

Reserve 980, Former Schofields Aerodrome, Access off Aerodrome Drive, Nirimba Fields NSW 2763

Audit Number: MP169_07

7 January 2026

Site Audit Report





Document Information

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Audit Number: MP169_07

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List of Acronyms

Acronym	Definition
Measures	
%	per cent
µg/L	Micrograms per Litre
µg/m ³	Micrograms per Cubic Metre
µS/cm	Microsieverts per Centimetre
km	Kilometres
m	Metre
mAHD	Metres Australian Height Datum
mbgl	Metres below ground level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
mm	Millimetre
ppm	Parts Per Million
w/w	Weight/weight
ABC	Ambient Background Concentrations
ACL	Added Contaminant Limit
ACM	Asbestos Containing Material
ADWG	Australian Drinking Water Guidelines
AEC	Area of Environmental Concern
AFFF	Aqueous Film Forming Foam
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines

Acronym	Definition
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASC	Assessment of Site Contamination
BaP	Benzo(a)pyrene
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes & Naphthalene
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
DGV	Default Guideline Value
DHA	Defence Housing Australia
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
EMP	Environmental Management Plan
EOW	Explosive ordnance waste
EPA	Environment Protection Authority (NSW)
ESL	Ecological Screening Level
FFTA	Former Fire Training Area
GITA	Geotechnical Inspection and Testing Authority
GMRRW	Guidelines for Managing Risks in Recreational Water
HDPE	High-density polyethylene



Acronym	Definition
HEPA	National Chemicals Working Group of the Heads of EPA Australia and New Zealand
HIL	Health Investigation Level
HSL	Health Screening Level
IAA	Interim Audit Advice
MEA	Material Emplacement Area
Metals	As: Arsenic, Cd: Cadmium, Cr: Chromium, Cu: Copper, Ni: Nickel, Pb: Lead, Zn: Zinc, Hg: Mercury
ML	Management Limits
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PFHxS	Perfluorohexane Sulfonate
pH	A measure of acidity, hydrogen ion activity
PID	Photoionisation Detector
PQL	Practical Quantitation Limit

Acronym	Definition
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
RPD	Relative Percent Difference
SAA	Small Arms Munition
SAQP	Sampling Analysis and Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
TEQ	Toxic Equivalence Quotient
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
UXO	Unexploded Ordnance
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Compounds



1.0 Introduction

A site contamination audit has been conducted in relation to the site known as 'Reserve 980' located within the former Schofields Aerodrome which is being developed into a new low-density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields. Reserve 980 ('the audit site' or 'the site') is shown in Attachment 1 to 4 (**Appendix A**) and is access from Aerodrome Drive, Nirimba Fields, NSW 2763. It is approximately 15 hectares and is located roughly in the centre of the former Schofields Aerodrome (which is approximately 135 hectares).

1.1 Audit Objective

Development consent DA 21-00925 (determination date of 20 July 2022) was granted by Blacktown City Council for "procedural 5 lot subdivision with dedication of 3 proposed lots to Blacktown City Council." The consent was subject to a number of requirements of which condition 3.11.1 relates to contamination and requires a site audit statement as follows:

"A NSW Environment Protection Authority accredited Site Auditor shall review the validation report and submit to Council a Site Audit Statement. The Site Audit Statement shall verify that the investigation, remediation and validation was carried out in accordance with the aforementioned guidelines and that the site is suitable for the proposed use."

This current audit was initiated to comply with condition 3.11.1 of the DA approval and is therefore a statutory audit. Notification of the site audit (MP169_07) was forwarded to the EPA on 26 February 2025 (EPA Ref: DOC25/180594).

There is also a DA 15-00999 (determination date of 21 April 2017) approved by Blacktown City Council for bulk earthworks at Reserve 980. DA 15-00999 does not require a site audit to be completed and bulk earthworks at Reserve 980 were completed prior to the commencement of this audit.

1.2 Background and Previous Site Audits

The former Schofields Aerodrome (including Reserve 980) was previously audited by another auditor with:

- A Section A site audit in 2013 conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as 'Environ 2013' or 'the 2013 Section A SAR'.

The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section B site audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01_R1). This is referred to as 'Senversa 2021a' or 'the PFAS MEA SAR'.
- Section B site audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03_R1). This is referred to as 'Senversa 2021b' or 'the Remaining Site Area SAR'.

¹ PFAS: Per and Polyfluoroalkyl Substances.



The scope of the two previous Section B site audits were limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material [VENM]) has been imported and placed within Reserve 980.

The rest of the former Schofields Aerodrome external to Reserve 980 have been separately audited by the auditor since 2021 and for brevity, they are not discussed here.

1.3 Scope of the Audit

Details of the audit are:

Requested by: [REDACTED] on behalf of Defence Housing Australia (DHA)

Request/Commencement Date: 9 January 2025 (date of engagement specifically for the audit of Reserve 980, noting that the auditor has been engaged since 2021 for the wider former Schofield Aerodrome)

Auditor: [REDACTED]

Accreditation No.: [REDACTED]

The scope of the audit included:

- Review of the following reports:
 - Ramboll (2021) PFAS Validation Report, Former Schofields Aerodrome, Remaining Site Area, Final F1, 21 October 2021. This report was previously reviewed as part of the Remaining Site Area Audit, but is referred to in this audit for background or context as it refers to the wider former aerodrome.
 - Ramboll (2025a) Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation, Final F2, 26 March 2025. This is hereafter referred to as the 'SAQP'.
 - Ramboll (2025b) Detailed Site Investigation, Reserve 980, v6.0, 23 December 2025. This is hereafter referred to as the 'DSI'.
- A site visit by the auditor on 2 December 2025.
- Discussions with DHA, Blacktown City Council and with Ramboll Australia Pty Ltd (Ramboll) who undertook the investigation.

During the course of the audit, letters of Interim Audit Advice (IAA) were issued by the auditor, and they are provided in Appendix C:

- Interim Audit Advice No. 1 dated 10 January 2025.
- Interim Audit Advice No. 3 dated 11 March 2025.
- Interim Audit Advice No. 4 dated 25 March 2025.
- Interim Audit Advice No. 5 dated 27 March 2025.
- Interim Audit Advice No. 8 dated 16 October 2025.
- Interim Audit Advice No. 9 dated 27 November 2025.
- Interim Audit Advice No. 10 dated 15 December 2025.



2.0 Site Details

2.1 Location

The site locality is shown on Attachment 1 to 4 (**Appendix A**).

The site details are as follows:

Street address:	Access off Aerodrome Drive, Nirimba Fields NSW 2763.
Identifier:	Part Lot 5200 DP1272922.
Local Government:	Blacktown City Council.
Owner:	DHA.
Site Area:	Approximately 15 hectares.

A survey plan of Reserve 980 has been provided as Attachment 6 (**Appendix A**).

2.2 Zoning

In accordance with the Blacktown Local Environmental Plan 2015 (current version for 19 September 2025 to date), the current zoning of the site is:

- RE1 – Public Recreation.
- SP2 – Infrastructure.
- R2 – Low Density Residential.

2.3 Adjacent Uses

The surrounding site uses include:

- North: newly constructed residential houses, a public park and a school.
- East: newly constructed residential houses, vacant residential land and Blacktown Richmond Railway line approximately 520 m to the east of the eastern boundary of Reserve 980.
- South: vacant land (former aerodrome runway), a stormwater retention pond (Basin 6) and university and TAFE buildings further south.
- West: vacant land (future roadway/Aerodrome Drive) followed by a surface water retention basin (Channel 1 Extension Basin) and Eastern Creek.

Previous drainage channels in the former Schofields Aerodrome had been filled with newer retention ponds and drainage channels (external to Reserve 980) as part of the development of the Nirimba Fields residential estate. Basin 6 and Channel 1 Extension Basin are temporary stormwater retention ponds located to the south and west of Reserve 980 respectively. The DSI indicated that these ponds are proposed to be removed and replaced with more permanent stormwater features in the future, and therefore, these ponds are not considered to be receptors for groundwater.

Eastern Creek, the closest sensitive ecological receptor, is located approximately 250 m west of the Reserve 980. Eastern Creek forms part of the South Creek Catchment that flows into the Hawkesbury River.



2.4 Site Condition

Reserve 980 is described by Ramboll as “*partially developed vacant open space including haul access roads and part of a drainage channel in the south*”. It is relatively flat at 20 to 23 mAHD.

The following was noted by the auditor during the site visit conducted on 2 December 2025 with representatives from DHA and Ramboll:

- The audit site was vacant and undeveloped with a relatively flat topography. Ground cover consisted of grass and bare ground.
- Stockpiles of waste from illegal dumped waste (such as construction and demolition waste) and surplus spoil from other areas (such as excavation of Channel 3 or crushed concrete) were observed along the western side of the gravel haul road located at the western portion of Reserve 980. Some of the stockpiles appears to be present for a period of time as they had grass growing on the stockpiles.
- No surface water body or pooled surface water was observed.
- Basin 6 and Channel 1 Extension Basin (located off-site) were noted to contain water.

2.5 Proposed Development

Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and open space), and carparks and access roads (less sensitive commercial/industrial land use). Attachment 7 (**Appendix A**) shows the general arrangement of the proposed sporting features include netball, basketball and volleyball courts.

For the purposes of this audit, the ‘public open space’ land use scenario will be assumed.



3.0 Summary of Previous Audits and Environmental Investigations

Table 3-1 provides a summary of the audit and environmental investigations conducted to date that are relevant to Reserve 980.

Table 3-1: Summary of Audit and Assessment Events

Date	Activity	Reference
2005	Section A Site Audit Report for the entire former Schofields Aerodrome was completed by [REDACTED] (ref: Site Audit Report, Lot 4 DP853847 Part of Schofields Aerodrome and Site Audit Statement [SAS] GN 6-1 dated 16 May 2005. The SAS stated that the former aerodrome (including Reserve 980) was suitable for sensitive use including <i>“residential with accessible soil, including garden...excluding poultry”</i> and <i>“day care centre, preschool, primary school”</i>.	Environ 2005.
2013	Section A Site Audit Report for the entire former Schofields Aerodrome was completed by [REDACTED] (ref: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596 and Site Audit Statement [SAS] GN481 dated 25 September 2013). This 2013 audit was conducted to incorporate results of investigation and remediation conducted and the changes in guidelines and legislation since 2005. An environmental management plan (EMP) was prepared to identify and manage unexpected finds. No significant contamination was found in groundwater and the audit recommended that if groundwater was abstracted, its suitability for use be assessed. The audit also indicated that the major sources of contamination have been removed from the former aerodrome. The SAS stated that the former aerodrome was suitable for sensitive use including <i>“residential with accessible soil, including garden...excluding poultry”</i> and <i>“day care centre, preschool, primary school”</i>.	Environ 2013.
May 2018 to December 2020	Excavation of material from Former Fire Training Area and No Scrape Area of the former Schofield Aerodrome (both located outside of Reserve 980) and placement of the material into PFAS MEA.	Senversa 2021a
December 2020	Validation works conducted of PFAS MEA <i>“to assess whether the PFAS MEA is suitable for future residential land use with respect to the PFAS material placement layer and is adequately protective of the environment following placement of PFAS impacted material at depth”</i>. The PFAS MEA Validation Report was prepared and it concluded that <i>“the PFAS MEA is considered suitable for future low-density residential with garden and accessible soil with respect to the PFAS material placement layer”</i>.	Senversa 2021a
22 June 2021	A Section B Site Audit completed for PFAS MEA (which was proposed for low-density residential, public open space and a road land uses) conducted by the auditor. Only the nature and extent of PFAS contamination at the PFAS MEA associated with historical site activities and site use as an aerodrome, was assessed as part of this audit and all other contaminants were excluded.	Senversa 2021a



Date	Activity	Reference
June to September 2021	Ramboll conducted a soil field program targeting the Remaining Site Area (which covers an area larger than Reserve 980). This included collection and analysis of the following for PFAS compounds only: • Soil samples at 407 locations (including 206 new soil bores and 12 new groundwater monitoring bores). • 13 groundwater samples from the 12 newly installed groundwater monitoring bores. It should be noted that this field program was completed to support a Section B site audit which was to restrict to PFAS contamination associated with historical site activities and site use an aerodrome (refer to row below).	Senversa 2021b.
October 2021	A Section B Site Audit completed for Remaining Site Area (which was proposed for future residential and public open space land use) conducted by the auditor. Only the nature and extent of PFAS contamination at the Remaining Site Area associated with historical site activities and site use as an aerodrome, was assessed as part of this audit and all other contaminants were excluded. The Remaining Site Area SAR concluded the following: • The nature and extent of the PFAS contamination have been appropriately determined. • The risk to human health and the environment posed by the soil and groundwater are considered to be acceptable for the proposed land use. Extraction of groundwater for any purpose within the audit site was documented in the Validation Report to be not proposed or not likely due to the high salinity and poor yield from clayey aquifer.	Senversa 2021b.
April to December 2025	Ramboll conducted a detailed site investigation at Reserve 980. The field program investigated the fill (VENM) placed across Reserve 980 (grid-like sampling) and also targeted the following Area of Environmental Concern (AEC) as discussed in Section 4.1: • Potential illegal dumping of waste. • Former temporary water retention basin 1. • Former temporary water retention basin 2. The scope of the DSI comprised: • Assessment of the thickness of fill (VENM) placed on-site. • Drilling of 47 soil bores and 3 new groundwater monitoring bores. • Collection and analysis for 94 soil and 5 groundwater samples (2 existing and 3 newly-installed monitoring bores) for contaminants of concern. • Asbestos removal and validation works. The DSI also presented 37 VENM certificates associated with the VENM imported and placed at Reserve 980 as part of the bulk filling of the former Schofields Aerodrome. Ramboll reviewed the VENM certificates and identified that the materials imported were consistent with the definition of VENM within NSW EPA Waste Classification Guidelines (2014). Ramboll conducted a soil investigation on 8 December 2025. Three stockpiles (SP01 to SP03) at Reserve 980 were assessed to confirm whether they were suitable to be re-used within the former Schofields Aerodrome (refer to Appendix 15 of the DSI). This included the collection of 24 primary soil samples, two intra-laboratory duplicates and two inter-laboratory duplicates (using an excavator). One of the stockpiles (SP03) was previously sampled in April 2023. That data was also used in the stockpile assessment. The three stockpiles (SP01 to SP03) were removed from Reserve 980 on 22 December 2025 and the footprints of the former stockpiles were visually validated by Ramboll on 23 December 2025.	Ramboll 2025a and 2025b.



4.0 Site History

4.1 Summary of Site History

The DSI presented the site history of the former Schofields Aerodrome which was based on review of historical aerial photographs, title search, anecdotal information from interviews, and photographs plans provided by DHA. The auditor has summarised the site history as presented in the DSI below:

- Pre-1851 – Undeveloped land.
- 1851 to 1942 – Dairy and orchard agricultural land.
- 1942 to 1975 – Training base and airfield by Royal Australian Air Force (RAAF) and Royal Australian Navy (RAN). The site included runways, repair stores, sleeping huts, offices, sewerage treatment plant, machine gun test butt and a fire training area. Aqueous film forming foam (AFFF) were used for firefighting purposes at the former fire training area (FFTA). A separate section of the former aerodrome was used as a migrant hostel. A piggery, sports field and weapons electrical engineering school were present from 1952 to 1975.
- 1975 to 1993 – Former aerodrome was used by Schofields Flying Club where light planes were housed and maintained.
- 1986 – The piggery was demolished, and an airship (blimp) hangar was constructed.
- 1993 to 2017 – Vacant and miscellaneous use (such as go-cart track, driver training, film set, training facility for Sydney 2000 Olympics). Demolition of some structures. The northern part of the former aerodrome was used as a staging area for the Blacktown-Richmond rail line duplication.
- 2012: the former aerodrome was rezoned for urban development as part of the precinct development.
- 2015: DHA purchased the former aerodrome land from Department of Defence.
- 2018 to 2019 – Land clearing to facilitate construction of new residential estate Nirimba Fields which included “*significant land raising earthworks*” to mitigate flooding risk from Eastern Creek. Vast amount of VENM has been imported and placed over the former aerodrome. The former drainage lines have been backfilled with approximately 3 to 6 m of VENM as part of the site development works.
- 2019 onwards to current – the former Schofields Aerodrome was progressively developed into a new residential estate with construction of new low-density residential properties, suburban roads, recreational areas, a school and associated infrastructure.

In terms of Reserve 980, Ramboll has identified and highlighted the following historical site features or AECs present:

- Roads and runways (previously discussed in the 2013 Section A SAR).
- Adjacent to roads and runways (previously discussed in the 2013 Section A SAR).
- Drainage lines (previously discussed in the Remaining Site Area SAR).
- PFAS MEA (previously discussed in the PFAS MEA SAR, and Remaining Site Area SAR).
- Potential illegal dumping of waste based on Ramboll's field observations in 2024.
- Former temporary water retention basin 1.
- Former temporary water retention basin 2. As indicated in Attachment 1 (**Appendix A**), approximately half of this basin is located outside of Reserve 980. However, for completeness, the assessment of this basin is discussed in this audit report.

These AECs are shown in Attachment 1 to 4 (**Appendix A**), and the auditor concurs that these are historical features or AECs of interest.



During the site visits undertaken by Ramboll as part of the DSI field work in 2025, Ramboll observed illegal fly tipping of rubbish and other waste material which had been placed up against the soil stockpiles located to the west of the haul road at the southern end of Aerodrome Drive. Ramboll identified that this illegally dumped material was a potential area for assessment and validation. The stockpiles are shown as 'Stockpiled Material Area' and 'Illegal dumped ACM fragments' in Attachment 1 to 4 (**Appendix A**).

The auditor notes that these stockpiles were present during the Auditor's site inspection on 2 December 2025.

Overall, the auditor considers that the site history review conducted to date provides an adequate indication of past activities.

4.2 Contaminants of Concern

Ramboll provided a list of the contaminants of concern and potentially contaminating activities. These have been tabulated in **Table 4-1**.

Table 4-1: Contaminants of Concern

Activity	Potential Contaminants
Imported fill placed at depth at PFAS MEA	PFAS
Imported fill (VENM)	Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAH), Organochlorine Pesticides (OCP), and Polychlorinated Biphenyls (PCB), asbestos and PFAS.
Illegally dumped waste	TRH, BTEX, heavy metals, PAH, OCP, PCB, asbestos and PFAS.
Historical temporary water retention basins	TRH, BTEX, Heavy Metals, PAH, OCP, PCB, asbestos and PFAS
Historic aerodrome operations (roadways, adjacent to roads and runways, drainage lines	TRH, BTEX, Heavy Metals, PAH, OCP, PCB, asbestos and PFAS.

Note:

PFAS, including perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS), and sum of PFOS and PFHxS.

The auditor considers that the analyte list used by Ramboll adequately reflects the site history and condition. At the auditor's request, Ramboll noted that previous investigations have not indicated phenol contamination, and therefore, phenols are not considered to be contaminant of concern.

The auditor notes that although organophosphorus pesticides (OPP) are not listed by Ramboll as contaminants of concern, OPPs were analysed during the field investigation.



5.0 Stratigraphy and Hydrogeology

Following a review of the reports provided, a summary of the site stratigraphy and hydrogeology was compiled as follows.

5.1 Stratigraphy

The sub-surface profile of the site as reported in the DSI, is summarised in **Table 5-1**.

Table 5-1: Generalised Stratigraphy

Depth (mbgl)	Subsurface Profile
0.0 – 1.5 to 3.9	FILL (imported VENM): gravelly/sandy clay, brown, with sandstone and shale gravels, cobbles and boulders, moderate plasticity, dry, and hard.
1.5 to 3.9 – 7.4	Natural CLAY: dark brown silty clay of low to moderately plasticity progressing into orange/brown clay of moderate to high plasticity, minor rootlets present.
Notes:	
mbgl – metres below ground level.	
7.4 mbgl was the maximum depth of investigation.	

5.2 Hydrogeology

Groundwater was previously reported to be typically less than 2 mbgl (Environ 2013) and was anticipated to flow westerly towards Eastern Creek. This is consistent with the hydrogeology summarised in the Remaining Site Area SAR, noting that due to the subsequently raised ground level that the groundwater had been encountered at greater depths.

Ramboll's summary of the hydrogeological setting as reported in the DSI is presented in **Table 5-2**.

Table 5-2: Hydrogeological Setting (Reserve 980)

Aspect	Details
Saturated Geological Layers	Clay, silty clay, weathered shale.
Depth to Water	3.08 mbtoc to 4.72 mbtoc.
Groundwater Elevation	17.03 mAHD to 18.82 mAHD.
Hydraulic Conductivity	0.0002 m/day (average literature value for clay materials based on Domenico and Schwartz 1990).
Effective Porosity	6% (literature value for clay materials based on Heath 1983).
Groundwater calculated average linear velocity	0.00000066 m/day.
Interpreted Flow Direction	West towards Eastern Creek.



Aspect	Details
Groundwater Quality	- Dissolved oxygen ranged from 0.1 mg/L to 0.27 mg/L. - Electrical conductivity ranged from 1,101 $\mu\text{S/cm}$ to 19,782 $\mu\text{S/cm}$. Measured total dissolved solids ranged from 715 mg/L to 8,157 mg/L. - Redox potential ranged from 39.1 mV to 88.8 mV. - pH ranged from 5.73 to 6.64. - Temperature ranged from 21.5 °C to 22.8 °C.

Due to the high salinity and likely poor yield from natural clays, groundwater at Reserve 980 is unlikely to be extracted for use such as irrigation. Ramboll also documented that there was no registered groundwater bore located within 1 km of the site.

The nearest surface water bodies to Reserve 980 are:

- A water retention basin (Basin 6) immediately south of Reserve 980. This basin will be separately assessed and audited in the future to Reserve 980.
- A drainage basin (Channel 1 Extension Basin) adjacent to the western boundary of Reserve 980 and west of Eastern Creek.
- Eastern Creek located approximately 250 m west of the site.

Ramboll reported that groundwater from the site is likely to flow into Eastern Creek (which is the primary receptor of groundwater), and surface water from the audit site is likely to infiltrate site soil and/or flow into Channel 1 Extension Basin located west of the site.

The auditor considers that the depth of fill, underlying stratigraphy and hydrogeology have been adequately characterised and concurs that groundwater at Reserve 980 is unlikely to be extracted for use.



6.0 Evaluation of Quality Assurance and Quality Control

The auditor has assessed the overall quality of the data by reviewing the field investigation undertaken in the DSI (Ramboll 2025b), including the Soil Stockpile Material Options Assessment conducted in December 2025, as presented in **Table 6-1**.

Table 6-1: Summary of DSI

Medium	Analytical Data Obtained
DSI	
Soil (47 soil bores and 3 groundwater monitoring bores)	Metals (arsenic, cadmium, total chromium, copper, lead, mercury, nickel and zinc). Total recoverable hydrocarbon (TRH); benzene, toluene, ethylbenzene and xylenes (BTEX); polycyclic aromatic hydrocarbon (PAH), organochlorine pesticide (OCP), organophosphorus pesticide (OPP) and polychlorinated biphenyl (PCB), volatile organic compounds (VOC) and PFAS. Asbestos identification in soil. pH, electric conductivity (EC), percentage clay, total organic carbon and percentage iron (selected samples only).
Groundwater (5 groundwater monitoring bores sampled)	Metals (arsenic, cadmium, total chromium, copper, lead, mercury, nickel and zinc). TRH, BTEX, OCP, OPP, PAH, PCB, VOC and PFAS.
Stockpile Material Options Assessment (Appendix 15 of the DSI)	
Soil (24 primary stockpile samples and 4 field duplicate samples)	Metals (arsenic, cadmium, total chromium, copper, lead, mercury, nickel and zinc). TRH, BTEX, PAH, OCP, OPP, PCBs, VOC and PFAS. Asbestos identification in soil.

Assessments of the overall quality of the investigation data obtained prior to the DSI were included in the previous SARs (Environ 2013, Senversa 2021a and Senversa 2021b).

The 2013 Section A SAR concluded that:

“The data is likely to be representative of the overall conditions on the site, and within the targeted investigation areas.

The data is complete.

There is a high degree of confidence that data is reasonably comparable for each sampling and analytical event, noting the long time frame and different consultants and laboratories involved.

The primary laboratories provided sufficient information to conclude that data is of sufficient precision.

Sufficient information on field and laboratory methods was provided to conclude that the data is sufficiently accurate for the purpose of this audit.”

The PFAS MEA SAR concluded that:

“While the number of field quality control samples collected was not in full compliance with guidelines and omissions in documentation were identified, the results were generally consistent indicating the data is likely to be representative of the overall conditions on the audit site.



Data is likely to be reasonably comparable for each sampling and analytical event, noting that different sampling methodology and laboratories were adopted.

Primary and secondary laboratories provided sufficient information to conclude that the dataset was generally precise. Ramboll adopted the higher of the duplicate results in their assessment and interpretation of contamination.

Samples were collected using suitable procedures, and field and laboratory blank / spike samples were all considered acceptable. The data is considered accurate and was relied upon for this audit.

The Remaining Site Area SAR concluded that:

"Samples were collected using suitable procedures with appropriate field quality control samples (such as rinsate and field blanks).

The results of field quality control samples were generally consistent, indicating the data is likely to be representative of the overall conditions on the audit site. Ramboll adopted the higher of the duplicate results in their assessment and interpretation of contamination.

The laboratory analysis was undertaken by NATA registered laboratories using accredited analytical methods. Primary and secondary laboratories have provided sufficient information to conclude that the dataset is generally precise.

Samples were collected using suitable procedures and met the sampling density specified in the SAQP. The data was generally considered accurate and was relied upon for this audit."

The auditor has assessed the overall quality of the data by review of the information presented in the DSI (Ramboll 2025b), supplemented by field observations. The auditor's assessment follows in **Table 6-2** and **Table 6-3**.

Table 6-2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Data Quality Objectives (DQOs) Ramboll (2025a) defined specific DQOs in accordance with the seven step process outlined in EPA (2017) Guidelines for the NSW Site Auditor Scheme in Section 4 of the SAQP.	These were considered appropriate for the investigations conducted.
Sampling pattern and locations Soil and groundwater sampling was undertaken in accordance with the SAQP for the site (Ramboll 2025a). <u>Soil</u>: Investigation locations were spaced using a grid approach to gain coverage of the majority of the site. Furthermore, targeted sampling was conducted at identified AECs and where possible, the sampling locations within the AECs were spaced out to maximum coverage. <u>Soil (Stockpile Assessment)</u>: the samples from the three stockpiles were generally evenly spaced across the stockpile. The sampling of SP03 considered the previous sampling conducted on the western part of the stockpile and were mainly from the eastern un-sampled portion of the stockpile. <u>Groundwater</u>: Three newly installed monitoring bores and two existing bores were located at: - western portion of the site (in assumed down-gradient positions) with R980_MW03 located down-gradient of PFAS MEA - R980-MW06 in the eastern portion (up-gradient) of the site. - R980-MW05 in the vicinity of the potential illegal dumping AEC.	The number of sampling locations specified in the SAQP was met during validation. In the auditor's opinion these investigation locations and density adequately target the main areas of concern.
Sampling density <u>Soil</u>: The sampling density of 32 locations over approximately 15 hectares (approximately 2 locations per hectare) to assess the general imported fill. The sampling density was reduced because:	



Sampling and Analysis Plan and Sampling Methodology

Auditor's Opinion

- The site history is considered well understood.
- VENM certificates for the imported VENM were available and reviewed to be consistent with the EPA's definition of VENM.
- The bulk excavation contractor had engaged a geotechnical consultant to provide Level 1 supervision of the back-filling and the geotechnical summary report identified the imported to be gravelly/shaley clay consistent with VENM certificates.
- Previous investigations conducted by Ramboll had observed the imported fill to be consistent with VENM material (i.e. no notable evidence of contamination).
- Historical AECs were assessed and validated in previous assessment reports and audits.
- This is a first tier approach to assess Reserve 980 and so if contamination was identified during this initial testing, additional investigation (i.e. targeted sampling) would have then been conducted.

For the individual AECs, 5 sampling locations per AEC were adopted:

- Potential illegal waste dumping (0.5 hectare)
- Temporary Basin 1 (0.09 hectare)
- Temporary Basin 2 (0.08 hectare)

Soil (Stockpile Assessment): the number of sampling locations were in line with the requirement of EPA's sampling guideline.

Groundwater: All existing and newly installed monitoring bores on-site were sampled.

Sample depths

Soil: The boreholes were advanced at least 0.5 m past the natural soil horizon. Samples were collected from the current ground surface, 0.4 to 0.5 mbgl, 0.9 to 1 mbgl and every metre thereafter and/or upon a change in lithology or signs of contamination. Two samples per borehole were analysed from varying depth with the fill at each location (or if signs of contamination were observed).

The DSI acknowledge that the natural soil (below imported VENM) at not intersected at R980_BH08 due to refusal on rock.

Soil (Stockpile Assessment): sampling was conducted from 0 to 0.01 and 0.4 and 0.5 depth below the stockpile surfaces. Ramboll considered that the samples were representative of the entire stockpile.

Groundwater: Monitoring bores were installed to depths ranging between 5.5 and 7.4 mbgl to assess groundwater conditions.

This sampling strategy was appropriate and adequate to characterise the imported fill (VENM), the stockpiles on-site and the aquifer at Reserve 980.

Well construction

The three new monitoring bores were installed to depths of 5.5 to 7.4 mbgl, with screen intervals of 2.4 to 3 m placed in graded filter sand. Bores were constructed of 50 mm diameter PVC class 18 pipe with 0.5 mm slotted screen fitted with an end cap. A bentonite seal of approximately 0.5 m thickness was placed above the screen and the well backfilled with grout slurry to the ground surface.

The well construction was acceptable.



Sampling and Analysis Plan and Sampling Methodology

Auditor's Opinion

Sample collection method

Soil: Bore advance was via pushtube (geoprobe). Samples were collected with a sampler tube fitted with clear PVC sleeves and sand catchers were used to prevent loss of sample.

Soil (Stockpile Assessment): Grab samples were collected from soil at the centre of the excavator bucket that were not in contact with the bucket surfaces.

Groundwater: The monitoring bores were installed by pushtubes and solid stem augers. They were developed in April 2025 by purging groundwater until the bores were dry and left for a minimum of one week to stabilise prior to sampling. Samples were collected with low flow peristaltic pump.

Overall the sample collection method was found to be acceptable.

Decontamination procedures

Ramboll indicated that sampling equipment was decontaminated using PFAS-free detergent and deionised water prior to use at each location. Dedicated disposable nitrile gloves were reportedly used for each new soil and groundwater sample.

This is considered to be acceptable.

Sample handling and containers

Soil and groundwater samples were placed in laboratory-supplied containers (comprised polypropylene or high-density polyethylene, HDPE). Samples were chilled in non-chemical based ice which had been double-bagged (polyethylene plastic) and secured to avoid meltwater from contacting sample containers in the Esky™ during storage and subsequent transport to the laboratory.

This is considered to be acceptable.

Chain of Custody

Chain of custody forms were provided in the DSI and it is noted that not all chain of custody was signed or initialled by Ramboll's representative.

While this is not ideal, it does not affect the outcome of the audit.

Detailed description of field screening protocols

Soil: Field screening for volatiles was undertaken using a calibrated photoionisation detector (PID).

Soil (Stockpile Assessment): No field screening was conducted.

Groundwater: Field parameters were measured during well sampling and development.

It is not ideal that field screening was not undertaken during the stockpile assessment. However, the analytical concentrations were all below detection limits or the adopted guideline levels, which indicate that this omission is not material to the conclusion of the stockpile assessment.

The field screening completed for the DSI works is considered to be acceptable.

Calibration of field equipment

The reports indicated that equipment calibration had been undertaken prior to use and checks were performed during use. Calibration certificates from the equipment supplier (for PID, interface meter, water quality meter) were provided in Appendix 14 of the DSI.

This is considered to be acceptable.

Sampling logs

Soil logs are provided within Appendix 5 of the DSI, indicating sample depth, PID readings and lithology. The logs report no indications of contamination (staining, odour) were found. A piece of yellow plastic tape was observed at R980_MW01 and this material was considered to be associated with loading or transport of the VENM material (i.e. not gross inclusion of anthropogenic waste).

Groundwater field sampling records were provided in Appendix 6 of the DSI, indicating water levels, field parameters, methodology and observations.

This is considered to be acceptable.

**Table 6-3: QA/QC – Field and Lab Quality Assurance and Quality Control**

Field and Lab QA/QC	Auditor's Opinion
Field quality control samples The following field quality assurance/control samples were undertaken as part of the DSI: • 4 trip blanks and 4 trip spikes collected at the rate of 1 per batch of samples. • 6 field blanks collected at the rate of 1 per day of sampling. • 13 rinsate blanks were collected and analysed for PFAS and 7 rinsate blanks were collected and analysed for non-PFAS contaminants of concern. • 9 field intra-laboratory and 9 inter-laboratory soil duplicates (for 94 primary soil samples). • 1 field intra-laboratory and 1 inter-laboratory groundwater duplicates (for 5 primary groundwater samples). <u>Soil:</u> The combined duplicate sampling rate was 19.15% which was slightly below the SAQP requirements, but Ramboll noted that PFAS National Environmental Management Plan (NEMP) 3.0 (HEPA 2025) now requires one per 20 samples. <u>Soil (Stockpile Assessment):</u> Three field intra-laboratory and one inter-laboratory soil duplicates (for 24 primary soil stockpile samples) were collected and analysed. The number of intra-laboratory soil duplicates is more than the frequency recommended by the NEPM and the number of inter-laboratory soil duplicate is less than the recommended frequency. While this is a technical non-conformance, the total number of duplicates were considered sufficient. Rinsate blank was not collected as no reusable equipment was used. Ramboll indicated that field trip spikes or field blanks were not warranted because <i>“the material is relatively homogenous and volatiles were not considered a significant concern given the suspected source of the material and the time elapsed since its placement on-site.”</i> <u>Water:</u> The combined duplicate sampling rate was considered to be in line with the SAQP and PFAS NEMP 3.0.	The auditor does not fully agree with the justification presented by Ramboll to indicate that field blanks or trip spikes were not warranted during the stockpile assessment. However, given that results from the primary and duplicate stockpile samples all suggest an absence of volatile compounds, this omission of field blank and trip spikes (as measure of volatile losses) are not considered to affect the conclusions of the stockpile assessment. Overall, the auditor considers that the field quality control samples were adequate for the investigation and are generally in line with the SAQP.
Field quality control results The results of field quality control samples were generally within appropriate limits. The following exceptions were noted: • Relative percent difference (RPDs) for the inter-laboratory duplicate sample for three metals (copper, nickel, zinc) ranged from 45% to 155%. • RPDs for PFAS compounds ranged from 35% to 170%. Ramboll indicated the RPD non-conformances were within the same order of magnitude and likely to be due to the sample matrix for soil. All concentrations of rinsate, trip and field blanks were below the laboratory detection limit except for two rinsate samples (QC300_110425 and QC310_170425). These concentrations were at or close to the limit of reporting and are not expected to significantly affect the results. <u>Soil (Stockpile Assessment):</u> The field quality control samples were within the appropriate limits.	In the context of the dataset reported, the elevated RPD results and minor blank detections are not considered to affect the audit conclusions. The auditor notes that the highest results had been adopted in assessing the site. Overall, the field quality control results are considered to be acceptable.
NATA registered laboratory and NATA endorsed methods Laboratories used included: Eurofins (primary) and Envirolab (secondary). Laboratory certificates were NATA stamped with the exception of asbestos concentrations analysis (refer below).	This is considered to be acceptable.



Field and Lab QA/QC

Auditor's Opinion

Analytical methods

Analytical methods were included in the laboratory test certificates. Both Eurofins and Envirolab provided brief method summaries of in-house NATA accredited methods used.

The asbestos fibre identification was conducted in accordance with Australian Standard AS 5370:2024 instead.

This is considered to be acceptable.

Holding times

Review of the COCs and laboratory certificates indicate that the holding times had been met. Ramboll also reported that holding times were met.

This is considered to be acceptable.

Practical Quantitation Limits (PQLs)

Soil: PQLs were less than the threshold criteria for the contaminants of concern.

Asbestos: The limit of detection for asbestos in soil was 0.01% weight/weight (w/w).

Groundwater: A small number of adopted PQLs (such selected OCP, OPP and PCB species) were greater than the adopted freshwater ecological guideline values and only PQL of vinyl chloride was greater than the recreational guideline criterion.

The elevated groundwater PQLs were not ideal but a review of the groundwater dataset does not suggest OCP, OPP and PCB contamination to be present as all current and historical results were non-detects (including compounds with PQLs less than the guideline values). Therefore, these discrepancies are not considered to materially affect the outcome of the audit.

Laboratory quality control samples

Laboratory quality control samples including laboratory control samples, matrix spikes, surrogate spikes, blanks, internal standards and duplicates were undertaken by the laboratory at the appropriate frequencies.

This is considered to be acceptable.

Laboratory quality control results

DSI:

The results of laboratory quality control samples were generally within appropriate limits, with the following exceptions:

- Metal RPDs for 5 laboratory soil duplicate have failed.
- Envirolab's PQL for PAH in soil were raised due to interferences from analytes in 1 sample.
- Eurofin's PQL for 4:2 FTA in one soil sample and 6:2 FTSA in one groundwater sample were raised due to matrix interference.

Soil Stockpile Assessment:

The results of laboratory matrix spike recovery were generally within appropriate limits, except for ten samples. The laboratory indicated that this was most likely due to sample matrix interference given the nature of the material.

In the context of the dataset reported and the number of samples analysed, the non-conformances are not considered significant, and the laboratory quality control results are acceptable.

Data Quality Indicators (DQI) and Data Evaluation (completeness, comparability, representativeness, precision, accuracy)

Predetermined data quality indicators (DQIs) were set for laboratory analyses including blanks, replicates, duplicates, laboratory control samples, matrix spikes, surrogate spikes and internal standards. These were discussed with regard to the five category areas in Section 7.2 of the DSI.

An assessment of the data quality with respect to the five category areas has been undertaken by the auditor and is summarised below.

In considering the data as a whole the auditor concludes that:

- The field quality control measures (including intra-laboratory and inter-laboratory duplicates; rinsate blanks; trip blanks; trip spikes; and field blanks) adopted in the DSI are considered sufficient. Improvement could be made with regard to the field quality control measures adopted in the Stockpile Assessment, however, overall the stockpile data set does not indicate gross contamination or systematic errors with the field sampling.
- Ramboll conservatively adopted the highest concentration (from the primary, intra-laboratory and inter-laboratory duplicates) in their assessment and interpretation of contamination.



- The current dataset reported similar concentrations and sampling procedures to the historical dataset.
- The results of field quality control samples were generally consistent, indicating the data is likely to be representative of the overall conditions on the audit site.
- The laboratory analysis was undertaken by NATA registered laboratories using accredited analytical methods. Primary and secondary laboratories have provided sufficient information to conclude that the dataset is generally precise.
- Overall, the data set is considered to be representative of the general site conditions and can be reliable upon for the purpose of this audit.



7.0 Environmental Quality Criteria

The auditor has assessed the results against Tier 1 criteria from National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure 1999, as Amended 2013 (NEPM, 2013). Other guidance has been adopted where NEPM (2013) is not applicable or criteria are not provided.

Based on the proposed development of recreational land use, the criteria for 'public open space' have been referred to for Reserve 980. The auditor notes that a small portion of Reserve 980 is proposed to be developed into new roads and carparks. The criteria for 'public open space' are adopted as an initial screen because the recreational values are more conservative than the commercial/industrial values.

The auditor has assessed the **soil** data provided with reference to Tier 1 (screening) criteria from the following:

- Human Health Assessment
 - Health-based Investigation Levels (HIL C).
 - Soil Health Screening Levels (HSL C) for vapour intrusion. The most conservative criteria were adopted i.e. assumed depth to source <1 m and sand.
 - CRC CARE (2011) Direct Contact (HSL C and intrusive maintenance worker).
 - Asbestos Health Screening Levels (HSL C).
 - The HIL C for PFAS provided in PFAS NEMP Version 3.0.
- Ecological Assessment
 - Ecological Screening Levels (ESL) for urban residential and public open space assuming coarse soil.
 - Ecological investigation level (EIL) for urban residential and public open space. An EIL is calculated based on the Ambient Background Concentration (ABC) plus the Added Contaminant Limit (ACL).
 - Site-specific soil property data from the DSI has been used to calculate EILs for chromium III, copper, nickel and zinc were derived for soil contamination based on the following assumptions:
 - ABC were assumed to be those for aged soils in regions with low traffic.
 - Site specific ACLs have been calculated based on the measured values of cation exchange capacity of 8.4 meq/100g, 7.5% clay content, 0.94% total organic carbon and 6.9 pH units. The NEPM Toolbox spreadsheets are provided in Appendix 4 of the DSI.
 - For PFAS the interim soil ecological criteria for direct exposure and indirect exposure provided in PFAS NEMP 3.0.
- Management Limits (ML residential/open space) assuming coarse soil.
- Aesthetics
 - The auditor has considered the need for remediation based on the 'aesthetic' contamination as outlined in the NEPM (2013).



The auditor has assessed the **groundwater** data provided with reference to Tier 1 (screening) criteria from the following:

- Human Health Assessment.
 - NEPM (2013) groundwater Health Screening Levels (HSL C) for vapour intrusion.
 - NHMRC and NRMCC (2011) Australian Drinking Water Guidelines (ADWG). As groundwater is not used for drinking water, the health-based values in the ADWG have been amended by a factor of 10 (non-volatiles only) in accordance with NEPM (2013) and GMRRW (NHMRC 2008)². The amendment assumes the exposure during recreational activity (e.g. swimming) would be equivalent to 10% of drinking water consumption. This is considered suitable for non-potable uses including incidental exposure to groundwater. For volatiles the ADWG have not been adjusted.
 - Recreational guidance values as provided in the PFAS NEMP 3.0.
- Ecological Assessment
 - The Default Guideline Values (DGV) in ANZG (2018)³. The DGV are concentrations of toxicants that should have no significant adverse effects on the aquatic ecosystem. In line with guidance from Australian and New Zealand Guidelines for Fresh and Marine Water Quality framework and Section 9.3.2 of PFAS NEMP 3.0, due to bioaccumulation and biomagnification nature of selected contaminants (such as PFAS), the next higher level of protection was adopted (i.e. 99% instead of 95%).
 - Freshwater ecological quality guideline values from PFAS NEMP 3.0. It is noted that the draft DGVs for PFOS and PFOA have been derived by ANZG and they had not been adopted by PFAS NEMP 3.0. However, in recognition that the draft guidelines form part of the current state of knowledge, the draft DGVs have been considered in interpreting the results.

Imported fill has been assessed in relation to attributes expected of VENM. The NSW EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste classifies VENM as “...*natural material (such as clay, gravel, sand, soil or rock fines)*:

- *‘that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities*
- *‘that does not contain sulphidic ores or soils, or any other waste, and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice in the NSW Government Gazette.’*

On this basis, the Auditor considers that for soil to be classified as VENM, the following criteria generally apply:

- Organic compounds (including petroleum hydrocarbons, PAHs, OCPs, PCBs) should be less than the PQLs.
- Inorganic compounds should be consistent with background concentrations.

² National Health and Medical Research Council (NHMRC) (2008) ‘Guidelines for Managing Risks in Recreational Water’ (GMRRW). GMRRW (NHMRC 2008)

³ Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 (and rolling revisions). Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. (Available at www.waterquality.gov.au/anz-guidelines)



7.1 Consultants Environmental Quality Criteria

The environmental quality criteria referenced by the auditor are consistent with those adopted by Ramboll with the exception of the following:

- Ramboll did not consider NEPM (2013) management limits. This is not considered to be an issue in characterising Reserve 980 as the other lower NEPM criteria were adopted.
- Ramboll adopted the following guidelines for assessing acid sulfate soil. However, as the review of imported VENM documentation, site history and environmental setting of Reserve 980 has not indicated any potential for acid sulfate soil to be present, assessment of acid sulfate soil was not considered to be required.
 - Acid Sulfate Soil Manual (NSW Acid Sulfate Soil Management Advisory Committee 1998).
 - National Acid Sulfate Soils Guidance: National Acid Sulfate Soils Identification and Laboratory Methods Manual (Water Quality Australia 2018).

Given the results obtained, the auditor considers that these discrepancies do not affect the overall conclusions reached by Ramboll and the auditor.

Specifically for the Stockpile Material Options Assessment (discussed in more detail in **Section 9.2**), Ramboll adopted the more conservative NEPM Tier 1 guideline values for low-density residential as this assessment was conducted to evaluate whether the stockpiles can be re-used in the wider former Schofields Aerodrome (i.e. external to Reserve 980). Ramboll also referred to the provisions in the Blacktown City Council Development Control Plan associated with qualitative amenity and site presentation as 'criterion' for aesthetics. The Council's provisions are documented by Ramboll to include:

- *“the requirement that materials used on site do not adversely impact visual amenity or present as unsightly;*
- *soils reused on site must be appropriately managed, placed, and stabilised to avoid visual nuisance, consistent with council expectations for site appearance during construction and final landform; and*
- *reused material must not detract from the intended residential landscape character or the visual presentation of the development.”*

The auditor notes that the Blacktown City Council's provisions are similar to the NEPM's assessment process for aesthetics and the adoption of low-density residential assessment criteria in evaluating the stockpiles do not change the conclusion of this audit of Reserve 980.



8.0 Evaluation of Soil Analytical Results

Prior to the bulk importation of fill to raise the ground level of the Nirimba Fields housing estate and the removal of the surface hard stand (such as asphalt pavement, concrete slabs), the former Schofields Aerodrome (surface and subsurface) was assessed as part of the Section A site audit. The 2013 Section A SAR concluded that:

“In the Auditor’s opinion, the sampling over the rest of the site has confirmed the historical information and no further assessment is warranted. It is possible that there are areas of waste burial, surface spills or other contaminating activity, but based on the site history and investigations conducted they would not be expected to be extensive. An unexpected finds protocol has been developed as discussed in Section 13 [of the Section A SAR]. It is appended as Appendix D [of the Section A SAR].”

Later in 2021, the PFAS MEA SAR validated the PFAS MEA layer (i.e., encapsulated PFAS impacted soil) and also the fill above and below the PFAS MEA and concluded that:

“All results from VENM samples and natural soil samples above or below the PFAS placement layer were either below the adopted criteria or laboratory limit of reporting. This indicated that the VENM and natural soil above and below the PFAS placement layer were unlikely to be unacceptable for proposed sensitive (such as residential or primary school) land use at the site.

The screening assessment indicated that indirect and direct pathways for human exposure do not exist due to the presence of the VENM. Based on a minimum VENM thickness of 3 m, the auditor concurs that exposure to the PFAS impacted soil will be effectively managed, and that risks to future receptors (including site residents and future intrusive workers) will be low.”

These conclusions are consistent audit of the ‘Remaining Site Area’ which validated the portion of the audit site external to PFAS MEA. The Remaining Area SAR stated:

“The validation evaluated the overall audit site including specific AECs and the remaining surface and sub-surface soil. The results for PFAS are consistent with the expectations for a low density residential and/or public open space development.”

In addition to the audits completed to date, Ramboll (2025b) conducted a soil investigation in 2025 at Reserve 980. As discussed in **Table 3-1**, the sampling targeted the identified AECs listed in **Section 4.1**, as well covering Reserve 980 with grid-based sampling. Soil sampling locations are shown as Attachment 2, **Appendix A**.

The analytical results have been assessed against the environmental quality criteria and majority of the concentrations (such as BTEX, VOC, OPP, PCB) were below the laboratory’s detection limits. In summary, the concentrations from the DSI field program were all below the human health and ecological guideline values for recreational and commercial/industrial land uses. No asbestos was detected at the reporting limit of 0.001% w/w.

One piece of yellow-coloured plastic (refer to **Plate 1**) was identified at 0.9 mbgl in the imported fill soil at R980_MW01 during the DSI. This material was interpreted to be associated with the loading or transport of the imported material and waste inclusion in the imported VENM. No other anthropogenic material was observed. The auditor concurs with the DSI that the yellow plastic observed at R980_MW01 is likely to be material used during the transportation and somehow one isolated fragment was buried. This was an isolated case as all other previous soil investigation conducted in as part of the PFAS MEA and Remaining Site Area (as well as other areas external to Reserve 980 within the former aerodrome) had not identified any inclusion of anthropogenic waste.



Plate 1: Fragment of yellow plastic observed at R980_MW01at 0.9 mbgl (Source: Photograph 2, Appendix 7 of Ramboll 2025b)

No staining, odours or potential asbestos-containing material was observed during the DSI field program. Furthermore, no friable asbestos was detected in any sampling completed. Field PID readings of 0 to 9 ppm were measured which is consistent with low or below detection organic concentrations recorded.

The VENM certificates or reports for the material imported into Reserve 980 were presented in Appendix 11 of the DSI. In total, 37 VENM certificates or reports were attached, and the source sites and the material assessed are summarised in **Table 8-1**. The source sites were not located in areas of acid sulfate soils. No staining or odour, and no foreign material or asbestos was reported to be observed.

The auditor notes that two of the reports provided in Appendix 11 of the DSI are geotechnical reports and while they do not contain chemical soil data, they provided descriptions of the natural material assessed and these descriptions are consistent with expectations for VENM.

Table 8-1: Summary of VENM Certificates

Source site	Description
51-53 Old Castle Hill Road, Castle Hill (Geotechnical report)	Clay, sandy clay, clayey gravel
160 Hawkesbury Road, Westmead	Silty Clay, silty sandy, clay, shaly clay, gravelly silty sand.
Building C, 45-61 Waterloo Road, Macquarie Park	Silty clay, medium clay, heavy clay
15 Bigge Street, Liverpool	Silty clay overlying grey shale bedrock
17-25 Bigge Street, Liverpool	Highly weathered shale overlying shale bedrock



Source site	Description
68-70 Horsley Drive, Carramar (dated May 2018)	Shale and clay (weathered shale material)
68-70 The Horsley Drive, Carramar (dated April 2018)	Silty clay (overlying grey shale bedrock)
194-204 Parramatta Road, Croydon	Silty clay
2 Pendle Way, Pendle Hill	Clay overlying shale bedrock
503-507 Great Western Highway, Greystanes	Clayey sand
3-5 Robilliard Street, May Hills	Silty clay (weathered shale)
68 Stanley Street, Burwood	Silty clay overlying shale bedrock
339 Mowbray Road, Chatswood (Sydney Metro City and Southwest – Tunnel and station excavation works package)	Clay with ferruginous nodules
23-27 Schofields Road, Schofields	Clay and shale bedrock
Martin Place Station Site, 20-26 O'Connell Street, Sydney	Medium and coarse-grained sandstone
16 Railway Parade, Burwood	Silty clay and weathered shale
21-41 East Street, 14-38 Cowper Street and 5-5A Rowell Street, Granville	Silty clay and underlying shale bedrock
25 Baker Road, Strathfield	Clay
Lots A, B, C & D, 279 Railway Terrace, Schofields (Geotechnical report)	Silty clay, shaley clay, shale bedrock
7-9 Acton Street, Croydon	Weathered shale material
1 Alexandar Avenue, Croydon	Sandy clay



Source site	Description
Pacific Highway, Crows Nest (Sydney Metro City and Southwest – Tunnel and station excavation works package)	Clay, underlying grey siltstone
136 Tallawong Road, Rouse Hill	Silty and sandy clay, transition into shaley clays.
7-11 Glen Street, Eastwood	Silty clay, weathered shale
105-107 Church Street, Ryde	Silty clay with some gravel (residual)
2b Hector Court, Kellyville	Clay and weathered shale bedrock
Campbelltown Road Upgrade, Bardia	Clayey silt, silty clay, extremely weather siltstone/shale
1-11 Olive Street, Seven Hills	Grey shale/clay
12-18 Dunn Road, Smeaton Grange	Clay with shale at depth
59 Cudgegong Road, Rouse Hill	Clay/shale
44 and 56 Cudgegong Road, Rouse Hill	Silty clay and clayey silt
848 Windsor Road, Rouse Hill	Silty clay, shaly clay, then shale bedrock
95 Nicholson Street, 500/504 Pacific Highway and Friedlander Place, St Leonards	Dark grey siltstone and shale with clay
659-661 Victoria Road and 4-6 Wharf Road, Melrose Park	Clay and weathered shale
18-20 Cliff Road, Epping	Silty sandy clay
Gerbera Place and Balmoral Road, Kellyville	Silty clay overlying shale bedrock
2-8 Pymble Avenue, Pymble	Silty clay and shale bedrock

Overall, the stratigraphy and the analytical results from the DSI are consistent with the imported material being VENM in line with the historical VENM certificates and reports. Furthermore, the VENM



material that was imported was placed under an independent Geotechnical Inspection and Testing Authority (GITA) Level 1 supervision and testing program (refer to Appendix 12 of the DSI) and therefore, if there were any indications of contamination (such as inclusion of waste, organic matter, staining or deleterious odour), it would also be identified during the filling and compaction process. In the auditor's opinion, the soil analytical results do not indicate contamination present and the site criteria for recreational land use (and the less conservative commercial/industrial land uses) have been met.



9.0 Evaluation of Remedial Works Associated with Stockpiles

As discussed in **Section 4.1**, Ramboll had observed stockpiles along the haul road at the western boundary of Reserve 980, and this resulted in two phases of works to remediate and validate the stockpiles. Some of the stockpiles consist of illegally dumped waste and some are stockpiles of materials generated from operations within the former Schofields Aerodrome (but external to Reserve 980).

9.1 Asbestos Removal and Validation Works

Illegally dumped compressed fibre-cement sheets as shown in **Plate 2** were observed by Ramboll on ground surface in an isolated area marked with 'FRAG1' on Attachment 2 (**Appendix A**). Ramboll collected a fragment of fibre-cement (Sample R980_FRAG1) on 11 April 2024 and submitted this for asbestos identification. Chrysotile and crocidolite bonded asbestos were identified (refer to Table 1b of the DSI).



Plate 2: Off-white coloured illegally dumped fibre cement sheets, 28 July 2025 (Source: Photograph 11, Appendix 7 of Ramboll 2025b)

The cement sheets were removed by Undercover Landscapes Pty Ltd (The Undercover Group) on 28 July 2025 with environmental consulting provided by Ramboll. The surface soil down to 0.2 mbgl was also scraped and removed. The waste, pre-classified as 'Special Waste (Asbestos Waste)', was placed directly into five asbestos-labelled bulk bags (approximately 1 tonnes) and taken to Bingo Recycling at Eastern Creek (Environment Protection Licence 13426) for disposal. The landfill dockets are provided in Appendix 8 of the DSI.

Following the removal, the area (approximately 10 m²) was visually inspected and raked (down to ~50mm) with two passes and any residual asbestos fragments were manually bagged for disposal.

An asbestos clearance certificate was issued by Ramboll on 28 July 2025 (provided as Appendix 13 of the DSI) confirming that no visible asbestos fragments were present in the 'work area'. Photographs of the asbestos removal work are provided in Appendix 7 and 13 of the DSI.



Overall, the auditor concludes that the removal works conducted in July 2025, associated with illegally dumped waste material, were conducted appropriately and that the impacted areas have been adequately validated. Validation samples did not report asbestos above the detection limits and asbestos clearance certificates were provided for the affected areas.

9.2 Reuse Assessment and Off-site Removal of Stockpiles

While conducting the DSI drilling program, Ramboll observed anthropogenic waste in three stockpiles located along the haul road (proposed extension to Aerodrome Drive) shown as 'Stockpiled Material Area' in Attachment 1 and 5 (**Appendix A**). Ramboll understood that the stockpiles consisted of excavation spoil from other works conducted at other parts of the former aerodrome and also include material from illegal dumping (i.e. unknown sources). Photographs of the stockpiles are provided in Appendix 8 and 15 of the DSI.

9.2.1 Reuse Assessment of Stockpiles

The three stockpiles (SP01 to SP03) were sampled by Ramboll on 8 December 2025 to evaluate whether the material was suitable for reuse at the former Schofields Aerodrome, which is being progressively developed for low-density residential properties, recreational open space, roads and infrastructure associated with a residential estate. Ramboll adopted the more conservative guideline values for residential land use (namely NEPM HIL/HSL A as well as NEPM EIL/ESL 'urban residential and public open space') in their Stockpile Material Options Assessment.

Table 9-1 is a summary of the stockpiles and the sampling conducted. The stockpile sampling locations are shown in Attachment 5 (**Appendix A**).

Table 9-1: Summary of Three Stockpiles and Ramboll's Sampling Locations

Stockpile	Description	Volume (m ³)	Sampling locations
SP01	- It is suspected to be placed between March and April 2023 based on review of historical aerial photographs. - It is likely to be generated from construction works within former aerodrome and potentially illegally dumped material. - Gravelly clay with large sandstone boulders, fragments of metal, plastic and construction waste.	100	8 (SP01_01_0.1, SP01_01_0.5, SP01_02_0.1, SP01_02_0.5, SP01_03_0.1, SP01_03_0.5, SP01_04_0.1 and SP01_04_0.5)
SP02	- It is suspected to be placed between June and September 2025 based on review of historical aerial photographs and formed from numerous individual piles of similar material placed contiguously. - Based on anecdotal information, it was generated from excavation works at Channel 3 in the northern portion of the former Schofields Aerodrome. - Sandy clay with no observed anthropogenic material.	180	8 (SP02_01_0.2, SP02_02_0.2, SP02_03_0.2, SP02_04_0.2, SP02_05_0.2, SP02_06_0.2, SP02_07_0.2 and SP02_08_0.2)



Stockpile	Description	Volume (m ³)	Sampling locations
SP03	- It is suspected to be placed between prior to April 2023, and additional material was added to the eastern portion of SP03 between April 2023 and October 2025. - It is an amalgamated stockpile as Ramboll described it as <i>"one uniform mound to the west (sitting on top of plastic bunding) and multiple smaller mounds placed in contact with the eastern portion of the larger mound."</i> - It was previously partially sampled in April 2023 for waste classification purposes. - It is likely to be generated from construction works within former aerodrome and potentially illegally dumped material. - Construction waste was removed from this stockpile area in September 2025 by The Undercover Group. - Sandy silty clay with minor anthropogenic waste such as fragments of plastic, rubbish (shoes), construction waste/bricks.	2,500	18 with 8 new samples collected in December 2025 and 10 existing samples collected in April 2023. New December 2025 samples: SP03_01_0.2, SP03_02_0.2, SP03_03_0.2, SP03_04_0.2, SP03_05_0.2, SP03_06_0.2, SP03_07_0.2 and SP03_08_0.2. Existing April 2023 samples: WC_SP06_01, WC_SP06_02, WC_SP06_03, WC_SP06_04, WC_SP06_05, WC_SP06_06, WC_SP06_07, WC_SP06_08, WC_SP06_09 and WC_SP06_10.

Ramboll did not observe any odours, staining or potential asbestos containing material (ACM) during the field program. All soil concentrations were reported at less than the adopted site assessment criteria (including for low-density residential land use) and/or detection limits. No asbestos was detected by the laboratory at the reporting limit of 0.01% w/w. As indicated in **Table 9.1**, anthropogenic wastes (including construction and demolition waste) were present in two of stockpiles: SP01 and SP03.

Ramboll concluded that the three stockpiles (SP01, SP02 and SP03) are suitable for reuse in the wider former Schofields Aerodrome subject to the screening and removal of larger boulders, anthropogenic and deleterious materials (i.e. aesthetic issues as identified in the assessment criteria) from SP01 and SP03.

9.2.2 Waste Disposal and Off-site Removal of Stockpiles

September 2025

Solid inert waste, as shown in photographs taken on 5 September 2025 provided in Appendix 8 of the DSI, was removed by The Undercover Group and disposed to Bingo Industries. Ramboll inspected the affected area on 17 September 2025 and observed that the ground surface was visually free of contamination.

December 2025

On 4-5 December 2025, 5.8 tonnes of the mixed waste (solid inert waste) from the three stockpiles (SP01, SP02 and SP03) were removed and disposed off-site by The Undercover Group. A tipping docket from Aussie Recycling dated 5 December 2025 was provided in Appendix 8 of the DSI as evidence.

After the reuse assessment of the three stockpiles were conducted (discussed in **Section 9.2.1** above), the three stockpiles were removed from Reserve 980 on 22 December 2025. Considering that the stockpiles posed aesthetic impacts, the footprint of the three stockpiles were validated visually on 23 December 2025 by Ramboll. Photographs of the residual surface are provided as Photographs 16 to 20 of Appendix 7 of the DSI.

Overall, the auditor considers the reuse assessment of the three stockpiles was conducted adequately and is satisfied with the off-site removal and disposal of the solid inert waste present in the stockpiles. The waste was disposed off-site to a licensed facility, and the footprints of the stockpiles were visually inspected post-removal with photographic documentation.



10.0 Evaluation of Groundwater Analytical Results

The groundwater condition was evaluated in the 2013 Supplementary Section A SAR and this SAR concluded that:

“Overall, the results do not indicate that impact to groundwater has occurred at the site due to contamination in soils, except possibly for metals and TPH detected at former landfill sites⁴. The landfills have since been remediated. In the GHD (2002) validation report, the Consultant concluded that the groundwater quality was generally good. Groundwater should be assessed for suitability for its proposed use if groundwater abstraction is contemplated in future.

In the Auditor’s opinion, in so far as it relates to potential contamination sources on the site, groundwater has been adequately characterised. There has been no monitoring since 1999, but also no additional sources of groundwater contamination.”

In other words, the 2013 Supplementary Section A SAR concluded that groundwater did not pose a risk for the proposed sensitive residential use with accessible soil, which is more conservative than recreational public open space and limited roadway proposed at Reserve 980.

Since then, groundwater investigations assessing PFAS were conducted in 2017 and 2021 because PFAS contamination was not evaluated as part of the Section A audit.

The PFAS MEA SAR evaluated the potential for groundwater PFAS contamination to migrate off-site and concluded that:

“Potential migration of PFAS from the PFAS MEA has been assessed. The assessment demonstrates that PFAS has the potential to mobilise and migrate from the MEA via groundwater towards the creek at very low levels similar to site background concentrations. Under some conservative modelling scenarios, predicted concentrations under the MEA may be slightly higher than site background levels, however, further attenuation of PFAS within the site via dispersion and sorption will occur. Subject to maintaining the integrity of the MEA and overlying VENM, the auditor considers that there is sufficient evidence to support the consultant’s conclusion that the migration of PFAS from the MEA represents a low and acceptable level of risk, and that any additional contribution from the site above background conditions is negligible.”

The Remaining Area SAR concluded that:

“In the auditor’s opinion, the groundwater at the site did not indicate elevated concentrations above the ecological and human health criteria. The PFAS levels observed at the site are likely to reflect ‘background’ concentrations migrating onto the site from the east. These groundwater results are consistent with those obtained for the soil i.e., low PFAS levels.”

In addition to the audits completed to date, Ramboll (2025b) conducted a round of groundwater monitoring in 2025 at Reserve 980 where two existing (MW05 and MW06) and three newly installed monitoring bores were sampled.

⁴ The former landfill sites are not located on-site and therefore, they are not relevant to this audit.



Table 10-1 prepared by the auditor is a summary of the sampling undertaken at Reserve 980.

Table 10-1: Groundwater Monitoring Well Network

Bore ID	Installation Date	Total Depth (mbgl)	Screen (mbgl)	Sampled Date(s)
MW05	1 July 2021	6.5	3.5 to 6.5	9 July 2021 (analysed for PFAS only), 11 July 2024 and 1 May 2025
MW06	29 June 2021	8.0	5.0 to 8.0	8 July 2021 (analysed for PFAS only), 11 July 2024 and 1 May 2025
R980_MW01	11 April 2025	5.5	2.5 to 5.5	1 May 2025
R980_MW02	11 April 2025	7.4	4.4 to 7.4	1 May 2025
R980_MW03	11 April 2025	6.5	3.5 to 6.5	1 May 2025

Note:

Data sourced from Appendix E of Ramboll 2021 and Appendix 5 of Ramboll 2025b.

Groundwater analytical results from all three monitoring events (nine primary samples and four field duplicates) are summarised below and in **Table 10-2** by the auditor:

- Cadmium, chromium, copper, lead, nickel and zinc concentrations were above the adopted ecological criteria. Arsenic and mercury results were all below all the adopted criteria.
- PFOS concentrations in groundwater exceeded the ecological (freshwater 99% species protection) criterion in most wells in both historical and the May 2025 sampling rounds. Only one monitoring bore (R980_MW02) measured PFOS concentration above the draft ANZG default guideline value.
- PFOA and sum of PFOS and PFHxS concentrations were all below the adopted recreational guideline levels.
- All TRH fractions were below the adopted criteria, with the only detectable concentration measured at R980_M02 (in May 2025).
- All BTEX, PAH, OCP, OPP, PCBs and VOC concentrations were below the adopted criteria and laboratory detection limits.
- No groundwater concentration was reported above the adopted human health guidelines levels.

Table 10-2: Summary of Elevated Groundwater Investigation Analytical Results

Analyte	No. of samples ¹	No. of Detection	Maximum Concentration	Sample exceeding the Recreation Screening Level	Sample exceeding the Ecological Screening Level
Cadmium	11	3	0.0003 mg/L	None	R980_MW01 (1 May 2025)
Chromium	11	4	0.009 mg/L	None	R980_MW01 (1 May 2025)
Copper	11	4	0.026 mg/L	None	R980_MW01 (1 May 2025)
Lead	11	3	0.040 mg/L	None	R980_MW01 (1 May 2025)
Nickel	11	7	0.031 mg/L	None	R980_MW01 (1 May 2025); R980_MW03 (1 May 2025)



Analyte	No. of samples ¹	No. of Detection	Maximum Concentration	Sample exceeding the Recreation Screening Level	Sample exceeding the Ecological Screening Level
Zinc	11	6	0.13 mg/L	None	MW06 (11 July 2024); R980_MW01 (1 May 2025)
PFOS	13	8	0.035 µg/L	None	<u>Freshwater 99% species protection (NEMP 3.0):</u> MW05 (11 July 2024; 1 May 2025); MW06 (1 May 2025); R980_MW01 (1 May 2025); R980_MW02 (1 May 2025); R980_MW03 (1 May 2025). <u>Freshwater 99% species protection (draft ANZG):</u> R980_MW02 (1 May 2025).
				None	Freshwater 95% species protection (NEMP 3.0 and draft ANZG): None

Note:

1. The number of samples include primary and field duplicates. In total, there were 9 primary samples and 4 field duplicates. Samples from July 2021 were analysed for PFAS only.

Metals

Ramboll noted that elevated metal concentrations in soil at Reserve 980 (and at wider former Schofields Aerodrome) were not identified. Therefore, the observed metal concentrations were likely to represent regional background associated with the aquifer/stratigraphy as similar concentrations were measured at previous groundwater monitoring events conducted elsewhere within the former Schofields Aerodrome. The auditor independently compared the cadmium, chromium, copper, lead, nickel and zinc concentrations measured at Reserve 980 against the concentrations previously recorded at the wider former Schofield Aerodrome and compiled **Table 10-3**. This shows that the metals observed at Reserve 980 are of similar magnitude and consistent with the concentrations observed historically. They are likely to be associated with background or ambient levels in the area.

Table 10-3: Summary of Elevated Groundwater Investigation Analytical Results (mg/L)

Analyte	Reserve 980	Former Schofield Aerodrome	
	Maximum Concentration (2021-2025)	Maximum Concentration (March and May 1998) ¹	Maximum Concentration (January 1999) ²
Cadmium	0.0003	0.0019	0.001
Chromium	0.009	No data	0.004
Copper	0.026	0.011	0.037
Lead	0.040	0.002	0.002
Nickel	0.031	0.050	0.098



Analyte	Reserve 980	Former Schoefield Aerodrome	
	Maximum Concentration (2021-2025)	Maximum Concentration (March and May 1998) ¹	Maximum Concentration (January 1999) ²
Zinc	0.13	3.3	0.092

Note:

1. Data sourced from Table 9.2 of 2013 Supplementary Section A SAR.
2. Data sourced from Table 9.3 of 2013 Supplementary Section A SAR.

PFOS

Ramboll highlighted that the water quality guideline levels presented in the PFAS NEMP 3.0 are intended to be applied at receiving waters and are considered conservative when being applied during the screening of the concentrations obtained in groundwater. In addition, due to the diffusion and dilution with distance and physical attenuation in the clay, Ramboll estimate that the PFOS concentrations detected would reduce prior to reaching Eastern Creek. This is consistent with results obtained during previous surface water sampling rounds at Eastern Creek (conducted by Ramboll) that reported higher PFOS concentrations (0.05 µg/L) at a location upstream of the former Schofield Aerodrome.

The auditor notes that the concentration reported in groundwater sampled at Reserve 980 is of the same magnitude as reported in the upgradient well (MW11). Consistent with metals, the PFOS levels at Reserve 980 are considered indicative of ambient levels measured in groundwater outside of the former aerodrome (**Table 10-4**).

Table 10-4: Summary of Elevated Groundwater Investigation Analytical Results (µg/L)

Analyte	Reserve 980	Eastern Boundary of Former Schoefield Aerodrome ¹	
	Maximum Concentration (2021-2025)	MW11 (July 2021)	MW12 (July 2021)
PFOS	0.035	0.01	0.0017

Note:

1. Data sourced from Section 9.1 of the Remaining Site Area SAR.

Summary

In the auditor's opinion, the groundwater monitoring undertaken was adequate to characterise the nature and extent of groundwater at Reserve 980. The auditor concurs with the DSI, which stated *"considering the conservative application of surface water guidelines to groundwater, the reported concentrations within Eastern Creek and the expected natural attenuation prior to discharge, site groundwater is not considered likely to pose an unacceptable risk to aquatic ecology within Eastern Creek"* (page 44, Ramboll 2025b). Furthermore, groundwater at Reserve 980 is not accessed by current and future site users, therefore, the associated risk to human health is considered to be low and acceptable.



11.0 Evaluation of Conceptual Site Model

A conceptual site model (CSM) is a representation of the source, pathway and receptor linkages at a site. Ramboll has initially developed a CSM in the SAQP and updated it with the results of the DSI.

Table 11-1 provides the auditor's review of the refined CSM presented in the DSI.

Table 11-1: Review of the Conceptual Site Model

Element of CSM	Consultant	Auditor Opinion
Contaminant source and contaminants of concern	- Imported fill material. - Illegally dumped waste (included bonded ACM). - Temporary water retention basins. - Historical aerodrome operations and remediation.	The auditor considers that the sources of contamination and associated contaminants of concern have been adequately identified for the audit site. The results from previous investigations were evaluated as part of the CSM. The auditor notes that the three stockpiles (SP01 to SP03) of soil and anthropogenic materials along the haul road at the western portion of Reserve 980 have been removed from Reserve 980.
Affected media	- Soil. - Groundwater.	The potentially affected media (soil and groundwater) have been identified and investigated, noting that there is no surface water body or sediment located within Reserve 980.
Exposure pathways	- Incidental ingestion and dermal contact. - Inhalation of dust and/or vapours. - Surface water run-off. - Leaching of contaminants and vertical migration in groundwater. - Lateral migration of groundwater to surface water bodies. - Uptake by terrestrial ecology.	The exposure pathways have been identified in the CSM.
Presence of preferential pathways for contaminant movement	The CSM did not identify any preferential pathways for contaminant movement. Specifically, the potential beneficial re-use pathway for groundwater is considered incomplete as groundwater at the site is not extracted for any use.	The auditor considers that the preferential pathways have been adequately evaluated.
Receptor identification	- Future site users (recreational). - Current and future construction and maintenance workers. - Adjacent site users. - On-site ecology. - Off-site ecology.	The auditor considers that the relevant human and ecological receptors have been identified.



12.0 Assessment of Risk

Where relevant for the site, the 2013 Supplementary Section A SAR concluded that:

“Over the vast majority of the site, there is no significant contamination that would present a risk to human health or the environment.

The site is very large, and there is a risk that there could be undetected contamination, for example by undocumented waste burial or surface dumping or spills. As the documented site history was found to be generally reliable in locating areas of potential contamination such as the landfills, the risk of major undetected contamination is considered to be low. This risk is to be managed by an unexpected finds protocol (Section 13) [of the Section A SAR].

There is a risk of unexpected finds of ordnance related material. This could include small arms ammunition (SAA), explosive ordnance waste (EOW), unexploded ordnance (UXO). A very small amount of practice ordnance only has been found buried on the site. Practice ordnance does not pose a threat. There is a very low risk that UXO will be found on the site. This risk is to be managed by an unexpected finds protocol (Section 13) [of the Section A SAR].”

The PFAS MEA SAR concluded:

“Potential risks associated with residual PFAS emplaced at depth have been assessed; the assessment has considered the identified potential receptors associated with the site, which include:

- *Human health (including site residents and intrusive workers).*
- *Terrestrial ecological receptors.*
- *Aquatic ecological receptors.*

The auditor considers that the risks to these receptors associated with residual PFAS emplaced at depth are low and acceptable.”

The Remaining Site Area SAR concluded:

“Validation of all remaining areas of concern confirmed low concentrations such that the risk to human health and the environment is considered to be low and acceptable. As the extent of PFAS soil impact identified at the audit site is very limited, the potential for leachate contamination to impact groundwater is considered to be negligible and also unlikely to pose a risk to aquatic ecosystem. The auditor acknowledges that groundwater is unlikely to be extracted for use at the site due to the high salinity and low yield of the aquifer.”

Based on the results reported in the DSI, the imported fill (VENM) and groundwater beneath Reserve 980 are not considered to present a risk to human receptors. The three former stockpiles (SP01 to SP03) with visual aesthetic impacts, have been removed from Reserve 980. Note that soil within the stockpile was assessed to be suitable for re-use within the wider former Schofields Aerodrome (which includes low-density residential land use) and Reserve 980 (recreational land use). The footprint of the stockpiles was visually validated and there was no unfavourable aesthetics observed.

Low levels of metal and PFOS concentrations detected in the groundwater were likely to be regional or ambient levels associated with the aquifer/stratigraphy as similar concentrations were measured at previous groundwater monitoring events conducted within the former Schofields Aerodrome and at up-gradient locations.

Overall, the results from the current assessment support the conclusions of the previous audits in that the potential risk to human health and the environment are considered to be low and acceptable.



13.0 Contamination Migration Potential

The 2013 Supplementary Section A SAR reviewed the surface water and sediment data and concluded for the former aerodrome that *“there is a low risk of migration of contaminants under the current site conditions from the surface soil in dust or surface water runoff, as the major sources of contamination have not been removed.”* This SAR also examined the potential risk associated with off-site migration of contaminants in groundwater due to landfill areas (which are not located within or up hydraulic gradient of Reserve 980) and noted that the landfill areas *“have been remediated and do not pose a future risk of offsite migration”*.

The PFAS MEA SAR concluded that:

“PFAS has the potential to mobilise and migrate from the MEA via groundwater towards the creek at very low levels similar to site background concentrations. Under some conservative modelling scenarios, predicted concentrations under the MEA may be slightly higher than site background levels, however, further attenuation of PFAS within the site via dispersion and sorption will occur. Subject to maintaining the integrity of the MEA and overlying VENM, the auditor considers that there is sufficient evidence to support the consultant’s conclusion that the migration of PFAS from the MEA represents a low and acceptable level of risk, and that any additional contribution from the site above background conditions is negligible.”

The auditor notes that the PFAS MEA is located at depth below the imported VENM (i.e. bulk filling of the former Schofield Aerodrome).

Similarly, the Remaining Site Area SAR evaluated the potential for PFAS to migrate and concluded that *“there is still no evidence of significant migration of contamination and little potential for future migration.”*

No significant levels of contaminants were detected over the site in the DSI, and therefore there is little or no potential for migration of contamination from the site or vertically to groundwater. Potential transport pathways via dust and surface erosion were not considered to be an issue as no elevated results were measured at the surface or shallow soil (imported VENM) and the three former soil stockpiles (SP01 to SP03). The three stockpiles have been removed from Reserve 980.

Consistent with the previous SAR, the auditor still considers that there is no evidence of significant migration of contamination and little potential for future migration at Reserve 980.



14.0 Compliance with Regulatory Guidelines and Directions

The auditor has used guidelines currently approved by the EPA under Section 105 of the NSW *Contaminated Land Management Act 1997* (**Appendix B**).

The DSI was generally conducted in accordance with *State Environmental Planning Policy (Resilience and Hazards) 2021* and reported in accordance with the NSW EPA (2020) *Consultants Reporting on Contaminated Sites Contaminated Land Guidelines*.

14.1 Notification

Ramboll did not indicate in the DSI whether the assessment and remediation work required any consent from regulatory authorities. The auditor notes that the amount of bonded asbestos removed from site in July 2025 was not greater than 10 m² and therefore, notification to SafeWork NSW was not needed. The auditor has not been provided further detail on any associated notification to Council in relation to the works undertaken.

14.2 Development Approvals

Condition 3.11.1 of Blacktown City Council Notice of Determination Number DA-21-00925 dated 20 July 2022 requires the following:

“A NSW Environment Protection Authority accredited Site Auditor shall review the validation report and submit to Council a Site Audit Statement. The Site Audit Statement shall verify that the investigation, remediation and validation was carried out in accordance with the aforementioned guidelines and that the site is suitable for the proposed use.”

The above condition has been interpreted to require a Site Audit Statement commenting on site suitability for the proposed use of Reserve 980. This Site Audit Report and accompanying Site Audit Statement has been completed in order to comply with this condition.

14.3 Waste Disposal

The auditor has assessed the overall waste management process by review of the information presented in the DSI, supplemented by field observations. The key documents provided relating to waste include:

- Photographs of the areas with illegal dumped waste before and after removal.
- Asbestos clearance certificate prepared by a suitably qualified person for the illegally dumped waste comprising asbestos.
- Landfill weighbridge receipt and delivery/tipping dockets.

As discussed in **Section 9.1**, the waste comprising fibre cement sheets was classified as ‘Special Waste (Asbestos)’ and they were disposed and managed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (EPA 2014). Solid inert waste- (refer to **Section 9.2.2**) sourced from the former soil stockpiles (SP01 to SP03) was also disposed off-site to licensed facility as ‘Mixed waste’. These three stockpiles have since been moved from Reserve 980.



Based on the information provided in the DSI, the auditor is satisfied:

- With the classification of the waste.
- That the waste was moved off-site.
- That the waste was taken to lawful facilities.

14.4 VENM and Other Imported Materials

No VENM or other imported materials were imported during the course of the audit.

The assessment conducted as part for the DSI tested the historical fill previously imported to the wider former Schofields Aerodrome to raise the site level. Reports from the source sites confirming that the imported fill soil was VENM are provided in Appendix 11 of the DSI. Overall, based on the findings of the DSI and supporting documentation, the historical fill imported is consistent with VENM.

14.5 Licence

The DSI report did not indicate that licences were required for works associated with the audit site. The bonded asbestos waste removed from site was not greater than 10 m² and therefore, the work did not require any licenced asbestos removalist.



15.0 Conclusions and Recommendations

The 2013 Section A SAR concluded that:

“...the site [former Schofield Aerodrome, which includes Reserve 980] is suitable for residential use with accessible soil, as well as other similarly or less sensitive land uses, such as schools and recreational open space.

No significant contamination has been found in groundwater, but it has not been monitored since 1999. It is recommended that groundwater be assessed for suitability for its proposed use if groundwater abstraction is contemplated.”

The 2013 audit also recommended that the unexpected finds protocol be implemented in future site redevelopment to manage any undetected contamination.

In terms of PFAS contamination, the PFAS MEA SAR concluded that:

“The nature and extent of the PFAS material emplacement layer has been appropriately determined.

The risk to human health and the environment posed by the PFAS material emplacement layer is acceptable, given the current configuration of the material emplacement area, for the current and approved uses.

Similarly, the Remaining Area SAR also concluded the following in relation to PFAS contamination:

“The nature and extent of the PFAS contamination has been appropriately determined.

The risk to human health and the environment posed by the soil and groundwater are considered to be acceptable for the proposed land use. Extraction of groundwater for any purpose within the audit site was documented in the Validation Report to be not proposed or not likely due to the high salinity and poor yield from clayey aquifer.”

Subsequent soil and groundwater investigations were conducted and based on the results, Ramboll considers that Reserve 980 is “suitable for its proposed future land uses of:

- RE1 – public recreation.
- SP2 Infrastructure – local road.”

As risks to human and ecological health have been assessed as low and acceptable within the areas that were subject to this investigation, ongoing site management is not considered necessary.”

In line with the objective of this site audit and taking into consideration the conclusions of the previous site audits conducted at Reserve 980 and the environmental data presented in the DSI and observations made on-site, the auditor concludes that Reserve 980 is suitable for recreational open space inclusive of netball, basketball, volleyball courts and commercial/industrial (roadway) land uses,

The site audit statement will be provided to the Blacktown City Council and as a result the presence of the site audit statement will be noted on the Planning Certificate.



16.0 Other Relevant Information

This audit was conducted on the behalf of Defence Housing Australia (the Client) for the purpose of assessing whether the land is suitable for the proposed recreational public open space and roadway land uses i.e. a "Site Audit" as defined in Section 4 (definition of a 'site audit' (b)(iii)) of the *Contaminated Land Management Act 1997*. The audit report has been prepared to satisfy a requirement for the redevelopment the site as per Blacktown City Council's development consent.

This summary report may not be suitable for other uses. Ramboll Australia Pty Ltd included limitations in their report. The audit must also be subject to those limitations. The auditor has prepared this document in good faith but cannot certify information beyond areas they had some control or could reasonably verify.

In drawing conclusions, the auditor used reasonable care to avoid reliance upon data and information that may be inaccurate, however a degree of uncertainty is inherent in all subsurface investigations and there remains the possibility that variations may occur between sample locations. The audit and this report are limited by and rely upon the scope of the review, and the information provided by the Client and their consultants and representatives through documents provided to the auditor. The audit is based on a review of the subsurface condition of the site at the time of assessment, as described in the assessment reports attached to the audit report and site inspections conducted by the auditor and their representatives. The auditor's conclusions presented in this report are therefore based on the information made available to them and arising from their own observations conducted during the audit. If the auditor is unable to rely on any of those documents, the conclusions of the audit could change.

It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

In reaching their conclusions about the site, the Client and NSW EPA may use this audit report and site audit statement. The scope of work performed as part of the audit process may not be appropriate to satisfy the needs of any other person. Any other person's use of, or reliance on, the audit document and report, or the findings, conclusions, recommendations or any other material presented or made available to them, is at that person's sole risk.



Appendix A: Attachments

Attachment 1: Site Layout and Previous Historical Samples

Attachment 2: Soil Sampling Locations and Exceedances

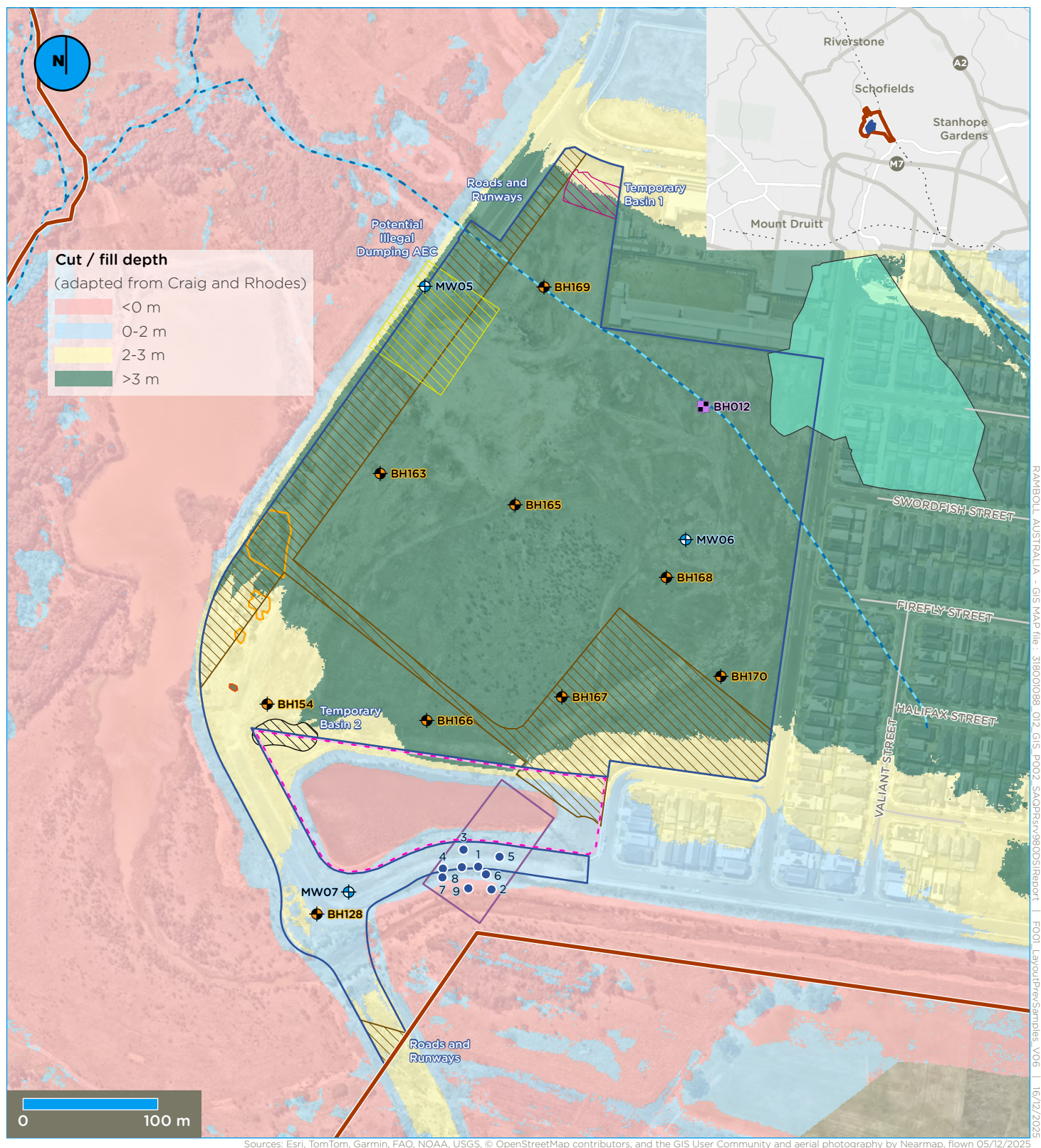
Attachment 3: Groundwater Monitoring Well Locations and Exceedances

Attachment 4: Contoured Groundwater Elevations

Attachment 5: Stockpile Locations and Layout and Sampling Locations

Attachment 6: Survey Plan of Reserve 980

Attachment 7: General Arrangement Plan



Legend

- Approximate site boundary (comprising majority of Former Schofields Aerodrome)
- Reserve 980 section A audit area
- Basin 6
- PFAS Material Emplacement Area at depth
- Former blimp hangar
- Stockpiled material area
- Illegally dumped ACM fragments
- Former drainage channels

Note: MW07 has been destroyed.

Area of concern

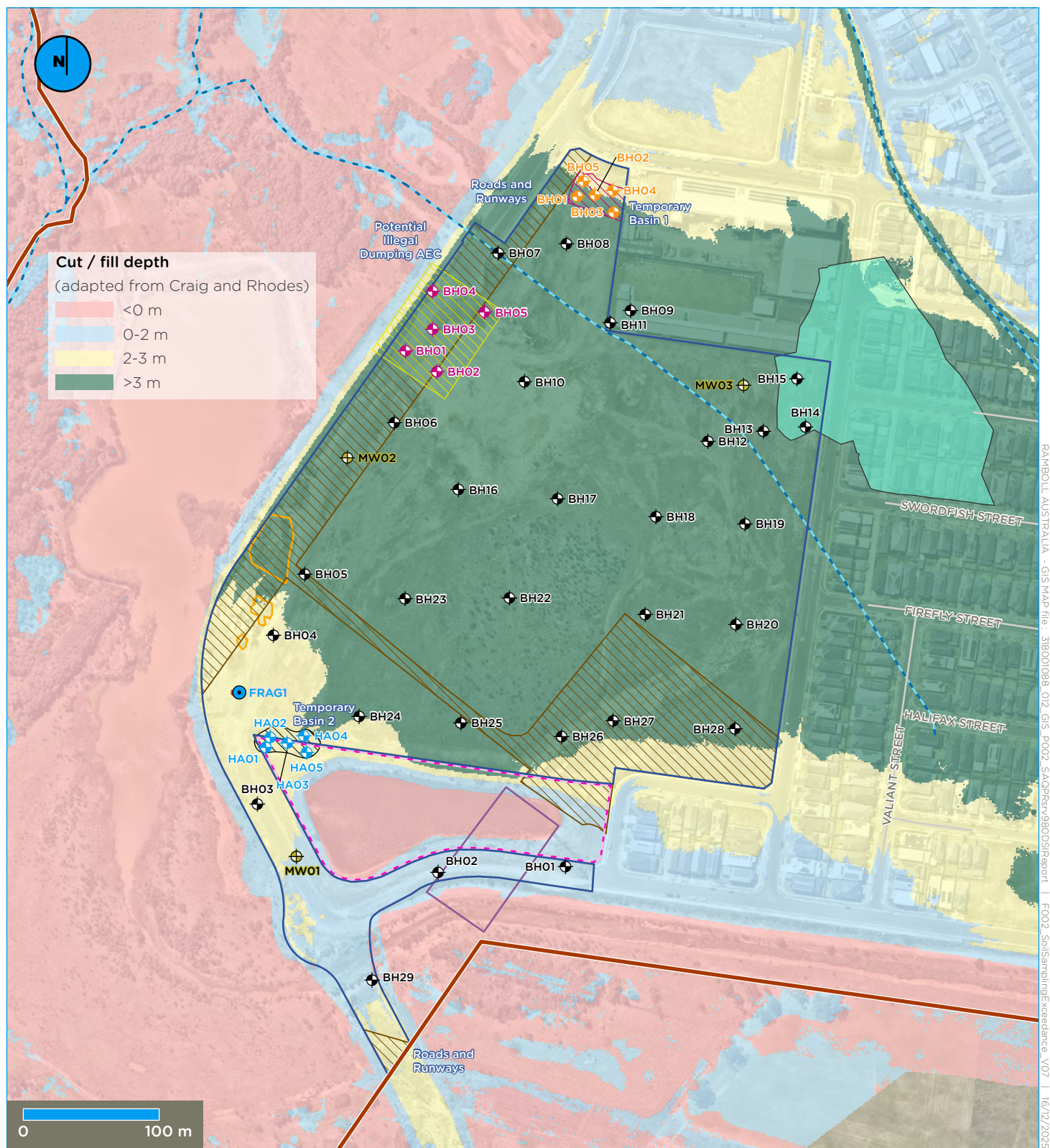
- Potential illegal dumping AEC
- Roads and runways
- Temporary basin 1
- Temporary basin 2

Previous sample locations

- Background sample (prefix, "BG_")
- Drainage line borehole (prefix, "DR_")
- Monitoring well
- Former blimp hangar sample location (prefix, "BLH_BH00")

Figure 1: Site Layout and Previous Historical Samples

Sampling and Analysis Quality Plan, Reserve 980 PFAS DSI



Legend

- Approximate site boundary (comprising majority of Former Schofields Aerodrome)
- Reserve 980 section A audit area
- Basin 6
- PFAS Material Emplacement Area at depth
- Former blimp hangar
- Stockpiled material area
- Illegally dumped ACM fragments
- Former drainage channels

Area of concern

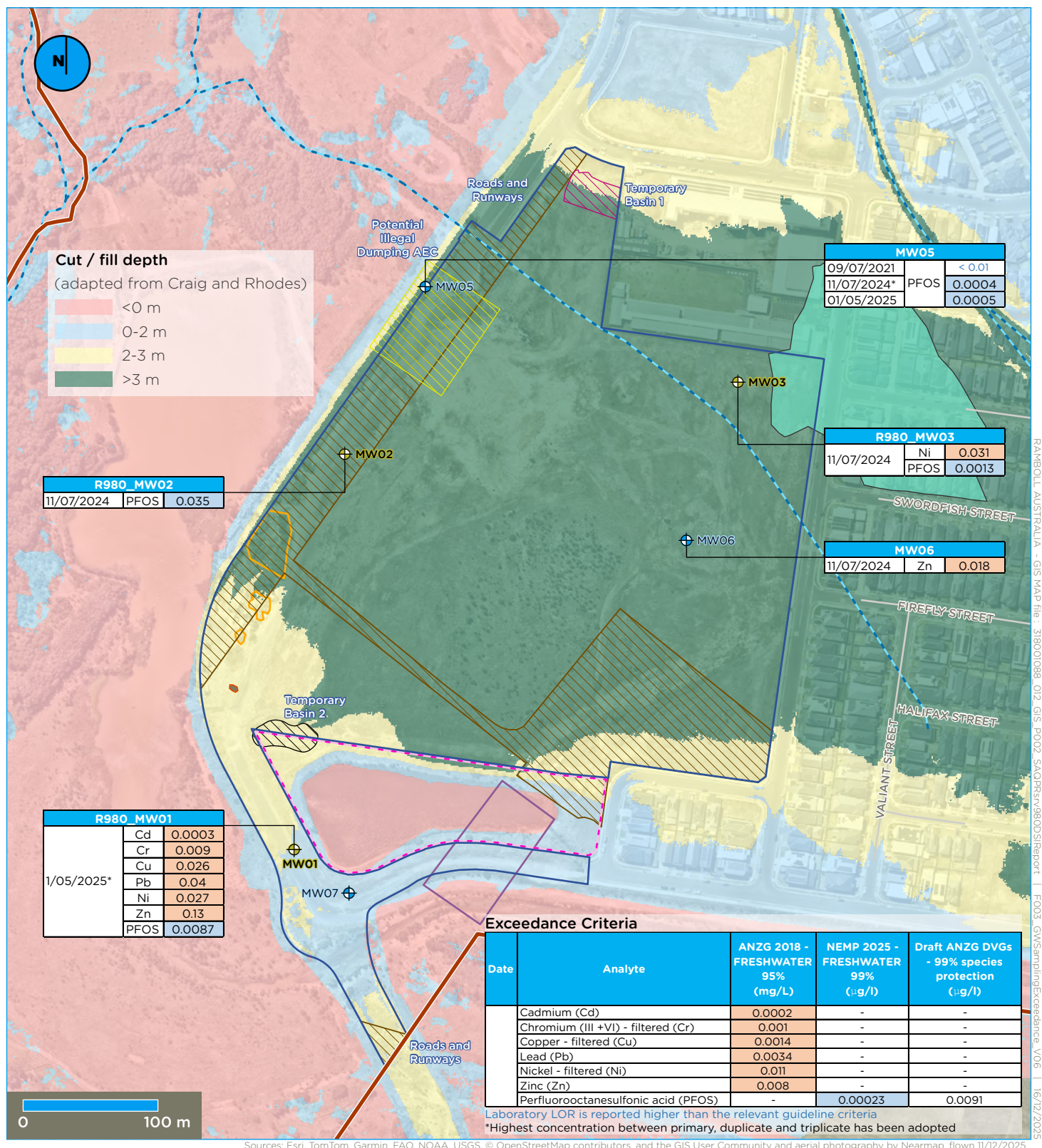
- Potential illegal dumping AEC
- Roads and runways
- Temporary basin 1
- Temporary basin 2

Sample locations

- Asbestos fragment (prefix, "R980_")
- ⊕ Borehole (prefix, "R980_")
- ⊕ Borehole - potential illegal dumping AEC (prefix, "PID_")
- ⊕ Borehole - temporary basin 1 (prefix, "TB1_")
- ⊕ Borehole - temporary basin 2 (prefix, "TB2_")
- ⊕ Monitoring well (prefix, "R980_")

Figure 2: Soil Sampling Locations and Exceedances

Sampling and Analysis Quality Plan, Reserve 980 PFAS DSI



Legend

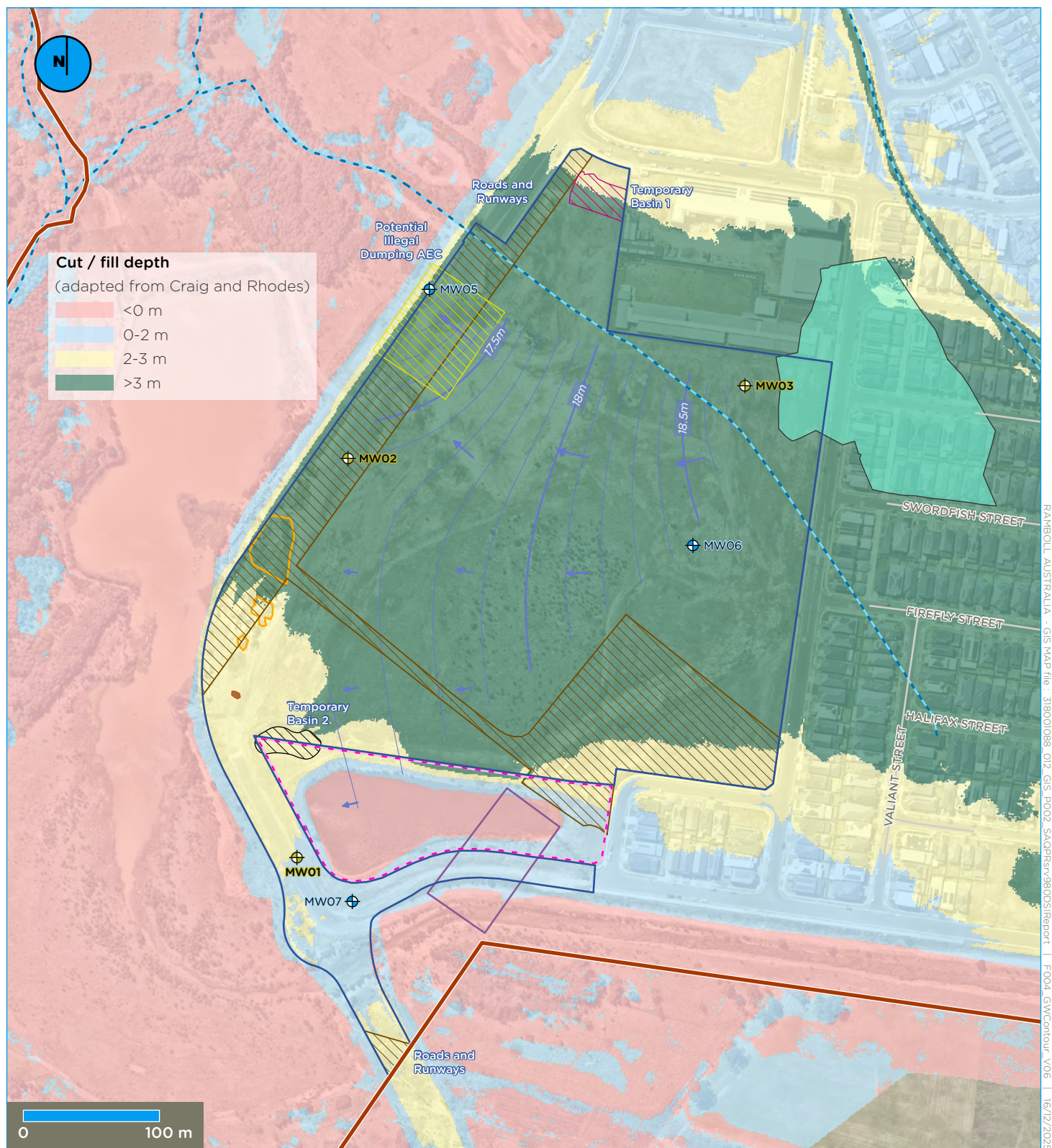
- Approximate site boundary (comprising majority of Former Schofields Aerodrome)
- Reserve 980 section A audit area
- Basin 6
- PFAS Material Emplacement Area at depth
- Former blimp hangar
- Stockpiled material area
- Illegally dumped ACM fragments
- Former drainage channels

- Area of concern
- Potential illegal dumping AEC
- Roads and runways
- Temporary basin 1
- Temporary basin 2
- Previous sample locations
- Monitoring well
- Sample locations
- Monitoring well (prefix, "R980_")

Note: MW07 has been destroyed.

Figure 3: Groundwater Monitoring Well Locations and Exceedances

Sampling and Analysis Quality Plan, Reserve 980 PFAS DSI



Legend

- Approximate site boundary (comprising majority of Former Schofields Aerodrome)
- Reserve 980 section A audit area
- Basin 6
- PFAS Material Emplacement Area at depth
- Former blimp hangar
- Stockpiled material area
- Illegally dumped ACM fragments
- Former drainage channels

- Groundwater elevation contour (mAHD)
 - 0.1m interval
 - 0.5m interval
 - Inferred groundwater flow direction
- Area of concern
 - Potential illegal dumping AEC
 - Roads and runways
 - Temporary basin 1
 - Temporary basin 2
- Previous sample locations
 - Monitoring well
 - Sample locations
 - Monitoring well (prefix, "R980_")

Note: MW07 has been destroyed.

Figure 4: Contoured Groundwater Elevations
Sampling and Analysis Quality Plan, Reserve 980 PFAS DSI



Legend

- ◆ Stockpile Sampling Locations
- ◆ April 2023 Stockpile Sampling Locations with Pre-fix "WC_SP06_"

Figure 1: Stockpile Locations and Layout and Sampling Locations
 Defence Housing Australia - Former Schofields Aerodrome

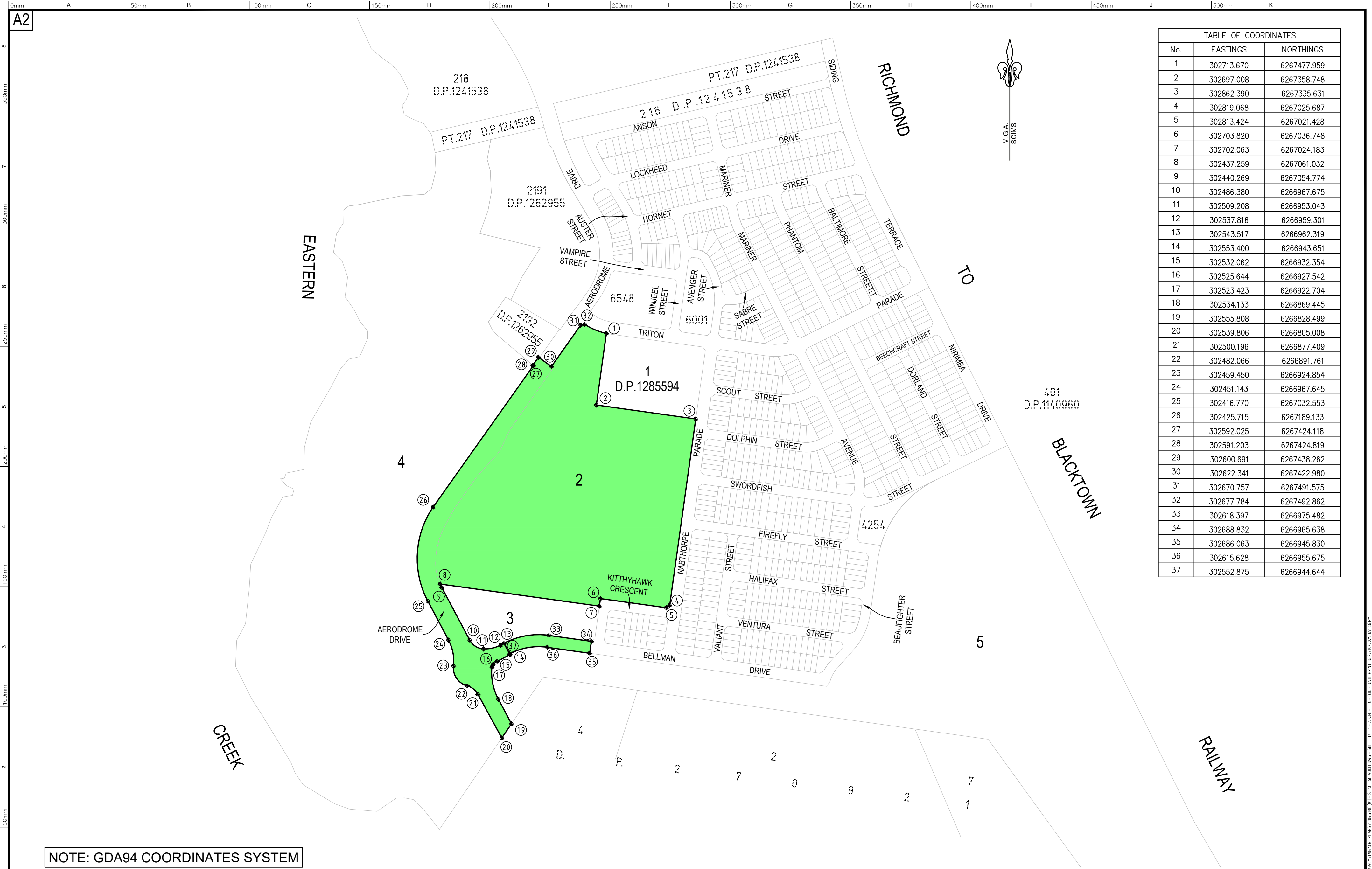


TABLE OF COORDINATES		
No.	EASTINGS	NORTHINGS
1	302713.670	6267477.959
2	302697.008	6267358.748
3	302862.390	6267335.631
4	302819.068	6267025.687
5	302813.424	6267021.428
6	302703.820	6267036.748
7	302702.063	6267024.183
8	302437.259	6267061.032
9	302440.269	6267054.774
10	302486.380	6266967.675
11	302509.208	6266953.043
12	302537.816	6266959.301
13	302543.517	6266962.319
14	302553.400	6266943.651
15	302532.062	6266932.354
16	302525.644	6266927.542
17	302523.423	6266922.704
18	302534.133	6266869.445
19	302555.808	6266828.499
20	302539.806	6266805.008
21	302500.196	6266877.409
22	302482.066	6266891.761
23	302459.450	6266924.854
24	302451.143	6266967.645
25	302416.770	6267032.553
26	302425.715	6267189.133
27	302592.025	6267424.118
28	302591.203	6267424.819
29	302600.691	6267438.262
30	302622.341	6267422.980
31	302670.757	6267491.575
32	302677.784	6267492.862
33	302618.397	6266975.482
34	302688.832	6266965.638
35	302686.063	6266945.830
36	302615.628	6266955.675
37	302552.875	6266944.644

NOTE: GDA94 COORDINATES SYSTEM



Project:

SITE AUDIT PLAN OVER PROPOSED LOT 2 DP1280538, STAGE 6G
AND PROPOSED PART OF AERODROME DRIVE,
NIRIMBA FIELDS

Principal:

DEFENCE HOUSING AUSTRALIA

Scale	1:4000	Date	01/10/2025	Council Ref.	
		Datum	N/A	L.G.A.	BLACKTOWN
Calc's	A.K.M.	Drawn.	E.D.	Proj.Man.	B.H.
				Client Ref.	



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PO Box 3220, Rhodes NSW 2138
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www.colliers.com.au

Our Ref.

1784-STAGE 6G

Dwg File Ref. [Rev] - Sheet Ref.

1784G i08 [01] - STAGE 6G
AUDIT
- SHEET 1 OF 1

C:\D:\REF - G:\COLLIERS\PROJECTS\LEGACY\TRA\G_1784\STAGE 6G AUDIT DWG - SHEET 1 OF 1 - A.K.M. - ED. - B.H. - DATE PRINTED: 27/10/2025 15:45 PM



Appendix B: EPA Guidelines



Guidelines made or approved by the EPA under section 105 of the *Contaminated Land Management Act 1997*

(as of: 12 August 2022)

Section 105 of the CLM Act allows the EPA to make or approve guidelines for purposes connected with the objects of the Act. The EPA must consider these guidelines whenever they are relevant. Other people must also consider the guidelines, namely, accredited site auditors when conducting a site audit; contaminated land consultants when investigating, remediating, validating and reporting on contaminated sites; and those responsible for land contamination with a duty to notify the EPA.

A current list of guidelines made or approved by the EPA under the CLM Act appears below.

Guidelines made by the EPA

- Assessment and management of hazardous ground gases: Contaminated land guidelines (PDF 4MB)
- Guidelines for the vertical mixing of soil on former broad-acre agricultural land (PDF 148KB)
- Contaminated land sampling design guidelines part 1 – application (PDF 3.3MB)
- Contaminated land sampling design guidelines part 2 – interpretation (PDF 1MB)
- Guidelines for assessing banana plantation sites (PDF 586KB)
- Consultants reporting on contaminated land: Contaminated land guidelines (PDF 1MB)
- Guidelines for assessing former orchards and market gardens (PDF 172KB)
- Guidelines for the NSW Site Auditor Scheme, 3rd edition (PDF 999KB)
- Guidelines for the assessment and management of groundwater contamination (PDF 604KB)
- Guidelines on the duty to report contamination under the Contaminated Land Management Act 1997 (PDF 412KB)

Guidelines that refer to the:

- Australian Water Quality Guidelines for Fresh and Marine Waters (ANZECC, October 2000), are replaced as of 29 August 2018 by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, August 2018), with the exception of the water quality for primary industries component, which still refer to the ANZECC & ARMCANZ (2000) guidelines
- National Environment Protection (Assessment of Site Contamination) Measure 1999 are replaced as of 16 May 2013 by the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013).

Guidelines approved by the EPA

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZG (August 2018)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries - Rationale and Background Information (ANZECC & ARMCANZ (October 2000)
- Composite sampling, Lock, W. H., National Environmental Health Forum Monographs, Soil Series No.3, 1996, SA Health Commission, Adelaide. Email enHealth.Secretariat@health.gov.au for a copy of this publication.
- Environmental health risk assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (June 2012)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)* (ASC NEPM)
- Guidelines for the Assessment and Clean Up of Cattle Tick Dip Sites for Residential Purposes, NSW Agriculture and CMPS&F Environmental (February 1996)
- Australian Drinking Water Guidelines, NHMRC and Natural Resource Management Ministerial Council of Australia and New Zealand (2011)

*The ASC NEPM was amended on 16 May 2013.



Appendix C: Interim Audit Advice

10 January 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 1: SAQP (Draft D1) Reserve 980, Former Schofields Aerodrome

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was previously engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 16.5 hectares and it is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed used for public open space and recreational land use (i.e. sports playing fields and parklands) with a stormwater retention pond at its southern end. The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as 'Environ 2013'.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as 'Senversa 2021a'.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as 'Senversa 2021b'.

¹ PFAS: Per and Polyfluoroalkyl Substances.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Document

The following document was provided to Senversa for review:

- Ramboll (2024) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-011, Draft D1, 23 December 2024. This is hereafter known as the 'SAQP'.

The purpose of this letter is to provide comments on the SAQP (Ramboll 2024).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has completed a review of the Validation Report (draft D4) against:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).

Based on a review of the SAQP (draft D1), the following items require clarification or amendments:

1. Water retention basin: is this basin remaining as a permanent feature? If it is to remain, it needs to be assessed and characterised to show that it does not pose any risk to human and ecological receptors. The auditor notes that there is very limited information is presented in the SAQP about the basis (How deep is it? Was it lined? What is the quality of the surface water and sediment in the basin? Etc.) and surface water has not been identified as a data gap.
2. Section 1.2: potential illegal dumping of waste is documented to have occurred. If there any information to indicate where this AEC is located? The auditor notes that only grid-soil sampling was proposed. If an AEC is identifiable, targeted sampling could be conducted to close of this AEC.
3. Section 1.3: review of previous contamination assessment reports is listed as a task. Is there a post-2013 unexpected finds register available for review?
4. Section 1.4: please update as SEPP55 has been rescinded.
5. Section 1.4: given that this SAQP includes groundwater assessment, include relevant groundwater-associated guideline criteria.
6. Table 2-1 Zoning: please clarify as a review of NSW Planning Portal conducted by the auditor on 8 January 2024 indicated that Reserve 980 is currently zoned RE1 (public recreation), SP2 Drainage (infrastructure) and R2 (low density residential).



7. Table 2-1 Topography: is there any information available about the thickness of VENM imported onto Reserve 980? Section 6.1 stated that the VENM imported was "*generally uniform layer with a thickness of >3 m across most of the area*" and it is unclear where this information is from.
8. Table 2-1 Site conditions: the auditor notes that a groundwater monitoring well network review (which included a July 2024 GME) was conducted by Ramboll, however, the hydrogeology information presented in Table 2-1 appears to be from 2017 and 2021.
9. Section 2.2 and Section 3: were there any historical actual or potential sources of contamination or area of concern (AEC) identified within Reserve 980? The auditor notes that 'Blimp Hangar', 'Roads and Runways', and 'Adjacent to Roads and Runways' were discussed in the Environ 2013 SAR. If there are specific AEC/contamination sources, they should be discussed in the preliminary CSM.
10. Table 3-1 Preliminary CSM: only soil and groundwater media are considered in the CSM. Should surface water be included given that there is a water retention basin on-site?
11. Table 3-1 Preliminary CSM: groundwater was stated not to be extracted for any beneficial use at the site. What about post-development? Could/would groundwater be extracted for any beneficial use (e.g. irrigation, filling swimming pools) on-site and off-site? It is noted that water screening levels for recreational water has been adopted in Section 5.3.
12. Section 4 DQO: please consider whether there is any data gap associated with surface water (e.g. water retention basin) and revise the SAQP accordingly. The auditor notes that there is no surface water discussion in the SAQP.
13. Section 4 Step 4: "*e.g. water bodies and embankments are not accessible*" (page 13) Please confirm. Is the water retention basis inaccessible?
14. Table 4-1: given that contaminants of potential concern (CoPC) include volatile compounds (e.g. BTEX, TRH, PAH), it is recommended that trip blanks be included. Please also amend Section 7.1 where required.
15. Section 5.2: acid sulfate soil (lack of) is listed as a 'criterion' for VENM. However, there is no assessment criteria or guidelines listed for assessing potential/actual acid sulfate soil.
16. Section 5.3: it is unclear why only certain compounds are listed in Table 5-1 and Table 5-2. E.g. metals are in Table 5-1, but not in Table 5-2. PAH and phenol are in Table 5-2, but not in Table 5-1.
17. Section 5.3.1: as stated in Section 2.8 of NEPM Schedule B1, NEPM GILs are based on Australian Water Quality Guidelines 2000 (which is now superseded by ANZG 2018), Australian Drinking Water Guidelines 2011 and Guidelines for Managing Risk in Recreational Waters 2008 which is protective of both ecological and human health. E.g. NEPM GIL of 0.013 mg/L for arsenic and 0.0002 mg/L for cadmium are actually from ANZG 2018 (ANZECC 2000). Therefore, if Table 5-1 is to only include groundwater assessment criteria for human health, it is recommended that the actual guideline values for assessing human health-related beneficial use be adopted.
18. Section 5.3.3: please also consider highlighting that there is also draft NHMRC PFAS drinking water guidelines currently out for public consultation (which may affect recreational PFAS screening level). Adopting a conservative approach, the draft guideline values should be considered when interpreting the results and conclusions. This is to prevent any issues from arising in the future.
19. Section 6.1: Table 6-4 (there is no Table 6-5) does not indicate that there are any targeted soil bores. Also, please note that AS4482.1-2005 has been withdrawn.
20. Section 6.1: it is noted that a reduced frequency of 1 soil bore per 5,000 m² is proposed and Ramboll indicated that VENM certificate information is available for the imported material. Is there appropriate and robust material tracking information available to confirm that which material (truckload) of 'certified' VENM went where? It is recommended that the rationale (multiple lines of evidence) for reduced sampling density be expanded. Statement such as "*Robust existing data is available from previous investigations and historical data provides a relatively high degree of confidence in site conditions*" are not supported with data or evidence.



21. Section 6.1: given that MW05 is located adjacent to the western boundary of Reserve 980 (down-gradient), it is recommended that MW05 be sampled and gauged as well. Please add MW05 to Figure 1 and amend throughout the SAQP.
22. Section 6.1: MW07 is stated in Figure 1 to be destroyed. Is there any groundwater data available for the southern half of Reserve 980? The auditor notes that MW07 was last sampled on 8 July 2021 but it was only analysed for PFAS. This data gap needs to be addressed.
23. Section 6.2: are PID field readings proposed to be taken? It is noted that volatile compounds (e.g. TRH, BTEX, PAH) are listed as CoPCs.
24. Section 6-3: peristaltic pump is proposed for groundwater sampling. Is there potential for volatile loss with using peristaltic pump?
25. Section 6.4: what are the analytes for laboratory testing for the 64 primary soil samples and 3 primary groundwater samples (and their associated duplicate samples)? The analytical suite (analyte list) should be provided in Section 6.4. E.g. Are PFAS proposed to be analysed in soil samples? This is very unclear from Section 5 and 6 of the SAQP.
26. Section 7.8: all soil cores and cuttings are stated to be stored in waste drums. This is inconsistent with Table 6-1 which indicated drilling cuttings are to be reinstated back into the boreholes.
27. Section 9: the DSI should also be:
- Reporting on the findings of the review of previous contamination assessment reports (including SARs).
 - Any deviations from the SAQP (if any and why).
 - Characterise the final site condition (soil, groundwater and surface water) to support a Section A SAR/SAS.
 - Concluding on contamination from contaminants other than PFAS, and the suitability of the site for proposed use.

4.0 Closure

Please revise the SAQP addressing the comments above.

If you have any comments or questions, please do not hesitate to contact the undersigned at

[REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]

NSW EPA Accredited Auditor

Technical Limitations and Uncertainty – Ramboll Environ Australia Pty Ltd included limitations in their report. The Interim Audit Advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. The Auditor has relied on the documents referenced in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change. It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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11 March 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 3: SAQP (Draft D2) Reserve 980, Former Schofields Aerodrome

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was previously engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 16.5 hectares and it is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with a stormwater retention pond at its southern end. The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as 'Environ 2013'.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as 'Senversa 2021a'.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as 'Senversa 2021b'.

¹ PFAS: Per and Polyfluoroalkyl Substances.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The table below lists the previous document provided to the auditor.

Document	Corresponding Auditor's Interim Advice
Ramboll (2024) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-011, Draft D1, 23 December 2024	Interim Audit Advice (IAA) No. 1: SAQP (Draft D1), Reserve 980 dated 10 January 2025 (ref: S21376_006_LET01_Rev0)

Subsequently, the following report was revised and provided to Senversa for review:

- Ramboll (2025a) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Draft D2, 28 February 2025. This is hereafter referred to as the 'SAQP'.
- Ramboll's (2025b) Responses to IAA No. 1 provided in an excel file titled 'Auditor Comments Register_CHA Schofields Reserve 980 SAQP_28Feb25.xlsx'. This is hereafter referred to as 'the Ramboll's Responses'.

The purpose of this letter is to provide comments on the SAQP (Ramboll 2025a) and Ramboll's Responses (Ramboll 2025b).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has conducted a review of the SAQP and Ramboll's Responses and considered the following:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).

Please note that PFAS NEMP Version 3.0 has been released and therefore, the SAQP should be reviewed and updated throughout where appropriate.



Based on a review of the SAQP (draft D2), the following items require clarification or amendments:

1. Section 1.4: It is recommended that PFAS NEMP 3.0 be considered.
2. Section 2: Please confirm the lateral extent and boundary of Reserve 980 audit area shown in the SAQP. Is it consistent with the area referred to in DA 21-00925 (referred to as Stage 6G for purposed subdivision)?
3. Section 2.1: Please discuss the drainage lines (inflow and outflow) associated with the permanent water retention basin. Does the surface water from the permanent water retention basin discharge to any drainage lines?
4. Section 2.1: Temporary water retention basins are listed in Section 1 as activities/features present at the site. However, they are not discussed or explained in Section 2.1. What are these temporary water basins (which are now backfilled) previously used for? When were they used as temporary water basins? Is there any information about where and how water from the temporary water retention basins was disposed of? Description or discussion would help provide some context (and maybe help identify potential areas of contamination for field-testing).
5. Section 2.2: Please amend as Figure 2 is missing from Appendix 1.
6. Section 2.3.2: Of the 26 primary samples within Reserve 980, were any of them validating the identified AECs present within Reserve 980? It would be beneficial to show that the AECs were validated (if they have already been closed out in the Ramboll 2021 Reminder of Site Validation works).
7. Section 3, Table 3-1: "*Direct contact or incidental ingestion of contaminants in groundwater during subsurface works is considered to be low as groundwater on the site is below 5 mbgl...*" Please check as "*below 5 mbgl*" is not consistent with information presented in Table 2-2 'On-site wells/Depth to groundwater' and Table 2 (Appendix 2).
8. Section 4, Step 6: It is recommended that Table 4-1 DQI be amended to be in line with Section 18.2 of PFAS NEMP 3.0.
9. Section 5.2: It is recommended that PFAS NEMP 3.0 and National Acid Sulfate Soils Guidance: National Acid Sulfate Soils Sampling and Identification Methods Manual dated June 2018 be added as well.
10. Section 5.3 and Section 5.3.3: Now that it is released, it is recommended that PFAS NEMP 3.0 be considered.
11. Section 5.3.1: Please check Table 5-1 as the following criteria are missing or inconsistent with NHMRC Guidelines for Managing Risks in Recreational Water (2008): benzo(a)pyrene, pentachlorophenol, copper, lead, mercury and nickel.
12. Section 5.3.2: Please check Table 5-2:
 - In accordance with ANZG 2018, the default guideline values for 99% level of species protection should be adopted instead for compounds which can bioaccumulate or to account for chronic toxicity (e.g. phenanthrene, anthracene, fluoranthene, benzo(a)pyrene, pentachlorophenol, 2-chlorophenol, etc.).
 - Arsenic criterion listed is not consistent with ANZG 2018.
13. Section 6.1: Given that VENM certificate information is not provided in the SAQP and Ramboll indicated that there is no tracking information available about the placement/importation of VENM, it is recommended that Ramboll expands and provides more multiple lines of evidence (instead of referencing other sections of the SAQP) to justify the reduced sampling density (E.g. 'Site history information is detailed and understood.' This can be followed by a brief site history discussion to show that the AECs present within Reserve 980 and they were assessed/validated by previous assessments, etc).



14. Section 6.2, 6.3 and 6.4: Please review and revise text to be in line with guidance from PFAS NEMP 3.0.
15. Section 6.2: Table 6-1 stated that “*selected soil samples will be analysed*” for asbestos identification, TRH, BTEXN, PAH, 8 metals, OCP, OPP, PCB, PFAS (30 compounds) and VOCs. Please provide some discussion about how the analytes for the soil samples will be selected.
16. Section 6.4: It is noted that a bailer is proposed in Table 6-4 to be used to collect sediment sample in the permanent retention basin. Is this feasible? Does Ramboll mean sediment corer or sediment core sampler?
17. Section 7.1: Are the intra-laboratory and inter-laboratory duplicate samples to be analysed for the same analytes as their primary samples? This needs to be documented.
18. Section 7.1: As VOC is analysed as a COPC, please consider analysing field blanks for VOC as well.
19. Section 7.2: The depth of the sediment samples (at the permanent water retention basin) should be documented as well.
20. Section 9: Figure 1 (Appendix 1) shows that a new groundwater monitoring bore (located off-site within Hatched Area) is proposed at Valiant Street east of Reserve 980. If this off-site bore is installed in time (depending on timing of field program), the results of this off-site bore located up-hydraulic gradient should be considered when preparing the Reserve 980 DSI report.
21. Section 9: The Auditor will require a registered survey plan showing the Reserve 980 audit site (over the Lot DPs as a base plan ideally) and provide the coordinates of all of boundary points/corners. This survey plan should be included in the DSI report.

4.0 Closure

Please revise the SAQP addressing the comments above.

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]
NSW EPA Accredited Auditor

Technical Limitations and Uncertainty – Ramboll Environ Australia Pty Ltd included limitations in their report. The Interim Audit Advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. The Auditor has relied on the documents referenced in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change. It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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25 March 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 4: SAQP (Final F1) Reserve 980, Former Schofields Aerodrome

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was previously engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 16.5 hectares and it is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with a stormwater retention pond at its southern end. The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as ‘Environ 2013’.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as ‘Senversa 2021a’.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as ‘Senversa 2021b’.

¹ PFAS: Per and Polyfluoroalkyl Substances.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The table below lists the previous document provided to the auditor.

Document	Corresponding Auditor's Interim Advice
Ramboll (2024) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-011, Draft D1, 23 December 2024	Interim Audit Advice (IAA) No. 1: SAQP (Draft D1), Reserve 980 dated 10 January 2025 (ref: S21376_006_LET01_Rev0)
Ramboll (2025a) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-012, Draft D2, 28 February 2025	Interim Audit Advice (IAA) No. 3: SAQP (Draft D2), Reserve 980 dated 11 March 2025 (ref: S21376_006_LET03_Rev0)
Ramboll (2025b) Responses to IAA No. 1 provided in an excel file titled 'Auditor Comments Register_CHA Schofields Reserve 980 SAQP_28Feb25.xlsx'.	

Subsequently, the following report was revised and provided to Senversa for review:

- Ramboll (2025c) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Final F1, 19 March 2025. This is hereafter referred to as the 'SAQP'.
- Ramboll (2025d) Responses to IAA No. 3 provided in an excel file titled 'Auditor Comments Register_DHA Schofields Reserve 980 SAQP_19Mar25.xlsx'. This is hereafter referred to as 'the Ramboll Responses'.

The purpose of this letter is to provide comments on the SAQP (Ramboll 2025c) and Ramboll Responses (Ramboll 2025d).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has conducted a review of the SAQP and Ramboll Responses and considered the following:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).



Based on a review of the SAQP (F1), the following items require clarification or amendments:

1. Section 1.1: Given that the 'site' as shown in Figure 1 (Appendix 1) covers land external to the area specifically referred to in DA 21-00925, are there other DA relevant to the site? It would help to have a figure showing the area covered by DA 21-00925 and other DAs. This would assist DHA and the auditor in checking that the requirements of the Council have been met.

Currently, the information presented in last paragraph of Section 1.1 suggests that the area subject to DA21-00925 is the entire 'site' (Reserve 980 area).

2. Section 2.3.2: Ramboll Responses to Comment 5 indicated that there is no Figure 2. However, Figure 2 is now added as a reference (3rd paragraph).
3. Section 5.3.2: Please check Table 5-2 as there are still compounds listed that should be using the higher 99% level of species protection DGVs. For example: 2,4,6-trichlorophenol, 2,4-dichlorophenol.
4. Section 6.1: It appears that Ramboll has been provided with new information (reports?) about the material imported (documented by Ramboll to be VENM). Is the information able to be appended to the SAQP as supporting evidence? This may help alleviate Council's concerns that non-VENM was brought onto the site.
5. Section 6.2: "... be free of polypropylene or HDPE materials." Please check as this seems inconsistent with PFAS NEMP.

4.0 Closure

Please revise the SAQP addressing the comments above.

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]
NSW EPA Accredited Auditor

Technical Limitations and Uncertainty – Ramboll Environ Australia Pty Ltd included limitations in their report. The Interim Audit Advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. The Auditor has relied on the documents referenced in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change. It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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25 March 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 4: SAQP (Final F1) Reserve 980, Former Schofields Aerodrome

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was previously engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 16.5 hectares and it is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with a stormwater retention pond at its southern end. The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as ‘Environ 2013’.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as ‘Senversa 2021a’.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as ‘Senversa 2021b’.

¹ PFAS: Per and Polyfluoroalkyl Substances.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The table below lists the previous document provided to the auditor.

Document	Corresponding Auditor's Interim Advice
Ramboll (2024) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-011, Draft D1, 23 December 2024	Interim Audit Advice (IAA) No. 1: SAQP (Draft D1), Reserve 980 dated 10 January 2025 (ref: S21376_006_LET01_Rev0)
Ramboll (2025a) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-012, Draft D2, 28 February 2025	Interim Audit Advice (IAA) No. 3: SAQP (Draft D2), Reserve 980 dated 11 March 2025 (ref: S21376_006_LET03_Rev0)
Ramboll (2025b) Responses to IAA No. 1 provided in an excel file titled 'Auditor Comments Register_CHA Schofields Reserve 980 SAQP_28Feb25.xlsx'.	

Subsequently, the following report was revised and provided to Senversa for review:

- Ramboll (2025c) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Final F1, 19 March 2025. This is hereafter referred to as the 'SAQP'.
- Ramboll (2025d) Responses to IAA No. 3 provided in an excel file titled 'Auditor Comments Register_DHA Schofields Reserve 980 SAQP_19Mar25.xlsx'. This is hereafter referred to as 'the Ramboll Responses'.

The purpose of this letter is to provide comments on the SAQP (Ramboll 2025c) and Ramboll Responses (Ramboll 2025d).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has conducted a review of the SAQP and Ramboll Responses and considered the following:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).



Based on a review of the SAQP (F1), the following items require clarification or amendments:

1. Section 1.1: Given that the 'site' as shown in Figure 1 (Appendix 1) covers land external to the area specifically referred to in DA 21-00925, are there other DA relevant to the site? It would help to have a figure showing the area covered by DA 21-00925 and other DAs. This would assist DHA and the auditor in checking that the requirements of the Council have been met.

Currently, the information presented in last paragraph of Section 1.1 suggests that the area subject to DA21-00925 is the entire 'site' (Reserve 980 area).

2. Section 2.3.2: Ramboll Responses to Comment 5 indicated that there is no Figure 2. However, Figure 2 is now added as a reference (3rd paragraph).
3. Section 5.3.2: Please check Table 5-2 as there are still compounds listed that should be using the higher 99% level of species protection DGVs. For example: 2,4,6-trichlorophenol, 2,4-dichlorophenol.
4. Section 6.1: It appears that Ramboll has been provided with new information (reports?) about the material imported (documented by Ramboll to be VENM). Is the information able to be appended to the SAQP as supporting evidence? This may help alleviate Council's concerns that non-VENM was brought onto the site.
5. Section 6.2: "... be free of polypropylene or HDPE materials." Please check as this seems inconsistent with PFAS NEMP.

4.0 Closure

Please revise the SAQP addressing the comments above.

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]
NSW EPA Accredited Auditor

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27 March 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 5: SAQP (Final F2) Reserve 980, Former Schofields Aerodrome

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was previously engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 16.5 hectares and it is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with a stormwater retention pond at its southern end. The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as ‘Environ 2013’.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as ‘Senversa 2021a’.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as ‘Senversa 2021b’.

¹ PFAS: Per and Polyfluoroalkyl Substances.

16 October 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 8: DSI (Draft V1.0) **Reserve 980, Former Schofields Aerodrome**

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 14.2 hectares and it is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with a stormwater retention pond at its southern end. The northeastern corner of Reserve 980 is an area known as PFAS¹ Material Emplacement Area (PFAS MEA). Residual PFAS emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as 'Environ 2013'.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as 'Senversa 2021a'.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as 'Senversa 2021b'.

¹ PFAS: Per and Polyfluoroalkyl Substances.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The following document was provided to Senversa for review:

- Ramboll (2025b) *Detailed Site Investigation*, Reserve 980, draft, V1.0, 26 September 2025. This is hereafter referred to as 'the DSI'.

The purpose of this letter is to provide comments on the DSI (Ramboll 2025b).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has conducted a review of the DSI and considered the following:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).
- Ramboll (2025a) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Final F2, 26 March 2025. This is hereafter referred to as the 'SAQP'.

Based on a review of the DSI, the following items require clarification or amendments:

1. General: Please provide either a registered survey plan illustrating the Reserve 980 audit extent (over the Lot DPs as a base plan ideally) and provide the coordinates of all of boundary points/corners or something similar delineating the lateral extent.
2. Section 1.1: Please confirm which water body is Basin 6 as it is not labelled in the figures of the DSI or the SAQP. Also, given that the lateral extent of the Reserve 980 audit site has changed, is Reserve 980 now smaller at 14.2 hectare as listed in Table 2.1 (instead of approximately 16.46 hectare).
3. Section 2: Please update the current land use as it does not appear to be describing Reserve 980. It is also recommended that proposed land use be added to Table 2-1.
4. Section 2.3.2: Please update referencing as Table 1, Tables 2 and 3 in Appendix 2 do not show previous soil results for boreholes, previous groundwater gauging and previous groundwater analytical results.
5. Section 4.3: Given that Reserve 980 is proposed to be a recreational open space, is groundwater proposed to be extracted for irrigation purposes?



6. Section 4.3.3: Please update as this is inconsistent with discussions presented in Section 1.2: "...the purpose of this investigation to inform a Section B SAS," (page 24).
7. Section 5.3: Table 5-2 indicated that the newly installed groundwater monitoring wells were developed after installation. Please provide the well development field sheets/data.
8. Section 5.4: For context/background to the asbestos removal works conducted, please include Ramboll's initial soil sampling investigation conducted in April 2025 as an appendix. Also, please include the asbestos clearance certificate for visual clearance conducted to validate that all bonded asbestos has been adequately removed from site.
9. Section 5.5: The Undercover Group Landscaping Contractors' photographs (2132.jpg and 2133.jpg) dated 5 September 2025 provided in Appendix 8 indicated soil stockpiles (described as 'dumped spoil full of black pipe'). Are these stockpiles still present on-site? Also, please include the asbestos clearance certificate for the visual clearance conducted.
10. Section 5.5: Please check as photographs taken by Ramboll on 17 September 2025 to validate the removal of the anthropogenic waste do not appear to be presented in Appendix 8.
11. Section 5.6: Is the 'potential illegal waste dumping' area of environmental concern (AEC), shown in Figure 1 and 2 of Appendix 1, the same area discussed in Section 5.5?
12. Section 6: It is recommended that a new section be added to discuss any deviation of scope from the work plan proposed in the SAQP (refer to Section 9 of the SAQP). For example: a review of Appendix 5 by the auditor indicated that natural soil (below the imported VENM) was not intersected at these sampling locations:
 - R980_BH08.
 - R980_BH12.
 - R980_BH21.
 - R980_BH29.
13. Section 6.1.1: The borelog for R980_BH12 indicated that fill was logged down to 5 mbgl (end of borehole), which is deeper than 3.9 mbgl.
14. Section 6.1.1: Please reference photo 2 in Appendix 7 when discussing the yellow plastic tape encountered at R980_MW01.
15. Section 6.1.1: "The accompanying VENM certificates confirm the origin of the materials from areas that are not mapped or identified as potential acid sulfate soil sites." The VENM certificates are discussed but the auditor notes that they are not provided in the SAQP nor in this DSI. Please provide them (in an appendix) as supporting evidence to justify that acid sulfate soil testing was not required.
16. Section 6.1.2: Please amend the NEPM EILs for arsenic, lead, DDT and naphthalene listed in Table 1a (Appendix 2) as it appears that the EILs for 'areas of ecological significance' were adopted, instead of 'urban residential and public open space'. (This does not change the results or conclusion of the DSI.)
17. Section 6.1.2: Please check as benzene, toluene, ethylbenzene and total xylenes are presented twice in two columns in Table 1a (Appendix 2).
18. Section 6.2.3: The auditor recommends that it is clearly stated that the groundwater analytical results from historical GMEs (dated 9 July 2021 and 11 July 2024) are also reported and assessed together with the results from 1 May 2025 (i.e. scope of this DSI) to avoid confusion.
19. Section 7: Please discuss and provide the calibration of field equipment used in the DSI (e.g. Photo-ionisation detector, water quality meter).
20. Table 7-2: Please check whether the asbestos concentrations (reporting limit 0.01% w/w) analysis conducted by Eurofins is NATA accredited.



22. Section 8.2 (metals and PFAS): It appears that elevated groundwater analytical results from May 2025 GME only are discussed on page 41. This needs to be clearly stated to avoid confusion (when compared to Section 6.2.3 and Table 6-3).
23. Section 8.2 (metals): The discussion about no unacceptable risk to Eastern Creek would benefit with comparison with metal concentrations measured from wider former Schofields Aerodrome site and the 2013 Environ audit.
24. Section 8.2 (PFAS): "... it is considered that the effects of diffusion and dilution with distance, and physical attenuation in the porous media of the aquifer is likely to reduce the concentrations discharging to Eastern Creek to below the 99% species protection level". Please note that Eastern Creek is only approximately 230 to 250 m directly west of Reserve 980, and clay is the dominant soil type as reported in Section 6.1.1. Could a multiple line of evidence approach be presented including referencing previous data collected for other investigations by Ramboll be presented to discuss on PFAS impacts (or lack of) at Eastern Creek?
25. Section 10.2: As this DSI is to support a Section A site audit, it is recommended that the first paragraph be expanded to discuss the on-site and off-site risk to human and ecological health.
26. Appendix 5: Please update as there are no PID field readings recorded for 'PID_BH05', 'R980_BH12', 'R980_BH19', 'R980_BH21', 'R980_BH24' and 'R980_BH28'.
27. Appendix 7: Please date photographs 11 to 15.

4.0 Closure

Please revise the DSI addressing the comments above.

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]

NSW EPA Accredited Auditor

Technical Limitations and Uncertainty – Ramboll Environ Australia Pty Ltd included limitations in their report. The Interim Audit Advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. The Auditor has relied on the documents referenced in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change. It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The table below lists the previous document provided to the auditor.

Document	Corresponding Auditor's Interim Advice
Ramboll (2024) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-011, Draft D1, 23 December 2024	Interim Audit Advice (IAA) No. 1: SAQP (Draft D1), Reserve 980 dated 10 January 2025 (ref: S21376_006_LET01_Rev0)
Ramboll (2025a) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-012, Draft D2, 28 February 2025	Interim Audit Advice (IAA) No. 3: SAQP (Draft D2), Reserve 980 dated 11 March 2025 (ref: S21376_006_LET03_Rev0)
Ramboll (2025b) Responses to IAA No. 1 provided in an excel file titled 'Auditor Comments Register_CHA Schofields Reserve 980 SAQP_28Feb25.xlsx'.	
Ramboll (2025c) <i>Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation</i> , ref: 318001088-012, Final F1, 19 March 2025	Interim Audit Advice (IAA) No. 4: SAQP (Final F1), Reserve 980 dated 27 March 2025 (ref: S21376_006_LET05_Rev0)
Ramboll (2025d) Responses to IAA No. 3 provided in an excel file titled 'Auditor Comments Register_DHA Schofields Reserve 980 SAQP_19Mar25.xlsx'.	

Subsequently, the following documents were revised and provided to Senversa for review:

- Ramboll (2025e) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Final F2, 26 March 2025. This is hereafter referred to as the 'SAQP'.
- Ramboll (2025f) Responses to IAA No. 4 provided in an excel file titled 'Auditor Comments Register_DHA Schofields Reserve 980 SAQP_26Mar25.xlsx'. This is hereafter referred to as 'the Ramboll Responses'.

The purpose of this letter is to provide comments on the SAQP (Ramboll 2025e) and Ramboll Responses (Ramboll 2025f).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.



3.0 Auditor's Review

The auditor has conducted a review of the SAQP and Ramboll Responses and considered the following:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).

The auditor notes that the SAQP has been revised to address all of the auditor's comments from previous interim audit advice and accepts this report as final. The auditor notes that a risk-based approach was adopted to support the proposed sampling locations and approach. A geotechnical summary report has also been added to the SAQP to provide information about the nature of the fill soil imported into Reserve 980.

4.0 Closure

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]
NSW EPA Accredited Auditor

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27 November 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 9: DSI (Draft V2.1) **Reserve 980, Former Schofields Aerodrome**

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 15 hectares, and is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with roadways along its western boundary and southern portion. The northeastern corner of Reserve 980 is an area known as per and polyfluoroalkyl substances (PFAS) Material Emplacement Area (PFAS MEA). Residual PFAS are emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as ‘Environ 2013’.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as ‘Senversa 2021a’.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as ‘Senversa 2021b’.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980 to address.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The table below lists the previous document provided to the auditor.

Document	Corresponding Auditor's Interim Advice
Ramboll (2025b) <i>Detailed Site Investigation</i> , Reserve 980, draft, V1.0, 26 September 2025.	Interim Audit Advice (IAA) No. 8: DSI (Draft V1.0), Reserve 980 dated 16 October 2025 (ref: S21376_006_LET08_Rev0)

Subsequently, the following report was revised and provided to Senversa for review:

The following document was provided to Senversa for review:

- Ramboll (2025c) *Detailed Site Investigation*, Reserve 980, draft, V2.1, 19 November 2025¹. This is hereafter referred to as 'the DSI'.
- Ramboll (2025d) Responses to auditor's comments presented in 'Auditor Comments Register_DHA Schofields Reserve 980 DSI_16Oct2025.xlsx'.

The purpose of this letter is to provide comments on the DSI (Ramboll 2025c).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has conducted a review of the DSI and considered the following:

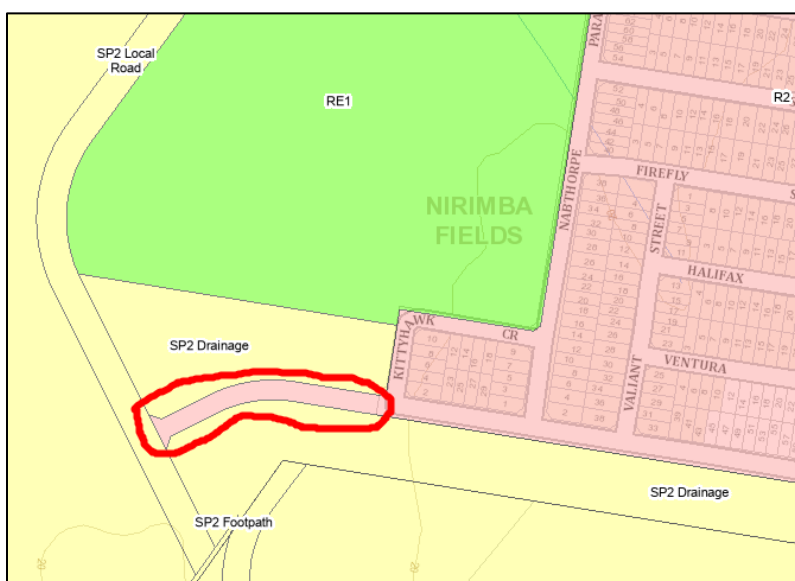
- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).
- Ramboll (2025a) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Final F2, 26 March 2025. This is hereafter referred to as the 'SAQP'.

¹ Detailed Site Investigation V2.0 (version 2.0) was also provided to the auditor on 19 November 2025, but it is not reviewed as it has been superseded by the V2.1.



Based on a review of the DSI, the following items require clarification or amendments:

1. Executive summary and Section 1.1: please confirm the area/size of the former Schofields Aerodrome. This DSI states approximately 145 hectares, but the Ramboll's 'PFAS Validation Report for Remaining Site Area' dated October 2021 and 'PFAS Validation Report for Sewage Treatment Plant and Former Landfill 2' dated February 2023 indicate it is approximately 135 hectares.
2. Section 1.1: please confirm the area/size of Reserve 980 audit site as currently the executive summary states 14.2 hectare, Section 1.1 states 16.46 hectare and Table 2-1 states 15.02 hectare.
3. Section 2: 'R2 low density residential' zoning is deleted from Table 2-1 in DSI (V2.1). However, based on the survey plan of Reserve 980, a small portion of the audit site (albeit proposed to be developed into a road) is zoned R2 – refer to screenshot below.



4. Section 2: please clarify the elevation of Reserve 980. Table 2-1 indicates it is approximately 20 to 23 mAHd and Table 2-2 indicates 27 to 29 mAHd.
5. Table 2-2 (Direction Groundwater Flow): the nearest surface water bodies to Reserve 980 are the drainage basin adjacent to the western site boundary and Basin 6 adjacent to the southern boundary (i.e. not Eastern Creek). Please discuss whether groundwater beneath Reserve 980 is discharging to these two drainage basins.
6. Table 5-2: What was the method/technique used for drilling the new groundwater monitoring wells (maximum 7.4 mbgl)? Push-tube is the only drilling technique discussed for advancing boreholes.
7. Section 5.5: now that Ramboll has clarified the 'potential illegal waste dumping' area of environmental concern (AEC) shown in Figure 1 and 2 of Appendix 1 is not the same AEC discussed in Section 5.5, please show the location of the Section 5.5 illegal waste dumping area in the figures.
8. Section 6.1.3: please state whether friable asbestos was detected at Reserve 980.
9. Table 7-2: 'AS5370:2024*' please check as there is not footnote associated with the asterisk.
10. Section 10.3: please amend as this sub-section is titled 'Risks to Human Health'.
11. The auditor requests that the VENM certificates be attached to the DSI as an appendix.



4.0 Closure

Please revise the DSI addressing the comments above. The auditor notes that there is further validation sampling of stockpile footprint to be conducted and reported in the DSI.

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]

NSW EPA Accredited Auditor

Technical Limitations and Uncertainty – Ramboll Environ Australia Pty Ltd included limitations in their report. The Interim Audit Advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. The Auditor has relied on the documents referenced in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change. It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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15 December 2025

██████████
Development Manager
Defence Housing Australia
Level 5 / 111 Phillip Street, Paramatta NSW 2150

Dear ██████████

Re: Interim Audit Advice No. 10: DSI (V4.0)

Reserve 980, Former Schofields Aerodrome

1.0 Introduction and Background

As a NSW EPA accredited auditor, ██████████ was engaged by Defence Housing Australia (DHA) to complete a Section A site contamination audit at a portion of former Schofields Aerodrome known as Reserve 980. The former Schofields aerodrome is approximately 145 hectares and it has been developed into a new low density residential estate with suburban road network, retail/business, a school and recreational areas called Nirimba Fields.

Reserve 980 is approximately 15 hectares, and is located approximately in the central western portion of the former aerodrome. Reserve 980 is proposed to be developed for public open space and recreational land use (i.e. sports playing fields and parklands) with roadways along its western boundary and southern portion. The northeastern corner of Reserve 980 is an area known as per and polyfluoroalkyl substances (PFAS) Material Emplacement Area (PFAS MEA). Residual PFAS are emplaced at depth at the PFAS MEA.

Previously, Reserve 980 has been subject to the following site audits:

- Section A Site Audit in 2005 conducted by Environ Australian Pty Ltd (Environ).
- A supplementary Section A Site Audit in 2013 due to unexpected finds conducted by Environ: Site Audit Report – Part of Former Schofields Aerodrome, Lot 400 in DP1171596, audit number GN481 dated September 2013. This is referred to as ‘Environ 2013’.
- Section B Site Audit in June 2021 for PFAS MEA conducted by the auditor: Site Audit Report, PFAS MEA, Former Schofields Aerodrome, off Mariner Avenue, Schofields, NSW 2762 and Site Audit Statement dated 22 June 2021 (reference: MP169_01). This is referred to as ‘Senversa 2021a’.
- Section B Site Audit in October 2021 for Remaining Site Area conducted by the auditor: Site Audit Report, Remaining Site Area, Former Schofields Aerodrome, off Mariner Avenue, Schofields NSW 2762 and Site Audit Statement dated 22 October 2021 (reference: MP169_03). This is referred to as ‘Senversa 2021b’.



The scope of the previous Section B site audit was limited to potential PFAS legacy contamination only (i.e. other non-PFAS contaminants) and did not include review of the import and export of material. The auditor understands that since 2021, imported soil (virgin excavated natural material, VENM) has been imported and placed within Reserve 980.

DHA have requested an additional Section A Site Audit Statement and Site Audit Report for Reserve 980 to address Blacktown City Council's development consent.

Ramboll Environ Australia Pty Ltd (Ramboll) were engaged by DHA to undertake investigations to assess and characterise the nature and extent of contamination at the site, and to draw conclusions regarding the suitability of the site for its proposed use.

2.0 Documents Reviewed

The table below lists the previous documents provided to the auditor.

Document	Corresponding Auditor's Interim Advice
Ramboll (2025b) <i>Detailed Site Investigation</i> , Reserve 980, draft, V1.0, 26 September 2025.	Interim Audit Advice (IAA) No. 8: DSI (Draft V1.0), Reserve 980 dated 16 October 2025 (ref: S21376_006_LET08_Rev0)
Ramboll (2025c) <i>Detailed Site Investigation</i> , Reserve 980, draft, V2.1, 19 November 2025 ¹ .	Interim Audit Advice (IAA) No. 9: DSI (Draft V2.0), Reserve 980 dated 27 November 2025 (ref: S21376_006_LET09_Rev0)
Ramboll (2025d) Responses to auditor's comments presented in 'Auditor Comments Register_DHA Schofields Reserve 980 DSI_16Oct2025.xlsx'	

Subsequently, the following report was revised and provided to Senversa for review:

- Ramboll (2025e) *Detailed Site Investigation*, Reserve 980, V4.0, 19 November 2025. This is hereafter referred to as 'the DSI'.

The purpose of this letter is to provide comments on the DSI (Ramboll 2025e).

Other areas of the former Schofields Aerodrome are assessed, reported and audited separately; therefore, they are not discussed further in this letter.

3.0 Auditor's Review

The auditor has conducted a review of the DSI and considered the following:

- The requirements specified in the NSW EPA *Guidelines for the NSW Site Audit Scheme* (3rd Edition) (NSW EPA 2017).
- *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines* (NSW EPA 2020).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013).
- *PFAS National Environmental Management Plan Version 3.0* (HEPA 2025).
- Ramboll (2025a) *Sampling and Analysis Quality Plan, Reserve 980 – Detailed Site Investigation*, ref: 318001088-012, Final F2, 26 March 2025. This is hereafter referred to as the 'SAQP'.

¹ Detailed Site Investigation V3.0 (version 3.0) was also provided to the auditor on 28 November 2025, but it is not reviewed as it was not complete, and it has since been superseded by the V4.0.



The auditor notes that:

- Anthropogenic waste (such as fragments of metals, construction waste, plastic, rubbish, etc.) are still present within the three stockpiles (SP01, SP02 and SP03) located within Reserve 980.
- Section 8 Conclusions of Appendix 15 stated *"Based on the site inspection and analytical results, the stockpiled material in SP01, SP02 and SP03 have been assessed as suitable for reuse on the broader former Schofields Aerodrome site, subject to the screening and removal of larger boulders, anthropogenic and deleterious materials (i.e. aesthetic issues as identified in the assessment criteria)."*

The auditor notes that the removal of the anthropogenic and deleterious if proposed, tracking and documentation of the removal of that material and visual validation of the remaining material, is required prior to finalisation of the SAR/SAS.

Based on a review of the DSI, the following items require clarification or amendments:

1. Section 5.4 and 5.5: the DSI figures are now revised to show four areas as 'Stockpiled Material Area'. For clarity, please identify which 'Stockpiled Material Area' is discussed in Section 5.4 (asbestos removal validation works associated with 'illegal waste dumping') and which 'Stockpiled Material Area' are discussed in Section 5.5 and Appendix 15 (i.e. SP01, SP02 and SP03).
2. Section 5.5: it appears that some waste was removed and disposed off-site from Reserve 980 by The Undercover Group. Please provide disposal information from September and December 2025 regarding:
 - a) State the total amount of anthropogenic waste removed from Reserve 980.
 - b) Note where the anthropogenic waste was disposed to (Landfill details, delivery dockets, etc.).
3. Section 8.1: the discussion presented does not refer to the soil investigation and results from Appendix 15. It is recommended that a brief summary be included.
4. Table 9-1 Refined CSM: the discussion presented for 'Illegally dumped waste' needs to be revised to reflect the findings and conclusion of Appendix 15 (i.e. consideration of aesthetics in the stockpiles).
5. Section 10 Conclusions: it is recommended that a new section sub-section be added to discuss 'aesthetics' consideration for Reserve 980.
6. Section 10.4 Site Suitability: as discussed above, the discussion on site suitability presented does not reflect the findings and conclusion of Appendix 15.
7. Executive Summary: please review and revise the text accordingly as per comments contained in this letter.

Appendix 15 Stockpile Reuse Material Assessment v1.0 dated 12 December 2025

8. Table 4-1: please check as 100 m² and 180 m² (area) are listed as estimated stockpile volumes.
9. Section 5.1: asbestos fibre identification is not listed (penultimate bullet).
10. Table 6-1 Sampling pattern and locations: "... *evenly spaced matter within the stockpile investigation area.*" What were the sampling depths? Please confirm that the samples were representative of the entire stockpiles (and not just the 'surface' of the stockpiles).
11. Table 6-1 Field quality control samples: why were inter-laboratory duplicates collected at a different rate to the intra-laboratory duplicates?
12. Table 6-1 Field quality control samples: please discuss as it appears that trip, rinsate and field blanks were not collected.
13. Section 8: This soil investigation is also conducted to support the Section A site audit of Reserve 980 and therefore, a concluding statement is recommended to discuss whether the stockpiles are suitable to remain at Reserve 980 (i.e. suitable for proposed land uses).



14. Attachment 2, Table 1: please check as the following guideline values are missing:

- PFAS NEMP 3.0 ecological indirect guideline value for PFOA (for all land uses).
- NEPM HIL-A for PCBs.

15. Attachment 3: please amend as the scanned Chain of Custody pages appear to be 'cut' off.

4.0 Closure

Please revise the DSI addressing the comments above.

If you have any comments or questions, please do not hesitate to contact the undersigned at [REDACTED] or via mobile on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]
NSW EPA Accredited Auditor

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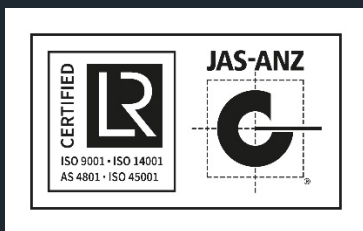
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