FIGURE 8.14 - INDICATIVE 2039 ANEF FLIGHT PATHS RUNWAY 12 NIGHT

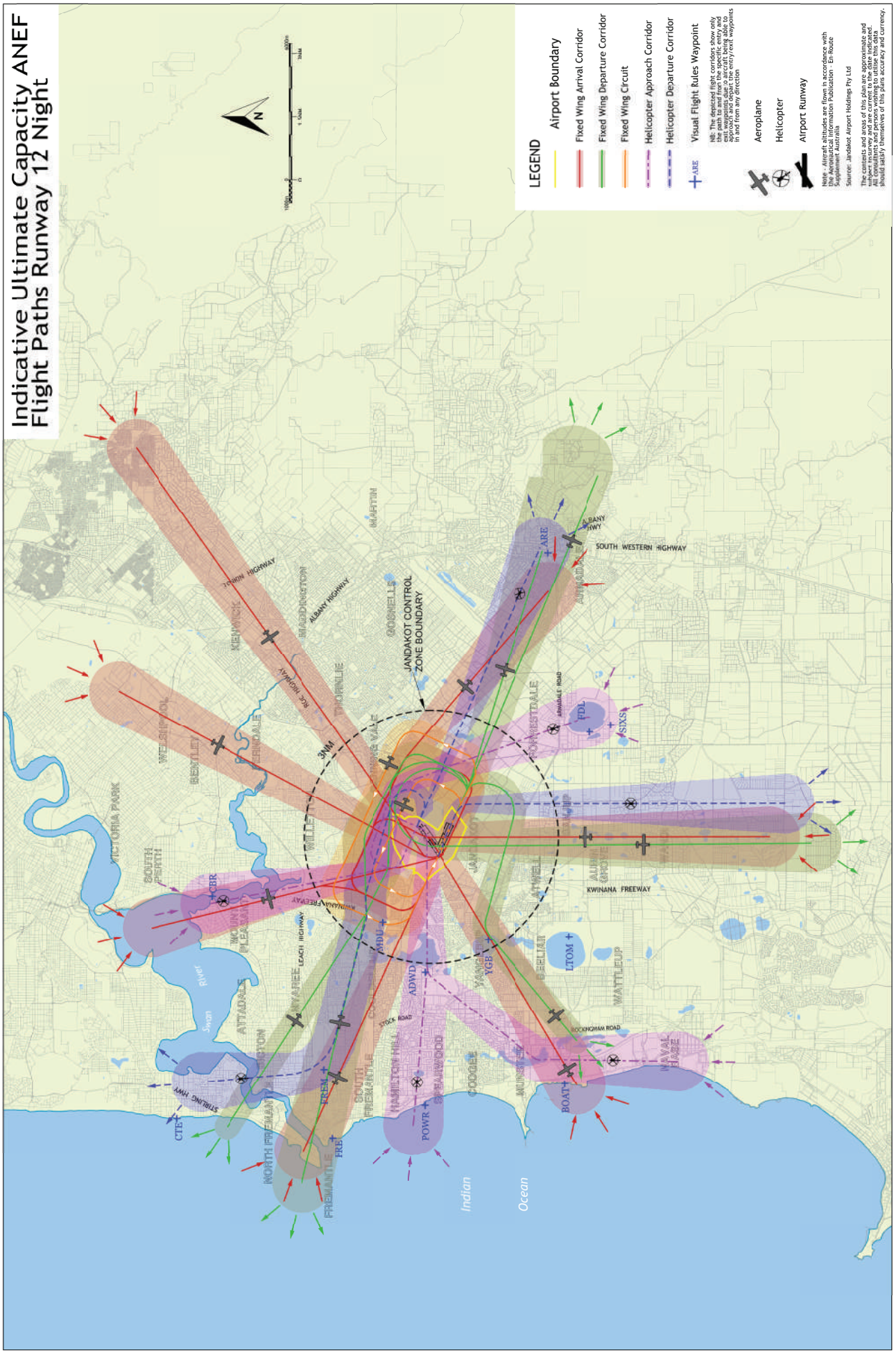
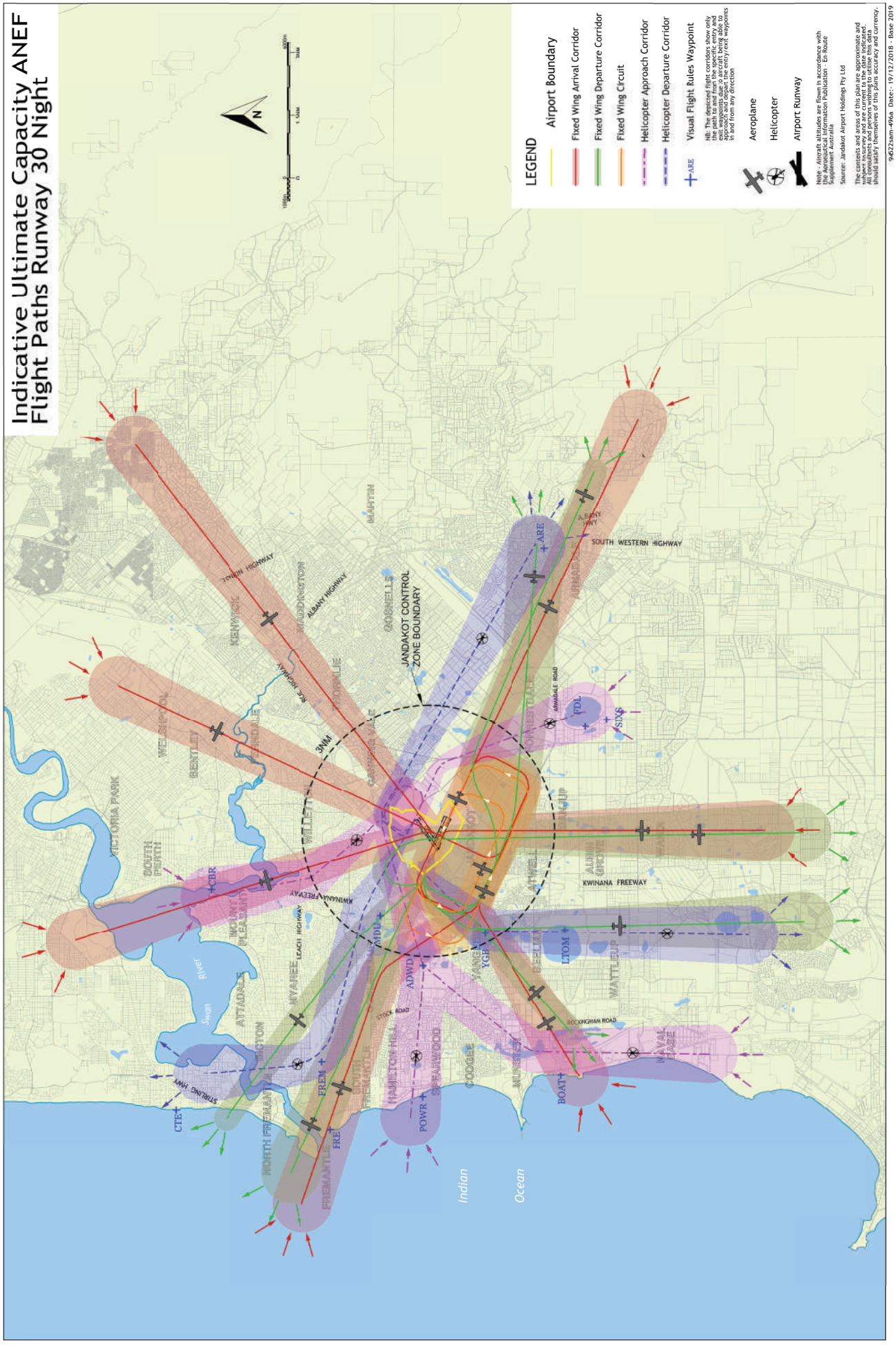


FIGURE 8.15 - INDICATIVE 2039 ANEF FLIGHT PATHS RUNWAY 30 NIGHT



International and national standards have been adopted that define two sets of invisible surface to delineate the various airspace obstacle protection areas: the Obstacle Limitation Surfaces (OLS), and Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS) surfaces. Prescribed airspace is declared by the Australian Government as an area "…in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of an airport for the airspace to be protected."

There is an active program of engagement with local government and state authorities for managing the risk of intrusions into protected airspace of airports (Guideline F – NASF). This is done mainly through the Jandakot Airport website called "Airspace Protection" which is regularly emailed to local government and state authorities as reminders and also whenever updates are done. The Community Aviation Consultation Group is also a useful forum for discussing airspace protection.

8.4.2 OBSTACLE CONTROL

Any activities that could result in an intrusion of prescribed airspace are referred to as 'controlled activities' that can only be carried out with approval. Controlled activities include:

- Permanent structures, such as buildings;
- Temporary structures, such as cranes; and
- Any activities causing intrusions into the protected airspace through glare from artificial light or reflected sunlight, air turbulence from stacks or vents, smoke, dust, steam or other gasses or particulate matter.

Under the *Airports (Protection of Airspace) Regulations 1996*, details of proposed controlled activities must be provided to JAH as the airport-operator company. JAH will complete an initial assessment to determine whether the activity will cause an intrusion into the prescribed airspace for Jandakot Airport and the extent of any intrusion. If there is an intrusion, JAH is required to seek further assessment from Airservices and the Civil Aviation Safety Authority. These comments will then be provided to the Department of Infrastructure, Transport, Regional Development and Communications to approve/refuse the controlled activity. Controlled activities that are less than 3 months duration may be approved by JAH following assessment by Airservices and the Civil Aviation Safety Authority.

8.4.3 OBSTACLE LIMITATION SURFACES

The Obstacle Limitation Surfaces (OLS) is a combination of reference surfaces in airspace which determine when an object may become an obstacle to aircraft manoeuvring in the vicinity of an Airport or during landing or take-off.

It is possible to have some penetration of the OLS provided that approval is granted to operate with appropriate risk mitigation measures in place.

As the aerodrome operator, JAH is required to establish the OLS in accordance with MOS Part 139. The construction of the fourth runway has been included in the 2005, 2009 and 2014 Master Plans. The 2014 Master Plan also provided for the lengthening of runways 12/30 and 06L/24R. As an OLS is prepared for each Master Plan, the OLS airspace requirements for the fourth runway have been identified and protected since 2005 and the airspace requirements for the lengthening of runways 12/30 and 06L/24R have been protected since 2009. Figure 8.16 depicts the OLS for the ultimate development of the Jandakot Airport.

8.4.4 PROCEDURES FOR AIR NAVIGATION SERVICES – AIRCRAFT OPERATIONS (PANS-OPS)

Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) are a second set of surfaces determined by aircraft flight operations under instrument conditions that form an envelope over the existing obstacle environment. These surfaces are established by instrument procedure designers approved by CASA under Civil Aviation Safety Regulations Part 173, to ensure that an aircraft will have a specified minimum clearance above any accountable obstacle in situations where the pilot is relying entirely on the information derived from cockpit instruments and may have no external visual reference to the ground, to obstacles or to other aircraft. As a result, PANS-OPS surfaces cannot be infringed in any circumstances.

PANS-OPS surfaces may also include protection of the airspace around navigation aids that are required for instrument flying activity.

A review of the PANS-OPS was undertaken for Master Plan 2009 to include the extensions of runways 06L/24R and 12/30. The fourth runway will not facilitate instrument procedures and therefore does not affect the PANS-OPS. A further PANS-OPS review has been undertaken to assess the potential relocation of the Non-Directional Beacon (see Section 4.8.2) and to

include a new standard instrument departure. The new standard instrument departure has been proposed by Airservices to facilitate instrument flight rule (IFR) departures to the south from any primary runway direction. The proposed instrument departure will utilise existing flight tracks to the south and will avoid the delays for aircraft currently looking to enter Perth Controlled Airspace.

Figure 8.17 depicts the PANS-OPS surfaces for the ultimate development of the Jandakot Airport and is provided as a guide only to obstacle management within the vicinity of the airport. Obstacles recognised as being close to the surface limits identified are to be referred to a suitably qualified designer for accurate assessment.

8.5 EXTERNAL LIGHTING RESTRICTIONS

The Civil Aviation Safety Authority has the authority, under the Civil Aviation Regulations 1988, to control ground lights where they have the potential to cause confusion or distraction (from glare) to pilots in the air. CASA has established guidelines, through the Manual of Standards Part 139, on the location and permitted intensities of ground lights within a 6km radius of airports.

Figure 8.18 depicts the Restricted Light Zones at Jandakot Airport. The four light control zones reflect the degree of interference ground lights can cause as a pilot approaches to land.

The existence of a certain type of light fitting is not necessarily an indication that more lights of the same type can be added to the same area. It is important that the NASF 'Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports' guidelines are consulted or CASA advice sought when new sources of significant lighting (such as freeway, construction or stadium flood lighting) is being planned in the vicinity of airports.

8.6 WINDSHEAR AND TURBULENCE

The location of a significant obstacle, such as a building, in the path of a cross-wind to an operational runway can pose a safety risk to aircraft operations by creating windshear and turbulence. The National Airports Safeguarding Framework 'Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports' notes that windshear poses the greatest risk on approach, landing and take-off when the aircraft's speed is low and pilot's ability to respond is limited.

JAH applies the Guideline B criteria to proposed developments to determine whether there is a potential for windshear from proposed developments to affect aircraft movements.

8.7 WILDLIFE HAZARD MANAGEMENT

Birds and other animals can pose a serious safety risk to aircraft operations. JAH is required to monitor and control the presence of birds and animals on, or in the vicinity, of the airport in accordance with the Civil Aviation Safety Regulations Part 139. JAH has a Wildlife Hazard Management Plan that defines the methods applied to control birds and animal hazards on airport, as well as a Feral Animal Management Plan to address overabundant native species. These control measures include permanent and temporary fauna exclusion fencing, vehicle harassment and the use of pyrotechnics (shotgun cartridge) for both bird and macropod management within the aircraft manoeuvring area, and managing features of the airport and its surrounds that are attractive to problem bird and animal species.

Monitoring of animal and bird hazards is continually carried out to identify habitats and numbers, with seasonal expert advice sought when necessary. When required, Notices to Airmen (NOTAM) are issued to notify aircraft operators of increased bird or animal hazards. Under the *Air Navigation Act 1920*, aircraft bird and animal strikes are classified as an air safety incident and must be reported to the Australian Transport Safety Bureau.

The National Airports Safeguarding Framework 'Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports' acknowledges that new land uses in the vicinity of an airport can significantly influence the risk of wildlife hazards to aircraft operations. Management of activities that may be wildlife attractant are addressed through Operational Environmental Management Plans that are required to be prepared for all relevant and existing developments within the airport site. When required, approaches are made to local councils to discuss external planning or developments that may increase bird and animal hazards at the airport, such as the location of rubbish tips.

8.8 COMMUNICATION, NAVIGATION AND SURVEILLANCE INFRASTRUCTURE

Airservices Australia provides and maintains a Non-Directional Beacon at Jandakot Airport to facilitate location navigation for aircraft arrivals and departures. In addition, a microwave communication link exists between the Jandakot and Perth Air Traffic Control Towers. These navigation and communication links rely on the transmission of radio waves that must be protected from structures or obstacles that could cause signal refraction or interference.

The National Airports Safeguarding Framework Guideline G Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS) requires consideration for the protection of this critical infrastructure. Information about relevant developments is provided to Airservices to allow an assessment to be made to ensure that the performance of current and future navigation and communication aids is maintained.

8.9 PUBLIC SAFETY ZONES

The National Airports Safeguarding Framework Guideline I: Managing The Risk in Public Safety Areas at the ends of Runways Consideration of Public Safety requirements was undertaken and is detailed in Section 4.7.4.

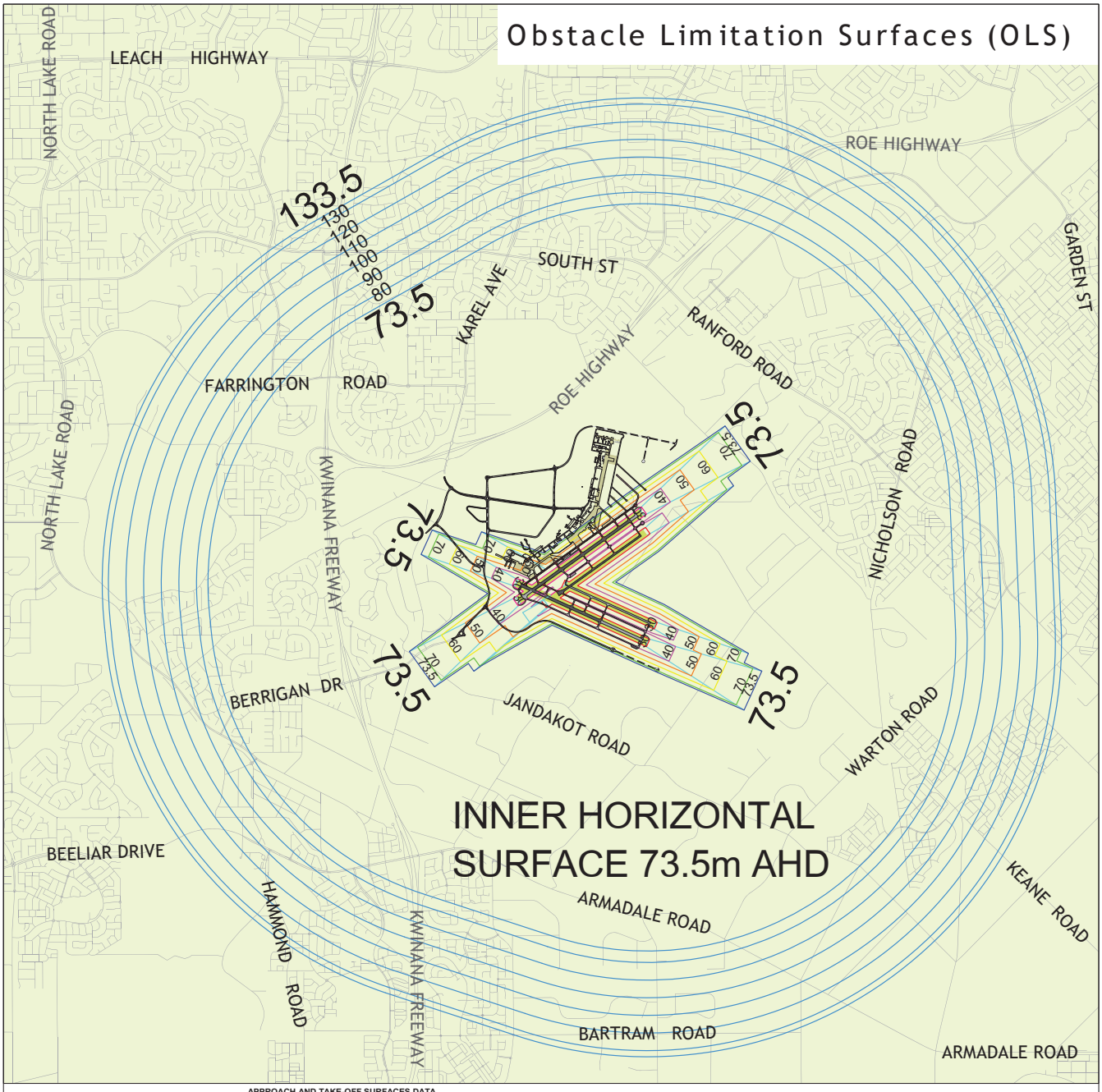
8.10 IMPROVING AIRPORT SAFEGUARDING

The State Government recognises Jandakot Airport as a vital piece of infrastructure and therefore the need to protect the airport from encroachment by incompatible land use and development, so as to provide for its ongoing, safe, and efficient operation. In this regard the Western Australian Planning Commission has prepared State Planning Policy 5.3 – Land Use Planning in the Vicinity of Jandakot Airport in January 2017 (SPP 5.3), which references into the policy the current ANEF as prepared by Jandakot Airport at the time, as outlined in Section 2.3.6.

Given that the airport is situated within an urban growth zone, JAH believes that proactive consultation is required with developers, local councils and State Government authorities at the planning and development stages. Potential residents need to be made aware of airport operations and aircraft noise prior to purchasing property within a 5km radius of the airport in order to make an informed decision about the level of noise they will be exposed to. JAH will continue to respond to residential planning proposals in the vicinity of the airport to request additional measures such as notifications on land titles for development within the N60 100 daily noise event contours, adequate noise attenuation measures (e.g. window glazing), aircraft noise impact area signage and provision of aircraft noise impact information to potential residents.

The NASF 'Guideline A: Measures for Managing Impacts of Aircraft Noise' acknowledges that the 20 ANEF and 25 ANEF zones do not capture all high noise affected areas around an airport and that Australian Standard AS2021 recognises that the ANEF contours are not necessarily an indicator of the full spread of noise impacts, particularly for residents newly exposed to aircraft noise. JAH fully supports the inclusion of the frequency-based noise charts (N60, N65 & N70 Noise Contours) to supplement the ANEF as recommended in NASF Guideline A.

FIGURE 8.16 - OBSTACLE LIMITATION SURFACE



APPROACH AND TAKE-OFF SURFACES DATA

RWY	CATEGORY	APPROACH SURFACES							TAKE-OFF CLIMB SURFACES					
		ORIGIN (CHGE)	HEIGHT (m)	INNER EDGE WIDTH (m)	DIVERGENCE (%)	SLOPE (%)	LENGTH (m)	TRANSITION (%)	ORIGIN (CHGE)	HEIGHT (m)	INNER EDGE WIDTH (m)	DIVERGENCE (%)	SLOPE (%)	LENGTH (m)
06L X	2 I/NP	470	28.8	90	15	3.33	2500	20	2190	28.6	80	10	4	2500
06R E	2 NI	819	28.9	80	10	4	2500	20	2090	28.6	80	10	4	2500
24L E	2 NI	2090	28.6	80	10	4	2500	20	708	29.4	80	10	4	2500
24R X	2 I/NP	2190	28.6	90	15	3.33	2500	20	470	28.8	80	10	4	2500
12L P	2 NI	1820	28.7	80	10	4	2500	20	2930	29.6	80	10	4	2500
12R E	2 NI	1302	28.4	80	10	4	2500	20	2930	29.6	80	10	4	2500
30L X	2 I/NP	2930	29.6	90	15	3.33	2500	20	1302	28.4	80	10	4	2500
30R P	2 NI	2930	29.6	80	10	4	2500	20	1820	28.7	80	10	4	2500

NOTES:

1 LEVEL DATUM ADOPTED – 28.5m AHD.

2 INNER HORIZONTAL SURFACE – RADIUS 3500m FOR CODE 2 INSTRUMENT RUNWAYS, 45m ABOVE LEVEL DATUM.

3 CONICAL SURFACE – SLOPE 5% TO 60m ABOVE INNER HORIZONTAL SURFACE FOR CODE 2 INSTRUMENT RUNWAYS.

4 TABLE ABBREVIATIONS

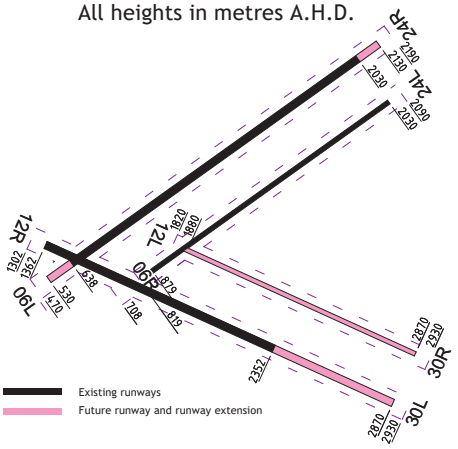
E – EXISTING RUNWAY

X – EXTENDED RUNWAY

P – PROPOSED RUNWAY

2 I/NP – INSTRUMENT/NON-PRECISION CODE 2

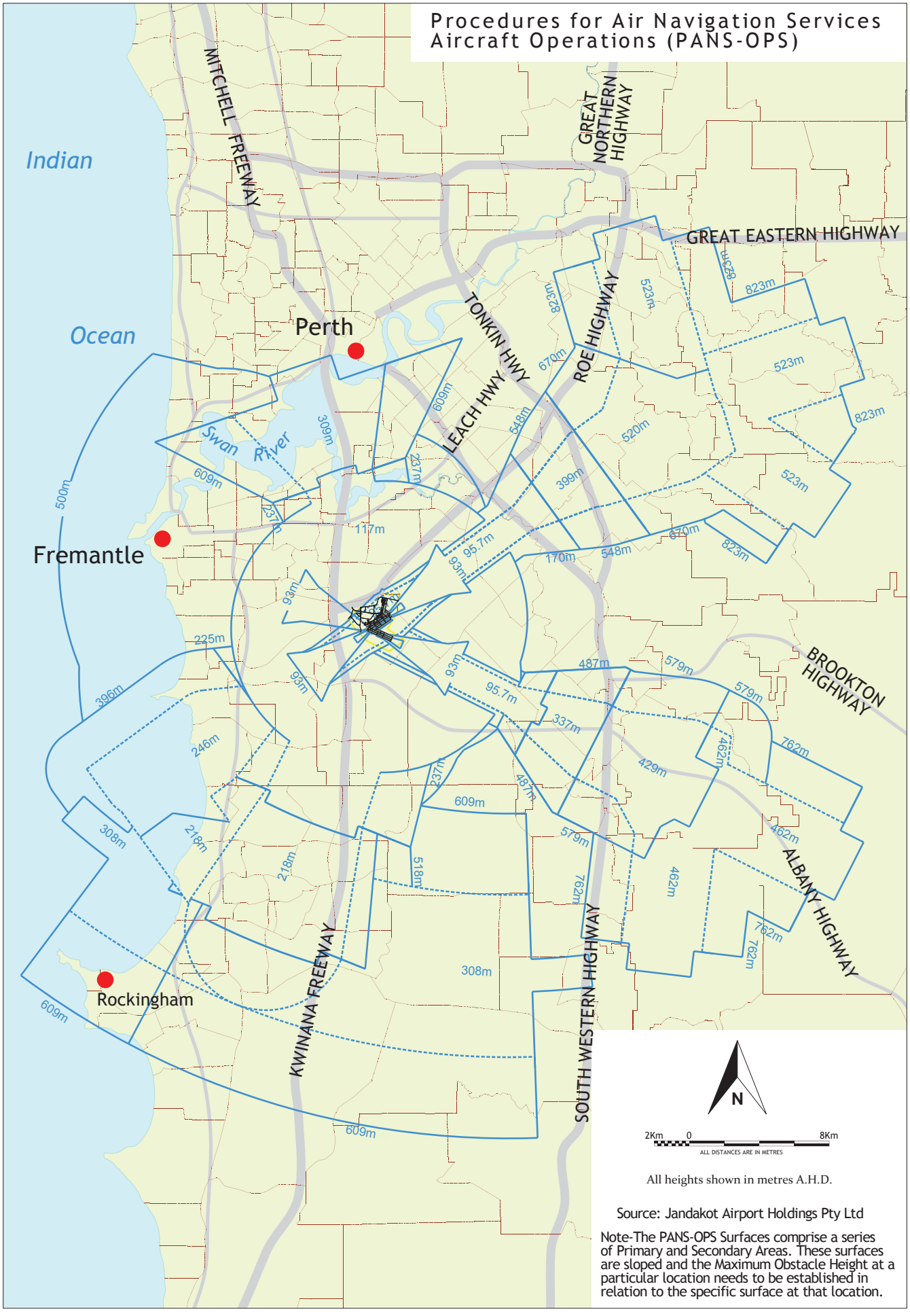
All heights in metres A.H.D.



RUNWAY & STRIP LAYOUT (NOT TO SCALE)

Source: Jandakot Airport Holdings Pty Ltd

FIGURE 8.17 - PROCEDURES FOR AIR NAVIGATION SERVICES - AIRCRAFT OPERATIONS

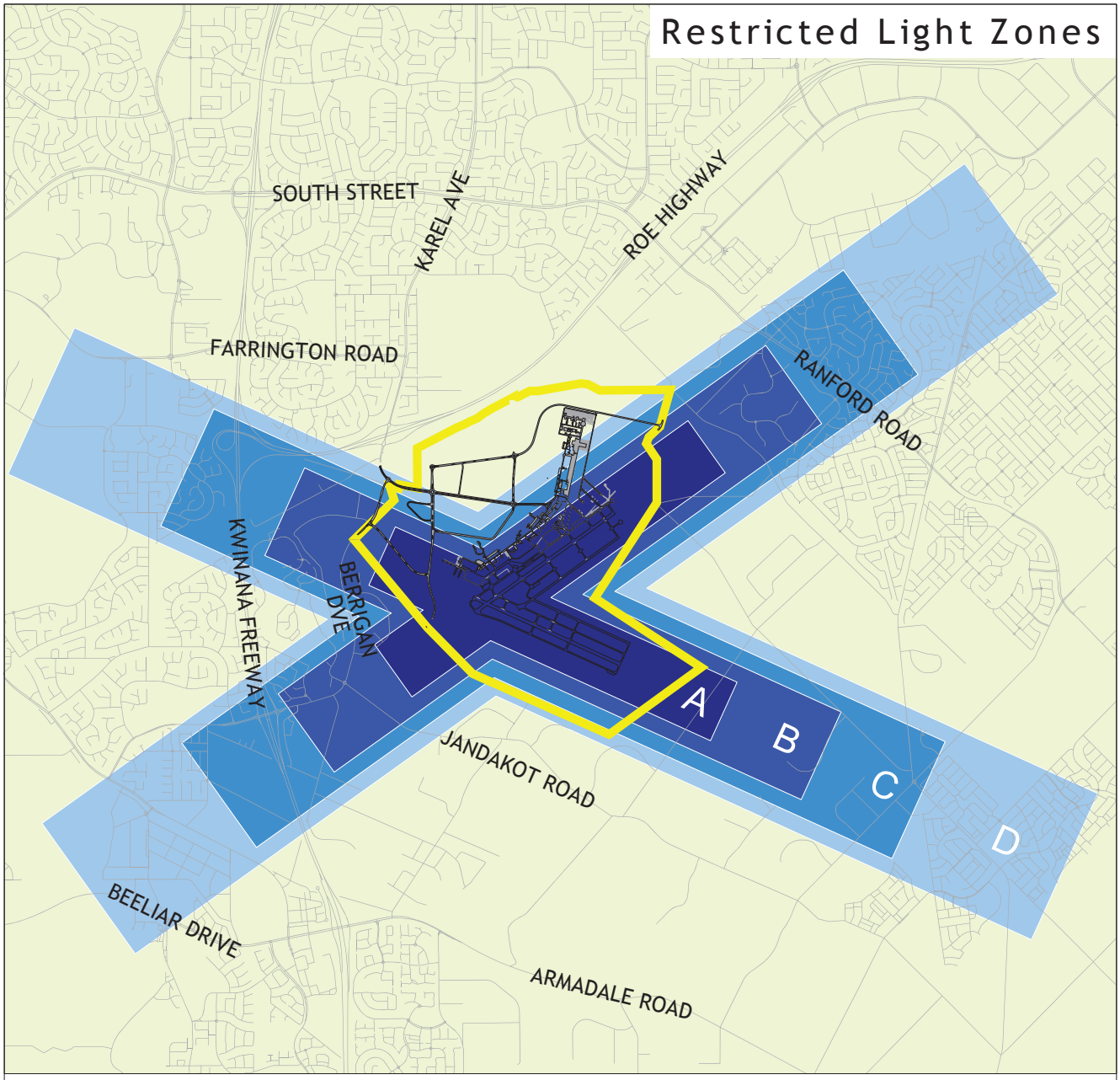


All heights shown in metres A.H.D.

Source: Jandakot Airport Holdings Pty Ltd

Note-The PANS-OPS Surfaces comprise a series of Primary and Secondary Areas. These surfaces are sloped and the Maximum Obstacle Height at a particular location needs to be established in relation to the specific surface at that location.

FIGURE 8.18 - RESTRICTED LIGHT ZONES



LEGEND

MAXIMUM INTENSITY OF LIGHT SOURCES MEASURED AT 3 DEGREES ABOVE THE HORIZONTAL

ZONE A		0 cd
ZONE B		50 cd
ZONE C		150 cd
ZONE D		450 cd

REFER MANUAL OF STANDARDS PART 139 SECTION 9.21

Airport Boundary

Source: Jandakot Airport Holdings Pty Ltd

N

400 0 1600

ALL DISTANCES ARE IN METRES

The contents and areas of this plan are approximate and subject to survey and are current to the date indicated. All consultants and persons wishing to utilise this data should satisfy themselves of this plans accuracy and currency.

9. ENVIRONMENT STRATEGY

9.1 OVERVIEW

In managing and developing the airport, Jandakot Airport Holdings complies with the *Airports Act 1996* and *Airports (Environment Protection) Regulations 1997*. In accordance with the Act, Jandakot Airport is required to produce a final Master Plan which includes an Environment Strategy.

The Jandakot Airport Environment Strategy 2020 (the Environment Strategy) outlines Jandakot Airport's environment management objectives for the eight year period from 2020 and describes how JAH will meet its environmental obligations as detailed in the Act.

The Environment Strategy builds upon the Environment Management Framework (EMF) which incorporates measures to meet Jandakot Airport's obligations under Commonwealth and relevant State legislation. This Environment Strategy has been developed with consideration of current airport operations as well as proposed future development.

9.1.1 STAKEHOLDER CONSULTATION

In preparing the Environment Strategy, JAH has undertaken significant consultation with key stakeholders including Federal, State and Local Governments, aviation users and community groups. Details of the consultation undertaken are summarised in Chapter 10.

9.1.2 MANAGEMENT STRUCTURE AND RESPONSIBILITIES

As the leaseholder of Jandakot Airport, JAH has the ultimate responsibility for environmental management at the airport.

Roles, responsibilities and authorities of JAH personnel are defined in the Environmental Management System to ensure effective implementation of systems and procedures. All JAH staff, tenants and general users of the airport have a responsibility to protect the environment of the airport through the *Airports (Environment Protection) Regulations 1997*, conditions and other applicable legislation.

To ensure the successful implementation and operation of the Environment Strategy (EMS), responsibility has been assigned to the parties listed in Table 9.1.

TENANTS

The airport hosts a wide variety of tenants whose activities include aircraft operations, aircraft maintenance, flight training, accommodation, retail, warehousing, distribution, and industrial operations.

Airport tenants are responsible for managing their own operations in an environmentally responsible manner in accordance with the Environment Strategy 2020, which will be made available on the JAH website.

JAH ensures that tenants comply with their airport environmental management responsibilities via a number of procedures and processes, including:

- Conditions detailed within leases and licenses;
- Tenant Construction Environmental Management Plans (CEMP) and Operational Environmental Management Plans (OEMP);
- Conditions of approval for developments, building and works applications;
- Environmental site assessments for lease terminations;
- Tenant site inspections and audits; and
- Incident reporting.

Table 9.1 Implementation of the Environment Strategy

Party	Responsibility
Board of Directors (including Managing Director)	The environmental performance of JAH Periodic review of the JAH Environment Policy Allocation of resources to manage environmental issues Ensuring JAH staff fulfil their environmental responsibilities
JAH Management Committee	Providing guidance on implementation of the JAH EMS Assistance in implementation of the Environment Strategy
JAH Safety Management System Committee	Monitoring and providing feedback on the implementation of the JAH EMS Review of JAH's environmental performance, including incidents and non-conformances, audit results, training needs, significant aspects, progress against objectives and targets, and regulatory compliance
JAH Environment Manager (supported by the Environment Coordinator)	Preparing the Environment Strategy and monitoring its implementation Reviewing of the JAH EMS Preparing and monitoring implementation of the airport's management plans and programmes Ensuring compliance with regulatory requirements Preparation of the Annual Environment Report Providing environmental advice and training to staff and contractors Assisting staff, tenants and contractors with environmental compliance Environmental incident response and investigation
JAH Managers (including Airport Operations Manager, Facilities Manager, Building Approvals Manager)	Management of daily environmental issues associated with their department's operations Ensuring that operations comply with applicable legislation and EMS requirements Identification of staff training needs Integration of environmental requirements into daily operations Staff environmental awareness
JAH Staff	Reporting environmental incidents, non-conformances and complaints Adhering to relevant EMS policies and procedures Undertaking work in compliance with applicable environmental legislation Participation in environmental training and awareness
JAH Contractors	Reporting environmental incidents, non-conformances and complaints Adhering to relevant EMS policies and procedures Undertaking work in compliance with applicable environmental legislation Participation in site inductions and relevant environmental training and awareness programs Development and implementation of Construction Environmental Management Plans as required

9.2 ENVIRONMENT MANAGEMENT FRAMEWORK

The JAH Environmental Management Framework is presented in Figure 9.1. This framework was reviewed in conjunction with the development of the Master Plan 2020 and is based on the internationally recognised "Plan – Do – Check – Act" philosophy. The key elements of the framework are outlined below.

9.2.1 ENVIRONMENT POLICY

JAH's Environment Policy guides the management of the natural environment at Jandakot Airport. The Policy is as follows:

Jandakot Airport Holdings Pty Ltd manages and operates Jandakot Airport, Western Australia's premier General Aviation aerodrome. Jandakot Airport covers an area of 622ha, including aviation operations, commercial and conservation precincts.

JAH recognises its responsibility to the environment at the airport. To achieve this, JAH commits to establishing and maintaining an environmental management system that strives to:

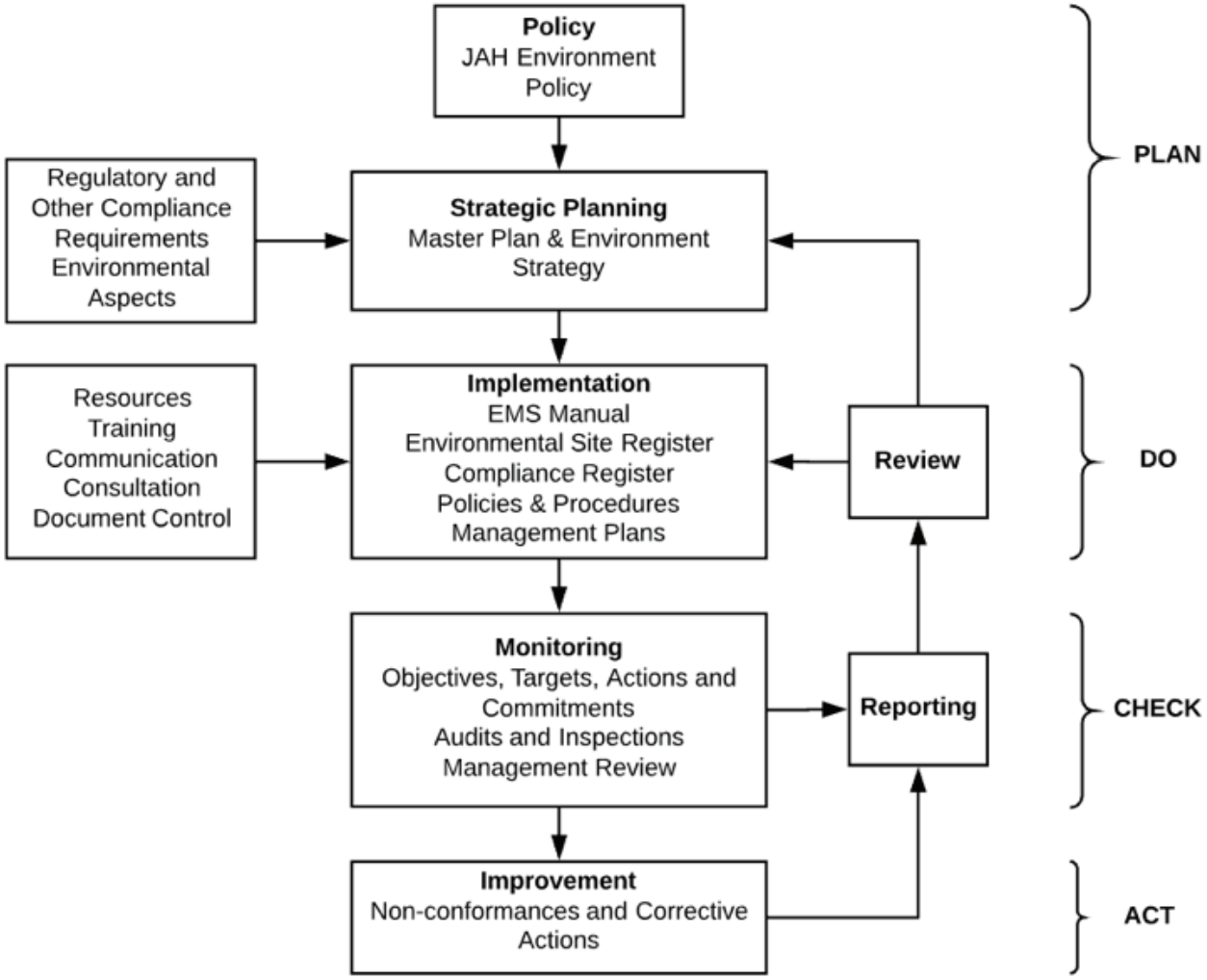
- Develop and manage Jandakot Airport in an environmentally responsible manner;
- Comply with environmental legislation;
- Work with relevant authorities to identify specific objectives and targets that aim to minimise adverse environmental impacts, including the prevention of pollution;
- Pursue opportunities for efficient use of resources; and
- Manage, measure, and report on our environmental performance.

JAH is committed to the continual improvement of the environmental management system. All employees, contractors, tenants, and operators have a duty to meet their environmental responsibilities under the EMS.

9.2.2 ENVIRONMENTAL MANAGEMENT SYSTEM

Achievement of the Environment Strategy targets is facilitated by the development, implementation and continual improvement of the JAH Environmental Management System (EMS). Initially developed in 2004, the EMS is consistent with AS/NZS ISO 14001:2015. The EMS extends to all activities and organisations over which JAH has control or influence. This includes JAH employees, tenants, visitors and contractors to varying degrees.

FIGURE 9.1 - JAH ENVIRONMENTAL MANAGEMENT FRAMEWORK



The Jandakot Airport EMS Manual documents the structure of the EMS and how it complies with the 14001 Standard. The manual is comprised of six headline areas that comprise the EMS, each providing direction on the specific area and links to related documents and processes. These headline areas and select related documents are:

- Leadership – Defines management commitment (Environment Policy) and roles and responsibilities;
- Planning – Identifies risk assessment process and recording (Risk Register), definition of environmental aspect identification process (Safety Management System manual), compliance obligations and procedures (Compliance Register, Legal Register) and environmental objectives (Master Plan and Objectives and Performance Indicators Register);
- Support – Establishes the commitment to resources to manage the environment at Jandakot Airport, including implementation of the EMS. Establishes requirements for documented information (Controlled Documents), competence (Training, Contractor Management) and communication and awareness for JAH staff, tenants and contractors (Communication and Consultation Procedure, tenant Operational Environmental Management Plans and Community Aviation Consultative Group);
- Operations – Defines processes to ensure internal and external requirements are met by JAH and contactors (Contractor Management). Also provides procedures for emergency preparedness and response;
- Performance Evaluation – Defines the components and procedures for monitoring, measurement, analysis and evaluation of JAH activities (Environmental Site Register), audits and inspections (Audit and Management Review Procedure) and EMS review process (EMS Management Review Agenda); and
- Improvement – Defines reporting procedures for nonconformity and corrective action and continual improvement (Incident Reporting and Investigation Procedure, Corrective and Preventative Actions Procedure, Annual Environmental Report).

JAH's environmental policies and procedures are updated regularly to reflect changes in legislation, activities and information.

The EMS Manual is authorised by the Managing Director and reviewed regularly or when activities/processes change.

An expanded explanation of a number of the key components of JAH's EMS follows.

MANAGEMENT PLANS

A number of environmental factors at the airport are managed through specific management plans and strategies. These include the following:

- Conservation Management Plan, which includes:
  - Weed Management Plan;
  - Dieback Management Plan;
  - Bushland Rehabilitation and Revegetation guidelines;
  - Feral Animal Management Plan;
  - Bushfire Management Plan;
  - Wildlife Fencing and Underpass Strategy; and
  - Heritage Management Plan;
- Local Water Management Strategy;
- Water Efficiency Management Plan;
- Groundwater Management Plan;
- Jandakot Airport Offset Plan; and
- Construction Environmental Management Plan for Clearing and Civil Works associated with EPBC 2009/4796.

Many of these plans, such as the Conservation Management Plan, are linked to EPBC approval conditions and require the approval of the Minister for the Environment.

Other Management Plans are driven by internal requirements, identified as part of the Environment Strategy and EMS as necessary for the successful management of the environment at the airport. These include Construction and Operational Environmental Management Plans.

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLANS

Construction/civil works (including demolition) with the potential for environmental impacts require a Construction Environmental Management Plan (CEMP), which must be reviewed and endorsed by the JAH Environment Department prior to works commencing. The requirement for CEMPs is typically included as a condition of the building/works/demolition permit. Where works are of a limited scope and involve minimal environmental risk, documentation other than

a CEMP (e.g. Method of Work Plan, Safe Work Method Statement) may be substituted so long as:

- It is permitted within the conditions of the approved permit issued by the Airport Building Controller; and
- The alternative documentation adequately identifies environmental risks and means by which those risks are mitigated and managed.

Clearing and construction activities associated with EPBC approved projects are undertaken in accordance with relevant CEMPs (as required by the conditions of approval) which must be approved by the Minister for the Environment.

TENANT OPERATIONAL ENVIRONMENTAL MANAGEMENT PLANS

Jandakot Airport tenants are responsible for managing their own operations in an environmentally responsible manner. JAH has developed guidelines and templates to assist tenants in the development of Operational Environmental Management Plans (OEMPs).

The requirement for a tenant OEMP is directly linked to a tenant's environmental risk profile.

In accordance with the Jandakot Airport Tenant Environmental Risk Allocation and Auditing Frequency Criteria, tenants assessed as having a 'Low' environmental risk profile may be provided with an OEMP exemption following a documented site inspection by JAH Environment Department staff.

TRAINING, CONSULTATION AND COMMUNICATION

Training and awareness are integral to the effectiveness of the EMS, with employees, contractors and tenants requiring a sound understanding of the issues surrounding environmental management of the airport, along with regulatory requirements, internal standards, policies and objectives.

JAH has established a training process in which all employees and contractors are required to complete an induction. This ensures that prior to the commencement of work, the individual understands: the importance of environmental management at Jandakot Airport; their role in the EMS; and any specific instructions pertaining to their actual tasks.

A training needs analysis, which details mandatory and optional training per position, is utilised to identify any gaps or updates to employee training required.

Training and awareness is a component of all OEMPs and CEMPs, thus ensuring that tenants and construction contractors provide appropriate environmental training and awareness to their staff, contractors and visitors.

Appropriate communication with various stakeholders both within and outside of JAH ensures awareness of environmental management measures undertaken across the airport, and allows for the identification of improvement opportunities based on consultation feedback.

There are a number of internal and external communication and consultation methods established by JAH, including:

- Internal meetings;
- Staff noticeboards;
- The JAH website, which is the primary source of information for tenants and other users of the airport; and
- Stakeholder and regulatory meetings.

A key communication tool is the Tenant Environmental Handbook, developed by JAH to assist tenants in understanding their environmental obligations at Jandakot Airport. It also provides information of a general nature to assist in meeting those obligations. The Tenant Environmental Handbook is published electronically on the JAH website along with other relevant tenant environmental resources.

MONITORING

Regular monitoring ensures that changes in environmental conditions or events of non-compliance are noted, allowing for corrective measures to be implemented. Monitoring provides ongoing data which can be assessed against legislative compliance and result in improved management of environmental values.

In order to meet regulatory targets and other commitments, JAH undertakes several environmental monitoring programmes that are carried out by qualified professionals when required (as summarised in Table 9.2). In many instances, monitoring requirements are detailed within relevant management plans (CMP, CEMP and Groundwater Management Plan) which are

approved by the Department of Agriculture, Water and the Environment and linked to EPBC conditions of approval.

Table 9.2 Summary of Environmental Monitoring Undertaken at Jandakot Airport

Monitoring Type	Frequency
Groundwater quality	As defined in Groundwater Management Plan
Groundwater abstraction	Monthly
Scheme water usage	Every two months
Airside fauna monitoring	Daily
Soil testing	As required
Archaeological	As required during clearing and earthworks
Energy usage	Monthly
Flora	Seasonally as defined in CMP
Fauna	As defined in CMP
Introduced plant species	As defined in CMP
Dieback	Triennially
Tenant audits	Based on risk profile
Compliance obligations	Annually
EMS	Annually

TENANT AUDITS AND INSPECTIONS

Tenant audits are an important monitoring tool, used to demonstrate that operators are undertaking activities in line with regulatory and JAH requirements. Audits are undertaken to determine a tenant's compliance with the JAH Environment Strategy and their own OEMP.

In addition to audits, JAH completes tenant inspections that may be undertaken to:

- Investigate a particular environmental management issue in between scheduled audits; and
- Confirm the low risk status of a site prior to issuing an OEMP exemption.

Tenants and construction contractors with a CEMP may also be subjected to inspections to determine compliance with JAH requirements.

ENVIRONMENTAL SITE ASSESSMENTS

Prior to the expiry, transfer or termination of a tenant sub-lease, JAH reviews the activities that have occurred on site during the term of the lease and determines whether the likelihood of soil or groundwater contamination exists. If past or current activities on the site have the potential to result in soil or groundwater contamination, then an environmental investigation of the leased site is undertaken by the departing tenant consistent with the requirements of the *Airports (Environment Protection) Regulations 1997*.

If the Environmental Site Assessment concludes that the site is likely to be contaminated, further investigations are undertaken to define the presence, nature, magnitude and extent of contamination and recommend if appropriate remediation and/or monitoring is required.

REPORTING

JAH will produce an Annual Environment Report (AER) both for internal review purposes and submission to the Department of Infrastructure, Transport, Regional Development and Communications and the Department of Agriculture, Water and the Environment.

These reports include updated information on:

- Targets within this Environment Strategy;
- Commitments and actions as detailed within Management Plans associated with EPBC conditions of approval;
- Any additional contaminated sites;
- Remediation measures undertaken at known contaminated sites;
- Results of any investigations or monitoring undertaken; and
- Details of any environmental complaints or incidents.

INCIDENT AND NON-CONFORMANCE REPORTING

JAH staff, tenants and contractors are required to report environmental incidents and non-conformances to JAH. Incidents include spills that have the potential to result in environmental harm, as well as complaints, aircraft wildlife hazards and other non-conformances. Incidents and non-conformances are recorded within the JAH Safety Management System and are subject to an initial investigation and if warranted, corrective actions are identified. For incidents resulting in potential contamination, corrective actions may include groundwater and/or soil sampling or the development and implementation of a remediation programme.

REVIEW

In order to achieve continual improvement, elements of the JAH Environmental Management Framework and EMS (e.g. policies, procedures, management plans etc.) are periodically reviewed and amended as part of scheduled actions, or in response to new and updated information that may arise from audits, monitoring or other means.

The entire EMS is subject to an annual management review in conjunction with the compilation of the AER. The EMS review outcomes are tabled at Safety Management Systems Committee Meetings and are used to update the Compliance Register and Airport Environmental Action Plan.

Previously, the complete Environmental Management Framework, including the EMS, was reviewed every five years in conjunction with the development of each new Master Plan and Environment Strategy. The last review was undertaken during the preparation of Master Plan 2020. The next review will be undertaken in 2027 as part of the development of Master Plan 2028.

EMS ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- Review and update of the JAH Environmental Management Framework; including review and update of the JAH EMS in line with the new AS/NZS ISO 14001:2015;
- Review of Tenant Environmental Handbook and promulgation of existing and updated environmental resources on the JAH website;
- Ongoing progressive OEMP development and implementation by tenants consistent with the Tenant Environmental Risk Allocation and Auditing Frequency Criteria;
- Ongoing development and implementation of CEMPs for clearing and construction projects;
- Tenant audits undertaken consistent with the Tenant Environmental Risk Allocation and Auditing Frequency Criteria. Auditing of tenants across the airport estate, ensuring compliance with JAH and regulatory environmental requirements, including the development of an OEMP;
- Implementation of the Tenant OEMP Exemption process for low risk tenants;
- Submission of all environmental reports to regulatory authorities within the specified timeframes; and
- Maintenance of the Environmental Action Plan.

TARGETS

The Environmental Management Framework, and in particular the EMS, is the means through which JAH manages the environment at the airport. The targets established in this section are not specific to one environmental factor, but instead highlight the approach that will facilitate the achievement of targets in Sections 9.7 to 9.13.

Table 9.3 Environment Management Targets

Target	Timeframe
Maintain and improve the JAH EMS, including updating relevant policies and procedures as required	Ongoing
Review Tenant Environmental Handbook.	Triennially
Promulgate staff and tenant environmental resources (policies, guidelines, Tenant Environmental Handbook etc.) on the JAH website	Ongoing
Require all tenants/projects that have the potential to cause environmental harm develop and implement an OEMP/CEMP	Ongoing
Undertake auditing of tenants consistent with the Tenant Environmental Risk Allocation and Auditing Frequency Criteria	Ongoing
Undertake environmental reporting to regulatory authorities	Annually
Maintain Compliance Register and Airport Environmental Action Plan	Annually
Review and update the JAH Environmental Management Framework	2027

9.3 ENVIRONMENTAL REGULATORY CONTEXT

JAH and its tenants have a diverse range of environmental obligations as a result of legislation, licenses, lease conditions, permits and development approvals. The key pieces of legislation controlling the environment operations at the airport are the *Airports Act 1996*, *Airports (Environment Protection) Regulations 1997* and the *Environment Protection and Biodiversity Conservation Act 1999*.

In addition, various industry codes of practice, Australian Standards and other guidelines are applicable to operations at the airport.

9.3.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) provides for the protection of the environment, especially matters of national environmental significance. Under the EPBC Act, a person must not take action that has, will have, or is likely to have a significant impact on any matters of national environmental significance without approval from the Australian Government Environment Minister.

EPBC referral 2009/4796 (Jandakot Airport Expansion, Commercial Development and Clearance of Native Vegetation, WA) was approved with conditions by the then Minister for Environment, Water, Heritage and Arts in March 2010. This approval allows for clearing of native vegetation within Precincts 1B, 3, 4 and 5 to enable expansion of commercial and aviation developments as detailed in the Master Plan 2009. The conditions of approval include the development and implementation of various management plans, including an Offset Plan, Conservation Management Plan, Construction Environmental Management Plan and Groundwater Management Plan. All of these plans have been developed and implemented.

EPBC Referral 2013/7032 (Jandakot Airport Precinct 6 and 6A) was approved by the then Department of the Environment in July 2014. This approval allowed for the clearing of native vegetation within Precincts 6 and 6A for the subsequent mixed business and aviation developments. The conditions of approval included the acquisition of offset land, the development and implementation of a Construction Environmental Management Plan and measures to protect the Jandakot Groundwater Mound. All of the conditions have been implemented and the actions of the approved referral are now complete.

9.3.2 AIRPORTS ACT 1996 AND AIRPORTS (ENVIRONMENT PROTECTION) REGULATIONS1997

The *Airports Act 1996* and subsidiary legislation are the primary statutory controls for ongoing regulation of activities on airport land. In particular, Part 5 Division 3 Section 71(h) of the Act details the requirements of an Environment Strategy and Part 6 of the Act addresses matters resulting in environmental harm.

The Airports (Environment Protection) Regulations 1997 detail general duty requirements of airport-lessee companies, and identify and define procedures and standards to be employed in determining the level and impact of air, water and soil pollution and excessive ground based noise. These Regulations also set out in detail the environment standards, monitoring and reporting regimes and the enforcement provisions for environmental matters specified in the Act and Regulations.

All users of Jandakot Airport have a duty under the Regulations to:

- Prevent pollution;
- Preserve
    - local biota, ecosystems and native species habitats;
    - existing aesthetic, cultural, historical, social and scientific (including archaeological and anthropological) values;
    - vulnerable or endangered flora and fauna species;
    - conservation significant vegetation;
    - sites of indigenous significance at the airport; and
- Prevent the generation of offensive noise.

9.3.3 OTHER COMMONWEALTH ENVIRONMENT AND HERITAGE LEGISLATION

Commonwealth legislation, in addition to those detailed above, which applies to the airport includes:

- *Australian Heritage Council Act 2003;*
- *Native Title Act 1993; and*
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984.*

9.3.4 WESTERN AUSTRALIAN ENVIRONMENT AND HERITAGE LEGISLATION

Some State environmental legislation applies to Jandakot Airport under the provisions of the *Commonwealth Places (Application of Laws) Act 1970*. Regulation of environmental issues can therefore occur through State agencies in selected circumstances, typically in instances where Commonwealth legislation does not exist (i.e. waste management). Where State and Commonwealth legislation conflicts, Commonwealth legislation takes precedence.

State legislation which is applicable to the airport includes:

- *Dangerous Goods Safety Act 2004;*
- *Environmental Protection (Controlled Waste) Regulations 2004; and*
- *Aboriginal Heritage Act 1972.*

The following environment-related State Planning policies are also taken into consideration for the management and development of the airport site.

- State Planning Policy 2.3 – Jandakot Groundwater Protection Policy; and
- State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region.

9.4 REGULATORY AGENCIES

Environmental regulation of the airport is carried out by the Department of Infrastructure, Transport, Regional Development and Communications and the Department of Agriculture, Water and the Environment (DAWE).

9.4.1 DEPARTMENT OF INFRASTRUCTURE, TRANSPORT, REGIONAL DEVELOPMENT AND COMMUNICATIONS

The Airport Environment Officer (AEO) is employed by the Department of Infrastructure, Transport, Regional Development and Communications and is authorised under the Act to exercise powers regarding environmental issues conveyed through the legislation. The AEO monitors JAH's compliance with this Master Plan and Environment Strategy, and the *Airports (Environment Protection) Regulations 1997*. JAH activities are monitored and compliance communicated through regular meetings, site inspections, monitoring and reporting. In addition to this, the AEO provides advice to the Airport Building Controller in the assessment of building applications relevant to the AEO.

9.4.2 DEPARTMENT OF AGRICULTURE, WATER AND THE ENVIRONMENT

The DAWE administers the EPBC Act, under which approvals are obtained for clearing and development when matters of national environmental significance are impacted. JAH liaises with and reports to the Environmental Audit Section regarding EPBC approved projects.

9.5 ENVIRONMENTALLY SIGNIFICANT AREAS

The *Airports Act 1996* requires that the Environment Strategy identifies, in consultation with relevant Commonwealth and State conservation bodies, areas (if any) within the Airport estate as environmentally significant. No definition or guidance on the minimum requirements for 'environmentally significant' has been provided by legislation or Agency guidance. As such, regulated airports nationally have variably defined environmentally significant areas in previous Environment Strategies.

JAH has previously identified environmentally significant areas within the 2009 and 2014 Master Plans, nominating these areas as Conservation Precincts. The nominated significance was primarily due to the presence of Banksia Woodland, which provides foraging habitat for Carnaby's Cockatoos (*Calyptorhynchus latirostris*). In addition, the presence of the Grand Spider Orchid (*Caladenia huegelii*) in Precinct 1A and to a lesser extent Precinct 1B, added to the identification of these specific areas.

Reflecting the evolution of development, aviation requirements and management of Jandakot Airport, the 2014 Master Plan identified Precincts 6 and 6A as Mixed Business and Aviation Operation respectively. As required under Commonwealth legislation, the proposed development of Precincts 6 and 6A was subject to assessment, and EPBC Approval 2013/7032 resulted in the provision of offsets by JAH and measures to protect the Jandakot Groundwater Mound. The 2014 Master Plan also split the former Precinct 2 in Precincts 2A and 2B, whilst retaining the proposed use as Conservation.

JAH recognizes that the airport estate contains environmental values that are listed under Commonwealth and State legislation. Impacts proposed to listed values require consideration under applicable legislation, most notably, the EPBC Act. Defining areas as environmentally significant under the *Airports Act 1996* does not therefore afford listed natural values an increased level of protection.

9.6 ENVIRONMENTAL ASPECTS

The environmental aspects addressed in the Environment Strategy have been identified through the previous Environment Strategy (2014), environmental reviews, audits and the development of the JAH Environmental Management System.

The environmental aspects have been classified as follows:

- Soil and Water Quality;
- Air Quality;
- Biodiversity and Conservation;
- Cultural Heritage;
- Ground Based Noise;
- Water and Energy Resources; and
- Waste.

These aspects are detailed in the following Sections 9.7 through 9.13, respectively. Where relevant, each of these sections delineates:

- Objectives for management;
- The existing environment at the airport pertaining to each aspect;
- Potential impacts of airport operations on the natural environment at the airport;
- Recent achievements; and
- Targets for environmental management at the airport from 2020-2028.

9.7 SOIL AND WATER QUALITY

Objectives

- To minimise potential contamination of soil and water sources
- Manage and investigate known or potentially contaminated sites in accordance with relevant legislation

Groundwater and soil impacts are intimately linked and as such, the impacts of airport operations on groundwater and soil have been considered together. The southern and eastern parts of the airport are located within the northern boundaries of the Jandakot Groundwater Mound as shown in Figure 9.2.

9.7.1 OVERVIEW

GEOLOGY AND SOILS

The Armadale and Fremantle 1:50 000 Environmental Geology Series indicates Jandakot Airport consists of Quaternary superficial alluvial sediments, varying in thickness from around 30m to 60m. The sands unconformably overlay the older Osborne and Leederville formations, comprising of shale and siltstones.

The Swan Coastal Plain consists of a series of distinct dune systems aligned approximately north to south and extending from the coast to the Darling Scarp. The Quindalup and Spearwood dune systems lie closest to the coast, with the Bassendean dune system further to the east. Jandakot Airport lies approximately 3km east of the Spearwood system boundary, within the Bassendean dune system. Bassendean sands are aeolian, or windborne, soils derived from particles washed up by the ocean and blown by wind to form dunes. These sands are characterised as pale grey, white, medium grained, moderately sorted quartz sand with black heavy minerals scattered throughout (McArthur and Bettenay 1960).

The topography of the airport and surrounding areas is generally flat, with local variations in height of 20 m or less. Most of the site has an elevation of approximately 28-30 m AHD. High points of 40-45 m AHD occur in the south-eastern corner and within Precinct 1A.

ACID SULFATE SOILS

Acid sulfate soil (ASS) is the common name for soils that contain metal sulfides. In an undisturbed and waterlogged state, these soils may pose no or low risk. However, when acid sulfate soils are disturbed or exposed and react with oxygen, they produce sulfuric acid which may be accompanied by certain hazards. Metals may be released from sediments and become bioavailable in the environment, oxygen may be removed from the water column and gases such as hydrogen sulfide, sulfur dioxide and methane may be released.

Failure to appropriately manage acid sulfate soils may:

- Impact the quality of potable drinking water groundwater due to acidification and release of metals in acid sulfate soil areas and receiving waters;
- Impact the quality of groundwater extracted for non-potable purposes (i.e. irrigation); and
- Impact infrastructure and the built environment by subsidence and corrosion.

The majority of the site is located in an area of moderate to low risk of ASS occurring within 3 metres of the natural soil surface but high to moderate risk of ASS beyond 3 metres of the natural soil surface (i.e. Class 2). A small area of land in the south of the airport is categorised as 'high to moderate risk of ASS occurring within 3 metres of the natural soil surface' (i.e. Class 1) (DWER 2017).

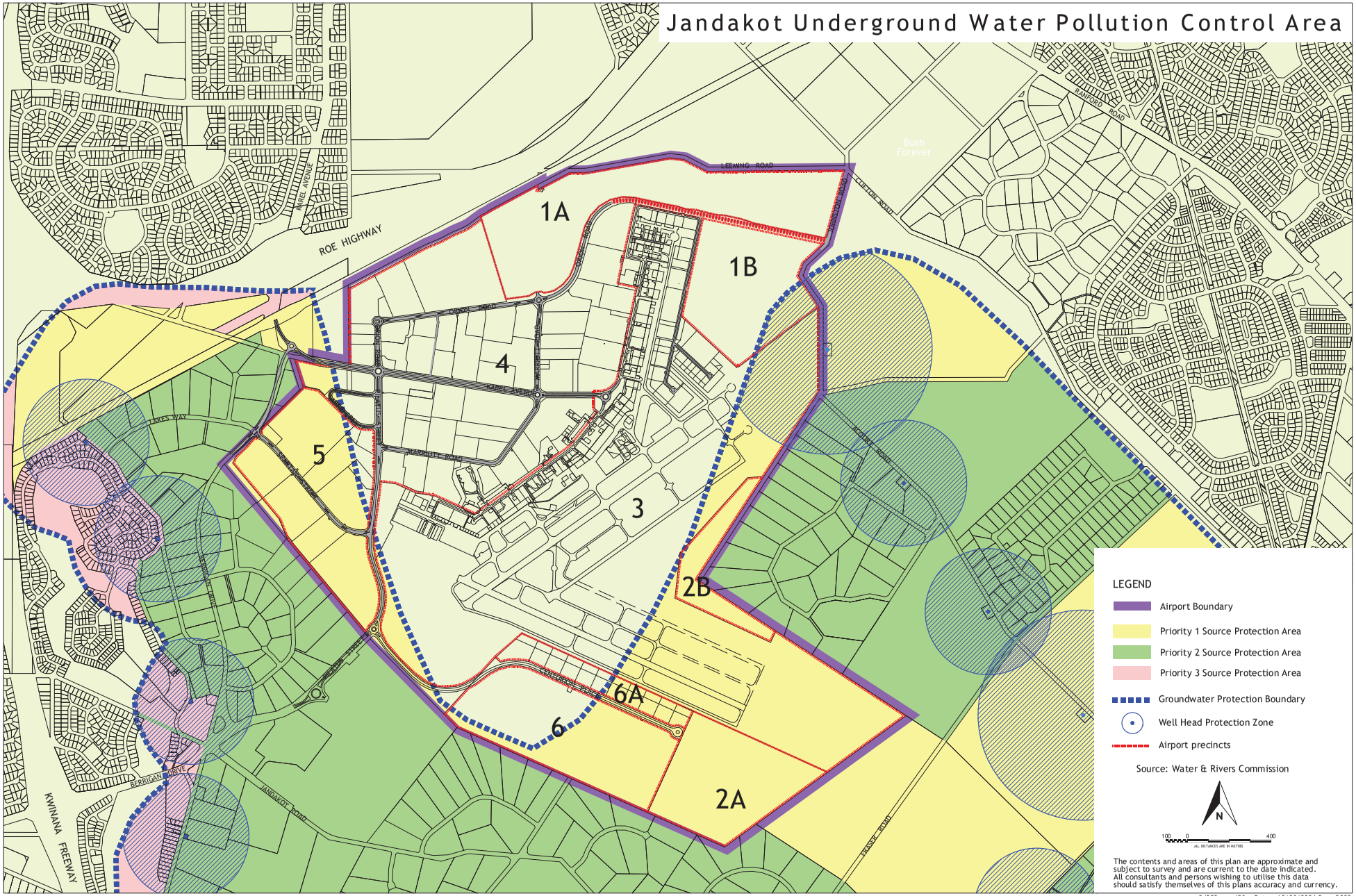


FIGURE 9.2 - JANDAKOT UNDERGROUND WATER POLLUTION CONTROL AREA

The WA Department of Water and Environmental Regulation (DWER) has released an Acid Sulfate Soils Guideline Series containing the following:

- Identification and investigation of acid sulfate soils and acidic landscapes (DER 2015a); and
- Treatment and management of soils and water in acid sulfate soil landscapes (DER 2015b).

In line with the DWER guidelines, sites will be investigated for acid sulfate soils if any of the following are proposed:

- Soil or sediment disturbance of 100m3 or in areas depicted in an ASS risk map as Class 1;
- Soil or sediment disturbance of 100m3 or more with excavation from below the natural water table in an area depicted on an ASS risk map as Class 2; and
- Lowering of the water table, whether temporary or permanent, in areas depicted in an ASS risk map as Class 1 or Class 2.

If the initial investigation confirms the presence of ASS, an ASS Management Plan will be developed and implemented.

STORMWATER

Development increases the area of impermeable surfaces such as buildings, roads, car parks, runways and apron areas, which concentrate run-off following very intense rainfall events.

Stormwater from roofs is collected and discharged into soakwells in order to facilitate and maximise groundwater recharge.

Drainage swales and basins have been created in strategic areas of the airport to collect run-off from roads and other sealed surfaces. Due to the high permeability of the Bassendean soils, run-off is localised and short term as it generally infiltrates very quickly.

Groundwater downgradient from drainage basins adjacent to the Jandakot Underground Water Pollution Control Area, is monitored in order to ensure that water quality is not adversely impacted by stormwater management practices at the airport.

WETLANDS

Within Jandakot Airport there are no natural drainage channels or defined areas of surface water.

The two wetlands that occur on the site are both Resource Enhancement category wetlands (Damplands) as defined by the Geomorphic Wetlands of the Swan Coastal Plain dataset (DBCA 2018). Neither of these wetlands are listed on the Commonwealth Directory of Important Wetlands. These are located in Precincts 1A and 1B, both of which are areas of dieback infested bushland.

GROUNDWATER

Jandakot Airport is partially located on the northern margin of the Jandakot Groundwater Mound, with the crest of the mound located just south of the airport (Davidson, 1995).

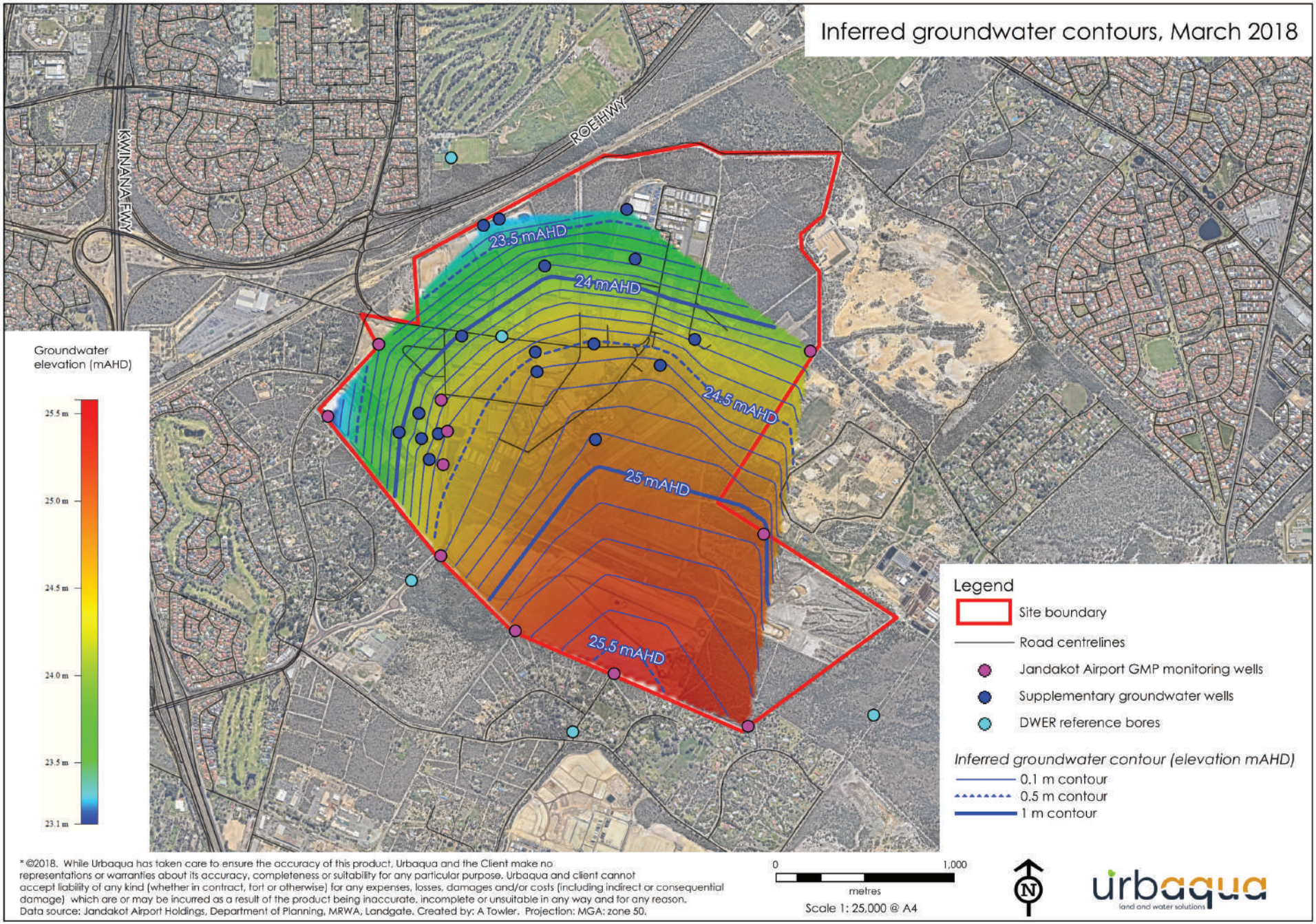
The shallow sand aquifer covers an approximate area of 760 km2, from the Swan River in the north to the Serpentine River in the south. The Jandakot Mound has primarily developed because the rate of infiltration exceeds the rate of horizontal groundwater flow through the aquifer.

Groundwater levels at Jandakot Airport are generally shallow (23 to 26 mAHD) with little variability in the groundwater levels (generally less than 1m) throughout the year (Urbaqua 2020). Groundwater levels generally rise between June and September in response to infiltration from rainfall followed by a decline from September to June. A review of historical DWER data shows that groundwater levels in the Jandakot area have generally declined from around 1990, but have shown a marginal increase since 2010/11. This recent trend of increasing water levels is also evident within the airport.

Inferred groundwater contour mapping indicates that groundwater flows in a northerly direction over much of the airport, with a north westerly flow in some areas; notably Precinct 5 and more western areas of the airport as shown in Figure 9.3 (Urbaqua 2018).

GROUNDWATER ABSTRACTION

JAH abstracts groundwater for irrigation and construction (primarily dust suppression) purposes via a network of bores. Groundwater abstraction from the underlying superficial aquifer occurs in accordance with a license issued by the DWER. All groundwater abstraction bores are metered and water consumption rates are monitored monthly. The Jandakot Airport Groundwater Management Plan addresses the management and reporting of groundwater abstraction.



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Data source: Jandakot Airport Holdings, Department of Planning, MRWA, Landgate. Created by: A Towler. Projection: MGA: zone 50.

FIGURE 9.3 - JANDAKOT AIRPORT INFERRED GROUNDWATER CONTOURS

UNDERGROUND WATER POLLUTION CONTROL AREA

The Jandakot Mound is gazetted as both a Public Drinking Water Supply Area (PDWSA) and an Underground Water Pollution Control Area (UWPCA). The UWPCA defines the area of the Jandakot Mound groundwater system that provides public water supply as part of the Integrated Water Supply Scheme. The DWER manages Western Australia's water resources including the Jandakot Mound and restricts land uses that may pose a threat to the quantity or quality of water available from the mound for public water supply.

Within the Jandakot UWPCA, a three-level priority system is used; Priority 1 (P1); Priority 2 (P2) and Priority 3 (P3). In addition, Wellhead Protection Zones are used to protect underground sources of drinking water.

Portions of the airport land are within the P1 Source Protection Area of the Jandakot UWPCA, including:

- Conservation Precincts 2A, 2B and a portion of 1B;
- Portions of Precinct 4, 5, and 6/6A, which are already under development;
- Precinct 3, including existing infrastructure and portions of the proposed fourth runway and runway extension;

Existing developments at the airport that are located within the Jandakot Mound's Source Protection Area are managed in accordance with the Jandakot Airport Local Water Management Strategy and Groundwater Management Plan.

LOCAL WATER MANAGEMENT STRATEGY

The Jandakot Airport Local Water Management Strategy, initially developed in 2009 to guide development of Precinct 5, was reviewed and amended in 2015 to incorporate the development of Precincts 6 and 6A. This strategy incorporates and provides for the implementation of Water Sensitive Urban Design at the airport. Water management objectives include:

- Prevent pollution of groundwater within the JUWPCA;
- Contribute to improving the health and sustainability of the Jandakot Groundwater system;
- Provide a local drainage system with appropriate level of amenity and safety during storm events; and
- Ensure the efficient use and re-use of water resources.

POLLUTION PREVENTION AND CONTAMINATION MANAGEMENT

Hazardous substances and dangerous goods are stored and used across the airport on a daily basis. These products have the potential to cause significant environmental impacts to both soil and groundwater if they are not stored and managed correctly.

Through consultation with regulators, tenants and other stakeholders, JAH has developed a number of measures to minimise the risk of pollution occurring and ensure that the risk posed by existing contaminated sites are appropriately managed. These include:

- Implementation of the Local Water Management Strategy and Groundwater Management Plan;
- No bulk storage (i.e. manifest quantities as defined under the *Dangerous Goods Safety Act 2004* and associated regulations) of potentially polluting chemicals within the Jandakot UWPCA;
- All new developments are to be connected to deep sewer;
- All existing infrastructure to be connected to deep sewer by end of 2024 (where feasible);
- Development of Construction Environmental Management Plans, and Operational Environmental Management Plans to reduce the risk of pollution on tenant sites;
- Undertaking tenant audits and inspections;
- Training and awareness programs (e.g. site inductions, Tenant Environmental Handbook, spill response training, etc.); and
- Mandatory reporting of all spills that have the potential to result in environmental harm, regardless of volume.

All areas of confirmed or suspected contamination are reported and recorded on the JAH Contaminated Sites Register, which is a component of the Environmental Site Register. Sites are ranked according to the nature of contamination and risks posed. Where investigation identifies sites as requiring remediation or ongoing monitoring, appropriate plans are developed and implemented in line with the *Airports (Environment Protection) Regulations 1997*, National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM) and the DWER's Contaminated Sites Management Series Guidelines as appropriate. The number of contaminated sites on the Environmental Site Register has been reduced from 14 in 2009 to

eight in 2014 and six in 2020. Two sites are subjected to ongoing monitoring programmes, and one site is in the final stages of validation. The remaining sites are low risk unconfirmed contamination that will be addressed in future assessments.

Prior to the expiry, transfer or termination of a tenant lease or license, an Environmental Site Assessment is undertaken if the activities of the tenant are determined to have had the potential to result in possible soil or groundwater contamination.

GROUNDWATER MANAGEMENT

Regular groundwater monitoring is undertaken at eleven monitoring bores across the airport site under the Jandakot Airport Groundwater Management Plan monitoring programme. The groundwater monitoring programme and groundwater monitoring bore locations take into account the existing developed areas within the UWPCA, including Precinct 5 and 6/6A.

Additional groundwater and soil monitoring occurs as a component of sampling analysis plans and other ongoing monitoring programmes associated with known and suspected contaminated sites.

PFAS

Due to the historical use of fire fighting foams containing per- and poly-fluoroalkyl substances (PFAS), a risk of soil and groundwater PFAS contamination exists in areas of Jandakot Airport. Since 2012, JAH has been overseeing PFAS investigations and ongoing monitoring associated with a decommissioned fire training area. Human Health and Ecological Risk Assessments have concluded that no significant risks exist.

Additional investigations to establish existing background PFAS levels in groundwater and the sampling of other potentially impacted sites are have commenced and a Preliminary Site Investigation is in progress. JAH will continue to work with relevant agencies and other responsible parties to assess and manage potential PFAS contamination risks in accordance with the PFAS National Environmental Management Plan and other guidelines.

9.7.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- Acid Sulfate Soils managed and investigated in line with DWER guidelines;
- Implementation of the Jandakot Airport Local Water Management Strategy and Groundwater Management Plan, including the ongoing groundwater monitoring program;
- Amendment of the Jandakot Airport Local Water Management Strategy and Groundwater Management Plan to incorporate development of Precinct 6/6A and groundwater abstraction management;
- All new developments within Precincts 4, 5 and 6/6A are connected to sewer; and
- Progressive expansion of the sewer connection to older established airport buildings within Precinct 3.

9.7.3 TARGETS

Table 9.4 below lists proposed targets aimed at appropriate consideration and management of soil and water quality at Jandakot Airport

Table 9.4 Soil and Water Quality Management Targets

Target	Timeframe
Acid sulfate soils to be investigated and managed in line with DWER Guidelines	Ongoing
Implement the Jandakot Airport Local Water Management Strategy	Ongoing
Implement the Jandakot Airport Groundwater Management Plan	Ongoing
Continue to investigate and where appropriate monitor/remediate existing and new suspected and confirmed contaminated sites	Ongoing
All new developments in Precinct 4, 5, 6 and 6A to be constructed with connection to sewer	Ongoing
Effluent (sewage and greywater) to be disposed to sewer, with the possible exception of a few small, isolated tenants within Precinct 3 outside of the UWPCA where reticulated sewer connection is not feasibly possible	2024
Where disposal of effluent to sewer is not feasible or possible (due to distance of facility from a sewer connection), new facilities will install an approved ATU (applies to Precinct 3 outside of UWPCA only)	Ongoing
Where disposal of effluent to sewer is not feasible or possible (due to distance of facility from a sewer connection), existing facilities with septic systems will be assessed and, if warranted, instructed to upgrade to an approved ATU	2024
Continue to require all tenants/projects that have the potential to cause environmental harm develop and implement an OEMP/ CEMP	Ongoing

9.8 AIR QUALITY

Objective: To minimise adverse impacts on air quality resulting from ground-based activities.

9.8.1 OVERVIEW

Jandakot Airport, being a general aviation airport, does not experience the same degree of impact on air quality as major Australian airports with larger aircraft. The main sources of air emissions at Jandakot Airport are emissions from ground based operations including ground based aircraft movement, refuelling, solvent emissions from painting, mechanical and maintenance workshop emissions, manufacturing emissions and dust.

The potential impacts from ground-based emissions at Jandakot Airport include:

- Degraded local and regional air quality;
- Impacts on human health (through population exposure to airport pollution); and
- Impacts on amenity and pollution-sensitive environment values.

The main impact on air quality during construction of new buildings at the airport is likely to be dust arising from exposed soil.

Emissions from aircraft whilst in the air are controlled by the Air Navigation (Aircraft Engine Emissions) Regulations which are the responsibility of Airservices Australia.

CLIMATE

The Bureau of Meteorology (BoM) has a weather station at Jandakot Airport, with more than 30 years of data recorded.

The Swan Coastal Plain Subregion has a Mediterranean climate. The area experiences a wide range of temperatures throughout the year, with an average maximum temperature of 24.6°C. In summer, maximum temperatures may reach 40°C, whilst in winter, minimum temperatures may reach <5°C (BoM 2020).

Rainfall tends to fall in winter, with a maximum monthly mean rainfall of 171.7 mm in July. The annual average rainfall at Jandakot Airport (1972-2018) is 819.6 mm (BoM 2020).

OZONE DEPLETING SUBSTANCES

Ozone Depleting Substances (ODS) can be present in refrigerators, air conditioning systems and fire extinguishers. The identification of ODS (except internal aircraft use) is a component of the JAH tenant audit procedure and the JAH OEMP template prompts tenants to determine whether ODS are present on site when developing their OEMP. With the exception of use within aircraft, JAH are not aware of any ODS in use at the airport. Any ODS identified on the airport will be recorded within a register and JAH will liaise with the relevant tenant(s) to require that they are phased out where feasible.

DUST

Clearing and development activities are the primary source of dust on the airport. Activities are managed with the approved CEMPs which contain dust management strategies, including:

- Suppression using non potable water and dust suppressants (e.g. dustex) where warranted;
- Hydromulching;
- Establishing temporary vegetative cover (e.g. cereal rye) to stabilise between initial clearing and lot level development stages;
- Using dust barriers to limit transport of dust off work areas, oriented to intercept prevailing winds;
- Restriction of high risk activities in unsuitable wind/ weather conditions; and
- Restriction of construction traffic to designated areas and tracks.

Dust complaints are managed as environmental incidents and investigated to ensure corrective action is taken as soon as practicably possible.

PUBLIC TRANSPORT

JAH encourages its staff and tenants to reduce vehicle use in order in order to reduce emissions. Following JAH's consultation with the State Government's Public Transport Authority, Transperth began operating a public bus service into Jandakot Airport in February 2013 with regular weekday services linking the airport to Murdoch Station.

AIRSHED MONITORING

Jandakot Airport is located within the regional South Lake airshed that comprises heavy industry, commercial activities, major arterial roads (including Kwinana Freeway and Roe Highway) and residential areas. The South Lake airshed is subject to the potential impacts of air pollutants, including carbon monoxide, particulate matter and photochemical smog (ozone), originating from activities within the Perth metropolitan area.

JAH utilises the ambient air quality monitoring data collected by the DWER at the South Lake (South East Metropolitan) monitoring station, which is approximately three kilometres west of the airport. Given the potential impacts of road vehicle traffic and industrial facilities on the airshed it is likely to be difficult to draw any conclusions concerning the operation of the airport on local air pollution. However, analysis of the DWER data since 2009 reveals no exceedances of the *Airports (Environmentl Protection) Regulations 1997* requirements.

9.8.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- The inclusion of management and mitigation measure for dust control within CEMPs; and
- Ongoing adoption of the South Lake (South East Metropolitan) data for local air quality monitoring, with no exceedances of the Regulations observed.

9.8.3 TARGETS

Table 9.5 below lists proposed targets aimed at monitoring and management of air quality.

Table 9.5 Air Quality Management Targets

Target	Timeframe
Continue to require all tenants/projects that have the potential to cause environmental harm to develop and implement an OEMP/ CEMP	Ongoing
Ensure all CEMPs include appropriate management actions to minimise the impacts of dust, including procedures to address dust complaints in a timely manner	Ongoing
Compliance with legislative requirements, including reporting requirements when reporting thresholds are triggered	As required
Utilise the South Lake (South East Metropolitan) monitoring station to determine ambient air quality	Annually

9.9 BIODIVERSITY AND CONSERVATION

Objective: To manage the flora and fauna within Jandakot Airport.

Jandakot Airport is subject to a range of existing and potential environmental impacts that may threaten biodiversity and conservation values. These include:

- Dieback (*Phytophthora cinnamomi*);
- Weeds;
- Feral animals and overabundant native species;
- Bushfires; and
- Changes to surrounding land use.

The Conservation Management Plan, with all of its sub plans as outlined in the Management Plans at Section 9.2.2, address these impacts for Conservation Precincts. Published on the Jandakot Airport Website, the Conservation Management Plan includes all relevant ecological mapping, including maps illustrating vegetation communities, bushland condition and significant species' habitats.

9.9.1 OVERVIEW

FLORA AND VEGETATION

Jandakot Airport is located in the Swan Coastal Plain Unit of the Drummond Botanical Subdistrict, part of the greater South-West Botanical District (Beard 1990). Under the Interim Biogeographic Regionalisation for Australia (IBRA), the airport is within the Swan Coastal Plain subregion (DoEE2017). Within the Bassendean Coastal Plain, the airport is situated on one major geomorphological system, the Bassendean Dunes (Mattiske 2017).

The Bassendean Dune System comprises vegetation on dis-continuous older leached sands. This system is characterized by Banksia low woodland (*B. attenuata, B. menziesii*, and *B. ilicifolia*), *Eucalyptus todtiana* (to the north), *E. marginata* (to the south) and *Nuytsia floribunda* over a dense understorey of sclerophyll shrubs. Low lying areas of the Bassendean system are dominated by mixtures of *Melaleuca preissiana, M. rhaphiophylla, B. littoralis, Casurarina obesa, E. rudis* and/or sedges (Beard 1990).

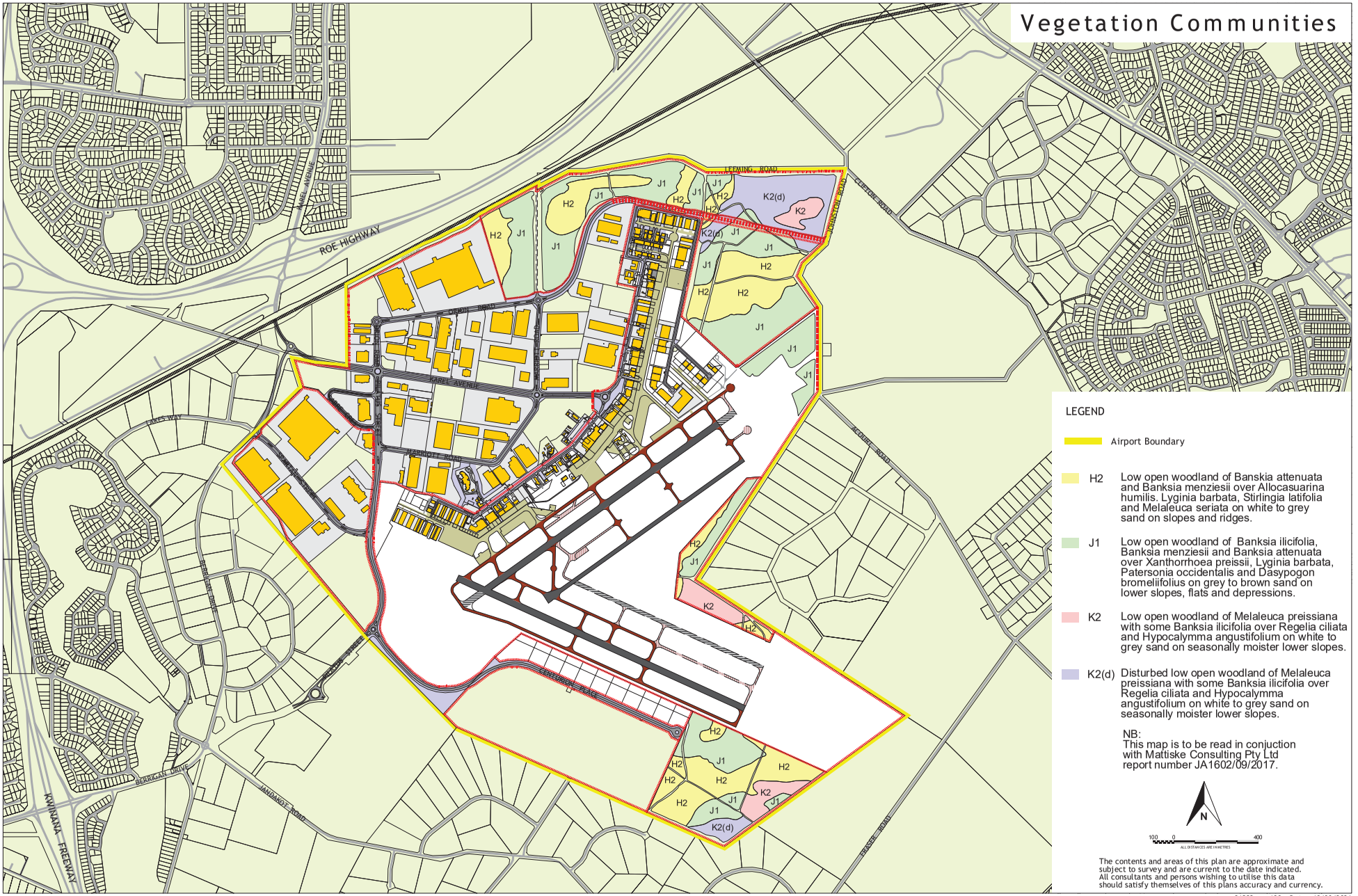

FIGURE 9.4 - VEGETATION COMMUNITIES

VEGETATION COMMUNITIES

Four vegetation communities have been defined and mapped within the bushland of Jandakot Aiport (Mattiske2017), as shown in Figure 9.4;

- H2 - Woodland of *Eucalyptus marginata, Banksia attenuata* and *Banksia menziesii* over low shrubs on white to grey sand on slopes and ridges within Precincts 1A, 1B, 2A and 2B;
- J1 – Low open woodland of *Banksia ilicifolia* with *Banksia menziesii* and *Banksia attenuata* over *Xanthorrhoea preissii*, *Lyginia barbata*, *Patersonia occidentalis* and *Dasypogon bromeliifolius* on grey to brown sand on lower slopes, flats and depressions within Precincts 1A, 1B, 2A and 2B;
- K2 – Low open woodland of *Melaleuca preissiana* and some *Banksia ilicifolia* over *Regelia ciliata* and *Hypocalymma angustifolium* on white to grey sand on seasonally moister lower slopes within Precincts (similar to FCT4 and FCT5 – Gibson et al. 1994) within Precincts 1A, 2A and 2B; and
- K2 (d) – Degraded low open woodland of *Melaleuca preissana* with some *Banksia ilicifolia* over *Regelia ciliata* and *Hypocalymma angustifolium* on white to grey sand on seasonally moister lower slopes within Precincts 1A, 1B and 2A.

Banksia Woodlands of the Swan Coastal Plain ecological community has been listed as a threatened ecological community under section 184 of the EPBC Act in the 'Endangered' category. Vegetation communities delineated and mapped (namely H2, J1 and K2) satisfy key diagnostic characteristics, condition thresholds and minimum patch sizes outlined in guidance documents relating to Banksia Woodlands of the Swan Coastal Plain (Mattiske 2017).

BUSHLAND CONDITION

Under the Conservation Management Plan, bushland condition has been determined to be the most appropriate and practical measure for the vegetation within Jandakot Airport's Conservation Precincts to be maintained appropriately in order to provide suitable habitat for local fauna and flora species. Bushland is maintained at levels of 'good' or above, with areas assessed as degraded triggering management intervention.

Bushland condition of the Jandakot Airport Conservation Precincts is assessed every 5 years, most recently in 2016, as a component of a grid-point survey of weeds and bushland condition (Ecoscape 2017). No significant changes were observed between the 2011 and 2016 surveys, with the majority of bushland areas in 'excellent' or 'very good' condition. In addition, bushland condition is also assessed during major vegetation assessment and mapping surveys, and was most recently completed in 2016 (Mattiske 2017). Similarly, this survey found the bushland condition to be mostly 'excellent' or 'very good'.

RARE AND ENDANGERED FLORA

Two endangered flora species protected under the EPBC Act have been previously identified as occurring within the bushland of Jandakot Airport:

- Grand Spider Orchid (*Caladenia huegelii*); and
- Glossy-leaved Hammer Orchid (*Drakaea elastica*).

Surveys by Mattiske (2010, 2013 and 2017) to identify new and previously recorded Glossy-leaved Hammer Orchids did not locate any plants and it is now suspected that it was initially misidentified and that no specimens are present on site. This is supported by the fact that the vegetation association where they were initially reported is not considered to be their typical habitat. Additionally, no declared threatened or priority flora species pursuant to the *Wildlife Conservation Act 1950* (now *Biodiversity Conservation Act 2016*) as listed by the DBCA were recorded during the 2016 survey (Mattiske 2017).

Surveys of the airport have confirmed populations of the Grand Spider Orchid at Jandakot Airport. Mattiske (2017) reported Precinct 1A as containing 390 confirmed and suspected (i.e. yet to be confirmed via photographic record of flower) plants, plus an additional 35 translocated plants, accounting for 94.9% of Grand Spider Orchid plants at Jandakot Airport. Twenty two plants have been identified in Precinct 1B and a single individual has been located in Precinct 2A.

Subsequent monitoring by JAH in 2017 - 2019 concluded that the suspected and confirmed Grand Spider Orchid population was 478 plants plus 35 translocated plants, with 95.1% of the plants being located within Precinct 1A.

JAH has consulted widely on management of the rare orchids on the airport site, including the State DBCA, DAWE, Botanic Gardens and Parks Authority and expert academics at Tertiary institutions. Management

of the Grand Spider Orchid has been undertaken in accordance with EPBC conditions of approval and detailed within the Conservation Management Plan. This included:

- The establishment of Grand Spider Orchid monitoring quadrats and a monitoring programme;
- A site wide identification and tagging program and the establishment of a detailed Grand Spider Orchid database and photographic record;
- Fencing erected and access restrictions imposed for all Conservation Precincts;
- Funding by JAH of a five-year (2010-2015) Integrated Orchid Research Programme undertaken by Botanic Gardens and Parks Authority; and
- Salvage and translocations of individual Grand Spider Orchid plants in areas impacted by approved development.

JAH will continue to liaise with relevant authorities and experts regarding ongoing management and monitoring requirements for the Grand Spider Orchid.

WEEDS

The Jandakot Airport Weed Management Plan is a component of the Jandakot Airport Conservation Management Plan.

The Weed Management Plan establishes goals and objectives, and prioritises responses to the control of weeds based on the threat posed by each species. Weed species identified at the airport are allocated a priority rating and treated accordingly during the annual weed control programme.

In addition, the Jandakot Airport Weed Management Plan sets a target of maintaining weed cover at or below 20% (consistent with definitions for 'good' bushland condition), with stable or declining weed diversity.

DIEBACK (PHYTOPHTHORA CINNAMOMI)

There are several dieback affected areas of bushland on the airport. Dieback is managed via the implementation of the Jandakot Airport Dieback Management Plan, which is a component of the Conservation Management Plan.

A dieback survey and mapping was most recently undertaken in 2017, with ongoing surveys and assessments scheduled to occur triennially. The 2017 survey confirmed the presence of the three previously identified dieback infestations, primarily associated with dampland areas. One new small infestation was identified within Precinct 1B. The boundaries of infestation were found to be relatively stable with little spread noted, indicating that dieback management measures to date have been successful.

As dieback infested areas cannot be cured, the primary management focus is to minimise its spread and prevent new infestations. The management measures that will continue to be implemented are detailed within the Dieback Management Plan, and include:

- Restricting access to dieback areas;
- Enforcing strict hygiene measures;
- Triennial dieback assessment and mapping of all Conservation Precincts; and
- Triennial Phosphite treatment.

FAUNA

Fauna is managed in accordance with the Conservation Management Plan. Fauna and fauna habitats in the Conservation Precincts of Jandakot Airport have been well surveyed and are generally well represented in the Swan Coastal Plain region. Of the vegetation communities present at the airport, the Banksia Woodland (i.e. H2 and J1) has higher value as fauna habitat because of its vegetation structure and habitat complexity, providing elements important to a variety of fauna, including foraging habitat for Carnaby's Cockatoos.

Environmental assessments have identified two EPBC-listed fauna species that are known to occur or potentially occur at Jandakot Airport (Western Wildlife 2017).

The two EPBC Act listed threatened species are:

- Carnaby's Black-cockatoo (*Calyptorhynchus latirostris*) – foraging non-breeding seasonal visitor; and
- Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) - potential foraging non-breeding occasional seasonal visitor.

Other conservation significant fauna potentially occurring at Jandakot Airport include:

- The EPBC Act listed migratory species, the Fork-tailed Swift (*Apus pacificus*) – likely to fly over the airport rather than visit and utilise habitat noting there are no records of this species at the airport or nearby;

- The Peregrine Falcon (*Falco peregrinus*) - listed under the *Biodiversity Conservation Act 2016* as 'other specially protected fauna', may potentially occur as a foraging, non-breeding visitor.

Eight Priority Species listed by DBCA that occur, or potentially occur, at Jandakot Airport are:

- Perth Lined Lerista (*Lerista lineata*) – a Priority 3 species previously recorded;
- Jewelled Ctenotus (*Ctenotus gemmula*) - a Priority 3 species not previously recorded;
- Black-striped Snake (*Neelaps calonotos*) - a Priority 3 species previously recorded;
- Western False Pipistrelle (*Falsistrellus mackenziei*) - a Priority 4 species not previously recorded;
- Western Brush Wallaby (*Notamacropus irma*) - a Priority 4 species present in Precinct 1A, 1B and 2A;
- Quenda (*Isoodon fusciventer*) - a Priority 4 species common throughout much of the airport, including developed areas;
- Graceful Sun-moth (*Synemon gratiosa*) - a Priority 4 species previously recorded; and
- Katydid or Bush Cricket (*Throscodectes xiphos*) - a Priority 1 species not previously recorded.

Management measures to address potential impacts on fauna during approved clearing and development are addressed within the Construction Environmental Management Plan and the Conservation Management Plan. Monitoring and survey requirements for species of conservation significance specified under EPBC conditions of approval, as well as thresholds for triggering management intervention, are also detailed within the Conservation Management Plan.

EPBC Act conditions of approval require the development of a Wildlife Fencing and Underpass Strategy, which is being implemented. The Fencing and Underpass Strategy aims to find a balance between maintaining wildlife corridors to facilitate terrestrial wildlife movement wherever possible, and the use of fencing and other barriers to prevent wildlife accessing areas where they may be harmed (and cause harm).

FERAL ANIMALS AND OVERABUNDANT NATIVE SPECIES

It is recognised that feral animal management within remnant bushland in an urban setting is a complex task, especially when there is increasing pressure from surrounding urban development and neighbouring properties are subjected to differing (or no) feral management practices. JAH has developed a Feral Animal Management Plan that addresses management of feral animals that may potentially occur at the airport, including foxes, cats, rabbits and bees.

The Feral Animal Management Plan also addresses management methods for domestic animals as well as potential overabundant native species.

Macropods (wallabies and kangaroos) as well as bird species may be considered overabundant native species in certain areas of the airport. Management methods are detailed within the Conservation Management Plan and Feral Animal Management Plan.

9.9.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, JAH successfully implemented the Conservation Management Plan. In doing so, key achievements included:

- Undertaking weed and bushland condition surveys and maintaining bushland condition at 'and above 'good';
- Ongoing management and monitoring of the *C. huegelii* population, including annual monitoring of research quadrats, monitoring translocated individuals and undertaking a comprehensive census of the Jandakot Airport population to demonstrate a stable population;
- Participation in the annual Great Cocky Count;
- Successfully relocating significant fauna from bushland areas prior to clearing and development, including collaboration with Tertiary institutions on research and radio tracking of translocated wallabies;
- Establishing fauna linkages between Jandakot Airport and neighbouring Jandakot Regional Park; and
- Completion of triennial dieback assessment and mapping.

9.9.3 TARGETS

Table 9.6 below lists proposed targets to ensure conservation and biodiversity values are appropriately considered and managed at Jandakot Airport.

Table 9.6 Biodiversity and Conservation Management Targets

Target	Timeframe
Implement the CMP (including Appendices/Sub-plans)	Ongoing as detailed within CMP
Undertake review of CMP and its associated appendices	Every 5 years (i.e. 2023 or earlier if required)

9.10 CULTURAL HERITAGE

Objective: To minimise the impact of airport development on cultural heritage and manage sites in accordance with applicable legislative requirements.

9.10.1 OVERVIEW

EUROPEAN HERITAGE

Jandakot was utilised for grazing activities from 1867. Experienced vegetable and orchard gardeners were attracted to the Cockburn region when Fremantle and Perth grew rapidly due to Western Australia's gold rush. Rural housing developments commenced in the post war years and Jandakot Airport opened in 1963 following closure of the Maylands airfield. No European heritage sites have been registered within the City of Cockburn Local Government Inventory and Heritage List, the State Heritage Register or the Commonwealth Heritage List.There are also no visible signs of European heritage on site.

INDIGENOUS HERITAGE

Prior to the approval of the Jandakot Airport Master Plan 2009, JAH engaged Australian Interaction Consultants (AIC 2008) to undertake an Ethnographic and Archaeological Site Identification Survey of the areas to be impacted under the Jandakot Airport Master Plan 2009. The project area included the entire airport as well as some neighbouring properties.

Archival research revealed two sites (artefact scatters) which were believed to be within the airport boundary; Site 4309 Princep Road and Site 3513 Lukin Swamp. Several other sites were located on neighbouring properties.

The survey included liaison with the then WA Department of Aboriginal Affairs (now Department of Planning, Lands and Heritage), review of previously conducted surveys in the vicinity of the airport and an archaeological survey and an ethnographic survey involving the representatives of relevant Aboriginal groups. AIC concluded:

- No new ethnographic or archaeological sites were identified;
- A Cultural Heritage Management Plan should be developed;
- There is potential for intact archaeological deposits which may contain cultural materials in undisturbed areas of Jandakot Airport and monitoring of ground disturbing activities is recommended;
- Previously identified Site 4309 Princep Road is no longer a site within the meaning of Section 5 of the Aboriginal Heritage Act 1972;
- DIA 3513 Lukin Swamp could not be located within Jandakot Airport; and
- At this time, a Section 18 application is not required for the Jandakot Airport Master Plan to proceed.

JAH has a Cultural Heritage Management Plan for managing heritage values at the airport. Developed utilising the findings of AIC, the purpose of this plan is to ensure that JAH conducts its developments in a manner that complies with the *Airports Act 1996* and other statutory requirements in relation to areas of Aboriginal cultural significance.

9.10.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- The implementation of a Cultural Heritage Management Plan (reviewed in 2018) as a component of the Jandakot Airport Conservation Management Plan; and
- Ongoing monitoring of clearing and earth disturbance activities by construction personnel for potential archaeological artefacts.

9.10.3 TARGETS

Table 9.7 below lists proposed targets for appropriate consideration and management of cultural heritage matters at Jandakot Airport.

Table 9.7 Cultural Heritage Management Targets

Target	Timeframe
Review and update Cultural Heritage Management Plan	2023
Monitor clearing and earth disturbance for Aboriginal and European heritage by construction personnel	Ongoing as required - during all clearing and earth disturbance works

9.11 GROUND BASED NOISE

Objective: To manage noise associated with construction and ground-based airport operations in accordance with applicable legislative requirements.

9.11.1 OVERVIEW

The *Airports (Environment Protection) Regulations 1997* apply to noise derived from tenant and construction operations. The Regulations, and therefore the Environment Strategy do not directly apply to noise generated by aircraft except for ground running, which is covered by the *Air Services Act 1995*, the *Air Navigation (Aircraft Energy Emissions) Regulations* and *Air Navigation (Aircraft Noise) Regulations*, and administered by Airservices Australia. Noise from aircraft is addressed in detail in Section 8.2.

Potential sources of ground based noise at the airport include:

- Construction and demolition activities;
- Aircraft maintenance and ground running;
- Tenant activities;
- Vehicle and plant use (including road traffic); and
- Maintenance.

These sources of ground based noise can potentially cause nuisance to airport operators and the community, including neighbouring residents.

MONITORING AND MANAGEMENT

Tenant Operational Environmental Management Plans are required to address noise management for tenants that are assessed as having an inherent environmental risk of 'Moderate' or greater, as defined by the Tenant Environmental Risk Allocation and Auditing Frequency Criteria.

Construction activities are required to be undertaken in accordance with an approved Construction Environmental Management Plan, which must include noise management measures.

Due to the relatively benign land uses proposed in the commercial precincts (office, storage and warehouse) it is unlikely that there will be any significant noise impacts created offsite. The majority of the commercial precincts are remote from residential areas, and where they adjoin rural-residential areas or where particularly noisy activities are proposed to be located on the airport, noise mitigation measures will be considered.

Noise complaints received by JAH are managed as environmental incidents and are documented and investigated. This process allows for corrective actions to be identified and implemented.

Should there be complaints regarding ongoing excessive ground based noise, noise monitoring may be undertaken. This monitoring will be undertaken in accordance with the *Airports (Environment Protection) Regulations 1997* and the relevant Australian Standards.

9.11.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- A Construction Environment Management Plan detailing noise mitigation measures is required for all construction activities that have the potential to result in noise impacts;
- Tenants that undertake operations that have the potential to create noise impacts are required to develop an Operational Environment Management Plan; and
- All ground based noise complaints were managed as environmental incidents and resolved in a timely manner.

9.11.3 TARGET

Table 9.8 below lists proposed targets aimed at ensuring that ground based noise is appropriately managed at Jandakot Airport.

Table 9.8 Ground Based Noise Management Targets

Target	Timeframe
Require that CEMPs are developed for all significant construction activities and incorporate measures to mitigate the potential impacts of noise	Ongoing as required
Require that OEMPs developed by tenants incorporate measures to mitigate the potential impacts of noise	Ongoing as required
All ground based noise complaints will be managed as environmental incidents and appropriately investigated in a timely manner	Ongoing as required

9.12 WATER AND ENERGY RESOURCES

Objective: To manage and monitor water and energy consumption at Jandakot Airport.

9.12.1 OVERVIEW

Water and most sources of energy are derived from limited resources. Jandakot water supply is provided by both scheme and groundwater. Irrigation is largely supplied from groundwater with some areas supplied from reclaimed wastewater or scheme water.

All electricity is provided via mains power. JAH provides electricity and scheme water to all tenants and monitors consumption across the airport.

SCHEME WATER

Table 9.9 below shows the annual scheme water consumption at Jandakot Airport since Master Plan 2014:

Table 9.9 Annual Scheme Water Consumption since 2015/16

	Reporting Period				
	2015/16	2016/17	2017/18	2018/19	2019/20
Scheme Water Consumption (kL)	254,353	212,470	198,377	202,072	245,856

As predicted within Environment Strategy 2014, scheme water consumption has generally increased as development has increased. A decrease in water consumption from 2015/16 levels is likely associated with a temporary reduction in the rate of construction activities, however the long term trend is expected to demonstrate increasing consumption as development continues to increase and additional tenants become established and operational.

WATER EFFICIENCY MANAGEMENT PLAN

In consultation with the Water Corporation, Western Australia's largest water and wastewater services provider, JAH developed a Water Efficiency Management Plan in 2008. Following five years of implementation, the plan was reviewed and updated in 2013 and a benchmark of 0.28 kL per m^2 of leased developed area was set. JAH has achieved this benchmark since 2014/15.

In 2018, JAH was able to demonstrate, via increased sub-metering throughout the airport and reduced water consumption, that neither JAH nor any single tenant utilised greater than 20,000 kL of water per annum. As a consequence, JAH is now exempt from Water Corporation WEMP reporting obligations, although individual tenants that exceed 20,000 kL of water per annum may be required to develop a WEMP. However JAH still maintains a WEMP, most recently updated in 2018, and has committed to providing ongoing informal annual reporting to Water Corporation.

GROUNDWATER ABSTRACTION

JAH recognises that sound management of groundwater abstraction is essential to ensure that the water resources are available to all consumers, including Jandakot Airport.

JAH abstracts groundwater for irrigation and construction (primarily dust suppression) purposes via a network of bores. All groundwater abstraction bores are metered and water consumption rates are monitored monthly.

JAH has previously consulted with the DWER regarding management of groundwater resources and groundwater abstraction. All abstraction occurs under a conditioned license issued by the DWER, and JAH provides the DWER with annual reports detailing groundwater abstraction volumes and groundwater quality monitoring results.

The Jandakot Airport Groundwater Management Plan was amended in 2015 to include the management and reporting of groundwater abstraction.

ENERGY CONSUMPTION

Table 9.10 below shows the annual electricity consumption at Jandakot Airport during the implementation of Environment Strategy 2014.

Table 9.10 Annual Electricity Consumption since 2015/16

	Reporting Period				
	2015/16	2016/17	2017/18	2018/19	2019/20
Electricity Consumption (kWh)	22,281,284	24,951,477	24,672,533	26,759,284	27,650,476

Electricity consumption has increased at Jandakot Airport as development has increased and will likely continue to do so during the implementation of Master Plan 2020. To address the ongoing increase, JAH will continue to investigate alternative energy options, such as solar power, at Jandakot Airport.

Tenant electricity use is metered and monitored. Tenants that use large volumes of natural resources (including electricity) are required to manage potential impacts via an Operational Environment Management Plan.

9.12.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- WEMP implemented and benchmark achieved annually since 2014/15;
- Energy, scheme water and groundwater usage by JAH and airport tenants is metered and monitored;
- Amendment of the Jandakot Airport Local Water Management Strategy and amendment of Groundwater Management Plan to incorporate development of Precinct 6/6A and groundwater abstraction management;
- All statutory reporting to regulatory authorities requirements for energy and water usage has occurred within the specified timeframes;
- Water efficiency guidance has been updated within the Tenant Environmental Handbook; and
- Implementation of airfield lighting upgrade, incorporating energy efficient LED lighting.

9.12.3 TARGETS

Table 9.11 below lists proposed targets aimed at appropriate management of water and energy consumption at Jandakot Airport.

Table 9.11 Water and Energy Resource Management Targets

Target	Timeframe
Incorporate Ecologically Sustainable Design principles into new developments	Ongoing
Implement the Jandakot Airport Water Efficiency Management Plan	Ongoing
Review and amend the Jandakot Airport Water Efficiency Management Plan	2023 (or as agreed with Water Corporation)
Monitor water usage at the airport	Monthly (groundwater) Every two months (scheme water)
Report on water usage at the airport	Annually
Monitor energy usage at the airport	Monthly
Report on energy usage at the airport	Annually

9.13 WASTE

Objective: To facilitate the storage and appropriate disposal of waste where possible.

9.13.1 OVERVIEW

Solid waste streams include construction and demolition waste, commercial waste from airport operations and tenants and putrescible waste from services such as aircraft maintenance facilities and flight schools which include accommodation. Liquid waste is also generated by airport operations and commercial tenants. Traditionally, effluent from the airport has been disposed onsite via septic tanks and aerobic treatment units. Hazardous liquid waste, which include chemical and hydrocarbon waste, is transported and disposed in accordance with the WA *Environmental Protection (Controlled Waste) Regulations 2004*.

Inappropriate storage, transport and disposal of hazardous and non-hazardous waste can negatively impact soil and groundwater quality, ambient air quality and climate change. JAH recognises that waste management processes need to be managed to reduce negative impacts. This includes ensuring that waste streams do not exacerbate bird or animal hazards.

EFFLUENT DISPOSAL

Deep sewage, linked to the local municipal sewer system, has been connected to Jandakot Airport. This system currently services all new commercial developments well as some of the established areas of the airport.

Older established areas of the airport will continue to be progressively linked to sewer in coming years. The majority of pre-existing small tenants continue to operate septic tanks. Larger pre-existing tenants have aerobic treatment units. In line with the Master Plan 2014, JAH has committed to connecting all facilities to sewage by 2024 where feasible.

Where disposal of effluent to sewer is not feasible or possible (due to distance of facility from a sewer connection), new facilities will install an approved aerobic treatment unit and operate that system until a reticulated sewer connection is installed by JAH. This exception applies only to aviation operations within Precinct 3.

Where disposal of effluent to sewer is not feasible or possible for existing facilities within Precinct 3 with septic systems, facilities will be assessed and, if warranted, instructed to upgrade to an approved aerobic treatment unit.

SOLID NON-HAZARDOUS WASTE DISPOSAL AND RECYCLING

The airport is serviced by the City of Cockburn's waste services, which is coordinated by JAH. The majority of tenants participate in this user-pays program which supplies 240 L general waste mobile garbage bins to tenants for a fee per bin, with an additional 240 L co-mingled recycling mobile garbage bin offered free of charge for each general waste bin. Both bins are emptied weekly by the Cockburn City Council. Whilst the total number of bins has remained relatively stable over recent years, the proportion of bins used for recycling has marginally increased from 35% to 39%.

Other tenants, particularly those that produce large weekly waste volumes that require receptacles greater than 240 L, have alternative means of non-hazardous general and recyclable rubbish disposal via direct contracts negotiated with other licensed service providers.

INDUSTRIAL AND HAZARDOUS WASTE DISPOSAL

Any tenant proposing to discharge trade or industrial liquid waste into the sewer system must obtain a trade waste permit from the WA Water Corporation. This applies to waste water from wash bays and grease traps. Liquid wastes are not permitted to enter stormwater drains or soak into soil where it may enter the groundwater. Where connections to sewer are not available (i.e. established areas of Precinct 3 aviation operations), on-site discharge of wash water may be permitted where:

- Written justification is provided by the tenant;
- A risk assessment has been undertaken;
- An approved treatment system is installed;
- The washing facility is approved via a development application and/or a building permit; and
- The activity is detailed in an endorsed Operational Environment Management Plan, including maintenance, monitoring and reporting requirements.

All volumes of controlled waste (i.e. tyres, asbestos, oils, batteries and other potentially hazardous waste) is to be managed in accordance with relevant legislation, in particular *Environmental Protection (Controlled Waste) Regulations 2004*. Controlled waste can only be disposed of by licensed waste contractors, and relevant records must be maintained.

To assist with the disposal of controlled waste, JAH coordinates waste 'wet-cell' battery collections for recycling. This service is promulgated to all airport tenants 1-2 times per year to coincide with scheduled collection dates, although JAH staff will collect waste batteries from tenants outside of these designated days upon request.

MONITORING AND MANAGEMENT

Unlike major airports where waste generation and recycling is centred around a central passenger terminal which in turn forms the basis of waste monitoring programs, Jandakot Airport has no central waste management facility.

Tenants that generate large volumes of general waste and/or volumes of controlled waste are required to develop an Operational Environment Management Plan in which waste management practices are detailed. Tenant waste storage and disposal practices are monitored through regular tenant audits.

9.13.2 ACHIEVEMENTS

Over the period of the Environment Strategy 2014, a range of commitments were achieved including:

- All new developments within Precincts 4, 5, 6 and 6A are connected to sewer;
- Progressive expansion of the sewer connection to older established airport buildings within Precinct 3; and
- Inclusion of waste management and mitigation measures in Construction Environmental Management Plans and tenant Operational Environmental Management Plans.

9.13.3 TARGETS

Table 9.12 below lists proposed targets for waste management at Jandakot Airport.

Table 9.12 Waste Management Targets

Target	Timeframe
All new developments in Precinct 4, 5, and 6/6A, to be constructed with connection to sewer	Ongoing
Effluent (sewage and greywater) to be disposed to sewer, with the possible exception of a few small, isolated tenants within Precinct 3 outside of the UWPCA where reticulated sewer connection is not feasibly possible	2024
Where disposal of effluent to sewer is not feasible or possible (due to distance of facility from a sewer connection), new facilities will install an approved ATU	Ongoing
Where disposal of effluent to sewer is not feasible or possible (due to distance of facility from a sewer connection), existing facilities with septic systems will be assessed and, if warranted, instructed to upgrade to an approved ATU (applies to Precinct 3 outside of UWPCA only)	2024
Require that OEMPs developed by tenants incorporate measures to manage and mitigate the potential impacts of waste	*Ongoing as required*
Require that CEMPs are developed for all significant construction activities and incorporate measures to manage and mitigate the potential impacts of waste	*Ongoing as required*

10. STAKEHOLDER CONSULTATION

10.1 CONSULTATION STRATEGY

The successful development of Jandakot Airport depends on productive interaction with the wide range of stakeholders who are impacted by, and who impact, the development of the airport.

Prior to the preparation of this Master Plan, JAH prepared a consultation strategy to guide the consultation process and to ensure that all stakeholders had the opportunity to contribute to the preparation of the document. This consultation strategy had regard to the 'Airport Development Consultation Guidelines', released in October 2012 by the then Department of Infrastructure and Regional Development, which provides recommendations for the consultation to be undertaken as part of the master plan process. The Guidelines state that an effective consultation program does not necessarily mean that all interested parties will be satisfied with the outcomes, but rather, that it is about ensuring that a proposal has been fully explored, concerns identified and alternatives considered. The consultation strategy also ensured that the relevant requirements under the *Airports Act 1996* were met.

10.2 STAKEHOLDER CONSULTATION

All of the Jandakot Airport master plans have involved consultation with a wide range of stakeholders, including State and Local Government, airport tenants, aircraft operators, and community groups.

JAH has continued active engagement with stakeholders during the period of the current Master Plan 2014 and during the development of this Master Plan 2020. This ongoing consultation includes JAH participation in the following forums:

- Jandakot Airport Community Aviation Consultation Group (quarterly)
- Perth Airports Municipalities Group (quarterly)
- Jandakot Regional Park Community Advisory Committee (quarterly)
- Jandakot Chief Flying Instructor and Chief Pilots Meeting (quarterly)

10.3 PRELIMINARY CONSULTATION

The development of the Preliminary Draft Master Plan 2020 involved consultation with a wide range of stakeholders at various levels and stages.

The following agencies and organisations were directly engaged in the development of the Preliminary Draft Master Plan:

- Department of Infrastructure, Transport Regional Development and Communications (Commonwealth)
- Department of Agriculture, Water and the Environment (Commonwealth)
- Main Roads WA (State)
- Water Corporation (State)
- City of Cockburn (Local)
- Airservices Australia
- Civil Aviation Safety Authority

The Jandakot Airport Community Aviation Consultation Group, which comprises representatives from Federal, State and Local Governments, Airservices Australia, aircraft operators, and local community organisations, has been kept informed about the program and contents of this Master Plan.

Stakeholder workshops were held with aviation operators to review the proposed airfield layout and operations.

Briefing sessions were also held in March 2018 with State and Local Government agencies, airport tenants and community and resident groups.

10.4 FORMAL PUBLIC COMMENT PERIOD

In accordance with Section 79 of the *Airports Act 1996,* the Preliminary Draft Master Plan was made available for public comment for a period of 60 business days.

- An advertisement was placed in The West Australian newspaper on Wednesday, 17 March 2021 (average weekday readership 339,000) advising that the Preliminary Draft Master Plan was available for public comment until Tuesday, 15 June 2021;
- Printed copies of the Preliminary Draft Master Plan were available for viewing and purchase from the JAH Airport Management Centre during the public comment period;

- The Preliminary Draft Master Plan was published on the Jandakot Airport website for viewing and download, free of charge, During the public comment period there were a total of 1130 unique views of the website pages publishing the Preliminary Draft Master Plan.

As required by the Airports Act, written notice of JAH's intention to give the Minister for Infrastructure, Transport and Regional Development a Draft Master Plan 2020 for his consideration was sent to:

- WA Minister for Transport; Planning;
- Western Australian Planning Commission;
- City of Canning;
- City of Cockburn; and
- City of Melville.

Under the Act, any comments received during the public comment period must be considered by JAH. Following the public comment period, JAH has reviewed and assessed all comments, and where appropriate, changes were made to the Preliminary Draft Master Plan.

10.5 SUBMISSION OF DRAFT MASTER PLAN TO THE MINISTER

After public comments were received and considered, the Preliminary Draft Master Plan was prepared as a Draft Master Plan which was then submitted to the Commonwealth Minister for Infrastructure, Transport and Regional Development on 23 June 2021 for approval.

In accordance with Section 79 of the Act, the submission of the Draft Master Plan to the Minster was accompanied by the following material:

- Copies of any comments received during the public comment period; and
- A written certificate signed on behalf of JAH containing:
  - a list of names of the people or organisations that provided written comments to the Draft Master Plan.
  - a summary of the comments received.
  - evidence that JAH has given due regard to those comments.

10.6 PUBLICATION OF THE FINAL MASTER PLAN

Master Plan 2020 was approved by the Minister for Infrastructure, Transport and Regional Development, the Hon. Barnaby Joyce, on 22 August 2021.

In accordance with Section 86 of the Act, JAH undertook the following notifications upon approval of the Master Plan:

- Published newspaper notices advising that the Master Plan has been approved;
- Made copies of the approved Master Plan available for inspection in person at the Jandakot Airport Management Centre; and
- Made a copy of the approved Master Plan available on the Jandakot Airport website.

11. IMPLEMENTATION

The concept outlined in this Master Plan represents current views of expected development at Jandakot Airport.

11.1 FURTHER APPROVALS

Development approval requirements for Jandakot Airport are administered under the *Airports Act 1996*. Approval of the master plan does not necessarily constitute approval of the proposed developments. The *Airports Act 1996*, and associated regulations, requires further assessment and approval processes to occur, including the preparation of major development plans if applicable and building permits from the Airport Building Controller.

11.1.1 MAJOR DEVELOPMENT PLAN

Major development plans (MDPs) will be required for designated major airport developments, as set out in Section 88 of the Act. Such development proposals are the subject of further community consultation, environmental assessment and Ministerial approval.

Section 91 of the Act requires an MDP to be consistent with the final master plan for the airport, and requires that the MDP include the following:

- The airport-lessee company's objectives for the development;
- 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;
- A detailed outline of the development;
- Whether or not the development is consistent with the commonwealth airport lease for the airport;
- Whether or not the development is consistent with the final master plan;
- If the development could affect flight paths or noise exposure levels at the airport, and the effect that the development would be likely to have on those levels;
- If the development could affect flight paths at the airport, and the effect that the development would be likely to have on those flight paths;
- 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;
- The likely effect of the proposed developments on traffic flows at the airport and surrounding the airport, employment levels at the airport, and the local and regional economy and community, including an analysis of how the proposed developments fit within the local planning schemes for commercial and retail development in the adjacent area; and
- The assessment of the environmental impacts that might reasonably be expected to be associated with the development and the airport lessee company's plans for dealing with these environmental impacts.

11.1.2 DEVELOPMENT APPROVAL

Prior to a third party commencing new development on airport, alterations to an existing facility, or a change in use of an existing facility, a formal consent for the works is required from JAH in the form of a Development Approval. Applications for Development Approval are required to comply with the Jandakot Airport Leasing and Development Guidelines.

11.1.3 BUILDING PERMIT

Once Development Approval is granted by JAH, a Building Permit must be obtained from the Airport Building Controller (ABC) under the provisions of the *Airports Building Control Regulations 1996*. The ABC is also advised by the Airport Environmental Officer (AEO). Both the ABC and AEO are independent of Jandakot Airport and are respectively contracted to, and employed by the Department of Infrastructure, Transport, Regional Development and Communications. As part of the Building Permit process consent from Jandakot Airport must also be obtained. This consent ensures that the proposed works are in line with the Master Plan and an MDP if required.

11.2 IMPLEMENTATION

The implementation of the Master Plan will require flexibility to take into account fluctuations in economic activity and aviation requirements. Planning by its nature is a dynamic activity requiring continuous review.

Jandakot Airport is committed to providing its tenants with the aviation facilities identified in this Master Plan in a timely manner.

11.3 REVIEW

The Act provides for the final master plan to remain in force for eight years. Consequently, this Master Plan will be again reviewed and replaced in 2028. The Act also provides that an existing approved master plan remains in force until a new master plan is approved, and includes provisions for minor amendments to the master plan, and for the Minister to direct another master plan to be prepared.

APPENDIX A – AIRPORTS ACT 1996 AND AIRPORTS REGULATIONS 1997 REQUIREMENTS

AIRPORTS ACT 1996 Section 70	
(2) The purposes of a final master plan for an airport are: (a) to establish the strategic direction for efficient and economic development at the airport over the planning period of the plan;	Chapters 1 and 5
(b) to provide for the development of additional uses of the airport site;	Chapters 3 and 5
(c) to indicate to the public the intended uses of the airport site;	Chapters 3, 4 and 5
(d) to reduce potential conflicts between uses of the airport site, and to ensure that uses of the airport site are compatible with the areas surrounding the airport;	Chapters 3, 4, 5 and 8
(e) to ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards;	Chapter 9
(f) to establish a framework for assessing compliance at the airport with relevant environmental legislation and standards;	Chapter 9
(g) to promote the continual improvement of environmental management at the airport. Chapter 9	
AIRPORTS ACT 1996 Section 71	
(a) the airport-lessee company's development objectives for the airport;	Chapters 1, 4 and 5
(b) the airport-lessee company's assessment of the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport;	Chapter 4
(c) the airport-lessee company's intentions for land use and related development of the airport site, where the uses and developments embrace airside, landside, surface access and land planning/zoning aspects;	Chapters 5 and 6
(d) an Australian Noise Exposure Forecast (in accordance with regulations, if any, made for the purpose of this paragraph) for the areas surrounding the airport;	Chapter 8
(da) flight paths (in accordance with regulations, if any, made for the purpose of this paragraph) at the airport;	Chapter 8
(e) the airport-lessee company's plans, developed following consultations with the airlines that use the airport and local government bodies in the vicinity of the airport, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels;	Chapter 8
(f) the airport-lessee company's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the plan;	Chapter 9
(g) the airport-lessee company's plans for dealing with the environmental issues mentioned in paragraph (f) (including plans for ameliorating or preventing environmental impacts);	Chapter 9
(ga) in relation to the initial period of the master plan--a plan for a ground transport system on the landside of the airport that details: (i) a road network plan;	Chapter 6
(ii) the facilities for moving people (employees, passengers and other airport users) and freight at the airport;	Chapter 6
(iii) the linkages between those facilities, the road network and public transport system at the airport and the road network and public transport system outside the airport;	Chapter 6
(iv) the arrangements for working with the State or local authorities or other bodies responsible for the road network and the public transport system;	Chapter 6
(v) the capacity of the ground transport system at the airport to support operations and other activities at the airport;	Chapter 6
(vi) the likely effect of the proposed developments in the master plan on the ground transport system and traffic flows at, and surrounding, the airport;	Chapter 6
(gb) in relation to the initial period of the master plan--detailed information on the proposed developments in the master plan that are to be used for: (i) commercial, community, office or retail purposes;	Chapters 1 and 5
(ii) for any other purpose that is not related to airport services;	Chapter 3

(gc) in relation to the initial period of the master plan--the likely effect of the proposed developments in the master plan on: (i) employment levels at the airport;	Chapters 1 and 5
(ii) the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport;	Chapters 2 and 3
(h) in relation to the initial period of the master plan--an environment strategy that details: the airport-lessee company's objectives for the environmental management of the airport;	Chapter 9
(ii) the areas (if any) within the airport site which the airport-lessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significant;	Chapter 9 (9.5)
(iii) the sources of environmental impact associated with airport operations;	Chapter 9
(iv) the studies, reviews and monitoring to be carried out by the airport-lessee company in connection with the environmental impact associated with airport operations;	Chapter 9
(v) the time frames for completion of those studies and reviews and for reporting on that monitoring;	Chapter 9
(vi) the specific measures to be carried out by the airport-lessee company for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations;	Chapter 9
(vii) the time frames for completion of those specific measures;	Chapter 9
(viii) details of the consultations undertaken in preparing the strategy (including the outcome of the consultations);	Chapters 9 and 10
(ix) any other matters that are prescribed in the regulations;	Chapter 9
(j) such other matters (if any) as are specified in the regulations.	Chapter 9

Matters provided by Regulations:	
***AIRPORTS REGULATIONS 1997* – Reg 5.02 – Contents of draft or final master plan-general**	
(1) For paragraphs 71 (2) (j) and (3) (j) of the Act, the following matters are specified: (a) any change to the OLS or PANS-OPS surfaces for the airport concerned that is likely to result if development proceeds in accordance with the master plan;	Chapter 8
(b) for an area of an airport where a change of use of a kind described in subregulation 6.07 (2) of the *Airports (Environment Protection) Regulations 1997* is proposed: (i) the contents of the report of any examination of the area carried out under regulation 6.09 of those Regulations;	Chapter 9
(ii) the airport-lessee company's plans for dealing with any soil pollution referred to in the report.	Chapter 9
(2) For section 71 of the Act, an airport master plan must, in relation to the landside part of the airport, where possible, describe proposals for land use and related planning, zoning or development in an amount of detail equivalent to that required by, and using terminology (including definitions) consistent with that applying in, land use planning, zoning and development legislation in force in the State or Territory in which the airport is located.	Chapters 3 and 5
For subsection 71 (5) of the Act, a draft or final master plan must: (a) address 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;	Chapter 3
(b) address 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.	Chapter 3
(4) In subregulation (1): "OLS and PANS-OPS surface" have the same meanings as in the Airports (Protection of Airspace) Regulations.	

APPENDIX B – PRE-EXISTING INTERESTS IN JANDAKOT AIRPORT

Interest Holder(s)	Type	Date Registered	Purpose	Location
Ampol Exploration Ltd, Shell Development (Australia) Pty Ltd, Texaco Overseas Petroleum Co., California Asiatic Oil Co.	Easement	19 November 1975	Pipeline	Precincts 1A and 4
Australian and Overseas Telecommunications Corporation Ltd	Caveat	4 June 1992	Telephone Exchange site	Precinct 3
Airservices Australia	Lease	19 September 1996	Non Directional Beacon site	Precinct 3
Airservices Australia	Lease	13 February 1997	Air Traffic Control tower site	Precinct 3
Civil Aviation Safety Authority (Transferred to Minister for Training 17 January 2002)	Lease	11 May 1999	CASA building (now Polytechnic West AeroSpace Training Centre)	Precinct 3

APPENDIX C – ABBERVIATIONS

In this document, unless the contrary intention is indicated:

Act means the *Airports Act 1996* as amended from time to time

AHD means Australian Height Datum

Airservices means Airservices Australia

ANEC means Australian Noise Exposure Concept

ANEF means Australian Noise Exposure Forecast ANEI means Australian Noise Exposure Index

AS2021 means the Australian Standard 2021-2000: Acoustics – Aircraft Noise Intrusion – Building Siting and Construction, as published by Standards Australia

ATC means Airservices Australia Air Traffic Control

AWS means automatic weather station

CASA means the Civil Aviation Safety Authority

DME means distance measuring equipment

EMS means Environmental Management System

FAA means the United States Federal Aviation Administration

GA means general aviation

GPS means Global Positioning System

HLS means helicopter landing site

ICAO means the International Civil Aviation Organization

ILS means instrument landing system

INM means integrated noise model

MDP means major development plan

NASF means the National Airports Safeguarding Framework

NASAG means the National Airports Safeguarding Advisory Group

NDB means non-directional beacon

JAH means Jandakot Airport Holdings Pty Ltd, the airport-lessee company for Jandakot Airport

Minister means the Federal Minister for Infrastructure, Transport and Regional Development (previously Minister for Infrastructure and Regional Development)

MOS means the Civil Aviation Safety Authority's Manual of Standards, issued under Part 139 of the Civil Aviation Safety Regulations 1998

MRS means Metropolitan Region Scheme

OLS means Obstacle Limitation Surfaces

PANS-OPS means Procedures for Air Navigation Services – Aircraft Operations

PAPI means precision approach path indicator

SID means standard instrument departure

STAR means standard arrival route

WAPC means Western Australian Planning Commission

APPENDIX D – REFERENCES

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APPENDIX E – CONSULTANCIES

The following consultancies were used for the specialist input required for the preparation of this Draft Master Plan 2020.

Aeronautical	Airbiz
Civil Engineering	BG & E Engineering
Economic	MacroPlan Dimasi
Environmental	Strategen
Ground Transport	Transcore
Hydraulic Engineering	BG & E Engineering
Survey and Graphic Input	MNG
Town Planning	element

JANDAKOT AIRPORT MASTER PLAN 2020