senversa

Site Audit Report

AEC 41 and AEC 42, 1793 Elizabeth Drive Badgerys Creek

Audit Number: MP181_3

9 March 2023

NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. MP181_3

This site audit is a:

☐ ~~statutory audit~~

☑ non-statutory audit

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name: [redacted]

Company: Senversa Pty Ltd

Address: Level 24, 1 Market Street

Sydney NSW Postcode: 2000

Phone: 02 8252 0000

Email: [redacted]@senversa.com.au

Site details

Address: 1793 Elizabeth Drive, Badgerys Creek NSW

Postcode: 2555

Property description

(Attach a separate list if several properties are included in the site audit.)

Part Lot 81 Deposited Plan 1277406

Part Lot 16 and Part Lot 18 Deposited Plan 1271571

Part Lot 71 Deposited Plan 1288011

(Attachments 1 and 2)

Local government area: Penrith City Council

Area of site (include units, e.g. hectares): Approximately 7.1 ha

Current zoning: ENT: Enterprise and an area along the proposed rail line that is not currently zoned.

Regulation and notification

To the best of my knowledge:

☐ ~~**the site is** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985,* as follows: (provide the no. if applicable)~~

- ☐ ~~Declaration no.~~
- ☐ ~~Order no.~~
- ☐ ~~Proposal no.~~
- ☐ ~~Notice no.~~

☑ **the site is not** the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

To the best of my knowledge:

☐ ~~the site **has** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*~~

☑ the site **has not** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*.

Site audit commissioned by

Name: [redacted]

Company: CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV)

Address: Level 5, 60 Miller Street, North Sydney NSW

Postcode: 2060

Phone: 02 9035 5007

Email: [redacted]@cpbcon.com.au

Contact details for contact person (if different from above)

Name:

Phone:

Email:

Nature of statutory requirements (not applicable for non-statutory audits)

☐ Requirements under the *Contaminated Land Management Act* 1997 (e.g. management order; please specify, including date of issue)

☐ Requirements imposed by an environmental planning instrument (please specify, including date of issue)

☐ Development consent requirements under the *Environmental Planning and Assessment Act 1979* (please specify consent authority and date of issue)

☐ Requirements under other legislation (please specify, including date of issue)

Purpose of site audit

☑ **A1** To determine land use suitability

Intended uses of the land: Railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor

~~OR~~

☐ ~~**A2** To determine land use suitability subject to compliance with either an active or passive environmental management plan~~

~~Intended uses of the land:~~

~~OR~~

~~(Tick all that apply)~~

☐ ~~**B1** To determine the nature and extent of contamination~~

☐ ~~**B2** To determine the appropriateness of:~~

- ☐ ~~an investigation plan~~
- ☐ ~~a remediation plan~~
- ☐ ~~a management plan~~

☐ ~~**B3** To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

☐ ~~**B4** To determine the compliance with an approved:~~

- ☐ ~~**voluntary management proposal** or~~
- ☐ ~~**management order** under the *Contaminated Land Management Act 1997*~~

☐ ~~**B5** To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Douglas Partners Pty Ltd (Douglas Partners)

Titles of reports reviewed:

Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Areas of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 9 August 2022 by Douglas Partners.

Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Areas of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 21 October 2022 by Douglas Partners.

~~Other information reviewed, including previous site audit reports and statements relating to the site:~~

Site audit report details

Title Site Audit Report, AEC 41 and 42, 1793 Elizabeth Drive, Badgerys Creek

Report no. MP181_3 (Senversa Ref: S19824) Date 9 March 2023

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
    - (B1) the nature and extent of contamination, and/or
    - (B2) the appropriateness of an investigation, remediation or management plan[1], and/or
    - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
    - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
    - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

[1] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

I certify that, in my opinion:

The **site is suitable** for the following uses:

~~(Tick all appropriate uses and strike out those not applicable.)~~

☐ ~~Residential, including substantial vegetable garden and poultry~~

☐ ~~Residential, including substantial vegetable garden, excluding poultry~~

☐ ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~

☐ ~~Day care centre, preschool, primary school~~

☐ ~~Residential with minimal opportunity for soil access, including units~~

☐ ~~Secondary school~~

☐ ~~Park, recreational open space, playing field~~

☐ ~~Commercial/industrial~~

☑ Other (please specify):

Railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor

~~OR~~

☐ ~~I certify that, in my opinion, the **site is not suitable** for any use due to the risk of harm from contamination.~~

~~Overall comments:~~

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan[2] (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry

☐ Day care centre, preschool, primary school

☐ Residential with minimal opportunity for soil access, including units

☐ Secondary school

☐ Park, recreational open space, playing field

☐ Commercial/industrial

☐ Other (please specify):

EMP details

Title

Author

Date No. of pages

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

☐ requires operation and/or maintenance of **active** control systems[3]

☐ requires maintenance of **passive** control systems only[3].

[2] Refer to Part IV for an explanation of an environmental management plan.
[3] Refer to Part IV for definitions of active and passive control systems.

~~Purpose of the EMP:~~

~~Description of the nature of the residual contamination:~~

~~Summary of the actions required by the EMP:~~

~~How the EMP can reasonably be made to be legally enforceable:~~

~~How there will be appropriate public notification:~~

~~Overall comments:~~

Section B

Purpose of the plan[4] which is the subject of this audit:

I certify that, in my opinion:

(B1)

☐ The nature and extent of the contamination **has** been appropriately determined

☐ The nature and extent of the contamination **has not** been appropriately determined

AND/OR (B2)

☐ The investigation, remediation or management plan **is** appropriate for the purpose stated above

☐ The investigation, remediation or management plan **is not** appropriate for the purpose stated above

AND/OR (B3)

☐ The site testing plan:

☐ **is** appropriate to determine

☐ **is not** appropriate to determine

if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*

AND/OR (B4)

☐ The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):

☐ **have** been complied with

☐ **have not** been complied with.

*voluntary management proposal no.

**management order no.

AND/OR (B5)

☐ The site **can be made suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

[4] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

- ☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- ☐ Day care centre, preschool, primary school
- ☐ Residential with minimal opportunity for soil access, including units
- ☐ Secondary school
- ☐ Park, recreational open space, playing field
- ☐ Commercial/industrial
- ☐ Other (please specify):

IF the site is remediated/managed* in accordance with the following plan (**attached**):

*Strike out as appropriate

Plan title:

Plan author:

Plan date: No. of pages:

SUBJECT to compliance with the following condition(s):

Overall comments:

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997*.

Accreditation no. 0803

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997,* and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signe [redacted]

Date: 9 March 2023

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of *the Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

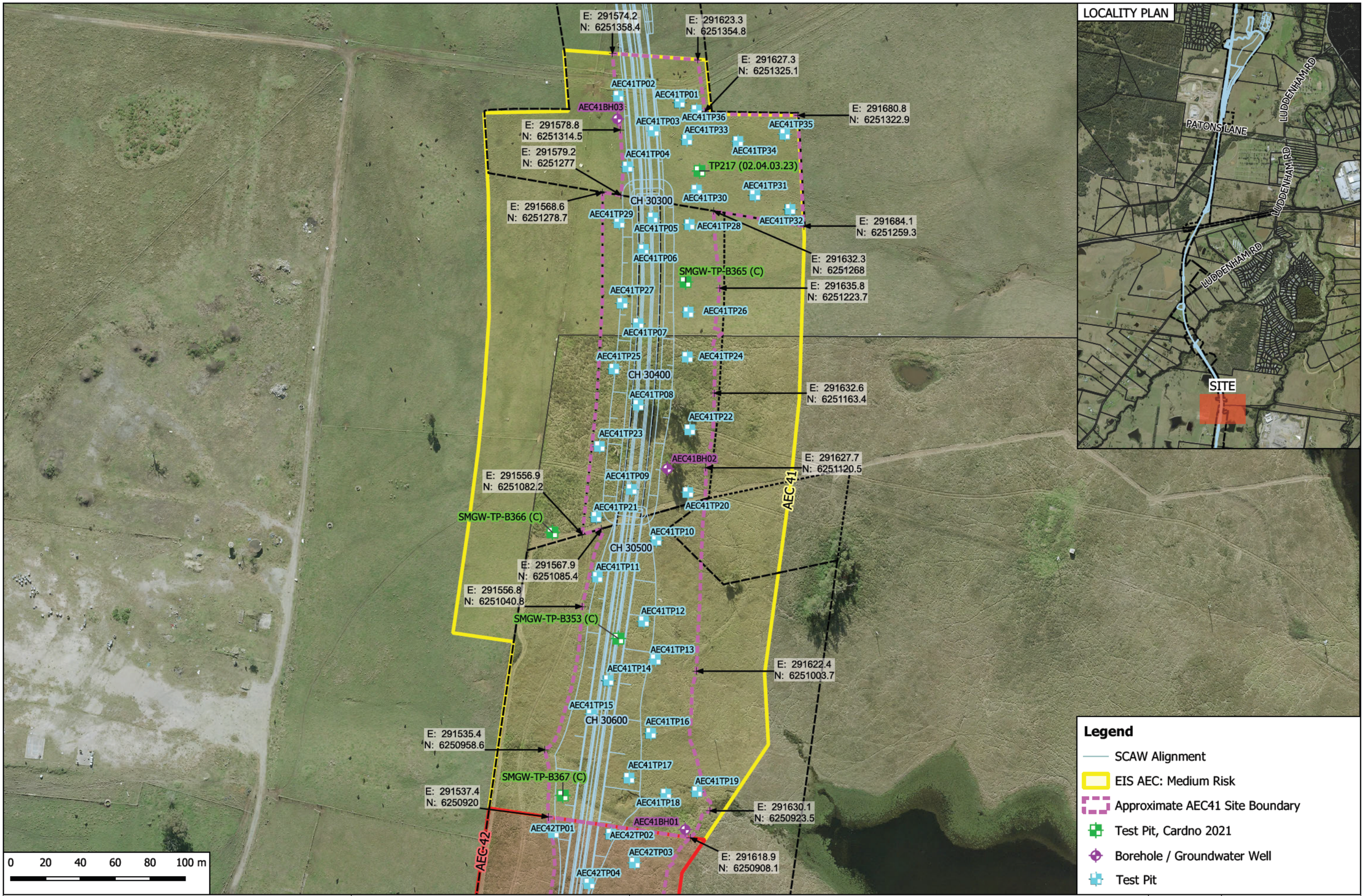
In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**:
  nswauditors@epa.nsw.gov.au or as specified by the EPA

  AND
- the **local council** for the land which is the subject of the audit.

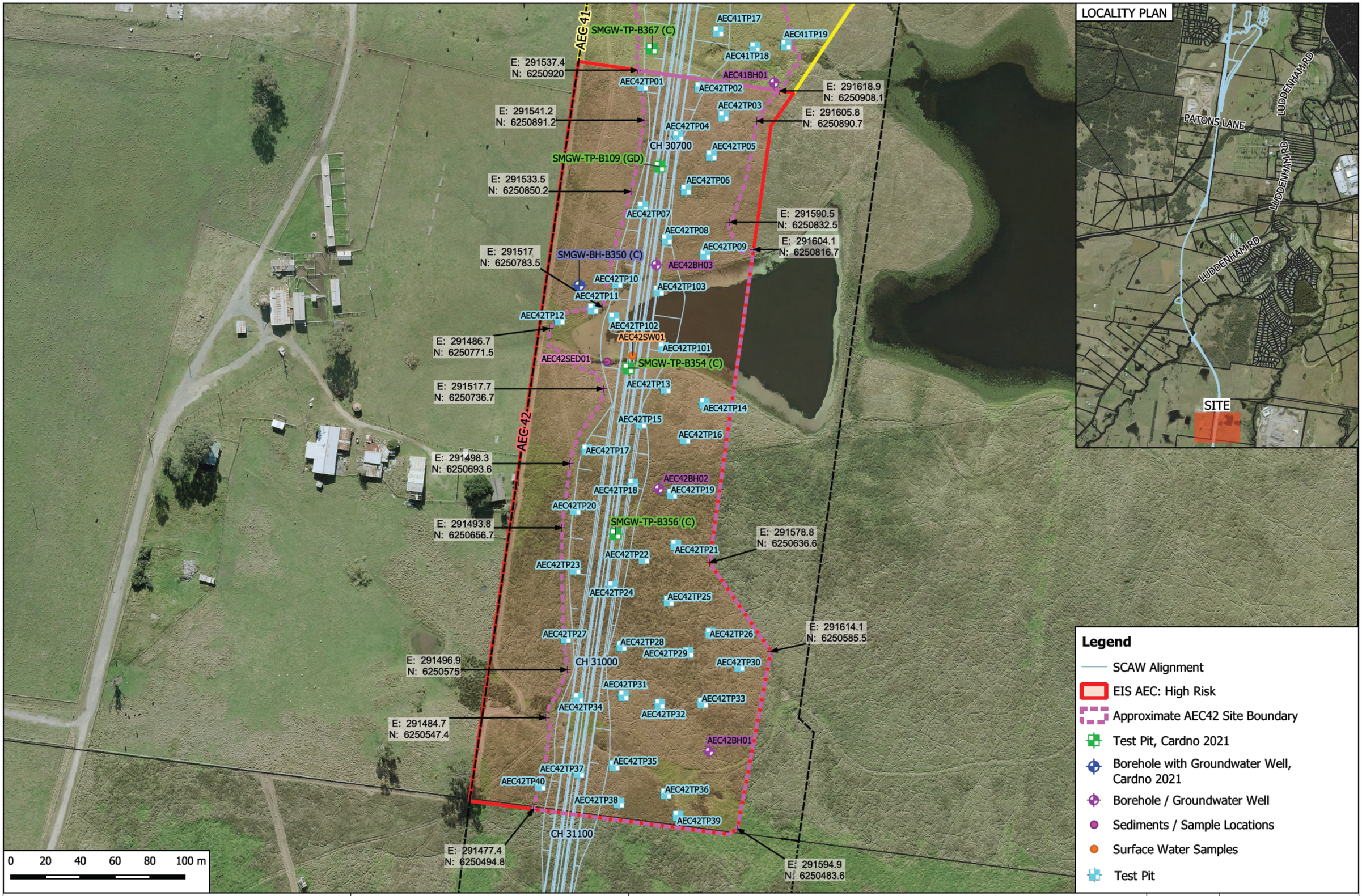


Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	CPBUI JV		
OFFICE:	Sydney	DRAWN BY:	MG
SCALE:	1:2000 @A3	DATE:	18/01/2023

TITLE: **AEC41 Test Location Plan**
Sydney Metro Western Sydney Airport - SCAW
Elizabeth Drive, Badgerys Creek

PROJECT No:	204814.01
DRAWING No:	AEC41-01
REVISION:	Rev 1



Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: CPBUI JV		TITLE: **AEC42 Test Location Plan**	PROJECT No: 204814.01
OFFICE: Sydney	DRAWN BY: MG	**Sydney Metro Western Sydney Airport - SCAW**	DRAWING No: AEC42-01
SCALE: 1:2000 @ A3	DATE: 18/01/2023	**Elizabeth Drive, Badgerys Creek**	REVISION: Rev 2

Document Information

Site Audit Report
AEC 41 and AEC 42, 1793 Elizabeth Drive Badgerys Creek
Audit Number: MP181_3

Prepared by:
Senversa Pty Ltd
ABN: 89 132 231 380
Level 24, 1 Market Street, Sydney NSW 2000
tel: + 61 2 8252 0000; fax: + 61 3 9606 0074
www.senversa.com.au

Prepared for:
CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW

Disclaimer and Limitations:

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

Contents

Tables in Text

Appendices

List of Acronyms

Acronym	Definition
Measures	
%	per cent
µg/L	Micrograms per Litre
ha	Hectare
km	Kilometres
m	Metre
mAHD	Metres Australian Height Datum
mbgl	Metres below ground level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
mg/m^3	Milligrams per Cubic Metre
ppm	Parts Per Million
General	
ABC	Added Background Concentrations
ACL	Added Contaminant Limit
ACM	Asbestos Containing Material
ADWG	Australian Drinking Water Guidelines
AF	Asbestos Fines
AHD	Australian Height Datum
ALS	Australian Laboratory Services
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
BaP	Benzo(a)pyrene

Acronym	Definition
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes & Naphthalene
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
Council	Penrith City Council
CT	Certificate of Title
DA	Development Application
DGV	Default Guideline Value
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
EIL	Ecological Investigation Level
EMP	Environmental Management Plan
Envirolab	Envirolab Services Pty Ltd
EPA	Environment Protection Authority (NSW)
ESL	Ecological Screening Level
Eurofins	Eurofins | mgt
FA	Fibrous Asbestos
GIL	Groundwater Investigation Level
HIL	Health Investigation Level
HSL	Health Screening Level
IAA	Interim Audit Advice
LCS	Laboratory Control Sample

Acronym	Definition
LOR	Limit of Reporting
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
MS	Matrix Spike
NATA	National Association of Testing Authorities
NC	Not Calculated
ND	Not Detected
NEHF	National Environmental Health Forum
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NL	Non-Limiting
n	Number of Samples
OCPs	Organochlorine Pesticides
OEH	Office of Environment and Heritage
OPPs	Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons

Acronym	Definition
PCBs	Polychlorinated Biphenyls
pH	A measure of acidity, hydrogen ion activity
PID	Photoionisation Detector
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RAP	Remediation Action Plan
RPD	Relative Percent Difference
RSL	Regional Screening Level
SAQP	Sampling Analysis and Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SCEW	Standing Council on Environment and Water
SWL	Standing Water Level
TPHs	Total Petroleum Hydrocarbons
TRHs	Total Recoverable Hydrocarbons
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
-	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 at 1793 Elizabeth Drive, Badgerys Creek NSW (known as 'AEC 41 and 42).

The site is part of the Sydney Metro – Western Sydney Airport rail line that will extent approximately 23 km from St Marys to the Western Sydney Aerotropolis. The Surface & Civil Alignment Works (SCAW) package is between Orchard Hills and Western Sydney Airport.

Areas of environmental concern (AECs) have been identified along the SCAW corridor requiring investigation. The current site is known as AEC 41 and 42. The remaining AECs will be subject to separate audits.

The audit was conducted to provide an independent review by an EPA Accredited Auditor of 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).

1.1 Scope of the Audit

Details of the audit are:

Requested by: [redacted] on behalf of CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV)

Request/Commencement Date: 7 June 2022

Auditor: [redacted]

Accreditation No.: 0803

The scope of the audit included:

- Review of the following reports:
  - 'Environmental Impact Statement' dated October 2020 by Sydney Metro (EIS).
  - 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Areas of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 9 August 2022 by Douglas Partners Pty Ltd (Douglas Partners) (SAQP).
  - 'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Areas of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 21 October 2022 by Douglas Partners Pty Ltd (Douglas Partners) (DSI).
- A site visit by the auditor on 29 November 2022.
- Discussions with CPBUI JV and with Douglas Partners who undertook the investigation.

Previous investigations by Golder Associates Pty Ltd (Golder)/Douglas Partners and Cardno dated 19 February 2021 and 1 September 2021 were undertaken for a larger area that included the current site. A total of 8 locations were positioned within the current site. The Golder/Douglas Partners and Cardno reports were not provided for auditor review, Douglas Partners included relevant information within the reports listed above.

Interim Audit Advice (IAA) No. 1 issued 25 August 2022 provided detailed auditor comments on the SAQP and IAA No. 2 issued 13 October 2022 detailed auditor comments on the DSI.

2.0 Site Details

2.1 Location

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

The site details are as follows:

Street address:	1793 Elizabeth Drive, Badgerys Creek NSW 2555
Identifier:	Part Lot 81 Deposited Plan (DP) 1277406, Part Lot 16 and Part Lot 18 DP 1271571 and Part Lot 71 DP 1288011
Local Government:	Penrith City Council
Site Area:	Approximately 7.1 ha

The boundaries of the site are not well defined by streets or adjoining properties. A survey plan of the site boundary has been provided (Attachments 2 and 3, Appendix A).

2.2 Zoning

The current zoning of the site was provided by Douglas Partner and is ENT: Enterprise and an area along the proposed rail line that is not currently zoned.

2.3 Adjacent Uses

The site is located within an area of rural land. The surrounding site use includes:

North: Rural land used for grazing.

East: Rural land used for grazing including dams.

South: Rural land used for grazing.

West: Rural land used for grazing and rural property buildings (understood to have formally been used as an illegal waste facility and also potential workshop and fuel storage). The property to the west also included a spray race/cattle dip.

One dam is located within the site boundary. Four dams are located off-site adjacent to the east boundary of the site.

A property approximately 160 m to the west (up gradient) of the site was issued with a NSW EPA clean-up notice in January 2016 for the illegal use of the area as a waste facility. The property stored and processed stockpiles of sand, recovered building materials, sandstone, gravel and soil which included the presence of asbestos containing material (ACM) within the stockpiles. Some of the stockpiled material may have been used across the property for construction of roads.

A spray race (cattle dip) is located approximately 100 m to the west of the site and a workshop with potential fuel/oil/chemical storage and use is also located approximately 75 m to the west of the site. Both of these activities of potential concern are considered to be located up gradient from the site.

2.4 Site Condition

Douglas Partners noted the following during the DSI:

- Rural land used as paddocks.
- A dam is located within the southern portion of the site.
- The site is slopes generally down to the east and southeast.

The following was noted by the auditor during the site visit on 29 November 2022:

- The site comprises rural land and is partly used for grazing.
- The dam has been drained.
- Tracks appear to be dirt tracks rather than imported material.
- Construction is beginning around the site with earthworks for early works.

2.5 Proposed Development

It is understood that the site is to be redeveloped by CPBUI JV as a rail corridor and associated passive open space for the Sydney Metro – Western Sydney Airport line. A surface rail line and rail bridge are proposed to be constructed at the site. The Sydney Metro – Western Sydney Airport line development includes approximately 10km of railway track from Orchards 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.

For the purposes of this audit, the ‘commercial/industrial’ land use scenario will be assumed.

3.0 Site History

Douglas Partners provided a site history based on the EIS and included aerial photographs, site photographs and NSW EPA records.

The site and surrounding areas have been used for rural land primarily as grazing since at least 1955. Some sheds were present between the 1970s and 1994 in the northern central portion of the site. Douglas Partners notes that roads through the site may have been constructed with material from the adjacent property used for illegal waste storage.

Douglas Partners considered that the site did not appear to have had crops of the site and as such the likelihood of PFAS impacts are low. Detections of PFAS were reported by Cardno however were below site criteria. The remaining analytes were less than detection.

The auditor considers that the site history is broadly understood. The uncertainties include exact use of material for the roads at the site however the auditor considers that these have been compensated for by the investigation (refer to Section 8 and 9).

4.0 Contaminants of Concern

Douglas Partners provided a list of the contaminants of concern and potentially contaminating activities. These have been tabulated in Table 4.1. Activities of concern are shown in Attachment 4, Appendix A.

Table 4.1: Contaminants of Concern

Area	Activity	Potential Contaminants
Entire site	Contaminated ground from adjacent site activities (the auditor understands this include the potential use of material from the illegal waste storage facility to the west of the site for roads and in other parts of the site)	Metals, Total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), polychlorinated biphenyls (PCB), phenols and asbestos.
Entire site	Contaminated groundwater from adjacent site activities (the auditor understands this includes the spray race, workshop, and illegal waste stockpiling to the west of the site)	Metals, TRH, BTEX, PAH, OCP, OPP, PCB and phenols.

Volatile organic compounds (VOCs) could be associated with impacts from the offsite workshop (noted to be up-gradient). These have been analysed by Douglas Partners however were not included in the list of contaminants of concern.

The auditor considers that the analyte list used by Douglas Partners adequately reflects the site history and condition.

5.0 Stratigraphy and Hydrogeology

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

5.1 Stratigraphy

The sub-surface profile of the site is summarised in Table 5.1.

Table 5.1: Stratigraphy

Depth (mbgl)	Subsurface Profile
0.0 – 0.2	Gravelly silt (at one location)
0.0 – 0.2	Fill (sandy silt)
0.2 – 4	Silty clay
4 to depth	Siltstone

mbgl – metres below ground level

The site is not within an area associated with a risk of acid sulfate soil (ASS).

The auditor considers that the depth of fill and underlying stratigraphy have been adequately characterised.

5.2 Hydrogeology

Groundwater investigations have been undertaken at the site. Depth to groundwater over the site is between 0.7 to 5.5 mbgl. Groundwater is considered likely to flow to the east which is consistent with the topography and direction of Badgerys Creek. There are no registered bores located within a 500 m radius from the site.

A dam is located within the site in the central southern portion. The nearest surface water receptor is Badgerys Creek located approximately 550 m to the east of the site.

The auditor considers that the hydrogeology has been adequately characterised.

6.0 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 DSI report, supplemented by field observations. The auditor's assessment follows in Tables 6.1 and 6.2.

It is noted that an additional 8 sample locations were completed as part of a previous investigation by GolderCardno with the available analytical data presented in the DSI. The available data has been reviewed by the auditor for information purposes only, as the current DSI supersedes the previous report.

Table 6.1: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Data Quality Objectives (DQO) Douglas Partners defined specific DQOs in accordance with the seven step process outlined in DEC (2006) Guidelines for the NSW Site Auditor Scheme.	Appropriate for the investigations conducted.
Sampling pattern and locations Soil: Investigation locations were grid-based strategy was adopted to gain coverage of the majority of the site. Douglas Partners notes this is in response to the requirements of CSM with the potential for fill used in roads and across the site and given that the exact location of roads potentially constructed from impacted fill was not known. Groundwater: Monitoring wells were spaced along the length of the site north to south. The wells captured the potential for up-gradient sources to migrate onto the site.	The location of the roads that were possibly constructed with fill are not exactly known from the EIS. However, given the wide spread of sample locations across the site and the limited anthropogenic items in fill, overall investigation locations adequately target the main areas of concern. With regards asbestos, given that no anthropogenic material was observed in the fill, the auditor is satisfied that the sampling was appropriate.
Sampling density Soil: The sampling density of 76 locations over approximately 7.1 ha meets the recommended by EPA (2020) Sampling Design Guidelines in consideration of the minimum ratio for 5.0 ha sites of 11 samples per 1.0 ha. The coverage provides a 95% confidence of detecting a residual hot spot of approximately 36 m diameter. Samples analysed for fibrous asbestos were collected as outlined in NEPM (2013) (Schedule B1). Groundwater: A total of 6 groundwater wells were installed at the site.	The sampling density is appropriate given that the site is not proposed to be subdivided, the limited activities of concern and proposed uses as a railway line. .
Sample depths Soil samples were collected and analysed from a range of depths, with the primary intervals being within the shallow fill (0.0-0.1 mbgl) and around the fil/natural interface (around 0.3-0.4 mbgl).	This sampling strategy was appropriate and adequate to characterise the primary material types present on site.
Well construction Groundwater: The monitoring wells were typically installed to depths of 5.5 – 11 mbgl, with screen intervals of 3 – 6 m placed over clay and siltstone. Wells were constructed of 50 mm uPVC. A bentonite seal of 0.5-1.0 m thickness was placed above the screen and the well backfilled with soil cuttings to the ground surface. The SWL intersects the screen interval in most wells with the exception of AEC41 – BH01.	It is noted that whilst it is preferable for monitoring wells to screen over a discrete short vertical interval, considering the that no impacts were identified within the groundwater, the wells are sufficient to provide an indication of the groundwater conditions at the site.

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Sample collection method Soil: Sample collected was by hand from the excavator bucket returns. Groundwater: Wells were installed by drill rig and developed by a Twister plastic pump . Samples were collected by low flow peristaltic with dedicated sample tubing.	Given the construction details have been provided for groundwater monitoring well and that impacts have not been identified within groundwater and soil at the site, the sample collection method was found to be acceptable.
Decontamination procedures Soil: Dedicated sampling equipment was not reportedly used for soil sampling. New gloves were reportedly used for each new sample. Groundwater: Sampling equipment was decontaminated between each sample location by rinsing a diluted Liquinox solution and then rising with demineralised water. New gloves were reportedly used for each new sample.	Acceptable.
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. Samples for asbestos analysis were placed in plastic zip-lock bags. Groundwater samples to be analysed for heavy metals were field filtered.	Acceptable.
Chain of Custody (COC) Completed chain of custody forms were provided in the report.	Acceptable.
Detailed description of field screening protocols Soil: Field screening for volatiles was undertaken using a PID. Groundwater: Field parameters were measured during well sampling and development.	Acceptable.
Calibration of field equipment The reports indicated that calibration had been undertaken prior to use. Calibration certificates from the equipment supplier were provided for the water quality meter. Field calibration records were provided for the PID.	Acceptable.
Sampling logs Soil logs are provided within the report, indicating sample depth, PID readings and lithology. Groundwater field sampling records were provided, indicating SWL, field parameters, methodology and observations.	Acceptable.

Table 6.2: 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, rinsate blanks, field intra-laboratory and inter-laboratory duplicates were undertaken. Rinsates were not required during soil sampling since no equipment was used requiring decontamination.	Acceptable.
Field quality control results The results of field quality control samples were generally within appropriate limits. The following exceptions were noted: RPDs for the inter-laboratory soil duplicate sample for several metals ranged from 40 to 154%. The higher of the project and check laboratory result have been used in the assessment.	Overall, in the context of the dataset reported, the elevated RPD results are not considered significant and the field quality control results are acceptable.
NATA registered laboratory and NATA endorsed methods Laboratories used included: Envirolab and Eurofin | mgt. Laboratory certificates were NATA stamped.	Acceptable.
Analytical methods Analytical methods were included in the laboratory test certificates. Both Envirolab and Eurofin | mgt 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 Envirolab 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. Douglas Partners also reported that holding times have been met.	Acceptable
Practical Quantitation Limits (PQLs) Soil: PQLs (except asbestos) were less than the threshold criteria for the contaminants of concern. Asbestos: The limit of detection for asbestos in soil was 0.01% w/w. Groundwater: The following trigger value was less than the PQLs: Chromium 1 g/L, guideline value 0.2 mg/L (ANZG 2018)	Soil (except asbestos): Overall the soil PQLs are acceptable. Asbestos: In the absence of any other validated analytical method, the detection limit for asbestos is considered acceptable. A positive result would be considered to exceed the "no asbestos detected in soil" criteria, providing this is applied within a weight of evidence approach to assess the significance of the exceedance, accounting for the history of the site and frequency of the occurrence. Groundwater: The elevated PQL was only marginally elevated above the criteria and in the context of the results reported and site history, overall these discrepancies do not materially affect the outcome of the audit.
Laboratory quality control samples Laboratory quality control samples including laboratory control samples, matrix spikes, surrogate spikes, blanks, internal standards and duplicates were undertaken by the laboratory. Envirolab did not undertake duplicates in one batch.	The majority of the laboratory reports did include duplicates as part of laboratory quality control samples. As such overall, sufficient quality control samples have been analysed to assess laboratory accuracy.

Field and Lab QA/QC	Auditor's Opinion
Laboratory quality control results The results of laboratory quality control samples were generally within appropriate limits, with the following exceptions: Nickel duplicate RPD of 67% and cadmium duplicate RPD of 67% in water. Low spike recovery for phenol in water.	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:

- Details on the drilling and development of the groundwater monitoring wells have not been provided and one of the groundwater wells has been screened below the SWL. However overall, the data is likely to be representative given that no impacts were identified within the groundwater or soil at the site.
- The data is complete.
- There is a high degree of confidence that data is comparable.
- The primary laboratory provided sufficient information to conclude that data is of sufficient precision.
- The data is likely to be accurate.

7.0 Environmental Quality Criteria

The auditor has assessed the results against Tier 1 criteria from National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure 1999, as Amended 2013 (NEPM, 2013). Other guidance has been adopted where NEPM (2013) is not applicable or criteria are not provided. Based on a conservative approach, the criteria for 'low density residential' referred to.

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

- Human Health Assessment:
  - Health Based Investigation Levels (HIL D).
  - Soil Health Screening Levels (HSL 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 D, and intrusive maintenance worker).
  - Asbestos Health Screening Levels (HSL D).
  - HEPA, 2020. PFAS National Environmental Management Plan (NEMP) released by the National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (HEPA).
- Ecological Assessment:
  - Ecological Screening Levels (ESL Commercial/Industrial) assuming coarse/fine soil.
  - Ecological Investigation Levels (EIL Commercial/Industrial). In the absence of site specific soil data on pH, clay content, cation exchange capacity and background concentrations in fill, the EILs were calculated using the most conservative soil-specific added contaminant limits (ACL) for aged contaminants and added background concentration (ABC) referenced from Olszowy et al (1995) (background concentration for high traffic, old suburbs in NSW).
- Management Limits (ML Commercial/Industrial) assuming coarse soil.
- Aesthetics:
  - The auditor has considered the need for remediation based on the 'aesthetic' contamination as outlined in the NEPM (2013).

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

- Human Health Assessment:
  - Health Based Investigation Levels (HIL D).
  - Soil Health Screening Levels (HSL 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 D, and intrusive maintenance worker).
  - Asbestos Health Screening Levels (HSL D).
- Ecological Assessment:
  - The ANZECC 2000 guidelines have been updated in ANZG (2022) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. (Available at www.waterquality.gov.au/anz-guidelines). The Default Guideline Values (DGV) provided are concentrations of toxicants that should have no significant adverse effects on the aquatic ecosystem.

- Ecological Assessment, where no ANZG values exist:
  - Ecological Screening Levels (ESL Commercial/Industrial) assuming coarse/fine soil.
  - Ecological Investigation Levels (EIL Commercial/Industrial). In the absence of site specific soil data on pH, clay content, cation exchange capacity and background concentrations, the published range of the added contaminant values have been applied as an initial screen.

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

- Human Health Assessment:
  - NEPM (2013) Groundwater Health Screening Levels (HSL A and B) for vapour intrusion (sand, 2 to <4 m).
  - NHMRC and NRMMC (2011) Australian Drinking Water Guidelines (ADWG) for potable use.
- Human Health Assessment, where HSLs are not applicable:
  - NHMRC and NRMMC (2011) Australian Drinking Water Guidelines (ADWG).
  - WHO (2008) Petroleum Products in Drinking-water. applicable where HSLs are not applicable.
  - WHO (2017) Guidelines for drinking-water quality, fourth edition, applicable where the ADWG are not available.
- Ecological Assessment:
  - Groundwater Investigation Levels (GILs) listed in NEPM (2013) for protection of aquatic ecosystems referenced in ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. The ANZECC 2000 guidelines have been updated in ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. (Available at www.waterquality.gov.au/anz-guidelines). The Default Guideline Values (DGV) provided are concentrations of toxicants that should have no significant adverse effects on the aquatic ecosystem. The marine/fresh water 95% level of protection was adopted. Some have been modified based on bioaccumulation or acute-toxicity or potential toxicity to particular species.

8.0 Evaluation of Soil and Sediment Analytical Results

8.1 Soil

Soil samples were analysed for a variety of contaminants including metals, petroleum hydrocarbons, pesticides and asbestos. The analytical results are summarised below in Table 8.1.

The results have been assessed against the environmental quality criteria. Soil sampling locations are shown as Attachments 5 and 6, Appendix A. Fill and natural samples have been tabulated together below given the majority of the samples were collected from fill and concentrations reported are consistent.

Table 8.1: Evaluation of Soil Analytical Results – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	93	93	32	0 above HIL D of 1500 mg/kg	0 above Generic ACL of 1800 mg/kg
Benzene	93	0	<PQL	0 above HSL D 0-1 m, sand of 3 mg/kg	0 above ESL (commercial/industrial) (coarse) of 75 mg/kg
Toluene	93	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 135 mg/kg
Ethyl benzene	93	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 165 mg/kg
Total Xylenes	93	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (fine) of 95 mg/kg
TRH C6-C10	93	0	<PQL	0 above ML (commercial/industrial) of 800 mg/kg	-
TRH C10-C16	93	0	<PQL	0 above ML (commercial/industrial) of 1000 mg/kg	-
F1 (TRH C6–C10 minus BTEX)	93	0	<PQL	0 above HSL D 0-1 m, sand of 260 mg/kg	0 above ESL (commercial/industrial) (coarse/fine) of 215 mg/kg
F2 (TRH >C10–C16 minus naphthalene)	93	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse/fine) of 170 mg/kg

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
F3 (TRH C16-C34)	93	0	<PQL	0 above ML (commercial/industrial) of 3500 mg/kg	0 above ESL (commercial/industrial) (coarse) of 1700 mg/kg
F4 (TRH C34-C40)	93	0	<PQL	0 above ML (commercial/industrial) of 10,000 mg/kg	0 above ESL (commercial/industrial) (coarse) of 3300 mg/kg
Naphthalene	93	0	<PQL	HSL D, Non limiting	0 above Generic EIL (commercial/industrial) of 370 mg/kg
Benzo(a)pyrene	93	0	<PQL	-	0 above ESL (commercial/industrial) (coarse/fine) of 1.4 mg/kg
BaP TEQ	93	0	<PQL	0 above HIL D 40 mg/kg	-
Total PAHs	93	0	<PQL	0 above HIL D 4000 mg/kg	-
Total Phenols	93	0	<PQL	0 above HIL D 240000 mg/kg	-
Arsenic	93	86	15	0 above HIL D 3000 mg/kg	0 above Generic EIL (commercial/industrial) of 160 mg/kg
Cadmium	93	0	<PQL	0 above HIL D 900 mg/kg	-
Chromium	93	93	34	0 above HIL D 3600 mg/kg	0 above most conservative ACL for commercial/industrial of 310 mg/kg
Copper	93	93	37	0 above HIL D 240000 mg/kg	0 above most conservative ACL for commercial/industrial of 85 mg/kg
Mercury	93	0	<PQL	0 above HIL D 730 mg/kg	-
Nickel	93	92	22	0 above HIL D 6000 mg/kg	0 above most conservative ACL for commercial/industrial of 55 mg/kg
Zinc	93	93	**100**	0 above HIL D 400000 mg/kg	**1 above most conservative ACL for commercial/industrial of 110 mg/kg**
Total OCPs	93	0	<PQL	0 above HIL D	-
Total OPPs	93	0	<PQL	-	0 above EIL (commercial/industrial)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
PCBs	93	0	<PQL	0 above HIL D 7 mg/kg	-
Asbestos (FA/AF)	76	0	<PQL	0 above HSL D 0.07%	-
Asbestos (presence/absence)	76	0	<PQL	-	-

n number of samples

- No criteria available/used

NL Non-limiting

<PQL Less than the practical quantitation limit

*Note: The numbers presented in the above table have been complied and transcribed manually from data tabulated by the consultants and thus some errors may be present. Any such errors are not considered by the auditor to be significant in the overall context and amount of data reviewed and conclusions drawn regarding the site during the audit.

Metals were detected within both fill and natural soil samples across the site. One sample for zinc was slightly above the ecological criteria, however this is considered unlikely to pose an unacceptable risk to the site given the conservative criteria applied to the site. The remaining analytes were report below detection. Asbestos was not detected. PID results were all less than 1 ppm. A slight hydrocarbon odour was identified in the topsoil at one location however TRH was below detection. No other odours staining or potential asbestos containing material were observed during sampling. This is consistent with the site history in that no indications of widespread contamination have been identified at the site.

A total of 16 samples from historical investigations by Cardno were analysed for various metals, TRH, BTEX, PAHs, OCPs, OPPs, PCBs, VOCs, asbestos and PFAS. Detections of metals were reported with slight exceedence of the ecological criteria for nickel and zinc. Given the similar detections in the samples analysed by Douglas Partners and conservative criteria, these are unlikely to pose an unacceptable risk to the site. Detections of PFAS were also reported however were below site criteria. The remaining analytes were less than detection.

The auditor is satisfied that no further investigations are needed and that the site criteria for the low density residential land use have been met.

8.2 Sediment

A sediment sample was analysed for a variety of contaminants including metals, petroleum hydrocarbons, pesticides and asbestos.

The results have been assessed against the environmental quality criteria. The sediment sampling location is shown as Attachment 6, Appendix A.

Table 8.2: Evaluation of Sediment Analytical Results – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > ANZG (2018)	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	5	5	32	-	0 above HIL D of 1500 mg/kg	0 above Generic ACL of 1800 mg/kg
Benzene	5	0	<PQL	-	0 above HSL D 0-1 m, sand of 3 mg/kg	0 above ESL (commercial/industrial) (coarse) of 75 mg/kg
Toluene	5	0	<PQL	-	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 135 mg/kg
Ethyl benzene	5	0	<PQL	-	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 165 mg/kg
Total Xylenes	5	0	<PQL	-	HSL D, Non limiting	0 above ESL (commercial/industrial) (fine) of 95 mg/kg
TRH C6-C10	5	0	<PQL	-	0 above ML (commercial/industrial) of 700 mg/kg	-
TRH C10-C16	5	0	<PQL	-	0 above ML (commercial/industrial) of 1000 mg/kg	-
F1 (TRH C6–C10 minus BTEX)	5	0	<PQL	-	0 above HSL D 0-1 m, sand of 260 mg/kg	0 above ESL (commercial/industrial) (coarse/fine) of 215 mg/kg
F2 (TRH >C10–C16 minus naphthalene)	5	0	<PQL	-	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse/fine) of 170 mg/kg
F3 (TRH C16-C34)	5	0	<PQL	-	0 above ML (urban residential) of 3500 mg/kg	0 above ESL (commercial/industrial) (coarse) of 1700 mg/kg
F4 (TRH C34-C40)	5	0	<PQL	-	0 above ML (urban residential) of 10,000 mg/kg	0 above ESL (commercial/industrial) (coarse) of 3300 mg/kg
Total TPHs	5	0	<PQL	0 above ANZG (2018) of 280 mg/kg		
Naphthalene	5	0	<PQL	-	HSL D, Non limiting	0 above Generic EIL (commercial/industrial) of 370 mg/kg

Analyte	N	Detections	Maximum	n > ANZG (2018)	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Benzo(a)pyrene	5	0	<PQL	-	-	0 above ESL (commercial/industrial) (coarse/fine) of 1.4 mg/kg
BaP TEQ	5	0	<PQL	-	0 above HIL D 40 mg/kg	-
Total PAHs	5	0	<PQL	0 above ANZG (2018) of 10,000 mg/kg	0 above HIL D 4000 mg/kg	-
Total Phenols	5	0	<PQL	-	0 above HIL D 240000 mg/kg	-
Arsenic	5	5	10	0 above ANZG (2018) of 20 mg/kg	0 above HIL D 3000 mg/kg	0 above Generic EIL (commercial/industrial) of 160 mg/kg
Cadmium	5	0	<PQL	0 above ANZG (2018) of 1.5 mg/kg	0 above HIL D 900 mg/kg	-
Chromium	5	5	17	0 above ANZG (2018) of 80 mg/kg	0 above HIL D 3600 mg/kg	0 above most conservative ACL for commercial/industrial of 310 mg/kg
Copper	5	5	43	0 above ANZG (2018) of 65 mg/kg	0 above HIL D 240000 mg/kg	0 above most conservative ACL for commercial/industrial of 85 mg/kg
Mercury	5	0	<PQL	0 above ANZG (2018) of 0.15 mg/kg	0 above HIL D 730 mg/kg	-
Nickel	5	5	18	0 above ANZG (2018) of 21 mg/kg	0 above HIL D 6000 mg/kg	0 above most conservative ACL for commercial/industrial of 55 mg/kg
Zinc	5	5	99	0 above ANZG (2018) of 200 mg/kg	0 above HIL D 400000 mg/kg	0 above most conservative ACL for commercial/industrial of 110 mg/kg
Total OCPs	5	0	<PQL	0 above ANZG (2018)	0 above HIL D	-
Total OPPs	5	0	<PQL	-	-	0 above EIL (commercial/industrial)

Analyte	N	Detections	Maximum	n > ANZG (2018)	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
PCBs	5	0	<PQL	0 above ANZG (2018) of 34 mg/kg	0 above HIL D 7 mg/kg	-
Asbestos (FA/AF)	3	0	<PQL	-	0 above HSL D 0.07%	-
Asbestos (presence/absence)	3	0	<PQL	-	-	-

n number of samples

- No criteria available/used

NL Non-limiting

<PQL Less than the practical quantitation limit

*Note: The numbers presented in the above table have been complied and transcribed manually from data tabulated by the consultants and thus some errors may be present. Any such errors are not considered by the auditor to be significant in the overall context and amount of data reviewed and conclusions drawn regarding the site during the audit.

Metals were detected in the sediment samples below site criteria. The remaining analytes were reported below detection. This is consistent with the site history and surface water results (see Section 9.2 below) indicating no widespread contamination within the dam.

The auditor is satisfied that no further investigations are needed and that the site criteria for the low density residential land uses have been met.

9.0 Evaluation of Groundwater and Surface Water Analytical Results

9.1 Groundwater

Groundwater samples were collected from six wells within the site in October 2022 as shown in **Table 9.1**. These samples were submitted for metals, TRH, BTEX, PAHs and VOCs. The analytical results are summarised below in Table 9.2.

The results have been assessed against the environmental quality criteria outlined in Section 7. Sample locations are presented in Attachments 5 and 6, Appendix A.

Table 9.1: Groundwater Monitoring Well Network

Locations	Monitoring Well
North – AEC 41 (up-gradient)	AEC41-BH03
Centre – AEC 41 (down-gradient)	AEC41-BH02
South – AEC 41 (down-gradient)	AEC41-BH01
North – AEC 42 (up-gradient)	AEC42-BH03
Centre – AEC 42 (down-gradient)	AEC42-BH02
South – AEC 42 **(down-gradient)**	AEC42-BH01

Table 9.2: Summary of Maximum Groundwater Investigation Analytical Results (µg/L)

Analyte	n	Detections	Maximum	n > ANZG (2018)	n > HSL A (<2-4 mbgl)	n > DWG (ADWG 2011, WHO 2008, WHO 2011)
TRH C_6-C_{10} less BTEX (F1)	6	0	<PQL	-	0 above 1000 µg/L	0 above 90 µg/L
TRH >C_{10}-C_{16} less naphthalene (F2)	6	0	<PQL	-	0 above 1000 µg/	0 above 900 µg/L
TRH >C16-C34 (F3)	6	0	<PQL	-	-	0 above 900 µg/L
TRH >C34-C40 (F4)	6	0	<PQL	-	-	0 above 900 µg/L
Benzene	6	0	<PQL	0 above 950 µg/L	0 above 800 µg/L	0 above 1 µg/L
Toluene	6	0	<PQL	-	NL	0 above 800 µg/L
Ethyl benzene	6	0	<PQL	-	NL	0 above 300 µg/L
Xylene (total)	6	0	<PQL	0 above 200 µg/L	NL	0 above 600 µg/L

Analyte	n	Detections	Maximum	n > ANZG (2018)	n > HSL A (<2-4 mbgl)	n > DWG (ADWG 2011, WHO 2008, WHO 2011)
Naphthalene	6	0	<PQL	0 above 16 µg/L	NL	-
Benzo(a)pyrene	6	0	<PQL	-	-	-
Arsenic	6	2	2	0 above 13 µg/L	-	0 above 10 µg/L
Cadmium	6	5	1.1	**3 above 0.2 µg/L**	-	0 above 2 µg/L
Chromium	6	0	<PQL	0 above 0.2 µg/L	-	0 above 50 µg/L
Copper	6	6	5	**6 above 1.4 µg/L**	-	0 above 2000 µg/L
Lead	6	0	<PQL	0 above 3.4 µg/L	-	0 above 10 µg/L
Mercury	6	0	<PQL	0 above 0.06 µg/L	-	0 above 1 µg/L
Nickel	6	6	56	**5 above 11 µg/L**	-	**3 above 20 µg/L**
Zinc	6	6	61	5 above 8 µg/L	-	0 above 3000 µg/L
Total VOCs	6	0	<PQL	-	-	-

n number of samples

- No criteria available/used

<PQL Less than the practical quantitation limit

*Note: The numbers presented in the above table have been complied and transcribed manually from data tabulated by the consultants and thus some errors may be present. Any such errors are not considered by the auditor to be significant in the overall context and amount of data reviewed and conclusions drawn regarding the site during the audit.

Metals have been detected in all wells at the site. Cadmium, copper, lead, nickel and zinc were reported above site criteria. It is considered these are likely indicative of background concentrations and not representative of wider contamination. The remaining analytes were below detection. No odours, oil sheens or phase separate hydrocarbons were noted during sampling. This is consistent with site history, soil and sediment results indicating no widespread contamination at the site.

The auditor is satisfied that no further investigations are needed and that the site criteria for the low density residential land use have been met.

9.2 Surface Water

One surface water sample was collected from the dam within the site. These were submitted for list of analytes analyses. The analytical results are summarised below in Table 9.3.

The results have been assessed against the environmental quality criteria. Sample locations are presented in Attachment 6, Appendix A.

Table 9.3: Summary of Maximum Surface Water Investigation Analytical Results (µg/L)

Analyte	n	Detections	Maximum	n > ANZG (2018)	n > HSL A	n > DWG
TRH C_6-C_{10} less BTEX (F1)	1	0	>PQL	-	0 above 1000 µg/L	0 above 90 µg/L
TRH >C_{10}-C_{16} less naphthalene (F2)	1	0	>PQL	-	0 above 1000 µg/	0 above 900 µg/L
TRH >C16-C34 (F3)	1	0	>PQL	-	-	0 above 900 µg/L
TRH >C34-C40 (F4)	1	0	>PQL	-	-	0 above 900 µg/L
Benzene	1	0	>PQL	0 above 950 µg/L	0 above 800 µg/L	0 above 1 µg/L
Toluene	1	0	>PQL	-	NL	0 above 800 µg/L
Ethyl benzene	1	0	>PQL	-	NL	0 above 300 µg/L
Xylene (total)	1	0	>PQL	0 above 200 µg/L	NL	0 above 600 µg/L
Naphthalene	1	0	>PQL	0 above 16 µg/L	NL	-
Benzo(a)pyrene	1	0	>PQL	-	-	-
Arsenic	1	1	1	0 above 13 µg/L	-	0 above 10 µg/L
Cadmium	1	0	>PQL	0 above 0.2 µg/L	-	0 above 2 µg/L
Chromium	1	0	>PQL	0 above 0.2 µg/L	-	0 above 50 µg/L
Copper	1	1	1	0 above 1.4 µg/L	-	0 above 2000 µg/L
Lead	1	0	>PQL	0 above 3.4 µg/L	-	0 above 10 µg/L
Mercury	1	0	>PQL	0 above 0.06 µg/L	-	0 above 1 µg/L
Nickel	1	0	>PQL	0 above 11 µg/L	-	0 above 20 µg/L
Zinc	1	1	2	0 above 8 µg/L	-	0 above 3000 µg/L

n number of samples

- No criteria available/used

<PQL Less than the practical quantitation limit

*Note: The numbers presented in the above table have been complied and transcribed manually from data tabulated by the consultants and thus some errors may be present. Any such errors are not considered by the auditor to be significant in the overall context and amount of data reviewed and conclusions drawn regarding the site during the audit.

Metals were also detected in the surface water however below site criteria. The remaining analytes were reported below detection. This is consistent with sediment results indicating no widespread contamination within the dam.

The auditor is satisfied that no further investigations are needed and that the site criteria for the low density residential land use have been met.

10.0 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 has developed a conceptual site model and has used the CSM iteratively throughout the site assessment to inform decisions around investigation requirements. Table 10.1 provides the auditors review of the final CSM used by Douglas Partners to conclude on site suitability.

Table 10.1: Review of the Conceptual Site Model

Element of CSM	Consultant	Auditor Opinion
Contaminant source and mechanism	Contaminated ground from adjacent activities. Contaminated groundwater migrating onto the site from an off-site source.	Specific activities have been listed by the auditor in Section 4.
Affected media	Soil. Sediment. Groundwater. Surface water.	Adequate.
Receptor identification	Construction workers (for the proposed development). Future workers including maintenance workers (post-development). Pedestrians and commuters. Adjacent site users. Surface water bodies. Groundwater. Terrestrial ecosystems. Inground structures.	Current site users (rural land operators) are also considered to be receptors.
Exposure pathways	Ingestion and direct contact. Inhalation of dust. Inhalation of vapours. Surface run-off. Leaching of contaminant into groundwater and lateral migration of groundwater.	Adequate.
Presence of preferential pathways for contaminant movement	Pathways listed above.	Preferential pathways are likely to be leaching of contaminants in groundwater and run-off to surface water bodies.
Evaluation of data gaps	No data gaps identified.	Adequate.

11.0 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.

12.0 Assessment of Risk

Based on assessment of results against relevant guidelines and consideration of the overall investigation, it is the auditor's opinion that the risks to human health and the environment are low.

The auditor considers that the risk of any undetected contamination is low. The expected conditions at the site are fill (sandy silt) overlying natural (silty clay) and siltstone with no odour or staining.

13.0 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 C).

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.

It is further noted that the NSW EPA Sampling Design Guideline (1995) has been revised and is now the NSW EPA Sampling Design (2022). As sampling was underway at the time of revision of this guideline, the reporting has been assessed against NSW EPA (1995). This is not considered to impact upon the outcome of the audit.

14.0 Conclusions and Recommendations

Douglas Partners considers that the site is “suitable for the proposed development”. Based on the information presented in Douglas Partners reports and 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 railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor”.

15.0 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 commercial/industrial uses i.e. a “Site Audit” as defined in Section 4 (definition of a ‘site audit’ (b)(iii)).

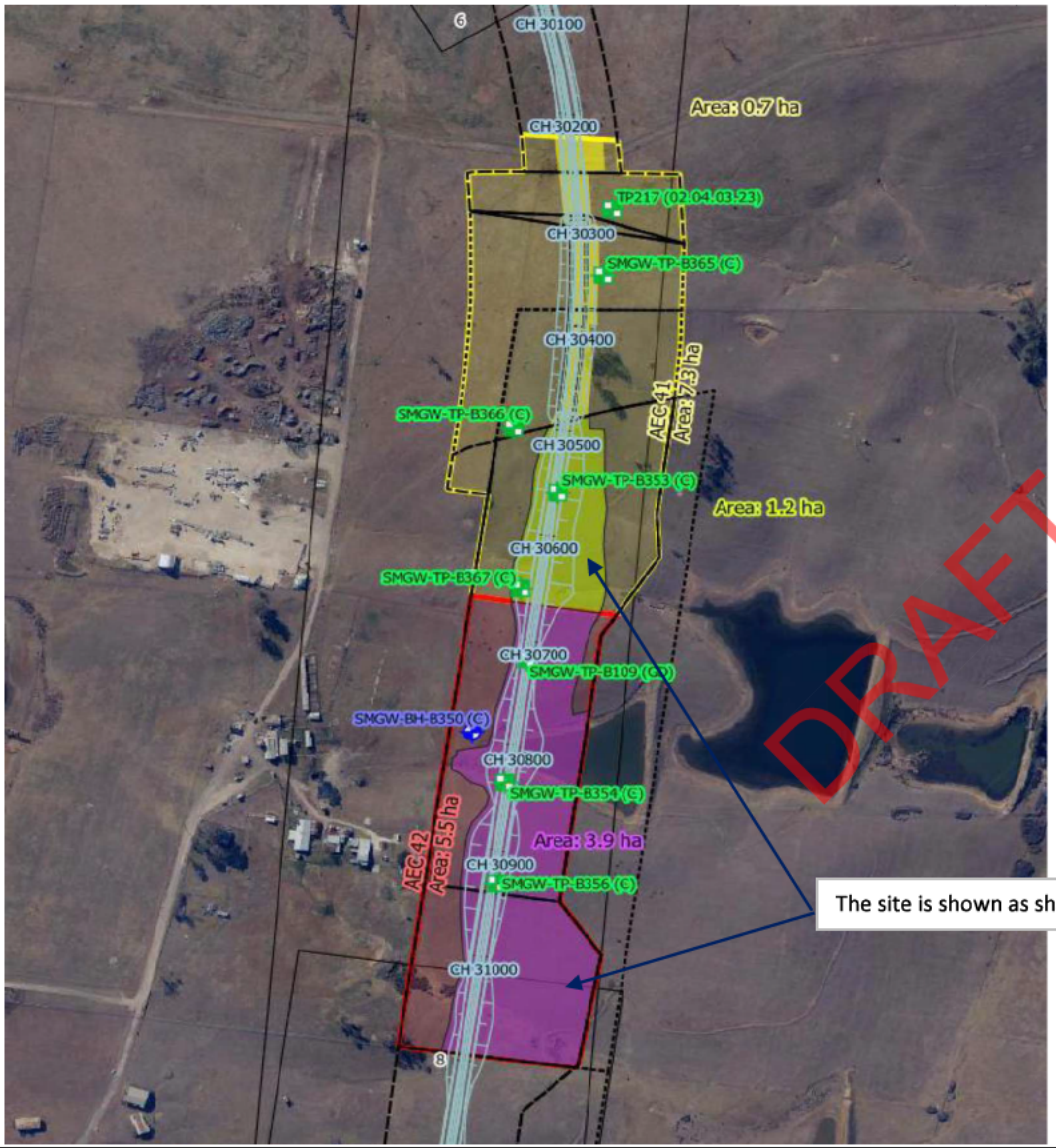
This summary report may not be suitable for other uses. Douglas Partners included limitations in their report. The audit must also be subject to those limitations. The auditor has prepared this document in good faith, but is unable to provide certification outside of areas over which the auditor had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

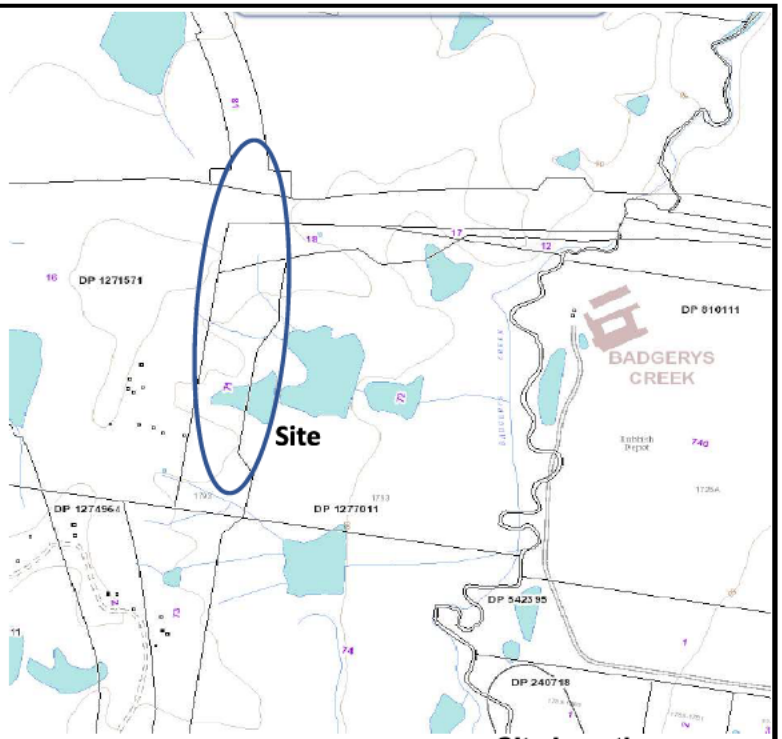
In drawing conclusions, the auditor used reasonable care to avoid reliance upon data and information that may be inaccurate, however a degree of uncertainty is inherent in all subsurface investigations and there remains the possibility that variations may occur between sample locations. The audit and 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



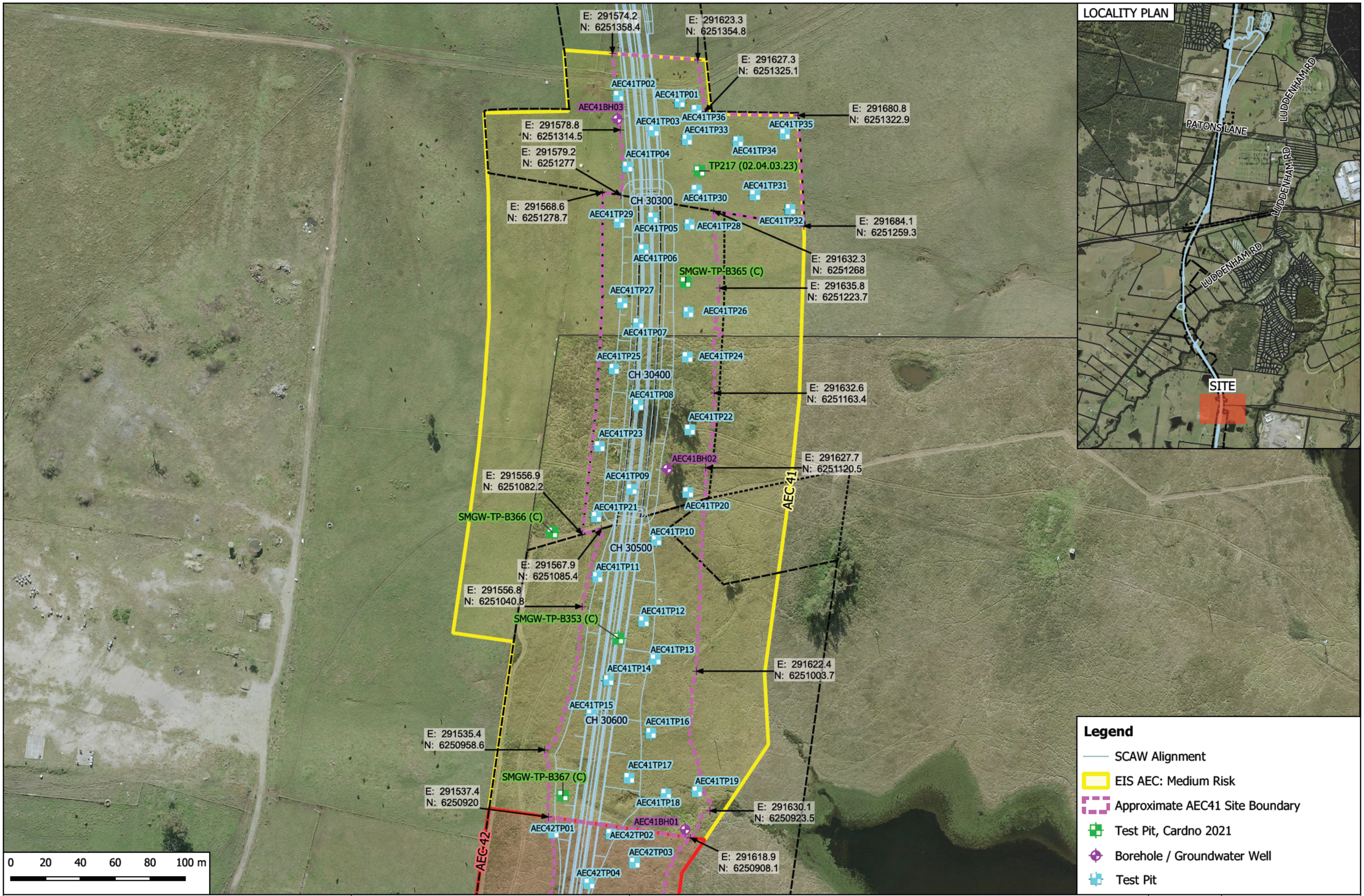


Legend

Areas of Environmental Concern (AEC)
EIS Chapter 16

- High
- Medium
- Schedule B11 Areas of Contamination Concern (ACC)

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: CPB Contractors Pty Ltd OFFICE: Sydney DATE: 18 May 2022	**Site Location** **Surface & Civil Alignment Works Package for Sydney Metro - Western Sydney Airport** **Area of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek**	PROJECT No: 204814.01 DWG No: 1 REVISION: 0

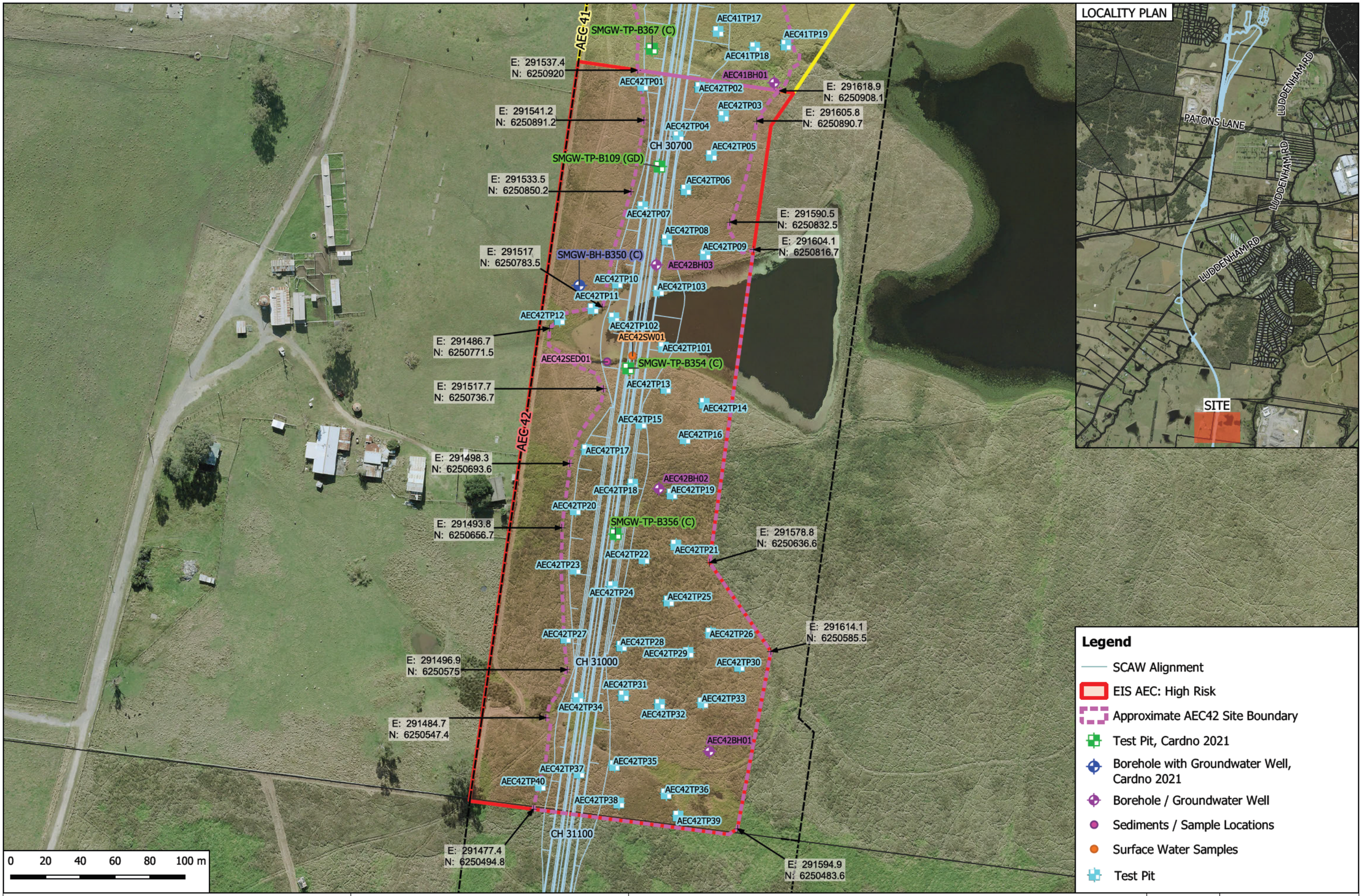


Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	CPBUI JV		
OFFICE:	Sydney	DRAWN BY:	MG
SCALE:	1:2000 @A3	DATE:	18/01/2023

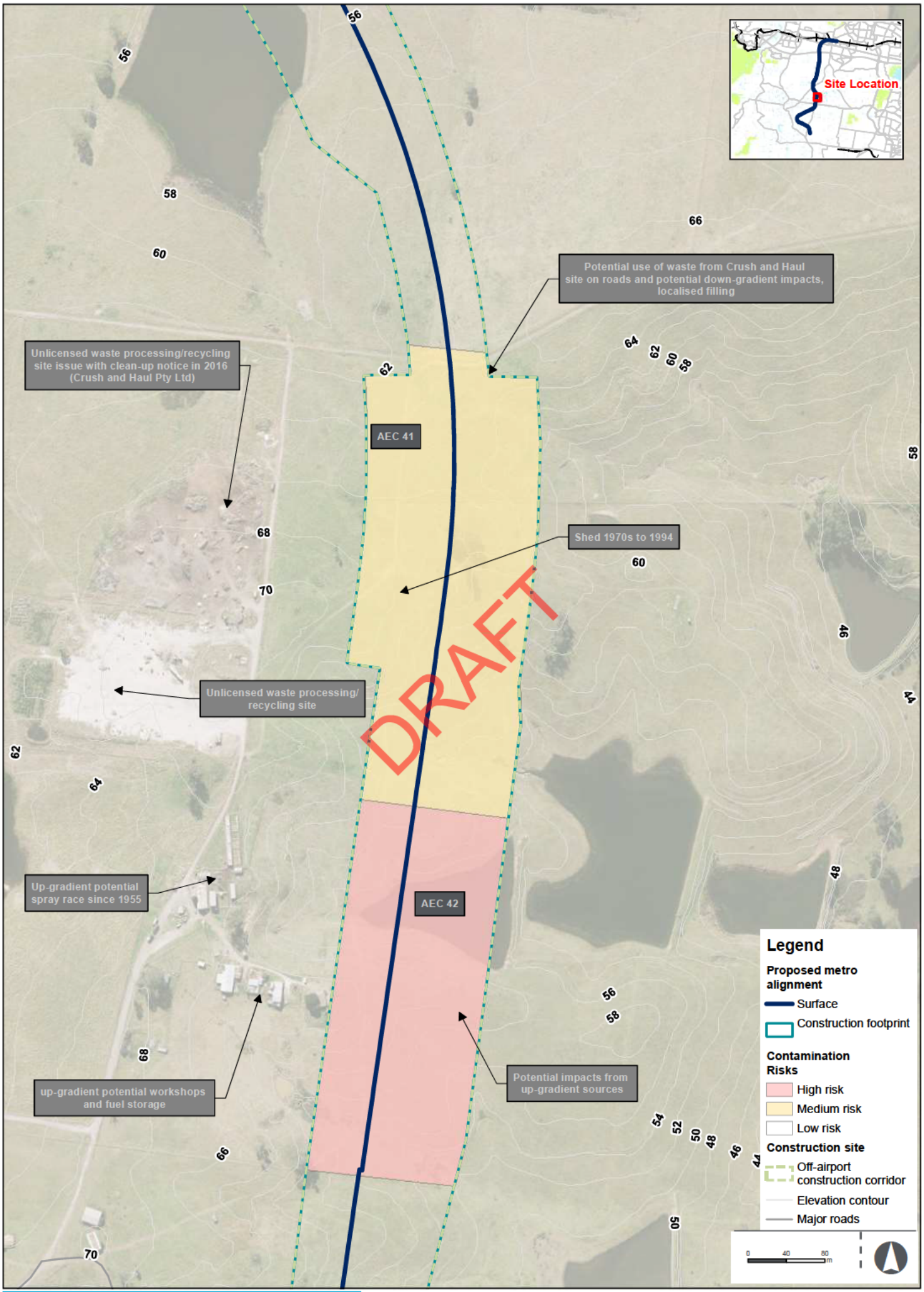
TITLE: **AEC41 Test Location Plan**
Sydney Metro Western Sydney Airport - SCAW
Elizabeth Drive, Badgerys Creek

PROJECT No:	204814.01
DRAWING No:	AEC41-01
REVISION:	Rev 1



Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: CPBUI JV		TITLE: **AEC42 Test Location Plan**	PROJECT No: 204814.01
OFFICE: Sydney	DRAWN BY: MG	**Sydney Metro Western Sydney Airport - SCAW**	DRAWING No: AEC42-01
SCALE: 1:2000 @ A3	DATE: 18/01/2023	**Elizabeth Drive, Badgerys Creek**	REVISION: Rev 2



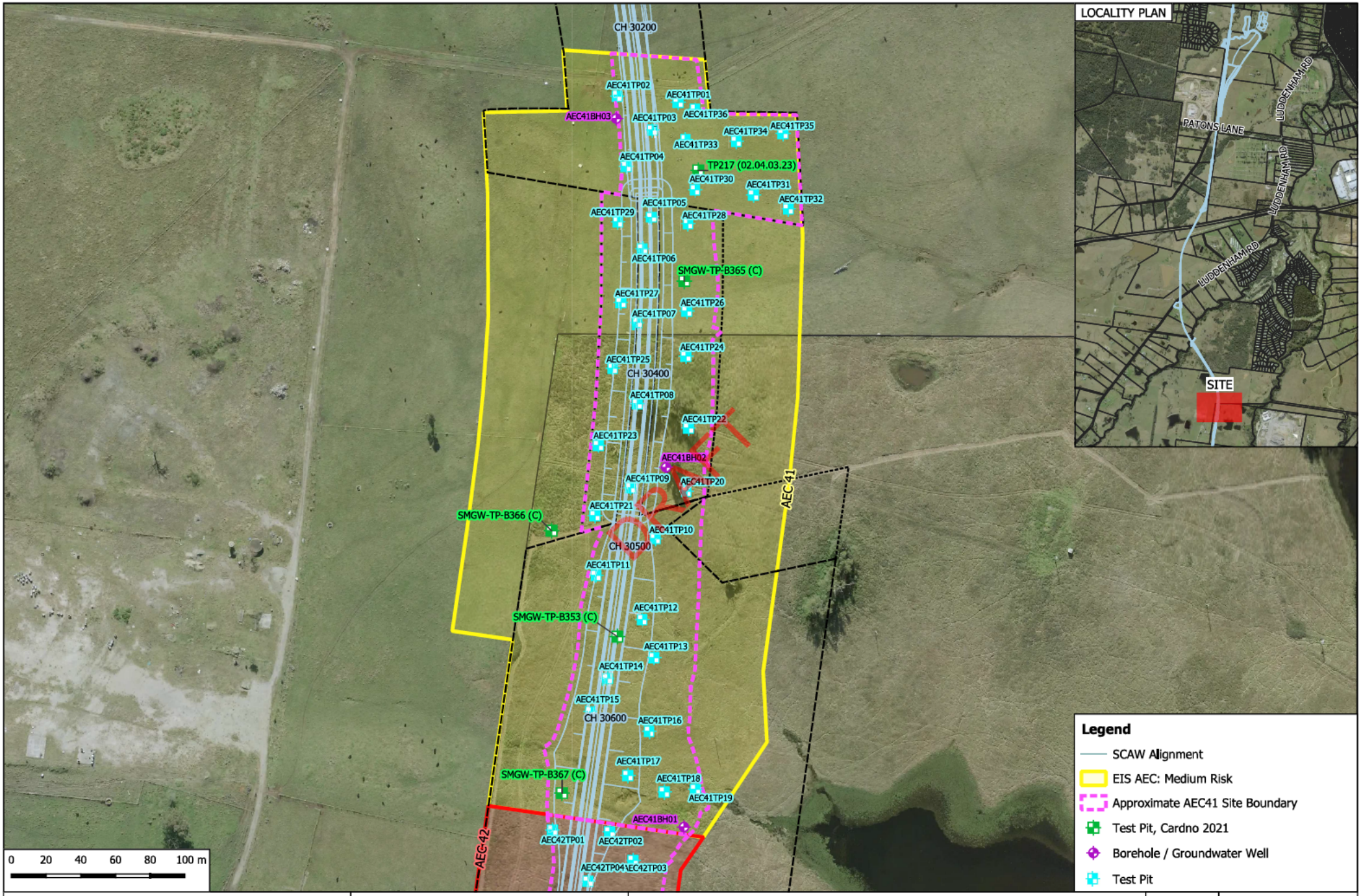
Sydney Metro - Western Sydney Airport

Off-airport construction corridor in Badgerys Creek contamination sources and risk ranking

*HBM - Potential hazardous building materials
Indicative only, subject to design development

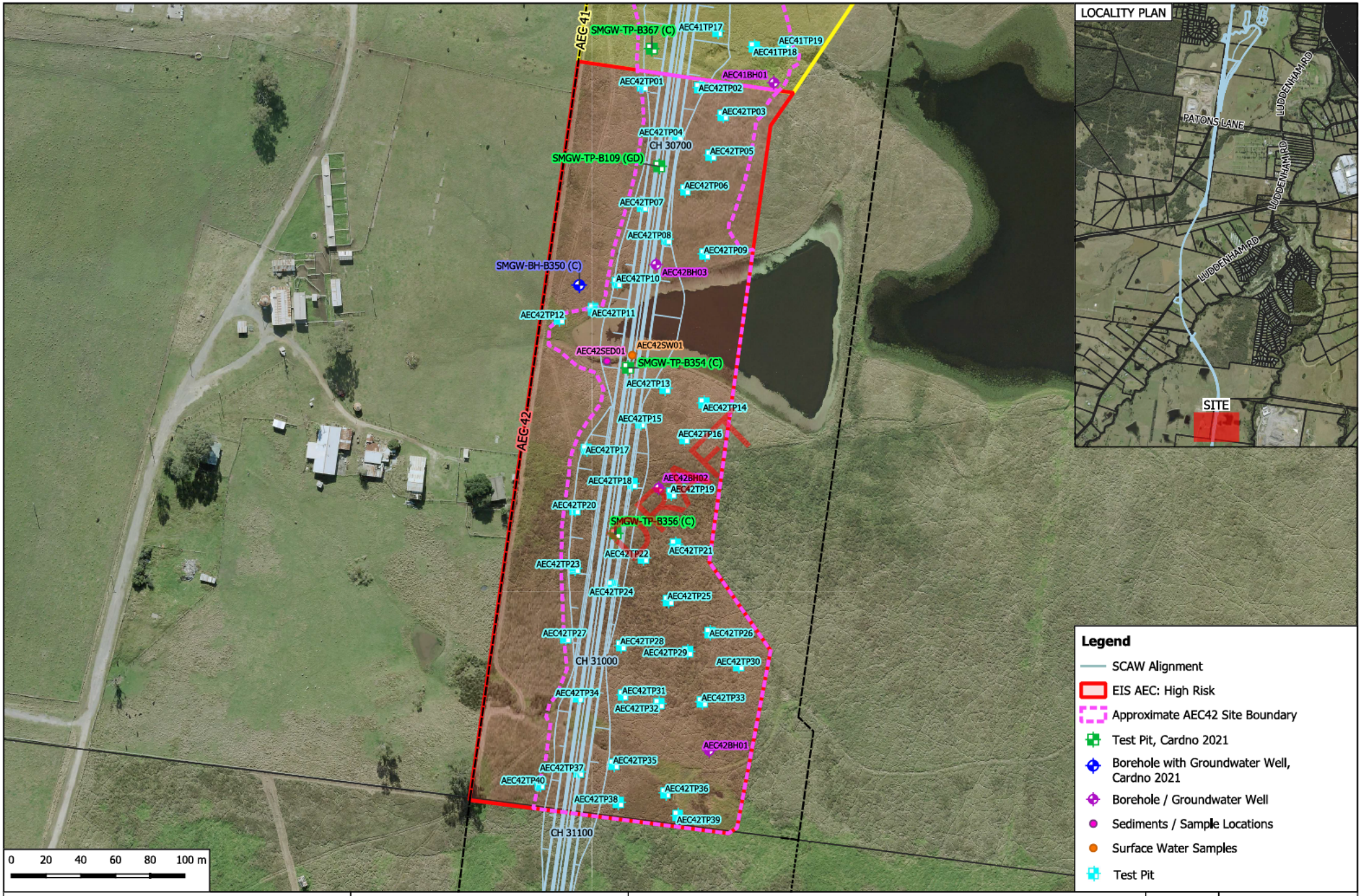
Drawing 3 - extracted from Technical Paper 8

Figure A12



Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: CPBUI JV		TITLE: AEC41 Test Location Plan Sydney Metro Western Sydney Airport - SCAW Elizabeth Drive, Badgerys Creek	PROJECT No: 204814.01
OFFICE: Sydney	DRAWN BY: MG		DRAWING No: AEC41-01
SCALE: 1:2000 @ A3	DATE: 05/10/2022		REVISION: Rev 0



Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: CPBUI JV			
OFFICE: Sydney	DRAWN BY: MG		
SCALE: 1:2000 @ A3	DATE: 21/10/2022		

TITLE: **AEC42 Test Location Plan**
Sydney Metro Western Sydney Airport - SCAW
Elizabeth Drive, Badgerys Creek

PROJECT No:	204814.01
DRAWING No:	AEC42-01
REVISION:	Rev 0

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 Contaminated Land Management Act 1997 (CLM Act) allows the EPA to make or approve guidelines for purposes connected with the objects of the Act. The EPA must consider these guidelines whenever they are relevant. Other people must also consider the guidelines, namely, accredited site auditors when conducting a site audit; contaminated land consultants when investigating, remediating, validating and reporting on contaminated sites; and those responsible for land contamination with a duty to notify the EPA.

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

Guidelines made by the EPA

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

Guidelines that refer to the:

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

Guidelines approved by the EPA

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

*The ASC NEPM was amended on 16 May 2013..

Appendix C: Interim Audit Advice

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

25 August 2022

[redacted]
CPBUI JV
Level 5, 60 Miller Street
Address
North Sydney NSW 2060

Dear [redacted]

Re: Interim Audit Advice No. 1: AEC41&42, Elizabeth Drive, Badgerys Creek

Review of Sampling and Analysis Quality Plan

1. Introduction and Background

[redacted] (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. The site is part of the proposed Sydney Metro line and is located at Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land with paddocks and a dam. The site is believed to have historically been used for (AEC41) illegal stockpiling of waste and imported soil as well as potential use of imported fill material with asbestos containing material (ACM) and (AEC42) a workshop (fuel/oil/chemical storage and use) and potential spray race (pesticides). It is understood that the development of part of the site will likely include stripping of the topsoil and cut/fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following report, which was forwarded to the Site Auditor for review:

- 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 9 August 2022 by Douglas Partners (DRAFT).

This interim audit advice details the review of the SAQP for a detailed site investigation in relation to the contamination status of the site.

2. Review Comments

The Site Auditor has undertaken a review of the SAQP 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 Office of Environment and Heritage, 2011).

Review comments are detailed herein.

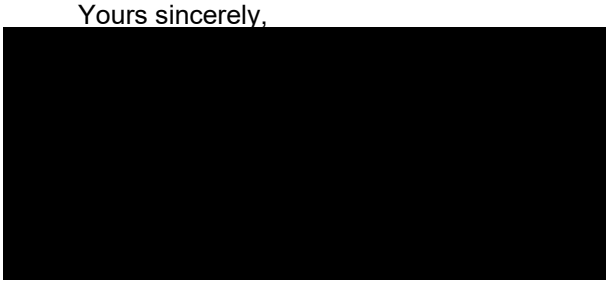
- Section 4. Please confirm review of Appendix B in the NEMP regarding the potential for PFAS contamination for the historical and current land use.
- Section 5. Summarise all the analytical results for previous sample locations here. Please include logs as well for previous locations in an appendix.
- Section 7. Site Assessment Criteria in Appendix B extends over a wide range of analytes, depths and two separate land uses. The actual criteria to be applied at the site should be outlined in Section 7.
- Please apply the most up to date PFAS criteria from NEMP 2.0 for recreational waters.

It is noted that the SAQP states that 'soil may be imported from off-site'. The sampling regime be applied are not specified in the SAQP and cannot be commented upon by the auditor. It is understood that material reuse criteria in the SAQP was derived from the Human Health and Ecological Risk Assessment (HHERA) prepared to facilitate the re-use of spoil along the Sydney Metro alignment. At this stage we cannot comment on the material reuse criteria stated in the SAQP until approval to the HHERA has been received (if required).

3. 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,



MC/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.*

Reliance *–This document has been prepared solely for the use of CBPUI JV. No responsibility or liability to any third party is accepted for any damages arising out of the use of this document by any third party.*

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

13 October 2022

[redacted]
CPBUI JV
Level 5, 60 Miller Street
Address
North Sydney NSW 2060

Dear [redacted]

Re: Interim Audit Advice No. 2: AEC41&42, Elizabeth Drive, Badgerys Creek

Review of Detailed Site Investigation

1. Introduction and Background

Melissa Porter (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. The site is part of the proposed Sydney Metro line and is located at Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land with paddocks and a dam. The site is believed to have historically been used for (AEC41) illegal stockpiling of waste and imported soil as well as potential use of imported fill material with asbestos containing material (ACM) and (AEC42) a workshop (fuel/oil/chemical storage and use) and potential spray race (pesticides). It is understood that the development of part of the site will likely include stripping of the topsoil and cut/fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, which were forwarded to the Site Auditor for review:

- 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 9 August 2022 by Douglas Partners (DRAFT).
- 'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 7 October 2022 by Douglas Partners (DRAFT).

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022.

This interim audit advice details the review of the detailed site investigation in relation to the contamination status of the site.

2. Review Comments

The Site Auditor has undertaken a review of the DSI 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 Office of Environment and Heritage, 2011).

Review comments are detailed herein.

- Section 4. Please confirm review of Appendix B in the NEMP regarding the potential for PFAS contamination for the historical and current land use.
- Section 5. Summarise all the analytical results for previous sample locations here. Please include logs as well for previous locations in an appendix.
- Section 6. Table 7. Please separate out each potential source of contamination and corresponding. CoPC in different rows.
- Please discuss DSI compliance with SAQP and decontamination procedures in QA/QC section.
- Appendix A.
  - Please show location of roads that potentially used material from the unlicensed waste processing at the neighbouring property and the footprint of former sheds to ensure that these have been adequately targeted.
  - Show location of offsite areas including potential workshops with chemical/oil/fuel storage, potential spray race and unlicensed waste processing.
- Appendix J. Please include trip blank and trip spike results.
- Sediment, surface water and groundwater information including site assessment criteria and analytical data is not presented in the draft report. Please provide updated report to auditor for review with this information once available. Please apply the most up to date PFAS criteria from NEMP 2.0 for recreational waters. Depending on the proposed earthworks, if relevant consideration should be given to comparing the sediment analytical data to the ANZG (2018) Australian and New Zealand - Toxicant Default Guideline Values For Sediment Quality - Toxicant default guideline values for sediment quality (Water Quality 2018) default guideline values (DGV) and upper guideline values (GV-high).

It is noted that the SAQP and DSI states that ‘soil may be imported from off-site’. The sampling regime be applied are not specified in the SAQP and cannot be commented upon by the auditor. It is understood that material reuse criteria in the SAQP was derived from the Human Health and Ecological Risk Assessment (HHERA) prepared to facilitate the re-use of spoil along the Sydney Metro alignment. At this stage we cannot comment on the material reuse criteria stated in the SAQP until approval to the HHERA has been received (if required).

3. 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.

ES/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.*

Reliance *–This document has been prepared solely for the use of CBPUI JV. No responsibility or liability to any third party is accepted for any damages arising out of the use of this document by any third party.*

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

27 October 2022

[redacted] JV
Level 5, 60 Miller Street
Address
North Sydney NSW 2060

Dear [redacted]

Re: Interim Audit Advice No. 3: AEC41&42, Elizabeth Drive, Badgerys Creek

Review of Detailed Site Investigation

1. Introduction and Background

[redacted] (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. The site is part of the proposed Sydney Metro line and is located at Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land with paddocks and a dam. The site is believed to have historically been used for (AEC41) illegal stockpiling of waste and imported soil as well as potential use of imported fill material with asbestos containing material (ACM) and (AEC42) a workshop (fuel/oil/chemical storage and use) and potential spray race (pesticides). It is understood that the development of part of the site will likely include stripping of the topsoil and cut/fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, which were forwarded to the auditor for review:

- 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 9 August 2022 by Douglas Partners (DRAFT).
- 'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 41 & 42, Elizabeth Drive, Badgerys Creek' dated 21 October 2022 by Douglas Partners (DRAFT).

The SAQP was reviewed, and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022. A previous version of the DSI was reviewed and comments were provided by the auditor in IAA No. 2 dated 13 October 2022.

This interim audit advice details the review of the updated detailed site investigation in relation to the contamination status of the site.

2. Review Comments

The auditor has undertaken a review of the DSI 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 Office of Environment and Heritage, 2020).

The auditor considers that the DSI addresses the comments provided in IAA No.2 and the DSI can be finalised.

3. 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,

NSW EPA Accredited Site Auditor (0803)

ES/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.
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- *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.*

Reliance *–This document has been prepared solely for the use of CBPUI JV. No responsibility or liability to any third party is accepted for any damages arising out of the use of this document by any third party.*

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