. If possible, potential solutions identified are to be trialled on-site prior to implementation. Depending on the nature of the solution, if reasonably practicable and subject to approval by HIAPL, field trials of possible solutions are to be held at Hobart Airport. However, due to the operational nature of the MFS and CFTG and the small sizes of these lease areas, these sites may not be suitable for field trials.

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Appendix B Surface Water Management

This control measure is to:

Monitor changes to the current risk profile (human health and the environment) associated with exposure to, or a change in the nature of, the PFAS-impacted areas adjacent to the current fire training ground and main fire station sites.

In addition to soil at the MFS and the CFTG sites, hard surfaces (concrete pads at the washdown bay, hose drying area, foam storage area, and CFTG pad) that have been exposed to AFFF are likely, if not already confirmed, to be impacted by PFAS. Stormwater and surface water runoff provide a significant mechanism for PFAS to become mobile in the environment and to migrate from PFAS-impacted sites. As a result, there is a need to monitor the potential for PFAS-impacted surface and stormwater originating from the ARFFS sites to migrate to local waterways at concentrations that may present a potential risk to sensitive receptors.

The following actions are necessary to implement this control measure.

B.1 Surface Water Monitoring Plan

Ongoing monitoring of surface water discharges from the MFS and CFTG to the airport drainage system including stormwater and any other similar runoff but not permanent standing surface water, is intended to be implemented by Airservices to ascertain the need for the development of mitigation measures and evaluate the ongoing status of the risk posed by the ARFFS sites. Any developed monitoring plan should be congruent with the need to ensure there is no unacceptable dispersal of PFAS-impacted water or sediment. As such, the developed monitoring plan is intended to incorporate sampling off-site (but within the boundaries of the Airport), including adjacent waterways and receiving waters, in particular Sinclair Creek, with consideration given to the variable nature of flows in these channels and possible interactions with groundwater.

Action B.1	**Develop and implement a surface water monitoring plan (SWMP) to cover the ARFFS sites**
Description	Develop and implement a Surface Water Monitoring Plan (SWMP) to monitor and evaluate the status of the PFAS impacted sites on Hobart Airport. The SWMP should be limited to: • surface water monitoring of drainage lines in the vicinity of the MFS and CFTG sites; • if considered necessary, sampling following significant episodes* of discharge, such as storm events and/or substantial release of supernatant from on-airport construction works.
Timeframe	SWMP to be developed by end of Q3 2018. The SWMP is to be provided to HIAPL and the AEO for review prior to implementation, intended for Q3/Q4.

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Performance Indicators	SWMP developed SWMP implemented.
Monitoring	Sampling location and frequency will be as agreed to between Airservices and HIAPL. The frequency will be established to inform contaminant behaviour and any associated risks, but at a minimum sampling will be conducted annually.
Reporting	Reports for each surface water monitoring event (SWME) will be issued to HIAPL.
Corrective Action	To be determined by Airservices on a case by case basis, and may include consultation with HIAPL and/or relevant regulatory authorities (e.g. AEO, EPA Tasmania). Evaluate the feasibility of surface water controls at the MFS.
Term	The duration of the SWMP will be established in consultation with HIAPL but will be a minimum of 5 years.
Responsibility	SWMP development – ARFFS Environment (PFAS) Program Manager SWMP implementation – to be advised

* A significant rainfall event is considered to have occurred when substantial overland rainwater runoff or flow is observed or where there is evidence of scouring.

Future Modification of the SWMP

The implemented SWMP will be flexible so as to accommodate future activities on or near the ARFFS sites, and to monitor the impacts of such activities on the status of each site's risk profile. Amendments to the SWMP will be communicated to HIAPL, the AEO and other regulatory authorities as identified in the SWMP.

Concurrent Implementation of Monitoring Activities

It is Airservices' intent to develop a single monitoring plan to cover groundwater, surface water and any other monitoring activity related to PFAS management, and if reasonably practicable, to undertake such activities concurrently.

Surface Water Runoff Monitoring during excavation and construction works

Excavation and construction works have the potential to increase the exposure of PFAS impacted soils to surface water runoff, hence sampling of runoff from exposed soils and any stockpiles should be undertaken to determine whether surface water controls are required. Consequently, any construction environmental management plan (**CEMP**) developed for such works should include sampling of any surface water runoff originating from:

- excavations in the PFAS-impacted ARFFS sites; and
- any stockpiled materials where the material derives from the PFAS-impacted ARFFS sites.

Irrespective of the entity undertaking the excavation or construction works, the need for sampling of runoff from exposed soils and any stockpiles remains. It is the

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responsibility of the entity undertaking the works to ensure such sampling occurs and is included in any CEMP.

B.2 Potential for Impacted Sediment Mobilisation

PFAS impacted sediments are known to exist in drainage channels connected to the ARFFS sites. Where present, impacted sediment can act as a secondary source of contamination for surface water or a migration pathway should the sediments become mobilised. To mitigate this potential, investigation of the sediment in the drainage adjacent to the ARFFS sites is to be undertaken to determine their status and the mitigation measures necessary to alleviate any identified risks.

Action B.2	**Assess sediment for potential impact and mobilisation in drainage lines.**
Description	Assess the potential contamination status of sediment in the drainage lines and, if proven, investigate the requirement for and the likely effectiveness and feasibility of removing* impacted sediment to minimise the risk posed by exposure to or spreading of the contaminated sediment.
Timeframe	Assessment intended to be completed by end of Q4 2018.
Performance Indicators	Investigation undertaken as to contamination status of sediment. If required, investigation of feasibility of removing impacted sediment.
Monitoring	Not applicable.
Reporting	Airservices to consider investigation findings, whether further action is required and include consultation with HIAPL and/or relevant regulatory authorities (e.g. AEO).
Corrective Action	Not applicable.
Term	Not applicable.
Responsibility	ARFFS Environment (PFAS) Program Manager.

* Other mitigation measures are also to be considered if removal of sediment is deemed not to be a practicable or effective measure.

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B.3 Assess Treatment Options for Impacted Surface Water

Note: This is not a one-off activity specific to Hobart Airport, but part of an ongoing R&D program under Airservices PFAS Management Program Plan.

The Hobart ARFFS CFTG is currently being used to trial treatment solutions for wastewater generated during training, which may also provide viable solutions for impacted surface water.

Likely treatment and/or remediation options for PFAS impacted surface waters are to be assessed for effectiveness, practicability and suitability for implementation. Although in general, such R&D activities may not be undertaken at Hobart Airport, the specific nature of impacted surface waters at Hobart Airport will be considered when completing such assessments. If possible, potential solutions identified are to be trialled on-site prior to implementation such as the trial noted above. Depending on the nature of the solution, if reasonably practicable and subject to approval by HIAPL, field trials of possible alternative solutions may be held at Hobart Airport.

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Appendix C Impacted Infrastructure Management

This control measure is to:

Limit as far as practicable the potential for ongoing release of residual PFAS pollution sourced from PFAS-impacted infrastructure into the environment.

The MFS and the CFTG are known or likely to contain PFAS impacted infrastructure, such as the concrete pad of the training ground and wastewater treatment systems, arising from the past use of AFFF on these sites. Any impacted infrastructure will act as a secondary source of PFAS pollution, gradually releasing residual PFAS into water contacting this infrastructure.

The following actions are part of Airservices national program of management and are considered necessary to implement this control measure.

C.1 Manage Impacted Concrete

Note: This is not a one-off activity specific to Hobart Airport, but part of an ongoing R&D program under Airservices PFAS Management Program Plan.

Concrete and other hard-standing surfaces are media that are readily contaminated through regular contact with pollutants. As has been shown at ARFFS sites at other airport locations, regular historical contact of hard surfaces with AFFF has resulted in PFAS contamination of this infrastructure. Due to the operational nature of the ARFFS sites, there is little opportunity to replace impacted infrastructure without significant interruption to the provision of ARFF services and possibly airport operations. Instead, methods of managing impacted infrastructure to minimise release of contaminants are actively being pursued. Where programmed infrastructure replacements or upgrades are planned (e.g. upgrade to fire station), replacement of other PFAS-impacted infrastructure (e.g. the washdown bay) will be considered at that time.

As part of the R&D program, Airservices is planning to undertake a field concrete trial of the proprietary product X55 concrete additive at the MFS to assess the effectiveness of this product in reducing PFAS levels in leachate from impacted concrete. This follows on from a previous laboratory trial of X55 using concrete cores from an impacted fire training ground concrete pad. The trial will be undertaken at the MFS wash bay area.

Action C.1	**Assess effectiveness of treatments for impacted concrete.**
Description	Assess the potential effectiveness of commercially available concrete treatments to mitigate if not eliminate leaching of PFAS from impacted concrete.
Timeframe	To be determined once potential treatment identified. For example, trial of X55 intended to be completed by end Q2 2019.
Performance Indicators	Investigation undertaken. If required, investigation of feasibility of implementing solution.

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Monitoring	Not applicable.
Reporting	Airservices to consider investigation findings, whether further action is required and include consultation with HIAPL and/or relevant regulatory authorities (e.g. AEO).
Corrective Action	Not applicable.
Term	Not applicable.
Responsibility	ARFFS Environment (PFAS) Program Manager.

C.2 Wastewater Management

As a result of the historical use of AFFF on ARFFS sites, wastewater treatment and management systems have likely become impacted by PFAS contamination, and are likely to be acting as secondary sources for PFAS-impacts on treated wastewater.

Airservices is continuing an ongoing R&D program to investigate appropriate methods of treating wastewater to remove PFAS and other contaminants, with the long term goal of installing improved wastewater treatment systems at all relevant locations. As part of this program, in 2014/15 Beca was engaged by Airservices to undertake the bench-scale proof of concept trial of RemBind as a wastewater treatment, and more recently in 2015/16 to undertake field trial for RemBind and MyCelX. Further works are currently underway at Hobart Airport to assess the effectiveness and practicability of other treatment methods.

Action C.2A	**Assess effectiveness of wastewater treatment technologies.**
Description	Assess the potential effectiveness of commercially available wastewater treatment technologies to reduce if not completely remove PFAS from wastewater generated at ARFFS sites.
Timeframe	To be determined once potential treatments identified. For example, 6 month field trials of each of the Evocra and InTreat systems intended to be completed by end Q4 2019.
Performance Indicators	Investigation undertaken. If required, investigation of cost effectiveness and feasibility of implementing solution.
Monitoring	Not applicable.
Reporting	Airservices to consider investigation findings, whether further action is required and include consultation with HIAPL and/or relevant regulatory authorities (e.g. AEO).

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Corrective Action	Not applicable.
Term	Not applicable.
Responsibility	ARFFS Environment (PFAS) Program Manager.

In parallel to establishing an effective wastewater treatment process, it is imperative to understand the nature of wastewater at each ARFFS location, and to have in place interim measures addressing the current PFAS issues.

Action C.2B	**Assess the status of the current trade waste management at the main fire station and current fire training ground.**
Description	Review trade waste management at the current ARFFS sites on Hobart Airport (MFS and CFTG) and if required, provide options to improve the current practice. This may include modifying the existing Trade Waste Agreement to include discharges to sewer from sources where this does not already occur (e.g. washdown bay).
Timeframe	Intended to be completed by end of 2019.
Performance Indicators	Investigation undertaken.
Monitoring	Not applicable.
Reporting	Airservices to consider investigation findings and whether further action required. Airservices will consult with HIAPL and the AEO as required.
Corrective Action	Not applicable.
Term	Not applicable.
Responsibility	To be advised.

* Implementation of a practicable option would be a separate Action.

Note, Airservices currently has a national contract with Beca to manage ARFFS' trade waste agreements in all jurisdictions including for Hobart Airport.

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Appendix D Impacted Site Management

This control measure is to:

Limit as far as practicable the potential for ongoing release of residual PFAS pollution sourced from PFAS-impacted sites into the environment.

The MFS and the CFTG are known to be PFAS impacted sites. Although the primary source of PFAS (i.e. the use of the AFFF containing PFAS) has been removed, the residual impacts to these sites provide secondary sources for ongoing releases of PFAS into the environment.

To address this, Airservices is continuing to pursue an R&D program into identifying effective management and remediation options for PFAS impacted sites. Once a practicable method is identified, the long term goal of Airservices is to implement it at all ARFFS locations.

The operational nature of the current ARFFS sites complicates this issue, as presently there is a dearth of potential in-situ methods that can be implemented without substantial interruptions to the provision of ARFF services and possibly also to airport operations.

The following actions are part of Airservices national program of management and are considered necessary to implement this control measure. These are not one-off activities specific to Hobart Airport, but part of the ongoing R&D program under Airservices PFAS Management Program Plan.

- Application of a crystallising product to eliminate or reduce PFAS leachate:
    - Field scale application(s) to wash down pads (and possibly other concrete infrastructure) and subsequent assessment of effectiveness.
    - Behaviour of the crystallising product under heat, assessment of the workplace health and safety implications of application and the potential for the product to be applied to impacted concrete such as fire training grounds.
    - To facilitate landfilling or reuse, a laboratory trial of application to demolition products and subsequent assessment of effectiveness.
- Ongoing assessment of a binding agent (RemBind) for PFAS impacted soil for ex-situ and in-situ treatment. As an application for ex-situ treatment and disposal of treated material offsite, a trial based at Launceston Airport has already been successfully conducted. However, the use of this approach is subject to individual jurisdictional (e.g. TasEPA) approvals and availability of appropriately licenced receiving facilities. Ongoing work is being undertaken to assess the effectiveness and consequences of the use of RemBind for in-situ treatment and management of impacted soils.
- Assessment of microbial breakdown of PFAS to remediate in-situ PFAS impact in soil.
- Assessment of sediment removal in reducing surface water PFAS concentrations.
- Assessment of a block weir impregnated with a binding agent (or similar approach) for the reduction of PFAS concentrations in surface water.

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Appendix E Construction Activity Management

This control measure is to:

Appropriately manage soils and water containing PFAS during construction and excavation activities.

There are soils, sediments and groundwater at and near the ARFFS sites (MFS and CFTG) that contain PFAS. Unless proven otherwise prior to construction activities taking place, all project and maintenance works on ARFFS sites should be considered as being conducted on a contaminated site. Consequently, measures need to be put in place by the entity undertaking the works to properly manage on-site construction and excavation activities.

No untreated groundwater generated during excavation or other works, or sediment-laden surface water collected in stockpile runoff, is to enter the water drainage system, or is to be released on other areas of the airport without having obtained all applicable environmental approvals and/or permits under Airservices EMS and relevant regulatory statutes (e.g. *Airports Act 1996* and associated regulations).

The following measures can be summarised as a requirement to contain on-site all excavated soils and other solid materials, and all extracted groundwater and any runoff, until the contamination status of the material can be established and appropriate disposal mechanisms identified. As per ENV-GUIDE-0013, it may be possible to re-use impacted materials on-site.

Prior to an entity conducting any works on a contaminated site, Airservices may require the entity to sign a Deed of access, release and indemnity to identify that the responsibility for costs and liabilities associated with the works are the responsibility of the entity undertaking the works.

E.1 Excavation Management

To minimise the amount of erosion and sedimentation during future on-site excavation works, such as for installation of services, as far as practicable, works should minimise the area of exposed, unsealed surfaces or extent of trenches at any one time, through sequencing of works and progressive excavation and restoration.

When excavations are planned, diversion channels/drains should be constructed to divert clean water away from future open excavation sites, exposed surfaces (e.g. stockpile areas) and areas of disturbed soils (e.g. unsealed roadways). Runoff from excavation areas should be contained and tested for contamination (including PFAS), treated as required and discharged from the site in accordance with relevant discharge criteria (e.g. trade waste requirements, ANZECC (2000) guidelines if released off airport, AEPR if on airport).

Similarly, erosion and sediment control measures should be installed around and downslope of planned excavation areas and around stormwater drains, pits and outflows prior to the start of excavation to prevent silt laden water from migrating offsite. To anticipate and plan for potential erosion and sedimentation incidents, where possible erosive works should be deferred or re-scheduled during high wind periods and after periods of heavy rainfall.

Dust control measures should be implemented to prevent unacceptable levels of dust being generated from the site, either during works or from wind erosion of exposed soils. The use of chemical dust-suppressants and/or alternate coverings such as

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hydromulch to stabilise the surface of open disturbed areas and stockpiles should be considered.

If a wheel wash is installed, dirty water is to be tested, pumped out and where appropriate treated (if contaminated) and reused onsite (if suitable) or disposed offsite at a licensed facility.

Restoration of previously exposed surfaces and excavations may involve permanent solutions including asphalting/concreting or revegetating the area (or a combination of both), or temporary measures such as seeding and/or covering. Restoration of a disturbed area is to be undertaken as soon as practicable. Trenches and excavations are to be covered as soon as feasibly possible through backfilling and sealing, to reduce the potential exposure of stormwater to sediment and/or contaminants.

If fill is required at the subject areas to bring excavations to grade, then materials imported will be required to meet the environmental and geotechnical requirements specified for the particular end use. Airservices expects that any such fill will generally meet the requirements of Virgin Excavated Natural Material (**VENM**) and the soil criteria established in the AEPR. Validation certificates/reports (including disposal dockets) must be provided to Airservices and/or HIAPL as appropriate.

The existing site Monitoring Plans for groundwater (**GWMP**) and surface water (**SWMP**) should be adapted to accommodate instances where dewatering is required or stormwater runoff occurs from the excavation site.

E.2 Stockpile Management

If stockpiling of excavated material is required, this should occur within a designated stockpile area, preferably on an impermeable surface located at least 20-30 m away from surface water drains/bodies. The stockpiled soil should then be tested for either potential reuse on the airport or to classify the material prior to being transported directly offsite to a licensed landfill facility. The stockpile volumes should be established, and confirmed via surveying if necessary.

Drainage, sediment, erosion and dust control measures should be installed within stockpiling areas and must be maintained, repaired or replaced where necessary for the duration of the stockpiling activities. If stockpiles require long term storage, consideration is to be given to covering or stabilising the surface with spray grass seeding to reduce the possibility of dust generation and erosion. Runoff from stockpile areas must be managed to prevent potentially contaminated materials (including stormwater) moving into other areas of the site, offsite or into waterways, using surface bunding, silt fences and drainage diversions as appropriate. If management of runoff requires it to be captured and stored, it should be tested for contamination (including PFAS), treated as required and discharged from the Site in accordance with relevant discharge criteria (e.g. trade waste requirements, ANZECC (2000) guidelines if off airport, AEPR if on airport).

Stockpiling of Contaminated Spoil

In the event that known PFAS contaminated spoil material is required to be stored on-site, implementation of the following management measures are to be considered based on the contamination risk profile of the proposal:

- a designated temporary spoil stockpile containment area established on-site;

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- the containment area lined with an impermeable high density polyethylene (HDPE) plastic liner (or similar), surrounded by a HDPE lined bund around the perimeter, and covered by impermeable HDPE plastic covers/tarps. This will further prevent risks associated with wind and water erosion;
- sediment filters (e.g. geotextile 'sausages', gravel / sandbags or similar) installed at on-site stormwater inlets, grates and entry points of preferential drainage lines (if any) to reduce potential sedimentation;
- signs erected indicating the nature of the stockpile area; and
- buffer zones established around each stockpile area to enable access to the stockpiles and minimise impacts of the stockpile area on the surrounding facilities; such buffer zones are not to impede the function of the diversion drains, bunding and erosion and sedimentation control measures.

E.3 Dewatering Management

As indicated in main text, construction activities within a PFAS-impacted site are informed by ENV-GUIDE-0013 – *Managing PFC Contamination at Airports; Interim Contamination Management Strategy and Decision Framework*, (original document dated June 2015). ENV-GUIDE-0013 provides guidance on the management of wastewater generated from CAPEX and OPEX related projects, and approaches to groundwater management and monitoring.

In the event that dewatering or other groundwater extraction is required in the vicinity of the ARFFS sites to such an extent that extraction activities may draw PFAS-impacted water, analysis of the extracted water should be undertaken to ascertain its appropriate reuse or disposal.

Any groundwater pumped out during excavation or other works at a known PFAS-impacted area must either be classified before disposal at an appropriately licensed liquid waste facility, or tested for contamination (including PFASs), treated if required and discharged from the site in accordance with relevant discharge criteria (e.g. ANZECC (2000) guidelines off airport, AEPR if on airport).

Modification of any existing GWMP

In the event that dewatering or other groundwater extraction activities are required to occur in the vicinity of the ARFFS sites, implications of such activities on the PFAS plume(s) and the site's existing risk profile must be considered. The GWMP may need to be modified or adapted, however temporarily, to accommodate these activities including evaluating the resultant effect on impacted groundwater movement at the site.

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Appendix E

Connecting Communities
for the future

TXP

Hobart Airport
TASMANIA

Hobart Airport Terminal Expansion Project

Title	
Terminal Expansion MDP Materials	
Note No.	**02**
Revision	A
Prepared by	JAL
Checked by	
Approved by	
Reference	
Date:	26/11/2018

Information / review and comments

1. Introduction

Purpose of this technical note:

- Material to be incorporated into Hobart Airport Terminal Expansion Plan Major Development Plan (MDP)
-

1.1. Windshear Assessment

Building generated windshear / turbulence becomes a critical safety issue when a significant obstacle, such as a terminal or other major airport building, is located in the path of a crosswind to an operational runway. The wind flow can be diverted around and over the buildings causing the crosswind speed to vary along the runway. The development of major new building works such as the Hobart International Airport Terminal Expansion need to be assessed to determine whether a potential Windshear issue may be generated by the development.

Therefore it is necessary to determine whether the proposed development will trigger further Windshear investigations. This determination will be based on the guidelines outlined in *National Airports Safeguarding Framework Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports (May 2018).*

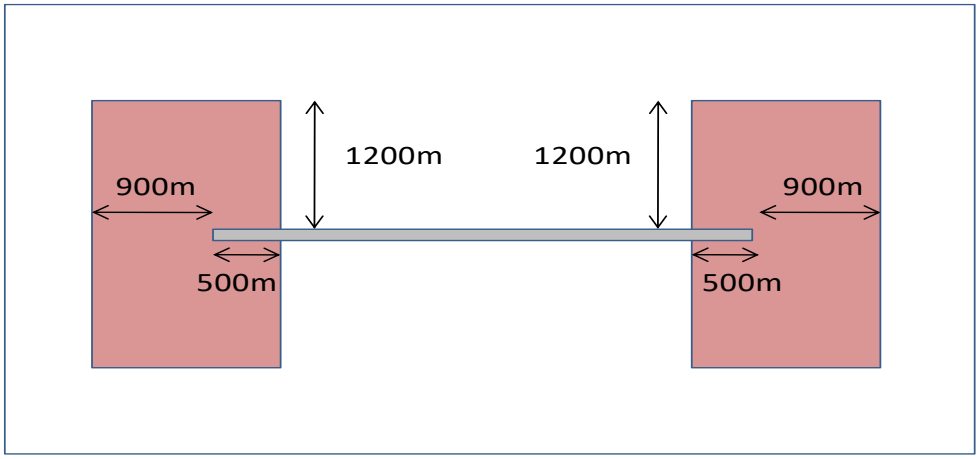
The first stage of the assessment process is to determine whether the proposed buildings are within the 'Assessment Trigger Areas' located around the runway ends.

Buildings that could pose a safety risk are those located within a rectangular 'assessment trigger area' (see Figure 1, below). These are defined by being1:

- 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); and
- 500m or closer from the runway threshold along the runway.

1 *National Airports Safeguarding Framework Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports (May 2018), p6.*

Figure 1: Assessment trigger area around runways, within which buildings should be assessed

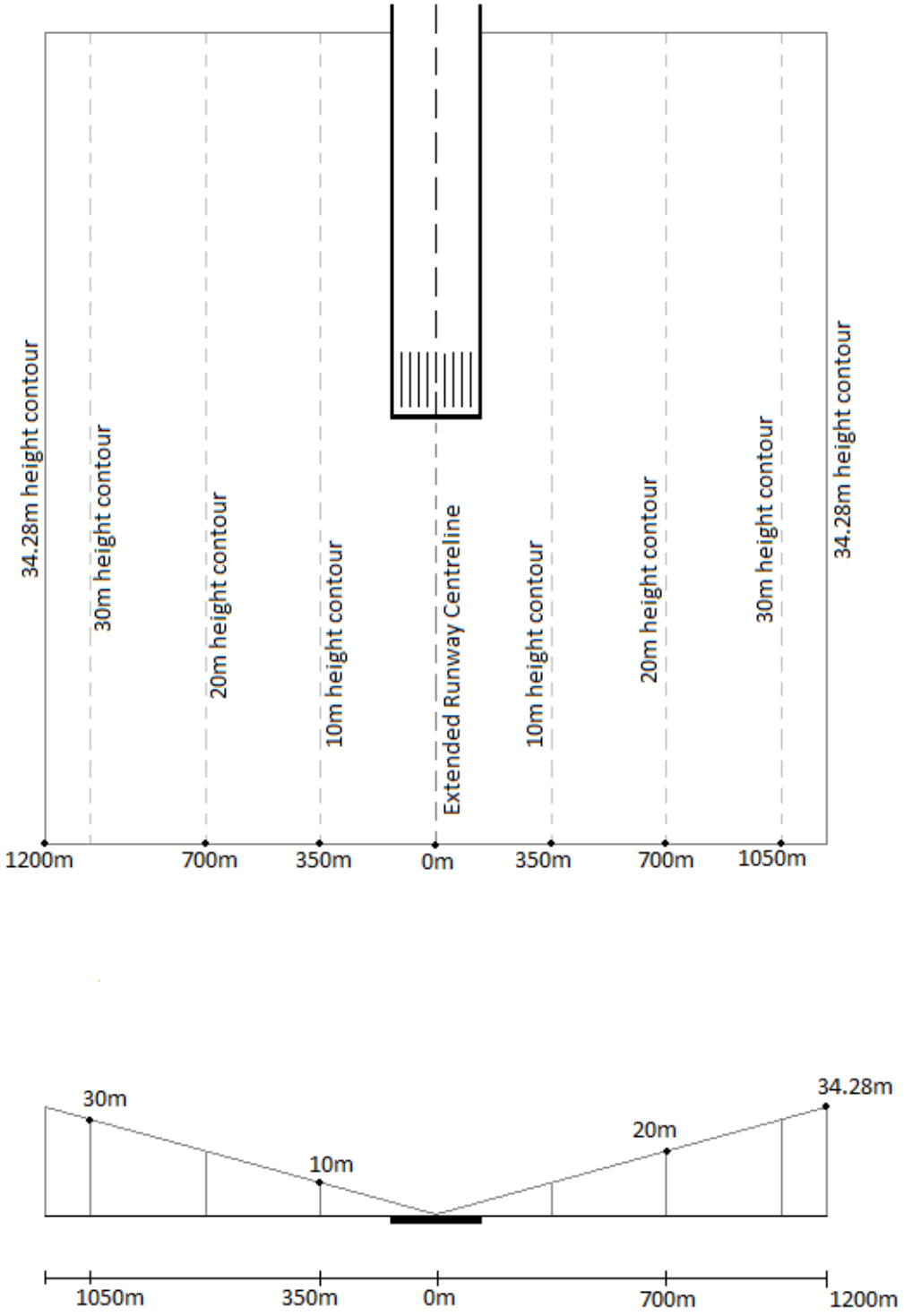


The second step of the assessment process is to determine whether the proposed building – if within the 'assessment trigger area' – exceeds a height generated by a height limitation surface.

The rule adopted proposes that buildings should not penetrate a 1:35 surface extending perpendicular from the runway centreline (or extended runway centreline within the assessment trigger area). As the 1:35 surface extends from the runway centreline, when considering buildings against the 1:35 surface the building height should be measured above runway level.

Calculation of the surface is illustrated below.

Figure 2: Plan view of the 1:35 surface within the assessment trigger area. (Bottom) Elevation view of the 1:35 surface, looking down the runway centreline. Illustrative purposes only – not to scale.



The site plan showing proposed terminal location and the relationship to the Assessment Trigger Area is shown below.

Figure 3: Proposed Terminal Relationship with Assessment Trigger Area

This shows that the western extent of the proposed terminal is located beyond the 500 metre assessment 'box' from the western (12) end of the runway. Therefore, the proposed development does not require further assessment.

The proposed terminal height is 8 metres on the northern façade. Even if the terminal were within the 'assessment' box, this terminal height would be below the 1:35 surface.

1.2. Windshear Assessment Conclusion

As the proposed terminal development is outside the 500 metre trigger assessment 'box' recommended by *National Airports Safeguarding Framework Guideline B* , it is considered that no further assessment of windshear risk is required unless determined by the MDP assessment body.