CAPITAL AIRPORT GROUP

THE NORTHERN ROAD PROJECT

Construction Environmental Management Plan

(Supplement to the approved 2010 CEMP – EPBC 2009/4748)

Australian Government
Department of Agriculture, Water and the Environment

Mr Noel McCann
Director of Planning and Government Relations
Canberra Airport
Level 4, 21 Terminal Avenue
CANBERRA AIRPORT ACT 2609

Dear Mr McCann

EPBC 2009/4748: Canberra Airport Infrastructure- Approval of Northern Road CEMP

Thank you for your correspondence on 3 May 2022 and 17 May 2022 to the Department of the Agriculture, Water and the Environment, seeking approval of *The Northern Road Project; Construction Environmental Management Plan; 17 May 2022* in accordance with condition 4 of the above project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

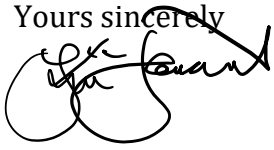
Officers of the Department have advised me on *The Northern Road Project; Construction Environmental Management Plan; 17 May 2022* and the requirements of the conditions of the approval for this project. On this basis, and as a delegate of the Minister for the Environment, I have decided to approve *The Northern Road Project; Construction Environmental Management Plan; 17 May 2022*. This plan must now be implemented.

Approval condition 7A for this project allows you (under certain circumstances) to implement revised plans without seeking the Minister's approval. If you require any advice on whether to submit a revised plan for approval, please contact the officer below. When submitting any revised plan to the Minister, please provide a 'tracked changes' version of the plan.

As you are aware, the Department has an active monitoring program which includes monitoring inspections, desk top document reviews and audits. Please ensure that you maintain accurate records of all activities associated with, or relevant to, the conditions of approval so that they can be made available to the Department on request.

Should you require any further information please contact Robin Nielsen on (02) 62741004 or postapproval@awe.gov.au.

Yours sincerely



Kim Farrant
Assistant Secretary
Environment Assessments (Vic, Tas) and Post Approvals Branch
Environment Approvals Division

6 June 2022

This Construction Environmental Management Plan (CEMP) is a Supplement to the CEMP for the construction of the Northern Road approved by the Department of Environment, Water, Heritage and the Arts on 3 February 2010, as a condition to EPBC Act Referral EPBC 2009/4748 consistent with Conditions 4 and 5.

The CEMP for the Northern Road also satisfactorily fulfils the requirements of the *Airport (Environment Protection) Regulations 1997,* is consistent with the Canberra Airport Environment Management System (EMS 2021) and EPBC 2009/4748 (varied 29 May 2020) and the Northern Road Construction and Operations Strategy (approved 29 May 2020) and approval for construction by the National Capital Authority (NCA).

Canberra Airport Pty Ltd
Level 4, Plaza Offices West, 21 Terminal Avenue,
Canberra Airport ACT 2609
T: (02) 6275 2222 F: (02)6275 2244

ACN: 080 361 548

AUTHORISATION FOR ISSUE

When signed, this edition of the Construction Environmental Management Plan

is approved and authorised for issue by Canberra Airport

17 May 2022

Noel McCann
Director of Planning and Government Relations
Canberra Airport Pty Ltd

Date

17 May 2022

Zarko Danilov
Head of Projects
Canberra Airport Pty Ltd

Date

Document Control

Version	Details	Date Issued	Approved By
Rev 1	CEMP	3 May 2022	Noel McCann
Rev 2	CEMP	17 May 2022	Noel McCann

Table of Contents

1 The Northern Road Project

1.1 Construction Environmental Management Plan (CEMP) – Condition 4 EPBC 2009/4748

Condition 4 of EPBC 2009/4748 requires the approval of a Construction Environmental Management Plan prior to commencement of construction of the Northern Road. A Standard CEMP for Airside Works was approved by the Department of the Environment, Water, Heritage and the Arts on 3 February 2010 as a condition to EPBC Act Referrals EPBC 2008/4170 and EPBC 2009/4748.

The original Condition 4 was varied on 3 June 2019 by the inclusion of Condition 4A:

> 4A. Within 6 months following completion of **construction**, the person taking the action must submit to the **Minister** for approval a revised Canberra Airport Offsets Plan which identifies the area of impacted **natural temperate grassland** that is available for rehabilitation, and specify a program to rehabilitate the land to **natural temperate grassland**. The approved Canberra Airport Offsets Plan must be implemented.

This May 2022 version of the CEMP is supplementary to the approved 2010 CEMP. The 2010 CEMP is provided as Attachment 1 of the Northern Road Construction and Operations Strategy (Appendix 2).

1.2 Project Description and Site Location

The proposal comprises a roadway, part of which is the existing Malcolm Vale Road Reserve, which will be upgraded to a bitumen surface to operate as a two-lane/two-directional roadway.

Associated works include:

- Drainage works;
- A stormwater detention basin;
- Areas to be developed within the Department of Defence Majura Military Training Area (MTA) for Defence vehicles and coach parking; and
- Fencing will be upgraded to provide satisfactory security for the MTA and Canberra Airport

The new road alignment, excluding the MTA Grenade Range gateway Defence parking area, has minor environmental impact (please refer to Attachment 5), a result of:

a) its westerly location within Malcolmvale West. There is no loss of Natural Temperate Grassland (NTG) flora or Grassland Earless Dragon habitat in this part of Malcolmvale West, however there is a loss of low to very low Golden Sun Moth habitat (Rowell, May 2020, Attachment 5); and

b) the use of a greater length of the existing gravel Malcolm Vale Road, where there is a range in quality of remnant NTG located along the proposed roadway construction zone and adjacent to the side fence lines as reported in Attachment 5 and as set out in Section 2.1 of this Strategy.

In practical terms, subject to final design within the corridor, the new road alignment comprises three (3) separate sections of approximately:

1. 500m (25%) within the Airport mainly on existing roadways. There is no grassland flora or fauna;

2. 880m (44%) across the heavily disturbed and degraded farmland of Malcolmvale West, (Rowell, May 2011, Attachment 4 and May 2020 Attachment 5); and

3. 611m (31%) on the existing "L" Shaped Malcolm Vale gravel paved Road with some grassland impacted (Rowell, May 2020, Attachment 5).

1.3 EPBC 2009/4748 – Condition 5

The Northern Road forms part of the approvals received by Canberra Airport for EPBC 2009/4748. Condition 5 of the referral was varied to respond to a change of the alignment of the roadway compared to the approved alignment in 2009. The variation was approved by a delegate of the Minister for the Environment on 29 May 2020.

Appendix 1: Variation of Conditions Attached to Approval (EPBC 2009/4748).

1.4 Northern Road Construction and Operations Strategy

Condition 5 of EPBC 2009/4748 required the approval of a Northern Road Construction and Operations Strategy prior to commencement of construction of the Northern Road. The Strategy was approved by a delegate of the Minister for the Environment on 29 May 2020.

Construction of the Northern Road is to have regard to endangered Natural Temperate Grassland (NTG) flora and fauna as set out in the Strategy.

Appendix 2: Northern Road Construction and Operations Strategy

1.5 Protocol for the Investigation and Retrieval of Grassland Earless Dragon (GED)

The approved 2010 CEMP provided at Appendix B for a Pre-construction Protocol for the Investigation and Retrieval of GED. The Protocol has been updated in consultation with Alison Rowell, Biologist and Environmental Consultant.

The Protocol will be implemented prior to construction and handover of the site to the successful contractor and will be undertaken by Ms Alison Rowell, Biologist and Environmental Consultant and Rob Spiers, Principal at Capital Ecology.

The Protocol process is consistent with the Construction and Operations Strategy, the Threatened Species Management Plan and investigations undertaken for the Taxiway Bravo Extension Project in 2019/2020 (EPBC 2008/4170).

Appendix 3: Protocol for the Investigation and Retrieval of Grassland Earless Dragon

1.6 Approvals

To date approvals for the construction of the Northern Road include:

a)	EPBC 2009/4748	Approved by DEWHA 11 November 2009 Variation approved by DAWE 29 May 2020
b)	Standard CEMP for Airside Works	Approved by DEWHA 3 February 2010
c)	Threatened Species Management Plan (TSMP)	Approved by DEWHA 9 March 2010
d)	Canberra Airport 2020 Master Plan	Approved by Minister for Infrastructure and Transport February 2020 Including the Airport Environment Strategy
e)	Northern Road Construction and Operations Strategy	Approved by DAWE 29 May 2020
f)	National Capital Authority (NCA) – Letter of Consistency for that part of the Northern Road alignment outside the Canberra Airport boundary.	Approved by NCA 29 April 2022
g)	Support of Transport Canberra and City Services (TCCS) – including the proposed intersection upgrade of the Northern Road with Majura Road.	Support letter from TCCS received 12 June 2020

1.7 Environmental Investigations

The following environmental investigations have been undertaken in preparation for construction of the Northern Road:

- Malcolmvale West Ecological Study – May 2011 (Alison Rowell)
- Milsearch UXO geophysical survey 2019. No items of UXO were encountered.
- Proposed Northern Road Alignment and Enclosed Land Ecological Surveys – May 2020 (Alison Rowell)
- Arcadis Limited Detailed Site Investigation (DSI) – 15 October 2020.
- Arcadis Soil Management Plan (SMP) – 26 November 2021.

Refer Section 7.1 – Project Site Assessment for PFAS.

1.8 Legislation and Other Relevant Documentation

This CEMP has been prepared having regard to the following:

- EPBC 2009/4748, including Conditions 4 and 5 as varied 29 May 2020;
- TSMP approved 9 March 2010 and CEMP approved 3 February 2010 by DEWHA now DAWE
- Approval by NCA for the Northern Road off Airport/Landside Area
- Approval by Canberra Airport Building Controller for the Northern Road on Airport/Airside Area

- *Airports Act 1996*;
- *Airports (Environmental Protection) Regulations 1997*;
- *The Environment Protection and Biodiversity Conservation Act 1999*;
- Airport Environment Strategy (Appendix 1 of Canberra Airport current 2020 Master Plan); https://www.canberraairport.com.au/wp-content/uploads/2020/03/CAG-APPROVED-2020-Master-Plan-Environment-Strategy.pdf
- Canberra Airport Work, Health and Safety Guideline for PFAS (October 2020) – Appendix 4 of this CEMP;
- Canberra Airport Environmental Management System (EMS) in compliance with AS/NZS ISO14001:2016 Environmental Management Systems – Requirements with guidance for use;
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM);
- PFAS National Environmental Management Plan (NEMP) 2.0 of 2020, including its guideline values, as amended from time-to-time;
- National Water Quality Management Strategy (NWQMS), including the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000), revised 2018;
- National Strategic Plan for Asbestos Awareness and Management, November 2019.

This list is not exhaustive and may be amended as required.

1.9 Project Contacts

	Name, Mobile, Email
Canberra Airport Planning and Government Relations Team	Noel McCann Director of Planning and Government Relations M: 0410 697 637 E: n.mccann@canberraairport.com.au Natalia Weglarz Town Planner M: 0478 596 857 E: n.weglarz@canberraairport.com.au Susan Mulligan Executive Assistant P: 02 6275 2294 E: s.mulligan@canberraairport.com.au Thomas Carberry Planning and Environment Officer P: 02 6275 3324 E: t.carberry@canberraairport.com.au
Canberra Airport Project Manager	Zarko Danilov Head of Projects M: 0404 468 121 E: z.danilov@canberraairport.com.au Dane Cleary Senior Supervisor – Aviation Operations and Services M: 0438 231 260 E: d.cleary@canberraairport.com.au
Contractor	Subject to Tender Outcome

2 Introduction

2.1 Management Goals and Objectives

This Construction Environmental Management Plan (CEMP) is designed to assist in the delivery of the environmental management principles described in Canberra Airport's Environment Policy by identifying the potential environmental risks that are posed by Canberra Airport operations and describing the measures that will be taken to eliminate or mitigate those risks.

The implementation of this CEMP will also assist in clarifying the actions outlined in the Airport Environment Strategy, Canberra Airport Environmental Management System (EMS), EPBC 2009/4748 and other plans referenced in Section 1.8.

https://www.canberraairport.com.au/wp-content/uploads/2021/10/Environmental-Management-System_2021_Final.pdf

2.2 Purpose of the Construction Environmental Management Plan (CEMP)

The purpose of this CEMP is to describe:

- The minimum construction environmental management requirements to be implemented to meet Canberra Airport's management goals and commitments;
- The roles and responsibilities of Canberra Airport personnel in implementing this CEMP;
- Environmental monitoring and reporting requirements;
- Environmental incident response procedures; and
- Procedures for reporting and responding to CEMP non-conformances and incidents as well as corrective and preventative actions.

2.3 CEMP Scope

This CEMP outlines the minimum environmental management requirements that must be met during all operational and construction activities within the boundaries of the proposal site.

This CEMP provides guidance to identify and describe the management of environmental risks associated with a project that involves one or more of the following activities:

- Development near an Environmentally Significant Area;
- Works in known or potentially contaminated areas;
- Discharges to air (odour, dust, combustion emissions);
- Discharges to land, surface water (including stormwater) or groundwater;
- Development, construction or demolition;
- Importation of fill material onto the Airport;
- Clearing of land;
- Use or storage of hazardous materials;
- Activities within 200m of a waterway.

This CEMP applies to all Canberra Airport Departments and applies to operations carried out by, and on behalf of Canberra Airport for and associated with the Northern Road Project.

It also provides guidance regarding Canberra Airport's expectations of construction environmental management for third parties.

The CEMP includes a number of general environmental management expectations relating to waste, air and noise management which apply to all activities undertaken by the airport. In addition, Canberra Airport's emergency response and complaints handling procedures apply in all instances, and to all activities and areas of operation across Canberra Airport. These general procedures are outlined in Section 4.

Environmental management measures relating more specifically to the activities associated with construction and demolition work, repair and maintenance work, storage and handling and use of chemicals and fuel, and vegetation and estate management are outlined in Section 6.

2.4 Exclusions

The following parties and activities should consider the requirements of this CEMP when developing environmental control measures, as required:

- Canberra Airport's contractor C/EMPs;
- Third party contractor C/EMPs.

The Following activities are not included in the CEMP scope:

- Major emergency response or preparedness activities.

2.5 Legal and Other Requirements

A list of legislation and other relevant documentation to which this CEMP has had regard is provided at Section 1.8. In addition to those, the following are required to be regarded:

- the Airport's Standard Operating Procedures (SOP) 4 – Hazardous Materials Incident **(Appendix 4)** and
- Unexpected Finds Protocol **(Appendix 5).**

This CEMP and relevant attachments provides information to the Contractor to guide their activities and to ensure that the performance of the works under contract are managed to prevent pollution and minimise any adverse impacts on the environment. This will be achieved by identifying and reducing the risks and promoting the environmental awareness of everyone involved in a project.

2.6 Canberra Airport Master Plan and Airport Environment Strategy (AES)

This CEMP is consistent with the current approved Canberra Airport Master Plan and Airport Environment Strategy (AES) which is incorporated in the 2020 Master Plan.

https://www.canberraairport.com.au/2020-master-plan/

The AES, required under the *Airports Act 1996*, sets out the environmental management objectives of Canberra Airport. It identifies areas which are environmentally significant, as well as measures to prevent, control or reduce environmental impact.

2.7 Roles and Responsibilities

2.7.1 Department Managers

Canberra Airport Department Managers have overall responsibility for:

- Ensuring compliance with applicable environmental legislative requirements;
- Ensuring personnel and contractors within their Departments are aware of, and understand this CEMP's requirements relevant to their area/scope of work;
- Ensuring the necessary resources and processes are in place for implementation of required environmental management measures; and
- Providing feedback in the regular review of this CEMP.

2.7.2 Project Managers

Canberra Airport Project Managers are required to:

- Communicate with personnel and contractors regarding site specific environmental issues and compliance with this CEMP in consultation with the Planning and Government Relations Team;
- Ensure that sufficient information about environmental risk is provided to relevant personnel;
- Co-ordinate the implementation of environmental management measures during work;
- Undertake site inspections on a regular basis in company with a member of the Planning and Government Relations Team to monitor the implementation and effectiveness of environmental management measures;
- Ensure non-conformances are identified, recorded and reported; and
- Communicate incidents to the Planning and Government Relations Team.

2.7.3 All Personnel

All Canberra Airport personnel are required to:

- Undertake activities consistent with this CEMP;
- Communicate incidents to the Planning and Government Relations Team; and
- Ensure that they attend the provided environmental training relevant to their role and responsibilities.

2.7.4 Director of Planning and Government Relations

The Director of Planning and Government Relations is required to:

- Co-ordinate the development and regular review of this CEMP;
- Support the Planning and Government Relations Team to carry out site inspections on a regular basis to monitor the implementation and effectiveness of this CEMP; and
- Co-ordinate feedback from Department Managers in the review of this CEMP.
- Co-ordinate Toolbox talks with the contractor and third parties employed on site in regard to Threatened Species consistent with the approved Northern Road Construction and Operations Strategy.

2.7.5 Planning and Government Relations Team

The Planning and Government Relations Team is required to:

- Assist Canberra Airport Department Managers and Project Managers in the induction and training of relevant personnel involved in implementing this CEMP;
- Review and endorse operation or activity specific CEMPs;
- Contribute to regular reviews of this CEMP;
- Carry out inspections on a regular basis to monitor the implementation and effectiveness of this CEMP; and
- Report and respond to incidents and facilitate the implementation of corrective actions.

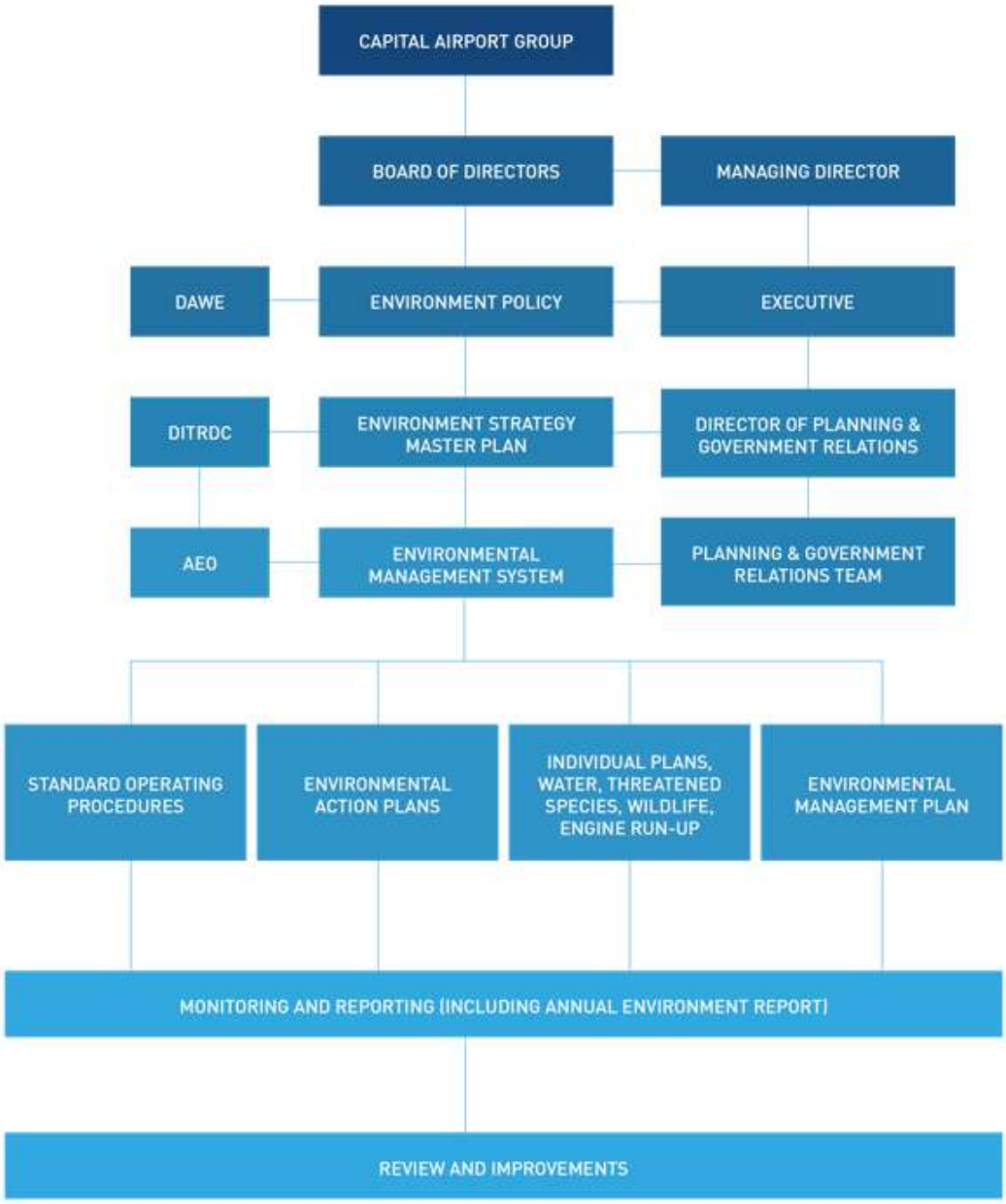
2.8 Environmentally Significant and Sensitive Areas

The approved Northern Road Construction and Operation Strategy sets the requirements of EPBC 2009/4748 approvals.

3. Environment Management Framework

The environment management framework at Canberra Airport is based on a system of continuous learning and improvement. Individual components of the environment management framework are updated as required to ensure consistency with Regulations and evolving best practice standards.

Figure 1: Environment Management Framework



3.1 Airport Environment Policy

The Canberra Airport Board has established and continues to endorse the following Airport Environment Policy:

- Leadership and promotion of the commitment to sustainable environmental management to all stakeholders including employees, tenants, adjacent landholders, and the community at large;
- Compliance with relevant environmental legislation;
- Continual improvement of environmental management, consequences, and activities;
- Identification, prevention, control, and minimisation of environmental performance impacts associated with Airport operations;
- Integration of environmental issues with Airport operating procedures;
- Measurement, monitoring, reporting, and improvement of environmental issues arising from Airport operations;
- Sustainable management of resources;
- Appropriate management of matters of natural, Indigenous, and heritage values;
- Contribution to research on NTG and associated endangered species;
- Broad consultation with the community, government agencies, and other major stakeholders; and
- If pollution is discovered in soil or water across the airport site, the Airport will aim to remediate the pollution to acceptable regulatory limits.

3.2 Environment Management System (EMS)

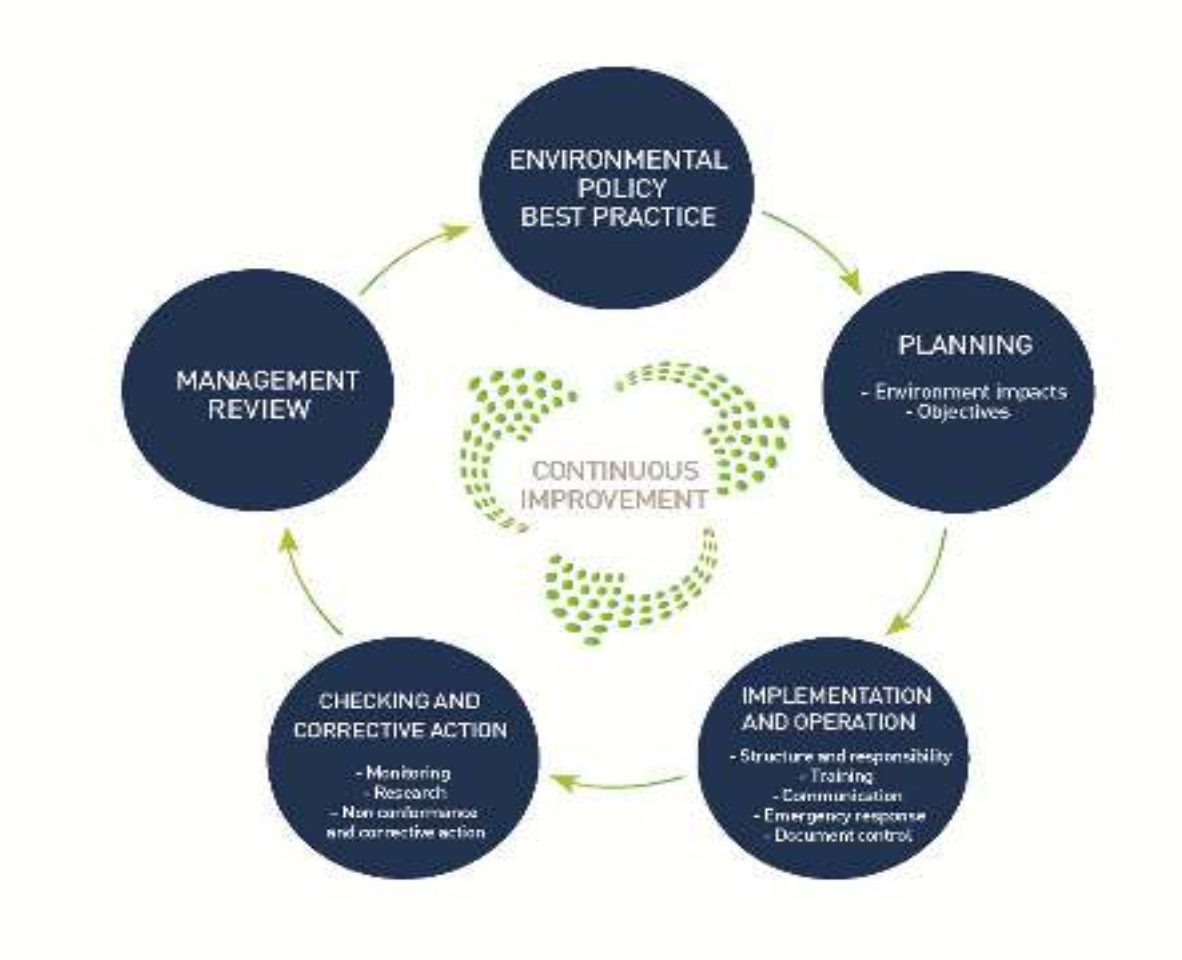
The Canberra Airport EMS, which was established in accordance with Australian/New Zealand Standard AS/NZS ISO14001: 2016 *Environmental Management Systems - Requirements with guidance for use*, is the Airport's means to ensure all future development and operations are carried out according to industry best practice through a system of continual improvement.

https://www.canberraairport.com.au/wp-content/uploads/2018/06/EMP-web.pdf

It provides staff and external contractors with detailed guidance in relation to environmental systems and procedures at Canberra Airport. The EMS is more than a single document; it provides an overarching framework for managing environmental impacts at the Airport, environmental procedures, risk assessment, incident and hazard reporting, staff and contractor training, and the general day-to-day responsibilities of staff. The EMS is the basis for a culture of ecologically sustainable working practices amongst Canberra Airport staff, tenants and contractors.

Figure 2 shows the cycle of continuous improvement embodied in the EMS. This continuous cycle of planning, implementation, checking, and review allows the EMS to respond to the changing situation at Canberra Airport and ensures the policies and procedures outlined in the EMS remain as effective and efficient as possible.

Figure 2: Environment continuous improvement



Canberra Airport has a number of environmental management plans including the Fairbairn Heritage Management Plan, the Water Management Plan, the Threatened Species Management Plan and the Re-New Management Plan and each of these are discussed in Chapter 3 of the Environment Strategy. These plans are available on the Canberra Airport website via the following links:

https://www.canberraairport.com.au/wp-content/uploads/2021/07/Canberra-Airport-2021-Water-Management-Plan_FINAL.pdf

https://www.canberraairport.com.au/wp-content/uploads/2018/06/Threatened-species-web.pdf

https://www.canberraairport.com.au/wp-content/uploads/2018/06/Re-New-Management-Plan.pdf

https://www.canberraairport.com.au/wp-content/uploads/2020/03/CAG-APPROVED-2020-Master-Plan-Environment-Strategy.pdf

3.3 Environmental Objectives

The Airport's environmental objectives derive from the Airport Environment Policy and provide the basis for its environmental management for all projects on and off Airport. These are discussed in Chapter 2 of the Environment Strategy.

The objectives are to:

- Maintain a systematic approach to environmental management, consistent with evolving best practice and international standards, and promoting continuous improvement.

Manage environmental impacts associated with:

- Natural or heritage values;
- Biota or habitat (particularly for threatened listed species and ecological communities);
- Air quality, including emission of ozone depleting substances and greenhouse gases;
- Surface and groundwater quality;
- Soil quality;
- Sites of significance to Indigenous people;
- Natural resources;
- Noise;
- Manage solid, liquid, and gaseous wastes; and
- Encourage and address local community and Airport user contributions.

Review and continuously improve environmental management by:

- Adopting environmental best practice;
- Sustainable resource use including waste minimisation and emission reduction;
- Monitoring and responding to changing Australian legislation and practices;
- Conforming with relevant Australian and international standards;
- Conservation of natural, Indigenous, or heritage values; and
- Dissemination of strategy information to sub-lessees, Airport users, major stakeholders, and the local community.

Progress towards achieving the above objectives is constantly under review and reported annually to the Department of Infrastructure, Transport, Regional Development and Communications.

https://www.canberraairport.com.au/wp-content/uploads/2018/06/CAG_Airport_Environmental_Policy.pdf

4 Training, Awareness and Competency

4.1 Contractor

All personnel will be inducted into the Contractor's Quality, Safety and Environmental Systems.

Where applicable, the Contractor is to ensure that all personnel and sub-contractors working on a project have completed:

- ACT General Construction Induction (White Card)
- Asbestos Awareness Training

4.2 Canberra Airport RapidGlobal Online Induction

All personnel working on a project shall complete the Canberra Airport RapidGlobal online induction.

The Contractor will be responsible for all sub-contractors and other personnel working on a project being aware of the Canberra Airport RapidGlobal policies and procedures, including this CEMP.

4.3 Site Induction

A Site Induction of personnel working on this project, facilitated by the Contractor, in consultation with the Canberra Airport Project Manager, will be required and the Contractor shall keep a record of all site inductions. Consistent with Table 5.7 of the 2010 CEMP.

4.3.1 PFAS Awareness

As this project involves the disturbance of soil, the Site Induction will include PFAS awareness through reference to Appendix 6: Canberra Airport Work, Health and Safety Guideline for PFAS.
Refer Section 6.

4.3.2 Endangered Flora and Fauna Awareness

The project involves the disturbance of Natural Temperate Grassland (NTG) flora and fauna, Grassland Earless Dragon (GED) and Golden Sun Moth (GSM), consistent with the requirements of the Construction and Operations Strategy (Appendix 2) and Tables 5.7 and 5.8 of the 2010 CEMP.

Prior to commencement of construction, the GED Preconstruction Protocol (as outlined in Appendix B and Table 5.8 of the 2010 CEMP) will be undertaken by suitably qualified consultant/s. The outcome will be that the site, when ready for construction, will be fenced off to mitigate any GED entry to the construction zone.

All Contractor and Sub-contractor staff will be inducted at Toolbox Talks prior to commencement of construction to outline the potential for the presence of GED and GSM outside the construction zone. The Contractor will be provided with photographs of GED and GSM to assist with identification.

If a GED or GSM is identified adjoining the construction zone, the workforce will be instructed to take a photograph and to not interfere or touch them. The Director of Planning and Government Relations must be informed immediately (mobile: 0410 697 637) and, if the presence of a GED and/or GSM is confirmed, arrange for a suitably qualified consultant to urgently attend the site.

Prior to each days' work program, the construction zone perimeter fencing will be inspected to ensure its ongoing integrity.

Further ongoing Toolbox Talks will be managed by the Director of Planning and Government Relations as set out in Section 2.7.4 of this document and Table 5.8 of the 2010 CEMP to enforce the awareness of the environmental sensitivity of the construction zone and the total Northern Road corridor.

5 Environmental Management Processes and Responsibilities

5.1 Project Works

The Contractor will be responsible for the project works and any associated infrastructure identified.

The Contractor, in accepting this responsibility, must:

- comply with this CEMP and all Attachments and Appendices;
- obtain all licenses and approvals under relevant legislation (except for approvals under the *EPBC Act* or *the Regulations, TCCS and NCA*) in consultation with Canberra Airport;
- have regard to local procedures and best practices, regardless of whether they directly apply at the Airport; and
- submit any relevant additional Management Plans, to Canberra Airport and the appropriate authorities **(refer Attachments A-H).**

5.1.1 Compliance Bonds

Contractual agreements with contractors and sub-contractors may contain specific compliance bond requirements and assert consequences for responsible parties in the event of non-compliance.

5.2 Approvals and Conditions

The Contractor will submit relevant Management Plans (refer Attachments A-H) to the Airport for review and endorsement. All Plans, consent conditions and this CEMP must be strictly adhered to during the project works.

5.3 Reporting Requirements

5.3.1 CEMP

A dedicated project file will be established by the Contractor for the purposes of retaining all documentation of relevance to the environmental management of this project.

During the project works the Contractor will:

- undertake ongoing inspections of the works to identify any non-compliances with the provisions of this CEMP;
- complete the environmental checklists (**Appendix 8**) at a frequency agreed with the Airport; and
- provide a written report to the Airport detailing the Contractor's compliance with this CEMP.

The Contractor will immediately inform the Airport of a non-compliance and take responsibility for all remedial action necessary to resolve the non-compliance. The Airport may impose a restriction on the project works until such time it is satisfied that all appropriate remedial action has been implemented.

5.3.2 Environmental Incident Reporting

An Environmental Incident is described as that which has the potential to cause an adverse environmental impact.

All environmental incidents, near misses or hazards must be reported to the Planning and Government Relations Team.

Canberra Airport requires an Environment Incident to be immediately reported consistent with SOP 4 (Appendix 2), remedied and an Incident Report Form (Appendix 1) is to be completed and submitted as soon as practicable following an incident clean-up.

Any spill exceeding a volume of 5 litres, or spills that enter a waterway/stormwater drain, must be reported immediately to the Canberra Airport Planning and Government Relations Team.

5.4 Reporting requirements under the Environment Protection and Biodiversity Conservation Act

Canberra Airport has two EPBC Act Referrals:

- EPBC 2008/4170 – The proposal includes the construction of the Taxiway Bravo extension with high-speed taxiway exit and widening of Turning Node Alpha. Other associated works include stormwater changes and realigned airside road and fence. The approval has effect for listed threatened species and communities and Commonwealth land. This project is now complete.
- EPBC 2009/4748 – The proposal is to upgrade and construct aviation and airfield-based development and supporting airport infrastructure, including the Northern Road Off Airport/Landside Area. The approval has effect for listed threatened species and communities and Commonwealth land.

  EPBC2009/4748 was varied and approved on the 29 May 2020 to vary condition 5, Annexure 1, Annexure 2 and a new definition was added to reflect the updated alignment of the Northern Road.

The Canberra Airport Project Manager, in consultation with the Planning and Government Relations Team, will determine whether the project works will impact any environmentally significant or sensitive areas on Canberra Airport. Consistent with Condition 5 of the Northern Road Construction and Operations Strategy was approved by DAWE on 29 May 2020.

5.5 Complaints procedure

The Contractor must immediately report to Canberra Airport any complaints received, actions taken in response and complete an Incident Report Form (**Appendix 7**).

5.6 Environmental Emergency Response Procedures

An environmental emergency is an unplanned event, such as an oil or chemical spill that occurs on site which has the potential to cause a significant adverse environmental impact.

Significant Impact: A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude, and geographic extent of the impacts. You should consider all these factors when determining whether an action is likely to have a significant impact on the environment.

Source: Department of the Environment website - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies Significant impact guidelines 1.2 Environment Protection and Biodiversity Conservation Act 1999.

The following outlines the general response to an environmental emergency:

1. Site Foreman – Institute a 'stop-work', ensure site safety, move people away from the immediate area.

2. Site Foreman – Take practicable steps to contain the hazard and prevent it from spreading. Ensure that the Contractor's Works Site Manager is notified.

3. Works Site Manager – Notify Canberra Airport Project Manager and relevant authority. Liaise with relevant authority in clean-up and remediation of site.

4. Site Foreman – Alert traffic to any hazard using temporary lights, warning signs etc.

5. Canberra Airport Representative – Canberra Airport Project Manager to be notified and will activate Canberra Airport SOP 4 – Hazardous Materials Incident (Appendix 4), including immediately contacting the Canberra Airport Planning and Government Relations Team.

6. The Canberra Airport Planning and Government Relations Team to ensure the Contractor undertakes clean-up in accordance with all statutory requirements.

7. Site Foreman to complete an Incident Report Form (Appendix 7).

5.6.1 Pollution of a Waterway

This section outlines measures to be implemented in the event of a spill of fuel, oil or chemical into a waterway, or the uncontrolled release of dirty water from a water quality-controlled structure or bunded area.

Appropriate protection measures should be in place prior to the commencement of construction such as silt fences or straw/hay bales to capture and slow the movement of any sediment laden runoff. If possible, the discharge should be intercepted before it enters the waterway with an earth bund or sock from a spill kit. Absorbent material from a spill kit will be spread to soak up the spill. If discharge enters the waterway and mixes with water, it should be isolated with booms.

Any spills into a waterway will be isolated as quickly as possible. The potentially contaminated water will be pumped into a holding tank, tested and dealt with in accordance with the relevant State, Territory and Commonwealth legislation, as appropriate.

5.6.2 Cut Overhead or Underground Services

The area affected should be secured and isolated and the relevant utility authority notified immediately.

5.6.3 Uncontrolled Fire

In the event of a very small fire, follow the guidelines for use of fire extinguishers.

In the event of a larger fire, the ACT Fire Brigade should be contacted immediately (dial 000).

Precautionary measures will be taken to protect adjacent buildings from the fire - such as filling gutters with water, closing windows and doors etc.

People will be moved away from the area if vapour from burning toxic material is released.

5.6.4 Emergency Contact Details

Aviation Rescue and Fire Fighting Services (ARFFS)	02 6243 2199
ACT Fire Brigade, Police or Ambulance	000
Canberra Hospital	02 6244 2222
ACT Workcover	02 6205 0200

5.6.5 Emergency Utilities Contact Details

Icon Water (water and sewerage emergencies)	02 6248 3111 (option 1)
Evoenergy (electricity)	13 23 86
Evoenergy (gas)	13 19 09
Telstra	13 22 03

6 Per- and Poly-fluoroalkyl Substances, or 'PFAS'

6.1 PFAS Use Globally

In broad terms per- and poly-fluoroalkyl substances, or "PFAS", are a class of world-wide manufactured chemicals that have been used since the 1950s to make products that resist heat, stains, grease and water. PFAS have become a concern around the world because they are not broken down in the environment and so can persist for a long time. Their widespread use and persistence means that many types of PFAS are ubiquitous global contaminants.

The PFAS of most concern are perfluorooctane sulfonate (PFOS) and perfluorooctanoic Acid (PFOA). Many countries have phased-out, or are in the process of phasing-out, the use of PFOS and PFOA due to concerns about their persistence, bioaccumulation and toxicity when present in significant quantities. Perfluorohexane Sulfonate (PFHxS) is another chemical of the PFAS group and is present in some fire-fighting foams.

6.2 PFAS Pollution on Canberra Airport

Canberra Airport takes pride in delivering and operating a safe and secure airport. Accordingly, when Canberra Airport first became aware that PFAS may be of concern globally, and it was confirmed in 2015 that there were elevated levels of PFAS on Canberra Airport at the Airservices Australia (ASA) Fire Station and Fire Training Ground leased sites, Canberra Airport commissioned testing for PFAS in soil, stormwater and groundwater across the Airport site. Testing was also commissioned for the Molonglo River, upstream and downstream of the Airport and Woolshed Creek, downstream of the Airport. This testing has been ongoing since 2015.

Current evidence available to Canberra Airport confirms that the Fire Station and Fire Training Ground sites leased by ASA are the only two PFAS "hot spots" on the Airport.

ASA has informed Canberra Airport that Aqueous Film Forming Foam (AFFF) containing PFAS was used at their two facilities and generally in their aviation rescue and fire-fighting duties around the Airport between 1978 and 2010. Canberra Airport's research and site investigation reveals AFFF containing PFAS is the only significant use of PFAS on the Airport.

The only soil at the Airport found to exceed the PFAS NEMP 2.0 Table 2 Industrial and Commercial Use human health guidance (20mg/kg) is at the ASA Fire Station and Fire Training Ground.

As set out in the Arcadis limited DSI no soils in the northern road corridor exceed PFAS NEMP 2.0 Table 2 Industrial and Commercial Use human health guidance (20mg/kg)

https://www.environment.gov.au/protection/publications/pfas-nemp-2

The Northern Road passes through the north-east corner of the Fire Training Ground. Canberra Airport commissioned Arcadis to undertake a current environmental investigation of the total length of the Northern Road corridor. The evidence available to Canberra Airport following this environmental investigation by Arcadis confirms that the former Fire Training Ground area of the Northern Road corridor has traces of PFAS. Arcadis has provided a Soil Management Plan (included as an attachment to the PFAS Management Plan at **Attachment I**). The contractor is to have regard to the Arcadis Soil Management Plan in consultation with the Canberra Airport Planning and Government Relations Team.

Canberra Airport has undertaken soil, stormwater and groundwater research and investigation for PFAS on sites across the Airport external to the ASA Fire Station and the Fire Training Ground. The soil test sites include the former aviation fuel farm (now car park five), George Tyson Drive, the Qantas Hangar, Brindabella Circuit and generally in Fairbairn, the Terminal precinct, Brindabella and Majura Parks and north of Taxiway Delta, airside.

The widespread investigations by Canberra Airport have also identified other areas at the Airport where traces of PFAS have been detected at nominal levels in soil and with low levels in stormwater and groundwater. There is also evidence that the stormwater is PFAS impacted passing stormwater outlets and surface runoff from both the Fire Station and the Fire Training Ground. It appears reasonable and practical for groundwater down-gradient of the two ASA sites to also be PFAS impacted, albeit at significantly lower levels when compared to the two ASA sites.

Approximately 75% of the Northern Road is up-gradient of the Fire Training Ground and the Fire Station and the Arcadis environmental investigations reveals nominal, if any, traces of PFAS; other than where the corridor abuts the Fire Training Ground.

6.3 Potential Risk of Exposure to PFAS on Canberra Airport

Stormwater and groundwater on the Airport, nor on the adjacent Military Training Area (MTA) facility in the catchment of the Northern Road, is not used for drinking or recreational/swimming purposes. Groundwater is used on the Airport to irrigate landscaped areas and also for the flushing of some toilets in buildings. However, there are no PFAS guidance values for the irrigation of landscaped areas or stormwater.

The potential exposure to PFAS of Canberra Airport staff, contractors and third parties associated with the construction and operation of the Northern Road is by:

- accidental ingestion of groundwater containing PFAS used for irrigation – the Northern Road corridor verge is not to be irrigated;
- accidental ingestion of stormwater in swales/stormwater drains containing PFAS near the ARFF Fire Training Ground;
- accidental ingestion of soil containing PFAS on and nearby the Fire Training Ground;
- accidental cross-contamination of food following works around the Fire Training Ground involving PFAS contaminated water and/or soil.

The risk of PFAS exposure to Canberra Airport staff, contractors and third parties through these pathways is minimal. However, Canberra Airport has advised staff and will advise contractors that caution should be exercised when:

- nearby and on the ARFF Fire Training Ground precinct; and
- working with stormwater and groundwater.

To establish if construction and/or maintenance activities may involve potential contact with stormwater and groundwater or contaminated soil, staff/contractors will be consulted, as is the current practice, by Canberra Airport as part of site induction and ongoing toolbox talks to mitigate risk of ingestion.

For the activities listed below, general measures to minimise the PFAS exposure risk will be implemented and, where necessary, included in risk assessments prior to commencement of any work.

Risk of PFAS exposure is required to be considered where:

- excavations extend to or below groundwater level – environmental investigations indicate the Northern Road corridor works will not intercept groundwater;
- activities involve exposure to stormwater or bore/irrigation water;
- earthworks in soil known to have been potentially PFAS impacted.

The Canberra Airport Work Health and Safety Guideline for PFAS across the Airport site, revised October 2020, is provided at **Appendix 6**.

7 Potential Environmental Impacts

7.1 Project Site Assessment

7.1.1 PFAS

Arcadis Limited Detailed Site Investigation – 15 October 2020

Arcadis was commissioned to complete a Limited DSI for soils within the alignment of the proposed Northern Road Extension (NRE) project, located in both Landside and Airside Areas along the northern and eastern boundary of the Canberra Airport Estate. The DSI was considered 'limited' as the investigation brief did not include a requirement to drill to groundwater and no groundwater was intercepted within he zone of excavation of the roadway and the services corridor.
Attachment G: Arcadis Limited Detailed Site Investigation

In order to assess the suitability of the site for redevelopment of a roadway, Arcadis completed the following scope of work, across three (3) Stages of site works completed in October 2019, April 2020 and September 2020. Further, for the purpose of the Arcadis DSI, the site was divided into five (5) areas in line with the nomenclature and road alignment plans provided to Arcadis by Canberra Airport.

A total of 42 test pits (TP) were advanced across the site, with 32 of these TPs lying within the extent of the Final NRE alignment.

With respect to PFAS, the following statements are extracted from the Arcadis DSI:

All laboratory analytical results from the initial and additional soil assessments were screened against the adopted PFAS NEMP 2020 criteria for human health and ecological receptors to assess potential PFAS impacts.

No exceedances of the adopted PFAS human health criteria for PFOA and PFOS+PFHxS were noted in the results from the initial or additional soil assessment.

A total of 23 samples from 11 TP locations exceeded the adopted ecological guidance criteria for the PFOS (total) results, all of which were located in the ES3 Area immediately to the east and south of the Fire Training Ground, with impacts identified throughout the assessed soil profile (down to 2.2 mbgl). These exceedances comprise:

- *Eighteen (18) exceedances of the PFAS NEMP 2020 EIE (indirect exposure) criterion (0.01 mg/kg); and*
- *Five (5) exceedances of the higher PFAS NEMP 2020 EDE (direct exposure) criterion (1 mg/kg).*

A summary of the PFOS (total) ecological exceedances is provided in Table 7-1.

Further to the noted exceedances, detectable concentrations of PFAS (total and/or leachable) were reported in 39 samples collected from a total of 17 TP locations. Those detections in the additional six (6) TP locations where no exceedances where no exceedances of criteria were noted were primarily located in the ES3 Area (ES3-TP09-D2) and in adjacent locations to the north of the Fire Training Ground (locations ES2-TP06, ES2-TP07, AB2-TP01 and AB2-TP02), but also in a single location further away at ES1-TP07.

The presence of elevated concentrations of PFAS in soils in the vicinity of the Fire Training Ground is consistent with firefighting activities in this area which were known to have used AFFF, which have contained PFAS.

Where exceedances of the PFAS NEMP 2020 EDE (direct exposure) criterion for PFOS (total) were noted, it is considered that these soils may pose a risk to ecological receptors via direct exposure. These soils should either be managed appropriately on-site (in accordance with the PFAS NEMP 2020 guidance) or removed from the site and disposed to a suitably licenced off-site facility.

The presence of detectable concentrations of PFAS (total and/or leachable) and exceedances of the PFAS NEMP 2020 EIE (indirect exposure) criterion for PFOS (total) are considered unlikely to pose a risk to site workers or ecological receptors during development works or site end users.

Table 7-1 Exceedances of PFAS NEMP 2020 Ecological Criteria

Sample ID	Analyte	Concentration (mg/kg)	Criterion (mg/kg)	Criterion Exceeded
ES3 Area				
ES3-TP02R_0.5	PFOS (total)	1.3	0.01 / 1.0 (EIE/EDE)	PFAS NEMP 2020 EIE & EDE
ES3-TP02R_1.5		1.3		
ES3-TP04R_0.1		1.3		
ES3-TP05R_0.5		1.3		
ES3-TP05R_2		1.1		
ES3-TP01_0.5		0.3		PFAS NEMP 2020 EIE
ES3-TP02R_2		0.5		
ES3-TP03R_0.5		0.8		
ES3-TP03R_1		0.2		
ES3-TP03R_2		0.04		
ES3-TP04R_0.5		0.7		
ES3-TP04R_1.5		0.4		
ES3-TP05R_1.5		0.8		
ES3-TP08-D1_2		0.014		
ES3-TP09-D1(2a)_0.5		0.013		
ES3-TP101_0.1		0.032		
ES3-TP101_1		0.74		
ES3-TP101_2		0.032		
ES3-TP102_0.2		0.019		
ES3-TP102_0.5		0.23		
ES3-TP102_1		0.33		
ES3-TP103_2		0.019		
ES3-TP104_0.2		0.019		

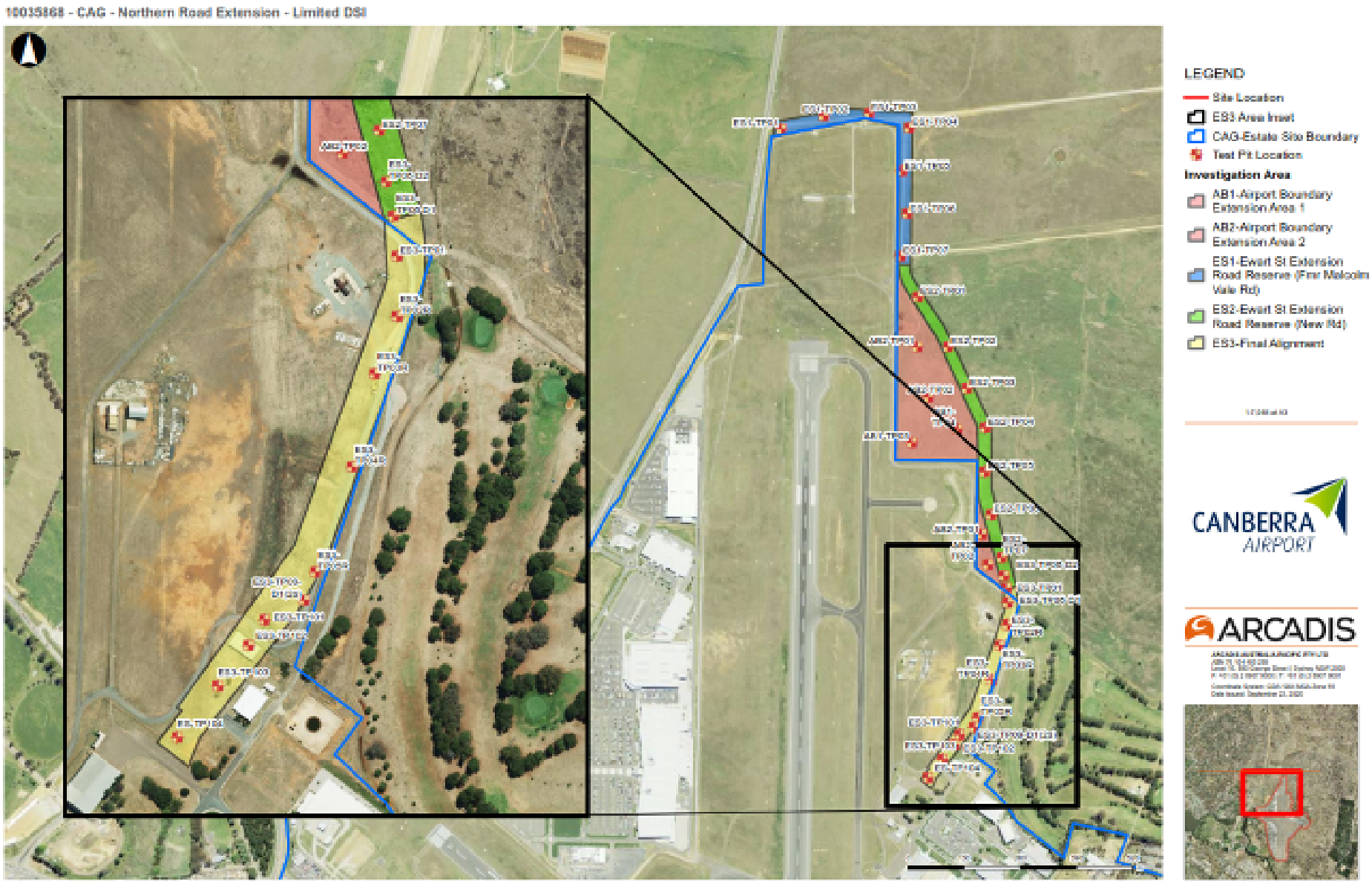


Figure 2 - Test Pit Locations and Investigation Areas

7.1.2 Other Contaminants of Potential Concern (CoPC)

With respect to CoPC, the following conclusions are drawn from the Arcadis DSI:

- *The presence of confirmed ACM in the form of fragments of cement sheet and detectable AF/FA in near surface fill soils at location ES1-TP03 may indicate the presence of asbestos materials in soils in this area, which may pose a risk to the health of site workers and end users during development works if not appropriately managed. However, the grassed surface and lack of permanent workplaces in proximity to the sampling location indicate that the reported asbestos is unlikely to present a risk to current site users while soils remain undisturbed.*
- *No other visual and/or olfactory indicators of soil contamination or foreign materials/waste were noted by the experienced Arcadis field scientists during the soil assessment works conducted at the site.*

Soils within the proposed Northern Road alignment were also assessed for a wider range of other CoPC for potential waste classification purposes. However, no other CoPC were identified at concentrations exceeding the applicable screening criteria for soils.

7.1.3 In Summary

The Arcadis Limited DSI states in its Conclusion that:

> *The limited sampling completed at the site as part of the Stage 1 to Stage 3 works identified potential risks to human health (ACM and/or AF/FA) and/or ecological receptors (PFAS). However, it is considered that the potential risks identified can be mitigated with appropriate management processes during future excavation, handling and reuse of soils, in accordance with the PFAS NEMP 2020 guidance.*
>
> *Therefore, Arcadis considers that the site is likely to be suitable for the intended end use roadway) provided appropriate management measures and processes are put in place and followed during construction and for the ongoing management of the site.*

Consistent with the Arcadis DSI recommendation that a Soil Management Plan (SMP) be developed. Canberra Airport commissioned Arcadis to prepare an SMP and this is further discussed in the PFAS Management Plan for this project. **Attachment I: PFAS Management Plan**

7.2 Noise

There are no sensitive receptors within one (1) kilometre, or along most of the Northern Road corridor site due to the the live ammunition training operations, including the nearby grenade range on the Majura Military Training Area (MTA) facility and the aircraft operations of Canberra Airport's main jet Runway 17/35. Runway 17/35 has long range civilian and Defence aircraft capability, including long haul up to Boeing 747 aircraft capacity. Both the Majura MTA facility and the Airport have been in operation for over ninety (90) years.

Noise generated from the project works could arise from:

- building and site construction activities; and
- traffic noise generated by vehicles transporting materials and the construction workforce to and from a site.

Noise generated from construction, maintenance and demolition of a building or other structure at the Airport should not exceed 75db(A), calculated at the site of a sensitive receptor, as defined in the *Regulations.* Noise controls shall be developed for activities that have the potential to exceed 75db(A).

Onsite contractors that are deemed to potentially be undertaking noisy works will submit a Safe Work Method Statement / Risk Assessment which includes the schedule of equipment types to be used, noise levels these will generate if applicable, expected time and duration of use, and any measure required to ensure noise levels are acceptable.

All workers on a project shall be made aware of the risks of construction noise exposure through the Site Induction. Ongoing observation will be carried out across the project to ensure noise management techniques remain suitable.

Typically, the project site and the site compound will be open from 6:00am to 6:00pm Monday to Saturday. However, physical site works can only be conducted at the following times.

Monday - Friday	6:30am to 5:30pm
Saturday	6:30am to 2:30pm
Sunday	As required after 8:00am by prior approval by Canberra Airport and the Site Manager.

Noise from the operation of plant and machinery will not exceed background noise levels at a sensitive receptor site (e.g. an Airport childcare centre):

- between the hours of 07:00 and 22:00 - by more than 5dB(A); and
- between 22:00 hours and 07:00 of the next day - by more than 3dB(A) (in compliance with the Regulations).

7.2.1 Vibration Management

When planning for project works likely to include vibration, all practical effort will be made to protect vibration sensitive buildings and the amenity of the occupiers of the buildings.

Where appropriate the project will apply a practical and economical combination of vibration control measures to manage vibration impacts such as:

- Substitution by alternative process;
- Restricting times when work is carried out;
- Erecting additional screening or enclosures to localised work;
- Undertaking further consultation with nearby tenants.

The basis for vibration management will be to limit the times that certain vibration producing activities may be carried out.

No vibration causing construction or demolition works will be permitted within a 50m vicinity of any heritage listed items, features of cultural significance or sensitive equipment of Canberra Airport without a location and activity specific risk assessment being carried out by a competent person and approved by Canberra Airport and the Contractor. When vibration works are being undertaken monitoring during the works will be carried out to ensure vibration does not exceed acceptable limits.

Mitigation measures and safety requirements for noise and vibration for a project are outlined in **Attachment C: Noise and Vibration Sub-Plan**.

7.3 Air Quality

The two primary causes of air quality issues are emissions from machinery and airborne dust. Airborne dust results from the excavation and stockpiling of soil as well as vehicle movement around a project site.

To prevent dust being spread beyond the boundary of a project site the Contractor, on behalf of Canberra Airport, will implement the following control measures where relevant:

- Clean and/or use rumble pad to remove excessive dirt and dust from vehicle tyres;
- Wheel wash/pollution traps located at exit gate/s;
- Provision of street sweepers to clean streets on an as required basis;
- All loads to be securely covered;
- Ensuring that there is no runoff from the site;
- Dampening down of haul routes as required (more in dry weather or as monitoring dictates);
- Having appropriate speed limit on site, in accordance with the approved TMP (Attachment B);
- Using water as a dust suppressant when cutting blocks etc;
- Covering rubbish skips and ensuring they are serviced regularly;
- Enclosing debris chutes and minimising debris chute heights;
- Regular dampening down of surfaces;
- Dampening down of earthworks in dry weather;
- Keeping stockpiles for a limited time on site as much as possible;
- Covering stockpiles where practicable;
- Keeping stockpiles away from boundary, sensitive receptors and watercourse/easements;
- Regular inspections along boundary fence lines for “drift sand or dust” and rectification;
- Position the stockpiles with consideration for predominant wind direction;
- Install filter fabric on any adjacent plant air intakes to minimise dust particles entering air conditioning systems if deemed necessary by the Airport;
- Shade cloth/solid hoarding to boundary fencing as required;
- Responding to all dust-related complaints immediately; and
- Ceasing dust generating activities as dictated by wind conditions.

Mitigation measures and safety requirements for air quality and dust control for projects are outlined in **Attachment D: Air Quality and Dust Management Sub-Plan**.

For most projects the impacts to air quality are minimal, however daily weather monitoring of the Bureau of Meteorology website will be implemented. Additionally, daily visual inspections will be carried out to ensure the controls are adequate and clean-up will occur as required.

7.4 Hydrology and Water Quality

7.4.1 Surface Water Management

An Erosion and Sediment Control Plan must detail the use of silt fences, hay or straw bales and sediment retention ponds to prevent the flow of sediment into stormwater drains and, where possible, the removal of soil/spoil to a dedicated stockpile on Airport.

The Contractor will establish a vehicle shakedown zone at the construction zone perimeter to minimise the accumulation of dirt and mud on the roads. The use of detergents on roads and in vehicle shake down areas is not permitted.

The Contractor will maintain the shakedown zone to ensure that an excessive build-up of sediment does not impede the effectiveness of the area.

Fuel and chemicals will not be stored on site unless in an approved bunded area. If a spillage occurs, appropriate clean-up methods will be implemented in accordance with the Airport's Standard Operating Procedures (SOP 4:Hazardous Materials Incident - Appendix 2) and an Incident Report Form (Appendix 1) completed. Canberra Airport must be notified immediately if a spill is more than 5 litres or has entered a waterway/stormwater drain.

If water is captured or stored in a defined project area, testing is required for >1000L and >48 hour holding time. If natural pooling/inundation occurs, re-filling in-situ is acceptable without testing. It is important that no accumulated water is pumped to the stormwater system without approval from Canberra Airport.

If groundwater is intercepted the Airport is to be contacted to arrange for the water to be tested before the water is pumped out and before any chemical treatment is applied to settle turbidity. The Airport will notify the Airport Environment Officer and advise of mitigation measures to be taken. Groundwater testing is to occur in compliance with the Regulations and for PFAS.

Mitigation measures and safety requirements for surface water management are outlined in **Attachment E: Water Management Sub Plan**.

7.4.2 Erosion and Sediment Control

Erosion and sediment control measures must be prepared prior to disturbance, or as site conditions dictate, during a change in site layout, and documented in the Erosion and Sediment Control Plan (ESCP). This may be specific to a site, a sub-site, sub-catchment or individual component of the work. For example:

- Removal of topsoil and earthworks;
- The installation of a culvert extension;
- Works in waterways or drainage lines;
- Site compound area and stockpile area.

The ESCP will include:

- Contours and clean and dirty water drainage paths;
- Sediment basins and designated pump out locations;
- Limit of disturbance;

- Location and type of control measures;
- Order of works schedule;
- Specific construction details.

Erosion and sediment control measures must be presented as a series of drawings (based on construction drainage plans) and be retained in a register on site by the Contractor (or delegate). Any removed concrete that was in contact with soil- will be tested by a suitably qualified person and will be classified appropriately before removal.

Refer to Attachment A: Erosion and Sediment Control Plan.

7.5 Fuel Management

The project site will be maintained to mitigate a fuel risk for fire propagation.

Fuel and chemicals are not to be stored on site unless in an approved bunded area. If a spillage does occur during operations, an Incident Report Form must be completed (Appendix 1). Clean-up methods will be employed which are appropriate for that instance as detailed in the Airports Standard Operating Procedures (SOP 4 Appendix 2).

7.6 Waste Management

The Environment Strategy commits to the ACT and Commonwealth waste policies. This is achieved at the Airport by the application of the 'reduce, reuse and recycle' principle.

Waste generated during project works may, where economically feasible, be sorted off-site for recycling. The *ACT Waste Management and Resource Recovery Act 2016* and Commonwealth *Recycling and Waste Reduction Act 2020* will be applicable to the transport of all waste off Airport.

The Contractor will implement the following Waste Management activities:

TASK	METHOD
Waste Removal	Recycle at least 80% of waste, based on weight. Materials must be separated off site and disposed of in landfill as required. Waste bins must be located at each site. Waste bins must be collected from the designated refuse areas once a week.
Concrete Removal	Excess concrete must be removed from the site and returned to the relevant concrete supplier. Cleaning out of concrete trucks after delivery must be carried out off site.
Cleaning of Tools	Cleaning of tools used by sub-contractors must take place off site.
Liquid and Hazardous Waste	All activity related to liquid and hazardous waste is not to be disposed of in any location on or within any Canberra Airport infills and will instead be collected for disposal with appropriate weight tracking certificates to be submitted to Canberra Airport for its records.

Mitigation measures and safety requirements for waste management for a project are outlined in **Attachment G: Waste Management Sub Plan.**

7.7 Hazardous Materials and Chemical Management

There is a potential for relatively small quantities of hazardous materials to be used during project works. These materials will be managed in accordance with the relevant legislative requirements and, in the event of a spill, Canberra Airport's Standard Operating Procedures (SOP 4).

SOP 4: Hazardous Materials Incident is provided at **Appendix 4**.

A plan will be available on site detailing the location of storage areas, spill kits, muster points, firefighting equipment and First Aid equipment.

Mitigation measures and safety requirements for hazardous materials and chemicals management are outlined in **Attachment H: Handling and Storage of Hazardous Materials Sub Plan**.

7.8 Asbestos and Contaminated Soil

Refer Section 7.1.2 – Other Contaminants of Potential Concern (CoPC) specific to the project site.

Any unexpected finds during project works must be managed in accordance with **Appendix 5: Unexpected Finds Protocol (UFP)**.

7.9 Flora and Fauna

Natural Temperate Grassland (NTG) and habitat for the Grassland Earless Dragon (GED) and Golden Sun Moth (GSM) are located in the Northern Road corridor adjoining the L-shaped gravel road between Majura Road and the Malcolm Vale Road defence gate.

Contractors must comply with the Northern Road Construction and Operations Strategy (Appendix 2) at all times.

7.10 Indigenous and Historic Heritage

The Airport lease was surveyed by Australian Archaeological Survey Consultants in 2001 in consultation with the three Ngunnawal groups. Artefacts were found on the Airport during this study however none have ever been found or unearthed on the site of any subsequent development proposal at Canberra Airport.

Contractors are to report to Canberra Airport any artefacts found or unearthed during construction activity at which stage Appendix 5: Unexpected Finds Protocol (UFP) will be implemented.

7.11 Land Management

Consistent with the principles of the National Airports Safeguarding Framework *Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports*, and to assist in mitigating bird hazards, Canberra Airport has a protocol for re-seeding and soil stabilisation at the airport.

Project sites will be revegetated in accordance with the final Landscape Plan to be approved by Canberra Airport in consultation with the contractor engaged for this purpose.

7.12 Natural Resources

The sustainable use of resources is central to Canberra Airport's development of the airport site. Energy saving measures will be employed where economically and commercially feasible through the design and construction of proposed developments.

Contractors are to comply with regulated water restrictions and, wherever possible, minimise water usage. Only non-potable water is to be used for dust suppression and irrigation.

Recycled or renewable materials must be used where practicable and economically viable.

7.13 Traffic Management

Traffic Management Plans are to be prepared in consultation with the Canberra Airport Project Manager, in consultation with Transport Canberra and City Services (TCCS) and appended to this CEMP.

Refer **Attachment B: Traffic Management Plan**.

8 Project Environmental Management Plans and Other Relevant Documents

This section provides the relevant Project Management Plans, as attachments, and other relevant documents, as appendices, for the project.

ATTACHMENT A: Erosion and Sediment Control Plan

Will be provided by successful tenderer

ATTACHMENT B: Traffic Management Plan

Will be provided by successful tenderer

ATTACHMENT C: Noise and Vibration Sub Plan

NOISE AND VIBRATION MANAGEMENT SUB PLAN			RESPONSIBILITY
Objectives and Targets	Maintain noise below 75db(A) at the site of a sensitive receptor, as defined in the *Airports (Environment Protection) Regulations 1997.* Refer 7.2 of this CEMP.		Project Manager (CAG) Contractor
Performance Criteria	100% Compliance with Client and legal requirements 100% achievement with Site Objectives and targets		Project Manager (CAG) Contractor
	Training and Competency	As part of the Site Induction, workers will be informed of the site/project-specific controls required for noise and vibration management including: Correct use of PPE Use of monitoring equipment if required	Project Manager (CAG) Contractor
	Hours of Operation	The Canberra Airport to provide allowable hours of construction	Project Manager (CAG) Contractor
	Plant, Equipment and Vehicles	Plant will be fitted with appropriate noise emission/vibration control equipment. Plant will be fitted with adequate seat suspension. Plant should be switched off when not in use, wherever practicable. Tasks using equipment that causes vibration to hands will be rotated at intervals to reduce exposure. Consideration may be given to the use of anti-vibration PPE. All plant, equipment and vehicles are to be regularly monitored and maintained and records kept of maintenance. Any abnormalities in expected noise or vibration emissions will be recorded in the plant's logbook and reported to the plant department.	Project Manager (CAG) Contractor
	Complaints Management	Complaints will be reported to Canberra Airport immediately verbally and the Contractor will undertake actions as requested by Canberra Airport including monitoring. The Project Manager will complete an Incident Report Form provided at Appendix 6.	Project Manager (CAG) Contractor

Environmental Inspections and Monitoring		The Incident Report Form will be submitted to Canberra Airport within 14 days, detailing the noise and vibration related complaint and the measures undertaken to prevent the recurrence of events. Authorities may request the Contractor to conduct Noise or Vibration Monitoring following the complaint and may instruct appropriate modification to works and/or implementation of additional management measures to minimise further risk of impacts.	
	Daily (Visual)	Working hours Plant operation and condition	Project Manager (CAG) Contractor
	Weekly (Documented)	Environmental Daily Hazard Identification (DHI) will be completed via the Electronic Document Management System (EDMS)	Project Manager (CAG) Contractor
	Monitoring	All personnel will undertake an audiometric test and musculoskeletal examination prior to employment with the Contractor.	Project Manager (CAG) Contractor
Reporting	Work Health Environment (WHE) Monthly Management Meeting		Project Manager (CAG) Contractor

ATTACHMENT D: Air Quality and Dust Management Sub Plan

AIR QUALITY AND DUST MANAGEMENT SUB PLAN			RESPONSIBILITY
Objectives and Targets	Refer to Section 7.3 of this CEMP.		Project Manager (CAG) Contractor
Performance Criteria	100% Compliance with Client and legal requirements 100% achievement with Site Objectives and targets		Project Manager (CAG) Contractor
Mitigation Measures	General	Site related dust, identifiable fumes, odours and vapours will not infringe beyond site boundaries where practical	Project Manager (CAG) Contractor
	Training and Competency	As part of the Site Induction, workers will be informed of the site/project-specific controls required for air quality and dust management including: Correct use of PPE Use of monitoring equipment Methods to control dust	Project Manager (CAG) Contractor
	Greenhouse Gases	Regular maintenance of plant and equipment for optimum performance will be undertaken to keep emissions to a minimum and increase plant productivity. Vehicles and equipment must be fitted with appropriate emission control equipment and routinely maintained. The Plant should be switched off when not in use, wherever practicable. All plant, equipment and vehicles are to be regularly monitored and maintained and records kept of maintenance. Engine tampering to increase power output is prohibited. Air emissions from plant, vehicles and equipment should be visually monitored throughout construction.	Project Manager (CAG) Contractor
	Dark Smoke	All internal combustion engines will be regularly serviced to ensure optimum operation and minimise the volume of visible smoke emitted. Any Plant or light vehicles emitting unreasonable smoke (concentrations higher than normal operation) will cease operation and be serviced by a trained and qualified technician. Materials on site will not be burned intentionally without consulting and obtaining the authorisation of the relevant Fire Authority and Client.	Project Manager (CAG) Contractor

Environmental Inspections and Monitoring	Dust Monitoring	The following dust monitoring methods will be applied on the Site: Obtaining weather reports from the Bureau of Meteorology (BOM) website Visual inspection	Project Manager (CAG) Contractor
	Dust Control	Dust control methods to be applied on the site to keep dust generated within the site boundaries, as reasonably practicable, will be: Wind fencing around the site or between the site and local residences Application of water/dust suppressant via water carts Physical application of ground cover Cessation of works in adverse weather conditions Restricted speed limits on site Reschedule dust generating activities to avoid adverse weather conditions Communicate dust risk and mitigation measures to staff prior to commencing work	Project Manager (CAG) Contractor
	Fumes, Odours and Vapours	The Site will endeavour to keep the generation of emission of unreasonable levels of fumes, odours and vapours to a minimum. Refer to the Waste Management Sub Plan (Attachment G) and Handling and Storage of Hazardous Materials Sub Plan (Attachment H) which detail storage and handling controls that minimise fumes, odours and vapours.	Project Manager (CAG) Contractor
	Daily (Visual)	Visually monitor for dust daily to ensure no dust leaves the work area as a direct result of construction activities above and beyond that or natural surrounding environment.	Project Manager (CAG) Contractor
	Weekly (Documented)	Environmental Daily Hazard Identification (DHI) will be completed via the Electronic Document Management System (EDMS)	Project Manager (CAG) Contractor
Reporting	Work Health Environment (WHE) Monthly Management Meeting		Contractor

ATTACHMENT E: Water Management Sub Plan

WATER MANAGEMENT SUB PLAN			RESPONSIBILITY
Objectives and Targets	Refer to Section 7.4 of this CEMP.		Project Manager (CAG) Contractor
Performance Criteria	100% Compliance with Client and legal requirements 100% achievement with Site Objectives and Targets		Project Manager (CAG) Contractor
Mitigation Measures	General	Water should be conserved, reused and recycled where reasonably practical. At no point will any water utility asset owner's infrastructure be modified or removed without their approval.	Project Manager (CAG) Contractor
	Training and Competency	As part of the Site Induction, workers will be informed of any significant water aspects and site/project-specific controls to minimise potential impacts. At Site Induction, workers will be made aware of the risks and controls associated with an interception of groundwater on the Site, although this is considered highly unlikely. Refer Appendix 6 - Canberra Airport Work, Health and Safety Guideline for PFAS (Oct 2020). The Contractor's Emergency Management Team members will be provided with training to respond to a discharge of contaminated water or hazardous materials into the environment. Refer Appendix 4 - SOP 4: Hazardous Materials Incident.	Project Manager (CAG) Contractor
	Notification	The Site will not modify or remove any water utility assets without their approval. Notification of approval will be provided to the Client with a copy of authorisation. Notification to the asset owner will be given as per their conditions of compliance.	Project Manager (CAG) Contractor
	Trench / Excavation Water	Sediment laden water accumulated in trenches or excavations must not be discharged directly or indirectly to any stormwater or natural watercourse. A suitable location to discharge will be identified considering site slope, proximity to drainage lines, soil permeability, ground cover, and downslope sediment controls i.e. well-established existing vegetation. If necessary, consideration will be given to the use of geofabric or clean rock to assist in the prevention of erosion during discharge.	Project Manager (CAG) Contractor

Environmental Inspections and Monitoring	Plant/Vehicle Maintenance	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into stormwater or natural watercourses.	Project Manager (CAG) Contractor
	Discharge of Contaminated Water and Hazardous Materials	The accidental release of hazardous materials will be immediately contained, cleaned up and if required, the affected area remediated in accordance with Canberra Airport SOP 4. The incident will be reported to the Canberra Airport Project Manager. If required, the relevant Regulatory Body will be notified. Refer Appendix 4 - SOP 4: Hazardous Materials Incident.	Project Manager (CAG) Contractor
	Dieback Management	Dieback is a tree's response to a pressure or stress occurring in its environment. A number of tree stressors are well established, though it is unlikely that any single factor is the cause to such widespread dieback. It is more likely the result of a number of combined or interrelated factors that have altered the tree's condition and environment to the point where the environment is no longer optimal. If an environmental change stresses a tree while favouring another pest or competitor, this will contribute further to dieback. It is also sometimes the case that when a tree becomes stressed, they become even more vulnerable to other factors. By monitoring any changes in water on site, Canberra Airport can identify any issues with dieback prior to any permanent damage is caused.	Project Manager (CAG) Contractor
	Daily (Visual)	Temporary erosion and sediment control measures must be monitored daily for effectiveness during the construction phase, ensuring compliance with the Erosion and Sediment Control Plan at all times.	Project Manager (CAG) Contractor
	Weekly (Documented)	Environmental Daily Hazard Identification will be completed via the Electronic Document Management System (EDMS) and include site compliance with Erosion and Sediment Control Plan requirements.	Project Manager (CAG) Contractor
Reporting	Work Health Environment Monthly Management Meeting		Contractor

ATTACHMENT F: Erosion and Sediment Control Sub Plan

EROSION AND SEDIMENT CONTROL		
Objectives and Targets	Refer to Section 7.4.2 of this CEMP.	Project Manager (CAG) Contractor
Performance Criteria	• No signs of unacceptable erosion or sediment transport. • Absence of water quality deterioration in water bodies affected by works and any chemical spills or waste that would be swept from the site via open swales and drainage lines. • Absence of third-party complaints including Commonwealth and Territory Regulatory authorities. • Designated stockpile areas for contaminated soil are managed accordingly.	
Implementation Strategy	Before commencement of construction activities, the following measures will be incorporated where appropriate, to ensure minimal disturbance and adverse water quality impacts: • Sediment fences to be constructed along the downstream edges of the exposed construction area and at the base of any fill embankments as per plan. • Areas to be designated for plant and construction material storage. Runoff from these areas to be contained in case of spillage. • Catch drains to be used where possible at the downstream boundary of construction activities to ensure any sediment laden runoff is contained and not permitted to flow onto downstream undisturbed areas. Diversion banks and catch drains to be constructed along contours to minimise scour along the invert. • Sediment fences and sandbags to be placed along catch drains to slow flow, reduce scour and capture some coarse sediment from runoff. • Sufficient materials to protect against erosion to be available on site prior to construction commencing. • Education of site personnel in the location, inspection and maintenance of erosion and sediment control structures. During construction, sediment-laden runoff will be directed through erosion and sediment control structures prior to discharging into the stormwater system. Measures to mitigate water quality impacts during construction will include: • Progressive stabilisation of filled areas and filled batters.	

	• Construction activities to be confined to the necessary construction area. • All construction traffic to use the specified access and exit points from the construction site. • Regular inspection and maintenance to be undertaken for all sediment control works. Replacement of damaged equipment.

ATTACHMENT G: Waste Management Sub Plan

WASTE MANAGEMENT SUB-PLAN		RESPONSIBILITY
Objectives and Targets	To minimise waste generation at source Refer 7.6 of this CEMP.	Project Manager (CAG) Contractor
Performance Criteria	Waste generated as a result of works activities is located in designated areas of site awaiting appropriate disposal or, where, economically feasible, recycling. 100% Compliance with client and legal requirements 100% achievement with project objectives and targets	Project Manager (CAG) Contractor
Training and Competency	As part of the Site Induction, workers will be informed of: The types of waste generated on site; How the wastes are to be handled, stored and disposed of; Personnel responsible for clean-up of spills will be provided with instruction on how to use the sites spill kits. Personnel handling hazardous materials will be provided for training to read and understand the Safety Data Sheet (SDS).	Project Manager (CAG) Contractor
Unidentified Waste	Wastes that cannot be positively identified (i.e. unlabelled liquids, potential asbestos) will be tested before handling and disposal. Any material that is unknown should be considered hazardous until positively identified.	Project Manager (CAG) Contractor
Handling	Where practicable, dust generating rubbish and debris will be removed to minimise dust release into the atmosphere. Handling of waste will be done in accordance with relevant state or local by-laws using suitable personal protective equipment.	Project Manager (CAG) Contractor
Storage	Containers used for storage are not to be opened, handled, transported or stored in a manner that may rupture the container. All waste will be stored in waste receptacles and removed off site by a licensed contractor on a periodic basis. Dedicated recyclable and hazardous receptacles will be labelled. Wastes stored on site will be stored in a manner to prevent the attraction of vermin and native wildlife. Waste is to be stored away from access and egress routes. The quantity and volume of wastes stored on site may be minimised where reasonably practical to reduce the risk to health, safety, and the Environment.	Project Manager (CAG) Contractor

Disposal	Project Managers will be responsible for identifying and obtaining any required licenses and/or permits to store wastes.	
	In deciding how to dispose of waste generated on site, consideration will be given to reducing, reusing or recycling waste where reasonably practical to minimise the volume sent to landfill. Where reuse or recycling is not a feasible option, the waste will be sent to a facility capable of accepting the waste. Concrete cutting saw slurry and concrete mix slurry are not permitted to be discharged to ground, or located in a position where they could lead to discharge to the stormwater system. The burning of any type of wastes will not be permitted on any Canberra Airport sites. The use of stormwater drains for the disposal of waste is prohibited. The disposal of waste will be done in a manner to prevent any damage to the environment. Waste classification and disposal offsite will be in accordance with the appropriate waste legislation for each site.	Project Manager (CAG) Contractor
Transportation	The removal and transportation of hazardous waste/ controlled waste (e.g. asbestos, hydrocarbons, and sewage) for disposal will only be conducted by licensed carriers. A copy of all controlled waste carrier licenses is maintained on the Controlled Waste Carrier Register on the Document Management System (DMS) by the Environmental Representative. The Environmental Representative is responsible for ensuring the Controlled Waste Carrier Register is up to date. Licensed operators will be engaged in accordance with the Procurement Procedure. Before a hazardous waste/ controlled waste is transported off site, a waste tracking receipt will be collected from the operator as verification that the waste was correctly transported off site and to identify the proposed location for disposal. A copy of the receipt will be held for a minimum of 3 years. The transportation of other wastes for disposal will only be conducted if the load is covered or there is no risk of load/debris falling and the load is disposed of at a registered landfill.	Project Manager (CAG) Contractor
Hazardous Waste - General	Hazardous wastes will be stored in sealed containers where practical and clearly labelled with waste type. Hazardous waste receptacles will be maintained in good condition to prevent leaks or spills. Offensive odours should not be generated at any time when stored. Hazardous wastes with a significant risk to human health and safety will be stored in containers that comply with relevant legislation and guidelines. Hazardous wastes will not be permitted to accumulate to a level that presents an unreasonable risk to human health, safety or the environment. Controlled waste storage will be suitably contained to ensure debris does not travel beyond the boundary of the premise. Hazardous waste will be stored and segregated in accordance with their SDS. Hazardous waste will be risk assessed to ensure they do not contaminate or interact with goods that are incompatible. Where there may be a risk of fire, hazardous waste will be segregated to prevent storage incompatibilities.	Project Manager (CAG) Contractor

	Hazardous liquid waste will not be permitted to enter the environment. Design considerations for secondary containment will be given to the storage of liquid wastes to contain any potential spills. Hazardous waste will be stored on/in bunded pallets/areas which will be compliant with AS1940-2004 4.4.3 (the bunded pallet/area must have the capacity to contain 110% of the largest container. Hazardous waste such as batteries, hydrocarbons, sewage and asbestos will only be handled for final disposal / recycling by certified waste removing contractors. Sewage waste not plumbed directly into the main sewerage system will be contained within holding tanks on site compounds and emptied on a periodic basis or as required by a licenced contractor. The management and handling of hazardous waste will be in accordance with the Contractor's Hazardous Materials Procedure and the Canberra SOP4: Hazardous Materials Incident (Appendix 4).	
Hazardous Waste - Asbestos	The disposal processes for asbestos will involve independent competent persons. Identified ACM (Asbestos Contaminated Material) will be clearly marked out and controls put in place to prevent contamination into surrounding areas.	Project Manager (CAG) Contractor
Hazardous Waste - Sanitary/ Sewage Waste	Sewage waste will either be plumbed directly into the main sewerage system or contained within holding tanks on site compounds and emptied as required. Sewage waste stored in bunded tanks underneath the toilets will be emptied by a licensed contractor on a periodic basis. Sanitary wastes will be stored in solid containers and clearly labelled for identification. Sanitary wastes will not be re-handled after disposal to minimise the exposure and risk of double handling. Sanitary conveniences will be calculated based on the number of workers based on the site and meet legislative requirements. Sanitary waste will be stored away from food sources or where food is served. Controls to prevent offensive odours to the public and workers will be implemented.	Project Manager (CAG) Contractor
Recyclable Waste	On site waste identified for reuse will be segregated to be collected and transported to a recycling facility. Waste will be collected by a provider who segregates recyclable waste from general waste at its recycling facility. Green waste will be mulched for use in dust control if practicable. Aggregate will be segregated during the cut and fill operations for re-use. Consideration will be given to reusing the waste on-site or supply to the local shire/community.	Project Manager (CAG) Contractor
Putrescible Waste	Putrescible waste will be stored into general waste containers that prevent the release of debris and leachate. The release of leachate into the environment may only be permitted if it does not present significant harm to human health, safety or the environment or generate offensive odours to the public and workers.	Project Manager (CAG) Contractor
Clinical Waste	If clinical waste has been found the following control may be employed;	Project Manager (CAG)

	Syringes and needles found on site will be stored in a clearly labelled, solid, sealed container to prevent access to contents. They will be disposed of at a licenced provider. Clinical wastes will not be re-handled after disposal to minimise the exposure and risk of double handling.		Contractor
Concrete	Concrete trucks must not be washed out on site.		Project Manager (CAG) Contractor
Environmental Inspections and Monitoring	Daily (Visual/Documented)	Visual assessments will be conducted across the waste area to determine the effectiveness of waste management controls	Project Manager (CAG) Contractor
Reporting	WHE Monthly Management Meeting		Project Manager (CAG) Contractor

ATTACHMENT H: Handling and Storage of Hazardous Materials Sub Plan

HANDLING AND STORAGE OF HAZARDOUS MATERIALS SUB PLAN			RESPONSIBILITY
Objectives and Targets	To minimise the risk of contamination and to monitor the site for fuel or other hazardous materials To minimise, as far as reasonably practicable, the potential for adverse environmental impact due to handling or storage of hazardous materials. Refer 7.7 of this CEMP.		Project Manager (CAG) Contractor
Performance Criteria	100% Compliance with Client and legal requirements 100% achievement with Site Objectives and targets Absence of contamination on site The protection of groundwater monitoring wells		Project Manager (CAG) Contractor
Mitigation Measures	General	The Contractor will develop a site plan (i.e. a diagram) showing the location of storage areas for Dangerous Goods, spill kit locations, muster points, firefighting equipment and First Aid equipment including eyewash/flush locations. In the event of any spill >5 Litres, Canberra Airport is to be notified.	Project Manager (CAG) Contractor
	Training and Competency	As part of the site Induction, workers will be informed of the site/project-specific controls required to manage hydrocarbon and chemical storage and use including: Use and understanding of safety data sheets (SDS) Use of personal protective equipment (PPE) Emergency Management Team members will be provided training to respond to a hazardous substance spill.	Project Manager (CAG) Contractor
	Register	ChemAlert will be used to register all site dangerous goods and hazardous materials, manage electronic SDS and conduct and record product risk assessments Consideration will be given to substitute products assessed as high risk with a product of lesser risk	Project Manager (CAG) Contractor
	Transportation	Containers holding hazardous materials or dangerous goods will be stored upright and secured during transport. Containers are not to be dropped, tip or rolled sides.	Project Manager (CAG) Contractor

	Handling and Use	Handling of products will be subject to the following requirements: Hazardous materials and dangerous goods will be clearly labelled Current SDS (no older than 5 years) will be readily available when handling Controls stipulated in the SDS to be applied when handling and using Used oily rags, oil filters and other left-over hydrocarbon and chemical products will be stored in a designated area and removed by licensed carriers to either recycle or otherwise dispose of.	Project Manager (CAG) Contractor
	Refuelling	Refuelling of plant and vehicles must be monitored continually and conducted in designated areas away from sensitive receptors. All infield refuelling must have a spill kit available to contain and clean-up any spills. Spill kits will be stored in designated and labelled containers and include a stock control register All refuelling areas must be signed to prevent smoking or naked flame Vehicles must be switched off when refuelling and the use of mobile phones prohibited Fixed refuelling areas must have a plastic lined refuelling area Fuel storage containers must be of a double bund construction	Project Manager (CAG) Contractor
	Site layout	This site plan must be current and displayed at the work site at all times throughout construction. In the event of an emergency that involves the need for emergency services this site plan along with a product manifest must be provided to the emergency services	Project Manager (CAG) Contractor
	Storage of Hazardous Materials	Any dangerous goods and/or hazardous marerials must be stored in designated areas compliant with statutory and industry codes of practice Quantities of hazardous materials should be kept to a minimum, commensurate with their usage and shelf life. Safety Data Sheets of stored hazardous materials will be readily accessible at the place of storage/site office. Permanent and temporary containers that hold hazardous materials must be labelled with the appropriate signage. The volume and types of hazardous materials stored must be known, current and documented and must not exceed the design capacity of the storage area. Storage and containment areas (including secondary containment) must be inspected for signs of loss or damage and any deficiencies must be addressed. These areas must be inspected at least monthly as part of the workplace inspection	Project Manager (CAG) Contractor

		Hazardous materials no longer in use must be identified and assessed to determine if they should be removed from the site. Hazardous materials storage areas must be kept clear of combustible material, vegetation and refuse by a minimum of three metres.	
	Spill/Emergency Response	In the event of a spill, the following generic procedure must be followed, Do not put yourself at risk. Notify personnel in the immediate area and remove yourself and others from danger. Report ALL SPILLS immediately to the Site Foreman and WHE Coordinator (report location, type and extent of the incident) any uncontrolled release will be reported as an incident to the Canberra Airport. Refer to the Emergency Response Management Plan and SOP 4 (Appendix 4) for guidance on spill response.	Project Manager (CAG) Contractor
	Workplace Inspections	Hazardous Materials storage and use will be inspected monthly as part of workplace inspections and within the DHI Environmental Inspections checklist.	Project Manager (CAG) Contractor
	Contaminated Sites	If the Site is deemed as contaminated by a Regulatory Body, the WHE Coordinator will be advised by suitably qualified personnel on ongoing monitoring of the site for the duration of the works or as required.	Project Manager (CAG) Contractor
Environmental Inspections and Monitoring	Daily (Visual)	Visual inspections of land for hydrocarbon staining or water bodies for slicks	Project Manager (CAG) Contractor
	Weekly (Documented)	Environmental Daily Hazard Identification (DHI) will be completed via the Electronic Document Management System (EDMS)	Project Manager (CAG) Contractor
Reporting	Work Health Environment Monthly Management Meeting		Contractor

ATTACHMENT I: PFAS Management Plan

ATTACHMENT I: PFAS MANAGEMENT PLAN

The Northern Road Project

1. PFAS in Soil at the Project Site

Section 7.1.1 of the project specific Construction Environmental Management Plan (CEMP) provides a Project Site Assessment for PFAS, including extracts from the Arcadis Limited Detailed Site Investigation (October 2020). Arcadis Limited DSI Table 7-1.

The Arcadis Limited DSI states in its Conclusion that:

> The sampling completed at the site as part of the Stage 1 to Stage 3 works identified potential risks to human health (ACM and/or AF/FA) and/or ecological receptors (PFAS). However, it is considered that the potential risks identified can be mitigated with appropriate management processes during future excavation, handling and reuse of soils, in accordance with the PFAS NEMP 2.0, 2020 guidance.
>
> Therefore, Arcadis considers that the site is suitable for the intended end use (roadway) provided appropriate management measures and processes are put in place and followed during construction and for the ongoing management of the site.

Consistent with the Arcadis Limited DSI recommendation that a Soil Management Plan (SMP) be developed. Canberra Airport commissioned Arcadis to prepare an SMP and this is discussed and forms part of this PFAS Management Plan.

The Limited DSI revealed PFAS traces (Table 7-1) within Canberra Airport immediately north which is likely a result of Fire Training Ground spray drift and fire tender movement after and/or during training. Figure 2 Test Pit Locations and Investigations (Limited DSI) has a black lined rectangle box of the test pits with PFAS traces. Test pit ES2-TP07 is the most northerly, and ES3-TP104 is the most southerly.

2. Arcadis Soil Management Plan (SMP)

Although the Arcadis SMP discusses the Lanterra Consulting DSI commissioned by the ACT Government for the Northern Road Off Airport/Landside Area, this PFAS Management Plan has only considered the Arcadis DSI commissioned by Canberra Airport. The reason being that the dynamics of the custodianship of that part of the Northern Road alignment that was Defence land has passed to the National Capital Authority and the ACT Government is no longer involved.

With that said, the findings of both the Arcadis 2020 and Lanterra 2020 site investigations:

- Identified that soils within the proposed Northern Road alignment were impacted with PFAS and ACM, arising from historical land use, consistent with review of site information and the presence of the Airservices Fire Training Ground on the Canberra Airport Estate.

- Recommended that the identified impacts to soils within the proposed Northern Road alignment require appropriate management to ensure that potential risks to ecological receptors are managed appropriately, both during and following completion of construction of the Northern Road Project. The Arcadis SMP has been produced to meet that recommendation.

3. Soil Management

Excavation areas within the Northern Road alignment have been reviewed and allocated a soil classification and colour coding based on the results of previous soil investigations completed by Arcadis. Each of the soil classifications assigned has a specific set of recommended management requirements, depending on the presence/absence or level of impact present in the soils.

The soil classifications and acceptable use and management requirements are detailed in Table 9 (pages 16 and 17 of the Arcadis SMP).

Arcadis provides a caveat which states:

> Please note – the soil classifications provided do not constitute in-situ waste classifications for off-site management and/or disposal of soils in accordance with the ACT EPA 2000 regulations. Any required waste classification for off-site management and/or disposal would need to be completed by an Appropriately Qualified and Certified Environmental Consultant, as detailed in Section 6.1.2.3.

4. Options for PFAS Impacted Soil Re-Use

As noted above in 1, the Limited DSI revealed PFAS traces within the Airport and immediately adjacent to the north area; approximately 26% of the Northern Road corridor.

Options available for re-use of these soils include:

a) Re-use within the road base structure under bitumen – away from stormwater swales.

b) Spread and consolidate nearby on Airport.

c) Remove off Airport to an approved facility in the ACT or NSW.

d) Stockpile on Airport.

Once the final cut and fill requirements are determined with the contractor, the re-use of these soils will be determined.

5. Attachments to the PFAS Management Plan

A	**Arcadis Limited Detailed Site Investigation – 15 October 2020**
B	**Arcadis Soil Management Plan – 26 November 2021**

APPENDIX 1: Variation of Conditions Attached to Approval (EPBC 2009/4748)

Australian Government
Department of Agriculture, Water and the Environment

VARIATION OF CONDITIONS ATTACHED TO APPROVAL

INFRASTRUCTURE UPGRADE AND CONSTRUCTION AT CANBERRA AIRPORT, ACT (EPBC 2009/4748)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

Person to whom the approval is granted	Managing Director Canberra Airport Pty Ltd ACN: 080 361 548 ABN 14 080 361 548
Approved action	To upgrade and construct aviation and airfield based development and supporting airport infrastructure during the life of Canberra Airport's 2009 Master Plan and as outlined in the referral received 19 February 2009 and the preliminary documentation received 26 June 2009 [See EPBC Act referral 2009/4748]

Variation

Variation of conditions attached to approval	The variation is: Delete condition 5 and replace with condition 5 as shown in the schedule below. Add a new definition of Suitably qualified expert as shown in the schedule below. Delete Annexures 1 and 2, and replace with the Annexures as shown in the schedule below.
Date of effect	This variation has effect on the date the instrument is signed

Person authorised to make decision

Name and position	Greg Manning Assistant Secretary Assessment (WA, SA, NT), Post Approvals and Policy Branch
Signature	
Date of decision	29 May 2020

Date of decision	Conditions attached to approval
Variation dated 3/6/2019	1. The person taking the action must not clear more than 20.5 hectares of **Natural Temperate Grassland** in Area A at **Annexure 1**. The area identified as the Northern Road at **Annexure 1** may only be cleared in accordance with condition 5. All other sites in **Annexure 1** containing **Natural Temperate Grassland** must be protected.
Original dated 11/11/2009	2. The person taking the action must develop and submit a Threatened Species Management Plan to the **Minister**. The plan must include measures to manage **Natural Temperate Grassland** and Threatened Species on the Canberra Airport lease, including; a) Monitoring and mapping; b) Weed control; c) Mowing heights and regimes; d) Rehabilitation and revegetation; e) Drainage; f) Monitoring regimes and survey methods; g) Thresholds for triggering further management intervention; h) Environmentally significant areas and their protection; and i) Results of research and details of any current and future research proposals. The Threatened Species Management Plan must be submitted and approved by the **Minister** before construction commences. The approved Threatened Species Management Plan must be implemented.
Variation dated 3/6/2019	3. The person taking the action must submit to the **Department** a Canberra Airport Offsets Plan which must include, but not be limited to: a) The acquisition and protection in perpetuity of land containing **Natural Temperate Grassland** at a ratio of 3 hectares of offset for every one hectare removed if the total area of **Natural Temperate Grassland** removed from the Canberra Airport site under this and any other EPBC approval is under 12.5 hectares; or b) If the total accumulated area removed from the Canberra Airport site under this and any other EPBC approval exceeds 12.5 hectares, commitment to and details of the acquisition and protection in perpetuity of land containing **Natural Temperate Grassland** at a ratio of 5 hectares of offset for every one hectare of **Natural Temperate Grassland** removed; and c) Details of the proposed ownership and management of the land to be acquired and protected. The person taking the action must not remove any **Natural Temperate Grassland** or habitat for listed threatened species unless the Canberra Airport Offsets Plan has been approved by the **Minister** in writing. The approved Canberra Airport Offsets Plan must be implemented. Note: The management of rehabilitation and any required offset must be conducted in conjunction with any other EPBC approvals affecting **Natural Temperate Grassland** in the Canberra Airport site.
Original dated 11/11/2009	4. The person taking the action must develop and submit a Construction Environment Management Plan (CEMP) to the **Minister.** The plan must include but not be limited to: a) Establishment and maintenance of fences and signage of no go areas in areas of **Natural Temperate Grassland** and threatened species habitat; b) Identification and implementation of erosion and sedimentation control measures during and following construction; c) Identification and implementation of appropriate weed hygiene measures; d) Induct construction workers and contractors about requirements to protect threatened species and **Natural Temperate Grassland** in accordance with relevant legislation; e) Measures to reduce impacts on listed threatened species;

Date of decision	Conditions attached to approval
	f) Indicative environmental management checklists to assist with monitoring the implementation of environmental management obligations during construction works; and g) Unless otherwise specified, the person taking the action must submit a report of performance against the requirements of the CEMP by 30 June in each year for a period of 5 years. The CEMP must be approved by the **Minister** before construction commences. The approved CEMP must be implemented.
Variation dated 3/6/2019	4A. Within 6 months following completion of **construction**, the person taking the action must submit to the **Minister** for approval a revised Canberra Airport Offsets Plan which identifies the area of impacted **natural temperate grassland** that is available for rehabilitation, and specify a program to rehabilitate the land to **natural temperate grassland**. The approved revised Canberra Airport Offsets Plan must be implemented.
As varied on the date this instrument was signed	5. The person taking the action must develop and submit a Northern Road Strategy to the Minister. The Northern Road Strategy must include a population viability analysis or equivalent research that has been prepared by a **suitably qualified expert** and demonstrates that the Northern Road at **Annexure 1** will achieve: a) No net loss of habitat for the Grassland Earless Dragon as identified on the map at **Annexure 2**; b) No fragmentation of Grassland Earless Dragon habitat as identified on the map at **Annexure 2**; c) No net impacts on the Grassland Earless Dragon from construction activities; and d) No increase in the risk of extinction for the east Majura Valley Grassland Earless Dragon population. The approval holder must not commence construction of the Northern Road until the Northern Road Strategy has been approved by the **Minister**. The approved Northern Road Strategy must be implemented.
Original dated 11/11/2009	6. If the **Minister** believes that it is necessary or desirable for the better protection of the environment, the **Minister** may request that the person taking the action make specified revisions to a **plan** or strategy approved pursuant to conditions 2, 3, 4 and 5, and submit the revised plan or measure for the **Minister**'s approval. The person taking the action must comply with any such request. If the **Minister** approves a revised **plan** or measure pursuant to this condition, the person taking the action must implement that **plan** or measure instead of the **plan** or measure as originally approved.
Variation dated 3/6/2019	**Revision of action management plans** 7. The person taking the action may, at any time, apply to the **Minister** for a variation to an action management plan or measure approved by the **Minister** under conditions 2, 3, 4 and 5, or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the **EPBC Act**. If the **Minister** approves a revised action management **plan** or measure (RAMP) then, from the date specified, the person taking the action must implement the RAMP in place of the previous action management plan or strategy.
Variation dated 3/6/2019	7A. The person taking the action may choose to revise an action management plan or strategy approved by the **Minister** under conditions 2, 4 and 5, or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the **EPBC Act**, if the taking of the action in accordance with the RAMP would not be likely to have a **new or increased impact**.
Variation dated 3/6/2019	7B. If the person taking the action makes the choice under condition 7A to revise an action management plan or strategy without submitting it for approval, the approval holder must: a. notify the **Department** in writing that the approved action management **plan** or measure has been revised and provide the **Department** with:

Date of decision	Conditions attached to approval
	i. an electronic copy of the RAMP; ii. an electronic copy of the RAMP marked up with track changes to show the differences between the approved action management **plan** or measure and the RAMP; iii. an explanation of the differences between the approved action management **plan** or measure and the RAMP; iv. the reasons the person taking the action considers that taking the action in accordance with the RAMP would not be likely to have a **new or increased impact**; and v. written notice of the date on which the person taking the action will implement the RAMP (RAMP implementation date), being at least 20 **business days** after the date of providing notice of the revision of the action management plan, or a date agreed to in writing with the **Department**. b. subject to condition 7D, implement the RAMP from the RAMP implementation date.
Variation dated 3/6/2019	7C. The person taking the action may revoke the choice to implement a RAMP under condition 7A at any time by giving written notice to the **Department**. If the person taking the action revokes the choice under condition 5A, the person taking the action must implement the action management **plan** or measure in effect immediately previous to that being revoked.
Variation dated 3/6/2019	7D. If the **Minister** gives a notice to the person taking the action that the **Minister** is satisfied that the taking of the action in accordance with the RAMP would be likely to have a **new or increased impact**, then: a. condition 7A does not apply, or ceases to apply, in relation to the RAMP; and b. the person taking the action must implement the action management **plan** or measure specified by the **Minister** in the notice.
Variation dated 3/6/2019	7E. At the time of giving the notice under condition 7D, the **Minister** may also notify that for a specified period of time, condition 7A does not apply for one or more specified action management **plan**s. **Note:** conditions 7A, 7B, 7C and 7D are not intended to limit the operation of section 143A of the **EPBC Act** which allows the person taking the action to submit a revised action management plan or measure, at any time, to the **Minister** for approval.
Variation dated 3/6/2019	8. If the **commencement of the action** does not occur within 15 years from the date of this approval, then the person taking the action must not **commence the action** without the prior written agreement of the **Minister**.
Variation dated 3/6/2019	***Compliance records*** 9. The person taking the action must maintain accurate and complete **compliance records**.
Variation dated 3/6/2019	10. If the **Department** makes a request in writing, the person taking the action must provide electronic copies of compliance records to the **Department** within the timeframe specified in the request. Note: **Compliance records** may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the **Department**'s website or through the general media.
Variation dated 3/6/2019	***Preparation and publication of plans*** 11. The person taking the action must: a. submit **plans** electronically to the **Department** for approval by the **Minister**;

Date of decision	Conditions attached to approval
	b. publish each **plan** on the **website** within 20 **business days** of the date the **plan** is approved by the **Minister** or of the date a revised action management plan is submitted to the **Minister**, unless otherwise agreed to in writing by the **Minister**; c. keep **plans** published on the **website** until the end date of this approval unless otherwise agreed to in writing by the **Minister**.
Variation dated 3/6/2019	12. The person taking the action must ensure that any monitoring data (including **sensitive ecological data**), surveys, maps, and other spatial and metadata required under conditions of this approval, is prepared in accordance with the **Department**'s Guidelines for biological survey and mapped data (2018) and submitted electronically to the **Department**.
Variation dated 3/6/2019	***Annual compliance reporting*** 13. The person taking the action must prepare a **compliance report** for each 12 month period following the date of **commencement of the action**, or as otherwise agreed to in writing by the **Minister.** The person taking the action must: a. publish each **compliance report** on the **website** within 60 **business days** following the relevant 12 month period; b. notify the **Department** by email that a **compliance report** has been published on the **website** within five **business days** of the date of publication; c. keep all **compliance reports** publicly available on the **website** until this approval expires unless otherwise agreed to in writing by the **Minister**. d. exclude or redact sensitive ecological data from compliance reports published on the website; and e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **Department** within 5 **business days** of publication. **Note**: **Compliance reports** may be published on the **Department**'s website. The first **compliance report** may report a period less than 12 months so that it and subsequent compliance reports align with the similar requirement under state approval.
Variation dated 3/6/2019	***Reporting non-compliance*** 14. The person taking the action must notify the **Department** in writing of any: **incident;** non-compliance with the conditions; or non-compliance with the commitments made in **plans**. The notification must be given as soon as practicable, and no later than two **business days** after becoming aware of the **incident** or non-compliance. The notification must specify: a. the condition which is or may be in breach; and b. a short description of the **incident** and/or non-compliance.
Variation dated 3/6/2019	15. The person taking the action must provide to the **Department** the details of any **incident** or non-compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 10 **business days,** unless otherwise agreed to in writing by the **Minister**, after becoming aware of the **incident** or non-compliance, specifying: a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future; b. the potential impacts of the **incident** or non-compliance; and c. the method and timing of any remedial action that will be undertaken by the approval holder.
Variation dated 3/6/2019	**Management Plans** 16. All management plans required under this approval should be prepared in line with the **Department**'s Environmental Management Plan Guidelines.

Date of decision	Definitions attached to approval
Variation dated 3/6/2019	**Business day** means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.
Variation dated 3/6/2019	**Commencement of the action** means the first instance of any specified activity associated with the action including clearance of vegetation and **construction** of any infrastructure. Commencement does not include minor physical disturbance necessary to: i. undertake pre-clearance surveys or monitoring programs; ii. install signage and /or temporary fencing to prevent unapproved use of the project area; iii. protect environmental and property assets from fire, weeds and pests, including erection or **construction** of fencing and signage, and maintenance or use of existing surface access tracks, if agreed in writing by the **Department**.
Variation dated 3/6/2019	**Compliance records** means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the power of the person taking the action to obtain lawfully.
Variation dated 3/6/2019	**Compliance reports** means written reports: i. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans**; ii. consistent with the **Department's** *Annual Compliance Report Guidelines* (2014); iii. include a shapefile of any clearance of any **protected matters**, or their habitat, undertaken within the relevant 12 month period; and iv. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.
Original dated 11/11/2009	**Construction** - all work but does not include survey, acquisitions, fencing, test drilling/test excavations, building/road dilapidation surveys, or other activities that will have a minimal environmental impact.
Variation dated 3/6/2019	**Department -** The Australian Government Department currently known as the Department of the Environment or whatever the Department that administers this approval is thereafter called.
Original dated 11/11/2009	**Fragmentation** - The breaking up of a large intact area of a single vegetation or habitat type into smaller intact units.
Variation dated 3/6/2019	**Incident** means any event which has the potential to, or does, impact on **protected matter(s).**
Variation dated 3/6/2019	**Minister** - The Minister responsible for the administration of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) including any delegate thereof.
Original dated 11/11/2009	**Natural Temperate Grassland** - The ecological community referred to as: Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory and described in the document titled 'Advice to the Minister for the Environment and Heritage from the Endangered Species Scientific Subcommittee (ESSS) on a proposal to add an ecological community to Schedule 2 of the Endangered Species Protection Act 1992 ESP Act)'

Date of decision	Definitions attached to approval
Original dated 11/11/2009	**No Go Areas** -Areas identified within the Canberra Airport Lease which requires protection from construction and temporary impacts including: the movement of construction vehicles and machinery, stockpiling and any actions that will degrade or damage grassland species
Variation dated 3/6/2019	**Plan(s)** means any of the documents required to be prepared, approved by the **Minister**, and/or implemented by the person taking the action and published on the **website** in accordance with these conditions (includes action management plans and/or strategies);
Variation dated 3/6/2019	**Protected matter** means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.
Variation dated 3/6/2019	**Sensitive ecological data** means data as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0.*
Variation dated 3/6/2019	**Substantial commencement - Revoked**
As varied on the date this instrument was signed	**Suitably qualified expert** - means a person who has professional qualifications, training, skills and/or experience designing and implementing surveys for Grassland Earless Dragon, and can give an authoritative assessment and advice on the presence of Grassland Earless Dragon using relevant protocols, standards, methods and/or literature.
Original dated 11/11/2009	**Threatened Species** Golden Sun Moth (*Synemon plana*) Perunga Grasshopper (*Perunga orchracea*) Striped Legless Lizard (*Delma impar*) Grassland Earless Dragon (*Tympanocryptis pinguicolla*)
Variation dated 3/6/2019	**Website** means a set of related web pages located under a single domain name attributed to the person taking the action and available to the public.

Date of decision	**Annexures**
As varied on the date this instrument was signed	**Annexure 1 –** Proposed Northern Road Alignment
As varied on the date this instrument was signed	**Annexure 2** – Map showing Canberra Airport – Runways and Taxiways, Aprons, area subject to major development plan approved August 2004, Runway and Taxiway reserves, Significant habitat area for Grassland earless dragon

DEFENCE ADMINISTERED LAND

CANBERRA AIRPORT ADMINISTERED LAND

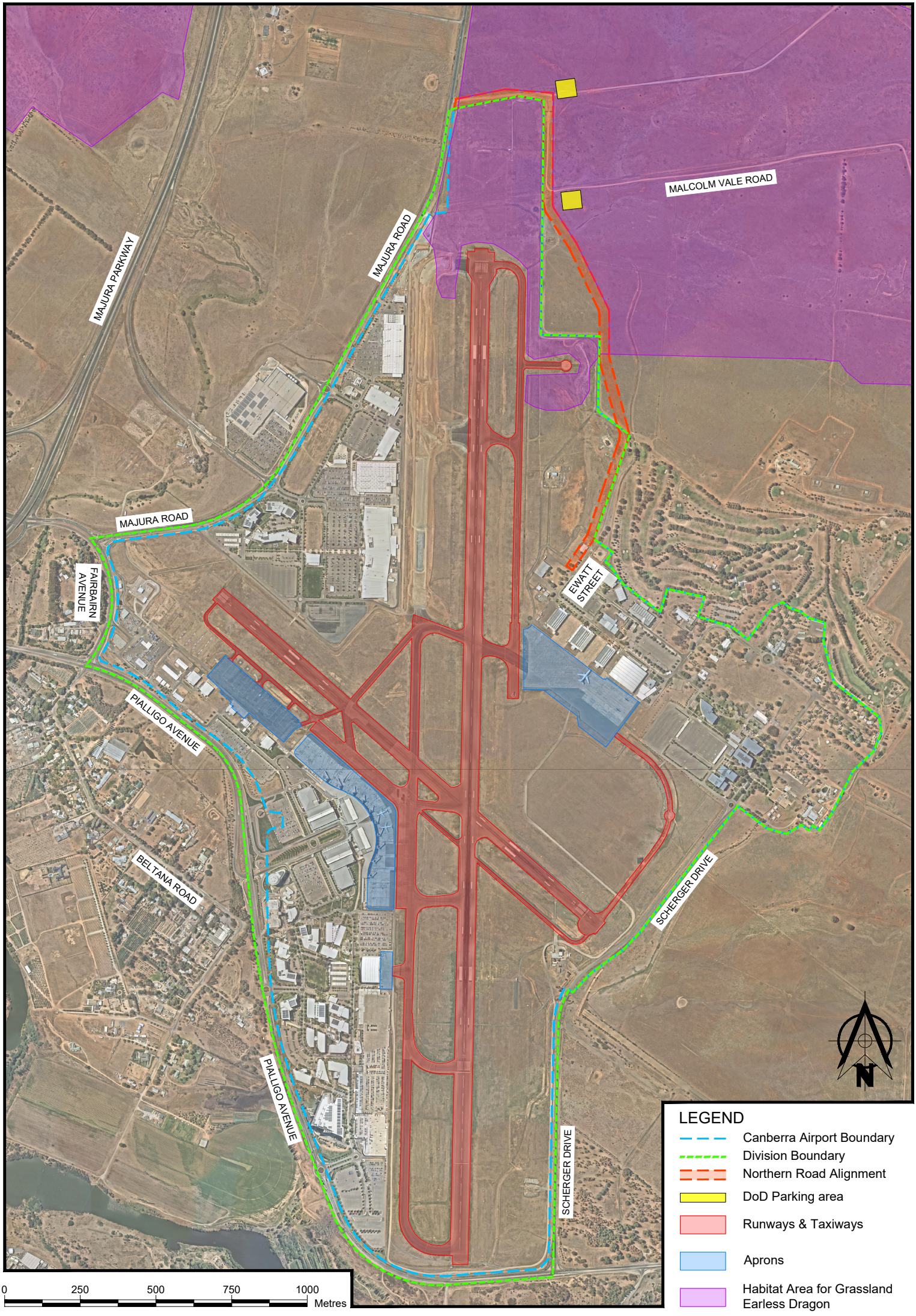
DoD PARKING AREAS

CANBERRA AIRPORT
PROPOSED NORTHERN ROAD ALIGNMENT

0 50 100 150 200 250 Metres

ISSUE B / 15th May 2020

ANNEXURE 2


MALCOLM VALE ROAD
MAJURA ROAD
MAJURA PARKWAY
MAJURA ROAD
FAIRBAIRN AVENUE
EWATT STREET
PIALLIGO AVENUE
BELTANA ROAD
SCHERGER DRIVE
PIALLIGO AVENUE
SCHERGER DRIVE
N
LEGEND
Canberra Airport Boundary
Division Boundary
Northern Road Alignment
DoD Parking area
Runways & Taxiways
Aprons
Habitat Area for Grassland Earless Dragon
0
250
500
750
1000
Metres

APPENDIX 2: Northern Road Construction and Operations Strategy

APPENDIX 3: Protocol for the Investigation and Retrieval of Grassland Earless Dragon

THE NORTHERN ROAD PROJECT

Canberra Airport 2010 Construction Management Plan for Airside Works

Revised Appendix B – Preconstruction Protocol for the Investigation and Retrieval of Grassland Earless Dragon

The following Protocol was developed in consultation with Peter Robertson, Wildlife Profiles Pty Ltd and co-author of the Grassland Earless Dragon Recovery Plan, and Alison Rowell, Qualified Ecologist, on 9 November 2009, and will be followed, prior to any works, for the investigation and retrieval of potential Grassland Earless Dragon.

1. Fence off construction area and install sediment fencing to deter the movement of Grassland Earless Dragons into the construction area;

2. Closely mow the construction area and remove the thatch;

3. Investigate the area north of Taxiway Foxtrot for invertebrate holes;

4. Check any holes in the works area with a fiberscope for the Grassland Earless Dragon;

5. Once the holes are checked the holes will be dug out to deter Grassland Earless Dragons from re-entering the hole;

6. If found, the Grassland Earless Dragon is identified by photography, measure, sex and DNA if possible (DNA sampling to be undertaken by Alison Rowell who will pass on the samples to the University of Canberra who will obtain necessary permit to take and ethics approvals);

7. It is proposed to move the animals away from the works area and placed in an area of potential or actual habitat, preferably adjacent to the works area. The area will be decided upon by Alison Rowell and Stephen Sarre;

8. Alternative burrows will be made by hammering a round stake or by drilling in the ground to a depth of 20cm – such a hole then has the characteristics of an invertebrate hole where the lizards are found at the Airport; and

9. Build upon the database recording each of the captured animal's characteristics, including exact site location and relocation. This will allow for possible comparison of future monitoring and recaptures. Data will be shared with the University of Canberra, Grassland Earless Dragon Recovery Team, Department of the Environment and Energy (DoEE) and ACT Parks and Conservation Service, Environment, Planning and Sustainable Development Directorate (EPSDD).

10. Sediment and erosion control fencing will be installed to prevent Grassland Earless Dragons re-entering the work corridor during works.

May 2022

APPENDIX 4: SOP 4 – Hazardous Materials Incident

Standard Operating Procedures (SOP)

4. HAZARDOUS MATERIALS INCIDENT

DEFINITION

A hazardous materials incident is defined as an incident where a hazardous material has been released, or a container holding a hazardous material has been broken or is suspected of being broken that could cause damage to persons, infrastructure and/or the environment.

Modern military aircraft in particular can contain a number of toxic and carcinogenic compounds that can be released or created during a post crash fire or break up. Many military jet aircraft are also fitted with ejection seats which contain explosive charges even after seat activation.

Emergencies and incidents involving the storage, transportation and handling of flammable, explosive, toxic, radioactive, infectious substances or substances otherwise hazardous to health, safety and environment, as defined, either singly, or in combination, under Work Health and Safety, Dangerous Goods, Ionising Radiation or Clinical Waste legislation, (Hazardous Materials, Hazardous Substances and Dangerous Goods) have the potential for creating emergency situations at Canberra Airport and surrounding areas.

INDEX

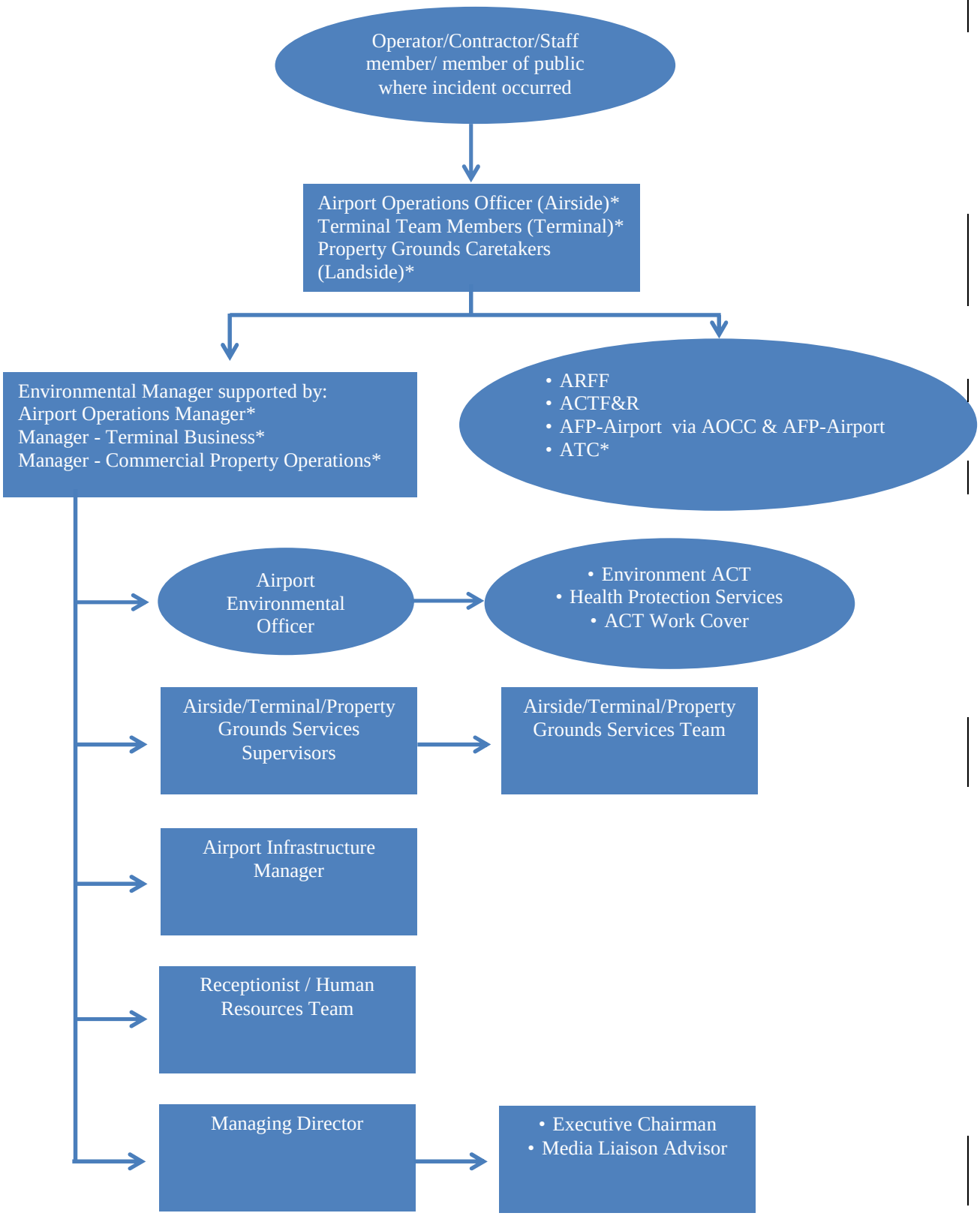
Note: Each SOP has the following item on the bottom of the page: STAND-IN(S) FOR YOU:

i) If you are unavailable, then the person shown as a STAND-IN(S) FOR YOU is required to perform your role.

ii) All staff must ensure that they know which position(s) they are required to STAND-IN for, and that they are familiar with the SOP for such position(s).

HAZARDOUS MATERIAL INCIDENT FLOW CHART

AIRSIDE, TERMINAL OR LANDSIDE *contact where applicable



Note: Where the nominated person in the flow chart above is not available or not able to be contacted, contact their alternate as listed in the following pages

EMERGENCY/INCIDENT RUNNING SHEET

HAZARDOUS MATERIALS INCIDENT

TIME	ACTION

Signed: ..... Date: .....

AIRPORT OPERATIONS OFFICER / TERMINAL TEAM MEMBERS / PROPERTY GROUNDS CARETAKERS

1.	**ROLE**	To provide initial response to minimise potential safety hazard and environmental degradation to area.
2.	**NOTIFIED BY**	Operator where incident occurred
3.	**NOTIFY**	(i) ARFF – 6243 2199 / ACT F&R - 000 (ii) AFP – Airport via AOCC - 131 237 (iii) Air Traffic Control – 6268 5850 (iv) Environment Manager 6275 2255 / 0410 697 637 / 6247 7252 and Airport Operations Manager 6275 2209 / 0412 966 541 OR Manager – Terminal Business 6275 2266 / 0419 162 001 OR Manager - Commercial Property Operations 6275 2242 / 0410 653 605
4.	**REPORT TO**	Environment Manager and Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations
5.	**ACTIONS/ CONSIDERATIONS**	REFER – SOP 3 - Crash on Airport or SOP 6 – Handling Unattended Items/Unknown Substances where applicable NOTIFY (as per 3 above) DO NOT use mobile phone if fuel or explosive material is involved. Use non-ops radio to communicate COMMENCE Emergency/Incident running sheet and Environmental Incident Report Form on action taken AVOID contact at all times ISOLATE and EVACUATE to the immediate surrounding area. Maintain site supervision CONTAIN product spill if safe to do so LIAISE with ARFF/ACTF&R on the situation MOBILISE/DEPLOY CA resources including the Fuel Farm Spill Trailer, CA staff as required for incident response, escorts and clean up KEEP Environmental Manager and Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations updated

IF HAZARDOUS MATERIAL INCIDENT OCCURS WITH AIRCRAFT CRASH, REFER TO SOP 3 - CRASH ON AIRPORT PROCEDURES

STAND-IN(S) FOR YOU	:	OTHER AOO/TERMINAL/PROPERTY TEAM MEMBERS
(in order)	:	AIRPORT INFRASTRUCTURE MANAGER

ENVIRONMENTAL MANAGER with support from respective precinct manager: AIRPORT OPERATIONS MANAGER / MANAGER – TERMINAL BUSINESS / MANAGER – COMMERCIAL PROPERTY OPERATIONS

1.	**ROLE**	To coordinate CA staff, oversee incident response and clean up procedures with combat agencies and support from the respective precinct managers.
2.	**NOTIFIED BY**	Airport Operations Officer / Terminal Team Members / Property Ground Caretakers
3.	**NOTIFY**	(i) Airport Environment Officer (AEO) – 6274 7640 / 0434 074 212 (ii) Airside Services Supervisor – 6275 2221 / 0410 544 265 OR Terminal Services Supervisor – 0438 231 260 OR Relevant Property Grounds Services Supervisor (iii) Airport Infrastructure Manager– 6275 2220 / 0417 651 472 (iv) Receptionist / Office Staff – 6275 2222
4.	**REPORT TO**	Managing Director and Environmental Manager
5.	**ACTIONS/ CONSIDERATIONS**	**If material unknown** USE SOP 6 – Handling Unattended Items/Unknown Substances and Hot Up risk assessment procedure REFER where applicable to SOP 3 – Crash on Airport or SOP 6 – Handling Unattended Items/Unknown Substance NOTIFY (as per 3 above) COMMENCE Emergency/Incident running sheet on action taken PROVIDE initial update to Managing Director PROCEED to incident scene if requested by Airport Operations Officer/ Terminal Team Members/Property Grounds Caretakers ESTABLISH contact with officer in charge of responding agencies LIAISE with operators to provide Material Safety Data Sheets and or freight manifest information LIAISE with Airport Environment Officer on clean up procedure MOBILISE additional resources as required ESTABLISH contact with Forward Commanders of Support Agencies CONSIDER: • Pumping out gross pollutant traps; • Provision of bunding to drains and swales; • Evacuating airport precincts DIRECT media enquiries to Managing Director or AFP Media Liaison Officer ENSURE recovery is complete before incident stand down KEEP Managing Director and Environmental Manager informed of situation progress

IF HAZARDOUS MATERIAL INCIDENT OCCURS WITH AIRCRAFT CRASH, REFER TO SOP 3 - CRASH ON AIRPORT PROCEDURES

STAND-IN(S) FOR YOU : ASSISTANT - ENVIRONMENT MANAGER
(in order) : ASSISTANT MANAGER – AERONAUTICAL BUSINESS/ TERMINAL BUSINESS/COMMERCIAL PROPERTY OPERATIONS

AIRSIDE/TERMINAL/PROPERTY GROUNDS SERVICES SUPERVISOR

1.	**ROLE**	To provide personnel and equipment support
2.	**NOTIFIED BY**	Environmental Manager / Airport Operations Manager / Manager – Terminal Business / Manager – Commercial Property Operations
3.	**NOTIFY**	Airside/Terminal/Property Grounds Services Team Members
4.	**REPORT TO**	Airport Operations Officer/Manager – Terminal Business/Manager – Commercial Property Operations
5.	**ACTIONS/ CONSIDERATIONS**	REFER where applicable to SOP 3 – Crash on Airport or SOP 6 – Handling Unattended Items/Unknown Substances DO NOT use mobile phone if suspected fuel or explosive material is involved STAND BY at a safe distance and be prepared to assist combat agency as required COMMENCE Emergency/Incident running sheet on action taken Where applicable ISOLATE and EVACUATE to immediate surrounding area MAINTAIN site supervision ASSIST/CONTAIN with spill and clean up, once safe clearance given by combat agency/Airport Environment Officer ASSIST with provision of power isolation or generating capacity at incident site ASSIST with provision of lighting resources ASSIST with labour resources (if available) PROVIDE escorts to incident site for combat agency ASSIST with any evacuations KEEP Environmental Manager/Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations updated on the situation

IF HAZARDOUS MATERIAL INCIDENT OCCURS WITH AIRCRAFT CRASH, REFER TO SOP 3 - CRASH ON AIRPORT PROCEDURES

STAND-IN(S) FOR YOU : (in order)	AIRSIDE/TERMINAL/PROPERTY GROUNDS SERVICES TEAM MEMBERS

AIRSIDE/TERMINAL/PROPERTY GROUNDS SERVICES TEAM

1.	**ROLE**	Provide personnel and equipment to support airside response
2.	**NOTIFIED BY**	Airside/Terminal/Property Grounds Services Supervisor
3.	**NOTIFY**	Nil
4.	**REPORT TO**	Airside/Terminal/Property Grounds Services Supervisor
5.	**ACTIONS/ CONSIDERATIONS**	REFER where applicable to SOP 3 – Crash on Airport or SOP 6 – Handling Unattended Items/Unknown Substances COMMENCE Emergency/Incident running sheet on action taken PROCEED to Gate 5/Incident Site DUTIES as directed by Supervisor, and may include: • Assisting with security of airport/incident site • Plant/equipment operator • Escorts • Labouring ASSIST with clean up once safe clearance given by combat agency/Airport Environmental Officer

IF HAZARDOUS MATERIAL INCIDENT OCCURS WITH AIRCRAFT CRASH, REFER TO SOP 3 - CRASH ON AIRPORT PROCEDURES

STAND-IN(S) FOR YOU (in order)	:	AIRSIDE/TERMINAL/PROPERTY GROUNDS SERVICES TEAM MEMBERS

AIRPORT INFRASTRUCTURE MANAGER

1.	**ROLE**	To provide technical advice and infrastructure support to the CA Forward Commander
2.	**NOTIFIED BY**	Environmental Manager/Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations
3.	**NOTIFY**	Nil
4.	**REPORT TO**	Environmental Manager and Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations
5.	**ACTIONS/ CONSIDERATIONS**	REFER where applicable to SOP 3 – Crash on Airport or SOP 6 – Handling Unattended Items/Unknown Substances PROVIDE advice to Environmental Manager/Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations on status on ground infrastructure i.e. storm water, swales and other in-ground services COMMENCE Emergency/Incident running sheet on action taken SEEK, if required, GSI mapping of in-ground infrastructure ARRANGE for separator pits and catchment basins to be pumped out as required

IF HAZARDOUS MATERIAL INCIDENT OCCURS WITH AIRCRAFT CRASH, REFER TO SOP 3 - CRASH ON AIRPORT PROCEDURES

STAND-IN(S) FOR YOU	:	GSI OFFICER
(in order)	:	

RECEPTIONIST / HUMAN RESOUCES TEAM

1.	**ROLE**	Maintain office procedures and provide administrative support
2.	**NOTIFIED BY**	Environmental Manager/Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations
3.	**NOTIFY**	Nil
4.	**REPORT TO**	Environmental Manager and Airport Operations Manager/Manager – Terminal Business/Manager – Commercial Property Operations
5.	**ACTIONS/ CONSIDERATIONS**	MAINTAIN usual Canberra Airport office procedures REFER media/general enquiries to Managing Director or AFP Media Liaison Officer COMMENCE Emergency/Incident running sheet on action taken CONSIDER setting up CA Office Support Management Centre. REFER where applicable to SOP 3 – Crash on Airport or SOP 6 – Handling Unattended Items / Unknown Substances PROVIDE a brief situation report to the Property Team. For example, "*An hazardous materials incident has occurred in which standard operating procedures have been activated involving Airport Fire Brigade (ARFF) and Canberra Airport Staff*" If required, ESTABLISH location of CA off duty staff and be prepared to notify their availability

IF HAZARDOUS MATERIAL INCIDENT OCCURS WITH AIRCRAFT CRASH, REFER TO SOP 3 - CRASH ON AIRPORT PROCEDURES

STAND-IN(S) FOR YOU (in order)	:	HUMAN RESOURCES TEAM MEMBERS

APPENDIX 5: Unexpected Finds Protocol

Capital Airport Group
Canberra Airport, ACT 2609
Unexpected Finds Protocol

Project No: 121543
June 2020

Prepared For:

Capital Airport Group Pty Ltd
Level 4, 21 Terminal Avenue
Plaza Offices – West
Canberra Airport

Meinhardt Infrastructure & Environment

Level 12, 501 Swanston Street
Melbourne, Vic 3000

P. 03 8676 1200 | F. 03 8676 1201
www.meinhardtgroup.com

Rev	Date	Details	Written	Reviewed	Approved
A	28/04/2020	CAG- Canberra Airport – Unexpected Finds Protocol	M.Gibbs (MG) – Environmental Scientist / S.Paleri (SP) – Associate Environment	SP	SP
B	01/05/2020	CAG- Canberra Airport – Unexpected Finds Protocol	MG/SP	SP	SP
0	04/05/2020	CAG- Canberra Airport – Unexpected Finds Protocol	MG/SP	SP	SP
1	29/05/2020	CAG- Canberra Airport – Unexpected Finds Protocol	MG/SP	SP	SP
2	25/06/2020	CAG- Canberra Airport – Unexpected Finds Protocol	MG/SP	SP	SP

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1 Introduction

1.1 Background

Meinhardt Infrastructure & Environment Pty Ltd (**Meinhardt**) was engaged by Capital Airport Group (**CAG**) to prepare this Unexpected Finds Protocol (**UFP**) for use at the Canberra Airport, ACT 2609 site (the **Airport**) during maintenance, earthworks and construction activities at the Airport.

Prior to development of land at Canberra Airport, CAG engages a range of consultants to provide advice on the feasibility and options available to CAG, a part of which includes the investigation of the land for chemical and hazardous material (where suspected or observed) contamination, to discern the suitability of the site for the proposed future use. These assessments include intrusive investigations of soil and (if present) groundwater to provide CAG with an understanding of the chemical and physical characteristics of the soils and waters at the development site, prior to earthworks or construction commencing.

Where soils are likely to be disturbed and required to be removed from the development site, CAG engages a Suitably Qualified and Experienced Environmental Consultant to prepare a Soil Waste Classification report to assess the suitability of the soil to be re-used (either onsite at the airport or offsite development) or transported to a licenced accepting facility for disposal, based on the level of chemical contamination encountered during intrusive investigations, in accordance with relevant Territory, State (NSW) and National guidance, including with respect to the recommended number of sampling points investigated as well as sampling frequencies.

However, during earthworks and construction, there is always a possibility that unexpected finds are identified. This UFP aims to provide guidance on the identification and management of unexpected finds in the event that they are encountered during site maintenance, earthworks or construction, with a focus on the potential for soil contamination. This document must be read in conjunction with the current Canberra Airport Construction Environmental Management Plan (**CEMP**)[1], which is used as an overarching document for all construction activities occurring at Canberra Airport.

1.2 Objectives and Purpose

Meinhardt understands that the objectives of conducting these works were as follows:

- To address the methods of identification and management of unexpected finds in soil during construction, with a focus on contamination risk posed to human health and the environment at Canberra Airport and immediate surrounds.

The purpose of conducting these works were as follows:

- To provide CAG with a procedure by which to manage unexpected finds during construction and maintenance work at Canberra Airport, including both airside and landside areas.

[1] Canberra Airport, *Construction Environmental Management Plan for Airside Works (EPBC 2008 / 4170 and EPBC 2009 / 4748)*, February 2010.

2 Unexpected Finds

An unexpected find can be defined as any material that is unearthed that is not expected to be present in soils at the site based on previous investigations or knowledge. A generic list of unexpected finds includes:

- Buried waste materials including, but not limited to:
  - Putrescible waste (including household wastes, organic matter, etc);
  - Solid inert materials (plastics, glass, asphalt, ceramics, paper, cardboard, rubber, etc);
  - Building rubble / foundations (brick, concrete, wood, glass, asbestos); and
  - Industrial wastes (slag, ash, soot, metal shavings, chemical drums, etc.)
- Underground infrastructure such as:
  - Fuel storage tanks;
  - Grease traps / Triple Interceptor Pits; and
  - Redundant / Active buried pipe networks (sewerage, stormwater, water, gas, electricity);
- Odorous or discoloured soils (including stained soils);
- Rock or soil types not previously encountered or assessed at the site;
- Groundwater; and
- Artefacts/ Heritage Items (sharpened materials, fabrics, pottery, etc.)

While the above are typical types of unexpected finds, others may be identified and should be managed as detailed in this UFP document. Mismanagement of unexpected finds has the potential to increase development costs as a result of damage to important infrastructure, spread of potentially contaminated materials/ chemicals and changes in work methods, or destruction of historically or culturally significant items.

2.1 Historical Context – Canberra Airport

The Canberra Airport Estate was historically rural leased farmland, and used for agricultural purposes prior to being used for aviation purposes from 1926. In the early years of the airfield, aircraft took off and landed on the vast paddocks of the Majura Valley. The first building constructed at Canberra Airport was located at the northern end of the current terminal in 1936, with the Department of Defence constructing hangars and buildings on the opposite side of the airport, where they remain today. The airport runway was constructed after World War 2 and further small developments continued around the former terminal from the 1950s until 1970 at which point a larger terminal was constructed for civil aviation. This was later expanded in the late 1980s to allow for increased passenger loads into Canberra. In 1998, the airport was privatised, and CAG was formed to manage the operations of Canberra Airport. Since this time, the terminal buildings have been re-built and selected parcels of land around the periphery of the airfield have been developed for parking, shopping centres, offices and other retail outlets, including service stations. These final improvements to Canberra Airport have largely remained as built, and not changed since their construction. Where they have, appropriate assessments of individual sites have been completed by CAG.

On the opposite side of the airport to the main terminal building, parts of the Canberra Airport have also been used by the Department of Defence, initially as Royal Australian Air Force (**RAAF**) Station Fairbairn before being renamed RAAF Base Fairbairn. RAAF operations at the airfield have primarily been for defence and civil aviation purposes and currently operates the Prime Minister's VIP fleet of aircraft. In addition to the RAAF, the airport has also had Aviation Rescue Fire Fighting (**ARFF**) units stationed on site as well as facilities for fire training purposes. These areas in the north eastern portion of the airport have historically seen the use of fuels and fire accelerants and application of firefighting foams in training activities. CAG is aware of these potentially contaminating activities and has

developed processes for the assessment and understanding of the subsurface conditions in areas that have been used for ARFF activities.

As such, with the exception of the ARFF operating areas, the potential for unexpected anthropogenic or chemical finds at individual sites at the Canberra Airport is considered to be low, however there is the potential for unexpected soil types and rock to be encountered across the site, given the largely unpredictable nature of small-scale geological variation.

The following sections (***Section 2.2*** to ***Section 2.6***) describe the types of unexpected finds that are most commonly found during earthworks and construction, many of which may not apply to the Canberra Airport site.

2.2 Buried Waste Materials

Buried wastes are typically found on sites that have previously been developed or are on land historically owned by organisations or individuals who have worked on operations that led to the generation of wastes that needed to be managed. On sites where these materials are mismanaged, a common activity can include burial or dispersion of wastes, which can lead to contaminants existing in discrete areas or spread through layers of the soil profile.

Buried wastes are typically identified by visible fragments or items of non-natural origin throughout the soil profile. Inclusions may include household debris, material fragments of plastic, glass, concrete, brick, metal, wood, asbestos-containing cement sheet, tar-containing material or other foreign material or as distinct layers of materials such as ash or slag. Ash is relatively light in weight, and can be black, grey or white (ash) and fine-grained. Slag is also relatively light-weight and is typically black or grey and can have a blue-green tint and vesicles (appear bubbly).

Buried waste materials may or may not be odorous, but will often be visibly different to more natural or unimpacted soils. Larger objects may also be present in the soil profile, including items such as 44-gallon storage drums or other receptacles. Where buried wastes are present, other indicators of potential impact to the soil profile may include strong odours (chemical or other) as well as staining or discoloration (further discussed in Section ***2.4***).

2.3 Underground Infrastructure

Most developed sites or those that have been developed will have some form of underground infrastructure present, in the form of drains, conduits or networks of pipework that were used on-site when it was operational. This is in addition to stormwater, water, electricity, telecommunications and gas connections that feed into sites from a wider network.

Where underground infrastructure is present, and used to transport liquids, there is always a chance that these networks will leak through degradation in the subsurface. Where this occurs, the infrastructure may leak its contents (liquids) into the surrounding soils and give rise to soil contamination. In the case of grease traps and triple interceptor pits, these may be seen and should be identified at surface. Occasionally, this is not possible and may be inadvertently unearthed during construction. Other items such as underground storage tanks (**USTs**) and associated pipework may not be as obvious, especially if the site is cleared at the surface. Pipes and USTs used in the transport and storage of chemicals including fuels can be found on sites historically used for refuelling or chemical storage activities.

Trenches or pits filled with crushed rock, sands or other non-naturally occurring material (at the site) may be an indicator of the presence of such features. At surface, pipes entering the ground may suggest a wider underground network may be present. Where contamination is present, the soils surrounding the buried infrastructure can often be odorous and/or stained (see ***Section 2.4***), especially where the integrity of the infrastructure has been compromised. At times, the spread of contamination can be caused by damage to infrastructure during the earthworks/ construction phase, so due care should be taken at all times. The early identification of unexpected infrastructure can assist in the management of potential impacts to soils at the site.

2.4 Odorous / Discoloured Soils

Odorous or discoloured soils can exist where chemical contamination may have passed through those soils historically. Odorous soils can have a hydrocarbon, organic, sulphurous, septic, sweet or other chemical-type odour and may otherwise appear similar to those around them. Those working in the vicinity of the soils may begin to have their olfactory senses affected, and in some cases can lose the ability to perceive smell temporarily. Early identification of odours is critical in the management of these soils.

Discoloured soils are those that do not look natural and can be a range of colours, sometimes with a sheen or shiny tar-like appearance. They are often located adjacent to areas with some other form of unexpected find such as leaky pipe, tank, pit or chemical drum and may also be associated with odours.

It is important to note that not all odorous soils pose a risk to human health or the environment, including naturally organic-rich soils that may have a slightly offensive odour associated with decomposition of natural material. If unsure of the nature of the odour, advice should be sought prior to proceeding.

2.5 Rock/ Soil Not Previously Identified

Where preliminary investigations have not been able to investigate the entirety of a site, rock or soils that had not previously[2] been identified may be unearthed during earthworks and/or construction. These soils will often appear different to those above them and may contain inclusions (natural or non-natural) that were not identified previously at the site. Other Indicators of a change in soil type may include a visibly significant change in moisture, colour, consistency, odour, discolouration or absence or presence of inclusions (natural or non-natural). Soils that have previously not been identified in Environmental investigations have the potential for chemical contamination, and should not be disturbed if encountered.

2.6 Groundwater

Groundwater can be unexpectedly intersected on sites where previous investigations have not indicated its presence. This can occur where groundwater fluctuations have been caused by increased rainfall or where soils have been excavated to greater depths than originally anticipated. Typically, the presence groundwater can be identified by the excavation of soils with progressively increasing moisture with depth.

Soils that interact with groundwater and the groundwater itself may have the potential to be contaminated, and should not be mixed with other soils until properly assessed. The pumping of groundwater for dewatering should be avoided unless prior advice is provided by CAG.

2.7 Artefacts / Heritage Items

Unexpected artefacts / heritage items (both potential and actual) are items which may be of cultural or traditionally significant (Aboriginal objects), or items that have significance from a heritage perspective (e.g. historical structures, artwork, ceramics, etc). Heritage items can take many forms and be made of various materials, typically identified by unnatural symmetry, distinct differences to soils and items that are found with, presence of fabric or textiles and/or evidence of craftsmanship.

Where it is not immediately clear if items have significance, it is recommended that a conservative approach be taken and appropriate checks be completed prior to proceeding with works, upon consultation with CAG.

[2] A contractor is expected to have an understanding of the soil profile likely to be encountered prior to earthworks commencing. CAG is able to provide guidance on the expected soil profile prior to breaking ground.

3 Unexpected Finds Procedure

Should there be unexpected finds unearthed during site earthworks or excavation as detailed in ***Section 2***, the following process should be observed:

1. Immediately cease working in the area affected. If safe to do so, flag off the area .
2. Immediately notify the Site Foreman/Manager.
3. Site Manager/ Foreman to notify CAG Project Manager / CAG Environmental Manager of unexpected find. CAG Project Manager / Environmental Manager should notify appropriate personnel by following the notification procedure detailed in the Canberra Airport, *Standard Operating Procedures #4 – Hazardous Materials Incident*, 2014 document (**CAG SOP4**).
4. No further work should continue in the area of the unexpected find until CAG provides written approval or further advice on the management of the unexpected find and the site.
5. If required, CAG should seek a Suitably Qualified and Experienced Professional for advice and /or guidance on appropriate assessment and management measures to deal with the unexpected find.
6. Following receipt of remedial advice or action from the CAG Project Manager/ CAG Environmental Manager, the Site Foreman/ Manager must provide CAG with a short Action Plan on how remedial actions will be undertaken and the estimated timeframe for those actions to be completed, making reference to other works on the site that may be occurring at the same time (if CAG has permitted other activities to continue).
7. Following approval of the Action Plan, ensure all remedial actions are completed to the satisfaction of CAG (and/or a nominated representative).
8. Any pertinent safe-working advice must be actioned and health and safety considerations broadcast (through amendments or additions to relevant Safe Work Method Statements (or equivalent) and induction documents) to any workers completing their duties at the site until the conclusion of the project.
9. Provide records of any measures taken to address the management and remediation of the unexpected finds to CAG, including but not limited to soil validation results, materials tracking and relevant assessment documentation.
10. Following completion of remedial actions in relation to the unexpected find, recommence all works (if prior approval was not provided by CAG), with any relevant safe-working advice maintained where there is a possibility of further similar unexpected finds being realised.

4 Responsibilities

Unexpected finds can be found and reported by anyone working on a site. It is imperative that all site staff are encouraged to report unexpected finds at the earliest instance to avoid the potential for the disturbance and spread of unexpected contamination as well as potential damage to structure, services or foreign objects which may lead to contaminants being released into soils and groundwater at the Site.

The responsibilities of key personnel in the UFP process are summarised in ***Table 1***.

Table 1 Roles and Responsibilities

Role	Responsibility
All Site Staff inducted to Site.	• Understand the expected soil profile at the site being worked on and the contents of the CEMP as well as this UFP document. • If unexpected finds are observed, follow the Unexpected Finds Procedure set out in ***Section 3*** of this document, including reporting unexpected finds as soon as they are realised.
Site Manager/ Foreman	• To induct all Site Staff to the CEMP and UFP documents. • To ensure all Site Staff have an understanding of the soil profile at the commencement of earthworks / construction. • To manage unexpected finds as per the Unexpected Finds Procedure set out in ***Section 3*** of this document, including removing access to the area around the unexpected find. • To notify CAG Environmental / Project Manager of unexpected find and follow safe-working or remedial advice. • To provide CAG with required documentation to support any remedial actions completed.
CAG Environmental Manager / Project Manager	• Induct Head Contractor/ Nominated Representative (Site Manager / Foreman) to CEMP and UFP • Notification of all relevant CAG stakeholders of unexpected find, consistent with CAG SOP4. • To provide remedial advice to Site Manager/ Foreman in relation to unexpected find. • To ensure Site Manager/ Foreman has actioned all remediation/ rectification items (as advised by a Suitably Qualified and Experienced Professional, where required) and provided necessary information on remediation/ rectification to CAG.
Suitably Qualified and Experienced Professional	• To investigate the nature of any unexpected find and provide CAG with pragmatic advice on the management of the unexpected find in accordance with all Territory and Federal legislation.

5 Limitations

This report has been prepared on behalf of the client for the benefit of the client only (the authorised recipient).

The report and the information contained within it are solely for the use of the authorised recipients and it may not be used, copied or reproduced in whole or in part for any purpose other than that for which it was supplied by Meinhardt. Meinhardt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this report or the information contained within it.

6 Closing

This UFP document should be viewed as a dynamic document that is updated periodically (recommended every three (3) years) to incorporate changes in the way unexpected finds are managed, and incorporation of accepted best practice measures. Should common unexpected finds be discovered at multiple sites across the Canberra Airport, CAG may wish to include generic advice on that find (if easily transferrable to other sites at the Canberra Airport) within this document to streamline the UFP for future works at the Airport.

APPENDIX 6: Work, Health and Safety Guideline for PFAS

WORK HEALTH AND SAFETY GUIDELINE

Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA) and Perfluorohexane Sulfonate (PFHxS) *'PFAS'*

Revised October 2020

1. Introduction

In 2019, the Department of Health (enHealth) released a revised *Health Based Guidance Values for PFAS - For use in site investigations in Australia (**Attachment A** – revised September 2019)*. Please note the recreational water guideline values have been increased as follows:

i) total PFOS and PFHxS from 0.7 µg/L up to 2.0 µg/L, and

ii) PFOA from 5.6 µg/L up to 10 µg/L.

It is important to note that whilst the Department of Health document provides criteria for drinking water and recreational water it does not provide criteria for stormwater or groundwater. Canberra Airport has therefore adopted a precautionary approach to provide this advice to staff and contractors to ensure the risk of exposure to PFAS in the workplace is minimised.

The PFAS National Environmental Management Plan, Version 2.0, (PFAS NEMP) was updated in January 2020 (released May 2020). The PFAS NEMP includes the same recreational water guideline values as those released by the Department of Health in 2019.

The PFAS NEMP also includes human health investigation levels for soil across four land uses:

- Residential with garden/accessible soil (Health Investigation Level [HIL] A);
- Residential with minimal opportunities for soil access (HIL B);
- Public open space (HIL C);
- Industrial/commercial (HIL D).

These land uses apply across the Airport site.

Table 2 Human health investigation levels for soil (PFAS NEMP 2.0)

Sum of PFOS and PFHxS	PFOA	Land use	Comments and source
0.01 mg/kg	0.1 mg/kg	Residential with garden/accessible soil (HIL A)	Assumes home-grown produce provides up to 10% of fruit and vegetable intake (does not account for consumption of any eggs from home poultry, nor of milk or meat from stock on the premises). Also includes children's day care centres, preschools and primary schools. The HILs were derived using the methodology consistent with assumptions set out in the ASC NEPM for HIL A. Note: If home-grown produce provides more than the 10% of fruit and vegetable intake assumed in the ASC NEPM generic example, a site-specific risk assessment is required. As an example, if home grown produce provides up to 50% of fruit and vegetable intake, the screening value would be 0.002 mg/kg for the sum of PFOS and PFHxS, and 0.02 mg/kg for PFOA.
2 mg/kg	20 mg/kg	Residential with minimal opportunities for soil access (HIL B)	Assumes no potential use of soil for consumption of home-grown produce. Includes dwellings with fully and permanently paved yard space such as high rise-buildings and flats. These were derived using the methodology consistent with assumptions set out in the ASC NEPM for HIL B.
1 mg/kg	10 mg/kg	Public open space (HIL C)	Relevant for public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools (except for soil used for agricultural studies) and footpaths. Excludes undeveloped public open space (such as urban bushland and reserves), which should be subject to a site-specific assessment where appropriate. These were derived using the methodology consistent with assumptions set out in the ASC NEPM for HIL C.
20 mg/kg	50 mg/kg	Industrial/ commercial (HIL D)	Assumes 8 hours is spent indoors and 1 hour spent outdoors at a site such as a shop, office, factory or industrial site. If the typical exposure for a site is predominantly outdoors with significant earthen areas, recalculation of a site-specific value is recommended. These were derived using the methodology consistent with assumptions set out in the ASC NEPM for HIL D. Note: the industrial/commercial direct exposure criterion for PFOA (including its salts and related compounds) has been set as 50 mg/kg in anticipation of the Stockholm Convention low content limit of 50 mg/kg.
Note: Where the guideline values refer to the sum of PFOS and PFHxS, this includes PFOS only, PFHxS only, and the sum of the two.			

Canberra Airport will include this Guideline in its Staff and Contractor Induction Package as well as regular Toolbox Talks. The mitigation measures for PFAS stated in this Guideline will also reinforce Canberra Airport's current WHS work practices.

2. What is PFAS?

Per- and poly-fluoroalkyl substances, or "PFAS" (previously known as PFCs), are a class of manufactured chemicals that have been used since the 1950s to make products that resist heat, stains, grease and water.

Products that may contain PFAS include furniture and carpets treated for stain resistance, foams used for fire-fighting, fast food or packaged food containers, make up and personal care products and cleaning products. Other chemicals used in these applications may be precursors to PFAS, and the PFAS are formed when these chemicals are released into the environment.

PFAS are of concern around the world because they are not readily broken down in the environment and so can persist for a long time. Their widespread use and persistence mean that many types of PFAS are ubiquitous global contaminants.

The PFAS of most concern are perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Perfluorohexane sulfonate (PFHxS) is another chemical of the PFAS group and is present in some fire-fighting foams. PFHxS has also been used as a raw material or precursor to produce PFAS-based products. Many countries have phased-out, or are in the process of phasing-out, the use of PFOS and PFOA due to concerns about their persistence, bioaccumulation and potential toxicity of these chemicals.

Because of their widespread use, people in Australia commonly have some PFOS, PFOA and PFHxS in their body. PFOS, PFOA and PFHxS are readily absorbed through the gut, and once these chemicals are in a person's body it takes about two to nine years, depending on the study, before those levels go down by half, even if no more is taken in.

3. Where are PFAS used?

Because of their unique physical and chemical properties, including heat and chemical resistance, PFAS have been used in:

- textiles and leather products
- metal plating
- food packaging
- fire-fighting foams
- floor polishes
- denture cleanser
- shampoos
- coatings and coating additives
- photographic and photolithographic processes
- medical devices
- hydraulic fluids

Three types of these chemicals, PFOS, PFOA and PFHxS, used to be common ingredients in fire-fighting foams. These foams were historically used at several Defence bases, airports, Fire and Rescue and Rural Fire Service sites.

While many essential uses of PFAS are still permitted, there are efforts both nationally and internationally to restrict non-essential uses and reduce use of the most hazardous PFAS compounds as a precautionary measure.

Canberra Airport's research indicates the global community use of PFAS is widespread, within and outside the home as well as in the workplace. Approximately 3% of PFAS produced was used in fire-fighting.

4. Canberra Airport

Aviation fire-fighting foam (AFFF) containing PFAS was used globally up until approximately 2010, including at Canberra Airport.

Canberra Airport continues to undertake soil, stormwater and groundwater investigations and in addition has been supplied with investigation reports from Airservices Australia (ASA).

The evidence to date suggests there are two 'hot spot' locations on Canberra Airport where extensive use of AFFF has occurred and where PFAS pollution is located. These two PFAS polluted 'hot spot' sites are on and nearby the ASA Aviation Rescue and Fire-Fighting Services (ARFFS) Fire Station and Fire Training Ground.

These widespread investigations have also identified other areas at Canberra Airport where a presence of PFAS has been detected at low levels in soil, stormwater and groundwater.

5. Potential Exposure to PFAS

The potential exposure of staff/contractors to PFAS arising from works or activities on Canberra Airport are:

- accidental ingestion of groundwater containing PFAS used for irrigation;
- accidental ingestion of stormwater in swales/stormwater drains containing PFAS near the ARFFS Fire Station and Fire Training Ground;
- accidental ingestion of soil containing PFAS on the ARFFS Fire Station or the Fire Training Ground;
- accidental cross-contamination of food following works around the ARFFS Fire Station or the Fire Training Ground involving PFAS contaminated water and/or soil.

The risk of PFAS exposure to staff/contractors through these pathways is minimal. Canberra Airport is aware that ASA has advised its fire-fighting staff that a splash on skin is not a health risk. The Department of Defence confirms that PFAS is not absorbed through the skin.

As already noted, over a lifetime people are likely to have been exposed to PFAS from many other sources including at home.

However, it is prudent that caution be exercised when:

- nearby and on the ARFFS Fire Station and the Fire Training Ground precincts, and
- working with stormwater and groundwater.

6. Suggested Mitigation Measures for work involving potential contact with Stormwater, Groundwater or Soils (nearby and on the ARFFS Fire Station and the Fire Training Ground precincts)

Staff should avoid;

- cutting vegetation in swales when stormwater levels are high;
- working on full pressured irrigation lines.

The Federal Government's Environmental Health Standing Committee (enHealth) released Guidance Statements that outline the potential human health risks and exposure pathways relating to PFAS *(**Attachment B** – revised June 2019).* While there is no recommendation provided in the enHealth Guidance Statements regarding Personal Protective Equipment (PPE), Canberra Airport will provide the following PPE to staff when working with and around stormwater, groundwater or soils nearby and on the ARFFS Fire Station and the Fire Training Ground precincts:

- clean waterproof gloves, and
- protective safety eyewear.

Consistent with normal personal hygiene, hands should be thoroughly washed with soap before eating or smoking following any work in risk areas.

7. Works Activities

Some construction and maintenance activities on Canberra Airport may involve contact with stormwater, groundwater or soil. Where these activities are regulated under the *Airport (Building Control) Regulations 1996* (as amended), the Airport Lessee Company standard letter issued to the ABC articulates requirements in regard to PFAS assessment.

A PFAS Risk Assessment can also be used to determine the requirement for any WHS risk mitigation measures.

To establish if construction and/or maintenance activities may involve potential contact with stormwater, groundwater or contaminated soil, staff/contractors should consult with the Canberra Airport Environment and Planning Team.

8. Assessment of PFAS Risks and Controls

For the activities listed below, measures to minimise PFAS exposure risk will be implemented and, where necessary, included in risk assessments prior to commencement of any work.

Risk of PFAS exposure is required to be considered where:

- excavations extend to or below groundwater level;
- activities involve exposure to stormwater or bore/irrigation water;
- earthworks in soil known to have been potentially PFAS contaminated.

9. Background Information on Health Impacts

The enHealth Guidance Statements (2019) that outline the potential human health risks and exposure pathways relating to PFAS *(**Attachment B**)* state that *"As a precaution, enHealth recommends exposure to PFAS be minimised wherever possible whilst further research is undertaken on the potential health effects of PFAS exposure. This precautionary advice takes into account the uncertainties in the current scientific evidence (i.e. the lack of causation data on human health effects) and the ability of these chemicals to persist in humans and in the environment".*

10. General Exposure Risks

Information provided in the revised 2019 enHealth Guidance Statements *(**Attachment B**)* and research to date suggest the following PFAS human exposure pathways:

- ingestion of food and drinking water contaminated with PFAS to be the major human exposure pathways;
- inhalation of dust contaminated with PFAS and dermal (skin) contact with PFAS are considered to be minor exposure pathways.

Noel McCann
Director of Planning and Government Relations

Health Based Guidance Values for PFAS

The Department of Health, Food Standards Australia New Zealand (FSANZ) and the National Medical Research Council (NHMRC) have developed health based guidance values for perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS), which belong to a group of chemicals known as per- and poly-fluoroalkyl substances (PFAS).

These values aim to protect the general community from exposure to PFAS from food, drinking water and recreational water.

The guidance values are available in FSANZ's *Hazard Assessment Report – PFOS, PFOA and PFHxS,* NHMRC's *Australian Drinking Water Guidelines* (2011) and the *Guidelines for Managing Risks in Recreational Water* (2008).

The health based guidance values are protective of human health; are a precautionary measure for use when conducting site investigations; and are to assist in providing advice to affected communities on how to minimise exposure to PFAS.

What is a health based guidance value?

Health based guidance values indicate the amount of a chemical in food or drinking water that a person can consume on a regular basis over a lifetime without any significant risk to health. Health based guidance values can be expressed as a tolerable monthly intake (TMI), a tolerable weekly intake (TWI) or a tolerable daily intake (TDI). The choice of whether a TMI, TWI or TDI is set depends on the nature of the chemical.

Health based guidance values can also be used to calculate guideline values for certain exposure scenarios (such as those derived for drinking water or recreational water by NHMRC) to set a level or threshold of a substance that is protective of human health.

Health based guidance values for use in site investigations in Australia

FSANZ has recommended health based guidance values for PFOS and PFOA in the form of a tolerable daily intake. A tolerable daily intake is a level of daily oral exposure over a lifetime that is considered to be without significant health risk for humans.

Based on FSANZ's recommended tolerable daily intake, NHMRC has issued drinking water quality and recreational water quality guideline values for use in site investigations in Australia. These health based guideline values are levels at which the chemicals may be present in drinking or recreational water without presenting a risk to public health.

The health based guidance values for use in site investigations in Australia are:

Health based guidance value	Total PFOS+PFHxS	Total PFOS+PFHxS	PFOA	PFOA
	ng	*µg*	*ng*	*µg*
Tolerable daily intake (*ng* or *µg /kg bw/day*)	20	0.02	160	0.16
Drinking water quality guideline value (*ng* or *µg /L*)	70	0.07	560	0.56
Recreational water quality guideline value (*ng* or *µg /L*)	2,000	2.0	10,000	10.0

Note: bw = body weight, ng = nanograms, µg = micrograms

How did FSANZ determine the health based guidance values?

The tolerable daily intake for PFOS and PFOA are derived from the results of toxicity studies in laboratory animals. FSANZ concluded that the current available epidemiological data on human health is not suitable to support the derivation of tolerable daily intake levels for PFOS and PFOA.

A pharmacokinetic modelling approach was used to extrapolate data for humans, noting that animal physiology is not the same as human.

For PFHxS, FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS.

The tolerable daily intakes include conservative assumptions to ensure the protection of public health.

FSANZ's report and recommended health based guidance values have been nationally and internationally peer reviewed.

How did NHMRC determine the guideline values?

NHMRC used the TDIs developed by FSANZ with the methodology outlined in Section 6.3.3 in the *Australian Drinking Water Guidelines* to calculate the health based guideline values for PFAS in drinking water. Please refer to the *Australian Drinking Water Guidelines* for more detail on the methodology used.

The health based guideline values for PFAS in recreational water were derived using the TDIs developed by FSANZ along with a new methodology that uses current Australian estimates of recreational water use. Please refer to NHMRC's *Guidance on per- and poly-fluoroalkyl substances (PFAS) in recreational water* for more information on the methodology used.

Recreational water guideline values vary from drinking water guideline values because when people are in contact with water for recreational purposes, for example swimming, they are less likely to consume the water in terms of volume and frequency. This decreases the risk of exposure to recreational water. The recreational water use takes into account current estimates on how often Australians use lakes, rivers and coastal water over the course of a year and how much water people might swallow when participating in these activities.

Both the recreational water and the drinking water guideline values are precautionary and protective of human health. The guideline values include a wide safety margin and are expected to be well below the level at which any negative effects could occur.

NHMRC developed this advice with the Water Quality Advisory Committee and in consultation with the Australian Government Environmental Health Standing Committee (enHealth).

How do health based guidance values impact communities affected by PFAS contamination?

Commonwealth agencies and other organisations that conduct site investigations for PFAS contamination can use the health based guidance values to assist in assessing human health risk. Agencies or organisations that have recently conducted human health risk assessments for PFAS contamination may review their assessments and advice based on the health based guidance values.

Advice on reducing exposure to PFAS will vary with each location so you should follow the most current advice provided by your state or territory government, and if available, the human health risk assessment for your area conducted by the investigating agency.

Where can I get further information?

For further information regarding health based guidance values and the Department of Health's response to PFAS contamination, please visit the Department of Health website (health.gov.au/pfas)

For further information on PFAS related material from FSANZ, please visit FSANZ's website here.

For further information on PFAS related material from the NHMRC, please visit NHMRC's website here.

Alternatively you can contact the Department of Health by phone on 1800 941 180 or by email: health.pfas@health.gov.au

ATTACHMENT B

June 2019

Environmental Health Standing Committee (enHealth) of the
Australian Health Protection Principal Committee

enHealth Guidance Statements on per- and poly-fluoroalkyl substances

Context:

Per- and poly-fluoroalkyl substances, or "PFAS", are a class of manufactured chemicals that have been used since the 1950s to make products that resist heat, stains, grease and water.

Products that may contain PFAS include furniture and carpets treated for stain resistance, foams used for firefighting, fast food or packaged food containers, make up and personal care products and cleaning products. Other chemicals used in these applications may be precursors to PFAS, and the PFAS are formed when these chemicals are released into the environment.

PFAS are of concern around the world because they are not readily broken down in the environment and so can persist for a long time. Their widespread use and persistence means that many types of PFAS are ubiquitous global contaminants.

The PFAS of most concern are perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Perfluorohexane sulfonate (PFHxS) is another chemical of the PFAS group and is present in some firefighting foams. PFHxS has also been used as a raw material or precursor to produce PFAS-based products. Many countries have phased out, or are in the process of phasing out the use of PFOS and PFOA due to concerns about the persistence, bioaccumulation and potential toxicity of these chemicals.

Because of their widespread use, people in Australia commonly have some PFOS, PFOA and PFHxS in their body. PFOS, PFOA and PFHxS are readily absorbed through the gut, and once these chemicals are in a person's body it takes about two to nine years, depending on the study, before those levels go down by half, even if no more is taken in.

The Australian Government has been working since 2002 to reduce the importation of some PFAS. In Australia and internationally, a general trend towards lower PFAS levels in people's blood has been observed, following the implementation of actions to phase out use of some PFAS.

Outside the occupational setting, exposure to PFAS can occur from the air, indoor dust, food, water and various consumer products. For most people food is expected to be the primary source of exposure to these chemicals. Human breast milk may contribute to an infant's exposure since some PFAS have been detected in human breast milk. However, as noted further in this guidance, the benefits of breastfeeding outweigh the potential risks associated with passing PFAS from mother to baby through breastmilk.

For some communities near facilities where PFAS have been extensively used, higher levels may be found in the surrounding environment and human exposure may occur through other means, including drinking water supplied from groundwater.

In chronic exposure studies on laboratory animals, research into PFOS and PFOA has shown adverse effects on the liver, gastrointestinal tract and thyroid hormones. However, the applicability of these studies to humans is not well established.

The existing limited studies on PFHxS suggest that this chemical can cause effects in laboratory animals similar to the effects caused by PFOS. However, based on available studies, PFHxS appears to be less potent in animal studies than PFOS.

In human studies, the Expert Health Panel for PFAS[1] found that a number of health effects (such as slightly high blood cholesterol) have been associated with PFAS exposure but these health effects are generally small and have not been shown to be clinically significant. More research is required before definitive statements can be made on causality or risk but, currently, there is no evidence of a significant impact on human health.

Although there is still uncertainty around the potential for PFAS exposure to cause significant adverse human health effects, we do know that some long chain PFAS, such as PFOS and PFOA, can persist for a long time both in the environment and in humans. Therefore, it is prudent to reduce exposure to PFAS as far as is practicable. Action should be taken to address the source of the exposure and interrupt known human exposure pathways. Determination of human exposure pathways is best achieved through a full human health risk assessment that examines all potential routes of exposure.

It is understandable that communities living in PFAS affected areas may want to know what their level of exposure to PFAS is and what this means for their health and the health of their families.

A blood test can measure the level of PFAS in a person's blood. If PFAS is detected, this tells a person that they have been exposed to PFAS. They could then compare their levels with the levels seen in the general Australian population or in other countries using published biomonitoring data. However, these tests are not routine and there is at present insufficient scientific evidence for a medical practitioner to be able to tell a person whether their blood level will make them sick now or later in life, or if any current health problems are related to the PFAS levels found in their blood.

As such, blood tests have no diagnostic or prognostic value and are not recommended for the purpose of determining whether an individual's medical condition is attributable to exposure to PFAS.

In the absence of any test, including a blood test, being definitive in informing individual risk and clinical management, exposure reduction is the key measure to reduce any possible risks posed by PFAS.

At a population level, blood tests can inform a community that they have been exposed to PFAS at a level above that of the general population. The monitoring of pooled community blood samples over time may help determine the success of exposure reduction measures.

Recognising the difficulty in assessing and communicating the risks posed by PFAS to the community, enHealth has developed these guidance statements on key health issues to support jurisdictional responses to incidents of environmental PFAS contamination.

[1] http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-pfas-expert-panel.htm

Environmental Health Standing Committee (enHealth) Guidance Statements:

1. Health effects from exposure to PFAS – what is the evidence telling us?

The Expert Health Panel for PFAS found that although the scientific evidence in humans is limited, reviews and scientific research to date have provided fairly consistent reports of an association with several health effects as follows:

- increased levels of cholesterol in the blood;
- increased levels of uric acid in the blood;
- reduced kidney function;
- alterations in some indicators of immune function;
- altered levels of thyroid hormones and sex hormones;
- later age for starting menstruation (periods) in girls, and earlier menopause; and
- lower birth weight in babies.

The health effects reported in these associations are generally small and within normal ranges for the whole population. There is also limited to no evidence of human disease or other clinically significant harm resulting from PFAS exposure at this time.

An association means that there is a relationship between PFAS exposure and the above health effects; however, this does not necessarily mean that the PFAS exposure caused the health effect.

A causative relationship means that the thing measured, in this case PFAS exposure, directly causes a change in health status. A causative relationship between the above health effects and PFAS exposure has not been established.

However, the weaknesses in the scientific evidence mean that whilst early indications suggest that PFAS exposure has a minimal impact on human health, we also cannot definitively rule out other important health effects.

2. Health advice

As a precaution, enHealth recommends exposure to PFAS be minimised wherever possible whilst further research is undertaken on the potential health effects of PFAS exposure.

This precautionary advice takes into account the uncertainties in the current scientific evidence (i.e. the lack of causation data on human health effects) and the ability of these chemicals to persist in humans and in the environment.

If you live or work in a PFAS contaminated area, your State or Territory Health Department can provide you with local advice on how to minimise exposure to PFAS.

3. Human exposure pathways

enHealth considers ingestion of food and drinking water contaminated with PFAS to be the major human exposure pathways.

Inhalation of dust contaminated with PFAS and dermal (skin) contact with PFAS are considered to be minor exposure pathways.

4. Breast feeding

The significant health benefits of breast feeding are well established and far outweigh any potential health risks to an infant from any PFAS transferred through breast milk.

enHealth does not recommend that mothers living in or around sites contaminated with PFAS cease breast feeding.

5. Pregnancy

Foetuses can be exposed to PFAS when their mother's blood crosses the placenta during pregnancy. However, the scientific research to date does not indicate that PFAS exposure during pregnancy is a major contributor to poor health outcomes in pregnant women or their babies.

Nonetheless, enHealth recommends that pregnant women be considered a potentially sensitive population when investigating PFAS contaminated sites, with a view to minimising their exposure to PFAS as a precaution.

6. Reference values for PFOS, PFOA and PFHxS

On 3 April 2017, the Australian Government Department of Health published health-based guidance values, in the form of a tolerable daily intake (TDI), for use in site investigations across Australia for PFOS, PFOA and PFHxS.

These values replaced the interim human health reference values adopted by enHealth in June 2016 and are available at health.gov.au/internet/main/publishing.nsf/Content/ohp-pfas-hbgv.htm.

A TDI is an estimate of the amount of a chemical in food or drinking water, expressed on a body weight basis that can be ingested daily over a lifetime without appreciable health risk to the consumer.

TDIs are not useful for interpreting the level of PFAS in people's blood.

7. Blood tests

There is currently no accepted clinical treatment to reduce levels of PFAS in the human body.

Given the uncertainty that PFAS are directly linked to adverse health outcomes, blood tests cannot determine if the PFAS levels in a person's blood will make them sick now or later in life.

Therefore, blood tests are not recommended to determine whether any medical condition is attributable to exposure to PFAS and have no current value in informing clinical management, including diagnosis, treatment or prognosis in terms of increased risk of particular conditions over time.

It is noted that various organisations around the world, including Australia, have collected blood samples from people as part of ongoing investigations into PFAS contamination of soil and water. The purpose of these tests was either as part of a defined research program, including to measure the effectiveness of global restrictions under international treaties, or to determine how much of these chemicals may be entering a person's body. The value of blood testing is limited to assessing exposure, such as monitoring over time, which may help determine the success of exposure reduction measures. However, given the long biological half-life of PFAS, frequent blood monitoring is of limited value.

enHealth advises that:

- blood testing has no current value in informing clinical management; and
- the monitoring of pooled community blood samples over time can help determine the success of exposure reduction measures.

APPENDIX 7: Incident Report Form

SMS FORM

Aviation Incident Report

Upon completion forward to: aviation@canberraairport.com.au

CANBERRA AIRPORT

NATURE OF REPORT

☐ Aviation Incident *(Complete Parts 1 & 4)*	☐ Diversion *(Complete Parts 1 & 2)*	☐ Environmental *(Complete Parts 1 & 3)*	☐ Medical Emergency *(Complete Parts 1 & 4)*	☐ Security *(Complete Parts 1 & 4)*

PART 1 – Incident Details

Reporter's Name:	Company & Position:	Date of Report:

Reporter Contact Details *(email/phone)*:

Name of Person and/or Company Involved:

Date of Incident:	Time of Incident:	Notified by:	Time Notified:

Location of Incident: **Emergency Procedures Activated:** ☐Yes ☐No

Notification including Time:				
☐AOO:	☐ Emergency Services:	☐ARFF:	☐Car Park:	☐Customs/Quarantine:
☐AFP:	☐CA Management *(please specify)*:	☐ATC:	☐ SNP:	☐Other *(please specify)*:

Aircraft Details *(where applicable)*:		
Aircraft Type:	Rego No:	
Bay Position:	Flight No:	

Photos Taken: ☐Yes ☐No ☐N/A **DAMP Test Requested:** ☐Yes ☐No ☐N/A

PART 2 - Information required for DIVERSIONS only

Diversion Details:				
ETA:	People On Board:	Originated From:	No. Litres of Fuel:	
ETD:	Pax Disembark:	Destination To:	Customs/Quarantine Attended:	☐Yes ☐No

International Only:	Catering/bottled water taken on board:	☐Yes ☐No	Galley/cabin waste removed:	☐Yes ☐No

Reason for Diversion:

Additional comments *(i.e. if pax disembark)*:

PART 3 - Information required for ENVIRONMENTAL INCIDENTS only

Environmental Details:			
Spill Material:	Spill Quantity *(litres)*:	Affected Area *(Square metres)*:	
Vehicle Details *(if applicable)*:	Vehicle AUA *(if applicable)*:		
Clean Up Material Used:	Detergent & Litres Used:	Absorbent Material & Quantity Used:	

Type of Incident: ☐ Human Error ☐ Equipment Failure ☐ Accidental Occurrence ☐ Malicious Damage ☐ Other *(please specify)*:

Details of Environmental Incident:

Additional comments *(if required)*:

PART 4 - Additional Details of the Incident

Additional Incident Details *(where applicable)*: ☐ **First Aid** ☐ **Near Miss** ☐ **Property Damage** ☐ **Car Park Incident**

Details of the Incident:

OFFICE USE ONLY

Received by:	**W Drive Location/s:**
Date received:	**Reference No/s:**
Incident allocated to (person/section):	
Regulator notified (i.e. CASA/ATSB/OTS/WorkSafe ACT etc):	
CCTV footage reviewed: ☐Yes ☐No ☐N/A	**CCTV footage saved:** ☐Yes ☐No ☐N/A
Assessment of Incident Causation (if applicable): ☐ **Human Error** ☐ **Equipment Failure** ☐ **Accidental Occurrence** ☐ **Malicious Damage** ☐ **Other (please specify):**	
Additional Corrective / Preventive / Follow Up Actions taken:	
Closed By:	**Close Out Date:**

APPENDIX 8: Checklists

CONTROL MEASURES	Applicable Y/N		Completed/ Comment
Pre Construction			
Staff Awareness / Site Induction			
Ensure that all employees are aware of their environmental responsibilities, including protocols for PFAS Refer Appendix 6 – Canberra Airport Work, Health and Safety Guideline for PFAS	Y	N	
Ensure that all subcontractors are aware of their environmental responsibilities, including protocols for PFAS Refer Appendix 4 – Canberra Airport Work, Health and Safety Guideline for PFAS	Y	N	
Site Planning			
Mark limits of work site, storage and accesses to minimise the ground area affected by road maintenance activity	Y	N	
Plan order of work to minimise period of exposure of disturbed ground to weather	Y	N	
Locate services (including water, sewerage, electricity etc)	Y	N	
Identify site placement for work materials and fuel storage	Y	N	
Set up secure storage for fuel, oil or other chemicals on site and bunded around	Y	N	
Identify site placement for spoil, topsoil and waste (not under tree canopies)	Y	N	
Heritage / Archaeology / Flora and Fauna			
Locate sensitive areas and/or areas containing flora and fauna (e.g. particular trees) to be protected		N	
Locate and remove noxious weeds		N	
Install exclusion fences around trees and saplings to prevent damage from machinery or vehicles		N	
Access and Traffic Management			
Prepare Traffic Management Plan	Y	N	
Set up traffic controls	Y	N	
Arrange parking for construction plant and employee vehicles so that through traffic is not impeded	Y	N	
Erosion and Sediment Controls			
Erosion and Sediment Plan approved by Airport Environment Officer	Y	N	
Identify drainage and slope to and from site	Y	N	

Correctly locate erosion control devices and structures, e.g. diversion drains, silt fences, hay bales, sandbags, detention basins	Y	N	
Deployment of sandbags, silt fencing etc to use if work is interrupted by rain	Y	N	
Is a concrete wash-out bay needed/installed?	Y	N	
Water Quality			
Provide spill kit in case of fuel or chemical spills	Y	N	
Noise Control			
Check that mufflers on plant meet the AEPR requirements	Y	N	
Install silencing devices or noise reducing barriers if necessary	Y	N	
Hazardous Materials			
Are hazardous materials (e.g. chemicals) being used?	Y	N	
Are appropriate environmental safeguards in place?	Y	N	
Waste Management and Disposal			
Identify wastes generated and method of disposal	Y	N	
Prepare Waste Management Plan	Y	N	
During Construction			
PFAS Management			
Implement PFAS Management Plan if required	Y	N	
Heritage/Archaeology/Flora and Fauna			
Implement controls to prevent weed dispersal	Y	N	
Monitor vehicles to ensure they only use designated tracks and roads	Y	N	
Check vehicle and plant tyres to minimise weed dispersal	Y	N	
Works to cease in the event a heritage or archaeological item is discovered and UFP activated (Appendix 3)	Y	N	
Community Liaison			
Maintain a register of complaints to include details of action taken to address a grievance	Y	N	
Access and Traffic Management			
Monitor traffic control measures implemented with a view to rectifying any problems identified	Y	N	
Maintain erosion control devices for duration of construction / works duration	Y	N	
Soil Impacts			
Stabilise stockpiled soil and separate topsoil	Y	N	

Minimise compaction of topsoil due to use of heavy machinery	Y	N	
Air Quality			
Do not use plant which exceeds 10 seconds of continuous visible smoke from exhaust	Y	N	
Keep loose surfaces on site damp in windy weather conditions	Y	N	
Dispose of excess soil/spoil promptly or cover stockpiles	Y	N	
Cover truck trays when transporting dry material	Y	N	
Do not burn off waste materials	Y	N	
Noise Control			
Restrict construction noise levels by using plant responsibly	Y	N	
Notify Canberra Airport if works outside normal hours are planned	Y	N	
Fire Control			
Ensure no cutting, welding or grinding on declared 'fire ban' days	Y	N	
Keep flammable materials in clearly identified (signage to be used), secure and bunded areas	Y	N	
Open fires are prohibited	Y	N	
Hazardous Materials			
Maintain a Hazardous Materials Register	Y	N	
Waste Management and Disposal			
Maintain a Waste Management Register to record the type, quantity and location of waste reused, recycled, stockpiled and disposed of to landfill	Y	N	
Maintain worksite in a clean, rubbish-free state	Y	N	
Inspect plant for fuel, oil or hydraulic fluid leaks. Repair leaks before using plant	Y	N	
On-site refueling and servicing is to occur within a bunded area at least 20m from natural or built drainage lines	Y	N	
Appropriately contain waste stored on site	Y	N	
Dispose of waste in accordance with regulatory requirements	Y	N	
Ensure waste is transported securely	Y	N	

Post-Construction			
Rehabilitation of Site			
Ensure soil is stabilised with attention to sloped terrain	Y	N	
Revegetate site in accordance with the Landscape Plan	Y	N	
Remove soil and erosion controls post soil stabilisation works	Y	N	
Remove all waste materials or liquids from site	Y	N	
Remove site sheds and amenities	Y	N	
.....Contractor ..... (date)			