



Environment Strategy

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14.1 Introduction

Parafield Airport Limited's (PAL) vision and ongoing success is founded and maintained through innovation and sustainable growth in aviation and non-aviation facilities. PAL integrates current and future environmental and social risks and opportunities through the implementation of a robust environmental management framework. This is critical in ensuring that the airport business thrives and is managed in a manner that can adapt and respond to changing demands.

PAL's philosophy is to operate and develop Parafield Airport in accordance with the principles of sustainable development, recognising that the success of the airport can be enhanced by conducting business in a way that is environmentally, socially and economically responsible. PAL's Environment Policy forms the foundation for this Environment Strategy. PAL is committed to ensuring legislative compliance and is driven forward by the desire to maintain a leadership position in environmental management.

This Environment Strategy covers ground-based environmental aspects associated with the operation of Parafield Airport, including:

- **Energy and climate change**
- **Water resources**
- **Stormwater and aquatic ecology**
- **Soil and groundwater**
- **Ground based noise**
- **Local air quality**
- **Waste management**
- **Land and heritage management.**

14.2 Overview

Central to PAL's environmental management is its Environmental Management System (EMS) which conforms to the requirements of International Standard ISO 14001:2015 and provides a structure for planning, implementing, monitoring, reporting and reviewing environmental management at Parafield Airport.

- Sustainability is at the core of the way PAL does business. PAL's shareholders are actively tracking environment, social and governance factors through benchmarking standards and are correlating better financial performance with improved environment, social and governance performance.
- PAL and its operators, tenants and contractors share responsibility for the environmental management of Parafield Airport.
- PAL is committed to the effective management of environmental impacts across the Parafield Airport site. Environmental action plans are in place for energy and climate change, water resources, stormwater and aquatic ecology, soil and groundwater, ground-based noise, local air quality, waste management, and land and heritage management.

14.3 Key Achievements

PAL has delivered a number of significant environmental achievements since Master Plan 2017 that include:

- In 2017 and 2018, Adelaide Airport Limited (AAL) achieved Asset Sector Leader status for Airports in the Global Real Estate Sustainability Benchmark (GRESB) Infrastructure Assessment. The GRESB Asset Sector Leaders Award recognises the outstanding leadership across the environment, social and governance elements of Adelaide and Parafield airports.
- In 2017, Parafield Airport achieved Level 3 (Optimisation) accreditation through the global Airport Carbon Accreditation program in recognition of the airport's success in reducing carbon emissions.
- In 2018, the Parafield Airport Heritage Centre was opened and houses historical accounts and memorabilia from South Australia's early aviation pioneers and Parafield Airport.
- PAL purchased a full-electric plug-in Nissan Leaf vehicle in 2018 and installed two charging stations at the Airport Management Centre, including one for use by tenants and public visitors. The Nissan Leaf was replaced with a Mitsubishi petrol hybrid electric vehicle in 2022.
- In 2018, AAL signed a \$50 million seven-year Sustainability Performance Linked Loan with ANZ – the first of its kind in Australia – on behalf of Adelaide and Parafield airports. The loan incentivises AAL to further improve its performance against a set of environmental, social and governance criteria.
- Energy-saving improvements were completed for a number of PAL-owned buildings, including a heating, ventilation and air conditioning system upgrade, solar photovoltaic system installation, and LED upgrade.
- In 2020, Parafield Airport became the first Australian airport to develop a Climate Adaptation Plan
- PAL developed a range of new management plans and tenant guidelines, including Ozone Depleting Substances Guidelines, Energy Efficiency Guidelines, and an Air Quality and Noise Management Plan.

14.4 Sustainability

Sustainability is at the core of the way PAL does business and looks to develop into the future. Through regular dialogue with stakeholders, PAL constantly improves its ability to anticipate and react to economic, social, environmental, and regulatory changes as they arise. PAL's shareholders are actively tracking environment, social and governance factors through benchmarking standards and are correlating better financial performance with better environment, social and governance performance.

PAL remains on a journey of embedding a common and consistent language of sustainability, and efficiently and effectively demonstrating its governance and performance credentials through benchmarking and reporting.

Further information about PAL's approach to sustainability is provided in Section 5.2.3 and on the Parafield Airport website, parafieldairport.com.au.

14.5 Environment Strategy Requirements

14.5.1 Legislative Requirements

PAL has developed the Environment Strategy in accordance with the *Airports Act 1996* (Airports Act) and the Airports (Environmental Protection) Regulations 1997 (AEPR). The Airports Act establishes an environmental management regime that focuses on a cooperative approach, supporting and ensuring compliance with environmental standards at federally leased airports.

The AEPR outline the major obligations with respect to environmental matters on the airport site. These regulations do not apply to pollution and noise generated by aircraft (except engine ground running noise) which are regulated through the Air Navigation (Aircraft Engine Emissions) Regulations 1995 and the Air Navigation (Aircraft Noise) Regulations 1994.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) applies to actions that have a significant impact on the environment where the actions affect, or are taken on, Commonwealth land. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places which are defined in the EPBC Act as matters of national environmental significance.

Various industry codes of practice, Australian Standards, Commonwealth and state environment protection measures, and other guidelines are applicable to Parafield Airport. Further relevant legislation and standards are listed within the environmental actions plans.

This Environment Strategy includes the following:

- Environmental management objectives for Parafield Airport.
- Current environmental status of the airport, including areas of environmental significance.
- Sources of environmental impact associated with airport operations.
- An outline of the proposed environmental studies, reviews and monitoring of current and future activities, and a timeframe for these studies to be conducted and reported on.
- Proposed measures to prevent, control or reduce environmental impacts associated with airport operations and the timeframe for their completion.
- Details and outcomes of consultation on the preparation of the strategy with stakeholders.

In compliance with the AEPR, the Environment Strategy also covers:

- Sites identified to be of Aboriginal significance.
- Proposed environmental management for areas of the airport which are not used, or planned to be used, for airport operations.
- Necessary training for environment management by persons employed by PAL or other major airport employers, including detail on proposed training.

In addition to meeting regulatory obligations, the Environment Strategy sets the strategic direction for environmental management of airport operations for the next eight years. It also addresses sustainability where it relates to environmental aspects, including details of how PAL manages waste, energy, climate risk and water resources.

14.5.1.1 Environmentally Significant Areas

The Airports Act requires PAL, in consultation with state and federal conservation bodies, to identify areas on the airport site that are considered environmentally significant.

There are no threatened ecological communities or species listed under the *Environment Protection and Biodiversity Conservation Act 1999* that are present at Parafield Airport.

There are no sites of Aboriginal cultural heritage, historic and natural significance within Parafield Airport under ownership or control of PAL that are listed on the National Heritage List or Commonwealth Heritage List.

14.6 Environment Management Framework

Environmental management at Parafield Airport is guided by the Environmental Management Framework, as shown in Figure 14-1. This Framework incorporates strategic policy and planning documents, as well as measures to comply with Commonwealth regulatory requirements.

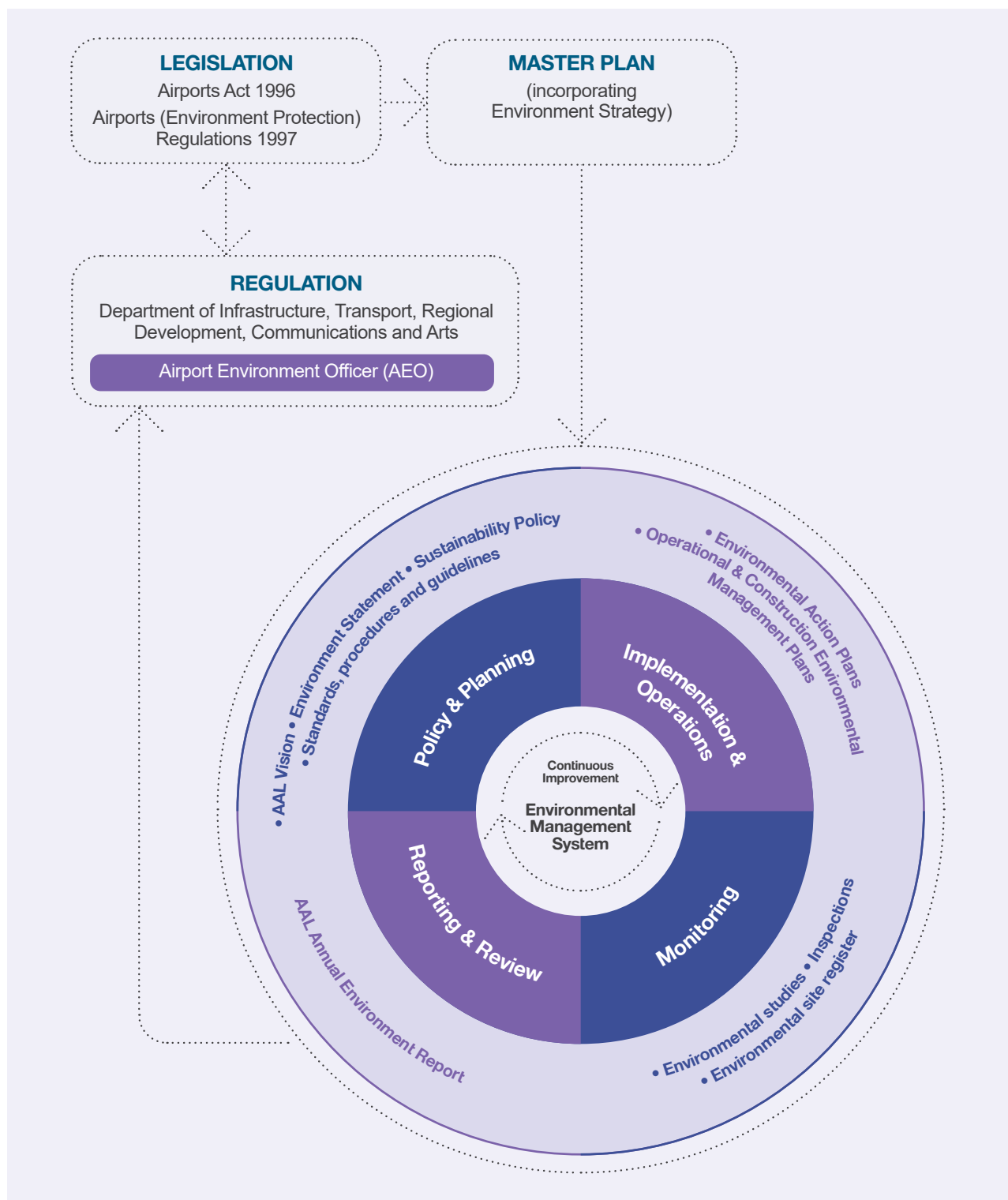


Figure 14.1: Parafield Airport Environmental Management Framework

14.6.1 Responsibilities

PAL and its operators, tenants and contractors share responsibility for the environmental management of Parafield Airport. Table 14-1 identifies the key environmental management responsibilities for the airport site.

Training and communication processes and systems have been established to ensure PAL's staff are aware of their environmental management roles and responsibilities.

PAL's environmental staff have relevant qualifications and have received training in environmental management system implementation and auditing.

PARTY	RESPONSIBILITIES
PAL Board of Directors	The environmental performance of Parafield Airport Periodic review of the Environment Policy Allocation of resources to manage environmental issues
PAL Executive	Ensure that the roles/responsibilities for environmental management are defined and communicated Incorporate and manage regulatory and other environmental conditions within leases, other property contracts and construction contracts Ensure planned development aligns with the approved Master Plan
PAL Environment Staff	Ensure compliance with regulatory requirements Ensure the integration of environmental requirements into daily operations Implement the Environmental Management System Prepare the Annual Environment Report for DITRDCA Provide advice and specific training to staff, contractors and airport users Report and investigate environmental hazards, incidents and stakeholder feedback
PAL Staff	Comply with the PAL Environment Policy management plans and procedures Report environmental incidents and emergency events
Airport tenants, aviation operators and major airport contractors	Comply with applicable environmental legislation and PAL plans, procedures and guidelines Complete PAL induction Report environmental hazards, incidents and feedback to PAL Develop and implement operational and construction environment management plans when required
Department of Infrastructure, Transport, Regional Development, Communications and the Arts	Appoint an Airport Environment Officer to: <ul style="list-style-type: none"> • Ensure management of the airport environment is in accordance with the Airports Act and associated regulations • Conduct site inspections, monitoring and reporting • Review and comment on development/building applications to ensure that the environment is appropriately managed

Table 14-1: Environmental management responsibilities

14.6.2 Sources of Environmental Impact

Parafield Airport is a dynamic environment, supporting a range of aviation and non-aviation activities that have the potential to impact on the environment. Table 14-2 identifies activities with potential for environmental impact at Parafield Airport.

AREA	ACTIVITIES
Aviation activities	<ul style="list-style-type: none"> Fuel storage and supply Aircraft operation Aircraft maintenance Aircraft painting Aircraft washing Aircraft decommissioning Engine ground running Air traffic control services Medical retrieval services Construction and fit out
Non-aviation commercial activities	<ul style="list-style-type: none"> Fuel storage and supply Commercial retailing Warehousing and logistics operations Recreational facilities Office facilities Vehicle wash facilities Petrol filling stations Construction and fit out
Airport management activities	<ul style="list-style-type: none"> Office operation and maintenance Road maintenance Runway, taxiway and apron maintenance Vehicle operation, maintenance and refuelling Vehicle washing Landscaping Sewer network maintenance Electricity network maintenance Water supply network maintenance Wildlife control Construction and fit-out Stormwater runoff management, maintenance and monitoring
Historic activities	<ul style="list-style-type: none"> Landfills Fire fighting activities Fuel storage and supply Aircraft maintenance Herbicide / pesticide application Fill importation

Table 14-2: Activities with potential for environmental impact at Parafield Airport

14.6.3 Environmental Management System

The Environmental Management System (EMS) is central to PAL's Environmental Management Framework. The EMS conforms to the requirements of International Standard ISO 14001:2015 and provides a structure for planning, implementing, monitoring reporting and reviewing environmental management at Parafield Airport.

The EMS comprises four key areas which ensure a continuous improvement approach to environmental performance:

- Policy and planning
- Implementation and operation
- Checking and monitoring
- Reporting and review.

14.6.3.1 Policy and Planning

PAL's commitment and approach to environment and sustainability are described in the Environment Policy.

The Environment Policy was endorsed by the PAL Managing Director in 2023 and identifies the key commitments for the protection and improvement of the environment. The commitments include ensuring compliance with relevant regulatory and best practice requirements and the Environment Strategy, implementing and maintaining an EMS to minimise environmental impacts, and employing a continuous improvement approach to environmental management and sustainability. The policy document is updated regularly to ensure relevancy to Parafield Airport.

14.6.3.2 Implementation and Operation

The implementation and operation of the EMS is achieved through a range of systems, procedures and guidelines, including business and strategic plans, building approval processes, risk assessments and training processes. The relevant documents, which are reviewed and updated regularly, are outlined in Table 14-3.

A range of guidelines have been developed by PAL, and published on the Parafield Airport website parafieldairport.com.au, to inform tenants and aviation operators of requirements for activities such as construction environmental management, spill response, trade waste management and water conservation.

PAL staff and users of the airport must take all reasonable steps to implement and comply with the Environment Strategy. PAL's environment team maintains the EMS, prepares management plans, and provides the necessary advice and guidance required for airport tenants and users to implement measures for controlling or minimising significant environmental risks. Key outputs include standard operating procedures, safe work instructions, environmental guidelines and training.

AREA	PRINCIPAL DOCUMENTS	SECONDARY DOCUMENTS
Ground based noise	Air Quality and Noise Management Plan Stakeholder Engagement Strategy and Action Plan	Noise Enquiry and Complaints Handling Procedure Noise Management Guidelines Policy for the Ground Running of Aircraft Engines at Parafield Airport
Local air quality	Air Quality and Noise Management Plan	Tenant Environmental Management Plan Construction Environmental Management Guideline Tenant and Construction Environmental Inspection Procedure Spray Painting Guideline Ozone Depleting Substances Guideline Fly Neighbourly Program
Stormwater	Stormwater Quality Management and Improvement Plan	Airport Drain Maintenance Guideline Aircraft and Vehicle Washing Guideline Airport Emergency Plan Dangerous Goods and Hazardous Substances Guideline Spill Response Guideline Spray Painting Guideline
Soil and groundwater	Contaminated Site Management Plan Contaminated Site Risk Register Groundwater Monitoring Strategy	Tenant Environmental Management Plan Tenant and Construction Environmental Inspection Procedure Waste Fill Importation and Soil Management Guideline Construction Environmental Management Guideline Environmental Site Assessment Guideline Landscaping Guideline Airport Emergency Plan Trade Waste Management Guideline Hazardous Chemicals and Dangerous Good Guideline Spill Response Guideline Fuel Management Guideline
Land and Heritage	Vernal Pools Management Plan* Heritage Management Strategy Community Engagement Framework	
Wildlife	Wildlife Hazard Management Strategy	Land Management Plan Wildlife Hazard Management Plan Landscaping Guideline
Energy and Climate Change	Energy Strategy Carbon Management Plan Climate Change Adaptation Plan Low Carbon Statement	Energy Conservation Guideline Integration of Climate-related Risks and Opportunities Report

Table 14-3: Environmental management documentation

* Formerly titled *Vernal Pools Conservation Zone Management Plan*.

AREA	PRINCIPAL DOCUMENTS	SECONDARY DOCUMENTS
Water resources	Water Resources Plan	Landscaping Guideline Water Conservation Guideline
Waste	Waste Management Strategy	PAL Operational Waste Management Plan Tenant and Construction Waste Management Guideline PAL Tenancy Operational Waste Management Plans Dangerous Goods and Hazardous Chemicals Guideline Construction Environmental Management Guideline

Table 14-3: Environmental management documentation (continued)

14.6.3.3 Checking and Monitoring

A risk-based approach has been adopted for tenant monitoring and inspections, with an environmental risk ranking based on the potential of the tenant's business activities to cause environmental harm. Tenant inspections are undertaken on all high-risk sites to ensure compliance and ongoing protection of the environment is maintained.

All building activity applications are reviewed by PAL to determine whether a Construction Environmental Management Plan (CEMP) is required. Following the commencement of site works, PAL undertakes environmental inspections to ensure potential risks are being managed in the manner described in CEMPs.

PAL operates a broad environmental monitoring program that collects data across numerous areas, as listed in Table 14-4. Monitoring activities are detailed and scheduled within specific management plans, for example the Stormwater Quality Management and Improvement Plan. Persons or organisations that carry out environmental monitoring hold the appropriate professional qualifications relevant for the area of monitoring activity and demonstrate the processes and systems used to conform to relevant Commonwealth criteria and industry standards.

PAL maintains an Environmental Site Register for the airport. The register identifies the locations on-airport that have been a source of environmental impact and/or subject to environmental monitoring, assessment, inspection, incident investigation and/or environmental significance status. The features of each site, including its contamination status, are detailed in the register and the site location identified.

14.6.3.4 Auditing

A robust EMS requires regular checking. PAL achieves this through regular internal auditing of select system components in accordance with the Internal Environmental Management System Audit Procedure. A detailed external audit by an accredited ISO 14001 auditor of the full EMS is scheduled every three years. Audit results are reported to the DITRDCA and provide assurance as to the quality and rigour of PAL's environment program.

14.6.3.5 Reporting and Review

Reporting against all goals and management actions in the Environment Strategy is provided regularly to PAL's Executive Committee. Management review of the EMS is a requirement of ISO14001 and is undertaken in accordance with PAL's Management System Review Procedure.

PAL reports pollution incidents, environment-related complaints, any exceedances of regulatory criteria, and management of contaminated sites to the DITRDCA Airport Environment Officer through monthly meetings and as required under legislation.

A comprehensive report demonstrating PAL's progress against all Environment Strategy goals, management actions and monitoring activities is also provided annually to the DITRDCA.

PAL continues to engage and communicate environmental information with the City of Salisbury and surrounding community and key stakeholders through various forums including the Parafield Airport Consultative Committee, tenant forums, publications and the Parafield Airport website.

STREAM	AREA	MONITORING ACTIVITY	FREQUENCY
Compliance	Ground based noise	Boundary noise	As required (see Ground Noise Environmental Action Plan)
		Construction noise	As required
	Local air quality	Air quality	As required
		National Pollutant Inventory	As required
Stormwater	Stormwater quality (Tier 1)	Bi-monthly and as required	
	Stormwater quality (Tier 2)	As required	
Soil and groundwater	Soil and groundwater contamination (existing sites)	Soil and groundwater contamination (existing sites)	Annually and as required
		Soil and groundwater contamination (new sites)	Annually
	Background groundwater quality		
Sustainability	Carbon Emissions	Carbon footprint (Scope 1 & 2)	Annually
	Energy	Energy consumption (PAL buildings)	Annually
	Water resources	Water consumption (PAL buildings)	Annually
	Waste	Waste volumes (PAL buildings)	Quarterly
	Land and heritage	Flora/fauna surveys	As required
	Land and heritage	Aboriginal artefact surveys	As required
Built heritage surveys		As required	

Table 14-4: Summary of key environmental monitoring activities

14.7. Environmental Action Plans

The Environment Strategy covers ground-based environmental aspects associated with the operation of Parafield Airport, including:

- Energy and climate change
- Water resources
- Stormwater and aquatic ecology
- Soil and groundwater
- Ground based noise
- Local air quality
- Waste management
- Land and heritage management.

The management of these specific environmental aspects are outlined in environmental action plans, and each plan is supported by management plans and guidelines. Current management practices will evolve or change over time in response to:

- Changes in the relevant legislation
- Best practice, especially improvements in technology and knowledge
- Understanding of the airport and surrounding environment.

The environmental action plans guide environmental initiatives at the airport for the next eight years. They are reviewed regularly to ensure PAL stays at the forefront of sound environmental management and best practice sustainable business operations.

Table 14-5 and Table 14-6 provide clarity on the timeframes for achieving the management actions identified and an outline of the structure and content for each of the action plans.

DESCRIPTION	TIMEFRAME
Short-term	1 – 3 years
Medium-term	3 – 5 years
Long-term	5 – 8 years
Ongoing	Determined through regular review
As required	Determined on an as-needs basis

Table 14-5 Timeframes for management actions

STRUCTURE	CONTENT
Objectives	Objectives for the long-term operation and development of Parafield Airport which align with the overarching vision in PAL's Environment Policy. The objectives set the strategic direction for the environmental management and performance of the airport.
Background	Overview of the relevant action plan aspect, how it applies to the airport, summary of general background information and existing sources of impact, and recent achievements.
Current Management	This section describes the management practices currently implemented to address identified sources of environmental impact.
Action Plan	<p>Specific strategic level management actions and initiatives that PAL intends to carry out to achieve the relevant key objectives during the eight-year period.</p> <p>These measures and actions aim to build on the achievements made under the previous environment strategies, thereby striving towards continual improvement of the airport's environmental performance. Actions proposed within this strategy include:</p> <ul style="list-style-type: none"> • New actions developed due to recent studies and plans • New actions required to address potential environmental issues associated with implementation of the Master Plan • Ongoing actions that remain relevant. <p>Each action has a defined priority and timeframe for implementation, established having regard to its risk, status of current management and the variability of resources.</p>

Table 14-6 Environmental action plan framework

14.8 Energy and Climate Change

Objectives:

- **Support the aviation industry in its energy transition**
- **Measure and manage energy use, seeking opportunities to source cleaner and cost-effective, resilient alternatives**
- **Understand and mitigate physical and transitional climate risks, through active management of the airport's asset base**

14.8.1 Background

PAL seeks to provide energy that is affordable, reliable and environmentally sustainable. Given that energy accounts for over 90 per cent of the airport's carbon footprint, energy will play a key role in future-proofing growth.

PAL recognises that climate change and carbon-risk management are an essential aspect of operating a sustainable business over the long term. PAL is committed to employing the principles of resource efficiency in its operations, planning and ongoing infrastructure development, and in the procurement of goods and services.

According to the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the climate in South Australia is predicted to be warmer and drier with changes to seasonal rainfall patterns and greater frequency of drought. The potential operational and economic impacts from climate change include decreased water supply, increased utility prices, infrastructure deterioration and habitat stress.

Globally, the aviation sector generates approximately 2.5 per cent of the world's carbon emissions. The Australian Government has adopted emissions reduction targets of 43 per cent below 2005 levels by 2030 and net zero emissions by 2050. To help inform the design of policy settings, the Government has established the Australian Jet Zero Council which brings together a cross-section of stakeholders from across the aviation industry and its supply chains. In addition, the Australian Government is leading development of a Transport and Infrastructure Net Zero Roadmap.

The Aviation Green Paper, published in September 2023 by the Australian Government, identifies that industry decarbonisation will require a combination of Sustainable Aviation Fuels (SAF) and emerging propulsion systems (electric, hybrid-electric or hydrogen aircraft) in order to substantively reduce emissions. The Paper states that piston engine aircraft, which are typically used in general aviation, cannot currently use SAF to reduce emissions and emerging propulsion technologies are therefore likely to be a key part of the transition of the general aviation sector to net zero. PAL's planning for the uptake of electric and hybrid aircraft is discussed in section 8.5 (Airfield Development Plan).

Recent Achievements

- In 2017, Parafield Airport achieved Level 3 (Optimisation) accreditation under the independently assessed global Airport Carbon Accreditation program in recognition of the airport's success in reducing carbon emissions.
- PAL purchased a full-electric plug-in Nissan Leaf vehicle in 2018 and installed two charging stations at the Airport Management Centre, including one for use by tenants and public visitors. The Nissan Leaf was replaced with a Mitsubishi petrol hybrid electric vehicle in 2022. PAL staff complete around 5,000 km per year using the electric vehicle.
- Energy Efficiency Guidelines were developed in 2020 to provide guidance to airport tenants on techniques for measuring emissions and reducing energy consumption, including installation of solar PV systems and LED lighting.
- PAL upgraded the heating, ventilation and air conditioning system at the Parafield Management Centre in 2017.
- In 2018, an LED upgrade was completed at the Airport Management Centre and PAL Workshop.
- A 23kW solar photovoltaic system was installed at the PAL Workshop and a 11kW system installed at Elsie's Café (PAL-owned building) in 2019.
- In 2020, Parafield Airport became the first Australian airport to develop a Climate Adaptation Plan.

14.8.2 Current Management

14.8.2.1 Energy

Parafield Airport is a relatively modest consumer of energy resources. Electricity use in buildings is predominantly for heating, cooling and lighting. Only a small percentage of buildings on airport are owned and occupied by PAL and the remainder are either leased or owned and occupied by tenants.

PAL recognises the importance of being a leader in the energy transition within the aviation industry and the need to adapt to meet changing demands. PAL is committed to employing the principles of resource efficiency in its operations, planning and ongoing infrastructure development and in the procurement of goods and services.

PAL has developed an Energy Strategy to provide high level strategic direction to its energy management activities. PAL identifies, assesses and implements energy related opportunities including procurement, generation, storage, efficiency and optimisation projects in line with the Energy Strategy.

PAL engages with tenants on its Energy Efficiency Guidelines to support installation of solar systems and LED lighting, and provides assistance with activities such as energy audits, awareness and implementation of equipment. Solar photovoltaic systems have been installed across a number of hangars and buildings across the airport site, including the PAL Workshop.

14.8.2.2 Climate Change

The SA Government has projected that climate change impacts will increase into the next decade, with higher maximum temperatures, less rainfall and more dangerous fire weather. In conjunction with AAL, PAL has undertaken a climate risk review and has an understanding of both the physical and transition risks of a changing climate as well as the transition to a low carbon economy. PAL is responding to climate change as a business risk through:

- Mitigation: lessening the impact through low carbon policies and carbon reduction activities.
- Adaptation: planning and action in response to projected changes in climatic conditions and weather events resulting from climate change (i.e. making modifications to adjust to a changing situation).

Mitigation, in the form of carbon reduction, has been ongoing since 2013 when Parafield and Adelaide airports were the first airports in Australasia to receive Level 1 accreditation under the independently assessed global Airport Carbon Accreditation program run by Airports Council International.

In 2015, Parafield Airport became the first general aviation airport to achieve Level 2 (Reduction) accreditation, and in 2017 achieved Level 3 (Optimisation) accreditation in recognition of the airport's success in reducing carbon emissions.

Parafield Airport was the first Australian airport to develop a Climate Adaptation Plan, in consultation with staff and stakeholders, and has participated in regional adaptation planning with government and community. The Climate Change Adaptation Plan was approved by the PAL Board of Directors in 2020 and considers the risks and opportunities associated with future modelled seasonal temperatures, flooding, storms and drought. The Plan identifies appropriate adaptation pathways for airport infrastructure, buildings, services and other key components of airport operations. Climate modelling for Parafield is regularly reviewed and the Climate Change Adaptation Plan updated in response to these and other internal and external factors.

Like many cities around the world, Adelaide's hot summers can be compounded by the heat island effect, where urban environments, including buildings, roads and bare space, absorb and re-emit the sun's heat more than the natural landscapes. Trees, and the shade they provide, are a key strategy for reducing the heat island effect.

Prior to being used as an airport, the airport site was cleared farmland with minimal trees. The area surrounding the airfield is mostly grassed open area, and large canopy trees are not suitable in this area due to the requirement for air traffic control to have visibility of all aircraft movement areas, lack of irrigation, and wildlife hazard management. For areas of the airport suitable for canopy cover, PAL's Landscape Guidelines specify minimum greenscaping targets for all new developments, including tree targets for car parks.

14.8.3 8 Year Action Plan

The Energy and Climate Change Action Plan over the eight-year period is detailed in Table 14-7.

ENERGY AND CLIMATE CHANGE MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Annual measurement of the company carbon footprint	Ongoing
Continue certification to Level 3 of ACI's Airport Carbon Accreditation scheme or similar	Ongoing
Develop a decarbonisation strategy and implementation plan	Short-term
Implement decarbonisation strategy and implementation plan	Medium-term
Investigate possible locations for future renewable energy installations	Medium-term
Assess the economic feasibility of a large-scale renewable generation to supply individual tenants and potentially back to the grid	Medium-term
Adopt minimum energy efficiency standards for plant and equipment, including motor vehicles, in the company purchasing policy	Medium-term
Implement the Stakeholder Engagement Plan actions related to carbon management	Medium-term
Investigate implementation of smart electrical metering for PAL and tenant buildings to better utilise efficient tariff periods	Medium-term
Continue to investigate the technology and infrastructure required to support the move to electric light aircraft technology	Long-term
Continue to update and review the climate change risk assessment and adaptation measures	Long-term

Table 14-7 Energy and Climate Change 8-Year Action Plan

14.9 Water Resources

Objectives:

- **Smart use of water, improve efficiency and maximise opportunities for use of non-potable water**

14.9.1 Background

Parafield Airport's operation and future growth is dependent upon the ongoing security of water supply. While the airport may not be experiencing any immediate water supply concerns, there is evidence to suggest that water supply issues may return in the future like that experienced during the millennium drought. The key risks relate to water availability, access and cost. There is an opportunity to employ the smart use of water, including recycled water through water sensitive urban design and urban greening to both mitigate and adapt to climate change.

PAL is committed, where feasible, to expanding the use of available non-potable water supplies for new and existing developments as per PAL's Water Resources Plan. Developments with a large roof area, such as warehouses and hangars, provide opportunities for rainwater capture and reuse to supplement recycled water supplies from existing networks.

Recent Achievements

- Water sensitive urban design features have been incorporated in recent developments, such as increased use of air cooled heat pumps to reduce reliance on potable water.

14.9.2 Current Management

Parafield Airport continues to shift from water conservation to smart water use, in preparation for potentially dryer times ahead.

Stormwater harvested by the City of Salisbury from local drains and treated in a series of wetlands on Parafield Airport has been a supplementary source of non-potable water to off- and on- airport facilities and residential areas for several years. Recycled water from the City's stormwater harvesting scheme has been used to irrigate the community sporting grounds at Parafield Airport since 2013.

Water Conservation Guidelines and Landscape Guidelines have been developed for tenants and opportunities for the capture of water are identified by PAL through the Building Activity approval process. Features include rainwater tanks, stormwater harvesting schemes and drought-tolerant landscaping. All proposed landscaping is also reviewed and assessed against the Landscape Guidelines to ensure the planned activities are designed to promote water conservation.

The water meter network is monitored for effectiveness and maintained as required.

14.9.3 8 Year Action Plan

The Water Resources Management Action Plan over the eight-year period is detailed in Table 14-8.

WATER RESOURCES MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Seek opportunities for implementing water sensitive urban design principles	Ongoing
Update the water meter network to include smart metering and improve data accuracy, where required	Ongoing
Assess opportunities for introducing more water efficient management of infrastructure, and assess end-of-life replacement options as outlined in the Water Resources Plan	Ongoing
Investigate and implement water reduction opportunities and implement those that are financially viable to do so	Ongoing
Assess feasibility assessment of key opportunities for expanding the recycled water network to include new developments	Short-term
Review availability of recycled water for non-potable applications across new developments	Short-term
Undertake updated flood modelling for Parafield Airport	Short-term
Update the Design Guidelines to incorporate water sensitive sustainable design initiatives	Short-term
Undertake a water use study to understand where and how water is being used across the airport (for example, firefighting aircraft operations)	Medium-term

Table 14-8 Water Resources 8-Year Action Plan

14.10 Stormwater and Aquatic Ecology

Objectives:

- **Maintain and, where feasible, improve stormwater quality and aquatic ecosystems**

14.10.1 Background

Parafield Airport lies at the downstream end of several regional water catchments. The Main North Road Diversion Drain on the airport, managed by the City of Salisbury, collects flows from the urban catchment to the east of Main North Road and the Commercial Precinct.

Abutting the southern airport boundary, the Bennett Road Drain, which is also under management by the City of Salisbury, collects marginal surface water from the southern section of the airport and predominantly from upstream areas including Main North Road. The Airport West Drain abutting the railway reserve and the airport directs flow from the airport and upstream catchments including the suburb of Salisbury South and acts as a supply for the established City of Salisbury stormwater harvesting project. Stormwater from these catchments is released to Gulf St. Vincent via Dry Creek, downstream of the airport.

Recent Achievements

- Replacement and upgrades to flow proportionate composite sampling equipment located at Parafield Airport was completed in 2023.
- PAL updated its tenant risk assessment process and register in 2018 to include more detailed consideration of stormwater pollution sources and risk.

14.10.2 Current Management

PAL is committed to improving stormwater quality and consequently the ecological health of the airport's waterways, as detailed in the PAL Stormwater Quality Management and Improvement Plan. Implementation of this plan allows control of pollutant loads from activities on the airport.

Sources of stormwater pollution at Parafield Airport are similar to those in urban catchments, namely vehicles, roads, debris from vegetation, sediment, general commercial activities and hazardous substances storages. To mitigate these impacts PAL requires interceptors be installed at the discharge point for all new developments with the potential to generate pollutant loads.

High-risk tenants are also regularly inspected to check compliance of hazardous substances storages and other potentially polluting activities. Spill response and clean up in accordance with the Airport Emergency Plan is intended to minimise environmental impacts from fuel incidents. Tenants are inspected for conformance to PAL's Aircraft Washing Guidelines.

Measures to address stormwater management are required to be included in CEMPs. PAL undertakes regular site inspections to ensure that construction activities are complying with the CEMP.

A two-tier structure is applied to stormwater monitoring and is detailed in the Stormwater Quality Management and Improvement Plan. Tier 1 sampling involves the collection of flow proportionate composite samples from April through October at the airport's primary stormwater discharge point. One summer event between November and March is also captured annually, subject to rainfall. Tier 2 sampling is triggered when the criteria are exceeded, with the aim of identifying the pollution source(s). Results are currently compared against Commonwealth and South Australian water quality criteria.

PAL is working to establish site-specific water quality trigger levels to assess potential impacts to the aquatic environment. The development of site-specific trigger levels will also provide a baseline to measure the effectiveness of pollution control and stormwater management measures. The South Australian Environment Protection Authority (EPA) Environment Protection (Water Quality) Policy 2015 references the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000; now ANZG 2018), which provides scope for the development of site-specific water quality trigger levels.

14.10.3 8 Year Action Plan

The Stormwater and Aquatic Ecology Action Plan over the eight-year is detailed in Table 14-9.

STORMWATER AND AQUATIC MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Continue to regularly monitor stormwater quality	Ongoing
Continue to identify sources of pollution as per the Stormwater Quality Management and Improvement Plan and mitigate sources of pollution that have originated from airport operations	Ongoing
Continue to monitor the effects of climate change on stormwater runoff and performance of drainage systems	Ongoing
Provide guidance to stakeholders on stormwater quality improvement strategies	Ongoing
Complete risk assessment regarding pollutant potential to receiving waters and develop mitigation measures	Short-term
Develop site specific water quality criteria in accordance with Australia and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)	Short-term
Update Stormwater Quality Management and Improvement Plan to consider sediment management and ecological assessment and modelling of water sensitive urban design features	Medium-term
Investigate potential sources of pollution based on stormwater quality data reviews	Ongoing
Incorporate stormwater quality and water sensitive urban design principles into the Design Guidelines	Medium-term
Assess capacity of current infrastructure to respond to major stormwater pollution events	Medium-term

Table 14-9 Stormwater and Aquatic Ecology 8-Year Action Plan

14.11 Soil and Groundwater

Objectives

- **Maintain and, where feasible, improve soil and groundwater quality**

14.11.1 Background

Soil across the Parafield Airport site is generally consistent and comprise of a mixture of sandy and silty clays of the Pooraka Formation. Fill material in the upper soil profile varies significantly, having been deposited over various portions of the site over several decades, from various sources and for various purposes. Groundwater in the upper-most aquifer beneath the airport ranges in depth from 3.9m above the Australian Height Datum (AHD) at the south-west corner of the Enterprise Precinct, to 12.5m AHD along the northern boundary of the airport. Groundwater quality is typically saline to brackish and flows in a westerly and south-westerly direction, (however, localised flow direction may vary in some areas).

Most activities at Parafield Airport occur on impervious, paved surfaces which greatly limits the potential for contamination to impact soil and underlying groundwaters.

Recent Achievements

- PAL replaced its site contamination consultancy panel with a series of pre-approved consultancies that can be engaged based on experience in specific investigation methodologies or that have familiarity in certain areas of the airport, thus improving environmental outcomes.
- Environmental assessments were completed for all sites prior to development, including broad scale site contamination assessment across the airport.
- The Tenant Environmental Management Guidelines, which includes tenant responsibilities relating to soil and groundwater contamination, was distributed to all airport tenants in 2019.

14.11.2 Current Management

PAL has a Contaminated Site Management Plan (CSMP) and Contaminated Site Risk Register (CSRR) that have been developed in line with the National Environment Protection (Assessment of Site) Measure 1999 and are used to assess and prioritise potential risks associated with contaminated sites and sites where a high risk of contamination exists. Management strategies are assigned in the CSRR based on the level and type of contamination risk.

Regular groundwater monitoring is one of the strategies used to manage contamination risks. The Groundwater Monitoring Strategy establishes the requirements for regular groundwater monitoring activities, with contaminant trigger levels based on AEPR acceptance limits, background concentrations and the purpose of monitoring (for example, leak detection).

Preventing contamination is an ongoing priority, and all practicable measures are undertaken to minimise the risks of contamination occurring.

Environmental site assessments are undertaken in accordance with the AEPR to determine the existence of soil and/or groundwater pollution. Assessments are also typically completed as part of due diligence prior to the commencement of proposed developments. An Environmental Site Assessment Guideline has been developed to provide information about the assessment requirements to tenants and contractors.

Potential contamination risks associated with construction activities are managed via the Building Activity application process, principally through reviews of CEMPs. Following the commencement of site works, PAL undertakes construction environmental inspections to ensure potential risks are being managed in the manner described in CEMPs.

Operational activities undertaken by PAL and its contractors are managed in accordance with relevant procedures and plans, which include controls to minimise the risk of contamination. Where high-risk site activities (e.g. underground fuel storage) exist, the potential contamination risks are managed in accordance with the CSMP and CSRR.

Hazardous chemicals and waste stored and used by PAL are included in the hazardous substances register and Polychlorinated Biphenyls register and managed in accordance with PAL workplace health and safety policies and procedures. These procedures include regular audits of chemical/waste storage and spill response equipment. Consistent with the Tenant Environmental Management Plan, PAL ensures appropriate management of the hazardous chemicals and wastes stored and used by tenants via regular tenant inspections. PAL also provides a range of guidelines to tenants that provide advice on the appropriate storage and use of hazardous chemicals and waste.

Where contamination does occur or where historical contamination exists, the potential ecological and human health risks are managed in accordance with the CSMP and CSRR. The overall process is shown in Figure 14-2.

In addition to consideration of human health and ecological risks, the CSMP and CSRR consider Master Plan priorities and practicability in assigning risk rankings.

The interaction between the various principal strategy and management documents is illustrated in Figure 14-3.

The required responses to air crash and substantial pollution events are defined in the Aerodrome Emergency Plan which is developed in conjunction with the emergency service organisations. PAL has in place staff procedures for responding to dangerous runoff events, with spill control equipment and training made available to all staff.

Under the Airports (Environment Protection) Regulations 1997, PAL has reporting obligations to the Airport Environment Officer for spills and pollution events.

14.11.2.1 Per- and Poly- Fluoroalkyl Substances (PFAS)

Per- and poly- fluoroalkyl substances (PFAS) are manufactured chemicals that are used to make products resistant to heat, stains, grease and water. These substances were present in firefighting foams used at Parafield Airport from the early 1970s until 1986, when there ceased to be an active firefighting service based at the airport.

PAL took over operation of Parafield Airport in 1998 through a leasehold arrangement with the Commonwealth. While PAL has never been responsible for firefighting services, it is pro-actively managing and coordinating the response to PFAS-related investigations based on guidance from federal and state regulators, including the South Australian Environment Protection Agency (EPA). Regulators provide this guidance via a PFAS Project Control Group (PCG), which has been established to provide a forum for detailed review of PFAS investigations at Parafield Airport. The Parafield PFAS PCG consists of representatives from PAL, the DITRDCA, EPA, Airservices Australia, SA Health, SA Water and the City of Salisbury.

In 2016, PAL commenced a preliminary site investigation for PFAS contamination to better understand potential impacts from the historic use of firefighting foams by former Commonwealth agencies. A detailed investigation was subsequently undertaken and found historic PFAS contamination on airport in isolated monitoring wells set up on the southern and western boundary of Parafield Airport. These results were in line with the historic use of firefighting foams containing PFAS at training grounds, located to the south and west of Parafield Airport's runways and taxiways. These findings led to PAL initiating targeted water quality sampling in 2019 for public land off-airport and a survey of water use of properties in Mawson Lakes and Parafield Gardens.

PFAS was detected in groundwater to the west, off-airport, in Parafield Gardens. PFAS was below the drinking water guideline value in the Mawson Lakes survey area. Copies of the investigation reports and fact sheets for the community are published on the Parafield Airport website, parafieldairport.com.au/environment.

In 2021, the Commonwealth government commenced its PFAS Investigation Program to identify the nature and extent of PFAS contamination at airports where former Commonwealth agencies previously provided firefighting services, including Parafield Airport. The program is being administered by the DITRDCA and is expected to run for six years. The program aims to ensure appropriate management plans are in place to manage any identified risks.

The assessment and management of PFAS contamination on the airport site is undertaken in accordance with the Guideline for Environmental Management, issued by the DITRDCA, which directs airport-lessee companies to use the published PFAS National Environmental Management Plan (PFAS NEMP) which provides nationally agreed guidance on the management of PFAS contamination. PAL manages PFAS contamination, and directs its tenants to manage PFAS contamination, in a manner consistent with the PFAS NEMP, with the following qualifications:

- PFAS contaminated material reuse and landfill disposal will be based on guidance and regulation provided by the EPA.
- Precursor analysis will only be used as required to provide additional data for the purpose of assessing potential risks.

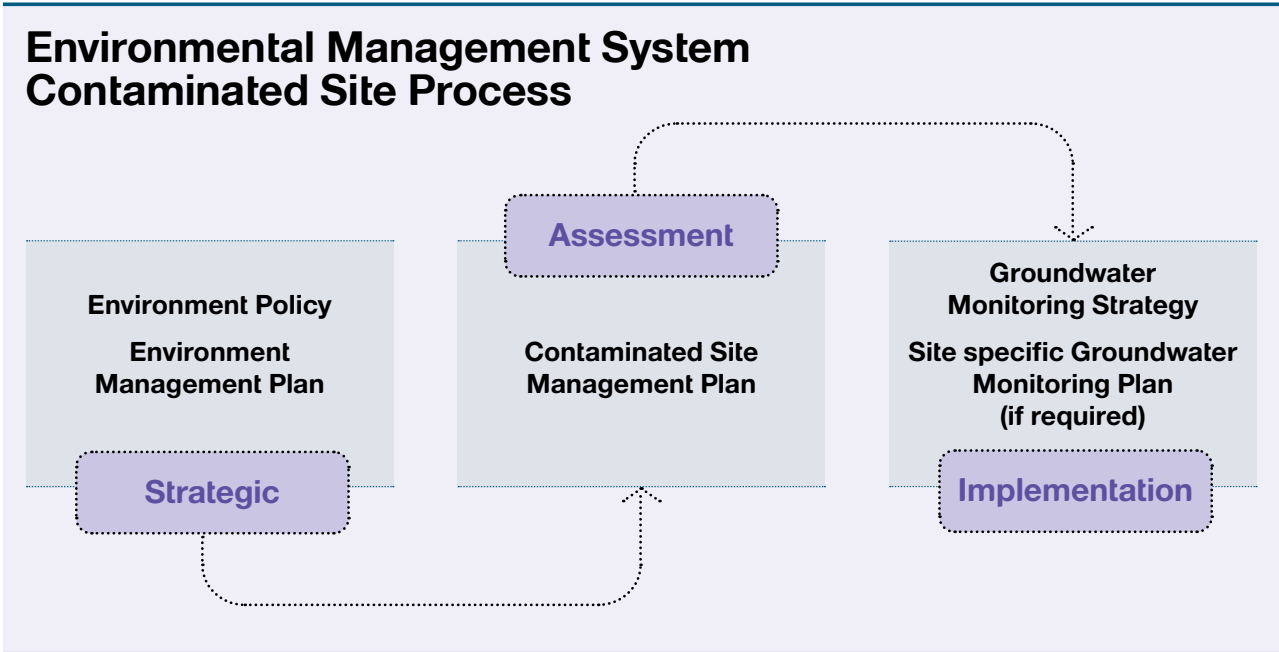


Figure 14.3: Environmental Management System process for contaminated sites

14.11.3 8 Year Action Plan

The Soil and Groundwater Action Plan over the eight-year period is detailed in Table 14-10 below.

SOIL AND GROUNDWATER MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Continue to review trigger criteria in the Groundwater Monitoring Strategy based on reviews of new data and updates to environment protection regulations	Ongoing
Continue to conduct regular groundwater monitoring in accordance with the Groundwater Monitoring Strategy	Ongoing
Continue to implement priority actions on the Contaminated Site Risk Register, in accordance with the Contaminated Site Management Plan	Ongoing
Continue to guide tenants to close out contaminated sites on a risk basis where practicable	Ongoing
Continue to conduct relevant environmental site assessments for new developments and lease terminations in accordance with the Environmental Site Assessment Guidelines	Ongoing
Continue to provide guidance to stakeholders on contamination prevention and remediation strategies	Ongoing
Develop a PFAS Management Plan for Parafield Airport	Short-term
Upload all historical and future contamination data to a Geographic Information Service platform	Medium-term
Collaborate with the Commonwealth in its assessment and management of PFAS as part of the National PFAS Management Program	Long-term

Table 14-10 Soil and Groundwater 8-Year Action Plan

14.12 Ground-based Noise

Objectives:

- Ensure developments and airport activities comply with relevant ground-based noise regulations
- Proactively assess and manage potential ground-based noise exposure on the local community

14.12.1 Background

Parafield Airport is surrounded by high-density urban, industrial, and commercial development, all of which are potential receptors to ground-based noise generated by airport activities. The major contributors of ground-based noise at the airport include:

- Aircraft engine ground running (engine testing)
- Parked aircraft with operating engines
- Operation of an auxiliary power unit of an aircraft
- Ground vehicles (such as roads, car parks, truck delivery and loading operations)
- Plant and equipment (for example, mobile diesel generators)
- Construction activities.

Recent Achievements

- PAL completed a study to understand relative contributions of on and off-airport noise sources.
- The Ground Running Procedure was updated in 2020 to reflect community expectations for ground running times on weekends, and again in 2022 to ensure higher risk ground running activities are being adequately monitored and approved by PAL staff.
- Ground based noise modelling was updated in 2022 to incorporate noise monitoring undertaken at the airport boundary, including monitoring during aircraft engine ground running activities
- Development of a Noise and Emissions Management Plan in 2023.

14.12.2 Current Management

Ground running (engine testing) activities undertaken by aircraft operators are controlled through monitoring and enforcement of the Procedure for the Ground Running of Aircraft Engines at Parafield Airport. This procedure has been ratified by the DITRDCA Airport Environment Officer and is subject to periodic review. The procedure directs aircraft owners and maintenance operators as to when and where they may test-run engines, the periods of time and power settings. PAL monitors these activities. Engine ground runs are currently permitted between 7.00 am-6.00 pm Monday to Friday, 8.00 am-6.00 pm on Saturdays, and 9.00 am-6.00 pm on Sundays and public holidays. Engine ground runs for safety critical maintenance or emergency services operations may occasionally occur outside of these hours.

The Noise and Emissions Management Plan identifies targets for ground-based noise and details a risk assessment and appropriate mitigation of risks for ground-based noise and emissions.

Operational and construction activities are controlled through lease agreements and tenant or CEMPs, where applicable and monitored through a program of regular site inspections.

Lease agreements require tenants to take all reasonable and practicable measures to minimise noise generated at their premises. All activities occurring on site must comply with the noise criteria specified in the Airports (Environment Protection) Regulations 1997 (Cth). As part of the development assessment and approval process for new commercial buildings, acoustic assessments are typically required to be undertaken at the design phase of new builds to determine the likely impact on surrounding receptors and any mitigation which may be required.

PAL provides a CEMP template to contractors and tenants that includes actions to minimise noise and vibration emissions during construction activities. Construction work hours generally occur between 7.00 am to 7.00 pm Monday to Saturday, in line with local government requirements, and any works outside these hours must be approved by PAL. To minimise disruption to aircraft operations, some works may need to be completed outside of typical construction hours. Works outside of typical construction hours however are uncommon and only in unique circumstances. For works that would typically require runway or taxiway closures, PAL works with the contractors, Airservices and aircraft operators to develop a works plan that facilitates works being undertaken in the daytime as much as possible.

Other actions to minimise noise exposure include fitting and maintaining appropriate noise attenuation equipment for on-site plant in accordance with manufacturer specifications, and notification of construction hours (particularly night work and when to expect noisy activities) to nearby residents. PAL is committed to engaging with the community on potential ground-based noise issues. A proactive engagement and consultation approach is undertaken in conjunction with development programs which address actual and potential ground-based noise, including through the Parafield Airport Consultative Committee and Parafield Airport Technical Working Group.

PAL undertakes boundary noise monitoring on a three yearly basis at locations of ground-based noise exposure. The results of the boundary noise monitoring undertaken over the last decade suggest that aircraft (in-flight) noise and other off-airport noise sources are greater contributors than airport ground-based noise in respect to noise exposure for sensitive noise receptors.

14.12.3 8 Year Action Plan

The Ground-based Noise Action Plan over the eight-year period is detailed in Table 14-11 below.

GROUND-BASED NOISE MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Continue ground-based noise monitoring, consistent with the Air Quality and Noise Management Plan	Ongoing
Conduct pre-development acoustic assessments on relevant new developments to assess the risk of unacceptable ground-based noise outputs	Ongoing
Undertake detailed study to understand relative contributions of on and off airport noise sources	Medium-term
Map historical and future ground-based noise complaints to inform noise investigations	Medium-term
Update the PAL Environment Management System, management plans and tenant guidance in-line with changes to Commonwealth regulations	Long-term

Table 14-11 Ground-based Noise 8-Year Action Plan

14.13 Local Air Quality

Objectives

- Ensure developments and airport activities comply with relevant air quality regulations
- Proactively assess and manage potential airport related air quality impacts on the local community

14.13.1 Background

Under the Airport (Environment Protection) Regulations 1997, PAL is responsible for managing air emissions generated by ground-based activities within the airport boundary. Air quality outside the airport boundary is subject to the provisions of the South Australian *Environment Protection Act 1993*. Air emissions generated by aircraft are regulated under separate legislation and are the responsibility of Airservices.

Parafield Airport is located within an urbanised area surrounded by residential, commercial, and industrial zones. The SA EPA monitors air quality in the northern Parafield airshed, at sites in Elizabeth and Northfield. Data published to-date by the SA EPA show air quality in the airshed that encompasses Parafield Airport meets the relevant National Environment Protection (Ambient Air Quality) Measure 2003 criteria.

Lead based fuel has historically been in use for general aviation globally. The majority of the general aviation operations undertaken at Parafield Airport are piston-engine aircraft that use 100 octane low lead Avgas (referred to as 100LL).

The Aviation Green Paper, published by the Australian Government in September 2023, identifies that a proportion of Australia's general aviation fleet relies on leaded Avgas which is not currently substitutable with Sustainable Aviation Fuel. The Paper acknowledges that viable alternatives to 100LL are in development and may be ready for use in Australia in the near future. PAL will continue to monitor alternative aviation fuels and their potential introduction at Parafield Airport.

Recent Achievements

- Ozone Depleting Substances Guidelines were developed in 2017 to guide PAL, tenants and contractors.
- Development of an Air Quality and Noise Management Plan in 2023.

14.13.2 Current Management

The management of air emissions from ground-based activities covers items such as refuelling, painting, cleaning, machining, mechanical maintenance, generator use, commercial cooking and construction.

Potential air quality issues related to construction activities are managed by PAL through:

- The Building Activity Application review process (described in Section 7.7)
- Review and approval of required contractor CEMPs
- PAL guidelines, including the Construction Environmental Management Guideline
- Construction environmental inspections conducted in accordance with the Tenant and Construction Environmental Inspection Procedure.

Potential air-quality issues related to the airport and tenant operational activities are managed through:

- The Building Activity Application review process
- Ozone Depleting Substances Register
- Ozone Depleting Substances Guidelines
- Regular tenant inspections undertaken by PAL in accordance with the Tenant and Environmental Inspection Procedure
- Spray-Painting Guidelines
- Implementation of the Air Quality and Noise Management Plan (ground based).

As part of implementing its Carbon Management Plan, PAL engages with flight training schools and Airservices Australia to explore opportunities for airfield and aviation efficiency resulting in reduced fuel burn and therefore reduced emissions. Operators of new technology aircraft, such as the use of zero emission electric aircraft, are encouraged to conduct flights at Parafield Airport. PAL continues to assess the feasibility for the accelerated adoption of electric aircraft technology at Parafield Airport (see Section 6.5.4).

14.13.3 8 Year Action Plan

The Local Air Quality Action Plan over the eight-year period is detailed in Table 14-12 below.

LOCAL AIR QUALITY MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Continue to conduct air quality monitoring and collect air emissions data from publicly available sources within the Parafield airshed	Ongoing
Continue to phase out the use of ozone-depleting substances where feasible	Ongoing
Continue to conduct regular tenant inspections for emissions quality	Ongoing
Map community air quality complaints to inform air quality investigations in-line with the Air Quality and Noise Management Plan (ground-based)	Ongoing
Undertake an on-airport baseline air quality assessment	Short-term
Develop and implement a monitoring schedule in accordance with the Air Quality and Noise Management Plan (ground-based)	Medium-term
Continue to identify opportunities and support aircraft operators in the uptake of emissions reduction technology, such as electric aircraft	Long-term

Table 14-12 Local Air Quality 8-Year Action Plan

14.14 Waste Management

Objectives:

- Reduce waste generation
- Increase reuse and recycling of products and materials
- Increase diversion of airport waste from landfill

14.14.1 Background

PAL manages waste and recycling material associated with the operation of the airport except for certain leased areas and waste from aircraft.

PAL provides services for five major waste and recycling streams across the general aviation areas and PAL offices including general waste, cardboard and paper, co-mingled and organics recycling. Other waste streams generated at the airport include metal, plastics, concrete and masonry, wood, asbestos, oil, tyres, e-waste, batteries (various types) and hard waste - most of which is recycled.

Waste management at Parafield Airport is driven by the hierarchy of waste management - reduction, reuse, recycle, recovery, treatment and disposal - and is underpinned by PAL's Waste Management Strategy. The hierarchy of waste management is a nationally and internationally accepted guide for prioritising waste management practices with the objective of achieving optimal economic, social and environmental outcomes and is shown in Figure 14-4.

Recent Achievements

- Recycling of demolition and construction waste is being achieved through PAL construction contracts and CEMPs.
- Management of the illegal dumping of tyres through ongoing consultation with tenants.
- Ongoing use of recycled building materials on new developments.

14.14.2 Current Management

PAL recognises the importance of reducing waste generation, maximising reuse and recycling, and the diversion of waste from landfill. PAL has a mature waste-management program driven by its high-level waste strategy and underpinned by specific operational waste management plans.

Through its Waste Management Strategy, PAL seeks to move towards maximising waste direct to landfill where practicable.

PAL also manages a range of maintenance and e-waste streams (including metals, green waste, plastics, globes, computers and screens). Recycling of these streams is well developed, and PAL continues to formalise these processes through development of an Operational Waste Management Plan.

PAL manages construction waste via the building approval process. This requires contractors to produce CEMPs which include activities related to waste management and recycling. Contractor performance against their CEMP is regularly audited by PAL.

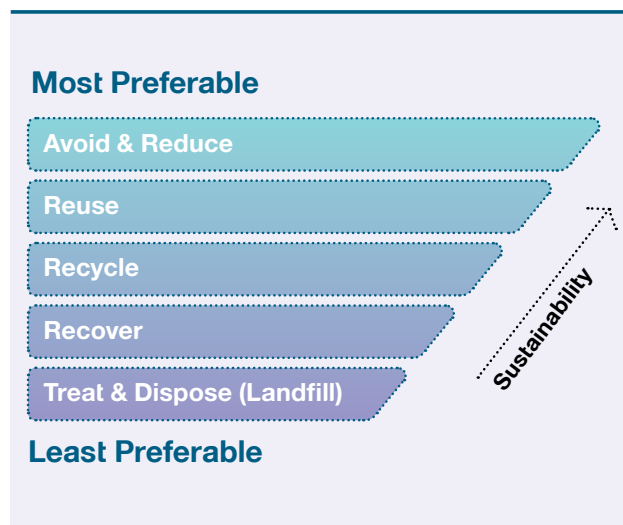


Figure 14.4: Waste management hierarchy (Environment Protection Act 1993 for South Australia)

14.14.3 8 Year Action Plan

The Waste Management Action Plan over the eight-year period is detailed in Table 14-13 below.

WASTE MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Encourage and support the use of recycled construction materials	Ongoing
Staff education in recycling and waste management	Short-term
Assess feasibility for undertaking a site wide 'single supplier' of waste management services to enable better tracking of waste and data insights	Short-term
Develop monitoring program for waste including internal audits and waste to destination audits incorporating ethical practices	Short-term
Update the Design Guidelines to incorporate environmentally sustainable design initiatives for waste management, such as the use of recycled construction materials	Short-term
Develop and implement the Waste Management Plan consistent with Parafield Airport operations	Medium-term
Investigate and map waste streams at Parafield Airport for opportunities to divert waste from landfill and insert recyclables into a circular economy	Long-term

Table 14-13 Waste Management 8-Year Action Plan

14.15 Land and Heritage Management

Objectives

- **Minimising the risks presented by wildlife to aviation safety**
- **Promote communication and engagement with Kurna traditional custodians**
- **Monitor and manage the ecological value of the vernal pools.**

14.15.1 Background

The airport site was previously farmland and has been used for airport operations since 1927. It has been heavily cultivated and leased for grazing and cropping. The airport has developed from an all-over grassed airfield to a complex network of paved runways, taxiways and aircraft aprons, as well as commercial and industrial developments.

14.15.1.1 Biodiversity and Conservation

An ecological assessment of the airport was undertaken in 2023, with reference to the ecological value of flora and fauna present at the airport, including a desktop assessment using publicly available search tools to identify Matters of National Significance under the EPBC Act. The assessment identified there are currently no threatened ecological communities or species listed under the EPBC Act identified on the airport site.

State-listed and regionally significant flora species have been identified on the airport site. Including Wiry Dock (*rumex dumosus*), Barren Cane-grass (*eragrostis infecunda*) and Hoary Rush (*juncus radula*).

There are no state-listed fauna species present on the Parafield Airport site, with the broader airport environs providing a limited habitat for birds. The vernal pools are located at the southern end of the airport and are the last known array of pools within metropolitan Adelaide. These pools are ephemeral patch habitats dependent upon winter/spring surface water run-off. These areas contain several flora and fauna species which do not occur anywhere else in the airport site and are unique to these pools and the surrounding grassland. PAL has managed the condition of vernal pools under a management plan since 2016. The vernal pools and associated surrounding grasslands cover an area of approximately 20 hectares.

14.15.1.2 Aboriginal Cultural Heritage

Ethnographic records point to a rich and varied history of occupation by the Kurna people across the Adelaide region, which included a practical and cultural relationship with the ephemeral creeks, swamps and basins in and around Parafield Airport. The landscape of Parafield Airport is of importance to the Kurna People today and there remains a deep connectedness with the land.

Large areas of the airport have been surveyed in previous years and from which three Reported Sites have been recorded on the South Australian Government's Register of Aboriginal Sites and Objects. Two sites are known to contain stone artefact scatters and are situated within the Bennett Precinct. One additional site is located in the southern portion of the Airport Business Precinct, which was historically reported as a possible stone artefact scatter.

14.15.1.3 Built Heritage

Parafield Airport has a vibrant post-European settlement history, marked by several distinct development periods: establishment as a civilian aviation facility (1927-38); a World War II military training facility (1939-44); South Australia's commercial aviation gateway; and a centre for pilot training (1955 onwards).

The Parafield air traffic control tower, which is owned and occupied by Airservices Australia, was built in 1940 during World War II. It was added to the Commonwealth Heritage List in 2016 following a nomination from Airservices.

The tower is an art deco building that has a strong historical association with the development of air traffic control services in Australia, and is the oldest operational air traffic control tower in Australia. It is one of three, almost identical, integrated operations and administration buildings constructed at major airports between 1939 and 1941 (the others were at Mascot (Sydney) and Archerfield (Brisbane)). The Parafield tower is distinguished from those at Archerfield and Mascot in that it retains its original function, albeit with a 1981 cabin. It is likely that the building has been associated with the provision of air traffic control for longer than any other surviving building in Australia.

The hangar formerly occupied by Bruce Hartwig Flying School was built in 1929 for West Australian Airways (which later became part of Australian National Airways) and was later occupied by the Australian Aero Club (SA Section). There are several hangars located on Kings Road that have been in use since the 1930s and 1940s and used during World War II for aircraft maintenance, including two 'Bellman hangars' that were

used by the RAAF No. 1 Elementary Flying Training School that operated during the war years.

The Department of Aircraft Production hangars are located on the western side of the airport and were built during World War II and used for military aircraft overhauls until 1969, with one of these hangars now occupied by Flight Training Adelaide.

Recent Achievements

- The Parafield Airport Heritage Centre was opened in 2018 and houses historical accounts and memorabilia from South Australia's early aviation pioneers and Parafield Airport.
- A Land Management Plan was implemented in 2018 to support the wildlife hazard-management program through targeting the removal of problem weed species and promoting a more desired ground cover.
- Vegetation maintenance to control exotic weeds and fire risks at the vernal pools was undertaken in November 2020.

14.15.2 Current Management

14.15.2.1 Biodiversity and Conservation

Maintenance and operation activities, development and construction, and inappropriate management of stormwater, waste and pest species have the potential to impact upon biodiversity at Parafield Airport through the loss, degradation or injury to native flora and fauna.

PAL has dedicated many resources to the vernal pools, including development and implementation of the Vernal Pools Management Plan (formerly referenced as the Vernal Pools Conservation Zone Management Plan), provenance guidelines and monitoring surveys.

PAL has documented processes and guidance in the Landscape Guidelines and Land Management Plan to streamline the approval of building activity for land clearing and provide greater certainty and flexibility. These documents provide details on:

- Pest or native species that have been identified as presenting potential wildlife-hazard risks.
- The decision-making framework for the retention or offsetting of exotic and native species.

14.15.2.2 Wildlife Risk Management

PAL runs a comprehensive wildlife management program. Ongoing wildlife hazard management measures include bird netting on the wetlands located along the western boundary, south of the Airport Business Precinct, daily wildlife counts and harassment techniques, and land management.

In 2018, PAL completed a review of its wildlife hazard management program. Key initiatives included a detailed vegetation and soil survey providing a high-level understanding of invertebrates (insects), vegetation and soil condition across the airfield; and subsequent wildlife hazard mapping to compare invertebrates, vegetation and soil data with wildlife strike, abundance and location data to identify potentially problematic vegetation/ soil conditions. This has resulted in the development of an integrated Land Management Plan based on the detailed vegetation and soil survey and wildlife-hazard mapping results to target removal of problem weed species and promote a more desired ground cover.

All proposed landscaping is reviewed and assessed against the PAL Landscape Guidelines, as part of the airport's building application approval process, to ensure the planned activities are designed to reduce wildlife attraction.

PAL continues to collaborate with all levels of government, the Commonwealth Department of Defence and aviation stakeholders to identify high risk activities across metropolitan Adelaide based on the National Airports Safeguarding Framework guidelines for managing the risk of wildlife strikes near airports (described in Section 12).

14.15.2.3 Aboriginal Cultural Heritage

The South Australian *Aboriginal Heritage Act 1988* protects all Aboriginal sites, objects and ancestral remains throughout the state and approval must be sought from the Minister responsible for Aboriginal Affairs and Reconciliation prior to any action that could damage, disturb or interfere with an Aboriginal site.

PAL requires CEMPs to include measures to minimise impacts arising from activities on sites, objects and remains of cultural heritage significance. This includes actions such as including cultural heritage awareness in site inductions, installing bunting around areas of cultural heritage significance to ensure there is no access to the area, and ceasing works if artefacts or areas of potential cultural heritage significance are found or suspected. PAL staff undertake regular site inspections to ensure that construction activities are complying with the CEMP.

A Community Engagement Framework has been developed for Adelaide and Parafield airports and includes actions to build relationships with the Kurna people and other First Nations Peoples.

Adelaide and Parafield airports also commenced an inaugural Reflect Reconciliation Action Plan in 2023, with the development of a Reconciliation Action Committee that is guided by First Nations Peoples.

14.15.2.4 Built Heritage

As a result of the listing of Parafield air traffic control tower on the Commonwealth Heritage Register in 2016, PAL identifies the tower in its Heritage Management Strategy. Airservices maintains a Heritage Management Plan for the air traffic control tower.

There are several hangars and other buildings that are also recognised in PAL's Heritage Management Strategy for their contribution to the heritage of the Parafield Airport site. Other buildings include the old fire station building (now the Parafield Aviation Heritage Centre), and hangars that were constructed in the 1930s and 1940s and are currently occupied by flying schools and aircraft maintenance organisations. These buildings do not meet Commonwealth heritage significance criteria.

PAL's building approval process, regulated under the Airports Act, provides the mechanism for development control and triggers any relevant management actions relating to built heritage.

14.15.2.5 South Australian Aviation History

PAL is committed to ensuring that the diverse and important history of Parafield Airport is given appropriate recognition. In celebration of 90 years of aviation history, the Parafield Aviation Heritage Centre was opened in April 2018. Housed in the old fire station building on Kings Road, the Centre includes memorabilia and historical accounts from Parafield Airport and South Australia's early aviation pioneers. Showcasing key themes and events that have occurred at Parafield Airport over the past 90 years, the Centre is a visitor attraction for the northern suburbs and an educational hub for school groups. PAL acknowledges the significant number of aviation and heritage experts that provided their support to bring this project to fruition.

14.15.3 8 Year Action Plan

The Land and Heritage Action Plan over the eight-year period is detailed in Table 14-14 below.

LAND AND HERITAGE MANAGEMENT ACTION/INITIATIVE	TIMEFRAME
Implement the Community Engagement Framework and promote communication between Parafield Airport and Kaurna traditional custodians	Ongoing
Continue to develop and implement the Vernal Pools Management Plan**	Ongoing
Continue to implement Wildlife Hazard Management Strategy and Wildlife Hazard Management Plan	Ongoing
Update the Parafield Airport Heritage Strategy	Short-term
Develop and implement a Reconciliation Action Plan	Short-term
Update the Design Guidelines to incorporate further initiatives related to landscape design and wildlife hazard management	Medium-term
Implement procedures for identifying and protecting archaeological artefacts	Medium-term

Table 14-14 Land and Heritage 8-Year Action Plan

** Formerly titled Vernal Pool Conservation Zone Management Plan