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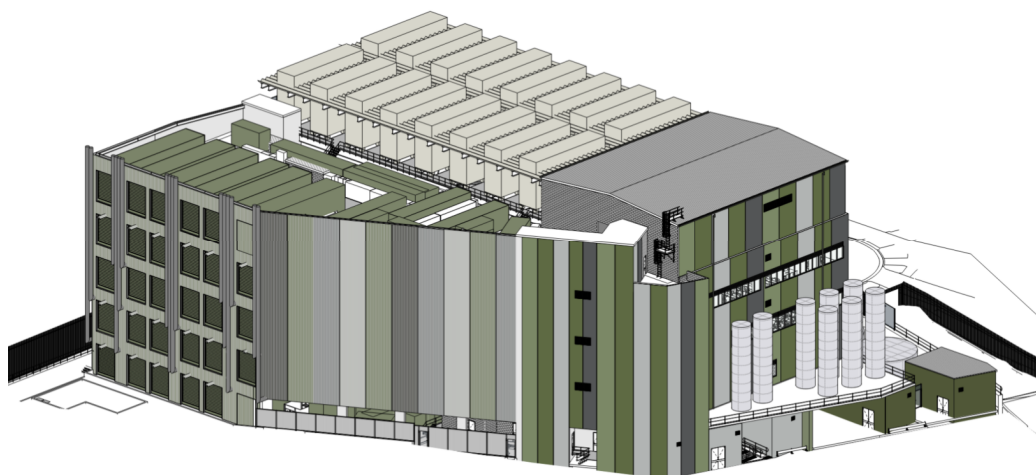
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PROJECT

## SYD2 Shell E - Apollo Place Data Centre



TITLE

## REMEDIAL ACTION PLAN

ORIGINATOR



REVISION HISTORY

| DATE       | AUTHOR     | DESCRIPTION              | REVISION |
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**ATSYD2**

PROJECT  
CODE

**E**

BUILDING  
IDENTIFIER

**S&C**

PHASE  
IDENTIFIER

**MAP**

DOCUMENT  
CODE

**SEN**

COMPANY  
CODE

**ESD**

DISCIPLINE  
CODE

**11004**

INDIVIDUAL  
NUMBER

**02**

REVISION

Proposed Apollo Place Data Centre, Lane Cove West NSW

5 May 2026

# Remedial Action Plan





# Document Information

## Remedial Action Plan,

### Proposed Apollo Place Data Centre, Lane Cove West NSW

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| Revision | Date       | Author        | Reviewed   | Approved      | Detail            |
|----------|------------|---------------|------------|---------------|-------------------|
| 0        | 20/06/2024 | Naomi Lukeman | Jason Clay | Jason Clay    | Draft for comment |
| 1        | 27/06/2024 |               |            | Naomi Lukeman |                   |
| 2        | 5/05/2026  | Naomi Lukeman |            | Jason Clay    | Final             |

Project Manager: Naomi Lukeman

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.



# Executive Summary

Senversa Pty Ltd (Senversa) was engaged by EMKC3 to prepare a remedial action plan (RAP) for a proposed data centre located at 1 Apollo Place & 1 Sirius Road, Lane Cove West, NSW (the site). The site is currently comprised of two individual properties which are legally defined as Part Lot 1 in Deposited Plan (DP) 1271404, and Strata Plan (SP) 80721 as presented on **Figure 1**.

The site encompasses an area of approximately 0.55 hectares (ha) and is currently zoned as 'E4 – General Industrial' under the Lane Cove Local Environmental Plan 2009. EMKC3 has submitted a state significant development application (SSDA) to the Department of Planning and Environment (DPE) to develop the site for industrial use, to form a data centre which will be an extension of the neighbouring data centre project. The development is understood to comprise a four-storey commercial structure, a separate high voltage switch room and 27 individual parking lots.

As part of the SSDA, Secretary's Environmental Assessment Requirements (SEARs) have been issued (SSD-67407231) for the site which required a series of environmental assessments be undertaken, Senversa prepared a PSI in May 2024<sup>1</sup> to assess the potential for contamination to be present based on current and/or historical site practices. The PSI recommended that a detailed site investigation be undertaken to assess the site conditions with regard to contamination. The DSI report (Senversa, June 2024) recommended that a remedial action plan (RAP) was prepared to address elevated concentrations of organochlorine pesticides, the original RAP (dated June 2024) presented a series of data gaps which required closing out prior to, or during demolition of the site. The data gap assessment was undertaken in December 2024 and as such necessitates changes to the site RAP.

The overall objectives of this RAP are to:

- present remedial options and a remediation strategy with regard to site contamination, in direct response to SEAR number 17 for SSDA number SSD-67407231:  
*"17. Contamination and Remediation - In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development."*
- demonstrate how remediation, and its validation, will be carried out in accordance with guidelines and legislation made or approved by the NSW EPA.

The RAP has been developed to address the contamination identified during site assessments, with consideration of the future proposed commercial/industrial land use. Remedial areas are indicated on **Figure 2**.

The specific objectives of this RAP are to:

- Present a conceptual site model detailing the identified sources, pathways and receptors.
- Set remedial objectives to ensure the identified contamination is able to be remediated to the point where it no longer presents an unacceptable risk to human health and/or the environment.
- Define the remedial extent and assess options for remediation that would achieve the remedial objectives and select a justifiable preferred approach, including consideration of the principles of ecologically sustainable development.
- Document the procedures and plans to reduce risks posed by the identified contamination to acceptable levels for the proposed site uses, as well as include a remedial contingency plan, and an unexpected finds protocol.

Based on the assessments to date, the site remediation areas are currently only loosely defined and may be subject to change. Based on current data, the remediation areas are considered to comprise shallow fill material in the following locations, and indicated on **Figure 2**:

---

<sup>1</sup> Preliminary Site Investigation, Senversa 2024





- North-west of the under-croft car park (pesticides in soil);
- Shallow fill material across unassessed areas of the site impacted by contaminants such as asbestos, petroleum hydrocarbons, and PFAS.

Based on works to date, groundwater remediation is not proposed.

The preferred strategies are outlined below:

### Preferred Remedial Strategy

| Media and contaminants                                                                                                     | Preferred Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Soil (fill material) impacted with:<br/>Pesticides</b>                                                                  | Removal of the OCP impacted material and disposal to landfill with resulting excavations validated and backfilled with site won material and/or imported VENM material.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Unexpected Finds</b>                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Soil (fill material) impacted with:<br/>Asbestos (potential)</b>                                                        | <p>Removal of any ACM through emu-picking or mechanical tilling i.e. raking of surficial soils and disposal to landfill is a suitable method for remediation at the site, with recovery of suitable soils.</p> <p>If ACM is identified as part of the data gap assessment, it is likely that it will consist of fragments of fibre cement in the shallow surficial soils (i.e. left over from building demolition, or present in uncontrolled fill). It is likely that emu-picking the fragments followed by disposal of the fragments to a landfill licensed to accept asbestos waste and visual validation of the site will be a suitable remedial method.</p> <p>Material impacted by AF/FA will be most suited to off-site disposal due to the inherent risk of fibres remaining on-site.</p> |
| <b>Soil (fill material) impacted with:<br/>PFAS, heavy metals,<br/>hydrocarbons, other contaminants<br/>above criteria</b> | Removal and off-site disposal of any impacted material is considered to be the most effective solution for remediation of any potential unexpected finds.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

This RAP was developed to provide a framework describing the requirements for remedial actions, validation, and workplace health and safety and environmental management strategies associated with contamination identified during previous assessments.

Subject to the suitable implementation of the measures described in this RAP, it is concluded that the risks associated with the contamination identified can be managed such that human health and the environment are appropriately protected and the site can be made suitable for the proposed use on this basis.

In drawing these conclusions Senversa assumes that remediation of the site impact will be successfully validated as per the adopted criteria and that any unexpected finds are managed as per **Section 8**.



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## Appendices

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# List of Acronyms

| Acronym             | Definition                                                   |
|---------------------|--------------------------------------------------------------|
| <b>ACM</b>          | Asbestos Containing Material                                 |
| <b>AF</b>           | Asbestos Fines                                               |
| <b>AHD</b>          | Australian Height Datum                                      |
| <b>AS</b>           | Australian Standard                                          |
| <b>ASRIS</b>        | Australian Soil Resource Information System                  |
| <b>BGL</b>          | Below Ground Level                                           |
| <b>BH</b>           | Borehole                                                     |
| <b>BTEX</b>         | Benzene, toluene, ethylbenzene, xylenes                      |
| <b>CEC</b>          | Cation Exchange Capacity                                     |
| <b>CEMP</b>         | Construction Environmental Management Plan                   |
| <b>CLM Act</b>      | <i>Contaminated Land Management Act 1997</i>                 |
| <b>COC</b>          | Chain of Custody                                             |
| <b>CSIRO</b>        | Commonwealth Scientific and Industrial Research Organisation |
| <b>DDT</b>          | Dichloro-diphenyl-trichloroethane                            |
| <b>DEC</b>          | Department of Energy and Conservation                        |
| <b>DP</b>           | Deposited Plan                                               |
| <b>DSI</b>          | Detailed Site Investigation                                  |
| <b>EC</b>           | Environmental Consultant                                     |
| <b>EIL</b>          | Ecological Investigation Level                               |
| <b>EMP</b>          | Environmental Management Plan                                |
| <b>EP&amp;A Act</b> | <i>Environmental Planning and Assessment Act 1979</i>        |
| <b>EPA</b>          | Environment Protection Authority (NSW)                       |
| <b>ESL</b>          | Ecological Screening Levels                                  |
| <b>GDE</b>          | Groundwater Dependent Ecosystems                             |

| Acronym      | Definition                                               |
|--------------|----------------------------------------------------------|
| <b>HCB</b>   | Hexachlorobenzene                                        |
| <b>HIL</b>   | Health Investigation Level                               |
| <b>HSL</b>   | Health Screening Level                                   |
| <b>LAA</b>   | Licensed Asbestos Assessor                               |
| <b>LCS</b>   | Laboratory Control Samples                               |
| <b>LNAPL</b> | Light Non-Aqueous Phase Liquids                          |
| <b>LOR</b>   | Limit of Reporting                                       |
| <b>MW</b>    | Monitoring Well                                          |
| <b>NATA</b>  | National Association of Testing Authorities              |
| <b>NEPC</b>  | National Environment Protection Council                  |
| <b>NEPM</b>  | National Environment Protection Measure                  |
| <b>NL</b>    | Non Limiting                                             |
| <b>NSW</b>   | New South Wales                                          |
| <b>OCP</b>   | Organochlorine Pesticides                                |
| <b>PCB</b>   | Poly Chlorinated Biphenols                               |
| <b>PFAS</b>  | Per and Poly Fluoroalkyl Substances                      |
| <b>PFOS</b>  | Per-Fluoro Octane Sulfonic acid                          |
| <b>PID</b>   | Photoionisation Detector                                 |
| <b>POEO</b>  | <i>Protection of the Environment Operations Act 1997</i> |
| <b>PPE</b>   | Personal Protective Equipment                            |
| <b>PSI</b>   | Preliminary Site Investigation                           |
| <b>QA</b>    | Quality Assurance                                        |
| <b>QC</b>    | Quality Control                                          |
| <b>RAP</b>   | Remedial Action Plan                                     |
| <b>RRO</b>   | Resource Recovery Order                                  |



| <b>Acronym</b> | <b>Definition</b>                                 |
|----------------|---------------------------------------------------|
| <b>RVR</b>     | Remedial Validation Report                        |
| <b>SEARS</b>   | Secretary's Environmental Assessment Requirements |
| <b>SEPP</b>    | State Environment Planning Policy                 |
| <b>SP</b>      | Strata Plan                                       |
| <b>SSDA</b>    | State Significant Development Application         |
| <b>TBC</b>     | To Be Confirmed                                   |
| <b>TCLP</b>    | Toxicity Characteristic Leaching Procedure        |
| <b>TEQ</b>     | Toxic Equivalent Quotient                         |
| <b>TRH</b>     | Total Recoverable Hydrocarbons                    |
| <b>UCL</b>     | Upper Confidence Limit                            |
| <b>UF</b>      | Unexpected Finds                                  |
| <b>VENM</b>    | Virgin Excavated Natural Material                 |
| <b>WHS</b>     | Workplace Health and Safety                       |



# 1.0 Introduction and Objectives

## 1.1 Background

Senversa Pty Ltd (Senversa) was engaged by EMKC3 to prepare a remedial action plan (RAP) for a proposed data centre located at 1 Apollo Place & 1 Sirius Road, Lane Cove West, NSW (the site). The site is currently comprised of two individual properties which are legally defined as Part Lot 1 in Deposited Plan (DP) 1271404, and Strata Plan (SP) 80721 as presented on **Figure 1**.

The site encompasses an area of approximately 0.55 hectares (ha) and is currently zoned as 'E4 – General Industrial' under the Lane Cove Local Environmental Plan 2009. The site comprises two commercial/industrial properties and is bounded to the north and west by a large commercial property, understood to be a data centre.

EMKC3 has submitted a state significant development application (SSDA) to the Department of Planning and Environment (DPE) to develop the site for industrial use to form a data centre which will be an extension of the neighbouring data centre project. The proposed extension of the data centre is understood to comprise a four-storey commercial structure, a separate high voltage switch room and 27 individual parking lots.

As part of the SSDA, Secretary's Environmental Assessment Requirements (SEARs) have been issued (SSD-67407231) for the site which required a series of environmental assessments be undertaken, Senversa prepared a PSI in May 2024<sup>2</sup> to assess the potential for contamination to be present based on current and/or historical site practices. The PSI recommended that a detailed site investigation be undertaken to assess the site conditions with regard to contamination. Due to access constraints and client requirements, intrusive assessment was only undertaken on the western portion of the site, namely Part Lot 1 in DP 1271404. This investigation was reported in a Detailed Site Investigation (DSI) Report, Senversa (2024a). No intrusive assessment was undertaken by Senversa in SP 80721; however, data from the PSI report, as well as a data review of a Douglas Partners report which assessed below ground conditions on SP 80721 were used to form conclusions and recommendations on the whole site.

The DSI report (Senversa, June 2024) recommended that a remedial action plan (RAP) was prepared to address elevated concentrations of organochlorine pesticides and to close out a series of data gaps. The data gaps were addressed by an intrusive assessment undertaken in December 2024 (Senversa, 2024b). It is intended that following successful implementation of remedial and validation strategies outlined in this document, as well as management of any unexpected finds that the site will be considered suitable for the proposed use.

## 1.2 Objective and Scope of Works

The overall objectives of the RAP are to:

- present remedial options and a remediation strategy with regard to site contamination, in direct response to SEAR number 17 for SSDA number SSD-67407231:  
*"17. Contamination and Remediation - In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development."*
- demonstrate how remediation, and its validation, will be carried out in accordance with guidelines and legislation made or approved by the NSW EPA.

---

<sup>2</sup> Preliminary Site Investigation, Senversa 2024



The RAP has been developed to address the contamination identified during site assessments, with consideration of the future proposed commercial/industrial land use. Remedial areas are indicated on **Figure 2**.

The specific objectives of this RAP are to:

- Present a conceptual site model detailing the identified sources, pathways and receptors.
- Set remedial objectives to ensure the identified contamination has been remediated to the point where it no longer presents an unacceptable risk to human health and/or the environment.
- Define the remedial extent and assess options for remediation that would achieve the remedial objectives and select a justifiable preferred approach, including consideration of the principles of ecologically sustainable development.
- Document the procedures and plans to reduce risks posed by the identified contamination to acceptable levels for the proposed site uses, as well as include a remedial contingency plan, and an unexpected finds protocol.



## 2.0 Site Background

### 2.1 Site Details and Environmental Setting

The following sections provide a summary of the site and the surrounding areas with regard to environmental setting and previous investigations. Full information pertaining to the site setting and history has been presented in Senversa (2024). The site location and layout are shown on **Figure 1**.

Relevant site details are identified in **Table 2.1**, and environmental information is included in **Table 2.2**.

**Table 2.1: Site Identification**

| Item                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site Location and Layout</b>                    | <p>The site is currently comprised of two commercial buildings located in a commercial/industrial area of Lane Cove West, NSW. The buildings cover the majority of the site, with the exception of:</p> <ul style="list-style-type: none"> <li>• A driveway that runs north-south through the middle of the site, connecting to a basement carpark located along the northern site boundary.</li> <li>• An asphalt area in the northeastern portion of the site used for parking and general waste storage.</li> <li>• Trees along the northern site boundary, with some garden beds and grassed areas located along the southern site boundary.</li> <li>• A substation located in the southeast portion of the site.</li> </ul> <p>A site location plan is presented on <b>Figure 1</b>.</p> |
| <b>Site Address</b>                                | 1 Apollo Place, 1 Sirius Road, Lane Cove west, NSW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Title Plan Identifier</b>                       | <ul style="list-style-type: none"> <li>• Part of Lot 1 in DP 1271404.</li> <li>• SP 80721.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Geographic Coordinates (Approximate Centre)</b> | <p>Easting: 328335.11</p> <p>Northing: 6257562.40</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Site Area</b>                                   | Approximately 0.55 ha.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Municipality</b>                                | Lane Cove Council.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Zoning<sup>1</sup></b>                          | E4 – General Industrial.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Current Occupier and Land Use</b>               | The site is currently managed by EMKC <sup>3</sup> and is occupied by two commercial buildings. The buildings are vacant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Historical Use</b>                              | The site consisted of high-density vegetation before being developed for commercial use between 1970 and 1978.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**Table 2.2: Environmental Setting**

| Item                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Surrounding Land Use</b>                                   | <p>The site is located in a commercial/industrial area in Lane Cove West and lies at the northern end of Apollo Place. Surrounding land uses include:</p> <ul style="list-style-type: none"> <li>• <u>North</u>: multi-storey data centre, with bushland and Stringybark Creek (Lane Cove River tributary) located approximately 135 m north of the site.</li> <li>• <u>East</u>: commercial buildings (including a musical instrument store and an orthopaedics manufacturer) immediately east of the site, followed by Sirius Road, a laboratory, a swimming school and other commercial properties.</li> <li>• <u>South</u>: Apollo Place, various commercial buildings, a gymnastics club, an agricultural product wholesaler.</li> <li>• <u>West</u>: multi-storey data centre, followed by bushland and Lane Cove River located approximately 250 m west of the site.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Topography</b>                                             | <p>Regional topography around the site declines towards the northwest and Lane Cove River. The topography of the site is in keeping with the surrounding area, sloping downwards from the southeastern corner of the site towards the northwestern corner. The site elevation ranges from 36 to 24 m Australian Height Datum (m AHD).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Geology</b>                                                | <p>According to Lotsearch (2023), the site is situated on Middle Triassic-aged Hawkesbury Sandstone, described as medium to coarse grained quartz sandstone with minor shale and laminite lenses.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Soils, Naturally Occurring Asbestos, and Salinity Risk</b> | <p>The site is situated on the GyMEA soil landscape which is described as a dissected sandstone plateau with sandstone pillars, ledges and slabs. The chief soils include shallow to moderately deep yellow earths and earthy sands on crests and insides of benches; shallow siliceous sands on leading edges of benches; localised gleyed podzolic and yellow podzolic sands on shale lenses; and shallow to moderately deep siliceous sands and leached sands along drainage lines.</p> <p>The ASRIS Atlas of Australian Acid Sulphate Soils and Salinity indicates there is an extremely low (1-5%) probability of acid sulphate soils being present on the site.</p> <p>The site is not located within an area reported to have naturally occurring asbestos.</p> <p>The site is located on an area where soil salinity is not considered a risk.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hydrology</b>                                              | <p>Since the site surface is predominantly hardstand, surface water is anticipated to be captured by the drainage system or follow the regional topography towards the northwest into Lane Cove River. In unsealed areas (small areas along the northern and southern boundaries of the site), it is expected that direct infiltration of rainfall would eventually recharge the underlying porous aquifer.</p> <p>Stringybark Creek, a tributary of Lane Cove River, is the closest surface water body to the site (located approximately 135 m north of site).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Hydrogeology</b>                                           | <p>The hydrogeology map of Australia indicates the aquifer below the site is porous and of low to moderate productivity, situated in the Hawkesbury Sandstone.</p> <p>Groundwater flow is anticipated to follow the regional topography and travel in a northwest direction towards Lane Cove River located approximately 200 m northwest of the site. A search of the publicly available registered groundwater bore database indicated that there are no registered groundwater bores within 1 km of the site; however, 26 were identified within a 2 km radius to the north, northeast and southeast of the site.</p> <p>22 of the bores are listed as monitoring bores and were drilled to depths ranging from 0.8 to 53.39 m below ground level (bgl). One bore is listed as a commercial and industrial bore with a depth of 39 m bgl, while the remaining three are listed as "other" bores with depths ranging from 14 to 182.5 m bgl.</p> <p>Details on water bearing zones were not included in the bore information sheets; however, the bores were installed within natural material including sandstone or gravelly clay, consistent with the geological map review.</p> <p>Senversa has previously installed four monitoring bores on the northern site, wells were installed to a maximum depth of 17 m BGL and were installed into sandstone, consistent with the geological desktop assessment. Groundwater was encountered in all wells between 3.5 m and 16 m BGL (depending on location).</p> |





| Item                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment and Ecosystems and Heritage | <p>Terrestrial groundwater dependent ecosystems (GDE) were identified as being present to the north and west of the site. That is, ecosystems that rely on the subsurface expression of groundwater. Moderate potential GDEs are located to the west of the site, while low to high potential GDEs are situated to the north and generally follow the creek line.</p> <p>No heritage list items are recorded on the site or immediate surrounds.</p>                                                                       |
| Sensitive Receptors                             | <ul style="list-style-type: none"><li>• A swimming school and gymnastics club are located approximately 100 m southeast and 80 m southwest of the site, respectively. However, these are noted to be upgradient of the site and unlikely to be impacted by site activities.</li><li>• Lane Cove River and Stringybark Creek are located downgradient of the site.</li><li>• Site workers and visitors to the site are also considered sensitive receptors, as are any intrusive maintenance workers on the site.</li></ul> |
| Mining Impact                                   | <p>There are no known mining subsidence districts recorded within 1 km of the site.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                    |

2.2 Site Walkover

Site walkovers have been conducted regularly by Senversa as part of the PSI and DSI assessments (Senvorsa, 2024, 2024a). Observations made during the site inspection are provided below:

The site was accessed from Apollo Place, the entire site consisted of two large office buildings which encompassed the majority of the site.

- 1 Sirius Road consists of a large commercial building and is predominantly used as offices.
- A bitumen driveway (the central driveway) was located between the two buildings leading steeply downhill in a northerly direction. An under-croft car park was present underneath the western building. The northern boundary of the site was fenced and was directly bound by the data centre located to the north of the site.
- A small garden bed was present across the front of the western building, a fire hydrant system was located within the western section of the garden bed. An electrical substation was located in the eastern portion of the garden bed (not part of the site).
- Two large skip bins are present at the front entrance of 1 Sirius Road, along with a landscaped area consisting of trees and garden beds.
- A gate is present on the southern end of the site, providing access to the rear of the building which leads to the data centre to the north of the site.
- A hardstand driveway is located immediately east of the building on 1 Sirius Road and runs from the road to a sealed carpark located north of the building. Wooden pallets, bins, and a small, landscaped area consisting of trees and a garden bed were observed in the carpark area. A smaller, possibly portable, building with power is located in the northeast corner of the site.
- An underground carpark was observed under the main building at 1 Apollo Place, with parked cars and bins observed.
- With the exception of the garden bed, the entire site was covered with hardstand (bitumen or concrete). A security guard controlled boom gate was present restricting access to the car park. No visual evidence of contamination or refuse was noted and the hardstand appeared to be in good condition with no cracks or staining observed. A small generator and temporary fuel storage system was located in the car park, the fuel storage tank was bunded and no staining was observed.

2.3 Previous Assessments

A summary of assessments undertaken on the site to date is provided in **Table 2.3**.

**Table 2.3: Previous Assessment Summary**

| Report Author and Date                               | Title                                                                                                                  | Review                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Douglas Partners Pty Ltd</b><br><b>March 2023</b> | <i>Report on Preliminary Site (Contamination) Investigation Proposed Data Centre, 1-2 Apollo Place, Lane Cove West</i> | <p>Douglas Partners (DP) was engaged by Airtrunk Operating Pty Ltd to prepare a preliminary site (contamination) assessment at the proposed data centre. The objective of the assessment was to assess the potential for contamination at the site based on past and present site uses, as well as to comment on the need for further investigation and/or management with regard to the proposed development. The report referred to the following Lots as comprising the site: SP80721, Lot 11, DP. 558654 and part of Lot 1, DP.1271404. The scope of works included:</p> <ul style="list-style-type: none"> <li>• a review of desktop information including published maps, government data bases, and historical photographs and title deeds, as well as a review of the SafeWork register of hazardous goods stored or previously stored at the site.</li> <li>• Drilling eight boreholes (BH1-BH8), six drilled with an excavator mounted auger, and two drilled using hand tools.</li> <li>• Collection of 19 soil samples and analysis for heavy metals, TRH, BTEX, PAH, OCP, OPP, PCBs, phenols, asbestos, and PFAS<sup>3</sup>.</li> </ul> <p>The report found that the site history indicated the site was unused and densely vegetated until the early 1970s with the surrounding land use having been used for industrial purposes. The report states that there was a landfill to the north of the site likely to contain uncontrolled fill but that to was considered by 'the auditor unlikely to pose unacceptable risks'.</p> <p>Eight sample locations around the site were sampled, less than the 14 required for a site this size. Locations were based on a systematic sampling strategy. DP collected 16 samples from the boreholes and analysed for a selection of the contaminants of potential concern previously listed. Data were screened against generic site assessment criteria presented in NEPM suitable for commercial/industrial sites.</p> <p>DP reported that ecological criteria for nickel and zinc were exceeded in a number of locations, and pesticides (aldrin and dieldrin) exceeding health based criteria in one location were reported (50.9 mg/kg). DP stated that groundwater was not observed and was unlikely to be present at the site.</p> <p>A preliminary waste classification was presented, with the majority of the soil classed as general solid waste (non-putrescible) with the exception of soils in BH07 which were classed as hazardous due to the concentration of pesticides, natural material was classed as Virgin Excavated Natural Material (VENM). The report concluded that the site could be made suitable for the proposed development subject to further delineation of the pesticide and nickel exceedances, further assessment of the fill in areas around BH3 and BH4 (on SP80721), further assessment of data gaps (in building footprints), as well as PFAS analysis. DP also recommended a RAP may be required.</p> |
| <b>Douglas Partners Pty Ltd</b><br><b>March 2023</b> | <i>Report on Preliminary Geotechnical Investigation Proposed Data Centre, 1-2 Apollo Place, Lane Cove West</i>         | <p>Douglas Partners (DP) was engaged by Airtrunk Operating Pty Ltd to prepare a preliminary geotechnical investigation at 1-2 Apollo Place, Lane Cove West for the purposes of due diligence. The objective of the investigation was to indicate geotechnical constraints to the development of the site for the proposed use (multistorey data centre). The scope of work included a site walkover and drilling of eight boreholes to depths of between 0.3 and 2.0 m bgl (it is noted that these eight locations are the same as those drilled for the PSI, DP 2023 report). The drilling found that fill was present up to depths of 1.7 m bgl and natural material was encountered at the majority of locations and consisted of sandstone. A number of geotechnical tests were undertaken, the results of which are not relevant to this review. The report concluded that the site was considered suitable for the proposed development from a geotechnical perspective and that full depth rock cored boreholes drilled to below the adopted bulk level would be required to confirm rock details for a detailed design.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

<sup>3</sup> TRH – total recoverable hydrocarbons, PAH – polycyclic aromatic hydrocarbons, BTEX -Benzene, toluene, ethylbenzene, xylenes, OCP/OPP – organochlorine and organophosphate pesticides, PCBs – polychlorinated biphenols, PFAS – per and poly-fluoroalkyl substances.



| Report Author and Date                               | Title                                                                                                                         | Review                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Douglas Partners Pty Ltd</b><br><b>April 2023</b> | <i>Report on Preliminary Site (Contamination) Investigation Proposed Data Centre</i><br><i>1 Apollo Place, Lane Cove West</i> | <p>Douglas Partners (DP) was engaged by Airtrunk Operating Pty Ltd to prepare a preliminary site (contamination) assessment at the proposed data centre. The objective of the report was to assess the potential for contamination at the site based on past and present land uses, as well as to comment on the need for further investigation and/or management with regard to the proposed development report. The report stated that 'additional testing was deemed necessary after an analysis of previous round of testing'. The report was listed as a revision (Rev1) of the earlier PSI report however included a different scope of works and appeared only to relate to 1 Apollo Place (the eastern portion of the wider site, SP80721) rather than the whole site.</p> <ul style="list-style-type: none"> <li>• The scope of works included a desktop review of information including; published maps, government data bases, and historical photographs and title deeds, as well as a review of the SafeWork register of hazardous goods stored or previously stored at the site.</li> <li>• Drilling four boreholes (BH1-BH4) using an excavator mounted auger.</li> <li>• Collection of 10 samples and laboratory analysis for heavy metals, TRH, BTEX, PAH, OCP, OPP, PCBs, phenols, asbestos, and PFAS.</li> <li>• Additional investigation including an additional six boreholes (BH1-1, 1-2, 1-3, BH3A, BH4A).</li> </ul> <p>The report found that the site history indicated the site was unused and densely vegetated until the early 1970s with the surrounding land use having been used for industrial purposes. The report states that there was a landfill to the north of the site likely to contain uncontrolled fill but that to was considered by 'the auditor unlikely to pose unacceptable risks'.</p> <p>The sampling plan was reportedly based upon a systematic design. The report stated 20 samples were selected for analysis and compared to generic site assessment criteria presented in the NEPM. Results indicated that concentrations of all analytes were below adopted criteria and the preliminary waste classification was stated to be general solid waste (non-putrescible). The report stated that the site could be made suitable for the proposed use based on further assessment of the data gaps within buildings footprints (post-demolition), as well as a review of the EMP for the adjacent property.</p> |
| <b>Senversa Pty Ltd</b><br><b>May 2024</b>           | <i>Preliminary Site Investigation Apollo Place Data Centre, Lane Cove West Rev 1</i>                                          | <p>Senversa Pty Ltd (Senversa) was engaged to undertake a preliminary site investigation for the property located at 1 Apollo Place and 1 Sirius Road Lane Cove West to address the SEARs issued by the Planning Secretary. The SEARs were issued in response to the proposed submission of a SSDA to develop the site as a data centre.</p> <p>The specific objective of the PSI was to assess the potential for contamination to be present at the site based on historic and current use and if contamination existed to assess whether the site could be made suitable for development following remediation (if remediation was required). The scope included a desktop review of the previous report for the site (DP, 2023), historical documents, online data bases and government resources, and a site walkover.</p> <p>The report found that the site had been used for commercial/industrial purposes since its development from vacant land in the early 1970s. Elevated concentrations of metals and pesticides were present at the site as reported by DP, and there was the potential for contamination from operation of the site for commercial/industrial land use, operation of the electrical substation adjacent to the front of the site, and the potential presence of fill material of unknown quality used for ground levelling and site formation purposes on Lot 1 DP 1271404 and the park/sports field to the northwest of the site.</p> <p>The PSI report recommended that an intrusive assessment be undertaken consisting of targeted soil and groundwater sampling to assess the nature and extent of contamination and potential for migration from the site.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



| Report Author and Date                      | Title                                                                                     | Review                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <b>Senversa Pty Ltd</b><br><b>June 2024</b> | <i>Detailed Site Investigation<br/>Apollo Place Data Centre,<br/>Lane Cove West Rev 1</i> | <p>Senversa Pty Ltd (Senversa) was engaged by EMKC3 to undertake an environmental site assessment at the property located at proposed Apollo Place Data Centre, Lane Cove West, NSW (the site). The site is currently comprised of two individual properties which are legally defined as Part Lot 1 in Deposited Plan (DP) 1271404, and Strata Plan (SP) 80721. The overall objective of the investigation was to assess the accessible areas of the site with regard to soil and groundwater contamination, in direct response to SEAR number 17 for SSDA number SSD-67407231. Senversa only undertook intrusive assessment in Part Lot 1 in DP 1271404; however, conclusions in this report draw on information sourced from the PSI and from the data review of other consultants reports undertaken on SP80721 and, therefore, relate to the entire site.</p> <p>The report found that concentrations of contaminants of potential concern (CoPC) in soil were generally below the laboratory reporting limits (i.e. not detectable) or below the adopted criteria, where criteria exist with the exception of:</p> <ul style="list-style-type: none"> <li>• Nickel concentrations, which exceeded the adopted ecological site criteria of 60 mg/kg in six samples, the highest of which was 80 mg/kg; and</li> <li>• zinc which exceeded ecological criteria of 190 mg/kg in one location with a concentration of 330 mg/kg.</li> <li>• Statistical analysis of heavy metal data indicated that the 95% UCL was below the site criteria, concentrations of heavy metals exceeding criteria are not considered to preclude the site from the proposed development.</li> <li>• Detectable concentrations (albeit below criteria) of heavy end petroleum hydrocarbons (TRH &gt;C16-C34, and &gt;C34-C40) were recorded in a number of locations in shallow fill material and correlated with slightly elevated PID readings.</li> <li>• Concentrations of organochlorine pesticides (aldrin and dieldrin) were reported in samples collected from various locations around the site, concentrations were below adopted criteria; however, are noteworthy given elevated concentrations previously reported by DP (2023).</li> </ul> <p>Drinking water criteria were exceeded for benzene (in MW209 only), and nickel, PFOS, PFHxS in both wells. The risk of harm to site users from these exceedances is low as there is not considered to be any beneficial use for the groundwater at the site.</p> <p>The report concluded that:</p> <ul style="list-style-type: none"> <li>• The site was largely unassessed due to access constraints, i.e., data gaps existed. Further intrusive assessment of soil and groundwater was considered to be required before a statement on site suitability could be made. It was recommended that the assessment was undertaken once the buildings had been demolished so that full access to the site was possible.</li> <li>• A remediation action plan was required to address the SEARS, and to address the elevated OCP concentrations. It was recommended that the RAP include a data gap assessment to address the need for further intrusive assessment and allow development of an appropriate RAP.</li> </ul> |



**Senversa Pty  
Ltd  
December 2024**

*Detailed Site Investigation  
Apollo Place Data Centre,  
Lane Cove West*

Senversa Pty Ltd (Senversa) was engaged by EKMC3 Pty Ltd on behalf of Airtrunk Pty Ltd to undertake a detailed site investigation (DSI) at the property located at 1 and 2 Apollo Place, Lane Cove West, NSW (the site) to address a series of data gaps outlined in the 2024 RAP. As part of the SSDA, SEARs have been issued (SSD-67407231) for the site which stipulate that environmental assessments be undertaken. Senversa prepared a preliminary site investigation (PSI) report in May 2024 (Senversa 2024a) to assess the potential for contamination to be present based on current and/or historical site practices. This highlighted potential contamination at the site and recommended that a detailed site investigation (DSI). The DSI report (Senversa, 2024b) was undertaken on the western portion of the site (Part Lot 1 DP 1271404) and found elevated concentrations of heavy metals in soils across the site, and noted that previous investigations at the site (undertaken by Douglas Partners) had found elevated concentrations of aldrin and dieldrin. Based on soil data, Senversa recommended a remedial action plan (RAP) be prepared (Senversa, 2024c) to address elevated concentrations of organochlorine pesticides and to close out a series of data gaps. Those data gaps included the following items which were addressed by this DSI:

- Potential for widespread fill material under the buildings and in the driveway. Further sampling was recommended to reduce uncertainty of the nature and extent of fill material.
- Underground storage tanks (UST) potentially located on-site due to the commercial/industrial land use. A bunded, temporary above ground tank was present in the under-croft car park.
- Further groundwater assessment was required to consider hydrocarbons, PFAS and heavy metals previously detected in monitoring wells located on-site.

The data gap DSI scope included:

An intrusive site assessment in accessible areas and targeted areas which consisted of drilling of 16 soil bores to a maximum of 3 m bgl (metres below ground level), extending four of the soil bores to 18 m bgl and installing groundwater wells. Analysis of soil and groundwater samples (from new and existing wells) for contaminants of potential concern (CoPC).

The investigation found that concentrations of CoPCs in soil were generally below the laboratory reporting limits (i.e. not detectable) or below the adopted criteria where criteria exist with the exception of nickel, zinc and some hydrocarbons that exceeded the adopted ecological site criteria. However, these detections were discounted when the data were analysed statistically. Low levels (below adopted criteria) of organochlorine pesticides were reported in a number of samples; however, were below the concentration previously reported by Douglas Partners (2023a) of 50.9 mg/kg for aldrin and dieldrin.

Groundwater data indicated that criteria protective of human health and ecological receptors were exceeded in a number of wells;

- lead at concentrations above drinking water and recreational criteria was reported in MW213 (located at the south of the driveway);
- benzene was reported in all wells, and exceeded or was equal to drinking water criterion in five of the six wells, and exceeded the recreation criterion in two wells (MW209 and MW216);
- PFOS and PFHxS were detected in four of the six wells, with concentrations of PFOS exceeding ecological criteria in all four wells, and concentrations of the sum of PFHxS and PFOS exceeding drinking water criteria in two of the four wells.

The risk of harm to site users from these exceedances was considered to be low as no complete source-pathway-receptor linkages were identified. The site is located in a municipal area and will be connected to mains potable water and potential risks to intrusive site workers during development will be managed under a CEMP which will address PPE requirements with regard to potential contamination.

The risk of coming into contact with groundwater is low given its depth at in excess of 15 m bgl. Ecological criteria were exceeded in all wells for a number of analytes; however, this was not considered to preclude the site from future development or require groundwater remediation because:

- concentrations of heavy metals were considered generally representative of background concentrations and not indicative of site derived contamination; and
- PFOS, PFOA and PFHxS are persistent in the environment and the adopted criterion for each is very low. Exceedance of these criteria does not necessarily constitute a direct risk to ecological receptors as dilution and attenuation factors may alter the concentrations prior to the groundwater discharging to the creek.



| Report<br>Author and<br>Date | Title | Review                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |       | The report recommended that the RAP (Senversa, 2024) be updated to consider the results from the most recent investigation. An unexpected finds protocol (outlined in the RAP) should be followed during site development. It was considered that the site is capable of being made suitable for commercial/industrial use by execution of the updated RAP , and successful site validation. |



## 3.0 Legislative Compliance and Environmental Guidance

In NSW, the management of contaminated land is a two-tiered system, consisting of the NSW Environment Protection Authority (NSW EPA) that regulates the investigation, remediation and monitoring of contaminated land; and planning authorities who manage sites under the development and planning process. Planning authorities include the NSW Department of Planning, Housing and Infrastructure (DPHI) and planning consent authorities (usually local councils).

### 3.1 Contaminated Land Management Act 1997

The NSW EPA utilises the *Contaminated Land Management Act 1997* (CLM Act) in NSW on sites where contamination is significant enough to warrant regulation for the current, or approved land use.

This RAP is prepared in general accordance with guidance documents made or approved by NSW EPA under Section 105 of the CLM Act. These include but are not limited to:

- NEPC NEPM 1999 *National Environment Protection (Assessment of Site Contamination) Amendment Measure* (2013 amendment) (NEPM 1999, 2013 amendment).
- NSW EPA (2020) *Contaminated Sites: Consultants Reporting on Contaminated Land. NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme.*
- DEC NSW (2007) *Guidelines on the Assessment and Management of Groundwater Contamination.*
- NSW EPA (2022) *Sampling design part 1 – application.*

### 3.2 Environmental Planning and Assessment Act 1979

The NSW DPHI and local councils use the planning and development process to deal with contamination on sites which do not pose an unacceptable risk under their current or approved use. This process determines what remediation is needed to make the land suitable for a different use.

The *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) establishes a legislative framework for the assessment of development activities in NSW, it was updated in 2017 with the passing of the *Environmental Planning and Assessment Amendment Act 2017* which was legislated for commencement from the 1st of March 2018.

Under the *EP&A Act Amendment* there are 11 State Environmental Planning Policies (SEPP) which determine how land is used, managed, and conserved. The SEPP most relevant to this RAP is the *State Environmental Planning Policy (Resilience and Hazards) 2021* which came into effect on 1 March 2022 and consolidated and repealed *SEPP 55 – Remediation of Land*. No policy changes were made with the inception of the new SEPP; therefore, the legal effect of SEPP 55 remains valid, as such the remediation proposed at the site is considered to comprise 'category 2 remediation works' under Clause 16(d) of SEPP 55. Notification requirements are discussed in **Section 3.5**.





### 3.3 Protection of the Environment Operations Act 1979 and Protection of the Environment Operations (Waste) Regulation, 2014

The *Protection of the Environment Operations Act 1997 (POEO Act)* is a key piece of environmental protection legislation administered by NSW EPA and local councils. The POEO Act provides a single integrated system of licensing to control the air, noise, water and waste impacts of an activity, with the purpose of protecting the environment.

General requirements under the POEO Act related to the remedial works include waste disposal and protection of the environment through managing site run-off, odours, and dust. Management strategies are incorporated into the appropriate sections of this RAP and will be presented in a Site Environmental Management Plan. Primary references relevant to the remediation and made under the POEO Act include:

- NSW EPA (2014) *Waste Classification Guidelines*; and,
- NSW EPA - *The Excavated Natural Material Order 2014*.

### 3.4 WorkCover NSW, Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017

The *WHS Act 2011* and *WHS Regulation 2017* expand the duty of care for work health and safety to all persons who conduct a business or professional undertaking. Remedial works will be required to comply with relevant sections of:

- *Work Health and Safety Regulation 2017*; and
- Storage and Handling of Dangerous Goods Code of Practice.

### 3.5 Approvals and Licenses

The remediation proposed at the site is considered to comprise 'category 2 remediation works' under Clause 4.11 of The Resilience and Hazards SEPP. Formal notification of the remedial works is required to be sent to the local planning authorities as per Clause 4.13(2)(a) of the Resilience and Hazards SEPP.

Remediation works may include asbestos removal works, if so the Remediation Contractor (RC) must be licenced by NSW SafeWork to remove asbestos. A notification must be made to NSW SafeWork by the RC to undertake the removal, works must not begin until approved by NSW SafeWork. The notification period is 5 days for bonded asbestos removal.

Water usage approval through Council may be required for general dust suppression activities. This approval is the responsibility of the chosen remediation/earthworks contractor. Disposal of water to sewer or stormwater may be required, approval from Council and/or the water authority will be required prior to this, and is the responsibility of the contractor.



## 4.0 Conceptual Site Model

### 4.1 Proposed Site Redevelopment

The proposed development involves demolition of the current site buildings, and the construction and operation of a data centre and associated infrastructure and amenities. The proposed land use is commercial/industrial and is a permitted use under the current zoning.

The plans currently include:

- minor earthworks involving cut and fill works;
- infrastructure comprising civil works and utilities servicing; and
- construction of a four storey data centre building comprising:
  - a building with an estimated footprint of 9,328 m<sup>2</sup> which will include:
    - four data halls;
    - 28 back-up generators;
    - diesel storage capacity of 345.5 kilo litres (kL);
    - 27 car parking spaces;
    - 392 m<sup>2</sup> of associated landscaping; and
    - ancillary offices and amenities.

### 4.2 Summary of Current Site Setting

The local geology at the site comprises Middle Triassic aged Hawkesbury Sandstone, defined as medium to coarse grained quartz sandstone with minor shale and laminate lenses, underlain by; the Narrabeen Group described as undifferentiated interbedded quartzose and quartz-lithic sandstone and siltstone clay pellet sandstone; the Illawarra Coal Measures described as interbedded quartz-lithic, grey siltstone, and claystone, carbonaceous claystone, clay, laminate, and coal; and the Shoalhaven Group which are described as undifferentiated lithic sandstones.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Australian Soil Resource Information System (ASRIS) identify the site as being located on Gynea soil landscape which is described as a dissected sandstone plateau with sandstone pillars, ledges and slabs. The chief soils include shallow to moderately deep yellow earths and earthy sands on crests and insides of benches; shallow siliceous sands on leading edges of benches; localised gleyed podzolic and yellow podzolic sands on shale lenses; and shallow to moderately deep siliceous sands and leached sands along drainage lines, however assessment at the site to date suggests that most of the natural soils are no longer present, or are only present in thin layers, replaced with fill/site won natural material or removed as part of the existing development.

Stringybark Creek, a tributary of Lane Cove River, is the closest surface water body to the site (located approximately 135 m north of site). Groundwater flow is anticipated to follow the regional topography and travel in a northwest direction towards Lane Cover River located approximately 200 m northwest of the site.

Senversa has previously installed four monitoring bores on the adjoining northern site, and has installed six bores on this site. Wells were installed to a maximum depth of 17 m BGL and were installed into sandstone, consistent with the geological desktop assessment. Groundwater was encountered in all wells between 3.5 m and 16 m BGL (depending on location).



## 4.3 Summary of Known Contamination

Contaminated site investigation has been undertaken at the site progressively by Senversa and Douglas Partners since late 2023. Following completion of the most recent stage of works (Senvessa, 2024a), a number of areas exist on the site where contamination is known to be present, and there are some unassessed areas. There is the potential for areas containing different types of contamination including hydrocarbons (petroleum and polycyclic aromatic), PFAS<sup>4</sup>, and asbestos to be present.

Contamination (noting that unexpected finds may also be present) can be broadly summarised as follows:

### **Soil**

#### **Pesticides**

Concentrations of organochlorine pesticides (aldrin and dieldrin) were reported in samples collected from various locations around the site, the maximum concentration recorded was in a sample collected in 2023 which contained 50.9 mg/kg of aldrin and dieldrin. Widespread detection of the same pesticides were recorded in both the Senversa (2024a and 2024b) DSIs; however, all were below criteria in the June assessment or below the laboratory limit of reporting (LOR) in the December assessment.

#### **Heavy metals**

- Nickel concentrations, which exceeded the adopted ecological site criteria of 60 mg/kg in nine samples, the highest of which was 87 mg/kg; and
- zinc which exceeded ecological criteria of 190 mg/kg in two locations with a concentration of 330 mg/kg.

Statistical analysis of heavy metal data from the June and December DSIs indicated that the 95% UCL for nickel and zinc were below the site criteria, concentrations did not exceed 250% of the criteria (which would indicate a hotspot), and the standard deviation of the data set for each contaminant was less than 50% of the site criteria. Based on the statistical analysis, and the site setting, the exceedances were not considered relevant in the context of site contamination and are not considered to require further assessment or remediation.

Elevated metal concentrations may have a bearing on the waste classification of the material in areas marked for cutting/filling. All material will require classification prior to off-site disposal.

#### **Petroleum Hydrocarbons**

Detectable concentrations (albeit below criteria) of heavy end petroleum hydrocarbons (TRH >C16-C34, and >C34-C40) were recorded in a number of locations in shallow fill material and correlated with slightly elevated PID readings in the DSI (June 2024).

In the DSI (December 2024), concentrations of TRH >C16-C34 at location BH226 exceeded the adopted ecological site criterion of 1,700 mg/kg at in shallow fill (between 0.1 and 0.3 m bgl) with a concentration of 3,000 mg/kg.

The elevated concentration of fraction TRH >C16-C34 was detected in fill material, no odours or staining, or elevated PID readings were encountered during sampling. The sampling location is located near to the above ground fuel storage area and could be indicative of localised spillage or leaking.

Detectable concentrations of heavy end hydrocarbon fractions were recorded in other samples in the under-croft carpark but all were below criteria, these concentrations at present do not require remediation but may be indicative of the potential for contamination and will be managed under the site UFP.

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<sup>4</sup> Per- and polyfluoroalkyl substances



## Groundwater

Concentrations of benzene, nickel, PFOS<sup>5</sup>, and PFHxS<sup>6</sup> have been detected in groundwater at the site at concentrations above drinking water, ecological, and recreational (direct contact) criteria; however, it is noted that the concentration of PFHxS in MW201 was lower than the limit of detection in the December sampling round (previously it had exceeded drinking water criteria).

These concentrations, whilst indicating some level of groundwater contamination may be present, are not considered to require groundwater remediation or preclude the site from future development or because:

- Concentrations of heavy metals are considered generally representative of background concentrations and not indicative of site derived contamination.
- The site is located in a municipal area and will be connected to mains potable water.
- Direct contact criteria were not exceeded, therefore risk to intrusive site workers during development is considered low and acceptable, particularly as the site will be operated under a CEMP which will address PPE requirements with regard to potential contamination.
- Once developed, the risk of intrusive maintenance workers coming into contact with groundwater is extremely low given the depth of occurrence of groundwater (encountered at depths in excess of 15 m bgl during drilling).
- PFOA and PFHxS are very persistent in the environment and the adopted criterion for each is very low. Exceedances of these criteria does not necessarily constitute a direct risk to ecological receptors as dilution and attenuation factors may alter the concentrations prior to the groundwater discharging to the creek. It is also not possible with such limited data to conclude if these concentrations are derived from the sites use, or from surrounding areas.

## 4.4 Conceptual Site Model – Pre-remediation

The site in its current form poses a low risk of harm to human health and/or sensitive environmental receptors however data gaps are required to be addressed and elevated concentrations of pesticides are required to be remediated and/or managed.

Current pathways for receptors to be impacted are outlined in **Table 4.1**. However, the site is to be redeveloped for largely commercial/industrial use with no access to sub-soil, as such the risk profile of the site will change both during, and following remediation.

**Table 4.1: Sources, Pathways, Receptors**

| Contaminant                                                              | Disturbed                                                               | Human Health Risks                                                                       | Environmental Risks                                                                                       | Exposure Pathways                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pesticides (organochlorine), petroleum hydrocarbons, heavy metals</b> | Intrusive works such as excavation works, stockpiling of materials etc. | Adverse impact on human health from pesticides, hydrocarbons, and selected heavy metals. | Ecological risk to receptors (Stringybark Creek) from elevated pesticides, hydrocarbons and heavy metals. | <p><b>Human Health Exposure Pathways:</b> inhalation of dust, ingestion of impacted soil and/or groundwater and/or surface water, dermal contact.</p> <p><b>Environmental Exposure Pathways:</b> transport of contaminants through dust, migration into surface water and/or groundwater.</p> |

<sup>5</sup> Perfluorooctanesulfonic acid

<sup>6</sup> Perfluorohexanesulphonic acid



| Contaminant | Disturbed | Human Health Risks                                                  | Environmental Risks                                                                       | Exposure Pathways                                                                                                                                                                              |
|-------------|-----------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Asbestos    |           | Asbestos fibres can cause asbestosis, lung cancer and mesothelioma. | Asbestos is inert within the environment and therefore poses no known environmental risk. | <b>Human Health Exposure Pathways:</b> inhalation could occur through breathing in fibres in dust generated during soil disturbance activities.<br><b>Environmental Exposure Pathways:</b> nil |



## 5.0 Data Gap Assessment

### 5.1 Scope of Works

Based on a review of the available documentation, and with reference to the proposed redevelopment of the site, Senversa has identified a number of data gaps which are considered to require further assessment to be able to make conclusions on site suitability and undertake an effective remediation and validation program.

The data gaps and proposed approach to address them are included in the following table. This broadly includes works conducted:

- During construction – Senversa considers it likely that some form of contamination management (e.g. soil removal, imported growing media, material reuse or waste) would be required to manage uncertainties in contamination conditions and unexpected finds, and potentially needed to make the site suitable for the proposed use. This could be in the form of a construction environmental management plan (CEMP).

**Table 5.1: Data Gaps**

| Potential Data Gap                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Variable Fill Conditions</b> | <p>Fill material has been encountered in the majority of sampling locations to date, based on the nature of the site, it is possible that fill (either uncontrolled, or reworked natural) could be widespread under the buildings and in the driveway.</p> <p>This represents a key aspect of uncertainty. Senversa notes that the overall sampling density undertaken to date is less than EPA sampling design guidance, with some of the site (e.g. under parts of buildings and in the under-croft car park) not able to have been sampled.</p> <p>Asbestos has not been identified to date but has the potential to be present based on the site history and potential for uncontrolled fill to be present. The use of bore holes as an investigation method to date and relatively few samples analysed is not optimal for assessment of asbestos.</p>                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Implement steps to mitigate this uncertainty incorporated into the remedial strategies in <b>Section 9.0</b> (e.g. unexpected finds protocol and inspection and sampling of waste during construction).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>2. Waste Classification</b>     | <p>A preliminary waste classification has been provided by Douglas Partners, which stated that the material for removal is generally expected to comprise General Solid Waste (non-putrescible); however, detected concentrations of OCP indicate that soils in the western portion of the site may be classed as hazardous waste due to elevated OCPs (scheduled chemicals as per the <i>Chemical Control Order 2004</i>).</p> <p>It is noted that Senversa was not able to replicate the high concentration of OCPs in the vicinity of the original find (BH7, <b>Figure 2</b>); however, widespread low-level detections of aldrin and dieldrin were recorded across the site. Statistical analysis of the detections will be required once a full, reliable data set is gathered.</p> <p>Senversa considers that there is uncertainty in the actual waste classification based on the paucity of relevant data (e.g. sampling density, leachability of some metals and PAHs) in planned construction areas and lack of statistical analysis.</p> | <ul style="list-style-type: none"> <li>• Senversa suggests waste classification is best managed during construction activities – <i>in-situ</i> classification limits the reliability of waste classifications particularly when considering the potential for hazardous waste to be present.</li> <li>• PFAS has not been identified as a soil CoPC at the site to date; however, was present in groundwater and should be considered in soil for waste classification purposes.</li> <li>• Analysis of selected samples (above) using TCLP methods for PAH (specifically benzo(a)pyrene) and selected heavy metals to better inform appropriate waste classification.</li> <li>• Assessment of PFAS in selected soil and groundwater samples during sampling works in order to inform waste classification and</li> </ul> |



| Potential Data Gap | Description | Mitigation                                        |
|--------------------|-------------|---------------------------------------------------|
|                    |             | dewatering management requirements (if required). |





## 6.0 Remediation Strategy

### 6.1 Remediation Objectives

The primary remedial objective is to:

To make the suitable for its highest and best use as allowable under the zoning, i.e. commercial/industrial. Goals for this objective are:

- remove soil contamination to the extent practicable; and
- remediate and validate the site to a level which allows its continued and proposed future use (commercial/industrial).

Secondary remedial objectives are to:

- manage potential human health and environmental impacts during the remedial works; and
- conduct remedial works in a manner consistent with relevant laws, policies and guidelines.

### 6.2 Requirement for Remediation

Based on the data obtained for the site by Senversa and Douglas Partners, the need for remediation of the site is based on elevated concentrations of aldrin and dieldrin which are present across the site.

The maximum concentration detected to date was 50.9 mg/kg in a shallow borehole drilled by Douglas Partners in the north-western portion of the under-croft car park located on Part Lot 1 in DP271404 (**Figure 2**). Other detections of OCPs (specifically aldrin and dieldrin) were recorded in shallow fill across other locations on the same Lot, albeit below criteria.

Unexpected finds (UF) may also trigger the need for remediation.

### 6.3 Remediation Extent

Based on the assessment to date and taking into account the remaining data gaps (**Section 5**), the site remediation areas are currently only loosely defined and may be subject to change.

Based on current data, the remediation areas are considered to comprise shallow fill material in the following locations, and indicated on **Figure 2**:

- Northwest of the under-croft car park (pesticides in soil);
- Shallow fill material across unassessed areas of the site impacted by contaminants such as asbestos, petroleum hydrocarbons, and PFAS – to be defined following data gap assessment.

Based on works to date, groundwater remediation is not proposed.



## 6.4 Remediation Options Assessment

Section 6 (16) of the NEPM 2013 outlines the preferred remedial hierarchy options for site remediation and/or management, these have been considered when preparing the remedial options for the site and are outlined as follows in order of preference:

1. On-site treatment of the contamination so that it is destroyed, or the associated risk is reduced to an acceptable level.
2. Off-site treatment of excavated soil, so that the contamination is destroyed, or the associated risk is reduced to an acceptable level, after which soil is returned to the site.
3. Consolidation and isolation of the soil on-site by containment with a properly designed barrier.
4. Removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material.
5. Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

Remedial options assessments are included in **Table 6.1**.

**Table 6.1: Remedial Options Assessment**

| Contaminant and Media for Remediation                     | Option                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Suitability                  |
|-----------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>Soil (fill material) impacted with:<br/>Pesticides</b> | <b>Do Nothing</b>               | Aldrin and dieldrin (both organochlorine pesticides) are present across the site in fill material, at concentrations in excess of 50 mg/kg, exceeding the scheduled chemical threshold outlined in the <i>Chemical Control Order, 2004</i> .<br><br>Other OCPs may also be present as unexpected finds, and other areas of elevated aldrin and dieldrin are likely. Low concentrations are reported in widespread locations across the site.<br><br>Aldrin readily converts to dieldrin, and dieldrin is considered one of the most persistent pesticides, use of both has been banned since the 1970s. Health effects include headaches, dizziness, and gastrointestinal disturbances. Leaving the material <i>in-situ</i> will not result in the contaminant having been reduced or its risk eliminated, therefore, remediation is required. | Not suitable.                |
|                                                           | <b>On-Site Treatment</b>        | Treatment of impacted soils through bioremediation is a potential option, there are a number of specific microbes which have been identified as optimal in breaking down aldrin and dieldrin (Pang et al, 2022); however, on-site treatment is not possible due to the relatively small size of the site. Off-site treatment of the soil prior to it being returned to site for placement is also not feasible given the generally small volumes of soil on-site requiring treatment. Obtaining necessary licenses and approvals for off-site treatment, as well as a site large enough to facilitate the construction of bio-piles would not be commercially viable.                                                                                                                                                                          | Suitable – not preferred.    |
|                                                           | <b>Off-Site Treatment</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Suitable – not preferred.    |
|                                                           | <b>On-Site Containment Cell</b> | On-site containment of the material is considered an appropriate remedial strategy and would usually consist of excavation of the impacted material followed by containment in a burial cell. The cell would be capped with clean material and a management plan would be prepared for the site to manage the cell in perpetuity. A notification would be placed on the planning certificate for the site (Section 10.7 certificate) to ensure on going notification and management of the cell was undertaken appropriately.<br><br>This option is suitable but not recommended for the site as the expected volume of material is low and construction of a cell is not considered to be the most cost-effective method of remediation.                                                                                                      | Suitable – not preferred.    |
|                                                           | <b>Off-Site Disposal</b>        | Removal of the OCP impacted material and disposal to landfill is a suitable method for remediation at the site, with resulting excavations validated and backfilled with site won material and/or imported VENM material.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Suitable – preferred option. |



| Contaminant and Media for Remediation                                     | Option                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Suitability                  |
|---------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>Soil (fill material) impacted with:</b><br><b>Asbestos (potential)</b> | <b>Do Nothing</b>               | Asbestos may be present as unexpected finds. As per the NEPM, there is a requirement for surface soils (upper 10 cm of the profile) to be free from visible asbestos, and sites must be suitably remediated with respect to known areas of contamination such as stockpiles/mounds of asbestos. Leaving the material <i>in-situ</i> is not considered a viable option as there is an aesthetic issue, as well as potential risk to receptors through inhalation of fibres or dust if the ACM degrades. Leaving the material <i>in-situ</i> will not result in the contaminant having been reduced or eliminated the risk, therefore, remediation will be required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Not suitable.                |
|                                                                           | <b>On-Site Treatment</b>        | Treatment of soils impacted with asbestos or treatment of fragments of asbestos is not recommended due to the risk of breaking down the material and causing fibres to be released to the atmosphere. There is also currently no method of treating asbestos to destroy it other than immobilising with cement (or similar). On-site and off-site treatment of the material is, therefore, not considered suitable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Not suitable.                |
|                                                                           | <b>Off-Site Treatment</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Not suitable.                |
|                                                                           | <b>On-Site Containment Cell</b> | <p>On-site containment of the material is considered an appropriate remedial strategy and would usually consist of excavation of the impacted material followed by containment in a burial cell. The cell would be capped with clean material and a management plan would be prepared for the site to manage the cell in perpetuity. A notification would be placed on the planning certificate for the site (Section 10.7 certificate) to ensure on going notification and management of the cell was undertaken appropriately.</p> <p>The current EPA position on containment of asbestos is that this is acceptable if:</p> <ul style="list-style-type: none"> <li>• It has not been imported to the site.</li> <li>• The site has appropriate development consent and/or complies with relevant planning legislation.</li> <li>• It does not trigger s142A of the POEO Act in relation to pollution of land.</li> <li>• It does not trigger s144AAB of the POEO Act.</li> <li>• Containment is the most appropriate remediation strategy and is supported by a remedial action plan and an ongoing Environmental Management Plan.</li> <li>• It meets any other relevant requirements.</li> </ul> <p>This option is suitable but not recommended for the site, if ACM is present it is likely the volume would be low and easily identified (i.e. surficial fragments of ACM and buried pockets of asbestos, not large volumes of soil impacted with ACM) and construction of a cell is not considered to be the most cost-effective method of remediation.</p> | Suitable – not preferred.    |
|                                                                           | <b>Off-Site Disposal</b>        | <p>Removal of any ACM through emu-picking or mechanical tilling i.e. raking of surficial soils and disposal to landfill is a suitable method for remediation at the site, with recovery of suitable soils (subject to validation).</p> <p>If ACM is identified as part of the data gap assessment, it is likely that it will consist of fragments of fibre cement in the shallow surficial soils (i.e. left over from building demolition, or present in uncontrolled fill). It is likely that emu-picking the fragments followed by disposal of the fragments to a landfill licensed to accept asbestos waste and visual validation of the site will be a suitable remedial method. Material impacted by AF/FA will be most suited to off-site disposal due to the inherent risk of fibres remaining on-site.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Suitable – preferred option. |



| Contaminant and Media for Remediation                                                                              | Option                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Suitability               |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Soil (fill material) impacted with:<br/>PFAS, heavy metals, hydrocarbons, other contaminants above criteria</b> | <b>Do Nothing</b>               | Contamination in the form of heavy metals, PFAS, polycyclic aromatic hydrocarbons, and petroleum hydrocarbons sourced from buried waste and historic use of the site have the potential to be present (unexpected finds). Doing nothing is not an appropriate option as the site is to be redeveloped for commercial/industrial use, and there is a risk to human health should the material be left <i>in-situ</i> . The material may also fail the adopted aesthetic criteria due to the presence of odorous or stained soils. | Not suitable.             |
|                                                                                                                    | <b>On-Site Treatment</b>        | Treatment of impacted soils through bioremediation (for hydrocarbon impacted soils) or in-situ stabilisation (for metals), thermal treatment or stabilisation (for PFAS) is possible but not preferred due to the relatively small size of the site.                                                                                                                                                                                                                                                                             | Suitable – not preferred. |
|                                                                                                                    | <b>Off-Site Treatment</b>       | Off-site treatment of this material is not considered to be a suitable remedial option as the complexities in removing from site (under an exemption from the NSW EPA) and finding a suitable site for treatment would be problematic compared to on-site treatment.                                                                                                                                                                                                                                                             | Not suitable.             |
|                                                                                                                    | <b>On-Site Containment Cell</b> | Excavation of the material and containment on-site in a repository (containment cell) is possible, however not a preferred option given the reasons provided for other contaminants.                                                                                                                                                                                                                                                                                                                                             | Suitable – not preferred. |
|                                                                                                                    | <b>Off-Site Disposal</b>        | Removal and off-site disposal of any impacted material is considered to be the most effective solution for remediation of any potential unexpected finds.                                                                                                                                                                                                                                                                                                                                                                        | Suitable - preferred.     |



## 6.5 Preferred Strategy

Based on **Section 6.4**, the preferred strategies are outlined in **Table 6.2: Preferred Strategy**

**Table 6.2: Preferred Strategy**

| Media and contaminants                                                                                                 | Preferred Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Soil (fill material) impacted with:<br/>Pesticides</b>                                                              | Removal of the OCP impacted material and disposal to landfill with resulting excavations validated and backfilled with site won material and/or imported VENM material.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Unexpected Finds</b>                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Soil (fill material) impacted with:<br/>Asbestos (potential)</b>                                                    | <p>Removal of any ACM through emu-picking or mechanical tilling i.e. raking of surficial soils and disposal to landfill is a suitable method for remediation at the site, with recovery of suitable soils.</p> <p>If ACM is identified as part of the data gap assessment, it is likely that it will consist of fragments of fibre cement in the shallow surficial soils (i.e. left over from building demolition, or present in uncontrolled fill). It is likely that emu-picking the fragments followed by disposal of the fragments to a landfill licensed to accept asbestos waste and visual validation of the site will be a suitable remedial method.</p> <p>Areas impacted by AF/FA will be most suited to off-site disposal due to the inherent risk of fibres remaining on-site.</p> |
| <b>Soil (fill material) impacted with:<br/>PFAS, heavy metals, hydrocarbons,<br/>other contaminants above criteria</b> | Removal and off-site disposal of any impacted material is considered to be the most effective solution for remediation of any potential unexpected finds.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 6.6 Contingency Plan

It is necessary to determine a contingency plan which can be instigated should the proposed method of remediation be unsuccessful in any way.

Based on the remediation options appraisal undertaken for the site (**Section 6.4**) and the relatively simple forms of contamination which exist, a contingency plan is unlikely to be necessary; however, should the impacted soil require further treatment due to the repeated failure of selected remedial methods, impacted material may require the following contingencies:

- Immobilisation (e.g. with cement) and off-site disposal for soils impacted with elevated OCPs.
- Excavation and disposal off-site without treatment for asbestos in soils.

## 6.7 Proposed Timeframe

The timeframe for remediation will largely be driven by the site development, and it is anticipated that remediation will be undertaken over a period of six to 12 months. The actual remediation works will be dependent on weather conditions and availability of the engaged Remediation Contractor (RC).

## 6.8 Material Tracking

Material tracking is of critical importance to the remedial work and as such a material tracking register and stockpile register will be maintained on-site. Registers will be required to include information on the source, characteristics, destination, and quantities of all material which is excavated, retained on-site, disposed of off-site and imported to the site.

The RC will collate all the required materials tracking information for provision to the environmental consultant (EC) for incorporation into subsequent validation reporting.



## 7.0 Adopted Remediation Criteria

### 7.1 Criteria Rationale

Senversa has adopted criteria set out in the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM 1999, 2013 amendment) (NEPC 2013) for use in site validation. The site is currently zoned as “E4 – General Industrial” under the Lane Cove Local Environmental Plan 2009; and is proposed for re-development for industrial use as a data centre. Adopted criteria are suitable for commercial/industrial, namely HIL D or the equivalent for HSLs, ESLs and EILs and Management Limits.

It is noted that the criteria are investigation levels and not clean up criteria and they are designed for protection of human health in a commercial land use. The land-use scenario considered for the HIL D assumes typical commercial or light industrial properties, consisting of single or multi-storey buildings supported by ground-level slabs, no basement car parks.

The criteria are based on the main users of the site being adult employees, who are largely involved in office-based or light indoor industrial activities. The employees who are most susceptible to health risks associated with soil contaminants are the employees who work in offices on the ground floor, as the greatest potential for vapour intrusion occurs with workspaces immediately overlying contaminated soil. Other assumptions include outdoor areas being largely covered by hardstand, with some limited areas of landscaping or lawns and facilities. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest or come into direct dermal contact with dust particulates derived from the soil on the site.

Tier 2 and 3 criteria have not yet been derived for the site and may not be required, this is dependent on the remedial success and will be determined as the project progresses. The NEPM statistical tests will be applied to validation data.

#### 7.1.1 Human Health

Health Investigation Levels (HILs) and Health Screening Levels (HSLs) were sourced from Section 2.2 and Tables 1a(1) and 1A(3), (Schedule B1 NEPM 1999, 2013 amendment) and are indicated in **Table 7.2**.

The site is currently utilised as per its current zoning, commercial/industrial and there are no plans to change this. The following criteria are therefore considered appropriate for validation of soil contaminant concentrations:

- HILs (Table 1A(1)):
  - HIL D (commercial/industrial).
- HSLs for vapour intrusion (Table 1A(3)):
  - HSL D (commercial/industrial) for sandy soils.



### 7.1.2 Ecological

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) and guidance on their derivation and application were sourced from Section 2.4 and Tables 1B(1) to 1B(6), (Schedule B(1) NEPM 1999, 2013 amendment). Generic EILs and ESLs are provided for some contaminants (petroleum hydrocarbons, benzo(a)pyrene, arsenic, DDT). Other contaminant EILs (zinc, copper, chromium III, lead and nickel) are derived based on the sum of ambient background concentrations (ABC) and added contaminant limits (ACL) (concentrations) for various land-uses, in turn derived from soil properties including pH and cation exchange capacity (CEC). The EILs and ESLs are generally applicable to the top two metres of soil.

In the absence of site-specific data for pH and CEC only the most conservative ACL has been adopted as the screening criteria for these analytes.

Based on the current land use, EILs/ESLs for commercial/industrial land use have been selected as a conservative approach.

### 7.1.3 Aesthetic

The NEPM 2013 Schedule B(1), Section 3.6 includes aesthetic considerations for site assessment and validation. These are of particular concern for public open space and residential land use. There are no numerical criteria for aesthetics so an assessment of the site soil aesthetics requires consideration of the natural state of soil on any given site, and a comparison between it and the soil encountered during investigation and remediation validation works. As per the NEPM, considerations should include:

- That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, may cause ongoing concern to site users;
- The depth of the materials, including chemical residues, in relation to the final surface of the site; and,
- The need for, and practicality of, any long-term management of foreign material.

The aesthetic criteria for acceptance of soils are indicated in **Table 7.1**. Where any of the listed characteristics are observed, they are to be recorded. An assessment will be made based on the above considerations for identification of potentially unacceptable soils and wastes.

It is noted that soils containing minor fractions of wastes (excluding asbestos) will be assessed for suitability i.e. minor fractions of waste may be considered acceptable.

**Table 7.1: Aesthetic Criteria**

#### Aesthetic Criteria – Soils

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Soils must not exhibit chemical odour (including petroleum hydrocarbons).

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Soils must not exhibit putrid odours associated with buried organic wastes.

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Soils must not be discoloured or contain excessive amounts of waste materials including asphalt, building materials, ash, plastic, fabric, ceramics, metal and/or timber.

---

No visible asbestos in the surface soils (uppermost 0.1 metre)

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#### 7.1.4 Management Limits

- Management limits are applicable to petroleum hydrocarbon compounds only and will be considered once the data have been assessed against HIL/HSL and EIL/ESL criteria. They are relevant for operating sites where significant sub-surface leakage of petroleum compounds has occurred and when decommissioning industrial and commercial sites and are designed to protect sites against:
  - Formation of observable light non-aqueous phase liquids (LNAPL);
  - Fire and explosive hazards; and
  - effects on buried infrastructure e.g. penetration of, or damage to, in-ground services by hydrocarbons.

Management limits adopted for validation of any remedial works will be therefore taken from Schedule B1 of the NEPM (NEPC, 2013):

- TRH fractions for coarse grained soils, commercial/industrial land use – see **Table 7.2**.

**Table 7.2: Remediation Criteria**

| Contaminant of Potential Concern | Criteria (all units in mg/kg with the exception of Asbestos) |                                  |                              |                                      |                                  |                  |
|----------------------------------|--------------------------------------------------------------|----------------------------------|------------------------------|--------------------------------------|----------------------------------|------------------|
|                                  | Asbestos Health Screening Level (%)                          | Health Investigation Level (HIL) | Health Screening Level (HSL) | Ecological Investigation Level (EIL) | Ecological Screening Level (ESL) | Management Limit |
| <b>Asbestos (AF/FA)</b>          | 0.004                                                        | -                                | -                            | -                                    | -                                | -                |
| <b>Asbestos (bonded)</b>         | 0.05                                                         | -                                | -                            | -                                    | -                                | -                |
| <b>Metals</b>                    |                                                              |                                  |                              |                                      |                                  |                  |
| <b>Arsenic</b>                   | -                                                            | 3,000                            | -                            | 160                                  | -                                | -                |
| <b>Cadmium</b>                   | -                                                            | 900                              | -                            | -                                    | -                                | -                |
| <b>Chromium (IV)</b>             | -                                                            | 3,600                            | -                            | 310                                  | -                                | -                |
| <b>Copper</b>                    | -                                                            | 240,000                          | -                            | 140                                  | -                                | -                |
| <b>Lead</b>                      | -                                                            | 1,500                            | -                            | 1,1800                               | -                                | -                |
| <b>Mercury (inorganic)</b>       | -                                                            | 730                              | -                            | -                                    | -                                | -                |
| <b>Nickel</b>                    | -                                                            | 6,000                            | -                            | 55                                   | -                                | -                |
| <b>Zinc</b>                      | -                                                            | 400,000                          | -                            | 110                                  | -                                | -                |



| Contaminant of Potential Concern          | Criteria (all units in mg/kg with the exception of Asbestos) |                                  |                              |                                      |                                  |                  |
|-------------------------------------------|--------------------------------------------------------------|----------------------------------|------------------------------|--------------------------------------|----------------------------------|------------------|
|                                           | Asbestos Health Screening Level (%)                          | Health Investigation Level (HIL) | Health Screening Level (HSL) | Ecological Investigation Level (EIL) | Ecological Screening Level (ESL) | Management Limit |
| BTEX                                      |                                                              |                                  |                              |                                      |                                  |                  |
| <b>Benzene</b>                            | -                                                            | -                                | 3                            | -                                    | 50                               | -                |
| <b>Toluene</b>                            | -                                                            | -                                | NL                           | -                                    | 85                               | -                |
| <b>Ethylbenzene</b>                       | -                                                            | -                                | NL                           | -                                    | 70                               | -                |
| <b>Total Xylene</b>                       | -                                                            | -                                | 230                          | -                                    | 105                              | -                |
| Total Recoverable Hydrocarbons            |                                                              |                                  |                              |                                      |                                  |                  |
| <b>C6-C10 minus BTEX (F1)</b>             | -                                                            | -                                | 260                          | -                                    | 215                              | 800              |
| <b>&gt;C10-C16 minus naphthalene (F2)</b> | -                                                            | -                                | NL                           | -                                    | 170                              | 1,000            |
| <b>&gt;C16-C34 (F3)</b>                   | -                                                            | -                                | -                            | -                                    | 1,700                            | 5,000            |
| <b>&gt;C34-C40 (F4)</b>                   | -                                                            | -                                | -                            | -                                    | 3,300                            | 10,000           |
| PAHs                                      |                                                              |                                  |                              |                                      |                                  |                  |
| <b>Naphthalene</b>                        | -                                                            | -                                | -                            | 370                                  | -                                | -                |
| <b>Benzo(a)pyrene</b>                     | -                                                            | -                                | -                            | -                                    | 1.4                              | -                |
| <b>Benzo(a)pyrene TEQ</b>                 | -                                                            | 40                               | -                            | -                                    | -                                | -                |
| <b>Sum of PAHs</b>                        | -                                                            | 4,0000                           | -                            | -                                    | -                                | -                |
| Organochlorine Pesticides                 |                                                              |                                  |                              |                                      |                                  |                  |
| <b>Aldrin + Dieldrin</b>                  | -                                                            | 45                               | -                            | -                                    | -                                | -                |
| <b>Chlordane</b>                          | -                                                            | 530                              | -                            | -                                    | -                                | -                |
| <b>DDT</b>                                | -                                                            | -                                | -                            | 640                                  | -                                | -                |
| <b>DDT+DDE+DDD</b>                        | -                                                            | 3,600                            | -                            | -                                    | -                                | -                |
| <b>Endrin</b>                             | -                                                            | 100                              | -                            | -                                    | -                                | -                |
| <b>Heptachlor</b>                         | -                                                            | 50                               | -                            | -                                    | -                                | -                |
| <b>Methoxychlor</b>                       | -                                                            | 2,500                            | -                            | -                                    | -                                | -                |



| Contaminant of Potential Concern | Criteria (all units in mg/kg with the exception of Asbestos) |                                  |                              |                                      |                                  |                  |
|----------------------------------|--------------------------------------------------------------|----------------------------------|------------------------------|--------------------------------------|----------------------------------|------------------|
|                                  | Asbestos Health Screening Level (%)                          | Health Investigation Level (HIL) | Health Screening Level (HSL) | Ecological Investigation Level (EIL) | Ecological Screening Level (ESL) | Management Limit |
| <b>Endosulfan</b>                | -                                                            | 2,000                            | -                            | -                                    | -                                | -                |
| <b>HCB</b>                       |                                                              | 80                               |                              |                                      |                                  |                  |
| <b>Toxaphene</b>                 | -                                                            | 160                              | -                            | -                                    | -                                | -                |
| <b>Chlorpyrifos</b>              | -                                                            | 2,000                            | -                            | -                                    | -                                | -                |
| <b>PCBs (Sum of Total)</b>       | -                                                            | 7                                | -                            | -                                    | -                                | -                |

## Notes:

1. NL: non-limiting at all depth in all soil types for HSL A.
2. EIL is for Chromium III.
3. EILs for Cu, Ni, Cr(III), Zn are based on the ACL only which may be more conservative than required.
4. '-' no criterion.
5. DDT, DDE, DDD: dichlorodiphenyltrichloroethane, dichlorodiphenyldichloroethylene, dichlorodiphenyldichloroethane.
6. HCB: hexachlorobenzene.
7. TEQ: toxicity equivalent quotient

### 7.1.5 Imported Material Criteria

Imported material received onto the site as part of the remediation should either be Virgin Excavated Natural Material (VENM) as defined by the POEO Act, or meet the definition of a resource recovery order (RRO) and resource recovery exemption (RRE) and be suitable for the site use. In addition, materials imported onto the site must be adequately assessed as being appropriate for the final use of the site, including QA/QC evaluation of any sampling and analysis for material brought to site.

For VENM material, an assessment of the source site should be undertaken by an appropriately qualified environmental consultant, as well as a review of the source site history and the potential for ground contamination, and sample analysis should be undertaken.

Concentrations of organic compounds screened in samples of the VENM should be below the respective laboratory limits of reporting (LORs) including TRH, BTEX, PAH, OCPs, PCBs, and asbestos. Concentrations of metals/metalloids (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) should be indicative of natural background concentrations for the VENM source site soils and rock. Material should be free from sulfidic ore.

For samples imported under a RRO and RRE, the material will be required to meet the criteria outlined in the order and the exemption or it cannot be received onto the site (e.g. the Excavated Natural Material Exemption 2014 and the associated Order), it will also need to be suitable for the site criteria and free of asbestos.

It is recommended that recycled products (e.g. aggregate and fines) not be imported to the site as the risk of them continuing deleterious materials (such as asbestos fragments and/or fibres) is high. It is also noted that any mulch brought to site for landscaping be thoroughly inspected to assess whether asbestos is present.



### 7.1.6 Off-Site Waste Disposal

Any material which is disposed of off-site as part of the remediation works must be sent to a licensed waste facility, licensed to accept the type of waste being disposed of. All waste must be accompanied by a waste classification report classifying the waste as per NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste* and tip dockets from the receiving waste facility must be retained and presented in the final validation report for the site.

Materials may be able to be sent off-site to be reused under certain resource recovery orders and exemptions as set out by the NSW EPA under the POEO Act. In order for this to occur:

- The material must meet the definition for that waste in the order and exemption; and
- The environmental consultant or RC must have complied with all conditions of the order, including sampling, chemical and other attribute requirements, and the supply of a statement of compliance.

## 7.2 Validation of Remedial Areas

### 7.2.1 Asbestos Impacted Areas

Following hand collection, or 'emu-picking' of areas impacted by bonded ACM fragments, validation of the surfaces is required.

Validation of these areas shall be undertaken through the following:

- Once each impacted area has been satisfactorily emu-picked, a Licensed Asbestos Assessor (LAA) is to visually inspect exposed soils for the presence of any visible asbestos in a grid-based approach. Grid sizes should be determined by the EC; however, a grid of 15 m x 15 m is appropriate (i.e. 225 m<sup>2</sup>).
- Should potential ACM material be identified during this inspection, emu-picking is to recommence until the LAA is satisfied that the area is clear.
- Once the LAA is satisfied the area is free from visible asbestos, a clearance certificate issued by the LAA will be required.
- The clearance certificates will be included in the Remediation Validation Report.
- Following the visual clearance, validation samples will be collected from the surfaces of the remedial areas. Samples will be collected from the grids utilised for the visual clearances (i.e. 15 m by 15 m) and submitted to a NATA accredited laboratory for of asbestos in soil as per AS4964-2004. We note that this is the preferred method of validation sampling as the analysis is NATA accredited.

### 7.2.2 Non-Asbestos Impacted Areas

For validation sampling of areas impacted by contaminants other than asbestos, the validation procedure is as follows:

- Areas should be thoroughly inspected by the EC to ensure that all aesthetic criteria have been met, and that no bulk waste, stained and/or odorous soils remain.
- Once the EC is satisfied the area is free from bulk waste or other aesthetic impacts, validation samples will be collected from the surfaces and walls of remedial areas.
  - Samples from excavation bases will be collected on a grid basis (15 m by 15 m is considered appropriate); and
  - in a linear basis for walls, one sample per 15 linear metres, with a sample at each 1 m in vertical depth.
- Samples will be submitted for the analysis indicated in **Table 7.3**.



### 7.2.3 Unexpected Finds Including Hydrocarbon Impacted Soil

Validation sampling of the walls and base of each remedial excavation area should be carried out as close as possible to the time which excavation is finished in order to avoid sampling of soil material which has undergone loss of VOCs by evaporation at the soil/air interface. If there is any delay then further excavation at least 0.3 m into the wall or base should be carried out immediately prior to sampling.

Field headspace PID readings and odour assessment should be undertaken at all soil validation sampling locations at the time soil samples are collected for laboratory analysis.

Validation of excavations for removal of hydrocarbon impacted material shall be undertaken by:

- visual inspections and collection of soil samples for field screening with a PID and laboratory analysis; and
- visual inspection and sample collection for laboratory analysis from excavation walls and base of excavations.

Inspections and sampling will be conducted by the Environmental Consultant. Sample analysis shall be by a laboratory NATA accredited for the analyses. Inspection, field screening and analytical results will be reviewed by the Environmental Consultant with consideration of the above validation criteria. This shall include an assessment of 'remediation to the extent practicable' if there is residual contamination.

## 7.3 Remedial Excavation Sampling Summary

It should be noted that remediation excavation surfaces which have been subject to validation inspection and/or sampling should not be backfilled until successful validation has been confirmed.

Sampling densities and analysis for areas impacted by contaminants other than asbestos are outlined in **Table 7.3**.

**Table 7.3: Validation Sampling Plan**

| Area                                                             | Sample Densities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Excavation Walls</b>                                          | <p>Sample densities for excavation walls in all remedial areas will be as follows:</p> <ul style="list-style-type: none"> <li>• One sample per short wall, two samples per long wall.</li> <li>• For larger excavations, one sample per 15 m linear metres should be collected.</li> </ul> <p>Samples should be collected at the following depths:</p> <ul style="list-style-type: none"> <li>• in the upper 1 m bgl;</li> <li>• from 1 to 2 m bgl; and</li> <li>• from 2 to 4 m bgl (if required).</li> </ul>                                |
| <b>Excavation Base</b>                                           | <p>Sample densities from the base of excavations will be:</p> <ul style="list-style-type: none"> <li>• One sample per 15 m by 15 m grid (i.e., 225 m<sup>2</sup>).</li> </ul> <p>A minimum of five samples per excavation if the size is less than 10 m<sup>2</sup>.</p>                                                                                                                                                                                                                                                                      |
| <b>Stockpiled Material (any treated material – if generated)</b> | <p>The following densities are applicable for validation of treated material:</p> <ul style="list-style-type: none"> <li>• Six samples for stockpiles &lt; 75m<sup>3</sup>.</li> <li>• Eight samples for stockpiles which are 75 - &lt;100 m<sup>3</sup>.</li> <li>• Ten samples for stockpiles which are 100 - &lt;125 m<sup>3</sup>.</li> </ul> <p>It is noted that this density is double the minimum recommended in Table 4, Section 7.5.2, Schedule B2 of the NEPM; however, is considered appropriate to validate treated material.</p> |



| Area                                    | Sample Densities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stockpiled Material (overburden)</b> | <p>The following densities are applicable for validation of stockpiled material for re-use on-site, or off-site disposal:</p> <ul style="list-style-type: none"> <li>• Three samples for stockpiles &lt; 75 m<sup>3</sup>.</li> <li>• Four samples for stockpiles which are 75 - &lt;100 m<sup>3</sup>.</li> <li>• Five samples for stockpiles which are 100 - &lt;125 m<sup>3</sup></li> </ul> <p>It is noted that this density is equal to the minimum recommended in Table 4, Section 7.5.2, Schedule B2 of the NEPM and is considered appropriate for homogeneous material with potentially low contaminant concentrations.</p> |
| <b>Stockpile Footprints</b>             | <p>Stockpile footprints will require validation on the following densities:</p> <ul style="list-style-type: none"> <li>• One sample per 10 m<sup>2</sup>.</li> </ul> <p>A minimum of one sample per footprint if the size is less than 10 m<sup>2</sup>.</p>                                                                                                                                                                                                                                                                                                                                                                        |

## 7.4 Validation of Imported Material

At the time of preparing this RAP, the material balance for the site was unknown and therefore this RAP presents validation sampling rates for imported materials in the event that site won material cannot be utilised. In the event that bulk import is not required, it is anticipated that the following types of material will still be required during development for landscaping, service channels, and roadways:

- Roadbase.
- Aggregate.
- Sand.
- Topsoil and mulch (for landscaping).

Details of imported materials are to be recorded in accordance with material tracking requirements if they are required on-site. Imported material is required to be VENM, or covered by a RRE and RRO.

The EC will require all appropriate documentation for the imported material to be supplied prior to the importation of the material. If the documentation is not considered sufficient then the environmental consultant should undertake confirmatory testing to ensure the material is suitable. Inspections of source sites may also be required, at the discretion of the EC.

VENM material should be analysed at a rate of one sample per 250 m<sup>3</sup>, any material covered by a RRE/RRO, or classed as an engineered product (mulch, topsoil, sand, roadbase) should be sampled at a rate of one sample per 100 m<sup>3</sup>, to ensure it meets the site criteria and is free of asbestos.

Due to the high likelihood of asbestos contamination, recycled aggregates and fines should be avoided if possible.

## 7.5 Classification of Material for Off-Site Disposal

All off-site disposal, including disposal of materials for recycling (where appropriate), will be undertaken in accordance with all relevant waste disposal guidelines/regulations including the NSW EPA (2014) *Waste Classification Guidelines, Part 1 – Classifying Waste*. Refer also to **Section 7.1.6**

A sampling density of one primary sample per 25 m<sup>3</sup> of fill and one primary sample per 50 m<sup>3</sup> of natural soil and bedrock is recommended (if stockpiled separately). Samples are to be analysed for a range of parameters including:

- Heavy metals, TRH, BTEX, PAH.
- PFAS.
- OCP/OPP.
- Asbestos.
- Selected samples may also require analysing for phenols, PCB, and toxicity characteristic leaching procedure (TCLP) for certain analytes.



All materials are to be transported in accordance with NSW EPA requirements for the transport of contaminated fill/soil to a suitably licenced waste receiving facility, with tracking required for restricted and/or hazardous waste.

## 7.6 Quality Assurance and Quality Control

The field and laboratory quality assurance and quality control (QA/QC) plan to be adopted for the investigation has been designed to achieve pre-determined data quality indicators (DQI) that will demonstrate that the precision, accuracy, representativeness, completeness, comparability and sensitivity of the dataset meet the objectives of the investigation.

The specific QA/QC for the field and laboratory components of the investigation have been developed based on NEPC (2013).

### 7.6.1 Field QAQC

The field quality assurance procedures to be adopted and the field quality control samples to be collected during the investigation and the corresponding acceptable control limits are presented below.

**Table 7.4: Field QA/QC Requirements**

| Data Type                                                       | Comments and Acceptable Control Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Field Personnel</b>                                          | The RAP implementation is to be supervised by someone with: continuous and relevant experience of soil and groundwater contamination and remediation techniques; relevant tertiary qualifications in environmental science, science or engineering additional training and experience related to asbestos, including identification and assessment of asbestos. Competency/qualifications of supervising staff to be included in the validation report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Field Data Collection</b>                                    | Site conditions and sample locations properly described.<br>Information to be recorded in field notes. Field notes are appropriately completed and summarised in the report on the investigation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Sample Handling (Storage and Transport)</b>                  | Soil samples will be collected into the sample jars and bags supplied by the selected analytical laboratory.<br>For samples collected into jars (i.e., not asbestos analysis) the filled jars will be stored on ice in a chilled, insulated container until received by the analysing laboratory.<br>Samples for microbiological analysis are to be stored on ice and immediately dispatched to the laboratory due to the short holding time.<br>Sample numbers, dates, preservation and analytical requirements will be recorded on Chain of Custody (COC) documentation, which will also be delivered to the analytical laboratory.<br>All samples are required to be documented as received by the laboratory chilled (if required) and intact.                                                                                                                                                                             |
| <b>Calibration of Field Equipment</b>                           | If a PID is to be used the PID will be calibrated with isobutylene gas at 100 ppm at the commencement of each day of sampling and if necessary, during the day in accordance with the procedure provided by the supplier. Calibration records will be kept for inclusion in the report on the investigation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Field Duplicates (Intra-Laboratory and Inter-Laboratory)</b> | Duplicate sampling will not be undertaken for asbestos analysis due to the heterogenous nature of the contaminant.<br>For other analytes, then the rates below will apply: <ul style="list-style-type: none"> <li>Intra-laboratory and inter-laboratory duplicates will be collected and analysed at a rate of 1 each in every 20 primary samples, with a minimum of 1 sample collected.</li> <li>The duplicate samples will be obtained from locations suspected of being contaminated and analysed for the key CoPCs.</li> </ul> Duplicated samples will be labelled so as to conceal, from the laboratory, the relationship of the primary sample to the secondary sample.<br>RPDs to be less than 30% for inorganic and organic analyses where the results of one or both values are greater than 10 times the limit of reporting. Where both values are less than 10 times the LOR RPDs of less than 100% are acceptable. |



| Data Type             | Comments and Acceptable Control Limits                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rinsate Blanks</b> | Rinsate blank samples (from an item of sampling equipment) will be collected and analysed at a rate of one per day of sampling if sampling equipment is used. When samples are collected by hand, no rinsate samples will be collected as the EC will use clean gloves at each sample location.<br>Concentrations of analytes to be less than the laboratory limits of reporting. |
| <b>Trip Spikes</b>    | Laboratory prepared trip spikes will be used and analysed at a rate of one per batch for the soil investigation for BTEX analysis in those areas where hydrocarbons are listed as a CoPC.<br>Recovery to be greater than 90%.                                                                                                                                                     |

## 7.6.2 Laboratory QA / QC

The laboratory quality assurance procedures to be adopted and the internal laboratory QC samples to be analysed and the corresponding acceptable control limits are presented in **Table 7.5**.

**Table 7.5: Laboratory QA/QC Requirements**

| Item                                    | Comments and Acceptable Control Limits                                                                                                                                                                                                         |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sample Analysis</b>                  | All sample analyses to be conducted using NATA certified laboratories which will implement a quality control plan in accordance with NEPC (2013).                                                                                              |
| <b>Holding Times</b>                    | All samples are to be submitted to the laboratory within the required laboratory holding times.                                                                                                                                                |
| <b>Laboratory Detection Limits</b>      | All laboratory detection limits to be less than the adopted assessment criteria.                                                                                                                                                               |
| <b>Laboratory Blanks</b>                | Laboratory blanks to be analysed at a rate of 1 in 20, with a minimum of one analysed per batch. Concentration of analytes to be less than the laboratory detection limits.                                                                    |
| <b>Laboratory Duplicates</b>            | Laboratory duplicates to be analysed at a rate of 1 in 20, with a minimum of one analysed per batch.<br>RPDs to be less than 30%.                                                                                                              |
| <b>Laboratory Control Samples (LCS)</b> | LCSs to be analysed at a rate of 1 in 20, with a minimum of one analysed per analytical batch.<br>Control limits: 70 to 130 % Acceptable Recovery.                                                                                             |
| <b>Surrogates</b>                       | Surrogate compound concentrations will be required to be spiked at a similar concentration to sample results, at a rate of 1 in 20.<br>Control limits: 70% to 130% Acceptable recovery.                                                        |
| <b>Matrix Spikes</b>                    | A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte. A matrix spike documents the effect(s) of bias of matrix on method performance.<br>Matrix spike control limits: 70 to 130 % Acceptable recovery. |

## 7.7 Validation Reporting

The Remedial Validation Report (RVR) will be compiled by the EC on completion of the remedial works. The RVR will include the scope, methods, results and conclusions of the remedial works. This report will detail the following *inter alia*:

- Any variations to the strategy undertaken during the implementation of the remedial works.
- The remedial works undertaken which may include:
  - records of raking/tilling undertaken;
  - visual inspection reports and clearance certificates; and,





- records of stockpile management and material tracking.
- Validation sampling program completed including sampling methodology, sample locations and sample descriptions.
- Data quality objectives (DQOs).
- Results of validation sample and analysis including NATA certified laboratory certificates.
- Discussion and assessment of results based on site validation criteria.
- Material tracking records, which may include:
  - waste classification reports, tipping dockets, and site waste tracking registers for off-site disposal; and/or,
  - imported material tracking registers, inspection reports, and validation data for any material imported to site.
- Details of any environmental incidents occurring during the course of the remedial works and the actions undertaken in response to these incidents.
- Details of any unexpected finds, if encountered.

Supporting factual evidence will be included in the report inclusive of illustrative figures. The RVR will be prepared in accordance with NSW EPA (2020) *Consultants Reporting on Contaminated Sites* and with reference to the NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme*.



## 8.0 Management Strategy

The RC shall be responsible for all necessary management controls that need to be implemented on the site, with common management controls described as follows in the following sections.

Note that the following sections are generic and are not designed to act in place of a formal site-specific Construction Environmental Management Plan (CEMP) for the works. A detailed CEMP is to be prepared by an experienced RC and is to include all measures required to be implemented during the remediation works to prevent impacts on human health and the environment.

### 8.1 Site Access and Security

The RC shall be responsible for ensuring that site access is limited to required personnel and no access is available to the general public. The security of the work area must be maintained and all equipment and plant maintained through the project.

As a minimum the following is required:

- A visual barrier/signage and warning labels are to be erected around the boundaries of the work area.
- A site induction and sign in/out register to familiarise personnel with site conditions and remediation requirements.
- The excavation should have no deep ponded water which may cause a risk of drowning.
- Site entry gate is to remain locked during works.

### 8.2 Traffic Control

The Remediation Contractor shall be responsible for adequate levels of traffic control for the roadway entrances to the site. As a minimum the following needs to be implemented:

- A log in/out vehicle checklist for heavy vehicle movements on/off the site.

### 8.3 Hours of Operation

The Remediation Contractor shall be responsible for ensuring all remedial works are conducted during the hours permitted by the consent authority.



## 8.4 Contact Details

The RC shall be responsible for the posting of contact details for key personnel associated with the remediation. As a minimum the following contact details should be posted in a visible portion of the site:

**Table 8.1: Contacts**

| Involvement              | Company | Contact Number | Contact Name |
|--------------------------|---------|----------------|--------------|
| Remediation Contactor    | TBC     | TBC            | TBC          |
| Site Supervisor          | TBC     | TBC            | TBC          |
| Environmental Consultant | TBC     | TBC            | TBC          |

**Note: Contact details will be added following assignment of each role**



## 9.0 Unexpected Finds Protocol

### Procedure to be followed in case of an Unexpected Find

Should an unexpected find be encountered during the works, the following procedure (Steps 1-7) should be followed:

1. Find identified by on-site personnel.
2. Cease work as soon as safe to do so and move clear of the finding.
3. Do not tamper or attempt to remove the finding.
4. Contact Site Supervisor who will then contact the EC immediately.
5. Delineate an exclusion or quarantine zone around the area and cover area with tarps if practicable to preserve finding.
6. The EC will:
  - a. Prepare a preliminary assessment of the find and determine the need for immediate management controls.
  - b. Prepare an assessment on whether rectification or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines.
  - c. Provide validation sampling for any rectification/remediation undertaken.
  - d. Advise whether the area is safe for re-entry.
7. Any unexpected finds must be documented on a register, and records of volumes and types of materials identified removed from the site must be kept on file.



## 10.0 Environmental Control Measures

This section outlines the necessary basic steps which need to be implemented to ensure the protection of the site and surrounding environment during remediation projects. The key issues which, as a minimum, must be addressed by the RC, associated with any remediation project, are listed in the following sections. The control measures discussed in this section are general and need to be considered on a site-specific basis. It is recommended that the RC develop a site-specific limited Construction Environmental Management Plan (CEMP) for the remediation works which covers the site-specific requirements and details.

The CEMP is to be prepared by the RC and is to include all measures required to be implemented during the remediation works to prevent impacts on human health and the environment. This includes measures and equipment to control the remedial excavation and any contaminated material (air, water and soil management). The CEMP should also include details of proposed soil management.

### 10.1 Dust Control

Dust control is unlikely to be a significant issue however the RC should be prepared for the following measures if required:

- Regular dampening of areas where heavy machinery will be utilised, where excavations are occurring.
- Protecting stockpiled material with tarps, consolidation, erection of wind breaks and if these measures cannot be reached, then wetting down of the material.
- Ceasing work in heavy wind events.
- Loading of materials into trucks as close to stockpile or in situ locations as possible.
- Trucks should have their loads covered when not being loaded, including movement on the site.
- Special consideration should be given to soils which may contain asbestos.

### 10.2 Sediment and Contaminant Run-off

The management of all storm and surface water runoff is critical in remediation projects to limit the potential for contamination spread and impact to waterways during exposure of soils. The following can be considered in the unlikely event that management is required at this site:

- Storm and surface water diversion and detention system if required.
- Silt control fencing around the works area.
- Silt control fencing around stockpiles.
- Regular inspections of fences should be conducted to ensure their on-going effectiveness.
- All works should be undertaken with reference to the NSW DECC (2008) *Managing Urban Stormwater, Soils and Construction Guidelines, Volume 2A Installation of services*.



## 10.3 Materials Handling and Transportation

The appropriate management of materials during remediation and transport is critical in remediation projects. As a minimum the following needs to be implemented if contaminated material is to be removed from the site:

- The trucks or bins used to transport waste from the site are to be lined with one layer of 200 µm polythene sheeting or equivalent or are to be thoroughly cleaned at the completion of the project to facilitate decontamination after tipping of the waste.
- Trucks should have their loads covered prior to leaving site and vehicles should stay to designated haul roads at all times to prevent the potential spreading of impacted material.
- Equipment, trucks, etc. are to be decontaminated prior to leaving the site to prevent the inadvertent transport of contaminated material off-site (e.g., materials tracked off-site on truck tyres etc.). If required a shaker grid should be installed at the exit point.
- Trucks and other machinery transporting material around site or working in contaminated areas should remain on contaminated material until wheels/tracks and vehicle undercarriage can be cleaned.

Note: Any contaminated soils requiring off-site disposal will need to be classified for waste disposal prior to leaving site. Contaminated soils will need to be disposed of at a landfill facility licensed to accept that waste and all disposal dockets will need to be retained. Validation sampling across the footprint from where the contaminated soils were removed will be required.

## 10.4 Noise Control

Due to the use of heavy machinery required during remediation, excess noise will be generated. To help minimise excess noise the following needs to be implemented:

- Strict adherence to hours of operation as prescribed for the site.
- Australian Standard (AS) 2436-1981 *Guide to noise control on construction, maintenance and demolition sites* outlines guidelines for the minimisation of noise on construction sites and should be implemented to minimise noise generation.

## 10.5 Maintenance of Environmental Controls

Regular inspections of the environmental controls to confirm their presence and validity should be routinely conducted by the RC, or by a suitably qualified environmental consultant if preferred. This should be undertaken on a daily basis, and more frequently if conditions require, such as rain or high winds.

## 10.6 Waste Management

The RC at all times should aim to avoid waste in the design and implementation of the project through adopting strategies of separating, reusing and recycling and minimisation waste by reducing packaging at the source by subcontractor and supplier.

Procedures on and off-site for the management of waste materials should be developed. The RC should monitor and record waste from all phases of the project.

Waste disposal of soil material is covered in **Sections 7.1.6**, and **Section 7.6**.



## 11.0 Workplace Health and Safety

This section outlines the general Workplace Health and Safety (WHS) issues pertaining to the remediation project. The steps outlined in the following sections will need to be followed during all remedial works. The WHS steps discussed in this section are general and need to be considered on a site-specific basis based on the nature of the contamination, remediation works and associated risks. We highly recommend that a site-specific workplace health and safety plan is implemented, with particular reference to the management of odour and management of the risk of inhalation of asbestos fibres.

### 11.1 Site Inductions

The RC must ensure all personnel working on the remediation project attend a Site Induction undertaken prior to entering the site for the first time. The Site Induction should include a brief outline of the remediation project, details on general site hazards (e.g., vehicle movements, heavy machinery, contamination etc.) and details on the specific hazards associated with the remediation works including but not limited to:

- Nature of the materials being handled (i.e., asbestos impacted material).
- Personal protective equipment to be utilised on-site.
- Necessary decontamination procedures to be undertaken whilst on site.

### 11.2 Personal Protective Equipment

Safety boots, high visibility vests and hard hats shall be worn by all personnel on the site as a minimum. Hearing protection devices will be worn by personnel where required. PPE is required to comply with all the requirements set out in *NSW Work Health and Safety Regulation 2017*.

When personnel are working in the designated contaminated area and are required to handle or to come into direct contact with contaminated soil then disposable gloves, long sleeves and long trousers shall be worn as a minimum requirement. Asbestos PPE in line with SafeWork requirements will be required as necessary.

Care should be taken in avoiding walking over the contaminated material and monitoring of volatile compounds should be undertaken using a PID.

If the alarm limits of the PID are exceeded then personnel should leave the work area until the odour has dissipated, or continue working with respiratory equipment, e.g., half-face or full-face respirator. Contaminated equipment, clothes and PPE are to be disposed of with contaminated waste materials at the completion of the project.

These requirements are specified as a minimum standard and may be modified at the discretion of the environmental consultant or RC during the remediation works.

### 11.3 Decontamination

At the end of each work shift (i.e., before morning tea, lunch and afternoon tea), personnel will remove their contaminated gloves and any other contaminated clothing (if required) in the remediation area. Washing of hands and face will finalise the decontamination process. Separate controls may be required if friable asbestos is encountered.



## 11.4 Hazard Assessment

A hazard assessment will be conducted on site prior to commencement of works. It will address, as a minimum, the following:

- On-site contamination hazard: the main contaminants to date are organochlorine pesticides, if odours or vapour are identified, work is to stop and the source is to be located.
- Additional hazards: other hazards associated with remediation projects include heat stress, manual handling, underground utilities, electrical hazards and plant.
- Hazard assessments should include information on the controls to be implemented by the contractor to minimise hazards associated with the works.

## 11.5 Community Health and Safety

As the site is a remediation project, only inducted personnel are to be allowed on site. The site is locked and fully fenced, there is currently no access to the general public. During works, the main gate is to be managed by a security guard at all times.

## 11.6 Site Facilities

As the site is a remediation project the following facilities need to be provided and available to the personnel on the site:

- Fresh protective coveralls will be available at all times during the remediation project to staff who require them.
- Lunchroom and bathroom facilities.

The following hygiene requirements are to be followed by all personnel working at the site:

- No eating, smoking or drinking to be conducted in the remediation area.
- Staff to wash hands and face prior to eating, smoking or drinking.

## 11.7 Emergency Procedures and Response

The responsibility for emergency procedures lies with the RC which should prepare a detailed emergency response procedure prior to works commencing.

In the event that an emergency arises, a potentially dangerous situation is encountered or suspect/unknown material is identified, site work is to cease immediately and the matter reported to the RC for immediate assessment and action.





## 12.0 Conclusions

This RAP was developed to provide a framework describing the requirements for remedial actions, validation, and workplace health and safety and environment management strategies associated with contamination identified by Senversa during previous assessments.

Subject to the suitable implementation of the measures described in this RAP, it is concluded that the risks associated with the contamination identified by Senversa can be managed such that human health and the environment are appropriately protected and the site can be made suitable for the proposed uses on this basis.

In drawing these conclusions Senversa assumes that remediation of the site impact will be successfully validated as per the adopted criteria and that any unexpected finds are managed as per **Section 9.0**.



## 13.0 Principles and Limitations

The following principles are an integral part of site contamination assessment practices and are intended to be referred to when resolving any ambiguity or exercising such discretion as is accorded the user or site assessor.

| Area                                      | Principles and Limitation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Elimination of Uncertainty</b>         | Some uncertainty is inherent in all site investigations. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population or area. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.                                                                                                                                                                                                                                                                                                                       |
| <b>Failure to Detect</b>                  | Even when site investigation work is executed competently and in accordance with the appropriate Australian guidance, such as the National Environment Protection (Assessment of Site Contamination) Amendment Measure ('the NEPM'), it must be recognised that certain conditions present especially difficult target analyte detection problems. Such conditions may include, but are not limited to, complex geological settings, unusual or generally poorly understood behaviour and fate characteristics of certain substances, complex, discontinuous, random, or heterogeneous distributions of existing target analytes, physical impediments to investigation imposed by the location of services, structures and other man-made objects, and the inherent limitations of assessment technologies. |
| <b>Limitations of Information</b>         | The effectiveness of any site investigation may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and assessor to obtain such information.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Chemical Analysis Error</b>            | Chemical testing methods have inherent uncertainties and limitations. Senversa routinely seeks to require the laboratory to report any potential or actual problems experienced, or non-routine events which may have occurred during the testing, so that such problems can be considered in evaluating the data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Level of Assessment</b>                | The investigation herein should not be considered to be an exhaustive assessment of environmental conditions on a property. There is a point at which the effort required to obtain information is outweighed by the time required to obtain that information, and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment.                                                                                                                                                |
| <b>Comparison with Subsequent Inquiry</b> | The justification and adequacy of the findings of this investigation in light of the findings of a subsequent inquiry should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Data Useability</b>                    | Investigation data generally only represent the site conditions at the time the data were generated. Therefore, the usability of data collected as part of this investigation may have a finite lifetime depending on the application and use being made of the data. In all respects, a future reader of this report should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which they were collected, or are otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.                                                                                                                                                                                                                             |
| <b>Nature of Advice</b>                   | The investigation works herein are intended to develop and present sound, scientifically valid data concerning actual site conditions. Senversa does not seek or purport to provide legal or business advice.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



## 14.0 References

*Contaminated Land Management Act 1997 (CLM Act).*

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Douglas Partners Pty Ltd (March 2023) *Report on Preliminary Geotechnical Investigation Proposed Data Centre, 1-2 Apollo Place, Lane Cove West*

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National Environment Protection Council (2013). *National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1).*

NSW EPA (2022a). *Sampling Design Part 1 - Application. NSW EPA*

NSW EPA (2022b). *Sampling Design Part 2 - Interpretation. NSW EPA*

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





## Figures

Figure 1: Site Location Plan

Figure 2: Remedial Areas







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**Legend**

- Lot Boundary
- Site Boundary

Created: E. Marha  
Reviewed: N. Lukeman  
Approved: N. Lukeman  
File: S21048\_005\_F001\_Site Location

Date: 20/06/2024  
Revision: 0  
Scale: 1:1300 (A3)

0 10 20 30 40 50 m

Aerial Imagery © Metromap

Coordinate System: GDA2020 / MGA zone 56

**Figure No:** 1

**Title:** Site Location

Project: Remedial Action Plan

Location: 1 & 2 Apollo Place, Lane Cove West. NSW

Client: EMKC3





**Legend**

- Groundwater Well
- Soil Bore
- Unassessed Area
- OCP Area (Douglas Partners, 2023)

- Lot Boundary
- Site Boundary

Aerial Imagery © Metromap

|                                                                                            |                                |           |            |
|--------------------------------------------------------------------------------------------|--------------------------------|-----------|------------|
| Created:                                                                                   | E. Marha                       | Date:     | 20/06/2024 |
| Reviewed:                                                                                  | N. Lukeman                     | Revision: | 0          |
| Approved:                                                                                  | N. Lukeman                     | Scale:    | 1:500 (A3) |
| File:                                                                                      | S21048_005_F002 Remedial Areas |           |            |
| <div><div></div><div>0102030 m</div></div> <p>Coordinate System: GDA2020 / MGA zone 56</p> |                                |           |            |

|                   |                                         |
|-------------------|-----------------------------------------|
| <b>Figure No:</b> | <b>2</b>                                |
| <b>Title:</b>     | <b>Remedial Areas</b>                   |
| Project:          | Remedial Action Plan                    |
| Location:         | 1 & 2 Apollo Place, Lane Cove West. NSW |
| Client:           | EMKC3                                   |



# Senversa Pty Ltd

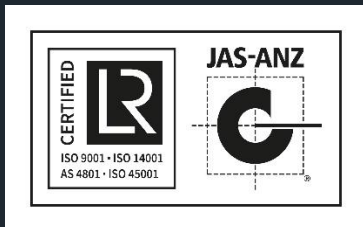
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