

ENVIRONMENTAL MANAGEMENT PLAN

Qantas Flight Training Centre and Carpark
297 King St, Mascot, NSW 2020

12 APRIL 2019



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QANTAS FLIGHT TRAINING CENTRE AND CARPARK QANTAS AIRWAYS LIMITED

297 King St, Mascot NSW 2020

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This report has been prepared for Qantas Airways Limited in accordance with the terms and conditions of appointment for development of an Environmental Management Plan for the Qantas Flight Training Centre and Carpark site located at 297 King Street Mascot NSW dated 31 January 2019. Arcadis Australia Pacific Pty Limited (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

REVISIONS

Revision	Date	Description	Prepared by	Approved by
R00	12/02/2019	Draft EMP	CR	GB
R01	1/03/2019	Draft EMP updated with additional ESA data	CR	LM
R02	12/04/2019	Addressing client comments	CR	LM

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GLOSSARY

Term	Definition
Background	An area not influenced by chemicals released from the site under evaluation or other impacts created by the activity on the site under evaluation.
Contaminant	A general term referring to any chemical compound added to a receiving environment in excess of natural conditions. The term includes chemicals or effects not generally regarded as "toxic", such as nutrients, salts and colour.
Contamination	The condition or state of soil, water or air caused by a substance release or escape which results in an impairment of, or damage to, the environment, human health, safety, or property.
Environmental Health	The study of the protection of human populations from biological, chemical and physical hazards in their environment.
Exposure Assessment	The process of estimating the amount (concentration or dose) of a chemical that is taken up by a receptor from the environment.
Exposure Pathway	The route by which an organism comes into contact with a contaminant.
Fill	Depth of which material is to be placed (filled) to bring the surface to a predetermined grade. Also, the material itself.
Guideline	A basis for determining a course of action. An environmental guideline can be either procedural (directing a course of action) or numerical (providing a numerical value that is generally recommended to support and maintain a specified use.
Jetbase	Qantas leased land within the boundaries of Sydney Kingsford Smith Airport.
Mascot Campus	<p>Over 19ha of Qantas Airways Limited controlled land in Mascot to the north of Sydney Kingsford Smith Airport consisting of freehold and leased land.</p> <p>The following lots are owned by Qantas: Lot 133 DP 659434; Lots 4 & 5 DP 38594 Lot 23 DP 883548; Lots 1 & 2 DP 738342; Lot 3 DP 230355; Lot 4 DP 537339; Lots 2 & 4 DP 234489; Lot 4 234489; Lot 1 DP 81210; Lot 1 DP 202093; Lot 1 DP 721562; Lot 2 DP 510447; Lot 1 DP 445957; Lot B DP 164829 and Lot 1 DP 202747 and equates to 16.5ha of land.</p>

Term	Definition
	The following lots are leased by Qantas: Lot 14 DP 1199594 and Lot 2 DP 792885 and equates to 2.7ha of land.
The Project	The construction of a new Flight Training Centre and ancillary uses to replace the existing facility on the Qantas Jetbase that will be impacted by RMS' Sydney Gateway Project.
Receptor	The person or organism subjected to exposure to chemicals or physical agents.
Remediation	The removal, reduction or neutralisation of substances, wastes or hazardous material from a site so as to prevent or minimise any adverse effects on the environment now or in the future.
Sydney Gateway Project	A RMS Project including a road and rail component that is intended to increase capacity and improve connections to the ports to assist with growth in passenger, freight and commuter movements across the region, by expanding and improving the existing road and freight rail networks.
The Site	Qantas Airways Limited owned land in Mascot to the north of Sydney Kingsford Smith Airport consisting of Lots 2-5 DP 234489, Lot 1 DP 202747, Lot B DP 164829 and Lot 133 DP 659434. Current site improvements include including at-grade car parking for Qantas staff, an industrial shed to store spare aviation parts, a substation, a disused gatehouse, a Sydney Water Asset with two driveways over it, the Qantas catering facility and Qantas tri-generation plant.

ABBREVIATIONS

Acronym	Definition
AHD	Australian Height Datum
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
CLM Act	Contaminated Land Management Act (1997)
EMP	Environmental Management Plan
ESA	Environmental Site Assessment
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
LGA	Local Government Area
m	metre
MW	Marine Water
NSW	New South Wales
NSW EPA	New South Wales Environment Protection Authority
PFAS	Per- and poly- fluorinated alkyl substances
PPE	Personal Protective Equipment
Qantas	Qantas Airways Limited
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
The Airport	Sydney Kingsford Smith Airport

1 INTRODUCTION

1.1 Background

Arcadis Australia Pacific Pty Ltd (Arcadis) was commissioned by Qantas Airways Limited (Qantas) to prepare an Environmental Management Plan (EMP) in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the **SSD 10154** for the development of a new flight training centre at 297 King Street, Mascot (herein referred to as 'the Site').

The site has previously contained farming and agricultural land uses, and later historical commercial / industrial land uses including glass bottle manufacturing, smelting, heavy equipment storage and lease of the land for electrical substations.

Two (2) groundwater monitoring events (GMEs) were conducted at the Site by Arcadis (Jan, 2019) on 8 January 2019 and 19 February 2019. The GME identified the following contaminants of concern at the site:

- Heavy Metals (zinc).

The Environmental Site Assessment (ESA) completed by Arcadis (2019) concluded that the elevated concentrations of zinc in groundwater beneath the Site are expected to be attributed to the Former Mascot Galvanising Facility located 40 m southeast of the site. The Former Mascot Galvanising Facility is located cross-gradient from the Site, however given its proximity to the Site, the elevated levels of zinc in groundwater are considered to be reflective of background concentrations that may be attributed to historically contaminating activities at the former galvanising facility. The Former Mascot Galvanising Facility contains groundwater contamination (zinc) currently regulated under the Contaminated Land Management (CLM) Act 1997 and has 5 current NSW EPA Contaminated Land Records notices and 2 former NSW EPA Contaminated Land Records notices.

Arcadis (2019) concluded that groundwater remediation works at the site were not feasible as the elevated levels of zinc in groundwater appear to be a local problem due to historical commercial / industrial activities. Arcadis (2019) recommended the preparation of an EMP to manage the human and environmental risks associated with the zinc impacted groundwater remaining beneath the site.

It is noted that the site falls within the boundaries of the Botany Sands Water Restrictions Order Area 2. Extraction of groundwater is limited within Area 2 by order under the Water Management Act 2000. Where there is conflicting information between the EMP and the *Water Management Act 2000*, the *Water Management Act 2000* prevails.

1.2 Requirements for an EMP

The EMP requires that groundwater located at the Site is to be managed if intrusive works, excavation or other works are undertaken during future construction or maintenance events due to the presence of residual groundwater contamination remaining onsite post redevelopment.

1.3 Objectives of EMP

This EMP has been developed to provide an outline of the measures to be implemented to manage future intrusive works or excavations, such as trenching to install underground services, and to manage the potential risks imposed on intrusive site workers, maintenance workers or subcontractors working within those intrusive works or excavations onsite.

This EMP also aims to minimise potential environmental impacts and to protect the environmental values identified during the operation of the Site.

The EMP is a working document that sets a series of targets, actions, responsibilities and performance indicators to achieve best practice environmental management of the site. As such, this EMP can be updated as required.

The objectives for the EMP are specifically as follows:

- To define details of who, what, where and when environmental management and mitigation measures are to be implemented during the operation of the Site; and
- To ensure all personnel involved in site works are aware of the environmental issues associated with the Site and to provide management measures.

1.4 EMP Framework

This EMP has been divided into the following sections:

- Sections 1-3 and Appendix A, comprising the introduction, site description, relevant reference legislation and guidelines, environmental aspects and impacts assessment.
- Section 4 and Appendix B – relevant to EMP Implementation or the over-arching management regime for implementing the EMP.
- Appendix C – relevant to the Environmental Management Plan or specific procedures for managing environmental impacts.

2 SITE CONDITIONS AND SURROUNDING ENVIRONMENT

2.1 Site Location and Identification

The site is located at 297 King Street, Mascot and comprises land known as Lots 2-5 DP 234489, Lot 1 DP 202747, Lot B DP 164829 and Lot 133 DP 659434. The site is identified below in Figure 1 and in Figure 1, Appendix A.

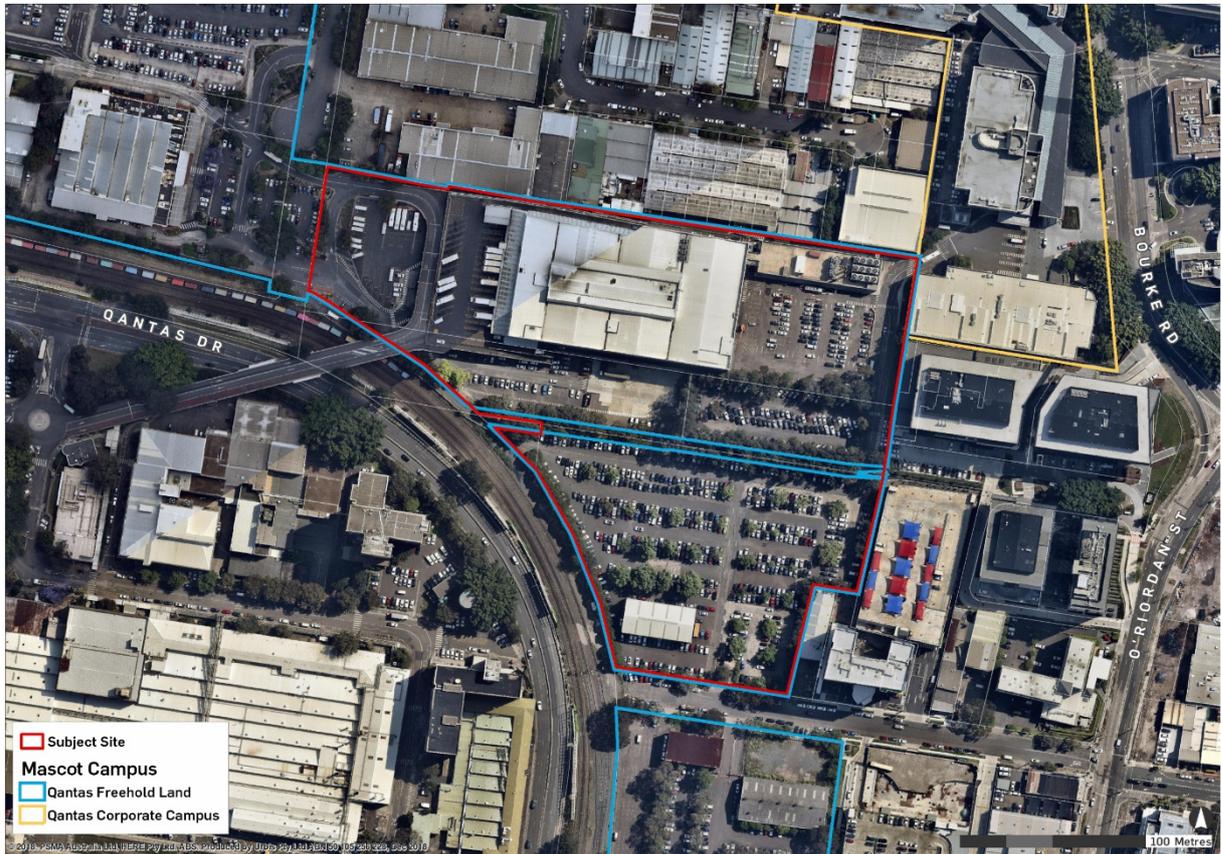


Figure 1 - The Site

2.2 Site Description and Current Site Activities

Key features of the site are as follows:

- The site is approximately 5.417ha and is an irregular shape. It is approximately 240m in length and maintains a variable width of between approximately 321m in the northern portion of the site and approximately 93m along the King Street frontage (refer to **Figure 1, Appendix A**).
- The site possesses a relatively level slope across the site. An open Sydney Water drainage channel bisects the northern portion of the site in an east-west direction. There are some isolated changes in level immediately adjacent to this channel. A Site Survey Plan accompanies the application which details the topographic characteristics of the site.
- Multiple mature Plane Trees are scattered throughout the site. A variety of native and exotic trees and vegetation also exist around the perimeter of the site which help screen the site from surrounding uses.
- Site improvements include at-grade car parking for Qantas staff, an industrial shed to store spare aviation parts, a substation, a disused gatehouse, a Sydney Water Asset with two driveways over it, the Qantas catering facility and Qantas tri-generation plant.

- The site forms part of a larger land holding under the ownership of Qantas that generally extends between Qantas Drive to the west, Ewan Street to the south, Coward Street to the north, with the Qantas “Corporate Campus” fronting Bourke Road.
- Vehicular access to the site from the local road network is available from King Street. The site has intra-campus connections along the northern boundary in the form of two connecting driveways in the north-eastern and north-western corner of the site along the northern boundary which link it to the broader Mascot Campus.
- The site is located within the Bayside LGA.

2.3 Surrounding Land Use

The property is bounded by King Street to the south, commercial / industrial land uses to the north and east and a rail corridor to the west. Surrounding land uses are summarised in **Table 1**.

Table 1: Surrounding Land Uses.

Surrounding Land ID	Surrounding Land Uses
North	The site is bounded to the north low scale industrial development, beyond which is Coward Street. Further north of the site is the Mascot Town Centre which is characterised by transport-oriented development including high density mixed-use development focussed around the Mascot Train Station.
East	The site is bordered to the east by commercial development including a newly completed Travelodge hotel which includes a commercial car park. Additional commercial development to the east includes the Ibis Hotel and Pullman Sydney Airport fronting O’Riordan Street.
South	The site is bounded to the south by King Street, beyond which is Qantas owned at-grade car parking and other industrial uses. Further south is the Botany Freight Rail Line and Qantas Drive beyond which is the Domestic Terminal at Sydney Airport.
West	The site is bordered to the west by the Botany Freight Rail Line and Qantas Drive, beyond which lies Sydney Kingsford Smith Airport and the Qantas Jetbase (location of the current Flight Training Centre).

2.4 Topography & Hydrology

The topography of the site is largely a result of cutting and filling. The site elevation peaks in the centre of the site and along the eastern border, and slopes very slightly to the northwest. The site has an approximate elevation of 6 m Australian Height Datum (AHD).

Surface water runoff is expected to preferentially drain to the northwest towards Alexandra Canal, the nearest surface water receptor, located approximately 700 m west of the site. The Alexandra Canal drains into Botany Bay, located approximately 2.50 km south of the site.

Based on the groundwater contours prepared by Arcadis (2019) in the ESA report, the inferred groundwater flow direction appears to be predominantly in a northwest direction towards Alexandra Canal.

2.5 Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2018

The extraction of groundwater is restricted in sections of the Botany Bay area under the Water Management Act 2000 due to historical industrial pollution.

Temporary water restrictions for groundwater extraction have been enforced in the Botany Bay area since 2006 to limit human exposure to potentially polluted groundwater and to additionally prevent the movement of polluted groundwater into uncontaminated areas through widespread pumping.

In 2018, a revised temporary water restrictions order was issued for Areas 1 and 2. The site is located in the Area 2 prohibition area. The revised order details the following prohibitions in Area 2 under Schedule 3:

1. *The taking of water from those parts of the Botany Sands Groundwater Source within Area 2 on Map A is prohibited for any of the following purposes:*
 - a. *human consumption;*
 - b. *consumption by animals;*
 - c. *domestic purposes;*
 - d. *any other purpose.*
2. *The prohibition in paragraph (1) (d) does not apply:*
 - a. *if the water is **fit for purpose**; or*
 - b. *to the taking of water for remediation, temporary construction dewatering, testing or monitoring purposes.*
3. *A person taking water under paragraph (2)(a) must:*
 - a. *keep records of all testing of water undertaken for the duration of this order; and*
 - b. *provide to an **authorised officer**, within 7 days of a request, written details of the results of any testing of water undertaken as requested by that officer.*
4. *In this Schedule, **fit for purpose** and **authorised officer** have the same meanings as in Schedule 2.*
 - a. ***Fit for purpose** means:*
 - i. *There is a site testing plan certified by a site auditor accredited under the Contaminated Land Management Act 1997 as being appropriate to determine if the groundwater is safe and suitable for its intended use. This site testing plan must be certified and in place prior to water being used, and*
 - ii. *The site testing plan includes for each proposed use of water the method of sampling, method of testing, frequency of testing, the analytes to be tested and the prescribed threshold level for each analyte above which water must not be taken, and*
 - iii. *Once sampled in accordance with the site testing plan, a consultant certified under a NSW Environment Protection Authority (NSW EPA) recognised contaminated land consultant certification scheme ('the consultant') must assess the results and provide a written record as to whether the groundwater is safe and suitable for its intended use as defined in the site testing plan, and*
 - iv. *All works in relation to the preparation and implementation of the site testing plan must be carried out consistent with guidelines made or approved by the EPA under section 105 of the Contaminated Land Management Act 1997.*
 - b. ***Authorised officer** has the same meaning it has under the Water Management Act 2000.*

Where there is conflicting information between the EMP and the *Water Management Act 2000*, the *Water Management Act 2000* prevails.

2.6 Project Description

Safety is Qantas' first priority. The flight training centre is a key pillar of this value. The facility enables pilots and flight crews to undertake periodic testing to meet regulatory requirements by simulating both

aircraft and emergency procedural environments. The Project seeks consent for the construction and operation of a new flight training centre, and associated ancillary uses including a multi-deck car park. The Project is comprised of the following uses:

Flight Training Centre

The proposed flight training centre will occupy the southern portion of the site. It is a building that comprises 4 core elements as follows:

- An emergency procedures hall that contains;
 - cabin evacuation emergency trainers,
 - an evacuation training pool,
 - door trainers,
 - fire trainers
 - slide descent towers,
 - security room,
 - aviation medicine training and equipment rooms.
- A flight training centre that contains:
 - a flight training hall with 14 bays that will house aircraft simulators,
 - integrated procedures training rooms, computer rooms, a maintenance workshop, storerooms, multiple de-briefing and briefing rooms, pilot's lounge and a shared lounge.
- Teaching Space that contains
 - training rooms,
 - classrooms and two computer based exam rooms.
- Office Space
 - Office space for staff and associated shared amenities including multiple small, medium and large meeting rooms, think tank rooms, informal meeting spaces, a video room and lunch/tea room.
- Ancillary spaces including the reception area at the ground floor, toilets, roof plant and vertical circulation. The external ground floor layout will include a loading dock, at-grade car parking for approximately 39 spaces and a bus drop-off zone at the northern site boundary.

Car Park

The proposed multi-deck car park will be located to the north-east of the flight training centre and adjacent the existing Qantas catering facility and tri-generation plant. The car park is 13 levels and will provide 2059 spaces for Qantas staff. Vehicle access to the car park will be provided via King Street, Kent Road and from Qantas Drive via the existing catering bridge.

3 EMP IMPLEMENTATION

3.1 Roles and Responsibilities

All personnel managing or working on the project are responsible for environmental performance and management of potential onsite environmental impacts. All staff and contractors are to be made aware of their responsibilities under this EMP during site induction training.

Individual contractors are responsible for implementing mitigation measures in accordance with each of their contracts including contractors undertaking intrusive works, earthworks, roadworks and landscaping contracts. All personnel are responsible for environmental compliance in accordance with the general environmental duty. The responsible parties and their key roles at the Site are provided in **Table 2** below.

Table 2: Roles and Responsibilities.

Responsible Party	Requirement
Site Owner (Qantas)	<ul style="list-style-type: none"> • Ensure implementation of the EMP. • Ensure activities carried out by site users are in accordance with the environmental management procedures as outlined in the EMP. • Ensure regular reviews and updates (if required) of the EMP are undertaken. • Instruct and respond to the site managers and site users regarding environmental issues. • Review any environmental non-conformances, remediation and preventative actions. • Take corrective action to resolve non-conformances.
Facility Manager/s	<ul style="list-style-type: none"> • Liaise directly with the Site Supervisor to ensure adequate communication. • Comply with legal and contractual requirements. • Comply with site management / supervisory directions. • Participate in awareness training as directed by site management. • Notify management prior to commencement of key activities. • Regularly report on activities and environmental performance as required by site management.
Site Supervisor (for Construction Works)	<ul style="list-style-type: none"> • Implement environmental management plans and procedures outlined in the EMP. • Report to the Facility Manager/s on the performance of the EMP and improvement opportunities. • Ensure that the EMP is effectively established, implemented and maintained. • Conduct site inductions and required training for new staff under the EMP. • Ensure that site workers are aware of their environmental obligations and the requirements of the EMP. • Ensure community complaints and non-conformances are recorded and appropriately considered and acted upon. • Oversee environmental monitoring requirements, as required by approvals, licenses and permits. • Ensure contractors, staff and suppliers comply with environmental requirements of the EMP.

Responsible Party	Requirement
	<ul style="list-style-type: none"> • Ensure the tenants are aware of their responsibilities as per the environmental protection plans. • Complete Incident Report, Maintenance Schedules and Site Personnel Induction Register.

3.2 Training and Inductions

All personnel working at the Site shall receive appropriate environmental training as part of the site induction to ensure they are aware of their responsibilities and that they are competent to carry out their work in an environmentally acceptable manner.

Site environmental values and management requirements are to be explained to personnel during the site induction. Ongoing instruction is to be provided through Site training and toolbox meetings. All inductions and ongoing instruction shall be recorded on a project register to ensure all personnel are inducted and receive all appropriate training.

All employees, including subcontractors, are to receive awareness instruction in the following areas:

- The EMP and related documents;
- Emergency procedures and responses as detailed in the Management Plan in **Appendix C**; and
- Identification of their legal obligations.

3.3 Complaints Management

All complaints and inquiries should be directed to the Facility Manager who will assess the validity and seriousness of the complaint or inquiry and respond as appropriate. The Facility Manager will then be required to notify the Site Owner within 24 hours of any complaint or inquiry.

Any complaints are to be recorded in a Complaints Register and will include the following details:

- Name, address and contact number of complainant;
- Time and date of complaint;
- Reasons for the complaint;
- Investigations undertaken in response and conclusions formed;
- Actions taken to resolve complaint;
- Any abatement measures implemented to mitigate the cause of the complaint; and
- Name and contact details of the person responsible for resolving the complaint.

3.4 Reviewing, Auditing and Updating

The Facility Manager is to review and update this EMP as required, or at least every two years.

This review/audit shall:

- a) Be carried out in accordance with AS ISO 19011:2003. Guidelines for quality and/or management systems auditing;
- b) Assess compliance with the requirements of this consent, and other licenses and approvals that may apply to the development; and
- c) Review the effectiveness of the environmental management of the development, including any environmental impact mitigation works.

3.5 Non-Compliances and Incidents

Non-compliance with any aspect of this EMP, any project consent conditions and/or monitoring limits will require corrective action and reporting. The type and scale of corrective action and reporting will depend on the type and scale of the non-compliance. All incidents that require some form of incident response, rectification or with the potential to cause material or serious environmental harm or nuisance must be recorded in the incidents / complaints register. A near miss of these events must also be recorded.

Site personnel or sub-contractors becoming aware of an incident (environmental or otherwise), must notify the Site Supervisor immediately. The Site Supervisor and/or Facility Manager/s must notify the NSW Environment Protection Authority (EPA) if serious or material environmental harm is caused or threatened by the works.

The initial notification can be written or verbal and must include information such as:

- The location of the event;
- The time of the event;
- The time that site personnel became aware of the event;
- The suspected cause of the event;
- A description of the resulting effects of the event;
- Action taken to mitigate any environmental harm and/or environmental nuisance caused by the event; and
- Proposed action to prevent a recurrence of the event.

The Facility Manager/s are to notify the Site Owner of any incident with actual or potential significant offsite impacts on people or the biophysical environment as soon as practicable after the occurrence of the incident. Written details of the incident are to be provided to the Site Owner within seven days of the date on which the incident occurred. Facility Manager is also required to meet the requirements of the Site Owner to address the cause or impact of the incident.

4 ENVIRONMENTAL MANAGEMENT

Environmental Aspects and Impacts are identified in the Environmental Aspects and Impacts Register provided in System Procedures, **Appendix B**.

Management procedures have been prepared based on the environmental risks and impacts identified for each element of the EMP and are provided in Management Procedures, **Appendix C**.

Management procedures specify mitigation measures, performance criteria and corrective actions to be taken where monitoring indicates the potential for environmental nuisance or environmental harm.

Management Procedures for this EMP are provided for the following elements:

- Element 1: Intrusive Works / Excavation Management
- Element 2: Contaminated Groundwater Management
- Element 3: Waste Management
- Element 4: Occupational Health and Safety

Responsibility is assigned in each management procedure for specific tasks to be implemented during the construction and operation of the facility.

4.1 Emergency Contingency Response

The Management Plan, **Appendix C**, contains tabulated contingency responses to typical environmental incidents that could occur during future intrusive works, excavation works or landscaping works carried out at the Site. They are intended as a guide only, and actual responses must be tailored to the incident and situation itself.

Health and safety concerns will always take precedence when managing an incident. If a situation is not safe, personnel will not enter the area unless they are:

- Sufficiently experienced to deal with the situation;
- Properly fitted with Personal Protective Equipment (PPE) suitable for the task and trained in its use; and
- Working under an approved Safety Management Plan or procedure for the specific Site works.

The Site Supervisor is responsible for enacting effective site health and safety management procedures that are to be complied with by all personnel on the Site.

Emergency response is to be undertaken in accordance with a Site Safety Management Plan, or equivalent. Environmental emergencies not identified within the contingency plans are to be dealt with as soon as practical to avoid or minimise environmental harm.

5 SUMMARY

Provided that the EMP described herein is enforced and adhered to during future intrusive works, excavations or other works performed throughout the construction and ongoing maintenance of the Site, Arcadis considers that the potential environmental risks presented by the impacted groundwater residing beneath the site will be appropriately managed.

However, it is important that the contents of this EMP are continually reviewed and amended when changes are made to the Site or in cases where Site management procedures may be improved.

APPENDIX A

Figures



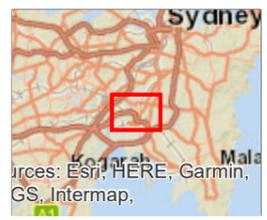
Legend

- Site Boundary
- Motorway
- Major roads
- Local road
- Railway

1:10,000 at A3

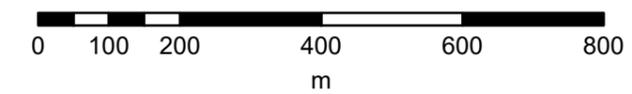


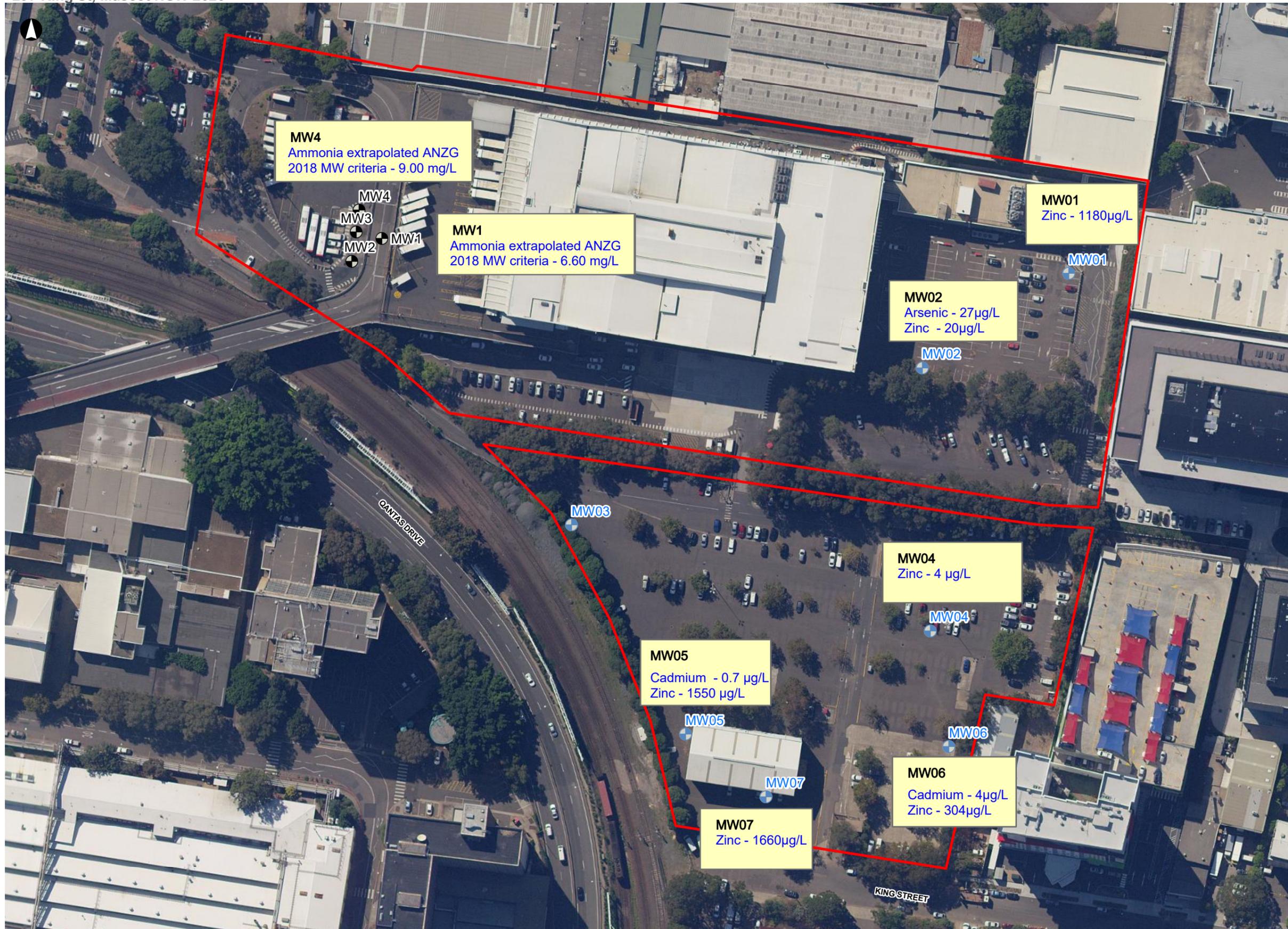
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 Coordinate System: GDA 1994 MGA Zone 56
 Date issued: February 8, 2019



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Figure 1 - Site Location





Guideline
ANZG 2018 Marine Water (95%)
 Ammonia as N - 0.91 mg/L
 Cadmium - 5.50 µg/L
 Copper - 1.30 µg/L
 Zinc - 15 µg/L

NEPM 2013 GILs Marine Water
 Ammonia as N - 0.91 mg/L
 Arsenic - 13 µg/L
 Cadmium - 0.70 µg/L
 Copper - 1.30 µg/L
 Zinc - 15 µg/L

Legend

Site Boundary

Sampling Locations

- Monitoring Wells
- Existing Monitoring Wells (ES, 2013)

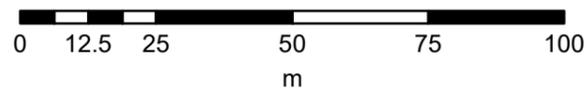
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 Date issued: February 15, 2019



Figure 2 - Groundwater Exceedances



APPENDIX B

System Procedures

Environmental Aspects and Impacts Register
Qantas Flight Training Centre and Carpark - 297 King
Street, Mascot NSW
Environmental Management Plan

Document Control

Current Version	1.0
Date	4 March 2019
Status	

Revision History

Rev 1	Original Procedure

B1.1 Purpose and Scope

The Environmental Impacts and Aspects Register is a risk-based tool to explicitly evaluate the environmental risks and potential impacts associated with future intrusive works, excavations and landscaping works occurring at the Site. It is to be used to identify and prioritise management to ensure minimal impact on environmental receptors as a result of Site works. Therefore, not all of the aspects and impacts have been referenced in the register summarised in **Table B1** but instead have been addressed in each of the management plans in **Appendix C**.

B1.2 Responsible Person

It is the responsibility of the Facility Manager/s to ensure this register remains up to date and is periodically revised and updated.

B1.3 Periodic Review and Updating the Register

This register is to be reviewed periodically and updated as required to ensure it remains current and reflects any changes to conditions or activities at the site. Reviews should be undertaken with each audit of the EMP.

B1.4 Identification of Aspects and Impacts

Aspects of Site operations with the potential to cause environmental harm are first defined, and the potential impacts from each aspect determined. Importantly, the groundwater impacts considered are those that have potential to affect, or do affect the environment.

Table B.1 Key Environmental Aspects and Impacts

Potential Impact Activity	Site Workers / Occupants	Site Users	Soil and / or Groundwater Contamination	Community Impacts	Waste Disposal	Emergency Response
Future intrusive site works, excavations or other works.	X	X	X		X	
EMP Management Action Reference: Appendix C1 Intrusive Site Works, Appendix C2 Containment of Contaminated Groundwater						
Exposure of intrusive site workers / site users to contaminated groundwater.	X	X				X
EMP Management Action Reference: Appendix C1 Intrusive Site Works, Appendix C2 Containment of Contaminated Groundwater						
Dispersion of contaminated groundwater into uncontaminated areas, surface drainage channels or stormwater drainage channels.	X	X	X	X		
EMP Management Action Reference: Appendix C2 Containment of Contaminated Groundwater						

APPENDIX C

Management Procedures

C1 Intrusive Site Works
Qantas Flight Training Centre and Carpark - 342 King
Street, Mascot NSW
Environmental Management Plan

Document Control

Current Version	1.0
Date	4 March 2019
Status	

Revision History

Rev 1	Original Procedure

C1.1 Purpose and Scope

This procedure outlines methods to minimise and where possible avoid potential impacts that may occur as a result of intrusive site works at the Site.

The objectives proposed include:

- To avoid or minimise impacts on the on the environment and intrusive site workers during intrusive site works; and
- To prevent or minimise impacts on site users during intrusive site works.

C1.2 Responsible Person

It is the responsibility of the Facility Manager/s to ensure that the potential impacts of intrusive site works are minimised and avoided where possible.

C1.3 Periodic Review and Updating the Register

It is the responsibility of the Facility Manager/s to ensure implementation of this plan. It is the responsibility of the Facility Manager/s to ensure this procedure remains up to date and is periodically reviewed.

C1.4 Identification of Aspects and Impacts

This procedure is to be reviewed periodically and updated as required to ensure it remains current. Reviews should be undertaken following any revision of the aspects and impacts register where changes to site practices or to legislative instruments or other requirements dictate the need to update this management procedure.

C1.5 Management Measures

Measures for the management of potential impacts as a result of intrusive works occurring at the Site are provided in **Table C1.1**.

Table C1.1 Management of Intrusive Site Works

Performance Criteria

To ensure potential environmental and human health impacts of future intrusive works are minimised and avoided.

Mitigation Measures

- Intrusive works are to be carried out in accordance with a Site Safety Management Plan specific to the required intrusive Site works.
- Site environmental values, management and safety requirements related to contaminated groundwater at the Site are to be explained to intrusive site workers and subcontractors during a compulsory site induction.
- Intrusive works, excavations or other works are to avoid contact with the groundwater table. Where contact with the groundwater table is possible, additional safety measures will be required to minimise disturbance of the groundwater table and avoid exposure to onsite workers and personnel.

Monitoring

- Daily inspection of the Site throughout the duration of intrusive works by the Site Supervisor.

Recording

- All incidents and complaints are to be recorded in the complaints register held at the Site.
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**C2 Management of Contaminated Groundwater
Qantas Flight Training Centre and Carpark - 342 King
Street, Mascot NSW
Environmental Management Plan**

Document Control

Current Version	1.0
Date	4 March 2019
Status	

Revision History

Rv 1	Original Procedure

C2.1 Purpose and Scope

This procedure outlines methods to minimise and where possible avoid potential impacts that may occur due to the presence of residual contaminated groundwater remaining beneath the Site.

The objectives proposed include:

- To prevent contaminated groundwater remaining beneath the site from dispersing into uncontaminated areas.
- To prevent contaminated groundwater from migrating into surface drainage channels.
- To prevent intrusive site workers, excavation workers and subcontractors from contact, direct or indirect, with contaminated groundwater located beneath the site.

C2.2 Responsible Person

It is the responsibility of the Facility Manager/s to ensure that the potential impacts related to impacted groundwater located beneath the site are minimised and avoided where possible.

C2.3 Periodic Review and Updating the Register

It is the responsibility of the Facility Manager to ensure implementation of this plan and to ensure this procedure remains up to date and is periodically reviewed.

C2.4 Identification of Aspects and Impacts

This procedure is to be reviewed periodically and updated as required to ensure it remains current. Reviews should be undertaken following any revision of the aspects and impacts register where changes to site practices or to legislative instruments or other requirements dictate the need to update this management procedure.

C2.5 Management Measures

Measures for the management of contaminated groundwater remaining beneath the site are provided in Table C2.1.

Table C2.1 Contaminated Groundwater Management

Performance Criteria

To prevent contact with the groundwater table, prevent the movement of contaminated groundwater into uncontaminated areas and to prevent human exposure to contaminated groundwater.

Mitigation Measures

- Mitigation measures are to be carried out in accordance with the Temporary Water Restrictions Order 2018 for Area 2 under the Water Management Act 2000. In accordance with the Order, the following prohibitions apply:
- Residents in Area 2 must not access bore water for domestic use. Domestic use includes drinking water for humans or animals, cooking, watering gardens, washing and cleaning, bathing and filling swimming pools.
- The extraction of groundwater in Area 2 is restricted for industrial purposes to minimise the risk from exposure to potentially contaminated groundwater and to prevent the movement of contaminated water through pumping.
- Water extracted for purposes other than remediation, temporary construction dewatering, testing or monitoring purposes, must be fit for purpose. To be fit for purpose, the extracted water must be:
 - Sampled, tested and treated in accordance with a certified water testing plan.
 - Certified in writing by a consultant as being safe and suitable for its intended use.
- Intrusive site workers, excavations worker or subcontractors working at the site are to avoid encountering or digging into the groundwater table at all times. Where contact with the groundwater table is possible during intrusive site works, an additional safety plan may be required to manage the risks associated with direct contact and dispersion of contaminated groundwater into uncontaminated areas.
- Where groundwater is encountered, site personnel / site workers are to prevent groundwater from entering stormwater drains or stormwater drainage channels.
- Groundwater is not to be discharged onto land or surface drainage channels.

Monitoring

- Daily inspection of the Site by the Site Supervisor throughout the duration of intrusive works, excavation works or other works.

Recording

- All incidents and complaints to be recorded in the complaints register held at the Site.
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