Permanent Stockpile 105, 43B Luddenham Road, Orchard Hills

Audit Number: MP181_14B

6 May 2025

Site Audit Report

Document Information

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Audit Number: MP181_14-B

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Contents

Tables in Text

Appendices

List of Acronyms

Acronym	Definition
Measures	
%	per cent
km	Kilometres
m	Metre
mbgl	Metres below ground level
mg/kg	Milligrams per Kilogram
mm	Millimetre
m^2	Metres squared
m^3	Cubic metres
General	
ACL	Added Contaminant Limit
ACM	Asbestos Containing Material
AEC	Areas of Environmental Concern
AF	Asbestos Fines
ALS	Australian Laboratory Services
AMP	Asbestos Management Plan
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
BaP	Benzo(a)pyrene
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes & Naphthalene
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
Council	Penrith City Council
CPBUI JV	CPB Contractors Pty Ltd and United Infrastructure Pty Ltd Joint Venture
CSM	Conceptual Site Model
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
EIL	Ecological Investigation Level
ENM	Excavated Natural Material
Envirolab	Envirolab Services Pty Ltd
EPA	Environment Protection Authority (NSW)
ESL	Ecological Screening Level
FA	Fibrous Asbestos
HIL	Health Investigation Level
HSL	Health Screening Level
LTEMP	Long-Term Environmental Management Plan
Mercury	Inorganic mercury unless noted otherwise
Metals	As: Arsenic, Cd: Cadmium, Cr: Chromium, Cu: Copper, Ni: Nickel, Pb: Lead, Zn: Zinc, Hg: Mercury
ML	Management Limits
NATA	National Association of Testing Authorities
NEPC	National Environmental Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NL	Non-Limiting

Acronym	Definition
n	Number of Samples
OCPs	Organochlorine Pesticides
PACM	Potential Asbestos Containing Material
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PID	Photoionisation Detector
PQL	Practical Quantitation Limit
PS105	Permanent Stockpile 105
QA/QC	Quality Assurance/Quality Control
RAP	Remediation Action Plan
RPD	Relative Percent Difference
SAR	Site Audit Report
SAS	Site Audit Statement
SCAW	Surface & Civil Alignment Works
SMWSA	Sydney Metro – Western Sydney Airport
Sydney Environmental	Sydney Environmental Group Pty Ltd
TPHs	Total Petroleum Hydrocarbons
TRHs	Total Recoverable Hydrocarbons
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
-	On tables is "not calculated", "no criteria" or "not applicable"

1.0 Introduction

A site contamination audit has been conducted in relation to the site known as 'Permanent Stockpile 105' or 'PS105' at 43B Luddenham Street, Orchard Hills ('the site'). The site is part of the Surface & Civil Alignment Works (SCAW) for the Sydney Metro – Western Sydney Airport (SMWSA) rail line that will extend approximately 23 kilometres (km) from St Marys to the Western Sydney Aerotropolis.

Site audits have been conducted for a variety of sites referred to by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd Joint Venture (CPBUI JV) as Areas of Environmental Concern (AECs) along the SCAW corridor. At some of these AECs, asbestos contaminated soil required remediation through excavation and removal from the AEC. PS105, that had been established within the SCAW project area to accommodate uncontaminated surplus material deemed geotechnically unsuitable from within the alignment, was then earmarked to accept and encapsulate asbestos contaminated material sourced from those AECs.

The audit was conducted to provide an independent review by an EPA Accredited Auditor of the whether the land is suitable for any specified use or range of uses i.e. a "Site Audit" as defined in Section 4 (1) (b) (iii) of the NSW Contaminated Land Management Act 1997 (the CLM Act).

Development consent (SSI 10051, issued on 23 July 2021) was granted by the Minister for Planning and Public Spaces for construction and operation of a railway track to the Western Sydney Airport. The consent was subject to a number of requirements of which condition (E96) relates to contamination and requires a Section A Site Audit Statement (SAS) as follows:

> *E96 A Section A1 or Section A2 Site Audit Statement (accompanied by an Environmental Management Plan) and its accompanying Site Audit Report, which state that the contaminated land disturbed by the work has been made suitable for the intended land use, must be submitted to the Planning Secretary and the Relevant Council(s) after remediation and before the commencement of operation of the CSSI.*

The audit was initiated to comply with conditions E96 of the Conditions of Approval and is therefore a statutory audit. Notification of the site audit (MP181) was forwarded to the EPA on 14 July 2022 (EPA Ref: DOC22/613393).

Details of the audit are:

Requested by:	Simon Williams on behalf of CPBUI JV
Request/Commencement Date:	17 June 2022
Auditor:	Melissa Porter
Accreditation No.:	0803

The scope of the audit included:

- Review of the following reports:
  - 'Site Validation Report, SCAW PS105, Luddenham Road, Orchard Hills NSW', 21 March 2025 by Sydney Environmental Group Pty Ltd (2025a).
  - 'Site Validation Report, SCAW PS105, Luddenham Road, Orchard Hills NSW', 14 April 2025 by Sydney Environmental Group Pty Ltd (Validation Report) (2025b).
  - 'Long-term Environmental Management Plan, PS105, Luddenham Road, Orchard Hills NSW' dated 14 April 2025 by Sydney Environmental (LTEMP) (2025c).
- A site visit by the auditor on 8 November 2023, 17 July 2024 and 18 March 2025.
- Discussions with CPBUI JV.

- The previous audit (SAS MP181_14) included review of the following reports:
  - Sydney Metro Western Sydney Airport Surface and Civil Alignment Works (SCAW), Asbestos Management Plan', 19 May 2023, Tetra Tech Coffey Pty Ltd (Coffey) (AMP).
  - 'Remediation Action Plan For Encapsulation of Contamination Soil', 22 December 2023, Douglas Partners Pty Ltd (Douglas Partners) (RAP).
  - Section A SAS's (MP181_5C, MP181_12B, MP181_10B), that considered the remediation and validation activities associated with those AECs, were issued.
  - A Section B SAS (MP181_14) was issued for PS105 which concluded that the remediation plan was appropriate to render the site suitable for the proposed development. This Site Audit Report (SAR) refers to PS105 and the validation activities undertaken for the asbestos contaminated material sourced from the AECs.

Several Interim Audit Advice letters have been issued following review of the Validation Report and LTEMP which are attached in **Appendix C**.

2.0 Site Details

2.1 Site Identification

The site locality is shown on **Attachment 1, Appendix A**.

The site details are as follows:

Street address:	43B Luddenham Road, Orchard Hills, NSW 2748
Identifier:	Part Lot 51 Deposited Plan (DP) 1276956
Local Government:	Penrith City Council
Site Area:	Approximately 4.5 hectares
Zoning	RE1 Public Recreation (to the east) and RU2 Rural Landscape (to the west)

The boundaries of the site are not well defined by streets or adjoining properties. A survey plan of the site has been provided (**Attachment 2, Appendix A**).

The site is located in an area of mixed rural and residential land use to the north and west, and activities associated with SCAW to the east and south. Luddenham Road is present to the east, as well as South Creek to the north and east, and Blaxland Creek to the north.

2.2 Current and Proposed Development

A railway corridor is being constructed for the SMWSA line which includes approximately 10 km of railway track from Orchard Hills to the Western Sydney Airport, embankments/noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor.

PS105 is to be developed as a permanent stockpile / 'vegetated landform' and will be maintained under the Corridor Landscape Work package for SMWSA. PS105 is to be fenced and not publicly accessible.

The total size of PS105 (including asbestos and capping material) can be up to 300,000 m^3 but final design is approximately less than 80,000 m^3. As the volume of contaminated material is less than 30,000 m^3 which does not make it a scheduled activity under the POEO Act (1997). The majority of the volume of PS105 is to be material that is surplus to construction and not contaminated.

The surface design of PS105 is as a natural shape that fits in with the surrounding landscape, batter slopes of less than or equal to 3:1 (horizontal: vertical), a minimum of 400 mm of topsoil and placement of seeds/vegetation, site-won rocks, excavated logs and woody debris. Note that the auditor was not engaged to confirm completion of the key design parameters i.e., batter slopes and that the audit is limited to confirmation of cap and containment of asbestos impacted material within PS105.

For the purposes of this audit, criteria from 'recreational/public open space' and 'commercial/industrial' land use scenario will be assumed.

3.0 Environmental Quality Criteria

The auditor has assessed the validation results against Tier 1 criteria from National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure 1999, as Amended 2013 (NEPM, 2013). Based on a proposed land use of a 'vegetated landform', the criteria for 'recreational/public open space' land use has been referred to.

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

- Human Health Assessment:
  - Health Based Investigation Levels (HIL C/D).
  - Soil Health Screening Levels (HSL C/D) for Vapour Intrusion. The most conservative criteria were adopted i.e., assumed depth to source < 1 m and sand.
  - CRC CARE (2011) Direct Contact (HSL C/D and intrusive maintenance worker).
  - Asbestos Health Screening Levels (HSL C/D).
- Ecological Assessment
  - Ecological Screening Levels (ESL urban residential and public open space and commercial/industrial) assuming coarse soil.
- Management Limits (ML residential, parkland and public open space, and commercial/industrial) assuming fine soil.
- Aesthetics:
  - The auditor has considered the need for remediation based on the 'aesthetic' contamination as outlined in the NEPM (2013).

4.0 Assessment of Contamination

4.1 Site Condition

Prior to development of PS105, Douglas Partners (2023) summarised the site condition as follows:

- The site is currently being used for temporary stockpiling of soil from SCAW.
- Aerial photography from 1955 to 2022 indicates that the site was generally vacant and used for grazing, with some fencing, dams, unsealed roads and a horse training track present.
- No surface water bodies are present on-site. The nearest surface water bodies include a farm dam 70 m to the southeast, Badgerys Creek 500 m to the west, and South Creek 600 m to the east. Surface water across the site is expected to flow to the north and northeast towards South Creek.
- Groundwater is expected to flow to the north or northeast towards South Creek.
- There are no registered groundwater bores within 500 m of the site.
- The site generally slopes down to the north and northeast.

The auditor visited the site on 8 November 2023 and a summary of site observations are provided below:

- PS105 was undergoing construction and material was being placed in a horseshoe shape, leaving space for the asbestos cell.
- The material appeared to comprise of natural clayey material.

The auditor visited the site on 18 March 2025 and a summary of site observations are provided below:

- PS105 was constructed and appeared to be a landform approximately 10-15 m above natural ground level. The top of PS105 appeared flat.
- Grass-like vegetation covered the entire mound. Some logs and rocks were present on the top.

4.2 Previous Environmental Investigations

As part of the previous audit (SAS MP181_14), the following documents were reviewed:

- ‘Sydney Metro Western Sydney Airport Surface and Civil Alignment Works (SCAW), Asbestos Management Plan’, 19 May 2023, Tetra Tech Coffey Pty Ltd (AMP).
- ‘Remediation Action Plan For Encapsulation of Contamination Soil’, 22 December 2023, Douglas Partners Pty Ltd (Douglas Partners) (RAP).

A summary of previous environmental investigations were provided in the previous audit which found that the site had historically been used for grazing, and the consultant considered that *‘there were no potential point sources of contamination at the site or in close proximity to the site.’*

In consideration of this, the auditor concluded (SAS MP181_14) that no further investigations were required to characterise the underlying natural material at the site onto which the large stockpile will be placed, and that the site can be made suitable if the site is remediated in accordance with the RAP.

4.3 Sources of Asbestos Impacted Material

Environmental investigations as well as site audits have been conducted for a variety of sites referred to by as AECs within the SCAW corridor. Asbestos contaminated soil was identified at some of these AECs, as well as encountered as unexpected finds during construction, which required remediation through excavation and removal. The site had been established within the SCAW project area to accommodate uncontaminated surplus material deemed geotechnically unsuitable from within the alignment, and was earmarked to accept and encapsulate asbestos contaminated material sourced from those AECs and subsequent unexpected finds.

The material was removed from the source sites and stored at a temporary stockpiling area located off-site but within the SCAW alignment. The material was further assessed for suitability for encapsulation within PS105, and when confirmed, the material was relocated to PS105 and placed in the asbestos cell for containment.

Separate Section A site audit statements have been conducted for the individual AECs following remediation and removal of impacted material which confirmed the sites were suitable for the proposed land use. This audit relates only to PS105 including the assessment of the material sourced from the AECs and unexpected finds for encapsulation, and validation of PS105. This section outlines the assessment of material for encapsulation.

4.3.1 Evaluation of Quality Assurance and Quality Control

The auditor has assessed the overall quality of the data by review of the information presented in the referenced reports, supplemented by field observations. The auditor's assessment follows in **Table 4.1** and **Table 4.2**.

Table 4.1: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Data Quality Objectives (DQOs) The RAP defined specific DQOs in accordance with the seven step process outlined in EPA (2017) Guidelines for the NSW Site Auditor Scheme.	These were considered appropriate for the investigations conducted.
Sampling pattern, locations, density, depths and collection method The material was removed from the source sites and stockpiled at a temporary stockpiling area. Samples were collected from stockpiled material at frequencies in accordance with the RAP of for stockpiles less than 200 m³, one sample per 25 m^3, or for stockpiles greater than 200 m^3, minimum of 10 samples, in accordance with the NSW EPA (2022) Sampling Design Guidelines. The main contaminants of concern were based on the source location and historical land use, but were typically petroleum hydrocarbons, metals, organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), and asbestos. The sample densities were not doubled for asbestos as the material was already determined to contain asbestos, which is the reason for encapsulation. The samples were collected between 0.3 and 0.5 m into the stockpiles. Sample collection was by hand using hand tools.	Acceptable.
Decontamination procedures Sydney Environmental stated that new gloves were used for each new sample. Decontamination of hand tools was not reported.	In the context of the investigation of which the purpose was to characterise the material to be encapsulated, it is not considered significant that the hand tools used for sampling were not stated as being decontaminated.

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Sample handling and containers Samples were placed into prepared and preserved sampling containers provided by the laboratory and chilled during storage and subsequent transport to the labs. Most samples for asbestos analysis were placed in plastic zip-lock bags, one batch analysed asbestos from 250 ml jars. Several batches were received at elevated temperatures with no reasoning provided.	The asbestos sample analysed from the jar is not considered significant as the material is known to contain asbestos. The elevated temperatures reported for several batches is not considered significant as most batches were received within one or two days of sampling, and some batches contained trip spike samples which reported acceptable results. Overall, the sample handling and containers are acceptable.
Chain of Custody (COC) Several COC forms were not provided for each batch in the report.	In the context of the investigation, which was to characterise material to be encapsulated, the lack of COCs is not considered significant..
Detailed description of field screening protocols Field screening for volatiles was not undertaken using a photoionisation detector (PID). The consultant stated that no PID was warranted as no visual evidence of the presence of volatile organic compounds were observed.	Overall, this is not considered significant as the material is to be encapsulated.
Sampling logs A sample register was not provided. The lithology of the samples were described in the report text.	Overall, this is not considered significant as the material is to be encapsulated.

Table 4.2: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
Field quality control samples Field quality control samples including trip blanks, trip spikes, field intra-laboratory and inter-laboratory duplicates were generally undertaken. No rinsate blanks were collected.	In the context of the data set, and considering the field QC samples that were collected, this is considered adequate.
Field quality control results The results of field quality control samples were within appropriate limits.	Acceptable.
NATA registered laboratory and NATA endorsed methods Laboratories used included: ALS and Eurofins | mgt. Laboratory certificates were NATA stamped.	Acceptable.
Analytical methods Analytical methods were included in the laboratory test certificates. Eurofins provided brief method summaries of in-house NATA accredited methods used based on USEPA and/or APHA methods (excluding asbestos) for extraction and analysis in accordance with the NEPM (2013). Asbestos identification was conducted by Eurofins using polarised light microscopy with dispersion staining by method AS4964-2004 Method for the Qualitative Identification of Asbestos Bulk Samples.	The analytical methods are considered acceptable for the purposes of the site audit, noting that the AS4964-2004 is currently the only available method in Australia for analysing asbestos. DOH (2009) and enHealth (2005) state that "until an alternative analytical technique is developed and validated the AS4964-2004 is recommended for use".
Holding times Review of the COCs and laboratory certificates indicate that the holding times had been met.	Acceptable.

Field and Lab QA/QC	Auditor's Opinion
Practical Quantitation Limits (PQLs) PQLs were less than the threshold criteria for the contaminants of concern.	Acceptable.
Laboratory quality control samples Laboratory quality control samples including laboratory control samples, matrix spikes, surrogate spikes, blanks, internal standards and duplicates were undertaken by the laboratory.	Acceptable.
Laboratory quality control results The results of laboratory quality control samples were generally within appropriate limits, with the following exceptions: Some Relative Percent Difference (RPDs) for laboratory duplicates for total recoverable hydrocarbons (TRH) and metals were outside of control limits. The laboratory reported that the RPDs passed their internal QC review.	In the context of the dataset reported, the elevated RPD is not considered significant and the laboratory quality control results are acceptable.
Data Quality Indicators (DQI) and Data Evaluation (completeness, comparability, representativeness, precision, accuracy) Predetermined data quality indicators (DQIs) were set for laboratory analyses including blanks, replicates, duplicates, laboratory control samples, matrix spikes, surrogate spikes and internal standards. These were discussed with regard to the five category areas. There was limited discussion regarding actions required if data do not meet the expected objectives.	An assessment of the data quality with respect to the five category areas has been undertaken by the auditor and is summarised below.

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

- While data is likely to be representative of the material to be encapsulated, limited information was provided by Sydney Environmental to support this. No sample registers were provided and decontamination procedures for hand tools weren't outlined.
- The data is mostly complete; however, limited chain of custody certificates were provided for each laboratory batch.
- There data is likely comparable.
- The primary laboratory provided sufficient information to conclude that data is of sufficient precision.
- While most of the data is likely to be accurate, there is some doubt regarding possible loss of volatiles as well as cross-contamination. In terms of loss of volatiles, this is because trip spikes were not included in every laboratory batch, some COCs weren't provided, and some samples were received at an elevated temperature by the laboratory. For cross-contamination, trip blanks were not included in every laboratory batch, no rinsate blank samples were collected and no description of decontamination methods used for hand tools was provided.

4.3.2 AEC 35

The material sourced from AEC 35 to be placed within PS105 was characterised by Sydney Environmental following excavation. Approximately 475 m^3 of material was removed from AEC 35 and placed in three stockpiles at a temporary stockpiling area. All stockpiles were described as fill material comprising of silty clay, with foreign materials present including gravels, plastics, metals, glass, and potential asbestos containing material (PACM).

Sydney Environmental collected 3 or 4 samples from each stockpile and submitted them for laboratory analysis. The stockpile area and sample locations are presented on **Attachments 3 and 4, Appendix A**. A summary of the analytical results are present in the table below.

Table 4.3: Evaluation of Analytical Results for AEC35 – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	10	10	24	0 above HIL C of 600 mg/kg	0 above Generic added contaminant limit (ACL) (public open space) of 1,100 mg/kg
Benzene	10	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	10	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	10	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	10	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (total petroleum hydrocarbons (TPH) C6–C10 minus BTEX)	10	0	<20	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	10	0	<50	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	10	0	<100	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	10	0	<100	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	10	0	<0.5	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	10	0	<0.5	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	10	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	10	0	<0.5	0 above HIL C of 300 mg/kg	-
Total OCP	10	0	<0.1	0 above HIL C	-
Total PCB	10	0	<0.1	0 above HIL C of 1 mg/kg	-
Arsenic	10	10	26	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	10	0	<0.4	0 above HIL C of 90 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Chromium	10	10	42	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	10	10	24	0 above HIL C of 17,000 mg/kg	0 above most conservative ACL (public open space) of 60 mg/kg
Mercury	10	0	<0.1	0 above HIL C of 80 mg/kg	-
Nickel	10	6	8.4	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	10	10	37	0 above HIL C of 30,000 mg/kg	0 above most conservative ACL (public open space) of 70 mg/kg
Asbestos (AF/FA)	11	0	NAD	0 above HSL C of 0.001% w/w	-
Asbestos (ACM)	11	3	**0.03**	**1 above HSL C of 0.02% w/w**	-

n	number of samples
-	No criteria available/used
NL	Non-limiting
AD	Asbestos detected
NAD	No asbestos detected
AF	Asbestos Fibres
FA	Fibrous Asbestos
BaP	Benzo(a)pyrene
BTEX	Benzene, toluene, ethylbenzene, xylene
PAH	Polycyclic aromatic hydrocarbons

The material is characterised by low level detections of metals that are below the adopted criteria, and petroleum hydrocarbons, PAHs, OCPs and PCBs all reported below detection limits. Asbestos containing material (ACM) was detected in the material above the adopted criteria. Sydney Environmental considered that the material was suitable for encapsulation in PS105.

4.3.3 AEC 36

The material sourced from AEC 36 to be placed within PS105 was characterised by Sydney Environmental following excavation. Approximately 675 m^3 of material was removed from AEC 36 and placed in nine stockpiles at the temporary stockpiling area. All stockpiles were described as fill material comprising of silty clay, with foreign materials present including gravels, plastics, and potential ACM.

Sydney Environmental collected three or four samples from each stockpile and submitted them for laboratory analysis. The stockpile area and sample locations for some of the stockpiles are presented on **Attachments 5 and 6, Appendix A**. It is noted that a figure showing locations for seven samples was not provided, however, this is not considered significant. A summary of the analytical results are present in the table below.

Table 4.4: Evaluation of Analytical Results for AEC36 – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	28	28	55	0 above HIL C of 600 mg/kg	0 above Generic ACL (public open space) of 1,100 mg/kg
Benzene	28	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	28	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	28	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	28	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (TPH C6–C10 minus BTEX)	28	0	<20	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	28	0	<50	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	28	0	<100	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	28	0	<100	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	28	0	<0.5	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	28	0	<0.5	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	28	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	28	0	<0.5	0 above HIL C of 300 mg/kg	-
Total OCP	28	0	<0.1	0 above HIL C	-
Total PCB	28	0	<0.1	0 above HIL C of 1 mg/kg	-
Arsenic	28	28	33	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	28	0	<0.4	0 above HIL C of 90 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Chromium	28	28	150	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	28	28	45	0 above HIL C of 17,000 mg/kg	0 above most conservative ACL (public open space) of 60 mg/kg
Mercury	28	0	<0.1	0 above HIL C of 80 mg/kg	-
Nickel	28	27	14	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	28	28	180	0 above HIL C of 30,000 mg/kg	0 above most conservative ACL (public open space) of 70 mg/kg
Asbestos (AF/FA)	21	3	**0.032**	**2 above HSL C of 0.001% w/w**	-
Asbestos (ACM)	27	9	**AD**	**3 above HSL C of 0.02%**	-
Asbestos fragments	6	6	**AD**	**6 above AD**	-

n Number of samples
- No criteria available/used
NL Non-limiting
AD Asbestos detected

The material is characterised by low level detections of metals that are below the adopted criteria, and petroleum hydrocarbons, PAHs, OCPs and PCBs all reported below detection limits. ACM in both friable and bonded forms were detected in the material above the adopted criteria. Sydney Environmental considered that the material was suitable for encapsulation in PS105.

4.3.4 AEC 43

The material sourced from AEC 43 to be placed within PS105 was characterised by Sydney Environmental following excavation. Approximately 1,540 m^3 of material was removed from AEC 43 and placed in 21 stockpiles at the temporary stockpiling area. Stockpiles were described as fill material comprising of silty clay, with foreign materials present including brick, terracotta, PVC pipe, concrete, metal, plastic and potential ACM.

Sydney Environmental collected 3 or 4 samples from each stockpile and submitted them for laboratory analysis. The stockpile area and sample locations are presented on **Attachments 7 and 8, Appendix A**. A summary of the analytical results are present in the table below.

Table 4.5: Evaluation of Analytical Results for AEC43 – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	60	60	130	0 above HIL C of 600 mg/kg	0 above Generic ACL (public open space) of 1,100 mg/kg
Benzene	60	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	60	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	60	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	60	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (TPH C6–C10 minus BTEX)	60	0	<20	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	60	0	<50	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	60	18	490	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	60	3	200	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	60	0	<0.5	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	60	0	<0.5	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	60	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	60	0	<0.5	0 above HIL C of 300 mg/kg	-
Total OCP	60	0	<0.1	0 above HIL C	-
Total PCB	60	0	<0.1	0 above HIL C of 1 mg/kg	-
Arsenic	60	60	15	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	60	3	0.6	0 above HIL C of 90 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Chromium	60	60	89	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	60	60	**89**	0 above HIL C of 17,000 mg/kg	**10 above most conservative ACL (public open space) of 60 mg/kg**
Mercury	60	0	<0.1	0 above HIL C of 80 mg/kg	-
Nickel	60	59	26	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	60	60	**880**	0 above HIL C of 30,000 mg/kg	**43 above most conservative ACL (public open space) of 70 mg/kg**
Asbestos (AF/FA)	33	0	<0.001	0 above HSL C of 0.001% w/w	-
Asbestos (ACM)	33	1	0.015	0 above HSL C of 0.02%	-
Asbestos fragments	2	2	**AD**	**0 above AD**	-

n Number of samples
- No criteria available/used
NL Non-limiting

The material is characterised by some elevated concentrations of metals including copper and zinc above ecological criteria, low level detections of other metals that are below adopted criteria, and petroleum hydrocarbons, PAHs, OCPs and PCBs all reported below detection limits. ACM in both friable and bonded forms were detected in the material above the adopted criteria.

It is noted that concentrations of copper and zinc were reported above ecological criteria and no further leach testing was conducted, and consideration to leachability of the material was a requirement of the RAP. As the material is to be placed within the asbestos cell in PS105, the potential for leaching is minimal as the cell does not intersect groundwater, and the material is located more than 2 m below surface level. This is not considered to warrant further assessment.

Sydney Environmental considered that the material was suitable for encapsulation in PS105.

4.3.5 Unexpected Finds

During construction, unexpected finds were encountered during excavation and managed as per the AMP (Coffey, 2023). The details of the unexpected finds and assessment of suitability for encapsulation are provided in the below sections.

4.3.5.1 Blaxlands Creek

During excavation of the drainage line, soil was observed to be impacted by anthropogenic material including PACM. Approximately 50 m^3 of material was removed and placed in one stockpile at the temporary stockpiling area. The material was described as fill comprising silty clay with foreign material including PACM and brick.

Sydney Environmental collected 3 samples and submitted them for laboratory analysis. The stockpile area and sample locations are presented on **Attachment 9, Appendix A**. A summary of the analytical results are present in the table below.

Table 4.6: Evaluation of Validation Analytical Results for Material from Blaxlands Creek – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	3	3	34	0 above HIL C of 600 mg/kg	0 above Generic ACL (public open space) of 1,100 mg/kg
Benzene	3	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	3	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	3	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	3	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (TPH C6–C10 minus BTEX)	3	0	<20	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	3	0	<50	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	3	0	<100	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	3	0	<100	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	3	0	<0.5	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	3	0	<0.5	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	3	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	3	0	<0.5	0 above HIL C of 300 mg/kg	-
Total OCP	3	1	0.37	0 above HIL C	-
Total PCB	3	0	<0.1	0 above HIL C of 1 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Arsenic	3	3	15	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	3	0	<0.4	0 above HIL C of 90 mg/kg	-
Chromium	3	2	44	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	3	3	32	0 above HIL C of 17,000 mg/kg	0 above most conservative ACL (public open space) of 60 mg/kg
Mercury	3	0	<0.1	0 above HIL C of 80 mg/kg	-
Nickel	3	3	15	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	3	3	51	0 above HIL C of 30,000 mg/kg	0 above most conservative ACL (public open space) of 70 mg/kg
Asbestos (AF/FA)	3	0	<0.001	0 above HSL C of 0.001% w/w	-
Asbestos (ACM)	3	0	<0.01	0 above HSL C of 0.02% w/w	-
Asbestos fragment	1	1	**AD**	**0 above AD**	-

n Number of samples
- No criteria available/used
NL Non-limiting

The material is characterised by low level detections of metals that are below adopted criteria, and petroleum hydrocarbons, PAHs, OCPs and PCBs all reported below detection limits. An asbestos fragment was observed in the material and submitted for laboratory analysis which confirmed the presence of asbestos. Sydney Environmental considered that the material was suitable for encapsulation in PS105.

4.3.5.2 Elizabeth Drive

During early establishment works for the Elizabeth Drive compound, soil was observed to be impacted by anthropogenic material including PACM and building waste. Approximately 550 m^3 of material was removed and placed in the temporary stockpiling area. The material was described as fill comprising of silty clay with foreign materials including PACM and brick.

Sydney Environmental collected 10 samples from the stockpile and submitted them for laboratory analysis. The stockpile area and sample locations are presented on **Attachments 10 and 11, Appendix A**. A summary of the analytical results are present in the table below.

Table 4.7: Evaluation of Analytical Results for Material from Elizabeth Drive – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	10	10	23	0 above HIL C of 600 mg/kg	0 above Generic ACL (public open space) of 1,100 mg/kg
Benzene	10	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	10	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	10	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	10	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (TPH C6–C10 minus BTEX)	10	0	<PQL	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	10	0	<PQL	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	10	0	<PQL	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	10	0	<PQL	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	10	0	<PQL	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	10	0	<PQL	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	10	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	10	0	<PQL	0 above HIL C of 300 mg/kg	-
Total OCP	10	0	<PQL	0 above HIL C	-
Total PCB	10	0	<PQL	0 above HIL C of 1 mg/kg	-
Arsenic	10	10	29	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	10	0	<0.4	0 above HIL C of 90 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Chromium	10	10	26	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	10	10	43	0 above HIL C of 17,000 mg/kg	0 above most conservative ACL (public open space) of 60 mg/kg
Mercury	10	0	<PQL	0 above HIL C of 80 mg/kg	-
Nickel	10	10	19	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	10	10	65	0 above HIL C of 30,000 mg/kg	0 above most conservative ACL (public open space) of 70 mg/kg
Asbestos (AF/FA)	10	0	<0.001	0 above HSL C of 0.001% w/w	-
Asbestos (ACM)	10	2	**0.025%**	**1 above HSL C of 0.02% w/w**	-
Asbestos fragments	1	1	**AD**	**0 above AD**	-

n Number of samples
- No criteria available/used
NL Non-limiting

The material is characterised by low level detections of metals that are below adopted criteria, and petroleum hydrocarbons, PAHs, OCPs and PCBs all reported below detection limits. Bonded asbestos was detected above the adopted criteria. Sydney Environmental considered that the material was suitable for encapsulation in PS105.

4.3.5.3 SMF Drainage Line

During excavation of the drainage line, soil was observed to be impacted by anthropogenic material including PACM. Approximately 75 m^3 of material was removed and placed in the temporary stockpiling area. The material was described as fill comprising of silty clay with foreign material including cement, glass, brick, plastic and PACM.

Sydney Environmental collected 3 samples and submitted them for laboratory analysis. The stockpile area and sample locations are presented on **Attachments 12 and 13, Appendix A**. A summary of the analytical results are present in the table below.

Table 4.8: Evaluation of Analytical Results for Material from the Drainage Line – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	3	3	22	0 above HIL C of 600 mg/kg	0 above Generic ACL (public open space) of 1,100 mg/kg
Benzene	3	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	3	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	3	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	3	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (TPH C6–C10 minus BTEX)	3	0	<20	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	3	0	<50	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	3	0	<100	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	3	0	<100	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	3	0	<0.5	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	3	0	<0.5	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	3	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	3	0	<0.5	0 above HIL C of 300 mg/kg	-
Total OCP	3	1	0.37	0 above HIL C	-
Total PCB	3	0	<0.1	0 above HIL C of 1 mg/kg	-
Arsenic	3	3	16	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	3	0	<0.4	0 above HIL C of 90 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Chromium	3	3	18	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	3	3	28	0 above HIL C of 17,000 mg/kg	0 above most conservative ACL (public open space) of 60 mg/kg
Mercury	3	0	<0.1	0 above HIL C of 80 mg/kg	-
Nickel	3	3	8.4	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	3	3	45	0 above HIL C of 30,000 mg/kg	0 above most conservative ACL (public open space) of 70 mg/kg
Asbestos (AF/FA)	3	0	<0.001	0 above HSL C of 0.001% w/w	-
Asbestos (ACM)	3	0	<0.01	0 above HSL C of 0.02% w/w	
Asbestos fragments	1	1	**AD**	**0 above AD**	-

n Number of samples
- No criteria available/used
NL Non-limiting

The material is characterised by low level detections of metals that are below adopted criteria, and petroleum hydrocarbons, PAHs, OCPs and PCBs all reported below detection limits. An asbestos fragment was observed in the material and submitted for laboratory analysis which confirmed the presence of asbestos. Sydney Environmental considered that the material was suitable for encapsulation in PS105.

5.0 Evaluation of Conceptual Site Model

A conceptual site model (CSM) is a representation of the source, pathway and receptor linkages at a site. Douglas Partners developed a CSM and used it iteratively throughout the site assessment to inform decisions around investigation and remediation. The CSM has been updated following remediation and validation by Sydney Environmental. The updated CSM is summarised in **Table 5.1** below, alongside the auditors review to conclude on site suitability.

Table 5.1: Review of the CSM

Element of CSM	Consultant (Douglas Partners and Sydney Environmental)	Auditor Opinion
Contaminant source and mechanism	Material to be encapsulated at PS105 that is contaminated with asbestos and possible other chemical contaminants.	Appropriate.
Affected media	Soil.	Appropriate.
Receptor identification	Construction workers. Future maintenance workers. Future site users. Adjacent site users. Surface water bodies. Groundwater. Terrestrial ecosystems.	Appropriate.
Exposure pathways	Douglas Partners considered the exposure pathways were ingestion, inhalation of vapours, inhalation of dust, direct contact, surface water runoff and leaching of contaminants into groundwater. Following remediation and validation, Sydney Environmental consider that no complete pathways are present.	Appropriate.

6.0 Evaluation of Remediation

6.1 Remediation Required

Based on the investigations undertaken by Douglas Partners within SCAW, asbestos has been identified as a contaminant of concern in AECs along the alignment that require remediation. Separate Section B and Section A SAS's have been issued which considered the specific remediation and validation details for those AECs. The remediation at those sites involved the removal of ACM for placement by cap and contain at PS105. A RAP was prepared for the site, and the remediation and validation works have been summarised in **Table 6.1** below.

The auditor assessed the RAP by comparison with the checklist included in NSW EPA (2020) *Consultants Reporting on Contaminated Land Contaminated Land Guidelines*. The RAP was found to address the required information.

Remediation was undertaken by Spot-On Asbestos Removal Pty Ltd with environmental consulting provided by Sydney Environmental between 16 June 2023 and 19 June 2023.

Table 6.1: Remediation Undertaken

Description	Extent of Remediation	Remediation Undertaken
Material from AECs and unexpected finds for placement within cell	Parts of AECs 35, 36 and 43	Material was excavated and removed and temporarily stored at the temporary stockpiling area. The material was further assessed to determine suitability for placement within PS105 with results discussed in Section 0. The material was then placed within PS105.
Cap and contain of the asbestos cell	Cell within PS105	Placement of an orange geofabric marker layer and SCAW-sourced and imported material above the asbestos cell.

In the auditor's opinion, remediation works undertaken were appropriate and in accordance with the RAP. Validation results and testing for the capping layer are discussed in Section 6.2.2.

The sequence of remedial works was as follows:

- Asbestos impacted material was placed within the containment cell area.
- An orange geofabric marker layer was placed on top and along the sides of the asbestos impacted material.
- The cell was topped with approximately 1 m of suitable material.
- After the cell was finished being constructed, the environmental consultant collected validation samples from test pits (upper 2m) advanced across the site. The validation results are discussed in Section 6.2.2.

6.2 Validation Activities

Validation activities are summarised in **Table 6.2.**

Table 6.2: Validation Activities

Element	Works Undertaken	Verification
Placement of asbestos impacted	Further sampling and characterisation for suitability.	Soil Characterisation Assessments were provided which included sampling and analysis of the material by Sydney Environmental who

Element	Works Undertaken	Verification
material in PS105 cell	Placement into PS105.	confirmed the material was suitable to be placed within PS105. The results and material descriptions are provided in Section 0. Sydney Environmental supervised the start of the works and periodically afterwards. As all material was pre-assessed for suitability by Sydney Environmental prior to placement, and all material was placed under a marker layer and capped, it is considered adequate that the environmental consultant was not present for all of these works. A material tracking spreadsheet was provided which shows the material tracking from the source to the temporary stockpiling area and then placement within PS105. The register shows date, material type, source location, destination, end use, volume and truck registration.
Cap and containment of the cell	Placement of orange geofabric marker layer and SCAW sourced and imported material for capping. Validation sampling of the top 2 m of placed capping material.	Sydney Environmental periodically supervised the placement of the geofabric material and provided an Asbestos Make Safe Inspection Report after conducting a visual inspection of the geofabric marker layer. Sydney Environmental did not visually identify any ACM. A photograph of the placed geofabric marker layer was provided. Survey data for the top of the marker layer was provided. Material sourced from SCAW and also imported excavated natural material (ENM) from Stages 7 and 8, Mirragan Estate, Marsh Road Silverdale were placed above the marker layer and across the broader PS105. Sydney Environmental periodically supervised the placement of the material. As the material was subsequently validated by the consultant, it is considered adequate that they were not present for all of the placement of the material. The nature of and tracking of the imported material is discussed in Section 6.2.4. To confirm the capping layer material is suitable, Sydney Environmental advanced 40 test-pits across PS105 to 1.8 metres below ground level (mbgl). The material was described as fill comprising of silty clay, silty sand and clay. Validation sample results are discussed in Section 6.2.2.
Validation of stockpile footprints and equipment	Asbestos clearance of stockpile footprints and equipment.	Asbestos Materials Clearance Inspection Reports were issued by Sydney Environmental related to the following areas: • The northern portion of the temporary stockpiling area. 109 samples were collected at a rate of 1 per 25 m^2 and submitted for asbestos analysis. All results were reported below the PQL. Photographs of the residual surface were provided. • Portions of the temporary stockpiling area. The stockpiles were placed on geofabric and Sydney Environmental conducted a visual inspection of the underlying surface and did not identify any ACM. Photographs of the residual surfaces were provided. • Heavy machinery used to transport asbestos impacted material. The machines were washed down and inspected by Sydney Environmental who confirmed no residual ACM was observed. • Decontamination units. The units were washed and wiped down. Sydney Environmental visually inspected the units and confirmed no ACM was present.

While there were some deviations from the RAP, the remediation works undertaken were appropriate.

6.2.1 Evaluation of Quality Assurance and Quality Control

The auditor has assessed the overall quality of the data in **Table 6.3** by review of the information presented in the validation report.

Table 6.3: QA/QC Summary

QAQC	Consultant Reports	Auditor Comments
Sampling and Analysis Methodology Assessment	• DQIs were predetermined by Douglas Partners for the validation assessment. • Validation samples: Samples were collected from test pits advanced across the top of the capping layer of PS105. Density was in accordance with the RAP (1 sample per 1,000 m^3). Test pit logs were provided. • Importation samples: Samples were collected at the source site from test pits advanced into the stockpile by GeoEnviro Consultancy Pty Ltd. • Samples were collected directly from the excavator bucket. • Disposable gloves were generally reported as being used for each sample event. • Samples were reported to have been placed in laboratory supplied sample jars and transferred in a chilled esky or placed within zip lock plastic bags for asbestos samples. • No PID was used during sampling. Sydney Environmental noted no anthropogenic material was observed during sampling. • It is noted that the PQLs for perfluoroalkyl and polyfluoroalkyl substances (PFAS) (0.005 mg/kg) were above the adopted ecological criteria (0.003 mg/kg) for validation samples collected from the capping layer of PS105. As the PQLs are marginally above criteria, and no PFAS was detected in any of the samples, this isn't considered significant.	Overall, the sampling and analysis methodology assessment was adequate.
Field and Lab Quality Assurance and Quality Control	• NATA accredited laboratories Eurofins | mgt, ALS and Envirolab (imported material) were used. • Some COCs and SRNs were provided. Some samples were received by the laboratory at elevated temperatures. • Field replicates, trip blanks and trip spikes were generally collected with some elevated RPDs for zinc. Field duplicates were only collected for one batches of imported material. • Laboratory quality control sampling was conducted and results indicate some elevated RPDs for metals, TRH >C29-C36, dieldrin and endrin, and elevated recoveries for PAHs.	The elevated sample temperature is not considered significant as trip spikes were generally collected and were reported within acceptable limits. Overall, the field and lab quality assurance and quality control was adequate.

Overall, the auditor considers the quality assurance and quality control acceptable for the validation undertaken.

6.2.2 Evaluation of Soil Validation Analytical Results

A summary of the results from the samples collected from the upper 2m of residual soils within the stockpile have been tabulated in **Table** 6.4. Validation sample locations are shown in **Attachment 13, Appendix A**.

Table 6.4: Evaluation of Validation Analytical Results for PS105 – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	80	80	36	0 above HIL C of 600 mg/kg	0 above Generic ACL (public open space) of 1,100 mg/kg

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Benzene	80	0	<0.1	0 above HSL D 0-1 m, clay of 4 mg/kg	0 above ESL (public open space) (fine) of 65 mg/kg
Toluene	80	0	<0.1	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 105 mg/kg
Ethyl benzene	80	0	<0.1	0 above HSL C 0-1 m, clay NL	0 above ESL (public open space) (fine) of 125 mg/kg
Total Xylenes	80	0	<0.3	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (fine) of 45 mg/kg
F1 (TPH C6–C10 minus BTEX)	80	0	<20	0 above HSL C 0-1 m, clay of 310 mg/kg	0 above ESL (public open space) (coarse/fine) of 180 mg/kg
F2 (TPH >C10–C16 minus naphthalene)	80	0	<50	0 above HSL C 0-1 m, clay of NL	0 above ESL (public open space) (coarse/fine) of 120 mg/kg
F3 (TPH >C16-C34)	80	5	300	0 above ML (public open space) (fine) of 2,500 mg/kg	0 above ESL (public open space) (fine) of 1,300 mg/kg
F4 (TPH >C30-C40)	80	2	150	0 above ML (public open space) (fine) of 10,000 mg/kg	0 above ESL (public open space) (fine) of 5,600 mg/kg
Naphthalene	80	0	<0.5	0 above HSL C 0-1 m, clay of NL	0 above Generic ESL (public open space) of 170 mg/kg
Benzo(a)pyrene	80	0	<0.5	-	0 above ESL (public open space) (coarse/fine) of 0.7 mg/kg
BaP TEQ	80	0	<PQL	0 above HIL C of 3 mg/kg	-
Total PAHs	80	2	3.6	0 above HIL C of 300 mg/kg	-
Total OCP	80	6	0.3	0 above HIL C	-
Total PCB	80	0	<0.1	0 above HIL C of 1 mg/kg	-
Arsenic	80	79	24	0 above HIL C of 300 mg/kg	0 above Generic EIL (public open space) of 100 mg/kg
Cadmium	80	0	<0.4	0 above HIL C of 90 mg/kg	-

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Chromium	80	80	83	0 above HIL C of 300 mg/kg	0 above most conservative ACL (public open space) of 190 mg/kg
Copper	80	80	**460**	0 above HIL C of 17,000 mg/kg	**3 above most conservative ACL (public open space) of 60 mg/kg**
Mercury	80	0	<0.1	0 above HIL C of 80 mg/kg	-
Nickel	80	79	33	0 above HIL C of 1,200 mg/kg	0 above most conservative ACL (public open space) of 30 mg/kg
Zinc	80	80	**620**	0 above HIL C of 30,000 mg/kg	**10 above most conservative ACL (public open space) of 70 mg/kg**
PFOS	80	0	<0.005	-	0 above indirect exposure 0.003 mg/kg
PFOA	80	0	<0.005	0 above HIL C 10 mg/kg	0 above indirect exposure 0.003 mg/kg
Sum of PFOS + PFHxS	80	0	<0.005	0 above HIL C 1 mg/kg	-
Asbestos (AF/FA)	80	0	<0.001	0 above HSL C of 0.001% w/w	-
Asbestos (ACM)	80	0	<0.01	0 above HSL C of 0.02%	-

n Number of samples
- No criteria available/used
NL Non-limiting

The upper 2 m of soil was observed to consist of silty clay, silty sand and clay with no inclusions. Of the 80 samples collected only 4% exceeded the conservatively ACL adopted by the auditor for copper and 12.5% for zinc. The maximum concentrations of copper and zinc were reported at greater than 1m below the grassed surface. The consultant noted that this sample was more than 1 m below surface level and it unlikely to impact on-site ecological receptors. The auditor agrees. Other metals and one sample for TPH C10-C14 reported above detection limits but below adopted criteria. PAHs, OCPs, PCBs, PFAS and asbestos all reported below detection limits. It is noted that PFAS analysis was in the laboratory reports, but was not included in the analytical tables.

The environmental consultant calculated site specific EILs and stated that 95% upper confidence limits (UCLs) for copper and zinc were below site specific EILs. The auditor was unable to verify site specific EILs as the input parameters were not provided. The consultant stated that the 95% UCL for zinc was 58 mg/kg. The auditor calculated the 95% UCLs for copper and zinc to be 38 mg/kg and 67 mg/kg respectively. It is noted that one sample for copper and two samples for zinc had concentrations greater than 250% of the adopted most conservative EIL criteria.

Given the that the site is a vegetated permanent stockpile located adjacent to the rail corridor in a fenced compound and as that the majority of soil samples reported copper and zinc below the

conservatively adopted ACL, the auditor considers that overall, the upper 2m of material is suitable for use in the capping layer.

6.2.3 Material Disposed Off-Site

Sydney Environmental reported that no material was disposed off-site from PS105.

6.2.4 Imported Material

Sydney Environmental reported that ENM material was imported to site to be placed as capping material with classification reports provided as summarised in **Table 6.5**.

Table 6.5: Imported Material

Source Site	Volume imported (tonnes)	Material Description (Consultant)	Site History/ Supplier Information	Summary of Validation Data	Auditor Comments
Stages 7 and 8, Mirragan Estate, Marsh Road, Silverdale	Approximately 5,900 tonnes	ENM comprising of clayey silt with gravel and clay and some vegetation	The site was used for the Bullens African Lion Safari between 1968 and 1991. The site was remediated and validated by Tetra Tech Coffey.	GeoEnviro Consultancy collected 70 discreet and 70 composite samples from the stockpile of approximately 18,000 m^3 in size. The composite samples were from depths between the surface and 2.8 m. The stockpile was separated into 70 zones. The samples were submitted for metals, petroleum hydrocarbons, PAHs, asbestos, pH and foreign materials laboratory analysis. The results reported that all discrete samples and 68 composite samples reported concentrations within ENM criteria with some samples reporting elevated concentrations of lead, zinc and electrical conductivity. The zones that contained the elevated concentrations were excavated and isolated from the stockpile. GeoEnviro Consultancy collected samples at 5 m intervals of the faces of the stockpile where the zones were removed. A total of 72 samples were collected and analysed for lead, zinc and electrical conductivity. All concentrations were within ENM criteria. It is noted that the auditor has relied on the discreet samples for suitability.	Considering the material was furtherly assessed following placement in PS105 (Section 6.2.2), this is considered adequate.

While there are inconsistencies of the assessment of imported material in accordance with the RAP, the auditor is generally satisfied that imported material was largely suitable for use on-site due to the following:

- The material was assessed by GeoEnviro Consultancy prior to import to the site.
- Sydney Environmental undertook validation sampling of the top 2 m of material of PS105 after placement and confirmed the material was suitable.
- Sydney Environmental's conclusions are largely acceptable in the context of the proposed future land use (permanent stockpile with open space recreational use under an environmental management plan).

7.0 Contamination Migration Potential

No significant levels of contaminants were detected over the site and therefore there is little or no potential for migration of contamination from the site or vertically to groundwater.

8.0 Ongoing Site Management

Sydney Environmental propose the ongoing management of remnant contamination at the site through the following document, which is attached in **Appendix D**:

> *'Long-term Environmental Management Plan, PS105, Luddenham Road, Orchard Hills NSW'* dated 14 April 2025 by Sydney Environmental.

Table 8.1 presents an assessment of the EMP.

Table 8.1: Assessment of the EMP

Item	Auditor Comments
Site Specific standalone document	The LTEMP is to be adopted across the site audit area. The LTEMP is site specific, a figure is provided in the LTEMP which clearly depicts the relevant site boundary for the implementation of the LTEMP (part of Lot 51 in DP1276956). A survey plan of the site boundary was provided.
Plan Objectives	The objective of the LTEMP is as follows: *to outline the maintenance of the capping layers within the placement cell and prevent any unplanned breaches of the capping layer and containment cell.*
When does the EMP apply?	The LTEMP applies for as long as the containment cell within PS105 exists.
Contamination Issues	The contaminant of concern is asbestos. The exposure pathways are discussed. Sydney Environmental state that the cap and contain methodology removed the pathway between the asbestos source and receptors, however, if containment is removed or penetrated then a pathway may be generated.
Actions	Inspection of the cap is to be undertaken routinely to ensure no significant erosion or breaches are present. An inspection record was provided. Inductions for any contractors undertaking subsurface works at the site. The induction will be site specific and discuss the on-site asbestos risks including: • Information about the nature of the hazards arising from exposure to asbestos; • Identification of the location of contained asbestos impacted soils; • Composition of capping materials for visual reference, including orange marker layer; • Procedures to be followed if subsurface works are planned within the containment area; • Procedures to be followed for accidental breach of capping layer; • Exposure monitoring that may be required for working with asbestos; and • Incident reporting. A record of inductions must be kept for 5 years after the individual has ceased work. A licensed asbestos assessor and Class A asbestos removalist must be engaged prior to any subsurface works involving the breach of capping materials, and airborne asbestos monitoring must be undertaken. Some management actions were included in the LTEMP as to what to do when planned works beneath the capping layer are to be undertaken, or if there has been accidental exposure of asbestos impacted soils such as: • The area is to be barricaded with warning signs. • Appropriate PPE is required to be worn. • Keep soil lightly wetted at all times. • Engage a licenced asbestos assessor or environmental consultant, and a Class A licenced asbestos removalist who must submit a notification to SafeWork NSW. • Place stockpiles on plastic lining, geotextile or hard stand surfaces. • Cover stockpiles with plastic sheeting or geofabric. • The marker layer and capping layer must be reinstated to the original conditions and levels. The LTEMP is to be reviewed when: • Site conditions change;

Item	Auditor Comments
	• Legislation or guidelines change; • Exposure of soil materials within containment area or additional management or controls are required; • Incident review indicates further controls are required; or • There is a change of management or ownership of the site. The EMP states that engagement with an environmental consultant should occur yearly to confirm any changes to legislation or guidelines that may impact the EMP.
Extent of Capping and Specification of the Cap	A table showing the expected layers and depths is presented in Section 3.2 of the LTEMP. The marker layer was installed across the entire asbestos cell. A survey plan was provided of the cell, including figures showing cross-sections of the cell. The expected material to be encountered beneath the cell includes natural clay. The capping layer includes a bright orange geotextile marker layer, followed by validated fill material comprising of clay. The material located within the asbestos cell comprises of silty clay with some foreign materials including brick, metal, tile, plastic, and friable and non-friable asbestos. A photo of the orange geotextile marker layer was provided.
Responsibilities	Stakeholders and their responsibilities were provided in the LTEMP. Council are responsible for updating the s10.8 Planning Certificate which will enforce the LTEMP. The environment management from Sydney Metro (the site owner) is responsible for ensuring the LTEMP is available, up to date, relevant, and provide council with the LTEMP when updated. Sydney Metro / Western Sydney Airport Co (the property operators) are responsible for implementing and maintaining the LTEMP, inducting workers to the LTEMP, and keeping records of entry and closure of the containment cell. The property manager from Sydney Metro are responsible for ensuring the LTEMP is on file at the property, engaging a suitably qualified consultant to conduct an annual review of the LTEMP, and keeping records of damage or breaches to the cell. Written confirmation in email format of acceptance of the LTEMP from Sydney Metro was received on 25 April 2025 which is provided in Appendix E. Other responsibilities were included for future site contractors, environmental consultant, site auditor and site visitors.
Long-term engineering security of works, integrity of the cap i.e. risk of the erection of structures on the capped area, minimisation of the potential for leachate formation and/or volatilisation and/or off-site migration.	PS105 is a permanent stockpile which has been completely vegetated. Given the presence of the LTEMP, the integrity of the capping is considered suitable in the long term. The contaminant of concern (asbestos) is not volatile or leachable.
Occupational Health and Safety (OH&S)	Asbestos – LTEMP states that a licenced asbestos assessor, environmental consultant, and SafeWork NSW Class A licenced asbestos removalist must be engaged where breaches of the marker layer or containment cell are planned or accidental.
Public notification mechanisms to ensure potential purchasers or other interested parties are aware of the restrictions i.e. Planning Certificate or placing a covenant on the title of land under the CLM Act to require maintenance of remediation under the Act.	The LTEMP will be attached to the SAS which will be provided to the NSW Department of Planning and Environment. The site owner (Sydney Metro) will provide the LTEMP to Council who will update the s10.7 Planning Certificate to identify the existence of the SAS. The site owner (Sydney Metro) is to register a covenant on title of the land (Section 88B Covenant).

Item	Auditor Comments
Will be or can reasonably be made to be legally enforceable?	The LTEMP will be attached to the SAS that will be provided to the Department of Planning and Environment and Council. Council will note the presence of a SAS on the Planning Certificate.
Are Planning in agreement with the EMP?	Condition of Approval E93 (SSI 10051) outlines that the EMP is to be submitted to the Planning Secretary and relevant Councils alongside the Section A2 SAS: *A Section A1 or Section A2 Site Audit Statement (accompanied by an Environmental Management Plan) and its accompanying Site Audit Report, which state that the contaminated land disturbed by the work has been made suitable for the intended land use, must be submitted to the Planning Secretary and the Relevant Council(s) after remediation and before the commencement of operation of the CSSI.*

The appropriate conditions for the implementation of a LTEMP stated under Section 3.4.6 of NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Ed.) have been met, namely:

- The LTEMP has been reviewed by the auditor.
- The provisions of the LTEMP can be made to be legally enforceable in site redevelopment.
- There will be appropriate public notification of restrictions applying to the site through a notification on the Planning Certificate for the site.
- The remnant contamination is not considered to pose an unacceptable risk to on-site or off-site environments.

Based on the above, the auditor considers that the LTEMP will provide an adequate framework for the management of the asbestos impacted soil at the site.

9.0 Compliance with Regulatory Guidelines and Directions

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

The investigation was generally conducted in accordance with SEPP (Resilience and Hazards) 2021 and reported in accordance with the NSW EPA (2020) Consultants Reporting on Contaminated Sites Contaminated Land Guidelines. The checklist included in that document has been referred to. The EPA's Checklist for Site Auditors using the EPA Guidelines for the NSW Site Auditor Scheme 2017 (October 2017) has also been referred to.

9.1 Development Approvals

Development consent (SSI 10051, issued on 23 July 2021) was granted by the Minister for Planning and Public Spaces for construction and operation of a railway track to the Western Sydney Airport. The consent was subject to a number of requirements of which condition (E96) relates to contamination and requires a Section A SAS as follows:

> *E96 A Section A1 or Section A2 Site Audit Statement (accompanied by an Environmental Management Plan) and its accompanying Site Audit Report, which state that the contaminated land disturbed by the work has been made suitable for the intended land use, must be submitted to the Planning Secretary and the Relevant Council(s) after remediation and before the commencement of operation of the CSSI.*

The above condition has been interpreted to require a SAS commenting on site suitability for use as a permanent stockpile for public open space. This SAR and accompanying SAS has been completed in order to comply with this condition.

Works were undertaken in accordance with the development consent.

9.2 Waste Disposal

No waste material was disposed off-site.

9.3 VENM and Other Imported Materials

Based on the information in Section 6.0 and the site visits on 8 November 2023, 17 July 2024 and 18 March 2025, the auditor is of the opinion that the material imported to the site is consistent with ENM.

9.4 Licenses

Sydney Environmental confirmed that the remediation works were undertaken by Spot-On Asbestos Removal, a Class A licence contractor (AD214060).

Asbestos clearance inspections were undertaken on the remedial excavation with a clearance inspection report provided in the validation report. The clearance was undertaken by Mitchell Kirby (LAA002039).

The auditor checked the NSW Government register of licenced tradespeople on 9 January 2025 and confirmed that the licences listed are current and active.

10.0 Conclusions and Recommendations

Sydney Environmental considers that the site is *"considered suitable (from a contamination perspective) for the proposed future land use (i.e. a publicly accessible landscape area), subject to the development and implementation of a long-term environmental management plan (approved by the site auditor) to manage the residual risk posed by retaining asbestos impacted soils on-site."* Based on the information presented in Sydney Environmental's reports, observations made on-site, and following the Decision-Making Process for Assessing Urban Redevelopment Sites in NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme, the auditor concludes that the site is suitable for the purposes of a permanent stockpile subject to compliance with the following environmental management plan:

> *'Long-term Environmental Management Plan, PS105, Luddenham Road, Orchard Hills NSW'* dated 14 April 2025 by Sydney Environmental.

11.0 Other Relevant Information

This audit was conducted on the behalf of CPBUI JV for the purpose of assessing whether the land is suitable for the proposed public open space uses and the suitability and appropriateness of a long term management plan i.e. a “Site Audit” as defined in Section 4 (definition of a ‘site audit’ (b)(iii)(v)).

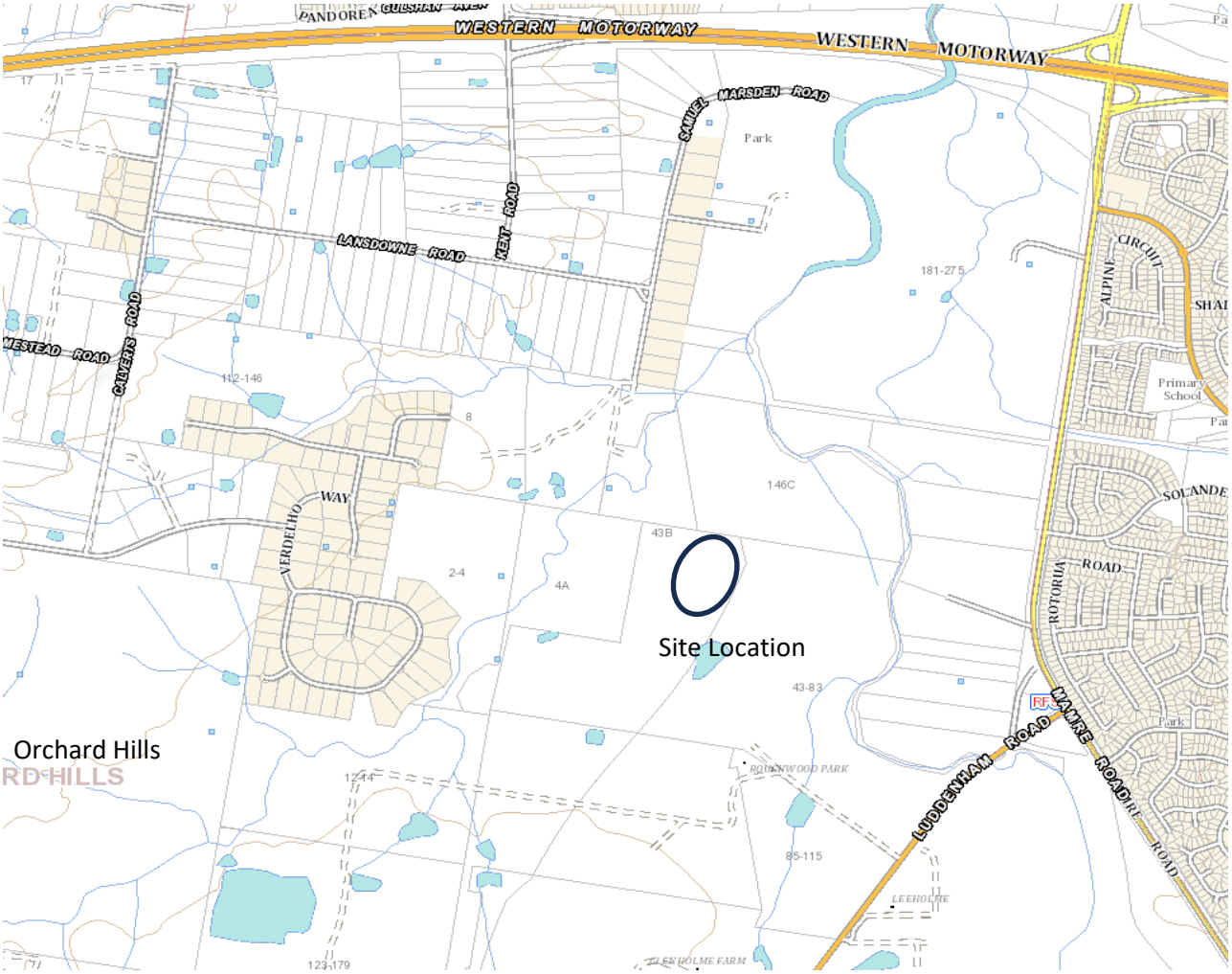
This summary report may not be suitable for other uses. Sydney Environmental included limitations in their report. The audit must also be subject to those limitations. The auditor has prepared this document in good faith, but is unable to provide certification outside of areas over which the auditor had some control or is reasonably able to check.

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

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

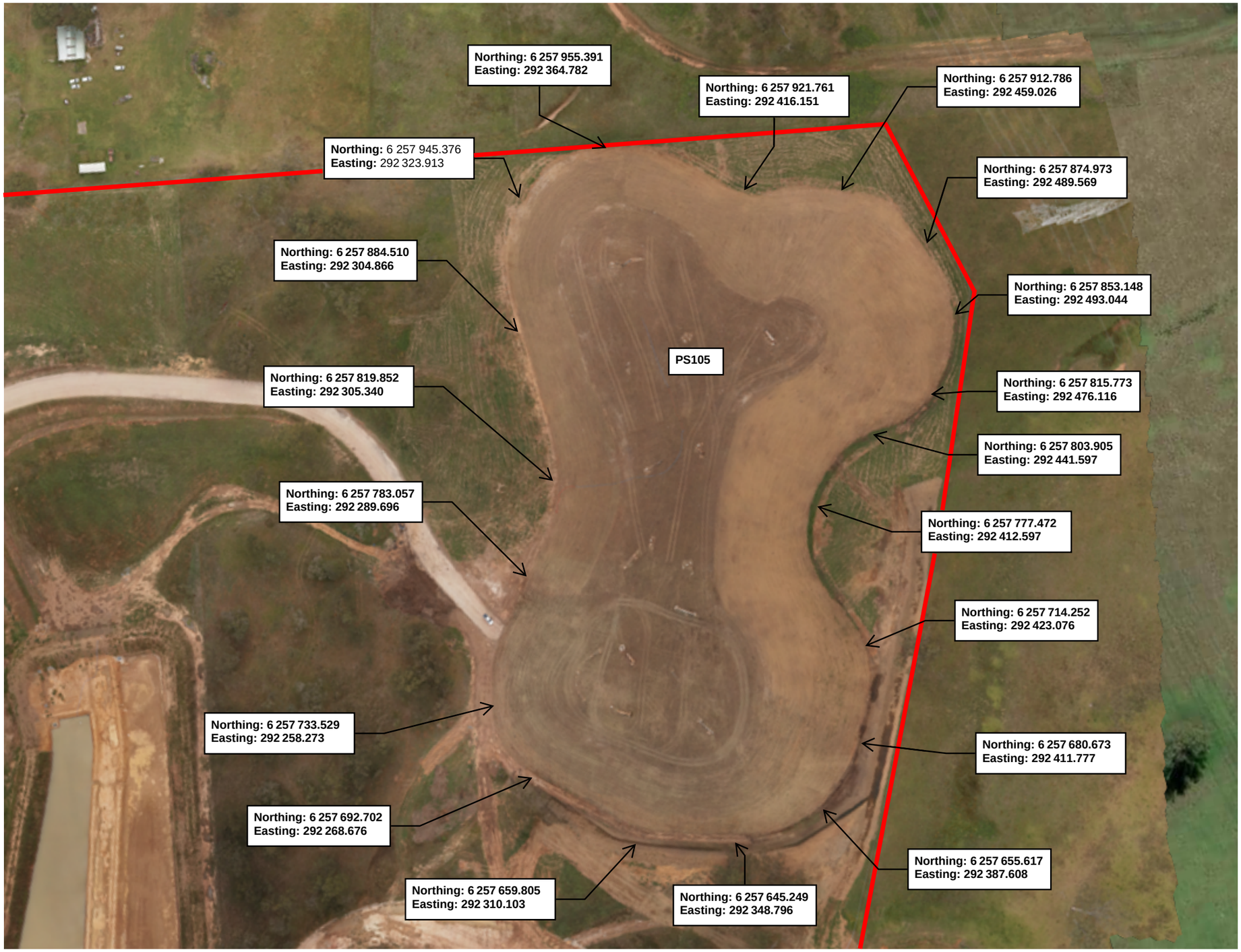
In reaching their conclusions about the site, the Client and NSW EPA may use this audit report and site audit statement. The scope of work performed as part of the audit process may not be appropriate to satisfy the needs of any other person. Any other person’s use of, or reliance on, the audit document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

Appendix A: Attachments



Douglas Partners Geotechnics / Environment / Groundwater	**Site Locality Plan** **Stockpile PS-105** **Luddenham Road, Orchard Hills**	PROJECT: 204814.01 DWG No: 1 REV: 0
	CLIENT: CPBUI JV	DATE: 18-Dec-23

12D PROJECT : 002 002 PP Reductions v14



REV	AMENDMENTS	APP'D	DATE

GENERAL NOTES / REFERENCES

This drawing remains the property of SMWSA - SCAW and the information contained herein is intended for information purposes only. SMWSA - SCAW accept no responsibilty for any loss or damages arising from the unauthorised use of this information.

Co-ordinate System - MGA2020 Zone 56
Height Datum - AHD

CPB CONTRACTORS | UNITED INFRASTRUCTURE

Sydney Metro - Western Sydney Airport
Surface and Civil Alignment Works
Level 5, 60 Miller St
North Sydney, N.S.W, 2060
Ph.
http://

PLOT DATE: Tue Jan 23 13:30:38 2024

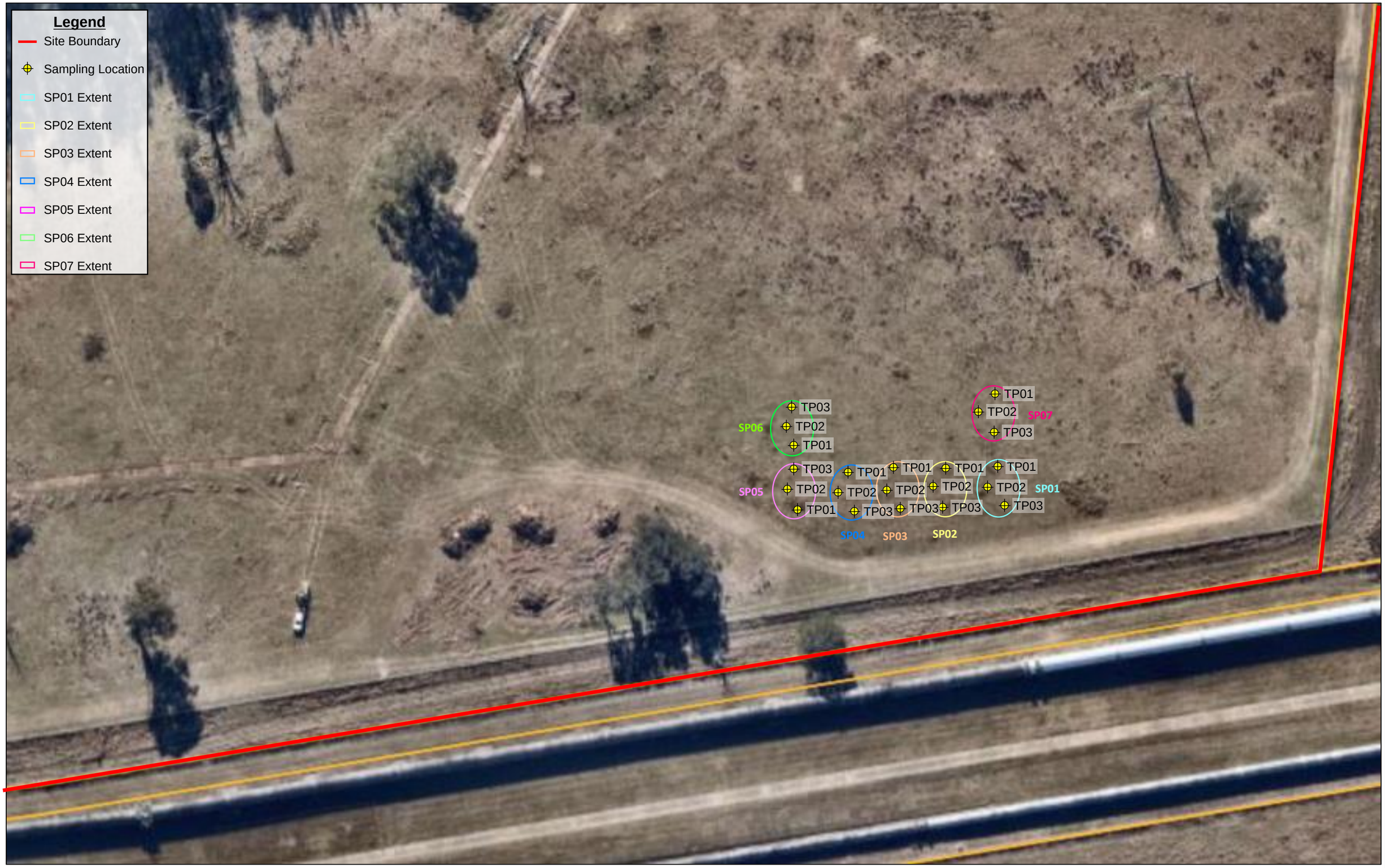
SMWSA - Surface and Civil Alignment Works

DRAWING STATUS | DRAWING No. 1 | REV.

Scale at 1:1000 0 10 20 30 40 50 60 70 80 90 100

Scale:	250 m	Site Layout	
Client Name:	CPB Contractors and Universal Infrastructure Joint Venture	Figure Number:	2
Project Name:	Soil Characterisation Assessment	Figure Date:	11 August 2023
Project Location:	Lot 111 DP1276407, Patons Lane, Orchard Hills NSW	Report Number:	1870-SCA-06-110823.v2f

Sydney Environmental Group



Sydney Environmental Group	Scale: 25 m	Sampling Locations	N	
	Client Name:	CPB Contractors and Universal Infrastructure Joint Venture		Figure Number: 2
	Project Name:	Soil Characterisation Assessment		Figure Date: 11 August 2023
	Project Location:	Lot 111 DP1276407, Patons Lane, Orchard Hills NSW		Report Number: 1870-SCA-06-110823.v2f

Source: Google Maps (Google.com/maps)

Site Location
1793 Elizabeth Drive, Badgerys Creek NSW

Mamre Rd

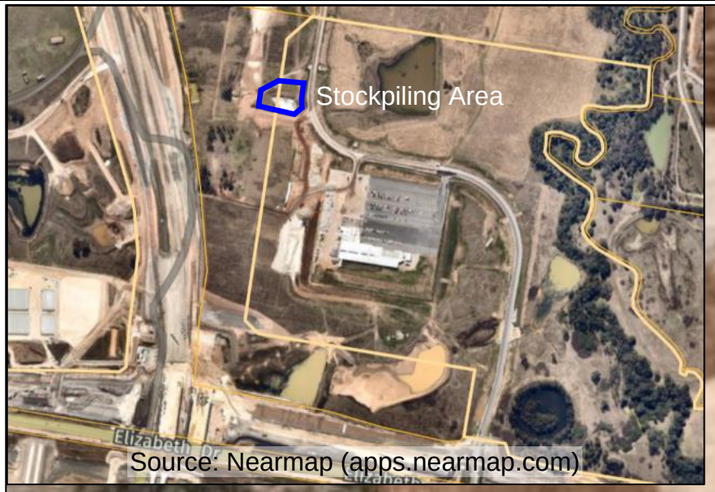
Elizabeth Dr

Badgerys Creek

Source: Nearmap (apps.nearmap.com)

Scale:	500 m	Site Locality		
Client Name:	CPB Contractors and Universal Infrastructure Joint Venture	N	Figure Number:	1
Project Name:	Soil Characterisation Assessment		Figure Date:	20 September 2023
Project Location:	Sydney Metro, Western Sydney Airport Alignment, Badgerys Creek NSW		Report Number:	1870-SCA-08-171023.v2f

Sydney Environmental Group



Legend

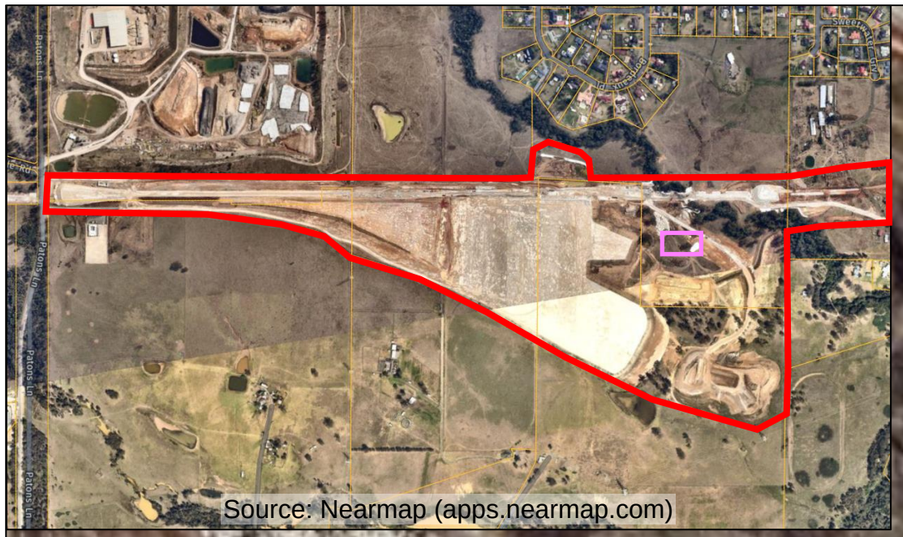
- Stockpiling Area
- Subject Area Stockpiles
- Sampling Locations

18-1, 18-3, 18-2, 17-1, 17-1, 17-1, 14-1, 14-2, 14-3, 08-1, 08-2, 08-3, 09-1, 09-2, 09-3, 16-1, 16-2, 16-3, 15-1, 15-2, 15-3, 13-1, 13-2, 13-3, 19-1, 19-2, 19-3, 05-1, 05-2, 05-3, 06-1, 06-2, 06-3, 07-1, 07-2, 07-3, 10-1, 10-2, 10-3, 11-1, 11-2, 11-3, R2-1, R2-2, R2-3, R2-4, 20-1, 20-2, 20-3, 04-1, 04-2, 04-3, 03-1, 03-2, 03-3, 02-1, 02-2, 02-3, 01-1, 01-2, 01-3, 12-1, 12-2, 12-3

Source: Nearmap (apps.nearmap.com)

Sydney Environmental Group	Scale: 25 m	Sampling Locations	
	Client Name:	CPB Contractors and Universal Infrastructure Joint Venture	Figure Number: 2
	Project Name:	Soil Characterisation Assessment	Figure Date: 20 September 2023
	Project Location:	1793 Elizabeth Drive, Badgerys Creek NSW	Report Number: 1870-SCA-08-171023.v2f

N



Legend

- Site Boundary
- Location within Site
- Subject Area Extent 'BC-01'
- Sampling Location
- Asbestos Detected

BC-01
BC-02
BC-03

Source: Nearmap (apps.nearmap.com)

Sydney Environmental Group

Scale:	25 m	Sampling Location		
Client Name:	CPB Contractors and Universal Infrastructure Joint Venture (CPBUIJV)	N	Figure Number:	2
Project Name:	Soil Characterisation Assessment		Figure Date:	9 November 2023
Project Location:	Lot 111 DP1276407, Patons Lane, Orchard Hills NSW		Report Number:	1870-SCA-09-091123.v1f

Sydney Environmental Group

Site Layout and Subject Area			
Client Name:	CPBUIJV	Figure Number:	2
Project Name:	Soil Characterisation Assessment	Figure Date:	16 December 2022
Project Location:	Sydney Metro, Western Sydney Airport Alignment, Badgerys Creek NSW	Report Number:	1870-SCA-01-161222.v2f

N

Sydney Environmental Group	Scale: 10 m	Site Layout and Subject Area		
	Client Name:	CPBUIJV	N	Figure Number: 3
	Project Name:	Soil Characterisation Assessment		Figure Date: 16 December 2022
	Project Location:	Sydney Metro, Western Sydney Airport Alignment, Badgerys Creek NSW		Report Number: 1870-SCA-01-161222.v1f

LEGEND

- Site Boundary
- Portion of Site Zoomed In
- Subject Area

Source: Nearmap (maps.au.nearmap.com)

Sydney Environmental Group	Scale :	75 m	Site Layout	
	Client Name:	CPB Contractors Pty Ltd & United Infrastructure Pty Ltd	Figure Number:	2
	Project Name:	Soil Characterisation Assessment	Figure Date:	20 February 2023
	Project Location:	Luddenham Road, Orchard Hills NSW	Report Number:	1870-SCA-02-020323.v2f

Sydney Environmental Group	Scale : 5 m	Sampling Locations		
	Client Name:	CPB Contractors Pty Ltd & United Infrastructure Pty Ltd	Figure Number:	3
	Project Name:	Soil Characterisation Assessment	Figure Date:	20 February 2023
	Project Location:	Luddenham Road, Orchard Hills NSW	Report Number:	1870-SCA-02-020323.v2f

Sydney Environmental Group

Scale:	70 m	Sampling Locations		
Client Name:	CPB Contractors Pty Ltd & Universal Infrastructure Pty Ltd Joint Venture (CPBUIJV)	N	Figure Number:	15
Project Name:	Site Validation Report – PS105		Figure Date:	2 December 2024
Project Location:	CPBUIJC SCAW Project Compound, Orchard Hills NSW		Report Number:	1870-SVR-03-021224.v1f

Appendix B: EPA Guidelines

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

(as of: 12 August 2022)

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

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

Guidelines made by the EPA

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

Guidelines that refer to the:

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

Guidelines approved by the EPA

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

*The ASC NEPM was amended on 16 May 2013.

Appendix C: IAA

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

16 December 2024

CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear

Re: Interim Audit Advice #7: Sydney Metro Western Sydney Airport Surface and Civil Alignment Works
Review of Validation Report

1.0 Introduction and Background

(the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line.

It is understood that asbestos impacted soil from areas of environmental concern (known as AEC 35, 36 and 43) are to be removed and encapsulated within PS105. The asbestos encapsulation cell is to be capped with material sourced from within SCAW considered surplus to the requirements of construction and also verified as suitable. An asbestos management plan has been prepared to outline requirements for asbestos handling and stockpiling. Remediation and validation have been undertaken at the AECs and PS105, and the environmental consultant has produced the following report which was forwarded to the site auditor for review:

- ‘Site Validation Report, SCAW PS105 – Luddenham Road, Orchard Hills NSW’ dated 3 December 2024 by Sydney Environmental Group.

This interim audit advice (IAA) details the review of the validation report.

2.0 Review Comments

The Site Auditor has undertaken a review of the validation report against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2020).

It is expected that each of the comments below will each be responded to in a response register (provided as an attachment). Comments are provided herein.

General Validation Report Comments

- As requested, the auditor has only reviewed the validation report in relation to the AECs (35, 36 and 43). Comments regarding PS105 will be provided in a future IAA.
- There appears to be duplication between the text and the appendices. The information from the attached interim validation reports (Appendix E) are captured in the report text. Remove letters from the attachments. The laboratory reports also appear to be duplicated between Appendix A and the attached letters.
- Confirm the dates that remediation/validation was undertaken for each of the AECs and PS105.
- Provide updated CSMs for each of the sites (AECs and PS105) after remediation/validation.
- Provide stockpile tracking registers for material moved from all AECs to the temporary stockpile area, and then either off-site or placement within PS105. It isn't clear where excavated material was stockpiled, and how the material was segregated and tracked.
- Where it is stated that asbestos material was assessed to be suitable for reuse on-site, specify that this is for placement within the containment cell in PS105.
- Section 6.3. Table 6.1.
  - Update to specify the site adopted criteria for PS105 (public open space) and the AECs (commercial industrial).
  - Ecological exposure pathway. Confirm why 'urban residential' land use setting has been adopted.
- Sections 7 and 8. Provide descriptions of the soil composition of all material encountered (samples, excavated/removed material and underlying natural material).
- Section 8.6. Table 8.6.2. The Site Audit Report will need to discuss and close out the waste disposal for each AEC. To satisfy audit requirements, please separate the waste disposal details per AEC/site.
- Section 8.7. To satisfy audit requirements, evidence will need to be provided about quantities and types of material imported to each site (each AEC and PS105). The environmental consultant will need to be satisfied that the material imported to site was lawful and that the site is suitable for the proposed land uses.
- Section 8. Confirm all remediation and validation work was undertaken in compliance with regulatory requirements set out by the EPA, SafeWork NSW, council and the development consent.
- Section 9.0.
  - Table 9.1.1, last row, 'Refer comments'. Refer to what comments?
  - Table 9.4.1.
    - Confirm all duplicate/triplicate samples are listed here as it appears some are missing (e.g., VAL-DUP01, AEC35-DUP01, AEC35-Dup01a, VAL-DUP01a).
    - Include number of primary, duplicate and triplicate samples for each AEC and PS105 to verify target % was met.
- Figures. Provide survey plans for the site/remedial extent for all AECs.
- Appendix A. Laboratory Documentation.
  - Some laboratory documentation appear to be missing. Refer to details below and update to include all missing documentation. The below list is not exhaustive.
    - COC and SRN: 1000256
    - SRN: 1000175, 999776, 1000624, 1014177, 1018222
    - SRN and laboratory QA/QC results: 249367, SE249526

AEC 35

- Section 6.5.2. It is stated that trip spikes and trip blanks are required where volatile contaminants of concern analysis is being undertaken, but then states AEC35 does not require trip spikes/blanks, despite TRH being the primary contaminants of concern for validation. It doesn't appear trip spikes/blanks were collected for AEC35 validation sampling. Close out why they weren't taken and if applicable, that the data isn't affected.
- Section 7.1.
  - Include descriptions of the soil composition (and foreign inclusions) of the excavated material for the 'heavy impacted' material.
  - The RAP states fill material was encountered at SMGW-BH-B106 to 4.0 mbgl and the remedial excavation was expected to extend to at least this depth (noting the drilling methodology for this location was auger which is not likely to be overly accurate of the stratigraphy layers). Justify why the remedial excavation was terminated at 1.5 mbgl and not extended to the expected depth listed in the RAP.
  - The RAP states *'Validation samples will be analysed by a NATA accredited laboratory for the relevant contaminant of concern relevant to the remediation area.'* Justify why validation samples for the excavation were only analysed for TRH and asbestos. Exceedances of benzo(a)pyrene were also reported in SMGW-BH-BH106. Considering metals were identified in the fill material, justify why metals analysis was not undertaken.
  - Update to close out the remediation required for waste material scattered across the western part of the site. Confirm the waste material was removed from the site and disposed of to an appropriately licensed landfill.
- Section 8.1.
  - The number of base and wall samples listed here (12 and 7 respectively) do not match the figures and analytical tables. Please update to reflect only the samples that were analysed.
  - Confirm the depth excavated into natural material. Section 7.1 of the report states *'impacted soil materials were exhumed until inferred natural soil materials were reached'*, however, the RAP states *'The excavation depth should be extended (at least) to 0.1 m into underlying natural soil'*.
  - Confirm the depth of the wall samples collected.
  - Temporary Stockpiling Area. Confirm if both the 'heavily' and 'lightly' impacted material were stockpiled at this location.
  - Include sampling methodology for excavation validation samples. Confirm if a PID was used during sample collected. If so, provide PID readings and calibration certificates. If not, justify why this was not undertaken.
- Waste Classification. Laboratory batch 1000624. The sample collection date listed is 16 May 2023 but received by the laboratory 16 June 2023. Confirm when the samples were collected and if they were labelled with the wrong date, otherwise, comment on holding time exceedances and sample integrity.

AEC 36

- Section 7.2. Specify whether material from Area 2 and 3 were 'lightly' or 'heavily impacted soil' (i.e., whether they were to be placed within PS105 or disposed off-site).
- Section 8.2.
  - Confirm the depth excavated into natural material for all areas, the RAP stated 0.1 m into natural material. Include a description of the natural material.
  - Confirm depth of wall samples.
  - Confirm if all material (not just 'heavily impacted') was stockpiled at the location provided on the figure in the waste classification report in Appendix C.
  - Confirm the waste classification assessment report provided in Appendix C is for the 'heavily impacted' material.
  - Clarify if delineation test pitting was conducted before the excavation of impacted material?
- Figures. Figure 6. The legend refers to 'Area 2' but title refers 'Area 1'. Please update.

AEC 43

- Section 7.3. Area 2. Confirm depth of the excavation below the asbestos conduit.
- Section 8.3.
  - Confirm depth excavated into natural material.
  - Confirm the depth of wall samples.
  - Paragraph under Table 8.3.1. Confirm where the suspected asbestos material was observed. Confirm where on the site the additional excavation occurred. Does this include the failed validation sample 'R3-V1-W01'?
- Figures. Confirm if the figures represent the final excavations after some validation samples failed criteria. It doesn't appear that sample 'R3-V1-W01a' is presented on the figures.

3.0 Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,
On behalf of **Senversa Pty Ltd**

NSW EPA Accredited Site Auditor (0803)

KR/MP

Technical Limitations and Uncertainty – *This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but forms part of the Site Audit process. It is intended that a Site Audit Statement and report will be issued at the completion of the site audit.*
Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

- *This site audit advice does not constitute a site audit report or statement.*
- *This letter is considered by the Auditor to be consistent with NSW EPA guidelines and policies.*
- *This letter will be documented in the final Site Audit Statement and associated documentation.*
- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

Item	Description
Site Name	PS105 and AEC's 35, 36, 43.
Site Address	Luddenham Road, Orchard Hills NSW
Client	CPBUI JV
Consultant	Sydney Environmental
Auditor	
Document Name	Site Validation Report
Document Date	3 December 2024

Item	Section / Topic	Auditor Comment (16 December 2024)	Consultant Response
1	**General Validation Report Comments**		
2	-	As requested, the auditor has only reviewed the validation report in relation to the AECs (35, 36 and 43). Comments regarding PS105 will be provided in a future IAA.	
3	-	There appears to be duplication between the text and the appendices. The information from the attached interim validation reports (Appendix E) are captured in the report text. Remove letters from the attachments. The laboratory reports also appear to be duplicated between Appendix A and the attached letters.	
4	-	Confirm the dates that remediation/validation was undertaken for each of the AECs and PS105.	
5	-	Provide updated CSMs for each of the sites (AECs and PS105) after remediation/validation.	
6	-	Provide stockpile tracking registers for material moved from all AECs to the temporary stockpile area, and then either off-site or placement within PS105. It isn't clear where excavated material was stockpiled, and how the material was segregated and tracked.	
7	-	Where it is stated that asbestos material was assessed to be suitable for reuse on-site, specify that this is for placement within the containment cell in PS105.	
8	Section 6.3, Table 6.1	Update to specify the site adopted criteria for PS105 (public open space) and the AECs (commercial industrial). Ecological exposure pathway. Confirm why 'urban residential' land use setting has been adopted.	
9	Sections 7 and 8	Provide descriptions of the soil composition of all material encountered (samples, excavated/removed material and underlying natural material).	
10	Section 8.6, Table 8.6.2	The Site Audit Report will need to discuss and close out the waste disposal for each AEC. To satisfy audit requirements, please separate the waste disposal details per AEC/site.	
11	Section 8.7	To satisfy audit requirements, evidence will need to be provided about quantities and types of material imported to each site (each AEC and PS105). The environmental consultant will need to be satisfied that the material imported to site was lawful and that the site is suitable for the proposed land uses.	
12	Section 8	Confirm all remediation and validation work was undertaken in compliance with regulatory requirements set out by the EPA, SafeWork NSW, council and the development consent.	
13	Section 9, Table 9.1.1	Last row, 'Refer comments'. Refer to what comments?	
14	Section 9, Table 9.4.1	Confirm all duplicate/triplicate samples are listed here as it appears some are missing (e.g., VAL-DUP01, AEC35-DUP01, AEC35-Dup01a, VAL-DUP01a). Include number of primary, duplicate and triplicate samples for each AEC and PS105 to verify target % was met.	
15	Figures	Provide survey plans for the site/remedial extent for all AECs.	
16	Appendix A	Some laboratory documentation appear to be missing. Refer to details below and update to include all missing documentation. The below list is not exhaustive. - COC and SRN: 1000256 - SRN: 1000175, 999776, 1000624, 1014177, 1018222 - SRN and laboratory QA/QC results: 249367, SE249526	
17	**AEC 35**		
18	Section 6.5.2	It is stated that trip spikes and trip blanks are required where volatile contaminants of concern analysis is being undertaken, but then states AEC35 does not require trip spikes/blanks, despite TRH being the primary contaminants of concern for validation. It doesn't appear trip spikes/blanks were collected for AEC35 validation sampling. Close out why they weren't taken and if applicable, that the data isn't affected.	
19	Section 7.1	Include descriptions of the soil composition (and foreign inclusions) of the excavated material for the 'heavy impacted' material. The RAP states fill material was encountered at SMGW-BH-B106 to 4.0 mbgl and the remedial excavation was expected to extend to at least this depth (noting the drilling methodology for this location was auger which is not likely to be overly accurate of the stratigraphy layers). Justify why the remedial excavation was terminated at 1.5 mbgl and not extended to the expected depth listed in the RAP. The RAP states 'Validation samples will be analysed by a NATA accredited laboratory for the relevant contaminant of concern relevant to the remediation area.' Justify why validation samples for the excavation were only analysed for TRH and asbestos. Exceedances of benzo(a)pyrene were also reported in SMGW-BH-BH106. Considering metals were identified in the fill material, justify why metals analysis was not undertaken. Update to close out the remediation required for waste material scattered across the western part of the site. Confirm the waste material was removed from the site and disposed of to an appropriately licensed landfill.	
20	Section 8.1	The number of base and wall samples listed here (12 and 7 respectively) do not match the figures and analytical tables. Please update to reflect only the samples that were analysed. Confirm the depth excavated into natural material. Section 7.1 of the report states 'impacted soil materials were exhumed until inferred natural soil materials were reached', however, the RAP states 'The excavation depth should be extended (at least) to 0.1 m into underlying natural soil'. Confirm the depth of the wall samples collected. Temporary Stockpiling Area. Confirm if both the 'heavily' and 'lightly' impacted material were stockpiled at this location. Include sampling methodology for excavation validation samples. Confirm if a PID was used during sample collected. If so, provide PID readings and calibration certificates. If not, justify why this was not undertaken.	
21	Waste Classification	Laboratory batch 1000624. The sample collection date listed is 16 May 2023 but received by the laboratory 16 June 2023. Confirm when the samples were collected and if they were labelled with the wrong date, otherwise, comment on holding time exceedances and sample integrity.	
22	**AEC 36**		
23	Section 7.2	Specify whether material from Area 2 and 3 were 'lightly' or 'heavily impacted soil' (i.e., whether they were to be placed within PS105 or disposed off-site).	
24	Section 8.2	Confirm the depth excavated into natural material for all areas, the RAP stated 0.1 m into natural material. Include a description of the natural material. Confirm depth of wall samples. Confirm if all material (not just 'heavily impacted') was stockpiled at the location provided on the figure in the waste classification report in Appendix C. Confirm the waste classification assessment report provided in Appendix C is for the 'heavily impacted' material. Clarify if delineation test pitting was conducted before the excavation of impacted material?	
25	Figures	Figure 6. The legend refers to 'Area 2' but title refers 'Area 1'. Please update.	
26	**AEC 43**		
27	Section 7.3	Area 2. Confirm depth of the excavation below the asbestos conduit.	
28	Section 8.3	Confirm depth excavated into natural material. Confirm the depth of wall samples. Paragraph under Table 8.3.1. Confirm where the suspected asbestos material was observed. Confirm where on the site the additional excavation occurred. Does this include the failed validation sample 'R3-V1-W01'?	
29	Figures	Confirm if the figures represent the final excavations after some validation samples failed criteria. It doesn't appear that sample 'R3-V1-W01a' is presented on the figures.	

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

13 January 2025

CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear

Re: Interim Audit Advice #8: Sydney Metro Western Sydney Airport Surface and Civil Alignment Works
Review of Validation Report

1.0 Introduction and Background

(the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line.

It is understood that asbestos impacted soil from areas of environmental concern (known as AEC 35, 36 and 43) are to be removed and encapsulated within PS105. The asbestos encapsulation cell is to be capped with material sourced from within SCAW considered surplus to the requirements of construction and also verified as suitable. An asbestos management plan has been prepared to outline requirements for asbestos handling and stockpiling. Remediation and validation have been undertaken at the AECs and PS105, and the environmental consultant has produced the following report which was forwarded to the site auditor for review:

- 'Site Validation Report, SCAW PS105 – Luddenham Road, Orchard Hills NSW' dated 20 December 2024 by Sydney Environmental Group.

A previous version of the Site Validation Report was provided with auditor comments provided in interim audit advice (IAA) No. 7 dated 16 December 2024. This (IAA) details the review of the updated validation report.

2.0 Review Comments

The Site Auditor has undertaken a review of the validation report against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2020).

It is expected that each of the comments below will each be responded to in a response register (provided as an attachment). Please provide an excel version of the comments register in return. Comments are provided herein.

General Validation Report Comments

- As requested, the auditor has only reviewed the validation report in relation to the AECs (35, 36 and 43). Comments regarding PS105 will be provided in a future IAA.
- Section 7.
  - The auditor notes the table added to Section 7, however, this is not a stockpile tracking register. It is not clear how the material was segregated or tracked. Provide documentation that tracks the material from 'cradle to grave'. To satisfy DA conditions, the auditor is required to complete a Section A SAS to confirm site suitability. The auditor needs to be satisfied with the documentation provided that the material was removed from the AECs, tracked and stockpiled appropriately, and then placed within PS105 or disposed off-site to a suitable facility. Further assessment may be warranted to prove the sites are suitable if sufficient evidence is not provided.
  - Include units for the volume.
  - The quantities do not match up between this table, Tables 8.6.1 and 8.6.2 and waste dockets.
  - Confirm asbestos Class A licenced asbestos removal contractor and number. It appears Spot-On Asbestos Removal number is AD214060.
  - Confirm if Spot-On were also engaged for off-site disposal of material.
- Section 7 and 8.
  - The auditor notes that soil descriptions have been provided for the removed impacted material and underlying natural material, however sample descriptions were not.
  - Please provide sample descriptions (potentially in the form of a summary sample register) and test pit logs.
- Section 8.6, Table 8.6.2.
  - The auditor must be satisfied with evidence provided by the environmental consultant that the impacted material was removed from the AECs and disposed off-site to a suitable facility. This will include material tracking between the AEC, temporary stockpiling area and off-site disposal. If adequate proof is not provided, the auditor is required to note this in the Site Audit Report and notify the EPA.
  - Confirm if the asbestos waste was tracked and provide EPA consignment numbers.
  - Confirm if the tracking dockets and quantities provided include asbestos containing material (for example asbestos conduits from AEC 43).
- Section 8.7. The auditor notes the environmental consultant have included comments on site suitability, however, no proof has been provided documenting the types and quantities of material imported to the site. The auditor must be satisfied that the material imported to the site was lawful and that the site is suitable for the proposed land uses based on documentation provided. Further assessment may be warranted to prove the sites are suitable if sufficient evidence is not provided.
- Confirm if the stockpile referenced as Blaxlands Creek (BC-01), the 'Remediation Works at Elizabeth Drive' and the diesel spill (SP01 and SP02 on page 1787 of the PDF) relate to any of the AECs or PS105 (were either located within or material encapsulated within PS105).
- Figures. The auditor notes survey plans for remedial areas were provided for AEC's 35 and 36. A survey plan for the entire AEC 43 was provided. Please confirm if the audit is to cover the whole AEC rather than remedial areas.

- Appendix A.
  - Laboratory reports from page 354 of the PDF document appear to be duplicates.
  - There appear to be reports included in Appendix A. It is not clear if these are related to the rest of the report.
  - Some COCs and SRNs are still missing (for example, batches 1024753, 1023751, 1024479, 1012751, 1012931, 1013428, 1014168, 249367, 1000624, 1014177, 1044137).

AEC 35

- Section 7.1. The following comment from the previous IAA was not addressed: Update to close out the remediation required for waste material scattered across the western part of the site. Confirm the waste material was removed from the site and disposed of to an appropriately licensed landfill.

AEC 43

- Section 8.3.1, page 58 of the PDF. The further excavation for V1 and V2 in Remediation Area 3 is still not clear. It doesn't seem any of the sample numbers match up, including for V3:
  - V1: The report text says 1 base sample and 4 wall samples were collected, then during bulk earthworks an additional 1 base sample and 3 wall samples were collected. The figures show 1 base sample and four wall samples. The laboratory reports have 1 base sample and 4 wall samples collected on 8 September 2023, an additional wall sample (W01a) collected on 12 September 2023, and an additional three wall samples collected on 13 November 2023. The tables show 1 base sample and five wall samples (including W01a) from 8 and 12 September 2023.
  - V2: The report text says 2 base samples and 6 wall samples were collected, then during bulk earthworks an additional 2 base samples and 6 wall samples were collected. The figures show 3 base samples and 6 wall samples. The laboratory reports have 2 base and 6 wall samples collected on 13 November 2023. The tables show 1 base and 6 wall samples from 8 September 2023.
  - V3: The report text says 2 base samples and 6 wall samples were collected. The figures show 2 base samples and 6 wall samples. The laboratory reports show 3 base and 6 wall samples were collected on 8 September 2023. The tables show 3 base and 6 wall samples from 8 September 2023.
- Update the report text so it is clear the sequence of remediation and validation works undertaken, including where validation samples failed, and when PACM was encountered and further excavation and sampling undertaken. Include the dimensions of the excavations before and after failed samples, and further excavation during bulk earthworks. Comment whether sample density for the further excavation during bulk earthworks was in accordance with the RAP. Confirm if the samples collected on 13 November 2023 are validation samples following further excavation during bulk earthworks.
- Update the figures to show the final validation samples collected (that passed validation criteria) and final excavation extents.
- Update the analytical tables so that all samples are presented. Make sure it is clear which samples were the final validation samples and which ones were subsequently removed to due failed validation samples or identified PACM during bulk earthworks.
- AEC43. Area 2. Samples RA2-V-W27-B and RA2-V-W28-B are included in the laboratory reports but nowhere else. Confirm what these samples are. As mentioned in the comment above for Area 3, clearly outline the sequence of remediation and validation work undertaken and include all samples in the analytical tables. Please also confirm the information for Area 1 is correct.

3.0 Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,
On behalf of **Senversa Pty Ltd**

NSW EPA Accredited Site Auditor (0803)

KR/MP

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Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

25 February 2025

CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear

Re: Interim Audit Advice #9: Sydney Metro Western Sydney Airport Surface and Civil Alignment Works
Review of Validation Report

1.0 Introduction and Background

(the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line.

It is understood that asbestos impacted soil from areas of environmental concern (known as AEC 35, 36 and 43) are to be removed and encapsulated within PS105. The asbestos encapsulation cell is to be capped with material sourced from within SCAW considered surplus to the requirements of construction and also verified as suitable. An asbestos management plan has been prepared to outline requirements for asbestos handling and stockpiling. Remediation and validation have been undertaken at the AECs and PS105, and the environmental consultant has produced the following report which was forwarded to the site auditor for review:

- 'Site Validation Report, SCAW PS105 – Luddenham Road, Orchard Hills NSW' dated 13 February 2025 (Report No. 1870-SVR-03-211124.v3f) by Sydney Environmental Group.

Previous versions of the Site Validation Report were provided with auditor comments provided in previous interim audit advice (IAA). This IAA details the review of the updated validation report.

2.0 Review Comments

The Site Auditor has undertaken a review of the validation report against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2020).

General Validation Report Comments

- As requested, the auditor has only reviewed the validation report in relation to the AECs (35, 36 and 43). Comments regarding PS105 will be provided in a future IAA.

- As per previous IAA, confirm if asbestos waste was tracked and provide EPA consignment numbers. If so, these will need to be included in the validation report. If not, clarify why.
- Please include if council were notified of the remediation works. Confirm if the remedial works are 'Category 1' or 'Category 2'.
- Section 2. Table 2.1 Include site details (address, Lot/DP) for AECs too.
- Section 8.7. Based on imported material documentation provided by CPBUI JV, material also appeared to be imported from Warringah Freeway, Western Harbour Tunnel Stage 2 and Western Harbour Tunnel STP. Please confirm if the material imported to the AEC's and PS105 was only from the suppliers listed in Table 8.7.1, or please update this table.
- Section 12. Conclusions need to be separated for each AEC and PS105, as it is understood that the AECs do not require a LTEMP.
- Please confirm when the auditor will receive the LTEMP.
- Appendix F.
    - As previously mentioned, all imported material documentation needs to be attached to the validation report. This includes the material tracking spreadsheet, RRO/RRE documents, material classification / compliance reports, and other letters certifying the material is lawfully able to be imported to the site. Please ensure documentation is only for relevant source sites (refer to above comment seeking clarification on which sites imported material was sourced from).

AEC 35

- Figures. Page 155 of the PDF. Update survey plan so that it shows only the relevant site (the northwest part).
- Please include in the report the details from response to IAA No. 8 regarding the removal of waste.

3.0 Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,
On behalf of **Senversa Pty Ltd**

NSW EPA Accredited Site Auditor (0803)

KR/MP

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- *This letter will be documented in the final Site Audit Statement and associated documentation.*
- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

10 March 2025

CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear

Re: Interim Audit Advice #10: Sydney Metro Western Sydney Airport Surface and Civil Alignment Works
Review of Validation Report and LTEMP for PS105

1.0 Introduction and Background

(the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line.

It is understood that asbestos impacted soil from areas of environmental concern (known as AEC 35, 36 and 43) have been removed and encapsulated within PS105. The asbestos encapsulation cell is to be capped with material sourced from within SCAW considered surplus to the requirements of construction and also verified as suitable, and is to be managed under a long-term environmental management plan (LTEMP). Remediation and validation have been undertaken at the AECs and PS105, and the environmental consultant has produced the following reports which were forwarded to the site auditor for review:

- ‘Site Validation Report, SCAW PS105 – Luddenham Road, Orchard Hills NSW’ dated 13 February 2025 (Report No. 1870-SVR-03-211124.v3f) by Sydney Environmental Group.
- ‘Long-term Environmental Management Plan, PS105, Luddenham Road, Orchard Hills NSW’ dated 17 January 2025 by Sydney Environmental Group.

This IAA details the review of the reports in relation to PS105.

2.0 Review Comments

The Site Auditor has undertaken a review of the validation report and LTEMP against the requirements specified in the Guidelines for the NSW Site Auditor Scheme (3rd edition) (NSW EPA, 2017) and the Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2020). Review comments are detailed herein.

Site Validation Report

- The auditor will need to undertake a site visit at AEC43 and PS105 prior to finalising SAS's and SAR's.
- This review refers to items related to validation of PS105 only. Comments for the AECs were provided in previous IAA letters.
- The auditor notes that the environmental consultant is to update and include requested information in the validation report based on below comments. It is not satisfactory to state that CPBUI JV are to provide information externally to the SVR, or that scope of works for the SVR or environmental consultant engagement did not include the information requested below. The below information is required to satisfy a Section A Site Audit and is to be considered by the environmental consultant and included in the SVR or in response to comments.
- Provide a list of documents attached in Appendix C and what they relate to and what parts of validation they address. See a summary of documents that appear to have been provided below:
  - Page 1223 of the PDF is a Soil Characterisation Assessment for Elizabeth Drive. Does this relate to Section 7.4.2 Elizabeth Drive?
    - Explain where this material is sourced from and how/why it ended up within SCAW. Please update Section 4.6 to include more detail, including why the material contains asbestos and brick. It seems the material is from the M12 project, but it does not appear that the EPL (21965) covers material movement from M12 to SCAW, please confirm. Clarify where the material was stockpiled (temporary stockpiling area, or an AEC?).
    - 'The soil material stockpile was required to be addressed as part of the M12 infrastructure project.' Why was it required to be addressed?
    - Table 2.1. Site identification information should reflect where the material was sourced from or stockpiled for assessment. Please update.
    - Section 6.1. If the material is to be placed within PS105, please screen against public open space criteria as well.
    - Section 7.5. 'Foreign materials were observed within the soil materials and require further management.' What type of foreign materials, and what further management is required?
  - Page 1308 of the PDF is a Soil Characterisation Assessment for Lot 10 DP 1280205. Does this relate to Section 7.4.3 SMF Drainage Line? As mentioned below, further context will need to be provided about why this material is being discussed and assessed in this validation report, and why it is appropriate for it to be encapsulated in PS105.
  - Pages 1351, 1460 and 1534 of the PDF are Soil Characterisation Assessments for Lot 111 DP 1276407. Does this relate to the material sourced from the remedial extent from AEC 36 or for Blaxlands Creek, noting the report on page 1534 of the PDF refers to 'Blacktown Creek'? Provide any Soil Characterisation Assessments that are missing (for AEC 36 or Blaxlands Creek). For Blaxlands Creek, as mentioned below, further context will need to be provided about why this material is being discussed and assessed in this validation report, and why it is appropriate for it to be encapsulated in PS105.
  - Append Soil Characterisation Assessments for AECs 35 and 43, as well as Waste Classification Assessment for AEC 36.
  - Several asbestos materials clearance inspection reports for the temporary stockpiling area, heavy machinery and decontamination units. Is there anything else attached in Appendix C that is missing from the above or relevant to PS105 that should be included?

- Section 7.4.
  - For each site (Blaxlands Creek, Elizabeth Drive, SMF Drainage Line), provide context as to why these sites are discussed in the validation report and assessed for encapsulation within PS105. Present these sites on a figure, and describe where they sit within the context of SCAW and AECs. Explain the origin of the material being assessed and why it is impacted by asbestos, and history of the source site. Describe the material movement and provide any available tracking registers.
  - It would be worth mentioning the EPL for SCAW to explain why material is legally able to be moved around the project and placed within PS105.
  - Based on the material tracking spreadsheet, approximately 557.1 m3 of material was disposed off-site from Elizabeth Drive Compound, and 6.36 m3 was encapsulated in PS105. Approximately 4 m3 of material from 'BC1' (does this refer to Blaxlands Creek?) and 50 m3 of material from 'SMF1' (does this refer to SMF Drainage Line) was encapsulated in PS105. Confirm if this is correct. Was any other material (besides material from AECs 35, 36 and 43) encapsulated within PS105? If material from Elizabeth Drive (ED2 and ED3) is relevant to any of the audit sites, waste disposal details will need to be provided.
- Section 7.5.
  - Item 4. What 'imported soils from other sites' were placed to form PS105? It is later stated that 'Excavated materials used for capping were site won and excavated from un-contaminated soil materials.' Confirm which is correct and update.
  - Paragraph under Photograph 7.5.1. 'Inferred natural soil materials were visually assessed originally by the supervising consultant and found to be suitable.' What is this referring to? What are the inferred natural soils, and suitable for what?
  - This section states 'clean' material was placed over the marker layer of approximately 1 m, 2 m and 300 m thickness. Confirm which thickness it is.
  - '100 mm of suitable clean fill sourced from the southern portion of the site'. Southern portion of which site? This was placed over 200 mm of asbestos impacted soil, does this mean the thickness of the asbestos cell beneath the marker layer is 300 mm? Based on the survey plans, it seems to be greater than 300 mm.
  - Confirm if remediation/validation of PS105 was per the RAP (refer to Table 3 of the RAP). If not, outline and justify any deviances from the RAP and whether this affects validation and/or site suitability. Select requirements from the RAP are provided below. It is understood the environmental consultant was engaged to oversee implementation of the RAP. <u>It is not sufficient to say that the environmental consultant was not engaged to oversee parts of the RAP. Even if the RAP was not fully implemented by the environmental consultant and contractor, the environmental consultant has been engaged to produce a validation report to satisfy a Section A Site Audit and needs to provide adequate information or reasoning to meet this standard:</u>
    - 'An environmental consultant representing SE was only engaged to supervise the start of these works.' The RAP states periodic inspections were to be carried out by the environmental consultant. Explain if this has affected remediation/validation/site suitability, and if not, justify why.
    - Material used for capping:
      - Imported VENM (not from a quarry) or ENM was to be inspected and photographed by the environmental consultant following import, with observations recorded, and check sampling conducted.
      - Material sourced from SCAW and used below the top 2 m of capping that was not heterogeneous and had no signs of contamination or anthropogenic inclusions was to be inspected and photographed by the consultant with observations recorded.
      - Material sourced from SCAW and used in the top 2 m of capping that had not been classified as VENM or ENM and appeared to be non-heterogeneous and had no signs of contamination of anthropogenic inclusions was to be inspected, photographed, field observations recorded, and sampling of stockpiles.
    - Marker layer. Please provide the product specification for the marker layer. The RAP states it was to be 'brightly coloured (e.g., orange)'. The marker layer doesn't appear to be brightly coloured in Photograph 7.5.1.

  - 'The Contractor is to maintain a register of all soil used as part for the capping'. Please provide the register. If not undertaken, as mentioned above, please justify why this is not significant.
- Please confirm no material was disposed off-site from PS105.
- Section 8.4. Clarify how the sampling density was calculated as being met.
- The RAP stated that seeding and placement of rocks, logs or stumps are to be placed across PS105. Please confirm if any planting/landscaping has occurred or is planned for PS105 and provide details.
- Test Pit Logs. Provide logs for test pits advanced across PS105.
- Figures/survey plans:
  - It is understood the audit is for the whole PS105, please provide a survey plan for the whole PS105 footprint, noting that one has been provided for the asbestos cell.
  - Confirm if the bottom of the cell was surveyed? What is the depth of the containment cell? Please outline material expected to be encountered beneath the cell.
- Tables. PS105 samples need to be screened against public open space criteria. Based on this, it appears copper and zinc exceed ecological ACLs. This will need to be discussed in the validation report.
- Soil Characterisation Assessment, AEC 43:
  - Section 9, Table 9.1.3:
    - Ecological criteria needs to be screened against public open space as well.
    - Explain criteria or check values for copper, nickel, zinc, benzo(a)pyrene, TPH F4, ethylbenzene as they seem incorrect.
  - Attachment 3:
    - The ecological criteria values appear incorrect. Please update and discuss exceedances (concentrations of copper and zinc exceed ecological ACLs).
    - Please check concentrations of DDD and DDE for sample SCA-06-03.
- Asbestos Materials Clearance Inspection Report for northern portion of temporary stockpiling area (page 1081 of the PDF):
  - Please confirm size of the area, as it's stated it is 200 m^2 but 109 samples were collected to meet a density of 1 per 25 m^2?
  - Provide all laboratory reports (for samples collected beyond ED-VAL-55).

LTEMP

- Section 1.1. Update to clarify Part Lot.
- Table 1.6.1:
  - Update all 'TBC'.
  - Consider removing contact details as these may change and not be relevant to the LTEMP anymore.
- Table 1.6.2:
  - Specify individual personnel or titles for the Site Owner and Property Operator who are responsible. The EMP must be specific about who is responsible for maintaining/implementing, currently 'Transport for NSW' is not specific about who is responsible.
  - Update 'TBC' for Property Manager.
  - Who is the Building Operator and how are they relevant to the site and LTEMP?
- Include the site use and persons able to access the site – is the site strictly only able to be accessed by workers associated with Transport for NSW, Sydney Metro or Western Sydney Airport Co? If site access is restricted, how is this enforced?
- Table 2.1. Clarify that the site is Part Lot.
- Section 1.2. The objectives should also be to prevent breaches to the cap, rather than just manage breaches. Please update the objectives and Section 4.

- Section 3.2. The thicknesses listed here don't appear to match up to the thicknesses listed in the survey plan. Please update and be more specific here about conditions that could be encountered.
- Section 4. The cap should be inspected routinely to ensure no significant erosion or breaches are present. The frequency of this will depend on proposed site uses and access, please refer to the capping inspection record appended and nominate a responsible person to undertake the inspections.
- Section 4.1:
  - It needs to be reiterated that any subsurface works should be prevented and minimised, and that subsurface works are not anticipated at the site unless significant redevelopment works are proposed, in which case Council will need to be notified of the works, and a LAA, Safe Work NSW Class A licensed asbestos removalist and/or environmental consultant will be engaged.
  - As mentioned above, clarify who the Building Operator is.
- Section 4.3. Remove breach of 'concrete cap' as it is understood there is no concrete cap at the site. There are several references to a concrete cap through the document, please remove and update all sections.
- Include when the EMP applies from, and until when.
- Section 4.7:
  - As the containment cell footprint is not obvious from the surface, this should be updated to include any sub-surface works within PS105. If different management measures are required based on the depth of sub-surface works, then please specify this.
  - Is any vegetation / landscaping proposed for PS105? If so, please provide details, and how works associated with this (digging holes for planting, pulling of weeds / dead plants) are to be managed? No management may be required if plants/vegetation are fairly shallow given the depth of the capping layer.
- Table 4.7.1. Action. Clarify any actions required if asbestos contaminated soils cannot be stockpiled on plastic lining or hard stand surfaces.
- Table 4.7.2:
  - Action, first dot point. The affected area should be managed appropriately to reduce risks from asbestos, such as covering of the affected area.
  - Identify a time in which breaches are to be rectified.
- Table 4.7.3:
  - Action, Item 3. The purpose of this action item is unclear, is a review of the EMP required when asbestos impacted material is exposed and requires additional management / control measure?
  - Action. The LTEMP will also need to be reviewed in a change of management or ownership of the site.
  - Frequency. The LTEMP likely does not need to be reviewed yearly in consultation with an environmental consultant, please justify why this should occur or consider removing.
  - Responsibility. 'The site owner or property manager'. Update so only one person is responsible.
- Include photograph and product specification of the marker layer.
- Appendix A. Include a survey plan of the whole PS105.

3.0 Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,
On behalf of **Senversa Pty Ltd**

NSW EPA Accredited Site Auditor (0803)

KR/MP

Technical Limitations and Uncertainty – *This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but forms part of the Site Audit process. It is intended that a Site Audit Statement and report will be issued at the completion of the site audit.*
Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

- *This site audit advice does not constitute a site audit report or statement.*
- *This letter is considered by the Auditor to be consistent with NSW EPA guidelines and policies.*
- *This letter will be documented in the final Site Audit Statement and associated documentation.*
- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

4 April 2025

CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear

Re: Interim Audit Advice #11: Sydney Metro Western Sydney Airport Surface and Civil Alignment Works
Review of Validation Report and LTEMP for PS105

1.0 Introduction and Background

(the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line.

It is understood that asbestos impacted soil from areas of environmental concern (known as AEC 35, 36 and 43) have been removed and encapsulated within PS105. The asbestos encapsulation cell is to be capped with material sourced from within SCAW considered surplus to the requirements of construction and also verified as suitable, and is to be managed under a long-term environmental management plan (LTEMP). Remediation and validation have been undertaken at the AECs and PS105, and the environmental consultant has produced the following reports which were forwarded to the site auditor for review:

- 'Site Validation Report, SCAW PS105 – Luddenham Road, Orchard Hills NSW' dated 13 February 2025 (Report No. 1870-SVR-03-211124.v3f) by Sydney Environmental Group (SVR).
- 'Long-term Environmental Management Plan, PS105, Luddenham Road, Orchard Hills NSW' dated 17 January 2025 by Sydney Environmental Group (LTEMP).

A previous version of the SVR and LTEMP were provided to the auditor for review with comments issued in Interim Audit Advice (IAA) No. 10 dated 10 March 2025. This IAA details the review of the updated reports in relation to PS105.

2.0 Review Comments

The Site Auditor has undertaken a review of the validation report and LTEMP against the requirements specified in the Guidelines for the NSW Site Auditor Scheme (3rd edition) (NSW EPA, 2017) and the Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2020). Review comments are detailed herein.

Site Validation Report

- This review refers to items related to validation of PS105 only. Comments for the AECs were provided in previous IAA letters.
- Please attach the figures.
- Page 1480 of the PDF. Elizabeth Drive. Please include a figure showing sample locations.
- Imported material.
  - Confirm if a material tracker exists or there are records of quantities or dockets provided for ENM imported from Mirragan Estate, Marsh Road, Silverdale.
  - Please attach the two material classification reports for ENM from Mirragan Estate into the report.
- Survey plan (SVR and LTEMP). Please include more survey points on the plan. Where there is a change in direction, there should be a survey point to indicate this. Please include a line showing the boundary of the site.

EMP

- Section 1.4. Update to describe how the LTEMP is to be legally enforced.
- Section 3.2. Please include a description of expected material to be encountered beneath the asbestos cell.
- Section 4. Please confirm if PS105 is to be fenced and publicly accessible. Depending on site use and considering the depth of the cell, yearly inspections may not be considered necessary.
- Section 4.7. It may only be necessary that a LAA and SafeWork NSW Licensed Asbestos Assessor is required to be engaged where breaches to the marker layer/containment cell are expected, or have occurred. The auditor doesn't consider a LAA or Licensed Asbestos Assessor are necessary for breaches of the capping layer. Please update all wording so it is consistent.
- Table 4.7.3. Action 3. *'Inspections indicate exposure of soil materials within the containment area and additional management or controls are required'*. Please clarify what 'exposure of soil materials…are required' means.

3.0 Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.
Yours sincerely,

On behalf of **Senversa Pty Ltd**

NSW EPA Accredited Site Auditor (0803)

KR/MP

Technical Limitations and Uncertainty *– This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but forms part of the Site Audit process. It is intended that a Site Audit Statement and report will be issued at the completion of the site audit.*
Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

- *This site audit advice does not constitute a site audit report or statement.*
- *This letter is considered by the Auditor to be consistent with NSW EPA guidelines and policies.*
- *This letter will be documented in the final Site Audit Statement and associated documentation.*
- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

Appendix D: LTEMP

Sydney Environmental Group

Long-term Environmental Management Plan

PS105, Luddenham Road, Orchard Hills NSW

CPB Contractors Pty Ltd and United Infrastructure Pty Ltd Joint Venture (CPBUIJV)

Report No: 1870-EMP-01-170125.v3f

Report Date: 14 April 2025

Sydney Environmental Group Pty Ltd PO Box A1420, Sydney South NSW

Info@sydneyenvironmental.com.au

DOCUMENT RECORD

Revision	Date	Author	Reviewer
v1f	17 January 2025		
v2f	21 March 2025		
v3f	14 April 2025		

Author Signature		**Reviewer Signature**	
Name		**Name**	
Credentials	B.Sc. Earth Sc.	**Credentials**	CEnvP, M.Sc.Envir.Sci, B.Sc. Meteorology
Title	Environmental Scientist	**Title**	Managing Consultant

Document Title:	Environmental Management Plan, PS105, Luddenham Road, Orchard Hills NSW
Site Address:	PS105, Luddenham Road, Orchard Hills NSW
Client Name:	CPB Contractors Pty Ltd & United Infrastructure Pty Ltd Joint Venture (CPBUIJV)
Site Size:	4.5 ha
Reference Number:	1870-EMP-01-170125.v3f
Project Type:	Long Term Environmental Management Plan
Project Type Abbreviation:	EMP
Document Draft:	FINAL
Document Revision No.	v3

Prepared by Sydney Environmental Group Pty Ltd ABN: 14 631 026 214

TABLE OF CONTENTS

FIGURES

APPENDICES

1. PURPOSE

1.1. Background

Sydney Environmental Group Pty Ltd (SE) was engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd Joint Venture (CPBUIJV) (the client) to prepare an Environmental Management Plan (EMP) for asbestos impacted soils that have been capped and contained within the site located within PS105, Luddenham Road, Orchard Hills NSW (refer **Figure 1**). The site is legally identified as a Part of Lot 51 in DP1276956.

Non-Friable and Friable asbestos impacted soils were transported to the site during development works. Asbestos impacted soils were remediated using a 'cap and contain' strategy. The containment strategy is a passive system comprised of a clean capping layer, overlying an additional layer of clean fill soils, and finally an orange geotextile marker layer. Friable and Non-Friable asbestos impacted soils are buried beneath the capping system.

This EMP describes conditions of the site and details passive management strategies to manage contained asbestos impacted soils. The protocols outlined in this EMP must be considered in future works that may result in a breach of the capping layer covering the asbestos impacted soils containment cell on-site (refer to **Figure 2** and **Attachment A – Containment Cell Survey**).

1.2. Objectives

The key objective of this EMP is to outline the maintenance of the capping layers within the placement cell and prevent any unplanned breaches of the capping layer and containment cell. To achieve the objective, this EMP documents: This long-term EMP is required to be implemented to:

- Detail the known extent and construction of the asbestos impacted soils containment cell;
- Define responsibilities and safe work procedures for working with asbestos impacted soils;
- Define incident response and reporting requirements;
- Define the roles and responsibilities of relevant stakeholders to ensure the safe, long-term management of the site; and
- Detail the mechanism to make this EMP legally enforceable and the parties responsible for the ongoing management of the containment cell on-site.

1.3. Supporting Documentation

This EMP has been developed based on the findings of the following previous investigation, remediation and validation:

- Remediation Action Plan, prepared by Douglas Partners, 204814.01.RAP.006.Rev3; dated 22 December 2023; and
- Site Validation Report, prepared by SE, 1870-SVR-03-211124.v3f, dated 21 March 2025

1.4. Legal Enforceability

All operations and activities conducted on the site must fully comply with the provisions of relevant NSW environmental legislation and WHS legislation, as well as any further requirements imposed by the relevant authorities, e.g. NSW EPA under the *Contaminated Land Management Act, 1997*, *Work Health and Safety Act, 2011*, and the *Protection of the Environment Operations Act, 1997* and associated Regulations.

In NSW, Long-Term Environmental Management Plans (LTEMPs) become legally enforceable when they are required as conditions of development consent under the *Environmental Planning and Assessment Act 1979* or included in Environment Protection Licences under the *Protection of the Environment Operations Act 1997*. Once approved, these conditions are binding, and non-compliance can lead to penalties, stop-work orders, or court action. Enforcement is carried out by agencies like the NSW EPA, the Department of Planning, and the Land and

Environment Court, ensuring ongoing environmental protection through monitoring, reporting, and legal oversight.

1.5. Public Disclosure

The public disclosure of the asbestos impacted soils retained on-site within the on-site containment cell will be via the following instruments:

- Section 10.7 certificate and Land Titles
- Section 88B Covenant (Refer to Appendix B)
- Site Audit Statement

The Site Owner is to register a covenant on title of the land (S88B) binding the owners and future owners to the following:

- Responsibility for ongoing maintenance of the asbestos containment cell in accordance with the EMP; and
- Responsibility for any future management of site contamination that may be required by NSW Environment Protection Authority to ensure that the site remains suitable for present or proposed land uses and to ensure risks to human health remain low and acceptable.

Penrith City Council is to amend the Section 10.7 (2) Planning Certificate to include the following notations:

- The site is identified as Contaminated Land; and
- The existence of the Site Audit Statement and Environmental Management Plan

1.6. Key Stakeholders and Responsibilities

The key stakeholders and their contact details are listed in **Table 1.6.1** below.

Table 1.1 Stakeholder Contact Details

Stakeholder	Organisation	Address
Council	Penrith City Council	601 High Street, Penrith NSW
Site Owner	Sydney Metro	47 Tallawong Road, Tallawong NSW
Property Operator	Sydney Metro	47 Tallawong Road, Tallawong NSW

Table 1.2 Key Stakeholders and Responsibilities

Stakeholder	Organisation	Responsibility
Council	Penrith City Council	Update s10.7 Planning Certificate to identify the land as 'Contaminated Land' and identify the existence of this EMP. Enforce the EMP
Site Owner	Sydney Metro Environment Manager	Ensure the EMP is readily available, up to date, and relevant for those who operate the site. If there is a material change to the EMP (remediation) provide Council with updated EMP.
Property Operator	Sydney Metro	Implement and maintain EMP Induct sub-surface workers to EMP Keep records or entry / closure of containment cell
Property Manager	Sydney Metro Property Manager	Ensure EMP is on file at property and that the EMP remains relevant, as well as review and update the EMP if site conditions change (for example change of land use or there is a breach of the EMP. A suitably qualified environmental consultant may be engaged to undertake this, as required, at the discretion of Sydney Metro. Review any proposed works and documentation from future site contractors against the requirements of this EMP. This includes any intrusive works which may damage the cap and / or the marker layer. Cap inspections must be routinely implemented by the property manager and documented.
Future Site Contractors	Various	All contractors who may breach the containment cell must be provided with and review this EMP. Where the containment cell is likely to be breached, then management strategies detailed in this EMP must be implemented. All future site contractors must also be inducted to the site.
Environmental Consultant	Engaged as required	An appropriately qualified Environmental Consultant must be consulted prior to any sub-surface works. Update EMP as engaged by the Property Manager.
Class A Licensed Asbestos Removalist	Engaged as required	A SafeWork NSW Class A Licensed Asbestos Removalist must be engaged to supervise any sub-surface works that require or may involve disturbing or removing asbestos contaminated materials.
Licensed Asbestos Assessor	Engaged as required	A SafeWork NSW Licensed Asbestos Assessor must be engaged to undertake airborne asbestos monitoring during any sub-surface works that require or may involve disturbing or removing asbestos contaminated materials and issue a clearance certificate at the successful completion of those works.
Site Auditor	Engaged as required	An auditor may be engaged to review EMP after material change to the EMP which may impact the use or suitability of the land, as required, at the discretion of Sydney Metro. Issue Site Audit Statement (SAS)
Site Visitors	Public	PS105 is to be fenced off and not publicly accessible. Maintenance will be associated with corridor landscaping works. Vegetation and landscaping will be as per what is implemented by SCAW (i.e. grass or shallow/surficial landscaping).

2. SITE SETTING

2.1. Site Identification

The site identification details and associated information are presented in **Table 2.1.**

Table 2.1. Site Identification Information

Attribute	Description
Street Address	PS105, Luddenham Road, Orchard Hills NSW
Lot and Deposited Plan (DP)	Part of Lot 51 in DP1276956
Geographical Coordinates	-33° 47' 59" S, 150° 45' 25" E (Centre of site)
Site Area	4.5 ha
Local Government Area (LGA)	Penrith City Council
Parish	Claremont
County	Cumberland
Zoning	RE1 – Public Recreation RU2 – Rural Landscape *Penrith Local Environmental Plan 2010*

3. Site History Summary

3.1. Site History Summary

The previous land use of the site was observed to be a for grazing activities. No previous contamination was identified at the site before it was selected as a containment area for asbestos impacted soils from other areas of the project.

A remedial action plan, approved by the site auditor was implemented to consolidate and bury asbestos impacted soils from other areas associated with the project within a designed containment cell area on-site. Remedial works were undertaken from June to September 2023.

The remediation works have resulted in asbestos impacted fill materials being retained onsite within a containment cell area. The containment cell is comprised of a capping layer, overlying an additional layer of clean fill soils, and finally an orange geotextile marker layer. Asbestos impacted soils are retained beneath the orange geotextile layer. Asbestos impacted soils were excavated from areas outside of the containment cell and placed atop of asbestos impacted soils that remained in-situ. The remedial surface outside of the containment cell area was validated and backfilled with clean fill soils.

3.2. Asbestos Containment Details

One containment cell is situated on-site. The cell covers an approximate area of 4.5 ha across the northern portion of the site. A summary of the containment cell details, and construction are provided below. Refer to **Appendix A** for containment cell surveys.

Table 3.2.1 Placement Cell Construction Details (PS105 Containment Cell)

Layer	Average Thickness (m)	Description
Soil Surface	0 m Below Ground Level	Soil Surface
Validated Fill Material	0 m – 4.9 m Below Ground Level	CLAY/, light to medium brown, medium plasticity, no foreign materials identified.
Top of Cell (Orange geotextile marker layer)	4.9 m – 7.27 m Below Ground Level	Orange geotextile marker layer
Relocated Asbestos Impacted Materials	4.9 to 6.9 m; 7.27 to 9.27 m Below Ground Level	Silty CLAY, medium plasticity, medium brown, moist-dry, foreign materials including brick, metal, tile and plastic. Contains friable and non-friable asbestos fibre cement fragments
Beneath Asbestos Cell	6.9 to 9.36m + Below Ground Level	CLAY, orange to yellow / red, medium/high plasticity, no foreign materials identified.

Table 3.2.2 Placement Cell Surveyed Depths (PS105 Containment Cell)

Location	AHD (m)				
Ch120					
Surface	37.53	37.51	37.93	37.48	37.47
Encapsulation Depth	5.17	5.13	5.57	5.15	5.1
Encapsulation Top	32.36	32.39	32.36	32.34	32.36
Ch100					
Surface	37.51	37.47	37.93	37.67	37.65
Encapsulation Depth	4.98	4.9	5.6	5.26	5.27
Encapsulation Top	32.53	32.57	32.32	32.41	32.38
Ch160					
Surface	37.8	37.81	38.06	38.12	38.06
Encapsulation Depth	5.52	5.32	5.75	5.4	5.44
Encapsulation Top	32.06	32.32	32.35	32.38	32.23
Ch140					
Surface	37.58	37.64	38.09	37.79	37.67
Encapsulation Depth	5.52	5.32	5.75	5.4	5.44
Encapsulation Top	32.06	32.32	32.35	32.38	32.23
Ch170					
Surface	37.88	37.85	38.05	38.16	-
Encapsulation Depth	6.01	5.41	5.67	7.27	-
Encapsulation Top	31.86	32.44	32.38	30.89	-

3.3. Asbestos Health Risks

Asbestos is the generic term for a number of fibrous silicate minerals. There are two major groups of asbestos: the serpentine group (i.e. chrysotile) and the amphibole group (i.e. amosite, crocidolite, tremolite, actinolite and anthophyllite). Asbestos has widely been used in building products due to its insulation and fire-resistant properties. The toxic effects of asbestos are well recognised and primarily result from the inhalation of free fibres. If fibres are inhaled into the lungs, they can initiate diseases that take many years to produce major health effects. These effects include asbestosis, lung cancer and mesothelioma.

The National Environmental Protection Council (NEPC) recognises the following forms of asbestos contamination:

- Asbestos-containing material (ACM) which is in sound condition and the asbestos is bound in a matrix (cement sheeting, tiles). This is also restricted to ACM that cannot pass through a 7mm x 7mm sieve. ACM represents a low human health risk;
- Fibrous Asbestos (FA) encompasses asbestos in the form of loose fibrous material such as insulation and severely weathered ACM defined by its crumbly nature under hand pressure; and
- Asbestos Fines (AF) includes free fibres of asbestos, small fibre bundles and ACM fragments that pass through a 7mm x 7mm sieve.

Both FA and AF have the potential to generate airborne fibres and can pose a considerable inhalation risk if made airborne.

Asbestos presents a hazard only if fibres of respirable size become airborne, and there is a potential for site users to inhale them. The release of asbestos fibres from materials and substrates is dependent on the amount of disturbance impacted upon by these materials. The danger of the airborne asbestos is that fibres are not visible to the naked eye, and the long duration required between exposure to asbestos and the onset of the disease associated.

The cap and contain methodology removes the pathway between the asbestos source (contained asbestos impacted fill soils) and receptors (on-site users, maintenance and construction workers, and persons off-site). If the containment is removed or penetrated, then a pathway may be generated, leading to a complete source – pathway – receptor link.

The presence of asbestos beneath the capping layer at the site does not affect the present safe use of the site under the current land use scenario whilst the existing surface coverings are undisturbed. If however these surface coverings are disturbed, a risk of exposure may result. In order to develop appropriate measures to control this potential exposure, it is necessary to understand the potential exposure pathways.

4. MANAGEMENT PROCEDURES

The PS105 area will be fenced off and not publicly accessible. The cap should be inspected routinely to ensure no significant erosion or breaches are present. These inspections should be undertaken as required by the Sydney Metro Environment Manager. An inspection record should be kept as outlined in **Appendix C**. This EMP is applicable for as long as the containment cell within PS105 exists.

4.1. Induction

Subsurface works are not anticipated to be undertaken at the site unless significant redevelopment works are proposed. Any subsurface works should be prevented and/or minimised as far as is reasonably practicable. Should significant redevelopment be proposed, Council, an LAA, and a Safework NSW Class A licensed asbestos removalist, and/or environmental consultant will need to be notified/engaged.

The Property Owner (Sydney Metro) is to ensure all contractors undertaking subsurface works on the site have completed a site-specific induction in relation to the on-site contained asbestos contamination soils.

The induction program is to include the following:

- Information about the nature of the hazards arising from exposure to asbestos;
- Identification of the location of contained asbestos impacted soils;
- Composition of capping materials for visual reference, including orange marker layer;;
- Procedures to be followed if subsurface works are planned within the containment cell area;
- Procedures to be followed for accidental breach of capping layer;
- Exposure monitoring that may be required for working with asbestos; and
- Incident reporting.

The Building Operator must keep records of all inductions for 5 years after the day the worker stops carrying out the subsurface works. These records must also be made available for inspection by the Site Owner, Property Manager, or SafeWork NSW as required.

4.2. Licensing

A SafeWork NSW Licensed Asbestos Assessor must be engaged prior to any subsurface works involving the breach of capping materials. All asbestos related works relating to the containment cell must be supervised by:

- A SafeWork NSW Licensed Asbestos Assessor; and
- A SafeWork Class A Asbestos Removalist.

A notification to SafeWork NSW must be submitted and approved prior to any asbestos related works commencing on-site.

4.3. Personnel Protective Equipment

Works conducted below the capping layer in asbestos contaminated soils, must be undertaken by an appropriately licensed contractor meeting the current NSW Work Health and Safety (WHS) and SafeWork requirements. All contractors are required to show compliance with the *Work Health and Safety Act*, 2011, including the preparation of a Site Safety Management Plan and Safe Work Method Statements. An Asbestos Management Plan will require preparation and implementation prior to disturbance of the capping layer including outlining the personnel protective equipment (PPE).

All work shall be undertaken with due regard to the minimisation of environmental effects and to meet all statutory requirements and as such that work on the site complies with all relevant legislation and guidelines.

4.4. Airborne Asbestos Monitoring

A NSW Licensed Asbestos Assessor (LAA) must be engaged to carry out air monitoring during all earthworks conducted below the capping layer. Air monitoring involves sampling airborne asbestos fibres to assist in assessing exposure to asbestos and the effectiveness of implemented control measures. It must be conducted in accordance with the *Guidance Note on the Mebrane filter [NOHSC3003:2005]*.

4.5. Spoil Management

Where required, asbestos impacted soil materials to be removed from the site will require classification in accordance with NSW EPA *Waste Classification Guidelines: Part 1: Classifying* waste, November 2014 (NSW EPA 2014).

Where temporary stockpiling of asbestos impacted soils is required, additional measures such as wetting down soils, covering stockpiles etc will be detailed by the supervising Licensed Asbestos Assessor.

4.6. Reporting of Complaints and Incidents

If a complaint is made by a member of the public or by any other person with respect to any environmental management or control issue, appropriate corrective action is required to be undertaken as soon as practicable. The site owner is responsible for ensuring the corrective action is undertaken.

Similarly, if an environmental incident occurs that has given or may give rise to pollution of soil, air or waters, appropriate corrective action is required to be undertaken as soon as practicable.

In addition to the above, complaints and environmental incidents are required to be notified to the site owner as soon as practicable after a complaint has been made or an environmental incident has occurred. If appropriate, and following the site owner's instructions, notification may need to be made to the applicable regulatory authority.

Records of complaints and incidents are required to be entered into a register to be developed for the Site, but only after corrective action has been taken and the site owner has been notified.

4.7. Sub-Surface Works Within the Containment Cell Footprint

Prior to any works that may breach the marker layer / containment cell within PS105, or following an unexpected breach, a SafeWork NSW Licensed Asbestos Assessor must be engaged to review the proposed scope of works and provide a specific works methodology. As the asbestos contained within the containment cell is classified as friable, only a SafeWork NSW Licensed Asbestos Assessor can undertake airborne asbestos monitoring and issue clearance reports. Additionally, a SafeWork Class A licensed asbestos removalist must be engaged to supervise works.

The surface of PS105 comprises of grass or other shallow/surficial landscaping with no deep-rooted vegetation requiring further management. Vegetation will be as per what is implemented under SCAW.

Table 4.1 Planned Works Beneath the Capping Layer

Action	Due to the potential risk of interacting with impacted soils during excavations beneath the capping layer within the containment cell area. When conducting works below the capping layer, the following procedures must be adopted prior to works commencing: 1. Notify the site owner prior to undertaking any disturbance beneath the capping layer; 2. Engage a Licenced Asbestos Assessor (LAA) / environmental consultant prior to commencement of works below the capping layer; 3. Engage a SafeWork NSW Class A licensed asbestos removalist to undertake and supervise works; 4. SafeWork NSW Class A licensed asbestos removalist must submit a notification to SafeWork NSW. 5. Prior to commencement of soil disturbance, the work area is to be barricaded to restrict entry of unauthorised personnel and to minimise the potential for tracking impacted soil beyond the work area; 6. Placement of an adequate number of indelibly labelled warning signs at the boundary of the area of asbestos removal works, which comply with AS 1319 Safety Signs for Occupational Environment; and 7. Prohibit access to all personnel unless wearing PPE that is appropriate for protection against airborne asbestos fibres. The following procedure must be adopted for handling asbestos impacted soils: • A NSW Licensed Asbestos Assessor (LAA) or appropriately experienced / competent occupational hygienist will be present onsite to manage and supervise works. • Keep potentially asbestos impacted soils lightly wetted at all times (without generating free water); • If asbestos contaminated soils are to be stockpiled on site, stockpiles must be placed on plastic lining, geotextile, or hard stand surfaces (i.e. bitumen/concrete) to avoid cross contamination of underlying soils; • Disposal (if required) of asbestos impacted soil will require assessment, in accordance with the appropriate guidelines, prior to disposal; • During transport, all asbestos impacted wastes must be placed in a sealed truck, with appropriate cover, then transported to an appropriately licensed waste receiving facility; • Cover stockpiled soils with plastic sheeting or geofabric, during dry and windy conditions whilst awaiting disposal; • At the completion of any works, the marker layer and capping layer must be re-instated to the original condition and levels. Any deviation from this will require input from the environmental consultant.
Frequency	• As required
Responsibility	• Environmental Consultant; • Licensed Asbestos Assessor; • Class A Licensed Asbestos Removalist; • Appointed contractor; and • The site owner (or an appointed representative).

Table 4.2 Accidental Exposure of Asbestos Impacted Soils

Action	• Should asbestos impacted soils become exposed, the affected area is to be managed appropriately to reduce risks from asbestos, such as covering the affected area as soon as possible. The area should be delineated and cordoned off through placement of barriers or other appropriate means with appropriate signage. The breach must be rectified as soon as possible and in accordance with the provisions as outlined in this EMP; • Engage a Licenced Asbestos Assessor (LAA) / environmental consultant to inspect the area and conduct boundary control airborne asbestos monitoring for the duration of the incident; • Engage a SafeWork NSW Class A licensed asbestos removalist to undertake and supervise works; • The relevant Incident Report Form (**Appendix B**) must be completed and the breach reported. An incident investigation must be undertaken with the cause of the incident (to prevent reoccurrence) assessed. Copies of the incident report are to be kept on file and a copy provided to the site owner; • Follow procedures presented in **Table 4.7.1**. • The capping layer must be re-instated to the original condition. Inspection of the reinstated ground surface and capping layer must be inspected by a SafeWork NSW Licenced Asbestos Assessor (LAA) and supervising Environmental Consultant; • Corrective action/s are to be implemented to rectify the incident and an associated inspection.
Frequency	As required.
Responsibility	• The site owner (or an appointed representative); • Environmental Consultant • Licensed Asbestos Assessor; • Class A Licensed Asbestos Removalist; and • Appointed contractors.

Table 4.3 EMP Review

Action	A review of this EMP is required when: 1. Site conditions change (redevelopment works, change in land use, change in infrastructure at the site); 2. Legislation / guidelines change; 3. Inspections indicate exposure of soil materials (i.e. significant erosion, vegetation stripping, or other significant damage to the soil surface) within the containment area and additional management or controls are required; 4. Incident review indicates further controls are required; and 5. There is a change of management or ownership of the site. Items 1 and 4 must be present to the site auditor for review and acceptance prior to finalisation.
Frequency	• Yearly (Consult with environmental consultant to ensure no significant legislation or guideline changes) • Anytime material changes are made to the containment cell (i.e. removal of impacted soils, changes to the marker or capping layers, change in land-use, or tenant).
Responsibility	• The site owner, with the change to be completed by an environmental consultant (where required) and signed off by the Site Auditor. Note that the site owner is responsible for disseminating the revised EMP to the occupant and council.

4.8. Record Keeping

All planned or unexpected works involving a breach of the capping layer must be recorded and kept by the site owner and site operator.

4.9. PS105 Marker Layer

The marker layer is comprised of mastaTEX Orange Hi Vis Geotextile Warning Layer, photographed upon placement below.

Site Photograph 1. Top of PS105 containment cell, following placement of mastaTEX Orange Hi Vis Geotextile Warning Layer (facing east), as observed 1 February 2024.

5. REFERENCES

CLM Act, 1997	Contaminated Lands Management Act 1997.
POEO Act, 1997	Protection of Environment Operations Act 1997.
WHS Act, 2011	NSW Work Health and Safety Act 2011.
NOHSC, 2005	Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition, (NOHSC: 3003 (2005)).
NEPC, 2013	*National Environmental Protection (Assessment of Site Contamination) Measure, 1999, Volume 3: Schedule B2, Guidelines on Site Characterisation*, as amended May 2013, National Environment Protection Council (NEPC).
WHS Reg, 2017	NSW Work Health and Safety Regulation 2017
NSW EPA, 2022	*Sampling Design Guidelines*, September 2020, NSW Environmental Protection Authority (EPA).
NSW EPA, 2020	*Guidelines for Consultants Reporting on Contaminated Sites*, 2020, NSW EPA
SafeWork, 2022a	SafeWork NSW Code of Practice: *How to Safely Remove Asbestos*, 2022.
SafeWork, 2022b	SafeWork NSW Code of Practice: *How to Manage and Control Asbestos in the Workplace*, 2022.
WA DOH, 2021	Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, 2021.
DP 2023	Remediation Action Plan, dated 22 December 2023, prepared by Douglas Partners, ref: 204814.01.RAP.006.Rev3;
SE 2025	Site Validation Report – PS105, Luddenham Road, Orchard Hills NSW', dated 21 March 2025, prepared by SE, ref: '1870-SVR-03-211124.v5f

6. STATEMENT OF LIMITATIONS

The findings presented in this report are based on specific searches of relevant, government historical databases and anecdotal information that were made available during the course of this investigation. To the best of our knowledge, these observations represent a reasonable interpretation of the general condition of the site at the time of report completion.

This report has been prepared solely for the use of the client to whom it is addressed and no other party is entitled to rely on its findings.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Sydney Environmental Group Pty Ltd. Should information become available regarding conditions at the site including previously unknown sources of contamination, SE reserves the right to review the report in the context of the additional information.

This report must be reviewed in its entirety and in conjunction with the objectives, scope and terms applicable to SE's engagement. The report must not be used for any purpose other than the purpose specified at the time SE was engaged to prepare the report.

Logs, figures, and drawings are generated for this report based on individual SE consultant interpretations of nominated data, as well as observations made at the time site walkover/s were completed.

Data and/or information presented in this report must not be redrawn for its inclusion in other reports, plans or documents, nor should that data and/or information be separated from this report in any way.

Should additional information that may impact on the findings of this report be encountered or site conditions change, SE reserves the right to review and amend this report.

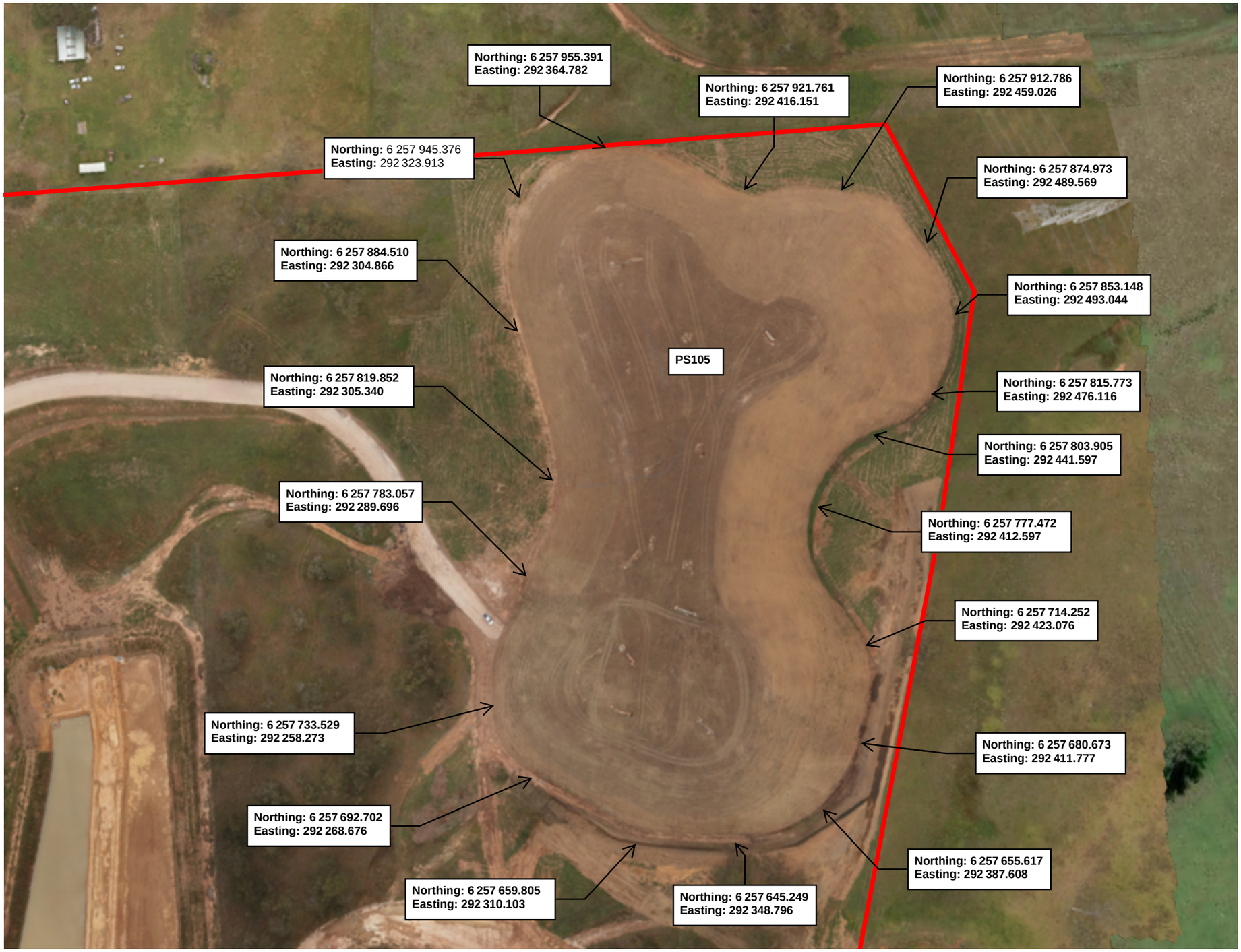
FIGURES

Sydney Environmental Group	Scale: 500 m	Sampling Locations	
Client Name:	CPB Contractors Pty Ltd & United Infrastructure Pty Ltd Joint Venture (CPBUIJV)	N	Figure Number: 1
Project Name:	Long Term Environmental Management Plan – PS105		Figure Date: 17 January 2025
Project Location:	PS105, Luddenham Road, Orchard Hills NSW		Report Number: 1870-EMP-01-170125.v1f

Scale:	70 m — PS105 Boundary			
Client Name:	CPB Contractors Pty Ltd & Universal Infrastructure Pty Ltd Joint Venture (CPBUIJV)	N	Figure Number:	2
Project Name:	Site Validation Report – PS105		Figure Date:	2 December 2024
Project Location:	CPBUIJC SCAW Project Compound, Orchard Hills NSW		Report Number:	1870-SVR-03-021224.v1f

Sydney Environmental Group

12D PROJECT : 002 002 PP Reductions v14



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APPENDIX A

ASBESTOS CONTAINMENT CELL SURVEYS

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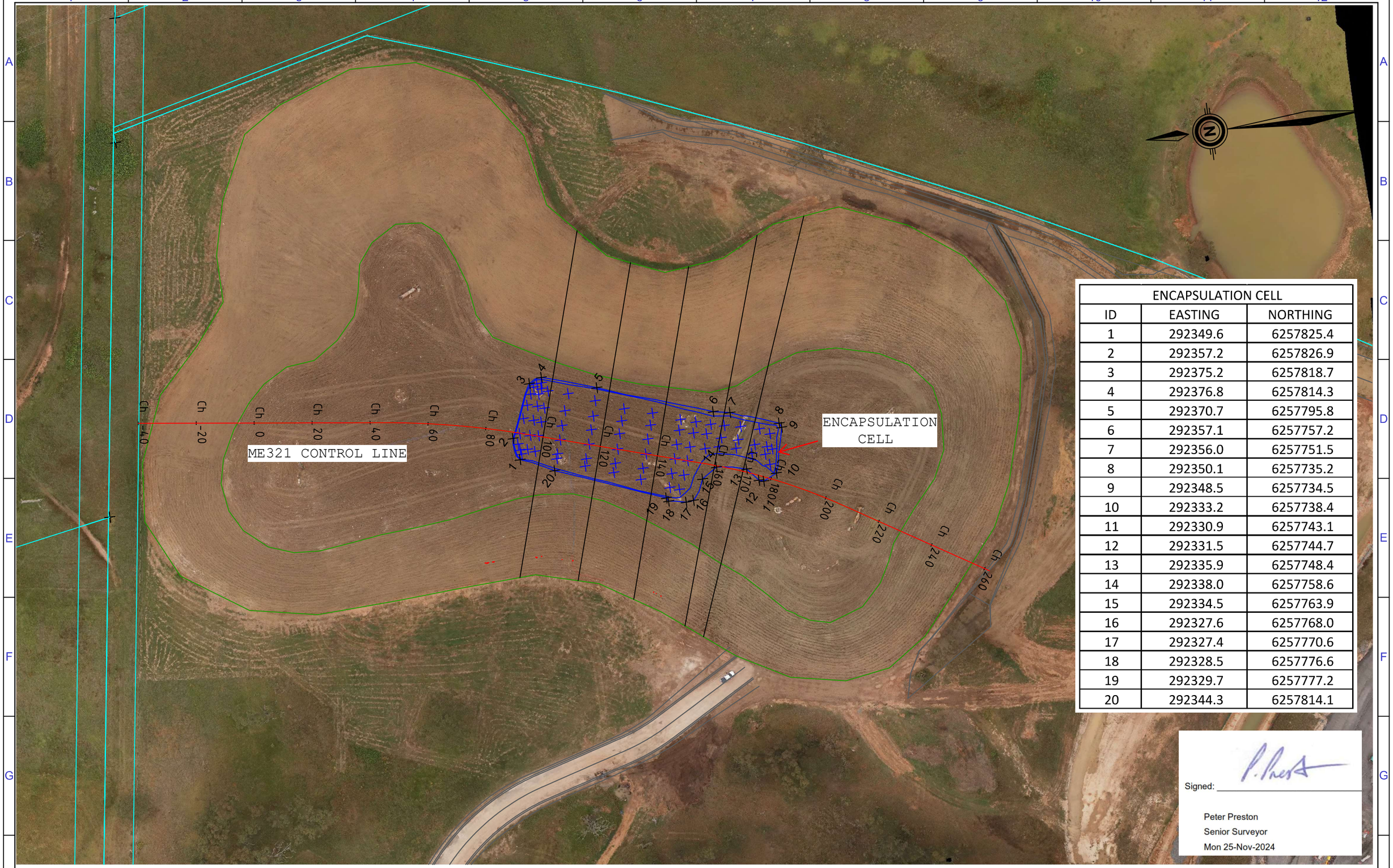

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4	292376.8	6257814.3
5	292370.7	6257795.8
6	292357.1	6257757.2
7	292356.0	6257751.5
8	292350.1	6257735.2
9	292348.5	6257734.5
10	292333.2	6257738.4
11	292330.9	6257743.1
12	292331.5	6257744.7
13	292335.9	6257748.4
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15	292334.5	6257763.9
16	292327.6	6257768.0
17	292327.4	6257770.6
18	292328.5	6257776.6
19	292329.7	6257777.2
20	292344.3	6257814.1

Signed: _____

Peter Preston
Senior Surveyor
Mon 25-Nov-2024

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PS105 Encapsulation Cell

DRAWING STATUS | DRAWING No. 1 | Sheet 1 of 4 | REV.

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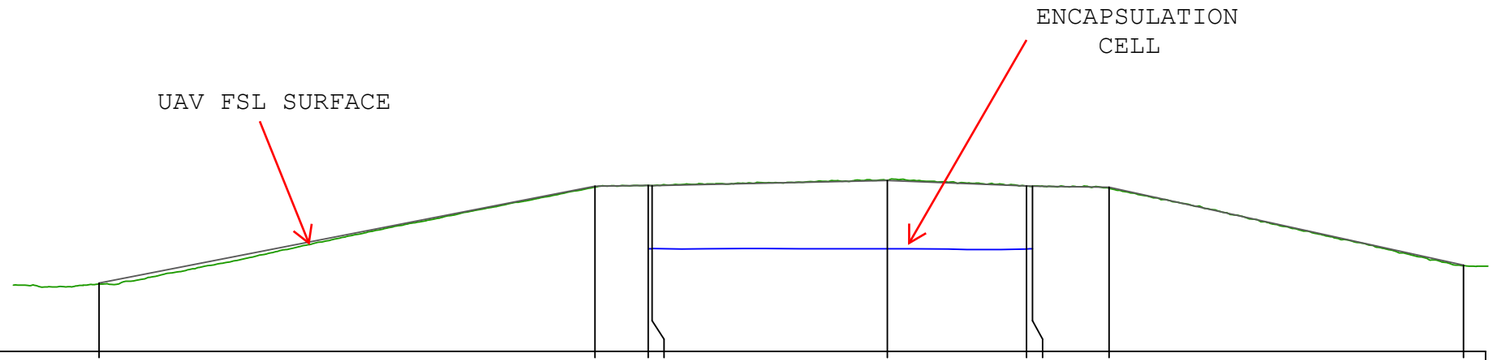

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ENCAPSULATION TOP			32.36 32.39	32.36	32.34 32.36		
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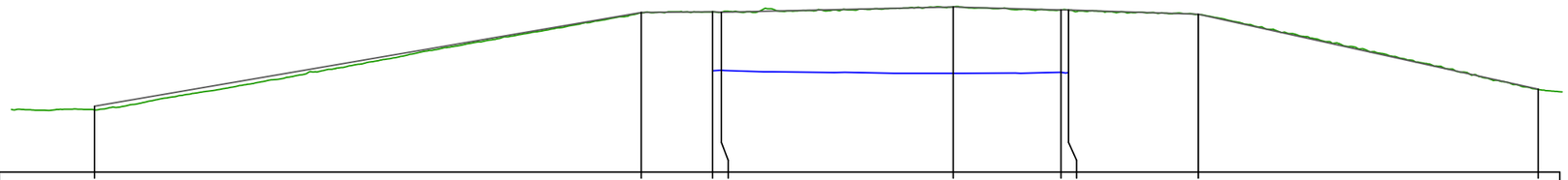
ME321 Ch 120



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ENCAPSULATION TOP			32.53 32.57	32.32	32.41 32.38		
PS105 UAV FSL	29.25	37.43	37.51 37.47	37.93	37.67 37.65	37.29	30.97
ME321 Offset	-72.122	-26.200	-20.195 -19.470	0.000	9.073 9.695	20.606	49.169

ME321 Ch 100

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PS105 Encapsulation Cell

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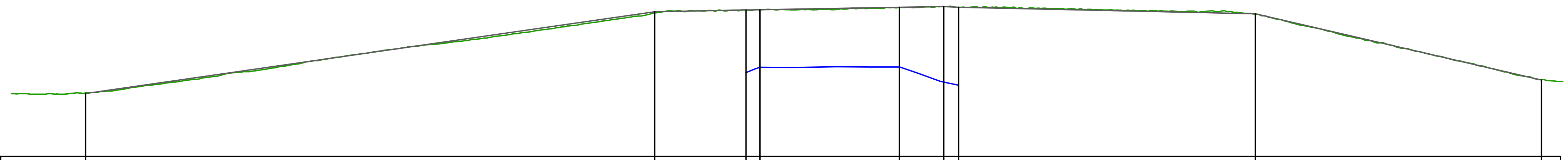

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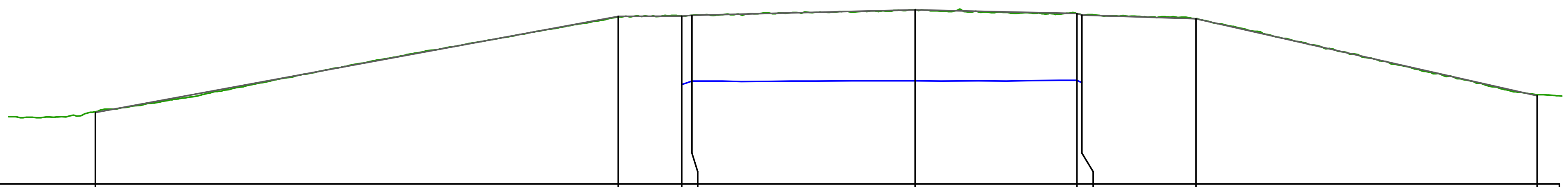
ME321 Ch 160



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ME321 Offset	-66.173	-23.958	-18.842	-18.005	0.000	13.070	13.465	22.676	50.212

ME321 Ch 140

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PS105 Encapsulation Cell

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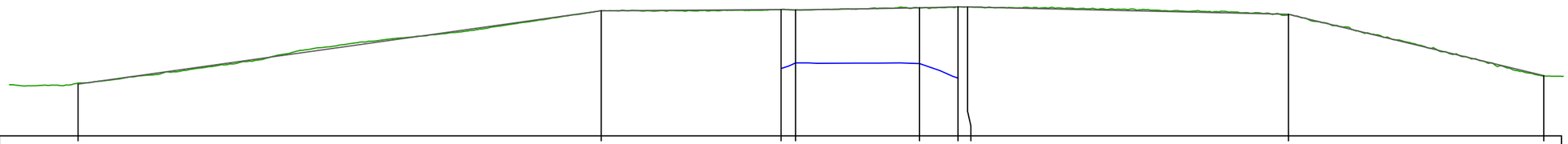

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ME321 Offset	-90.545			-37.288		-18.995	-17.497	-4.891	-0.968	0.000	32.661		58.655

ME321 Ch 170

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PS105 Encapsulation Cell

DRAWING STATUS | DRAWING No. 102 | Sheet 4 of 4 | REV.

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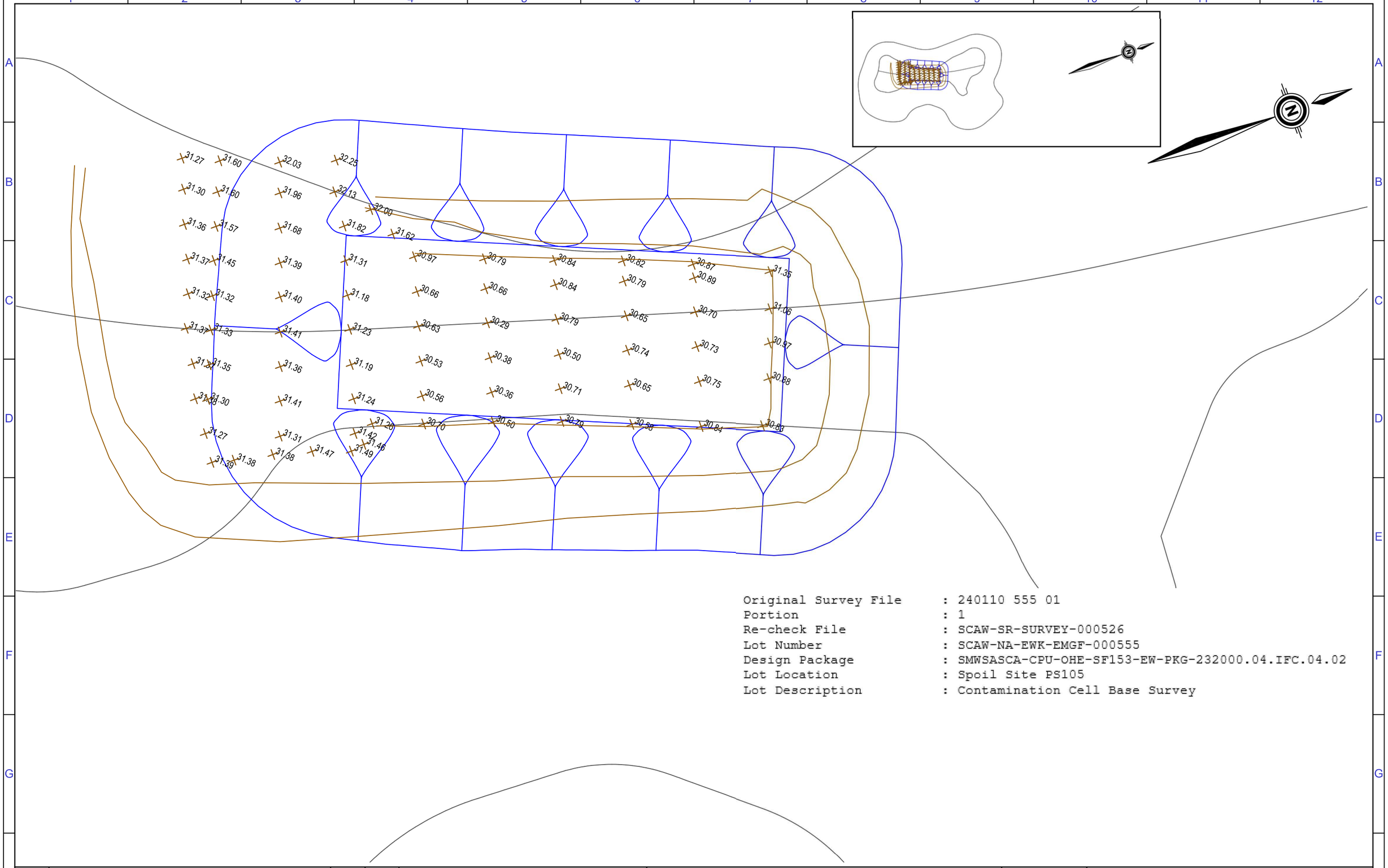

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Design Package : SMWSASCA-CPU-OHE-SF153-EW-PKG-232000.04.IFC.04.02
Lot Location : Spoil Site PS105
Lot Description : Contamination Cell Base Survey

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PS105 Contamination Cell Base Levels

DRAWING STATUS | DRAWING No. 1 | REV.

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Co-ordinate System - MGA2020 Zone 56
Height Datum - AHD

CPB CONTRACTORS | UNITED INFRASTRUCTURE

Sydney Metro - Western Sydney Airport
Surface and Civil Alignment Works
Level 5, 60 Miller St
North Sydney, N.S.W, 2060
Ph.
http://

PLOT DATE: Tue Jan 23 13:30:38 2024

SMWSA - Surface and Civil Alignment Works

DRAWING STATUS	DRAWING No. 1	REV.

Scale at 1:1000 0 10 20 30 40 50 60 70 80 90 100

APPENDIX B

SECTION 88B COVENANT

APPENDIX C

INSPECTION RECORD FORM

Capping Inspection Record

PS105, Luddenham Road, Orchard Hills NSW	
Is there any evidence of damage to the capping?	
If yes, describe the location and depth of the damage of the capping.	
Have photographs of damage of the capping been collected.	
Is there any disturbance / erosion of soil in the capping area?	
If yes, describe the location and depth of the disturbance.	
Have photographs of the disturbance in the capping area been collected.	
Are there any areas of exposed marker layer?	
If yes, have contingency measures been implemented?	
Have photographs of the exposed areas been collected?	

Person Completing Inspection_____

Date Submitted to Site Owner_____

APPENDIX D

INCIDENT REPORTING FORM

Environmental Incident Report Form

PS105, Luddenham Road, Orchard Hills NSW	
Date:	
Time:	
Reported by:	
Persons involved or in the vicinity:	
Type of Incident:	
Severity of Incident:	
Description & Cause of Incident:	
Remedial Actions Required:	

Approved By: _____

Date Submitted to Site Owner: _____

Appendix E: Sydney Metro LTEMP Acceptance

From:
Sent: Tuesday, 22 April 2025 9:13 AM
To:
Cc:
Subject: SMWSA SCAW - LTEMP Rev 3 - PS105

Follow Up Flag: Follow up
Flag Status: Flagged

Hi

Sydney Metro have accepted LTEMP Rev 3, please see below.

Regards,

Environment Manager for NSW & ACT (Acting)
Level 4, 177 Pacific Highway, North Sydney, NSW 2060, Australia

W cpbcon.com.au

From:
Sent: Thursday, 17 April 2025 5:39 PM
To:

Cc:

Subject: RE: LTEMP - Auditor Comments - PS105

Thanks

No further comments on this Rev 3 of the LTEMP. Please finalise and issue the SAS/SAR when ready.

I note that we have not yet seen the final validation report. Please can you issue all final documents on TB also.

Thank you

Senversa Pty Ltd

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