Appendix G6

Preliminary Contamination Review (PCR)

for

High Technology Industry
Williamtown

Preliminary Contamination Review

Lots 400-500 Astra Aerolab, Williamtown NSW

NEW24P-0090-ABv3
23 May 2024

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3	23/05/2024	Revised – area of site	Qualtest	E. Coleman	

This report has been reviewed and approved by Emma Coleman, who is a Certified Environmental Practitioner (CEnvP) (registration no. 1274) – Site Contamination Specialist (registration no. SC41121), under the Environment Institute of Australia and New Zealand.

Executive Summary

Qualtest Laboratory NSW Pty Ltd (Qualtest) has carried out a Preliminary Contamination Review for Lot 400-500 of the Astra Aerolab precinct located off Williamtown Drive, Williamtown NSW (the Site).

The site comprises proposed Lots 400-500 of the Astra Aerolab industrial subdivision. Douglas Partners Pty Ltd (DP) previously prepared a Stage 1 Preliminary Contamination Assessment (PCA) (ref: 39728.03 dated 16 April 2009) for the larger Astra Aerolab subdivision, which includes the current site.

This report has been prepared to address the requirements of the Secretary's Environmental Assessment Requirements (SEARs) for a State Significant Development Application (SSD-68721962).

The objectives of the Preliminary Contamination Review are to provide:

- An assessment of the likelihood for contamination to be present on the site from past uses and activities, based on the DP (2009) PCA and review of updated information; and,
- Provide recommendations on the need for further assessment, management and/or remediation (if required).

In order to achieve the above objective, Qualtest carried out the following scope:

- Review of DP (2009) PCA;
- Review of historical aerial photographs between 2009 and 2024;
- Search of the NSW EPA's list of contaminated sites relevant to the site and nearby properties;
- Site walkover; and
- Data assessment and preparation of a Preliminary Contamination Review Report.

The site history assessment indicated the site was used for cattle grazing from circa 1900 to about 1989. The site was uncleared bushland until between 1984 and 1998, when the southern portion/edge of the site was cleared of all vegetation and appeared to be subject to sand quarrying. The vegetation on the remainder of the site appeared to be thinned. By 2010, the area used for sand quarrying was become revegetated. The site remained relatively unchanged from 2010 to today.

Four Areas of Environmental Concern (AECs) were identified based on the site history and site observations. The AECs related to: 1. Sand quarrying on southern portion/edge of site; 2. Use of fill material in access tracks and stockpiling of fill materials; 3. Illegal dumping of waste materials; and 4. Migration of PFAS contamination onto the site from the RAAF Base.

The Preliminary Conceptual Site Model (CSM) indicated that there was potential for soil and groundwater contamination to exist on the site and potentially complete exposure pathways could exist to site users, construction workers, and the environment.

Based on the above, it is recommended that a Detailed Site Investigation, comprising intrusive investigations, be carried out on the site.

This report was prepared in general accordance with the relevant sections of guidelines made or endorsed by NSW EPA under Section 105 of the Contaminated Land Management Act, 1997, the Regulation, and the State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021. This includes the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land, the *National Environment Protection (Assessment of Site Contamination)*

Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013), and Heads of EPAs of Australia and New Zealand (2020) PFAS National Environmental Management Plan.

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1.0 Introduction

Qualtest Laboratory NSW Pty Ltd (Qualtest) has carried out a Preliminary Contamination Review for Lot 400-500 of Astra Aerolab precinct, located off Williamtown Drive, Williamtown NSW (the Site). The site location is shown on Figure 1, Appendix A.

The site comprises proposed Lots 400-500 of the Astra Aerolab industrial subdivision. Douglas Partners Pty Ltd (DP) previously prepared a Stage 1 Preliminary Contamination Assessment (PCA) (ref: 39728.03 dated 16 April 2009) for the larger Astra Aerolab subdivision, which includes the current site. The Site Masterplan for Lot 400-500 is attached in Appendix A, and shows the location of the site within the larger Astra Aerolab precinct.

This report has been prepared to address the requirements of the Secretary's Environmental Assessment Requirements (SEARs) for a State Significant Development Application (SSD-68721962).

This report was prepared in general accordance with the relevant sections of guidelines made or endorsed by NSW EPA under Section 105 of the Contaminated Land Management Act, 1997, the Regulation, and the State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021. This includes the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land, the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013*, Canberra (referred to as ASC NEPM 2013), and Heads of EPAs of Australia and New Zealand (2020) PFAS National Environmental Management Plan.

1.1 Objectives

The objectives of the Preliminary Contamination Review are to provide:

- An assessment of the likelihood for contamination to be present on the site from past uses and activities, based on the DP (2009) PCA and review of updated information; and,
- Provide recommendations on the need for further assessment, management and/or remediation (if required).

1.2 Scope of Works

In order to achieve the above objective, Qualtest carried out the following scope:

- Review of DP (2009) PCA;
- Review of historical aerial photographs between 2009 and 2024;
- Search of the NSW EPA's list of contaminated sites relevant to the site and nearby properties;
- Site walkover; and
- Data assessment and preparation of a Preliminary Contamination Review Report.

2.0 Site Description

2.1 Site Identification

General site information is provided below in Table 2.1. The site location is shown in Figure 1, Appendix A.

Table 2.1: Summary of Site Details

Site Address:	38 Cabbage Tree Road, Williamtown NSW. Note, site is access off Williamtown Drive, Williamtown NSW.
Approximate site area and dimensions:	Approx. 2.2ha. Approx. 200m wide by 110m long at its widest and longest points.
Title Identification Details:	Part Lot 11 DP 1036501 within the Port Stephens Council local government area. The site within Lot 11 is shown on Figure 2, Appendix A.
Current Zoning	B7 Business Park
Current Ownership:	Greater Newcastle Aerotropolis Pty Ltd
Previous and Current Landuse:	Former sand quarry Vacant land
Proposed Landuse:	Light industrial and commercial
Adjoining Site Uses:	Newcastle Airport and RAAF Base to the north. Rural-residential properties to the south. Bushland and former sand quarry to the west. Former sand quarry to the east.
Site Coordinates for southern corner of site:	32°48'27.00" S 151°49'54.66" E

2.2 Topography and Drainage

Reference to Google Earth Pro (https://www.google.com/earth/about/versions/) indicated the elevation of the site was less than 5m AHD.

During the site walkover, the site was observed to be generally level.

Rain falling on the site would be expected to infiltrate into site soils. Excess surface water would likely flow to Dawsons Drain, located 1.1m south-west of the site. Dawsons Drain discharges to Fullerton Cove located approximately 2.4km south-west of the site.

2.3 Regional Geology

The 1:100,000 Nelson Bay Coastal Quaternary Geology map indicates that the site is underlain by a Coastal Barrier System comprising Pleistocene dune: marine sand, indurated sand.

2.4 Hydrogeology

Groundwater beneath the site is anticipated to be present in an unconfined aquifer and located within 2m below ground surface (bgs).

Groundwater flow direction is anticipated to flow to the south south-west, and discharge to Dawson Drain located 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

A search of the NSW Department of Primary Industries (Office of Water) registered groundwater bores located within a 500m radius of the site was undertaken. The search revealed that there were no bores within this radius. A copy of the search is provided in Appendix B.

2.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soil online database from State of NSW and Department of Planning, Industry and Environment, 2021(https://espade.environment.nsw.gov.au) the site is located in an area of 'Low probability >3m below ground surface' of acid sulfate soils within an aeolian sand plain at an elevation of >4m AHD.

3.0 Site History Review

A site history review was undertaken as part of the assessment, and included:

A site history review was undertaken as part of the assessment, and included:

- Review of DP (2009) PCA report;
- A review of aerial photography between 2009 and 2024;
- A review of publicly available information on Per- & Poly-Fluoroalkyl Substances (PFAS) contamination in the Williamtown area;
- Interview with people familiar with the site, if available;
- Search of the NSW EPA's list of contaminated sites relevant to the site and nearby properties; and
- A site walkover to help identify current and previous activities carried out on the site, identify surrounding land uses, and assess Areas of Environmental Concern (AECs) and Chemicals of Potential Concern (COPCs).

The information provided from the above reviews is summarised in the sections below.

3.1 Previous Reports

A copy of a Preliminary Contamination Assessment (PCA), dated 16 April 2009 prepared by Douglas Partners (DP), was provided to Qualtest.

DP were engaged to provide a PCA for the proposed Defence Airport Related Employment Zone (DAREZ) development in 2009. The PCA covered the larger Astra Aerolab precinct (approx. 86ha) which includes the current site (Lots 400-500). Relevant information for the current site from the report is summarised below. The site overlain on Drawing No. 1 from DP (2009) is presented as Figure 3, Appendix A.

The objective of the PCA was to "… *identify past and present contaminating activities, report on site condition, and provide a preliminary assessment of site contamination.*"

DP carried out the following scope of work:

- *Discussion with current land owners;*
- *Review of Council records, historical aerial photos, NSW Department of Environment and Climate Change (DECC) records, NSW WorkCover Dangerous Goods Search and published data;*
- *Site inspection;*
- *Preparation of this report which discusses the findings of the PCA.*

Information from the DP (2009) site history assessment is summarised below:

- Historical titles search for Lot 11 DP 1036501 (covers current site) identified the site was owned by the Sansom family, who were farmers, from 1900 to 1989. From 1989 to at least 2009 the site was owned by B & M Ellison Pty Ltd. Qualtest note that GNAPL indicated that they purchased the site from B & M Ellison Pty td in 2019.
- Aerial photographs from 1954, 1966, 1975 and 1984 indicated that the current site (Lot 400-500) was covered with vegetation. The 1998 photograph showed the vegetation on the majority of the site was thinned, and the southern portion/edge of the site was totally cleared of vegetation. The southern portion/edge appeared to be used for sand quarrying.
- Anecdotal information provided to DP by Mr Barrie Ellison in 2009 indicated that the site has historically been used for cattle grazing. A sand quarry was present on the broader Astra Aerolab site, and was likely carried out on the current site. The quarried sand was used at the neighbouring RAAF base. Mr Ellison was not aware of any material being imported to his property. Mr Ellison was also unaware of any building infrastructure built on the site as part of the quarrying works.
- DP undertook a site walkover of Lot 11 DP 1036501 however it is difficult to identify precisely which of their observation relate to the current site (Lots 400-500). The DP site walkover observations that likely relate to the current site have been summarised below:
    - Vegetation appeared to be mostly dense bushland and multiple sand dunes particularly in the central and eastern portion;
    - Gravel unpaved access tracks generally consisting of coal reject/carbonaceous siltstone, imported fill and asphalt were identified through the central portion;
    - Stockpiles appearing to comprise of coal reject to carbonaceous siltstone to iron-stained coffee rock were observed along access tracks;
- DP collected surface water samples from across the larger Astra Aerolab subdivision site and tested each sample for pH and electrical conductivity (EC). The results of the pH and EC testing suggest neutral to slightly acidic and fresh surface waters were on the site. None of the surface water locations appear to be on the current site;

DP identified the following principal sources of contamination, that are considered relevant to the current site:

- Fill materials on unpaved roads and within stockpiles;
- Waste materials; and,
- Asphalt pavements.

DP recommended additional investigation in targeted areas to assess potential contaminants, and to provide recommendations for remediation (if required).

3.2 Aerial Photograph Review

Aerial photographs of the site from Google Earth for 2010, 2013, 2016, 2018, and 2023, were assessed by a Qualtest Environmental Scientist. The results of the aerial photograph review are summarised below in Table 3.2. The aerial photographs are presented in Appendix C.

Table 3.2: Aerial Photograph Review

Year	Site	Surrounding Land
2010	The site appears to be undeveloped bushland. Some land disturbance/exposed sand can be observed in the south-western portion.	The surrounding area appears to be undeveloped land to the north followed by Newcastle Airport land consisting of undeveloped land and air fields. Vacant land followed by Newcastle Airport to the east consisting of a dam and car park facility. Disturbed land to the south followed by undeveloped bushland. Undeveloped bushland to the west.
2013	The site remains relatively unchanged from the 2010 aerial photograph.	The surrounding area appears similar to the 2010 aerial photograph.
2016	The site remains relatively unchanged from the 2013 aerial photograph.	The surrounding area appears similar to the 2013 aerial photograph.
2018	The site remains relatively unchanged from the 2016 aerial photograph.	The surrounding area appears similar to the 2016 aerial photograph.
2023	The site remains relatively unchanged from the 2018 aerial photograph.	Hardstand areas and road infrastructure is observed to have been constructed to the east of the site. Additional car parking areas appear to have been constructed to the east as part of Newcastle Airport.

3.3 Site Observations

A Qualtest Senior Environmental Scientist visited the site on 1 May 2024. Selected site photographs are presented in Appendix D. The current site features are shown on Figure 4, Appendix A.

- The site is densely vegetated with trees, shrubs and grasses. Most of the site is inaccessible. See photographs 1 to 6.
- An access track runs along the southern portion/boundary of the site. The access track was paved with gravel, and occasionally some asphalt areas. See Photographs 1 and 3.

- An access track also runs along the western boundary of the site. The access track was paved with gravel. See Photographs 4 and 5.

3.4 Anecdotal Information

GNAPL employees indicated that:

- They purchased the site from B & M Ellison Pty td in 2019; and
- They were not aware of any stockpiling of material on the site.

3.5 Williamtown RAAF Base PFAS Assessments

The Williamtown RAAF Base and surrounds have been the subject of numerous investigations due to the occurrence of Per and Poly-FluoroAlkyl Substances (PFAS) contamination. The PFAS contamination has been identified across and beyond the RAAF Base boundaries, largely spread via groundwater and surface water.

Information is publicly available from the Australian Government Department of Defence – PFAS Investigation and Management Program, RAAF Base Williamtown website (https://www.defence.gov.au/environment/pfas/williamtown/Default.asp).

The website states: "*In October 2018, Defence completed the detailed environmental investigation into per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, RAAF Base Williamtown. All findings from the investigation are available on the publications page including detailed reports and factsheets.*

Defence is now focusing on management and remediation of PFAS contamination within the Management Area. The outcomes of the investigation have been used to develop a PFAS Management Area Plan (PMAP) that outlines the best management and remediation solutions for the unique circumstances at Williamtown."

Qualtest have carried out a review of the PMAP (ref: RAAF Base Williamtown, PFAS Management Area Plan, 23 September 2023 Revision 1). Information from the PMAP that is relevant to the site, is summarised below.

NSW EPA Management Area

The site is located within the NSW EPA Management Area. The NSW EPA Management Area is split into three zones. The three zones and institutional controls for each zone are summarised below:

- Primary Management Zone which includes the land immediately to the south of the RAAF Base. The institutional controls for the Primary Management Zone are: "*Groundwater, bore water and surface water should NOT be used for any purpose. Additionally, do not do anything with groundwater, bore water or surface water (including in creeks and drains) that might lead to incidental ingestion (swallowing). Home grown foods produced in your area should NOT be consumed. This includes home-slaughtered meat, poultry, eggs, milk, fruit and vegetables.*"
- Secondary Management Zone which includes land immediately to the west and south of the Primary Management Zone, and extending east along Moors Drain. The institutional controls for the Secondary Management Zone are: "*Do not use groundwater, bore water or surface water for drinking or cooking. Avoid swallowing groundwater or surface water when bathing, showering, swimming and paddling (including in creeks and drains). Groundwater and surface water should NOT be used for swimming or paddling pools. Avoid eating home*

grown food produced in your area – including home-slaughtered meat, eggs, milk, poultry, fruit and vegetables."; and,

- Broader Management Zone which surrounds the Secondary Management Zone and extends south along the eastern side of Fullerton Cove. The institutional controls for the Broader Management Zone are the same as the secondary management zone, see above.

The site is located within the Primary Management Zone.

Human Health Risk Zones

As part of a Human Health Risk Assessment completed by AECOM (2017) on behalf of the Department of Defence, four risk zones via exposure pathways to PFAS were identified:

- "*Risk Zone A – Defined as the Southern Area. The precautions recommended by the HHRA in Zone A generally correspond with those recommended by the NSW government for the NSW EPA Primary Management Zone.*
- *Risk Zone B – Defined as the eastern boundary, runoff to Moors Drain. The precautions recommended by the HHRA in Zone B generally correspond with those recommended by the NSW government for the NSW EPA Secondary Management Zone.*
- *Risk Zone C – Defined as that portion of the off-Base Management Area outside Zone A and Zone B and which corresponds with the surface water drainage network south of the Base, which predominately discharges to Fullerton Cove. The precautions recommended by the HHRA in Zone C generally correspond with those recommended by the NSW government for the NSW EPA Broader Management Zone.*
- *Risk Zone D- Defined as that portion of the off-Base Management Area outside Zone A, Zone B and Zone C which corresponds with the surface water drainage network south- east of the Base, which predominately discharged to Tilligerry Creek. The precautions recommended by the HHRA in Zone D generally correspond with those recommended by the NSW government for the NSW EPA Broader Management Zone."*

The site is located within Risk Zone A.

Ecological Risk Zones

As part of an Ecological Risk Assessment completed by AECOM (2018), six ecological risk zones were identified based on exposure pathways to PFAS:

- *"Area A – Encompasses the area to the west and south of the RAAF Base and Newcastle Airport and north of Cabbage Tree Road;*
- *Area B – Encompasses the area from the east boundary of the RAAF Base and Newcastle Airport to the eastern extent of the NSW EPA Management Area and north of Nelson Bay Road;*
- *Area C1 – Encompasses the area west of Nelson Bay Road, and south of Cabbage Tree Road. Area C1 contains the southern section of Dawsons Drain, the western portions of Fourteen Foot Drain and Ten Foot Drain and the Fullerton Cove Ring Drain;*
- *Area C2 – Encompasses the area south and east of Nelson Bay Road and contains the eastern sections of Fourteen Foot Drain and Ten Foot Drain as well as the freshwater reaches of Tilligerry Creek;*
- *Area D – Encompasses the Hunter Wetlands National Park which includes Fullerton Cover, the Tomago Wetlands (including the restoration area), the Kooragang Wetlands and the*

southern reaches of the Hunter River (excluding the southern portion of Kooragang Island); and

- *Area E – Encompasses the estuarine area of Tilligerry Creek to Lemon Tree Passage.*"

The site is located within Assessment Area A. The identified exposure pathways with potential elevated or unacceptable ecological risks are shown below:

- "*Ingestion of environmental media (Areas A, B, C1, E);*
- *Bioaccumulation of PFAS into aquatic organisms (Areas A, B, Ca, C2, E);*
- *Bioaccumulation of PFAS into terrestrial organisms (Areas A, B, C1, C2);*
- *Bioaccumulation and trophic transfer in aquatic and terrestrial food webs (Areas A, B, C1, C2, D, E).*"

Groundwater and Surface Water Monitoring

The PMAP states that groundwater, surface water and sediment sampling on and off Base will occur every 6 months. The most recent report publicly available is the AECOM (October, 2022) Annual Interpretive Report – 2021 (AECOM, 2022).

Based on the AECOM, 2022 report, there are no groundwater monitoring bores, soil or surface water/sediment sampling locations on the site. There are a number of offsite groundwater monitoring wells, and surface water/sediment sampling locations, surroundings the site, at various distances from the site. There are several soil sampling locations south of the site along Cabbage Tree Road.

The AECOM (2022) report showed groundwater concentrations in May 2021 of PFOS + PFHxS were above the adopted criteria up-gradient and down-gradient of the site. PFOA concentrations were above the adopted criteria up-gradient of the site, and below the adopted criteria down-gradient of the site. This indicates that groundwater beneath the site likely contains PFAS concentrations above the adopted criteria.

There is no surface water on the site. The AECOM (2022) report showed surface water concentrations in May 2021 of PFOS + PFHxS were above the adopted criteria up-gradient and down-gradient of the site. PFOA concentrations were below the adopted criteria up-gradient and down-gradient of the site. This indicates that surface water in surrounding area contains PFAS above the adopted criteria.

There is no sediment (associated with surface water bodies) on the site. The AECOM (2022) report showed sediment concentrations in May 2021 of PFOS + PFHxS and PFOA were below the adopted criteria up-gradient and down-gradient of the site. This indicates that sediment in the surrounding area contains PFAS below the adopted criteria.

The AECOM (2022) report showed the soil samples located south of the site reported concentrations in May 2021 of PFOS + PFHxS and PFOA below the adopted criteria.

3.6 NSW EPA Records & Environment Protection Licenses

Contaminated Land Records

A search of the NSW EPA database of notices issued under the Contaminated Land Management Act, 1997 (CLM Act) revealed there were no properties listed as having current and/or former notices within the Williamtown suburb.

A search of sites that have been notified to NSW EPA as contaminated (as of 9 November 2023) was also carried out. The search identified one property within the Williamtown suburb which had been notified to the NSW EPA as being contaminated:

- Hunter Land Effluent Pond, 38 Cabbage Tree Road. Regulation not required under the CLM act.

The Hunter Land Effluent Pond is located about 520m east of the site in a cross- to down-gradient location.

Given the distance and direction from the site, and that the pond does not require regulation under the CLM act, the likelihood of the pond impacting the site is considered to be low.

A copy of the above searches is provided in Appendix E.

NSW EPA PFAS Investigation Program

Based on a review of the NSW EPA Government PFAS Investigation Program (ref: https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program), the site is within the Broader Management Area of the Williamtown RAAF Base. This is discussed in Section 3.4 above.

NSW EPA Former Gasworks Sites

Based on a review of the NSW EPA website (ref: https://www.epa.nsw.gov.au/your-environment/contaminated-land/other-contamination-issues/former-gasworks-sites), there are no former gasworks that have been identified in the suburb of Williamtown.

3.7 Summary of Site History

The site history review showed:

- The site was likely used for cattle grazing from circa 1900 to circa 1989, although it is noted that the site was covered in vegetation (trees) until sometime between 1984 and 1998.
- Between 1984 and 1998 the southern portion/edge of the site was cleared of vegetation and appeared to be used for sand quarrying. The vegetation on the remainder of the site appeared to be thinned.
- Between 1998 and 2010 the southern portion/edge of the site became revegetated, indicating sand quarrying had been discontinued.
- From 2010 to 2023 the site remained relatively unchanged.

3.8 Potential Offsite Sources of Contamination

As discussed in Section 3.5, the site located within the Primary Management Zone of the PFAS Management Area. Based on information available, it is likely that groundwater underlying the site is contaminated with PFAS. The site soils and surface water (if present) may also potentially be contaminated with PFAS.

3.9 Gaps in the Site History

Whilst the site history is reasonably comprehensive there are some gaps identified in the review as follows:

- Activities carried out on the site prior to 1950s are not well known. However, based on the information available, it is considered the site would have been uncleared and undeveloped land, potentially used for cattle grazing.

4.0 Preliminary Conceptual Site Model

Based on the results of the contamination assessment carried out on the site, a preliminary Conceptual Site Model (CSM) has been developed.

Table 4.0 – Preliminary Conceptual Site Model

AEC	COPC	Likelihood of Contamination	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential Mechanisms of Exposure	Potential & Complete Exposure Pathways
1. Sand quarrying on southern portion/edge of site: • Use of equipment and machinery for quarrying. • Movement of material potentially contaminated with PFAS.	TRH, BTEX, PAH, Metals, PFAS	• Low	• Top-down leaks/spills, onto soil. • Movement of potentially contaminated soils. • Leaching of soil contaminants to surface water and groundwater.	• Fill soils • Surface Soils • Surface water • Groundwater	• Site users • Construction workers • Soil biota/plants and transitory wildlife • Offsite surface water – Dawsons Drain located about 1.1km south-west of the site, and Fullerton Cove located approximately 2.4km south-west of the site • Offsite groundwater discharge point – Fullerton Cove located approximately 2.4km south-west of the site.	• Direct dermal contact with contaminated soil, surface water, and/or groundwater • Ingestion of contaminated soil, surface water, and/or groundwater • Inhalation of asbestos fibres or contaminated soil (as dust) • Inhalation of hydrocarbon vapours • Leaching of soil contaminants to surface water and/or groundwater • Surface water discharge to Dawsons Drain. • Groundwater discharge to Fullerton Cove.	• Potentially complete exposure pathway for site users and construction workers. • Potentially complete exposure pathway for ecological receptors. • Likely incomplete exposure pathway for surface water due to and localised nature of potential contamination and distance to Dawsons Drain (1.1km). • Likely incomplete exposure pathway for groundwater due to top-down and localised nature of potential contamination, and expected depth of groundwater (~2m bgs).
2. Fill material: • Potential use of contaminated fill on access tracks. • Potential stockpiling of contaminated fill.	TRH, BTEX, PAH, Metals, Asbestos, PFAS	• Low to Medium	• Import of contaminated fill. • Leaching of fill contaminants to surface water and groundwater.				
3. Waste materials: • Potential contamination from illegally dumped waste materials.	TRH, BTEX, PAH, Metals, Asbestos (CoPCs dependent on waste type)	• Low to Medium	• Top-down leaks/spills, flakes/fibres onto soil. • Leaching of soil contaminants to surface water and groundwater.				
4. PFAS contamination: • Potential migration of contaminated groundwater and surface water onto the site.	PFAS	• Med to High	• Migration of contaminated groundwater. • Migration of contaminated surface water across site, contaminating surface soils.	• Soil • Surface water • Groundwater	• Site users • Construction workers	• Direct dermal contact with contaminated soil, surface water, and/or groundwater • Ingestion of contaminated soil, surface water, and/or groundwater	• Potentially complete exposure pathway for future construction and/or maintenance workers, if excavations extend to the groundwater table. • Incomplete exposure pathway for site visitors and site users, as they are unlikely to come into contact with groundwater. • PFAS in the region is managed under the RAAF Base Williamtown, PFAS Management Area Plan.

Notes: TRH = Total Recoverable Hydrocarbons; BTEX = Benzene, Toluene, Ethylbenzene, Xylenes; PAH = Polycyclic Aromatic Hydrocarbons; Metals = arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury; PFAS = Per- & Poly-Fluoroalkyl Substances

5.0 Conclusions and Recommendations

The site history assessment indicated the site was used for cattle grazing from circa 1900 to about 1989. The site was uncleared bushland until between 1984 and 1998, when the southern portion/edge of the site was cleared of all vegetation and appeared to be subject to sand quarrying. The vegetation on the remainder of the site appeared to be thinned. By 2010, the area used for sand quarrying was become revegetated. The site remained relatively unchanged from 2010 to today.

Four Areas of Environmental Concern (AECs) were identified based on the site history and site observations. The AECs related to: 1. Sand quarrying on southern portion/edge of site; 2. Use of fill material in access tracks and stockpiling of fill materials; 3. Illegal dumping of waste materials; and 4. Migration of PFAS contamination onto the site from the RAAF Base.

The Preliminary Conceptual Site Model (CSM) indicated that there was potential for soil and groundwater contamination to exist on the site and potentially complete exposure pathways could exist to site users, construction workers, and the environment.

Based on the above, it is recommended that a Detailed Site Investigation, comprising intrusive investigations, be carried out on the site. It is noted that the assessment would be limited to accessible areas of the site, and that further assessment following vegetation clearing may be required.

This report was prepared in general accordance with the relevant sections of guidelines made or endorsed by NSW EPA under Section 105 of the Contaminated Land Management Act, 1997, the Regulation, and the State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021. This includes the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land, the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013*, Canberra (referred to as ASC NEPM 2013), and Heads of EPAs of Australia and New Zealand (2020) PFAS National Environmental Management Plan.

6.0 Limitations

This report has been prepared by Qualtest for Greater Newcastle Aerotropolis Pty Ltd based on the objectives and scope of work list in Sections 1.1 and 1.2. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to their particular situation.

The opinions, conclusions and recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. Qualtest has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

In preparing this report Qualtest has relied on information contained in reports, documents and plans by others, and has assumed that the information provided in those reports is accurate. Information from searches of government websites has also been relied upon, and Qualtest has not independently verified or checked the data contained on these websites.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. If this report is reproduced, it must be in full.

7.0 References

NSW Department of Primary Industries (Office of Water) Registered Groundwater Bore Map, accessed from http://allwaterdata.water.nsw.gov.au/water.stm.

NSW Land and Property Information, Spatial Information eXchange (SIX) Maps - Topographic Map, accessed from https://maps.six.nsw.gov.au/.

NSW and Department of Planning, Industry and Environment accessed from espade.environment.nsw.gov.au.

NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.

NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), Canberra (ASC NEPM 2013).

Douglas Partners Pty Ltd (DP) (2009) Stage 1 Preliminary Contamination Assessment, ref: 39728.03 dated 16 April 2009

APPENDIX A:

Figures

Image obtained from Nearmaps, image dated 25 September 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 1
Project:	PRELIMINARY CONTAMINATION REVIEW	Project No:	NEW24P-0090-AB
Location:	PROPOSED LOT 400-500, ASTRA AEROLAB, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE LOCATION PLAN	Date:	24/04/2024

Image obtained from Sixmaps.

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 2
Project:	PRELIMINARY CONTAMINATION REVIEW	Project No:	NEW24P-0090-AB
Location:	PROPOSED LOT 400-500, ASTRA AEROLAB, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	LOT LAYOUT PLAN	Date:	24/04/2024

Image obtained from Nearmaps, image dated 12 October 2023

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 3
Project:	PRELIMINARY CONTAMINATION REVIEW	Project No:	NEW24P-00090-AB
Location:	PROPOSED LOT 400-500, ASTRA AEROLAB, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE OVERLAIN ON DP (2009) DRAWING NO. 1	Date:	29/04/2024

Image obtained from Nearmaps, image dated 12 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	GREATER NEWCASTLE AEROTROPOLIS PTY LTD	Drawing No:	FIGURE 4
Project:	PRELIMINARY CONTAMINATION REVIEW	Project No:	NEW24P-0090-AB
Location:	PROPOSED LOT 400-500, ASTRA AEROLAB, WILLIAMTOWN NSW	Scale:	N.T.S.
Title:	SITE FEATURES PLAN	Date:	14/05/2024

APPENDIX B:

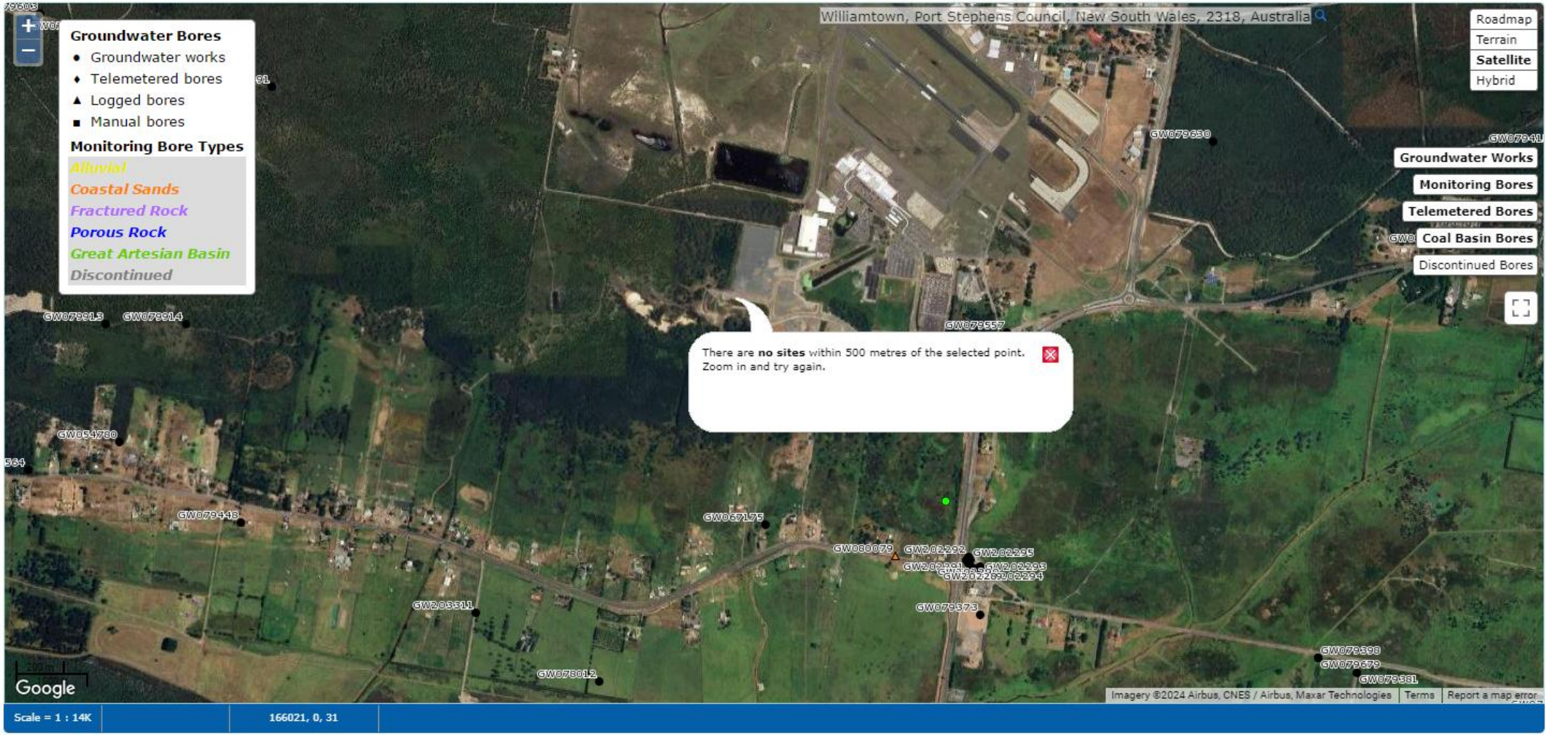
Groundwater Bore Search

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map | Info



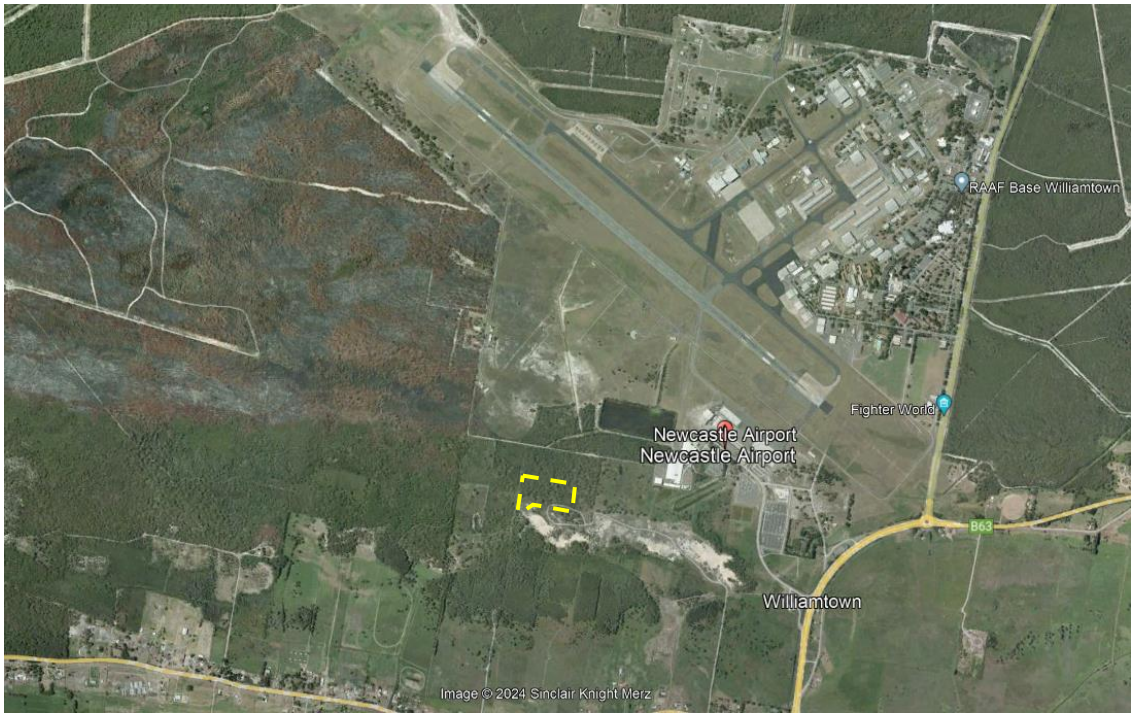
Scale = 1 : 14K | 166021, 0, 31

APPENDIX C:

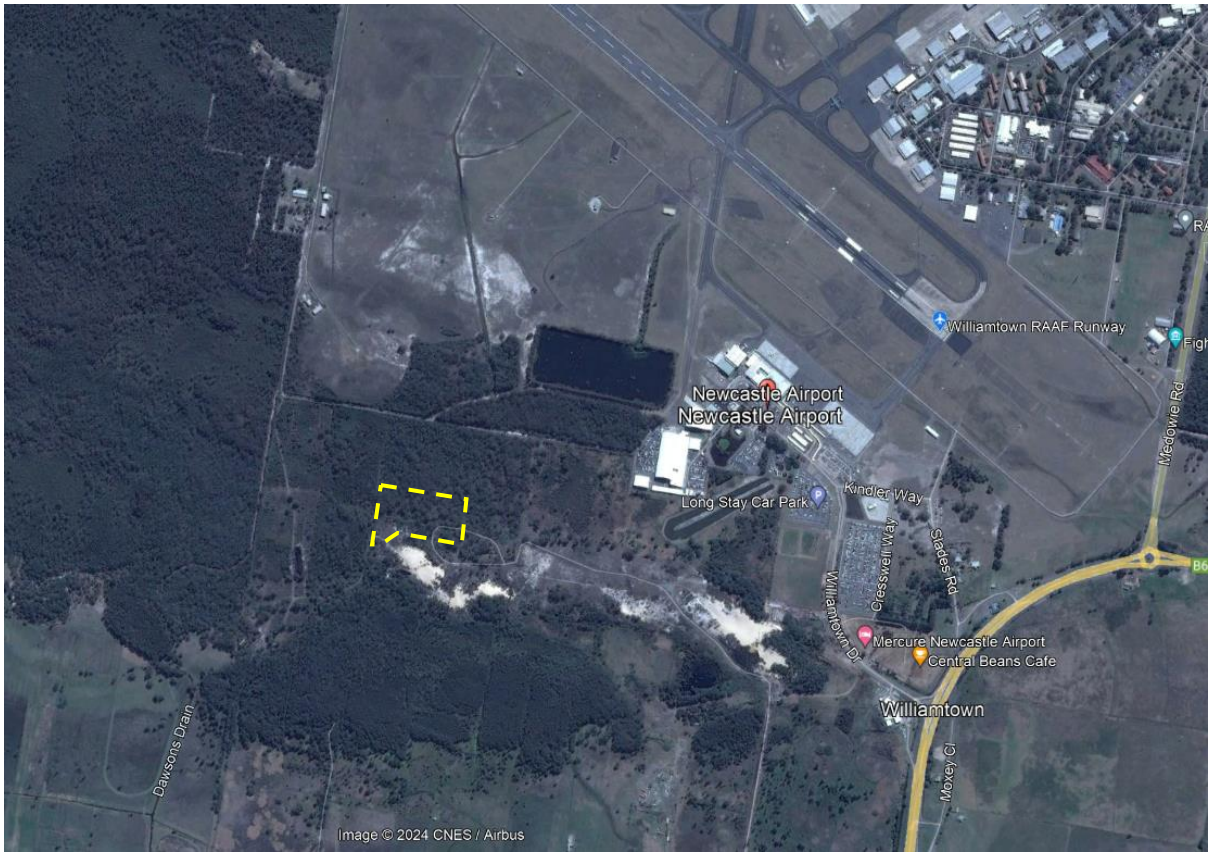
Aerial Photographs

Lot 400-500

2010



2013


Williamtown RAAF Runway
Newcastle Airport
Newcastle Airport
Long Stay Car Park
Kinder Way
Cessnell Way
Stapes Rd
Williamtown Dr
Mercure Newcastle Airport
Central Beans Cafe
Williamtown
Medowie Rd
Dawsons Drain
Image © 2024 CNES / Airbus

2016


RAAF Base Williamtown
Fighter World
Newcastle Airport
Newcastle Airport
B63
Williamtown
Cabbage Tree Rd
Cabbage Tree Rd
McDonald's
Belmont Boarding Kennels & Cattery

2018


RAAF Base
Fighter World
Meadowie Rd
Newcastle Airport
Newcastle Airport
B63
Williamtown

2022


RAAF Base Williamtown
Fighter World
Newcastle Airport
McDonald's

APPENDIX D:

Site Photographs

Photograph 1 - Showing access track and dense bushland on southern portion of site, facing west.

Photograph 2 - Showing vegetated track into bush in approx. central portion of site

Photograph 3 - Showing access track area paved in asphalt on southern portion of site

Qualtest LABORATORY (NSW) PTY LTD	Client:	Greater Newcastle Aerotropolis Pty Ltd	Project No:	NEW24P-0090-AB
	Project:	Preliminary Contamination Review	Date taken:	1/05/2024
	Location:	Lot 400-500 Astra Aerolab, Williamtown NSW	No:	**1 to 3**
	Title:	Site Photographs		

Photograph 4 - Showing access track on western boundary of site, facing north.

Photograph 5 - Showing access track on western boundary of site, facing south.

Photograph 6 - Showing dense bushland in south-western portion of site

Qualtest LABORATORY (NSW) PTY LTD	Client:	Greater Newcastle Aerotropolis Pty Ltd	Project No:	NEW24P-0090-AB
	Project:	Preliminary Contamination Review	Date taken:	1/05/2024
	Location:	Lot 400-500 Astra Aerolab, Williamtown NSW	No:	**4 to 6**
	Title:	Site Photographs		

APPENDIX E:

NSW EPA Records

+ POEO Public Register
− Contaminated land record of notices
About the record of notices
List of notified sites
Tips for searching
Disclaimer
Dangerous goods licences
Pesticide licences
Radiation licences

Search results

Your search for: Suburb: WILLIAMTOWN

Search Again Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

24 April 2024

WILBERFORCE	Former Drum Reconditioners	12-14 Box AVENUE	Other Industry	the CLM Act	-33.5453884	150.8587934
WILBERFORCE	Former Solvent Recycling Site	13 Box AVENUE	Chemical Industry	Regulation under CLM Act not required	-33.54557427	150.8577006
WILEY PARK	Sydney Water Property	18 Hillcrest STREET	Other Industry	Regulation under CLM Act not required	-33.92391634	151.0676256
WILLIAMTOWN	Hunter Land Effluent Pond	38 Cabbage Tree ROAD	Other Industry	Regulation under CLM Act not required	-32.80750069	151.8310107
WILLOUGHBY	Shell Coles Express Service Station	616-626 Willoughby ROAD	Service Station	Regulation under CLM Act not required	-33.80593769	151.1988559
WILLOUGHBY	Caltex Service Station	157 Penhur STREET	Service Station	Regulation under CLM Act not required	-33.79793513	151.1981926