Validation Report

105 & 113 Hollingsworth Road, Marsden Park NSW, Lot 10 & 11 DP1262052

Stantec

Prepared for:
BY Group Pty Ltd

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Executive Summary

Stantec Australia Pty Ltd (Stantec) was engaged by BY Group Pty Ltd on behalf of CDC Data Centres Pty Ltd ("the client") to prepare a Validation Report for a property located at 105 & 113 Hollinsworth Road, Marsden Park, NSW, formally identified as Lot 10 and Lot 11 in deposited plan (DP) 1262052 (herein referred to as 'the site'). The site locality and layout are shown in **Figure 1** and **Figure 2** of **Appendix A**.

The client had previously engaged JK Geotechnics to complete a Geotechnical Investigation (GI, JK Geotechnics 2023) and Stantec to complete a Preliminary Site Investigation (PSI, Stantec 2024a), Detailed Site Investigation (DSI, Stantec 2024b), dam water assessment memo (Stantec 2024c), and Data Gap Investigation (DGI, Stantec 2024d). A Remedial Action Plan (RAP, Stantec 2024e) was prepared detailing the procedures and standards to be followed in order to address the identified contamination impacts at the site, ensuring the protection of human health and the surrounding environment, such that the impact is remediated/managed in a manner to render the site suitable for the proposed data centre development under a commercial/industrial land use.

Stantec was the appointed remediation consultant during all remedial works as documented in this report.

The objectives of the validation works were to demonstrate remediation of the identified contamination, offsite disposal of impacted material and assessment of imported materials, to ensure the works were completed in accordance with the RAP, and to document the remedial and validation works in accordance with relevant EPA guidance.

Completed remediation works included: excavation of impacted soils as identified in the RAP, offsite disposal of excavated impacted material to an appropriately licensed facility, validation of the remedial works in accordance with the RAP, and validation of all imported materials.

Upon completion of remediation activities and site validation, Stantec has considered the site conditions in the context of the NSW EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*:

- The potential scenario of contaminated materials existing beyond the site boundary has been considered per the NSW EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. Stantec consider that there is no duty to notify the NSW EPA under section 60 of the Contaminated Land Management Act 1997 due to:
    - Fill materials at the site boundary, if any, would be considered '*widespread diffuse urban pollution that is not attributed to a specific industrial, commercial or agricultural activity'*, which in accordance with Section 2.5 of the NSW EPA Guidelines (2015) is not intended to be captured by the duty to report.
    - Based on the information available to Stantec at the time of preparing this report, no other conditions were known to exist that would trigger the requirement to notify the NSW EPA under Section 60 of the CLM Act 1997.

Based on data obtained during the validation process in accordance with the validation protocol outlined in the RAP, and subject to the limitations in **Section 12**, it is concluded that the site is suitable for the proposed data centre under a commercial/industrial land use.

Stantec recommend the following for the construction phase of the development:

- Any material requiring removal from the site during construction must be classified in accordance with the NSW EPA Waste Classification Guidelines (2014) or a current NSW EPA Resource Recovery Order / Exemption (as applicable).
    - Consideration should be given to sustainable spoil management during construction works, along with implementing an appropriate waste tracking procedure.
- During construction, the contractors Construction Environmental Management Plan (CEMP) must incorporate an Unexpected Finds Protocol (UFP) to ensure that any potentially contaminated materials are appropriately managed.

1 Introduction

Stantec Australia Pty Ltd (Stantec) was engaged by BY Group Pty Ltd on behalf of CDC Data Centres Pty Ltd ("the client") to prepare a Remediation Action Plan (RAP) for a property located at 105 & 113 Hollinsworth Road, Marsden Park, NSW, formally identified as Lot 10 and Lot 11 in deposited plan (DP) 1262052 (herein referred to as 'the site').

The site locality and layout are shown in **Figure 1** and **Figure 2** of **Appendix A**.

1.1 Background

The client had previously engaged JK Geotechnics to complete a Geotechnical Investigation (GI, JK Geotechnics 2023) and Stantec to complete a Preliminary Site Investigation (PSI, Stantec 2024a), Detailed Site Investigation (DSI, Stantec 2024b), dam water assessment memo (Stantec 2024c), and Data Gap Investigation (DGI, Stantec 2024d).

A detailed summary of previous investigations and reports is provided in **Section 3.1**, however, identified soils impacted with asbestos containing material (ACM), benzo(a)pyrene, and metals (copper, zinc). The impacts were reported as being associated with uncontrolled filling and hazardous building materials that had weathered and/or been demolition at the site. The areas of soil contamination were categorised in the Remedial Action Plan (2024e) into the following remediation areas, which are indicatively shown on **Appendix A, Figure 3**:

- *R-1 – Uncontrolled filling impacted with ACM in eastern and central portions of the site;*
- *R-2 – Western dam wall fill material impacted with ACM;*
- *R-3 – Former buildings/structure footprints impacted with ACM;*
- *R-4 – Stockpiled materials near the south-eastern corner of former buildings impacted with benzo(a)pyrene above ecological criteria;*
- *R-5 – Stockpiled materials impacted with ACM and metals (copper, zinc) above ecological criteria; and*
- *R-6 – Stockpiled materials identified during the post-vegetation removal inspection, suspected ACM impacted*.

The RAP (2024e) was prepared to outline the procedures and standards to be implemented during remediation such that the site is considered suitable for the proposed land use as a data centre (see **Section 2.1**) and that an unacceptable risk to human and ecological health did not remain post-construction.

This validation report was prepared to document the remedial and validation works undertaken in accordance with the requirements of the RAP (Stantec 2024e). This report was prepared in general accordance with the guidelines made or approved by the NSW Environment Protection Authority (EPA).

1.2 Proposed Development

A concept design for the proposed development is provided in **Appendix B** and broadly includes the following features:

- Bulk earthworks for site establishment. The bulk earthworks, drawing current at the time of preparing this document, is provided in **Appendix B** and identifies that approximately 143,900 m^3 of imported fill material is required during construction.
- Construction of seven (7) warehouse structures (data centres) that would house 24 data halls, generators and other electrical equipment. As shown on the concept design, the structures would occupy the majority of the site area.
- Construction of an on-site substation with an approximate footprint of 19,838 m^2, situated in the northwestern portion of the site.
- Establishment of a site access point from Hollinsworth Road as well as internal roads, carparking, security gatehouse and internal infrastructure including drainage, utilities and lighting.
- Limited areas of landscaping and establishment of vegetational visual buffers around the south, east and western perimeter of the site.

1.3 Purpose and Objectives

The purpose of this validation report is to document the remediation and validation works completed at to render contaminant source-pathway-receptor linkages incomplete and make a statement on the site suitability for the proposed commercial/industrial land use (data centre). The document is also to be utilised as a supporting document to the Development Application (DA) approval process.

The objectives of the validation work were to

- Demonstrate that the remediation objectives outlined in the RAP (Stantec, 2024e), and below, have been met:
    - » Demonstrate the off-site disposal approach for onsite contamination has been completed as per the RAP;
    - » Certify that waste removed from the site has been disposed of appropriately, with relevant and adequate documentation; and
    - » Validate that residual soils onsite meet the relevant criteria for the proposed land-use.
- Consider any requirements for the NSW Environment Protection Authority to be notified under section 60 of the Contaminated Land Management Act 1997.
- Provide a clear statement that the potential risks to human health and the environment are low and/or acceptable, and that the site is suitable for its proposed use as a data centre under commercial/industrial land use.

1.4 Scope of Works

In order to meet the purpose and objectives outlined in **Section 1.3,** Stantec undertook the following scope of works:

- Review of available historic site data and documents provided by the client;

- Attend the site to conduct inspections and periodically supervise excavation and remedial earthworks during remediation, and generally to verify that materials handling and the works completed were in accordance with the RAP;
- Following excavation within the remediation areas, inspection and validation sampling of representative samples was completed, with soil samples submitted for laboratory analysis of applicable contaminants in accordance with the RAP;
- Inspections, sampling and laboratory analysis of materials proposed to be imported to the site;
- Preparation of waste classification documentation for excavated materials generated during remedial earthworks that required offsite disposal;
- Following removal of asbestos impacted soils, completion of asbestos clearance inspections and issuance of clearance certificates;
- Consideration of any requirements for the NSW EPA to be notified under section 60 of the Contaminated Land Management Act 1997; and
- The preparation of this validation report detailing the remedial and validation works completed in accordance with relevant NSW EPA guidelines.

1.5 Guidelines and Legislations

This validation report was completed in general accordance with the following guidelines and legislation:

- NEPC National Environment protection (Assessment of Site Contamination) Measure 1999. National Environmental Protection Council (NEPC, 2013).
- NSW EPA Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997. New South Wales Environment Protection Authority (EPA), September 2015 (NSW EPA, 2015).
- NSW Department of Urban Affairs and Planning (2021) Managing Land Contamination: Planning Guidelines: SEPP 55 Resilience and Hazards, 2021.
- NSW EPA Consultants Reporting on Contaminated Land: Contaminated Land Guidelines. New South Wales Environment Protection Authority, April 2020, Updated May 2020 (NSW EPA, 2020).
- NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA, 2014).
- NSW EPA Sampling design part 1 – application, Contaminated Land Guidelines. New South Wales Environment Protection Authority (EPA), August 2022 (NSW EPA, 2022).
- NSW EPA Sampling design part 2 – interpretation, Contaminated Land Guidelines. New South Wales Environment Protection Authority (EPA), August 2022 (NSW EPA, 2022).
- WA DoH, 2009. Guidelines for Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, Western Australia Department of Health (WA DoH 2009).

It is noted that WA DoH had updated the above guidance in 2021. In response, the NSW EPA published a draft position statement on 14 April 2022 with respect to the applicability of the updated guidelines in NSW, with the statement noting that the NSW EPA were generally in support of the approach included in the WA Asbestos Guidelines but stressed that consultants should not base any departures with NSW legislative requirements on guidelines drafted by

different jurisdictions. Stantec propose to refer to the updated guidance below only where consistent with the NSW legislation:

- Government of Western Australia Department of Health, Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, 2021 (WA DoH 2021).

1.6 Remediation and Validation Timelines

The key milestones during the remediation activities and validation works are summarised in **Table 1-1** below.

Table 1-1 Remediation and validation timeline

Date	Activity/Milestone
30 September 2024	Remediation commencement
9 October 2024	Commenced R-5 remediation
11 October 2024	Commenced R-3 remediation
15 October 2024	Commenced R-4 remediation
5 November 2024	Commenced R-1 remediation, Data Gap Investigation (Stantec 2024d) finalised, commenced R-2 remediation
11 November 2024	Completed R-3 remediation
13 November 2024	Completed R-4 remediation
14 November 2024	Completed R-2 remediation
20 November 2024	RAP (Stantec 2024e) updated and finalised following DGI (Stantec 2024d)
21 November 2024	Commenced R-6 remediation, completed R-1 remediation, completed R-5 remediation, completed R-6 remediation.
28 November 2024	Partial remediation of SP24 (unexpected find – uncontrolled fill)
21 January 2025	Completed remediation of SP24 (unexpected find – uncontrolled fill) and SP25 (unexpected find – uncontrolled fill)
31 January 2025	Completed final site inspection including visual clearance of SP24 and SP25

2 Site Condition and Surrounding Environment

Details related to the site are included in **Table 2-1** while site locality and site layout are show in **Figures 1** and **2**, respectively, of **Appendix A**.

2.1 Site Identification

Table 2-1 Site Definition

Details	Comments
Site Address	105 & 113 Hollinsworth Road, Marsden Park
Approximate Site Area (ha)	21 ha
Title Details	Lot 10 DP1262052 Lot 11 DP1262052
Local Government Area	Blacktown City Council
Current Land Use	Historically, the site was predominantly vacant land/ or bushland and used for low-intensity agricultural activities (livestock grazing). Structures historically located at the site consisted of a residential dwelling and sheds in the north-western portion of the site, and a residence along the western boundary. At the time of preparing this report, the site had undergone vegetation clearance, remediation activities, and earthworks in advance of construction.
Proposed Land Use	Data Centre Campus (Commercial/ Industrial).
Current Land Zoning – Blacktown Local Environmental Plan (2015)	IN2 – Light Industrial

2.2 Site Description

The following site description (**Table 2-2**) was recorded by Stantec during DSI (Stantec 2024b) works in April 2024 and is generally consistent with observations of site conditions at the commencement of remedial works on 30 September 2024.

Table 2-2 Site Description

Item	Observations
Site slope and drainage features	The site generally exhibited a gradual slope towards the southeast. Drainage features observed onsite included a man-made concrete lined culvert located at the eastern-central boundary of the site and two (2) man-made dams located within the western portions of the site. Generally, it was expected that surface runoff onsite would flow in a southeast direction and infiltrate into exposed surrounding soils and/or the creek line present along the southern boundary of the site. Water within the creek was expected to flow in an easterly direction towards Bells Creek. Surface runoff within the western portions of the site was expected to flow into the two (2) dams and/or surrounding exposed soils. Overflow cuttings were observed at both dams, whereby overflowing water was then expected to infiltrate into downgradient exposed soils.

Item	Observations
Site surface coverings	Site surface coverings generally consisted of grassed coverings (western and central portions of the site) and exposed soils in the central and eastern portions of the site. At the commencement of remediation works on 30 September 2024, surface coverings in the north-western portion of the site comprised imported roadbase material.
Surface soils	Surface soils throughout the site were generally described as silty-clayey soils. Areas where filling and earth movement was present were generally described as gravelly silty clays with sand. Anthropogenic materials (plastics, terracotta tiling, metals, processed gravels and tiling) were also present throughout areas of suspected filling. PACM was observed within fill located in the eastern central portions of the site.
Site cut and fill	Filling was observed within the western portions of the site where a level ground surface was achieved (for residential buildings). Similarly, filling/mounding of soils around the two (2) made dams within the western portion of the site was also present. Dam walls were approximately 3 – 5m in height with an approximate gradient of 1:2. A large soil mound was present within the northern boundary of the site extending towards the eastern boundary. The mound exhibited a slope of approximately 1:1 and ranged between 1.5 – 6 m high. Soils were generally described as gravelly clay with trace anthropogenic materials (plastics and tiles). Uncontrolled filling and mounding of soils were also observed in various locations within the central, eastern and southern portions of the site. Fill material characteristics were generally described as gravelly clayey silts with anthropogenic materials including hard and soft plastics, glass, tiles, terracotta, metals, asphalt. Potentially asbestos containing material (PACM) in the form of cement sheeting and piping was observed within the eastern central portions of the site. Fill containing bulk anthropogenic materials and PACM appeared to have been flattened and brought to a level ground surface. A large concrete retaining wall ranging between approximately 3 metres high borders the western portion of the site and was associated with the construction of the bounding property (commercial activities).
Buildings and structures	On 30 September 2024, demountable site sheds were located within the north-western portion of the site.
Potential asbestos in building materials	PACM in the form of cement sheeting and piping was observed sporadically within fill material in the eastern portion of the site.
Manufacturing, industrial or chemical processes and infrastructure	None observed.
Fuel storage tanks (USTs/ASTs)	None observed.
Solid waste deposition	During the initial site inspection during DSI (Stantec 2024b) works in April 2024, solid waste deposition included the stockpiling of building materials within the north-western portion of the site and was associated with demolition practices. These materials were not observed during the remediation commencement on 30 September 2024. Small areas of dumping were observed throughout the site, generally within the central and southern portions. This included construction materials, general household wastes, car parts, trailer and car batteries.

Item	Observations
Liquid waste disposal features	During the initial PSI (Stantec 2024a) site inspection, a septic tank was identified within the northwestern portion of the site, in close proximity to the residential house. These had since been removed as observed on 30 September 2024. An additional two (2) suspected septic or water tanks were observed during PSI works further south, near to a previously demolished residential building, which were not observed during the 30 September 2024 inspection and assumed removed from the site.
Evidence of previous site contamination investigations	Existing wells as part of previous geotechnical investigations were observed at various locations onsite.
Evidence of land contamination (staining or odours)	No staining of odours observed. PACM was observed in areas of uncontrolled filling within the eastern portion of the site.
Evidence of groundwater contamination	None observed.
Vegetation	The northern and western portions of the site generally consisted of open grassed areas (agricultural activities) within areas of mature trees located within the far northern portions of the site. The remaining areas of the site generally consisted of shrubs, juvenile and mature trees of moderate to dense vegetation.
Site fencing	Vegetation within and surrounding dams included reeds, grasses, and lily-pads. Vegetation surrounding the creek line located within the southern boundary of the site included reeds, grasses, mosses, and shrubs.
Interview information (DSI)	▪ Stantec conducted an interview with an individual who had previously overseen the site while it was under Busways' ownership. The details provided were sourced from Busways. Busways had owned the site since 2014. ▪ The site has historically been used for agricultural activities including farming sheep and cattle. ▪ A shed and house structure are located on site. It was noted that the septic tank connected to the house has an underground drainage point south of the tank and is expected to flow into surrounding soils towards the south. Busways also noted the presence of asbestos within the flooring of the property and trim areas (surrounding eaves). ▪ Small quantities of fuel, pesticides, herbicides and other general household chemicals were stored onsite. ▪ During Busways ownership of the site, two (2) residents occupied the property located within the northern portion. ▪ A residential building located within the south-western portion of the site was demolished during Busways occupation. However, no knowledge or records of demolition were available during the interview. It was noted that the building was demolished due to no occupation and vandalism occurring. ▪ Busways were unaware of any filling material within the site or areas of illegal dumping and/or stockpiled waste with exception to dumped general waste and debris throughout the southern boundary of the site. ▪ Busways noted that during construction of the western boundary property, sediment laden water was observed to be leaking from the bounding retaining wall into the site.

2.3 Surrounding Land Use

The surrounding land use and potential sensitive receptors were considered during the DSI (Stantec 2024b) and is generally consistent with observations at the commencement of remedial works on 30 September 2024. A summary of the surrounding land uses is provided in **Table 2-3**.

Table 2-3 Surrounding Land Use

Direction	Description	Sensitive Receptors	Distance/ Direction to Sensitive Receptor
North	Commercial shopping centres are directly north of the, followed by Hollinsworth Road, South Marsden Park Zone Substation, vacant land with scattered mature trees and additional commercial / industrial structures.	Mature vegetation	40m / north to northwest
South	Vacant vegetated land/ bushland and a tributary/creek border the southern boundary. Further south a residential precinct (Hassall Grove) is present.	Vegetated areas, waterbody and residents	0m / south
East	Retail precinct and commercial spaces bound the north-eastern boundary of the site. Recreation/ open space (playing fields) bound the south-eastern boundary of the site.	Recreational users of playing fields	0m / east
West	Commercial/ industrial warehouses	None observed	NA

2.4 Regional and Site Settings

Site information available from publicly available data sets as reported in the DSI (Stantec 2024b) is summarised in **Table 2-4** below, noting that some features described are inconsistent with the site post-remediation.

Table 2-4 Site Setting Information

Item	Details
Site topography and drainage features (NSW DFSI, Spatial Services)	The northern and western portions of the site were at approximately 54 – 56 metres Australia Height Datum (m AHD), whilst the southern and eastern portion of the site were at approximately 38 – 40 m AHD, indicating a gentle slope towards the south-east. No drainage network was observed within the site on 27 March 2024. Surface run-off was likely to penetrate unsealed surfaces with overland runoff captured via either the public stormwater drainage networks surrounding the site or nearby identified surface water bodies.
Nearby water bodies (NSW DFSI, Spatial Services)	Two (2) waterbodies were present within the site area and appeared to be man-made for agricultural purposes. There was an unnamed tributary located down-gradient of the site which flowed north-east towards Bells Creek. The unnamed tributary was located approximately 75 m south-east of the southern boundary of the site. Bells Creek was located approximately 675 m east of the eastern boundary of the site. Bells Creek flowed into Eastern Creek, which discharges into South Creek before the Hawkesbury River and penultimately discharging into the South Pacific Ocean.

Item	Details
Acid sulfate soil / rock risk (DLWC, 1998; Blacktown LEP 2015)	The NSW Government Planning Industry and Environment online mapping tool, eSPADE Version 2.2, indicated that the site was not mapped as being situated within or near an ASS risk area. The site was not in an area zoned as being subject to planning controls for ASS under the Blacktown LEP 2015.
Dryland salinity potential	Based on the search results from the Dryland Salinity – National Assessment (National Land and Water Resources Audit), the site was considered to have high hazard or risk regarding the dryland salinity. Based on the search results from Dryland Salinity Potential of Western Sydney (NSW Office of Environment and Heritage), the site was considered to have moderate to high salinity potential.
Groundwater (BoM and Water NSW, 2024)	Eight (8) groundwater wells were identified within 1,000 m of the site. The four (4) below listed monitoring wells were located within the BP Truckstop premises (851 Richmond Rd, Marsden Park NSW 2765) and were likely utilised for monitoring purposes in relation to the storage of bulk petroleum/diesel fuels. • GW115638, situated 551m north-east. Listed as monitoring purposes. – Bore depth: 6.5 m • GW115637, situated 652 m north-east. Listed as monitoring purposes. – Bore depth: 6.5 m • GW115636, situated 679 m north-east. Listed as monitoring purposes. – Bore depth: 6.5 m • GW203379, situated 745 m north-east. Listed as monitoring purposes. – Bore depth: 14.5 m – Yield (Litres[L]/second[s]): 6.9 The three (3) below listed monitoring wells were located within the Shell premises (920 Richmond Rd, Marsden Park NSW 2765) and were likely utilised for monitoring purposes in relation to the storage of bulk petroleum/diesel fuels. • GW203380, situated 757 m north-east. Listed as monitoring purposes. – Bore depth: 13.1 m – Yield (L/s): 6.1 • GW203381, situated 777 m north-east. Listed as monitoring purposes. – Bore depth: 14.5 m – Static water level (SWL): 6.1 metres below ground level (m bgl) • GW115635, situated 791 m north-east. Listed as monitoring purposes. – Bore depth: 6.5 m
Site soil landscapes (NSW OEH, 2019)	A review of soil landscape data provided by The NSW Government Planning Industry and Environment online mapping tool, eSPADE Version 2.2 indicated the site was underlain by the 'Blacktown' soil landscape, described as: • Landscape – Gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry schlerophyll forest). • Soils – Shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, Red and Brown Podzolic Soils (Dr3.21, Dr3.31, Db2.11, Db2.21) on crests grading to Yellow Podzolic Soils (Dy2.11, Dy3.11) on lower slopes and in drainage lines. • Limitations – Localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, localised surface movement potential.

Item	Details
Site geology (GS NSW, 2018)	Geology underlaying the site was described as: • Wianamatta group – Bringelly Shale, comprising shale, carbonaceous claystone, laminite, lithic sandstone and rare coal.

2.5 Meteorology

A review of average climatic data from the nearest Bureau of Meteorology monitoring location (Richmond – UWS Hawkesbury NSW[1]) was undertaken. The data indicated the site is located within the following meteorological setting:

- Average minimum temperatures vary from 3.2°C in July to 16.8°C in January and February;
- Average maximum temperatures vary from 17.3°C in July to 29.4°C in January;
- The average annual rainfall is 802.5 mm, with rainfall greater than 1 mm occurring on an average of 75.8 days per year; and
- Monthly rainfall varies from 41.7 mm in August and September to 96.5 mm in January.

[1] http://www.bom.gov.au/climate/dwo/IDCJDW2119.latest.shtml, Commonwealth of Australia, Bureau of Meteorology, accessed 25 November 2024.

3 Site History

Stantec is aware of the following environmental assessments that have previously been completed within the site. A summary of each report is provided in the subsections below:

- JK Geotechnics (2023). Geotechnical Investigation. Prepared for CDC Data Centres. Ref: 35737SCrpt1. Issued 23 November 2023.
- Stantec Australia Pty Ltd (2024a). Preliminary Site Investigation – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision 0. Issued 8 April 2024.
- Stantec Australia Pty Ltd (2024b). Detailed Site Investigation – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision 2. Issued 12 August 2024.
- Stantec Australia Pty Ltd (2024c) Dam water assessment memo – CDC Data Centres – Marsden Park. Revision 1. Issued 9 September 2024.
- Stantec Australia Pty Ltd (2024d) Data Gap Investigation – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision B. Issued 2 December 2024.
- Stantec Australia Pty Ltd (2024e) Remediation Action Plan – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision 3. Issued 20 November 2024.

3.1 Previous Investigations

3.1.1 JK Geotechnics (2023), Geotechnical Investigation

JK Geotechnics were engaged by CDC Data Centres Pty Ltd to complete a geotechnical investigation for proposed industrial development of the site. The purpose of the investigation was to obtain geotechnical information on subsurface conditions as a basis for comments and recommendations on earthworks, subgrade preparation, batter slopes, retaining walls, footings, ground slabs and pavement design. Investigation works associated with the site comprised the drilling of twenty-eight (28) boreholes utilising a track mounted drill rig.

Following review of JK's findings, Stantec have provided the following conclusions in relation to environmental considerations for the site:

- Groundwater observations (seepage) were made during and on completion of auger drilling with depths ranging between 3.8 – 7.2 m bgl. Following installation of monitoring wells, standing water depths were measured at depths ranging between 1.19 to 8.21 m bgl. Groundwater monitoring wells were generally screened within fractured siltstone.
- Below grass coverings, fill comprising silty clay was encountered in all boreholes. Fill depths ranged between 0.1 – 1.2 m bgl, with the deepest fill horizons encountered within the BH9, BH11 (north-eastern portions) and BH21 (central portion).
- An earth berm or embankment exists within the north-eastern portion of Lot 2, the embankment has a length of about 200m and height ranging from about 1.8m to 5.5m. Investigation within the earth berm was not completed during the geotechnical investigation.

3.1.2 Stantec Australia Pty Ltd (2024a). Preliminary Site Investigation – CDC Data Centres – Marsden Park

Stantec was engaged by CDC Data Centres to complete a PSI for a CDC site at Hollinsworth Road, Marsden Park NSW, formally identified as Lot 10 DP1262052 and Lot 11 DP1262052. Based on information provided by the client, a PSI was required to support the Development Application (DA) for bulk earthworks activities at the site.

The purpose of the PSI was to provide the client with preliminary information on the contamination status of the site and guide future actions. Whereas the objectives of the PSI were to assess whether contamination has the potential to exist on the site, to identify potential human and ecological receptors (on and off -site), and to determine whether further site investigation is needed.

Based on the findings of the assessment, the following conclusions were made:

- Aerial imagery indicated the site is currently and historically been utilised for agricultural and residential purposes since at least 1961. Prior to vegetation clearance in 1961, it appeared the land was unused bushland. Various alterations including the construction of one (1) residential structure, surrounding sheds and a man-made dam after 1982 within the northern portions of that site and the construction of an additional residential structure within the western portion after 1994 have occurred. Since then, demolition practices have occurred including the removal of the residential structure within the western portion of the site.
- The site was not subject to regulation by the NSW EPA and appeared to be free of statutory notices and licencing agreements under both the CLM Act 1997 and POEO Act 1997 and was not included on the List of NSW Contaminated Site. Additionally, the Section 10.7 planning certificate did not identify the site as contaminated.
- A total of eight (8) areas of environmental concern (AEC) were identified during the historical desktop review and site inspection, which were based on the presence of fill material deposits and earth mounds, discarded waste, presence and demolition of buildings and structures onsite and offsite activities including landfilling and service stations.
- In consideration of the desktop review, document review, and site inspection, the following potential sources of contamination were identified:
  - Fly-tipping, uncontrolled filling, stockpiling, dam construction, creek line filing and/or other potential buried waste, road construction and associated activities.
  - Hazardous building materials contained within former and existing site structures.
  - Weathering of exposed building structures. Activities associated activities with onsite structures including presence of septic tanks, storage of chemicals and fuels associated with household and agricultural activities.
  - Agricultural practices including pesticide application to surround land.
  - Offsite sources including Blacktown Waste Services Pty Ltd / Marsden Park Landfill and multiple service stations within proximity to the site.

Based on the findings, and with reference to the purpose and objectives of this investigation, the following recommendations were made:

- A Detailed Site Investigation (DSI) should be undertaken under the guidance of a Sampling and Analysis Quality Plan to adequately characterise the site for future development, investigate data

gaps and to determine the full extent of any potential contamination sources as identified within the preliminary CSM in accordance with the NEPC 2013 and NSW EPA (2020) Consultants Reporting on Contaminated Land Guidelines.
  - The investigation of the site should target the identified AECs as well as provide adequate site coverage to achieve appropriate sampling densities and requirements as per the NSW EPA (2022) *sampling design guidelines*.

3.1.3 Stantec Australia Pty Ltd (2024b). Detailed Site Investigation – CDC Data Centres – Marsden Park

Stantec Australia Pty Ltd (Stantec) was engaged by CDC Data Centres ("the client") to complete a Detailed Site Investigation (DSI) for a CDC site at Hollinsworth Road, Marsden Park NSW, formally identified as Lot 10 DP1262052 and Lot 11 DP1262052.

The purpose of the DSI report was to outline an intrusive assessment undertaken to identify actual or potential contamination within the site. The objectives of the assessment and report included:

- Undertake an investigation program to identify whether contamination impacts are present and if so, to what extent; and
- Preparation of a report outlining the results of the investigation program and provide:
  - A statement on the suitability of the site for the proposed land use; and
  - Provide recommendations on any future actions including management, remediation or further investigation (if required).

Based on the findings of the assessment, the following conclusions were made:

- Contamination in the form of bonded asbestos impacted soils was identified within surficial fill soils within the site, these areas of the site that present an unacceptable risk to human health for current and future site users and will require management.
- Localised exceedances of ecological criteria for benzo(a)pyrene, copper and zinc in soil were identified at concentrations considered a contamination 'hotspot' and therefore will require remediation and / or management as part of the proposed development.
- The slight exceedance of applicable ecological screening in sediment for arsenic from the western site dam is not considered to pose a significant impact to ecological receptors on site and is attributed to ambient background concentrations in water and sediment.
- PFOS exceedances of the 99% protection criteria across both dams are not considered to pose a significant risk to current or proposed land use as the concentrations were only slightly elevated and there was a noted absence of permanent aquatic life (e.g. fish) that are exposed to these concentrations for extended periods of time.
- Although there were elevated concentrations of metals in groundwater and surface water above the ecological criteria, they are not deemed a significant ecological risk to receptors under the proposed development scenario.
- A preliminary screening of subsurface ground gas indicated there is not an unacceptable risk to the current or proposed site users.

With the exception of localised areas of the site impacted by benzo(a)pyrene, metals and bonded asbestos in soil, the site is suitable for the proposed land-use as data centre halls with a

predominantly hardstand surface cover. Areas impacted by bonded asbestos can be made suitable following implementation of the recommendations as follows:

- Preparation of a Remediation Action Plan (RAP) outlining the methodology for remediating soil contamination across the site.
  - Upon completion of the remediation works in accordance with the RAP, a Validation Assessment is required to confirm removal of contamination and suitability of impacted areas for the proposed site use.
  - Construction activities undertaken at the site must be considerate if this DSI report and future RAP.
- Due to the presence of asbestos observed within shallow soils at the site (<0.1 mBGL), in accordance with Section 3 and 4 of the SafeWork NSW Code of Practice: How to manage and control asbestos in the workplace (2022), the material must be recorded in an Asbestos Register and Asbestos Management Plan (as appropriate).
- Completion of a Data Gap Investigation (DGI) prior to remediation and construction activities including:
  - Portions of the site that were dominated by mature trees were unable to be thoroughly assessed due to the presence of vegetation.
  - It is recommended that the extent of asbestos impact should be refined during a data gap investigation undertaken as part of the Remediation Action Plan.
    - Additional characterisation of dam walls where deep excavation could not occur due to the risk of compromising the dam integrity
  - Within the northwest part of the site, groundwater was not intercepted within 15 mBGL during drilling. It was not possible to evaluate the conditions and quality of the groundwater at this location.
  - Stantec has not been provided with asbestos clearance certificates for the previously demolished site structures.
  - Previously installed groundwater wells JKBH01 and JKBH17 were unable to be located, therefore groundwater was not assed for these locations.
- Incorporation of DGI results in the RAP.

3.1.4 Stantec Australia Pty Ltd (2024c). Dam water assessment memo

Stantec Australia Pty Ltd (Stantec) was engaged by the client to complete a dam water assessment of two dams to allow for water removal and bulk earthworks to decommission and demolish the dam structures. The area of the dams measured approximately 3,261 m^2 and 2,011 m^2, and assuming an average depth of 2 m, the total volume of dam waters was estimated at approximately 10 ML.

The objective of the works was to assess the water quality of the two onsite dams and prepare a dam water assessment memo to be utilised by the civil contractor to assess the appropriate and suitable action for managing the water during development works.

PFAS concentrations were all below the adopted criteria, which included consideration of the impacts to environmental receptors in the receiving environment where PFOS concentrations were greater

than those within dam waters. Discharge of dam waters to the local stormwater network was therefore considered acceptable.

Recommendations included notification of Council prior to discharge of waters to stormwater and testing of dam sediments following dewatering to ensure appropriate handling.

3.1.5 Stantec Australia Pty Ltd (2024d). Data Gap Investigation – CDC Data Centres – Marsden Park

The DGI was prepared to address the recommendations of the DSI (summarised above) and Revision 2 of this RAP, which required that a data gap investigation to be undertaken post-approval but prior to remediation and construction to "*provide full characterisation of the site and further refine the remediation strategy and remedial extents*".

The following data gaps were assessed as part of the DGI, as specified within the previous version of the RAP (Rev 2[2]) that was prepared during the planning approvals phase:

- **Densley Vegetated Areas** – were unable to be assessed during the Preliminary Site Investigation (PSI) (Stantec, 2024a) or Detailed Site Investigation (DSI) (Stantec, 2024b) due to limited access as a result of vegetation cover. As vegetation was yet to be cleared this data gap remained unassessed at the time of DGI report issue.
- **Asbestos Impacts** – following identification of asbestos impacts at discrete sampling locations during the DSI, in particular in dam walls, additional sampling was undertaken to delineate and confirm the extents of impacted soils.
- **Unidentified Groundwater Wells** – wells installed in a previous assessment undertaken by JK Environments, JK-BH01 and JK-BH17 were unable to be located during previous investigations. Further efforts were made as part of the DGI investigation, JK-BH01 was located but found to be dry, while JK-BH17 was unable to be located.
- **PFOS in surface water -** Perfluorooctanesulfonic acid (PFOS) impacts in surface waters may potentially be associated with an upgradient commercial / industrial source site, noting that PFOS was not detected in soils during the DSI. Surface waters were sampled to inform design and water quality management requirements while groundwaters were also assessed to gather further information on potential connectivity between surface and groundwater.

From the findings of this assessment, the following conclusions can be made with regards to the Asbestos impacts and PFOS in surface water:

Asbestos impacts

- The Central Dam was found to not contain contamination, and no further recommendations were made.

[2] Issued on 12 August 2024.

- The Western Dam was found to be impacted by asbestos that presents an unacceptable human health risk and fill materials that also have unacceptable aesthetic properties under the proposed land use based on:
  - Asbestos as ACM was found within fill materials up to 3.1 m bgl.
  - Concentrations of asbestos as ACM in soil were above the HSL-D criterion at TP106 (0.1 to 0.5 m bgl) and TP107 (0.1 – to 1.5 m bgl).
  - Friable asbestos in soil (detected as chrysotile asbestos in weathered fibre cement material) below the HSL-D criterion was identified at TP102 (0.5 m bgl).
  - No other contaminants of concern were identified at unacceptable concentrations in samples collected from the Western Dam.
  - Frequent inclusions of anthropogenic materials within the fill profile.

PFOS in surface water

- Risk from PFAS contamination within surface and groundwater was considered low and acceptable based on results being below the adopted screening criteria that are relevant to the intended commercial / industrial land use. Data gathered during site investigations to date was considered to indicate that PFAS is regionally present in groundwater.
- Dam water was discharged to allow for testing of dam walls as part of the DGI program. As all results were below the adopted assessment criteria, no further management was recommended prior to discharge or is required at this time.
- A comparison of analytical results does not appear to indicate a significant linkage between groundwater and surface water sampled from the site dams.

Recommendations from the DGI assessment included:

- The Remediation Action Plan should be updated to reflect the refined extents of asbestos impacted material in the Western Dam as specified within this document.
- As per the Dam water assessment (Stantec, 2024c), undertake sampling and analysis of any sediments removed from the Western and Central Dam to inform the fate of the material (i.e. on-site reuse, off-site reuse, off-site disposal).
- Where material in the Western Dam is to be managed by disposal at a licenced facility, any waste classification must be prepared in accordance with the Waste Classification Guidelines (NSW EPA, 2014). The classification must identify the presence of asbestos, Special Waste, in addition to any other chemical classification of soils. Material must be disposed at a facility licenced to handle asbestos waste in addition to the chemical classification of the material. The data and information within this document and other existing documents must be considered during future waste classification.
- The outstanding data gap relating to assessment of soils within densely vegetated areas must be closed out upon completion of vegetation removal, but before commencement of bulk earthworks and construction in those areas.
- Review and, where necessary, update construction and earthworks, safety and environment plans to ensure they include appropriate controls and management for interaction with soils impacted by friable asbestos. This may include:
  - Identification of the requirement of works to be supervised by Class A-licensed asbestos removalist.
  - SafeWork NSW notification requirements.

- Establishment of pre-removal controls, to minimise potential for uncontrolled interaction with asbestos impacted soils by site workers.

3.1.6 Stantec Australia Pty Ltd (2024e). Remediation Action Plan – CDC Data Centres – Marsden Park

Stantec Australia Pty Ltd prepared a Remediation Action Plan (RAP) for the CDC site located at 105 & 113 Hollinsworth Road, Marsden Park, NSW, formally identified as Lot 10 in deposited plan (DP) 1262052 and Lot 11 DP1262052 (herein referred to as 'the site').

The purpose of this RAP was to provide a summary of contamination within the site that requires remediation and management as part of the site redevelopment to ensure that the contamination is removed to an acceptable level. The objective of this RAP was to set remediation objectives and document the process to remediate the site to a standard complimentary of the proposed future land use.

From results of previous investigations and site establishment works at the time of issue of the RAP, asbestos impacted soils requiring remediation were identified at the following locations:

- AEC 1 – Uncontrolled filling in eastern and central portions of the site.
- AEC 3 – Western dam wall.
- AEC 4 – Former buildings / structure footprints, western site portion
- SP02 – Stockpile located in the central, southern portion of the site.
- Suspected ACM containing stockpiled materials in the central-northern portion of the site as identified during the post-vegetation removal site inspection.

In addition, limited ecological impacts including benzo(a)pyrene, copper and zinc found to exceed ecological criteria. Under the proposed land use the site will be free of on-site ecological receptors, with the site being entirely paved with exception of minor landscaping. Remediation of ecological exceedances can be undertaken in the context of the proposed design, potential off-site ecological receptors and the potential for a complete source-pathway-receptor linkage to exist in a final location.

At the time of preparing the RAP, Stantec was advised by the client that offsite disposal of contaminated soil was the preferred method. If scenarios occur whereby disposal becomes unfeasible or impractical, Option 8 and/or 9 (onsite containment) may be considered. Under these circumstances, Council and other regulatory bodies (as required) would be notified prior, to ensure that any containment scenario for contaminated material is appropriately documented under the relevant planning mechanisms and legislative requirements. This would require an update to the RAP, which would be provided to Council and other regulatory bodies (as required) along with a long-term environmental management plan (LTEMP).

Subject to the successful implementation of the measures detailed in this RAP and subject to the limitations presented within the RAP, it was considered that the site can be made suitable for the proposed land use.

3.2 Post-Vegetation Removal Site Inspection

As detailed in **Section 3.5** (DGI, Stantec 2024d), vegetation was yet to be cleared during completion of the data gap investigation. It was recommended that an assessment of soils within densely vegetated areas in the eastern portion of the site should be conducted and closed out upon completion of vegetation removal, but before commencement of bulk earthworks and construction in those areas.

Inspections were conducted progressively and periodically from the commencement of vegetation removal works on 9 October 2024. The inspections were completed by an experienced environmental consultants and contaminated land professionals from Stantec who also met the definition of a 'competent person' as defined in the SafeWork NSW *Code of practice: how to safely remove asbestos* (2022). In addition, plant operators and workers for the remediation contractor were instructed to advise Stantec of any potentially contaminated materials that were unexpectedly encountered. During the periodic inspections, materials exhibiting indicators of contamination were not identified that warranted sampling and laboratory testing. Further, no unexpected finds were reported to Stantec by the remediation contractor.

On 5 November 2024, the majority of vegetation had been removed that could allow inspection and visual assessment of all areas that were previously inaccessible due to vegetation cover. The post-vegetation removal inspection was completed by a Senior Environmental Scientists and Licensed Asbestos Assessors (LAA) from Stantec on 5 November 2024. To achieve adequate coverage and observation, the inspection was conducted on a 5 x 5 m grid and the following key observations were noted:

- Uncontrolled fill areas identified as AEC1 in the PSI report (2024a) were re-evaluated and categorised into contamination 'hotspots' requiring remediation, shown as R-1 in **Appendix A**, **Figure 3**. Minor uncontrolled filling extending beyond the initial R-1 lateral boundary were identified in shallow surface soil, however, due to the absence of asbestos or other indicators of potential contamination sampling, characterisation and remediation were not justified.
- A previously undocumented stockpile containing suspected ACM was identified in the central-northern portion of the site during the inspection, outside of AEC1, and identified as R-6 (see **Appendix A**, **Figure 3**). This material was visually assessed during the post-vegetation removal inspection and a full characterisation of the material was justified due to the presence of PACM. The stockpile was assigned identification SP04 (R-6) and the volume of the stockpile was estimated at approximately 6 m^3. An assessment of the material was completed as reported in WC009 (see **Appendix F**).

With exception of the above, no indicators of contamination were observed on visible ground surfaces post-vegetation removal that justified an intrusive assessment for characterisation and/or remediation.

3.3 Contamination Status

From the results of previous investigations and the post-vegetation removal site inspection, the following areas of the site were identified as requiring remediation. The approximate lateral extent of each remediation area is illustrated on **Figure 3, Appendix A**:

- *R-1 – Uncontrolled filling impacted with ACM in eastern and central portions of the site;*
- *R-2 – Western dam wall fill material impacted with ACM;*
- *R-3 – Former buildings/structure footprints impacted with ACM;*
- *R-4 – Stockpiled materials near the south-eastern corner of former buildings impacted with benzo(a)pyrene above ecological criteria;*
- *R-5 – Stockpiled materials impacted with ACM and metals (copper, zinc) above ecological criteria; and*
- *R-6 – ACM impacted stockpiled materials (identifier SP04) found during the post-vegetation removal inspection.*

The RAP (Stantec 2024e) stated that soils impacted with contaminant concentrations exceeding the ecological criteria, but below the human health criteria, can be managed onsite in a manner that would render the source-pathway-receptor linkage incomplete with no ongoing management requirement post-construction.

4 Validation Sampling and Analysis Plan

The NSW EPA Guidelines for the *NSW Site Auditor Scheme* (3rd Edition) (EPA 2017), the NEPC 2013, and the NSW EPA *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines* (EPA 2020), which are made or approved by the NSW EPA under s105 of the *Contaminated Land Management Act* 1997, requires that Data Quality Objectives (DQOs) be identified for all assessment and remediation programs.

4.1 Data Quality Objectives

The DQO process as adopted by the NSW EPA is described within US EPA (2000) *Guidance for the Data Quality Objectives Process and Data Quality Objectives Process for Hazardous Waste Site Investigations*. The DQOs are summarised in **Table 4-1** below.

Table 4-1 Data Quality Objectives

DQO Step	Discussion
Step 1: State the Problem	Based on data and information gathered during previous site investigation and the post-vegetation removal site inspections, localised contamination was identified in soil including asbestos (bonded) above the adopted human health criteria and PAH and metals above the ecological health criteria. A potentially complete source-pathway-receptor linkage was identified by the CSM, indicating a potential risk to human health and the environment. Remediation of soils was considered necessary to render the site suitable for the intended commercial/industrial land use as a data centre, per the development description in **Section 1.2** and the design drawings and bulk earthworks plans.
Step 2: Identify the decision / goal of the study	Based on the objectives outlined in **Section 1.3**, the following decision / goals exist for the study: • Was the remediation undertaken in accordance with the RAP? • If there were any deviations from the RAP, what were these and how do they impact the outcome of the validation? • Are any of the validation results above the validation assessment criteria? • Is the site suitable for the proposed development from a contamination viewpoint? • Is an Environmental Management Plan required for long-term management of contamination at the site following its remediation? • Is on-going monitoring at the site required post-remediation? At the end of the validation, a decision must be made regarding whether the environmental conditions are suitable for the proposed end land use, or if additional investigation or remedial works are required to make the site suitable.
Step 3: Identify the Information Inputs	Inputs to the decision-making process included: • Guidelines made or approved by the NSW EPA under the Contaminated Land Management Act 1997 as listed in **Section 1.5**. • Known contamination identified at the site as summarised in **Section 3**. • Information provided by the client. • The current land use. • The proposed land use. • Clearance inspections undertaken by the validation consultant and/or soil validation sampling of remedial excavation surfaces.

DQO Step	Discussion
	• Sampling and laboratory analysis from stockpiled soil material for waste classification assessments. • Sampling and laboratory analysis from imported soil material. • Laboratory analytical results of soil validation samples. • Assessment and statistical evaluation of the analytical results in relation to the remediation criteria.
Step 4: Define the study boundaries	The boundaries of remediation and validation described herein were limited to the site as shown in **Appendix A**, **Figure 2**. As per the known contamination status of the site (**Section 3**) and as outlined in the RAP (Stantec 2024e), the inferred vertical extents of the specified remediation areas were: • *R-1 Uncontrolled filling impacted with ACM in eastern and central portions of the site*: 0.4 m BGL • *R-2 Western dam wall fill material impacted with ACM*: 3.1 m BGL • *R-3 Former buildings/structure footprints impacted with ACM*: 0.3 m BGL • *R-4 Stockpiled materials near the south-eastern corner of former buildings impacted with benzo(a)pyrene above ecological criteria*: 2.0 m BGL • *R-5 Stockpiled materials impacted with ACM and metals (copper, zinc) above ecological criteria*: 0.9 m BGL • *R-6 Stockpiled materials identified during the post-vegetation removal inspection, suspected ACM impacted*: 1.0 m BGL Temporal – Results are valid on the day of data / sample collection and remain valid as long as no changes occur on site or contamination (if present) does not migrate on site or on to the site from offsite sources.
Step 5: Develop the analytical approach	Parameters of interest include the laboratory results of primary and quality control soil samples. The CSM must also be considered adequately and not be limited by data gaps that may affect the quality of the results. Data will be considered suitable for use where: • The laboratories are NATA-accredited and quality assurance/ quality control data are within the acceptable ranges. • The Practical Quantitation Limit (PQL) or Limit of Reporting (LOR) for all analyses is at or below the adopted criteria level. Where data does not meet suitability criteria the following approaches will be considered: • Be considered unsuitable and not used for the site assessment (i.e. where blanks indicate cross-contamination). OR • Adopted with qualification (i.e. heterogenous distribution of metals within replicate samples). Further sampling may be necessary to close data gaps resulting from unsuitable data. Soil results will be considered less than the adopted validation criteria nominated in **Section 5.2** if: • For chemical assessment: – The laboratory reported results are less than the relevant adopted criteria. OR – For a representative group of samples (i.e. from the same strata and area within the site): o The calculated 95% Upper Confidence Level of the arithmetic mean (95%UCL) contaminant concentration is less than criteria. o The standard deviation of the results is less than 50% of the relevant adopted criteria.

DQO Step	Discussion
	○ No single analytical result for a contaminant of concern exceeds 250% of the relevant adopted criteria. • For asbestos assessments - the laboratory results and site observations associated with the assessment of asbestos in soil must meet the following criteria: – No visible asbestos within surface soils (0.1 m BGL) and 10 L asbestos quantification (AQ) results below the adopted validation criteria. – No Friable Asbestos / Asbestos Fines within surface soils (0.1 m BGL); – Friable Asbestos / Asbestos Fines and bonded ACM below the adopted validation criteria.
Step 6: Specify performance or acceptance criteria	This step establishes the decision maker's tolerable limits on decision errors, which establishes performance goals for limiting uncertainty in the data. Specific limits for this project were adopted in accordance with the appropriate guidance from NSW EPA, NEPM (2013), appropriate data quality indicators (DQI) used to assess quality assurance/quality control and Stantec's Standard Operating Procedure (SOP). Decision errors are incorrect decisions caused by using data that is not representative of site conditions due to sampling or analytical error. The two types of decision errors are: • The sampling program does not detect the variability of a contaminant from point to point across the site; and • Errors made during sample collection, handling, preparation, analysis and data reduction. Decision errors will be minimised by the following: • The field sampling design, frequency, and methodology, sample preservation techniques and laboratory analytical procedures will be conducted in accordance with accepted NSW EPA, NEPM (2013) and NATA accredited methodologies. • A check of the field and laboratory works is to be made against the Data Quality Indicators for precision, accuracy, representativeness, completeness, comparability, and sensitivity as outlined in NEPM (2013) Schedule B2, Site Characterisation. • A decision that soil is acceptable for the site land use is based on calculation of the 95% Upper Confidence Level of the arithmetic mean (95%UCL) and standard deviation for contaminant concentration and comparison with the adopted soil criteria. Therefore, the acceptable limit of a decision error is 5% that a conclusive statement may be a false positive or false negative. • Sampling errors may occur when the sampling program does not adequately detect the variability of a contaminant from point to point across the site or is not representative. Some examples of this scenario include but are not limited to: – Restrictions in excavation due to subsurface structures such as building foundations; and – Encountering unexpected finds such as subsurface utilities. Measurement errors can occur during sample collection, handling, preparation, analysis and data reduction. To address this, the following measures are proposed: – Field staff to follow a standard procedure when undertaking samples, including decontamination of tools, removal of adhered soil to avoid false positives in results, collection of representative samples and use of appropriate sample containers and preservation methods. – Laboratories to follow a standard procedure when preparing samples for analysis and undertaking analysis. – Laboratories to report quality assurance/ quality control data for comparison with the DQIs established for the project.
Step 7: Develop the plan for obtaining data	The work plan is designed to meet the project objectives and the DQOs outlined above. To ensure resource-effective sampling, analysis, and data collection that satisfied the DQOs, the following actions are to be taken:

DQO Step	Discussion
	• Written instructions will be used to guide field personnel in the required fieldwork activities. • Representative samples will be collected from the site and analysed for characterisation purposes in accordance with the RAP (Stantec, 2024e) requirements. • Field works and analyses will be undertaken in accordance with Stantec Standard Operating Procedures (SOP). • Further detail on the Investigation Methodology is provided in **Section 6**.
Step 8: Optimise the Design for Obtaining Data	The purpose of this step is to identify a resource-effective field validation sampling design that generates data that are expected to satisfy the decision performance criteria, as specified in the preceding steps of the DQO process. The output of this step is the sampling design that guides development of the field sampling and analysis plan. It provides a general description of the activities necessary to generate and select data collection designs that satisfy decision performance criteria. The remediation and validation program as outlined in the RAP (Stantec 2024e) was implemented during site remediation activities to demonstrate the successful completion of works in compliance with the RAP goals. The validation/characterisation sampling and analytical program for the site is outlined in **Table 4-2**, noting the sampling analytical schedule is considerate of previous investigation data and the contamination status outlined in **Section 3.3**.

4.2 Sampling Frequency and Validation Requirements

The sampling frequency and analytical schedule for each of the remediation areas is specified below in **Table 4-2**. The sampling frequency also applies to stockpile footprints of excavated contaminated soil.

Table 4-2 Sampling Frequency and Validation Requirements

Sampling Frequency		Materials	Validation Requirements
Excavation Base	**Excavation Walls**		
Upon natural ground: Visual inspection of surfaces to confirm natural ground and visual assessment for the absence of asbestos or other contaminants of potential concern. Inspections to be conducted by a contaminated land professional and Competent Person (for bonded asbestos) or LAA (for AF/FA). *Within fill:* 1/25 m^2	*Upon natural ground:* Visual inspection of surfaces to confirm natural ground and visual assessment for the absence of asbestos or other contaminants of potential concern. Inspections to be conducted by a contaminated land professional and Competent Person (for bonded asbestos) or LAA (for AF/FA). *Within fill:* 1 per 10 linear m and minimum of 1 sample per wall	Soil	*Upon natural ground:* Visual confirmation of the absence of contaminant indicators. Documentation of observations including material descriptions and photographs. *Within fill:* Visual confirmation of the absence of contaminant indicators, sample collection and laboratory analysis for comparison with the validation criteria (**Section 5.2**). R-1: Asbestos (500 mL NEPM) R-2: Asbestos (500 mL NEPM) R-3: Asbestos (500 mL NEPM)

Sampling Frequency		Materials	Validation Requirements
Excavation Base	**Excavation Walls**		
			R-4: Benzo(a)pyrene R-5: Asbestos (SP01), Copper & zinc (SP02) R-6: Asbestos (500 mL NEPM), heavy metals, PAH, TRH, BTEX. Unexpected Finds: as required

Where indicators of contamination (visual/olfactory) are observed and/or validation samples does not meet the DQOs (**Section 4.1**), the validation consultant is to provide advice on the continuation of remedial earthworks and validation requirements. The validation consultant may use professional judgement during remediation earthworks where validation can be considered appropriate.

5 Validation Criteria

5.1 Regulatory Guidelines and Legislations

Development of the remediation program and site validation was undertaken in general accordance with the following guidelines and legislations:

- NEPC National Environment protection (Assessment of Site Contamination) Measure 1999. National Environmental Protection Council (NEPC, 2013).
- NSW EPA Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997. New South Wales Environment Protection Authority (EPA), September 2015 (NSW EPA, 2015).
- NSW Department of Urban Affairs and Planning (2021) Managing Land Contamination: Planning Guidelines: SEPP 55 Resilience and Hazards, 2021.
- NSW EPA Consultants Reporting on Contaminated Land: Contaminated Land Guidelines. New South Wales Environment Protection Authority, April 2020, Updated May 2020 (NSW EPA, 2020).
- NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA, 2014).
- NSW EPA Sampling design part 1 – application, Contaminated Land Guidelines. New South Wales Environment Protection Authority (EPA), August 2022 (NSW EPA, 2022).
- NSW EPA Sampling design part 2 – interpretation, Contaminated Land Guidelines. New South Wales Environment Protection Authority (EPA), August 2022 (NSW EPA, 2022).
- WA DoH, 2009. Guidelines for Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, Western Australia Department of Health (WA DoH 2009).

It is noted that WA DoH had updated the above guidance in 2021. In response, the NSW EPA published a draft position statement on 14 April 2022 with respect to the applicability of the updated guidelines in NSW, with the statement noting that the NSW EPA were generally in support of the approach included in the WA Asbestos Guidelines but stressed that consultants should not base any departures with NSW legislative requirements on guidelines drafted by different jurisdictions. Stantec propose to refer to the updated guidance below only where consistent with the NSW legislation:

- Government of Western Australia Department of Health, Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, 2021 (WA DoH 2021).

5.2 Validation Criteria Selection

Specific adopted soil validation criteria for the site have been obtained from the NEPM (NEPC, 2013) and are further presented in **Table 5-1**. Following remediation, all retained fill material must be below the adopted validation criteria, ensuring the contaminated soils have been adequately removed and no further potential risk exists to receptors. Where this is not practical, other considerations for its management must be considered.

Table 5-1 Remediation / Validation Criteria

Receptor	Guideline	Criteria
Human Health	Chemical Contaminants: NEPC, 2013, Schedule B1, Section 6, Tables 1A(1) and 1A(3);	Whilst chemical contaminants have not been detected above the human health investigation levels applicable to a commercial / industrial land use, the following screening criteria were adopted in the event that unidentified and/or unexpected contamination were identified during construction. The proposed land use is commercial / industrial and comprises of a data centre facility with large warehouse structures and predominantly paved ground surfaces. No sensitive land uses or exposure scenarios are proposed under the design such as residential, childcare or health care. Considerate of the above, the applicable remediation criteria for chemical contaminants includes: • Health Investigation Level (HIL) for 'HIL D Commercial/industrial, includes premises such as shops, offices, factories and industrial sites.' • Health Screening Level (HSL) for 'HSL D Commercial/industrial'
	Asbestos: NEPC (2013) Schedule B1, Section 4, Table 7	The following validation criteria apply to the site under the proposed land use: • No visible asbestos for surface soils – all forms of asbestos • Fibrous Asbestos / Asbestos Fines: 0.001%, applicable to all land uses including HSL-D • Bonded ACM: 0.05% for HSL D commercial/industrial
	Aesthetic: NEPC (2013) Schedule B1, Section 3.6	Site assessment for aesthetic suitability requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. General assessment considerations include the following: • That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, may cause ongoing concern to site users • The depth of the materials, including chemical residues, in relation to the final surface of the site • The need for, and practicality of, any long-term management of foreign material.
Ecological	NEPC 2013, Schedule B1	Within the landscaped areas of the proposed future land use, the ecological criteria for commercial / industrial is considered to be appropriate. • Ecological Screening Levels (ESL) for commercial and industrial, fine soil, 0-2m. • Ecological Investigation Levels (EIL) for commercial and industrial, aged, NSW setting, low traffic.

5.3 Offsite Disposal Criteria

All materials requiring offsite disposal must be characterised as per NSW EPA (2014) Waste Classification Guidelines with consideration to total soil contaminant concentrations (SCC) and toxicity characterisation leachate procedure (TCLP) laboratory analysis data as appropriate to classify the material.

Historical data from previous investigations must be considered for characterisation purposes (where relevant).

5.4 Imported Material Criteria

All materials imported to the site must be free of asbestos in any form and meet the definition and requirements of a NSW EPA Resource Recovery (such as Excavated Natural Material (ENM)), Virgin Excavated Natural Material (VENM), or other suitable material e.g. growth medium material under AS 4419:2018 Soils for landscaping and gardening purposes (Standards Australia, 2018).

6 Implementation of the RAP

The purpose of the proposed remediation activities was to mitigate potential contamination exposure risks (i.e. asbestos) for current and future site users, including during the construction phase, and to eliminate potential adverse impacts on ecological receptors from the identified ecological exceedances in soil (copper, zinc and benzo(a)pyrene).

The remediation objectives were:

- To ensure the identified contaminated material is managed in accordance with best and most sustainable practices to reduce health risks to site users to an acceptable level; and
- Following management, to demonstrate via clearance inspections and validation sampling (where required) that any potential health risks to site users have been reduced to an acceptable level.

6.1 Remediation Outline

The adopted remediation methodology for the site, as specified in the RAP (Stantec, 2024e), involves the excavation and offsite disposal of soils containing contaminant concentrations exceeding the applicable human health validation criteria. For soil containing contaminant concentrations exceeding the ecological validation criteria but below the human health criteria, on-site management was adopted to render the contaminant source-pathway-receptor linkage incomplete.

BY Group Pty Ltd were the designated Principal Contractor (PC) for the remediation. Aztech Services Australia Pty Ltd (Aztech) were engaged as the appointed SafeWork NSW – Class A licensed asbestos removalist supervisor, and Stantec fulfilled the environmental consultant role.

An overview of remediation activities is provided in the following subsections based on the key items listed below:

- Interim mitigations of identified asbestos impacts;
- Removal of impacted soil followed by disposal at appropriately licensed premises;
- Asbestos clearance inspections and/or visual confirmation for absence of remaining contamination;
- Validation sampling of remedial excavations following the removal of contaminated materials (if required); and
- Validation of imported soils.

Sampling and the validation procedures implemented during remediation are provided in **Section 7** of this report.

6.2 Interim Measures – Asbestos

Prior to the commencement of remedial works, interim mitigation measures were immediately put in place by the PC to reduce the risk posed to site users, occupants, and surrounding properties from bonded asbestos identified in soil. Measures that were implemented by the PC include:

- Preparation of an Asbestos Management Plan (AMP, Stantec 2024f[3]) for the site to inform safe practices when working with or around asbestos contaminated materials;
- Dust suppression during dry and windy conditions by lightly wetting the soil with water to reduce potential airborne fibre generation; and
- Installation of fencing or barricades with appropriate signage to prevent interactions with asbestos to site occupants and visitors.

6.3 Remediation Contractor Selection

BY Group as the PC undertook remediation works under the supervision of Stantec, the appointed environmental consultant. For remediation works involving removal of asbestos impacted soil, Aztech was engaged to implement asbestos removal controls (**see Section 6.4**) and undertake respirable asbestos fibres air monitoring.

6.4 Asbestos Removal Controls

Asbestos removal controls were determined by Aztech with the methodology and safety controls outlined in their Safe Work Method Statements (SWMS) (**Appendix C**) and Asbestos Removal Control Plan (ARCP) (**Appendix D**). The methodology for removal of asbestos was undertaken in accordance with the following Guidelines, Acts, Regulations, and Codes of Practice:

- Work Health and Safety Act 2011;
- Work Health and Safety Regulation 2017;
- SafeWork NSW – How to Safely Remove Asbestos, Code of Practice (2022);
- WorkCover NSW – Managing asbestos in or on soil (2014); and
- SafeWork NSW – How to Manage and Control Asbestos in the Workplace, Code of Practice (2022).

6.5 Impacted Soil Removal

Soils impacted by asbestos (bonded), metals, and benzo(a)pyrene required excavation and off-site disposal in accordance with the RAP, applicable NSW legislation, and the NSW EPA (2014) Waste Classification Guidelines.

Prior to the commencement of disposal of excavated materials, the following works were undertaken:

- Review and consideration of data collected as part previous investigations (**Section 3.1**). As part of this review, a site inspection was undertaken prior to remediation works to ensure no changes to site conditions had occurred which would impact the suitability of these results (i.e. new contaminant sources or changes in the extent or volume of impacted material).
- Aztech, as the appointed SafeWork NSW – Class A asbestos removalist, notified SafeWork NSW on 25 October 2024 of the proposed removal of bonded asbestos impacted soils from the site (**Appendix E**).

[3] Asbestos Management Plan, 105 & 113 Hollingsworth Road, Marsden Park NSW, prepared for BY Group Pty Ltd, 22 October 2024, Rev 0, Stantec Australia Pty Ltd (Stantec 2024f)

The removal process was undertaken through the following steps:

- Under the direction of the PC, an asbestos removal zone was established, with appropriate controls, barricades and signage.
    - » Aztech conducted an air monitoring program for this phase of works to ensure that the implemented control measures were effective, as recommended by SafeWork NSW for Class B removal jobs (i.e., for bonded asbestos).
- To minimise potential generation of fibres during disturbance, soils were lightly wetted prior to excavation commencing.
- Using an excavator with a toothless or "gummy" bucket, soils were gently scraped from surface to the natural interface. The natural interface onsite was described as yellow/brown sandy silty clay or clayey silt. Verification of the natural interface was determined in consultation with Stantec site supervisors who were present to assess ground conditions for indicators of contamination.
- All asbestos impacted soils were temporarily placed on geofabric to minimise the potential contamination of underlying soils.
- Where feasible, and to minimise material handling, soils were directly loaded into a truck before being covered and transported to a waste disposal facility licensed by the NSW EPA to receive Special Waste (Asbestos) at the appropriate classification specified by Stantec.

6.6 Validation of Remediation Excavations

Following the removal of impacted soils, validation was required to confirm that all impacted materials had been removed and that a risk to receptors did not remain. Validation included the following stages:

- Visual inspection: upon completion of remediation excavations, a visual inspection was undertaken by one of Stantec's contaminated land professionals and competent person or LAA to confirm that no visible evidence of asbestos-impacted materials or other contamination remained on residual ground surfaces.
    - » The visual inspection must include a minimum transect spacing of 5 m (or 5 x 5 m grid) with at least two passes each direction including changes of direction.
- Sample collection: where validation excavations were terminated on residual fill and the visual inspection did not identify any remaining asbestos impacts or other signs of contamination, sampling was conducted.
    - » For areas remediated due to the presence of asbestos, gravimetric assessment of bulk 10 litre samples (for asbestos and where possible) was completed on exposed floor and side walls with samples scheduled for analysis of asbestos (NEPM quantification method).
    - » For validation of other contaminants (excluding asbestos), validation samples were collected from excavation floor and side walls and scheduled for analysis of relevant contaminants.
    - » Sampling was completed in accordance with the validation program and DQOs and DQIs outlined in **Section 4**.
- Laboratory analysis: contaminant concentrations were assessed at NATA-accredited laboratories and provided under chain of custody conditions.
- Reporting: analytical data gathered during validation sampling and laboratory analysis was compared with the remediation/validation criteria specified in the RAP (Stantec, 2024e) and detailed in **Section 5.2**.
- Unexpected finds: as per the RAP requirements, the remediation contractor was responsible for advising Stantec of any indicators of other potential contamination that were unexpectedly identified during remediation works. These included, but were not limited to ACM, odours, staining, unexpected waste finds and illegal tipping before and during site works. Where these

were identified, the remediation and validation methods were implemented as appropriate under the guidance of Stantec.

Remediation activities were deemed complete upon fulfillment of the specific requirements outlined **Section 4**, including sample collection, data analysis, and validation against the criteria outlined in **Section 5.2**.

6.7 Validation of Imported Materials

Validation was required to confirm that all imported materials do not contain asbestos in any form and meet the definition and requirements of a NSW EPA Resource Recovery (such as Excavated Natural Material (ENM)), Virgin Excavated Natural Material (VENM), or other suitable material e.g. growth medium material under AS 4419:2018 Soils for landscaping and gardening purposes (Standards Australia, 2018).

Supporting documentation for each imported material type was reviewed by Stantec to confirm the material satisfies the relevant classification or specification. All imported materials were assessed by Stantec through sampling and analyses as per the DQOs outlined in **Section 4**. Analytical data gathered during sampling and analysis of sampled imported materials were compared with the criteria outlined in **Section 5.4**.

7 Validation Works – Summary, Results and Discussion

7.1 Remedial Overview

Remedial works were conducted in general accordance with the RAP (Stantec 2024e). BY Group undertook remediation works under the supervision of Aztech (licensed asbestos removalist) and Stantec (the appointed remediation consultant). The following remediation and validation works occurred during the project:

- Supervision of vegetation/tree removal works within asbestos impacted remediation areas and visual inspection of ground surfaces following removal to assess for contaminant indicators;
- Excavation of impacted materials at the remediation areas identified in the RAP;
- Classification and offsite disposal of impacted materials;
- Validation of remediation excavations through inspection, sampling and laboratory analysis;
- Validation of imported materials; and
- Preparation of a validation report.

A summary of remediation activities, findings and outcomes applicable to each of the remediation areas, R-1 to R-6, is provided in the subsections below.

7.1.1 R-1 Remediation – Overview

Bonded asbestos within uncontrolled fill was identified in the eastern portion of the site, which at the time of the DSI (Stantec 2024b) and partly during the DGI (Stantec (2024d), was dominated by mature trees/vegetation. Post-vegetation removal inspections were conducted progressively and periodically from the beginning of vegetation removal works from 9 October 2024 by an experienced environmental consultant and ‘competent person’. By 5 November 2024, most of the vegetation was removed to allow a complete grid-based inspection of all areas previously inaccessible. During this inspection, uncontrolled fill areas were re-evaluated and categorised into contamination ‘hotspots’, shown as R-1 in **Appendix A**, **Figure 3**. Minor quantities of uncontrolled fill limited to shallow surface soil were identified outside of these ‘hotspots’, however no asbestos or other visual signs of potential contamination was identified within these materials.

R-1 remediation commenced on 5 November 2024 upon completion of vegetation removal and visual inspection. An experienced environmental consultant, contaminated and professional and ‘competent person’ was present onsite during remedial earthworks, which involved excavation of R-1 contamination hotspots and consolidation of impacted materials into individual stockpiles within the remediation zone, specifically stockpiles:

- SP_R1-01; SP_R1-02; SP_R1-03; SP_R1-04; SP_R1-05;SP_R1-06; and SP_R1-07.

All topsoil outside of R-1 contamination hotspots, where minor quantities of uncontrolled fill were identified, shown as 'R-1: Uncontrolled fill occurrence' in **Appendix A**, **Figure 3**, was consolidated into multiple stockpiles within the R-1 remediation zone, specifically into:

- SP03; SP05; SP06; SP07; SP08; SP09; SP10; SP11; SP12; SP13; SP14; SP15; SP16; SP17; SP18; SP19; SP20; SP21; SP22; and SP23.

All stockpiled materials were subsequently assessed for offsite disposal in accordance with **Section 5.3**. Following waste characterisation, stockpiled materials were loaded into trucks for offsite disposal as per waste classifications provided in **Appendix F**, with further information on disposal provided in **Section 7.3**.

7.1.1.1 Field Observations

The remedial excavations within R-1 terminated at natural materials comprising of yellow/brown sandy silty clay or clayey silt as confirmed by Stantec during excavation and removal works. In accordance with the validation requirements outlined in **Section 6.6**, due to R-1 being impacted by asbestos, remedial excavations were inspected by Stantec progressively during remediation works and a final clearance inspection was completed on 21 November 2024.

The clearance inspection confirmed that no visible evidence of asbestos-impacted materials, or other contamination, remained on residual ground surfaces within the R-1 remediation area. The clearance inspection report applicable to R-1 is provided in **Appendix G**.

7.1.1.2 Analytical Results

As per the validation requirements in **Section 6.6**, upon completion of remediation excavations that terminated at natural soil, validation was limited to a visual inspection by a contaminated land professionals and competent person or LAA from Stantec to confirm that no visible evidence of asbestos-impacted materials or other contamination remained on residual natural ground surfaces.

Due to the absence of residual fill, validation sampling and analytical results were not gathered for remediation area R-1.

7.1.2 R-2 Remediation – Overview

Bonded asbestos was identified within fill material contained in the western dam wall, shown as R-2 in **Appendix A**, **Figure 3**. R-2 remediation commenced on 5 November 2024. An experienced environmental consultant, contaminated lands professional and 'competent person' from Stantec was present onsite during removal works.

Materials were visually assessed for asbestos impacts upon excavation and immediately loaded into trucks for offsite disposal. The material excavated and disposed from R-2 corresponds with the waste classification document WC002 provided in **Appendix F**. Some temporary stockpiling within the R-2 remediation area occurred during material loadouts, however, were also disposed under the same classification.

7.1.2.1 Field Observations

A significant proportion of the remedial excavations within R-2 terminated at natural materials comprising of yellow/brown sandy silty clay or clayey silt, however, some areas of local filling remained which were described as brown/orange/yellow gravelly sandy silt with inclusions of sandstone, rootlets and shale gravel.

In accordance with the validation requirements outlined in **Section 6.6**, remedial excavations were inspected by Stantec progressively during remediation works and a clearance inspection was completed on 14 November 2024. The inspection confirmed the absence of any visible evidence of asbestos-impacted materials or other contamination on residual ground surfaces within R-2 remediation area. This observation applied to both natural soils and the localised residual filling.

Validation samples (asbestos: 500 mL NEPM) were obtained from areas where fill material remained. Validation sampling locations are shown in **Appendix A**, **Figure 3**. A 10 L gravimetric assessment of remaining fill soils for asbestos was not completed due to time constraints. This non-conformance with the validation program is further discussed in **Section 9.2**.

Following removal of dam waters, the dam sediments were visually assessed for contaminant indicators on 17 November 2024. No potential signs of contamination were observed during the inspection and the clearance inspection report is provided in **Appendix G**.

On 19 November 2024, and following significant rainfall at the site, some potential asbestos fragments were observed by Stantec across remaining fill within the R-2 remediation area, which were subsequently removed by Aztech on 22 November 2024.

7.1.2.2 Analytical Results

Review of analytical results for validation samples collected from areas with residual fill indicated that concentrations of asbestos in soil were below the adopted site validation criteria. Soil analytical summary data is provided in **Appendix H**.

7.1.3 R-3 Remediation – Overview

Bonded asbestos and benzo(a)pyrene (above ecological criteria but below human health criteria) impacted fill was identified within shallow soils of a former building footprint, shown as R-3 in **Appendix A**, **Figure 3**. R-3 remediation commenced on 11 October 2024. An experienced environmental consultant, contaminated land professional and ‘competent person’ was present onsite during removal works which involved excavation of R-3 impacted materials. The excavated material was consolidated into four (4) stockpiles, specifically:

- SP_R3-01; SP_R3-02; SP_R3-03; SP_R3-04.

The excavated materials were placed on geofabric outside of the remediation zone and were subsequently assessed for offsite disposal in accordance with **Section 5.3**. Following waste characterisation, stockpiled materials were loaded into trucks for offsite disposal as per waste classifications provided in **Appendix F**, with further information on disposal provided in **Section 7.3**.

7.1.3.1 Field Observations

All remedial excavations within R-3 terminated at natural materials comprising of yellow/brown sandy silty clay or clayey silt, as confirmed by Stantec during excavation and removal works.

In accordance with the validation requirements outlined in **Section 6.6**, remedial excavations were inspected by Stantec progressively during remediation works and a clearance inspection was conducted on 14 November 2024 (**Appendix G**). The inspection confirmed the absence of any visible evidence, asbestos-impacted materials or other contamination indicators on residual ground surfaces within the R-3 remediation area.

7.1.3.2 Analytical Results

As per the validation requirements in **Section 6.6**, for asbestos contamination, upon completion of remediation excavations terminated at natural soil, validation was limited to a visual inspection by one of Stantec's contaminated land professionals and competent person or LAA to confirm that no visible evidence of asbestos-impacted materials or other contamination was evident on residual natural ground surfaces.

In relation to validation of ecological exceedances recorded for benzo(a)pyrene and in accordance with **Section 4.2**, **Table 4.2**, no soil validation sampling was required upon completion of remediation excavations terminated at natural soil.

7.1.4 R-4 Remediation – Overview

Benzo(a)pyrene impacted fill was identified within a former building footprint, shown as R-4 in **Appendix A**, **Figure 3**. R-4 remediation commenced on 15 October 2024. An experienced environmental consultant, contaminated land professional and 'competent person' from Stantec was present onsite during removal works, which involved excavation of impacted materials and consolidation of soils into nine (9) stockpiles, specifically:

SP_R4-01; SP_R4-02; SP_R4-03; SP_R4-04; SP_R4-05; SP_R4-06; SP_R4-07; SP_R4-08; and SP_R4-09.

The excavated materials were placed on geofabric outside of the remediation zone. During remediation works, some bonded asbestos fragments were identified and confirmed to be present in stockpiles SP_R4-03, SP_R4-05, SP_R4-06, SP_R4-07, SP_R4-08, and SP_R4-09. Following excavation, the stockpiles were characterised in accordance with **Section 5.3** and disposed offsite as per waste classifications provided in **Appendix F**. Further information on disposal is provided in **Section 7.3**.

Waste classification for SP_R4-05 showed the presence of asbestos fines at concentrations between 0.00047 to 0.0019% w/w. As a contingency measure, validation soil samples were obtained from the stockpile footprint following its removal, and from the excavation source as detailed below in **Section 7.1.4.2**.

7.1.4.1 Field Observations

The remedial excavations within R-4 terminated at natural materials comprising of yellow/brown sandy silty clay or clayey silt, as confirmed by Stantec during excavation and removal works.

In accordance with the validation requirements outlined in **Section 6.6**, remedial excavations were inspected by Stantec progressively during remediation works and a clearance inspection was completed on 13 November 2024. The inspection confirmed the absence of any visible evidence of asbestos-impacted materials, or other contamination, on residual ground surfaces within the R-4 remediation area.

Validation samples were obtained from the stockpile footprint following its removal and from the excavation source (including base and walls) as shown in **Appendix A**, **Figure 3**. A 10 L gravimetric assessment was not completed during validation sampling as the asbestos detections in SP_R4-05 were asbestos fines, and the 10 L gravimetric method is not suitable for assessing asbestos fines. The clearance inspection report applicable to R-4 is provided in **Appendix G**.

7.1.4.2 Analytical Results

Review of analytical results for validation samples collected from the SP_R4-05 stockpile footprint following its removal, and the stockpile's excavation source, indicated that concentrations of asbestos in soil were below the adopted site validation criteria. Soil analytical summary data is provided in **Appendix H**.

In relation to validation of ecological exceedances recorded for benzo(a)pyrene and in accordance with **Section 4.2**, **Table 4.2**, no soil validation sampling was required upon completion of remediation excavations terminated at natural soil.

7.1.5 R-5 Remediation – Overview

Bonded asbestos, copper and zinc impacted stockpiles were identified at the southern portion of the site, shown as R-5 in **Appendix A**, **Figure 3**. R-5 remediation commenced on 9 October 2024. An experienced environmental consultant, contaminated land professional and 'competent person' was present onsite during removal works, which involved disposal of R-5 impacted materials identified as stockpiles SP01 and SP02. Prior to disposal, a waste classification was completed for both stockpiled materials and subsequently disposed offsite. Further information on disposal is provided in **Section 7.3**.

7.1.5.1 Field Observations

As contaminant impacts at R-5 were within existing stockpiles, upon removal of the material the residual ground surfaces were comprised of natural materials, specifically yellow/brown sandy silty clay or clayey silt, which were confirmed by Stantec during excavation and removal works.

In accordance with the validation requirements outlined in **Section 6.6**, upon removal of the R-5 stockpiles, the footprint of each stockpile was inspected by Stantec progressively during remediation works and a clearance inspection was completed on 21 November 2024 (**Appendix G**). The

inspection confirmed the absence of any visible evidence of asbestos-impacted materials, or other contamination, on residual ground surfaces within the R-5 stockpile footprints and the adjoining areas.

7.1.5.2 Analytical Results

As per the validation requirements in **Section 6.6**, upon completion of stockpile removal, excavation terminated at natural soil. As such, validation was limited to a visual inspection by a contaminated land professional and competent person or LAA to confirm that no visible evidence of asbestos-impacted materials or other contamination remained on residual natural ground surfaces.

In relation to validation of ecological exceedances recorded for copper and zinc and in accordance with **Section 4.2**, **Table 4.2**, no soil validation sampling was required upon completion of remediation excavations terminated at natural soil.

7.1.6 R-6 Remediation – Overview

As discussed in **Section 3.3**, following vegetation removal, a previously undocumented stockpile containing suspected ACM was identified in the central-northern portion of the site, identified as R-6 or stockpile SP04 in **Appendix A**, **Figure 3**.

R-6 remediation works commenced on 5 November 2024 which included an initial characterisation of the materials. Soil analytical results (**Appendix H**) indicated that R-6 soils were impacted with copper, lead, nickel, zinc, and benzo(a)pyrene concentrations above the adopted ecological criteria. Lead concentrations also exceeded the adopted human health criterion. An ACM fragment was submitted for laboratory analysis, which confirmed the presence of asbestos.

R-6 materials were assessed for offsite disposal in accordance with **Section 5.3**. Following waste characterisation, the stockpiled materials were loaded into trucks for offsite disposal as per waste classifications provided in **Appendix F**. Further information on disposal is provided in **Section 7.3**.

7.1.6.1 Field Observations

The materials contained within the stockpile identified as R-6 or SP04 was assessed by a contaminated land professional and ‘competent person’ from Stantec. With the aid of an excavator, three test pits were advanced through the stockpile and the material was described as clayey silt, low plasticity, brown to dark brown with demolition rubble and suspected asbestos containing material present. The total volume of the material was estimated at approximately 6 m^3.

As contaminant impacts at R-6 were within an existing stockpile, upon removal of the material the residual ground surfaces were comprised of natural materials, specifically yellow/brown sandy silty clay or clayey silt, as confirmed by Stantec during excavation and removal works.

In accordance with the validation requirements outlined in **Section 6.6**, upon removal of the R-6 stockpile, the footprint of the stockpile was inspected by Stantec and a clearance inspection was completed on 21 November 2024. The inspection confirmed the absence of any visible evidence or asbestos-impacted materials, or other contamination, on residual ground surfaces within the R-6 stockpile footprints and the adjoining areas.

Validation samples were obtained from the stockpile footprint, including the base and walls, as shown in **Appendix A**, **Figure 3**. A 10 L gravimetric assessment was not completed as remaining soils comprised natural materials and soil properties (sandy silty clay/clayey silt) were unsuitable for field screening. The clearance inspection report applicable to R-6 is provided in **Appendix G**.

7.1.6.2 Analytical Results

Review of analytical results for validation samples collected from the R-6 stockpile footprint indicated that concentrations of contaminants of potential concern in soil were below the adopted site validation criteria. Soil analytical summary data is provided in **Appendix H**.

7.2 Unexpected Finds

The following unexpected finds were encountered during remediation works as outlined in **Section 7.2.1** and **7.2.2**.

7.2.1 Stockpile SP24 – Overview

On 19 November 2024, uncontrolled fill was identified in the southern portion of the site during a routine inspection after vegetation removal. On 21 November, the material was consolidated into a stockpile and placed on geofabric prior to material classification in accordance with **Section 5.3**. The stockpile was assigned the identifier SP24. The approximate location of SP24 is shown in **Figure 3**, **Appendix A**. SP24 materials were disposed offsite on 28 November 2024 as per waste classification issued on 25 November 2024, provided in **Appendix F**. Further information on disposal is provided in **Section 7.3**.

On 2 December 2024, additional uncontrolled fill (approximately 5 m^3) was identified by the appointed site auditor in the vicinity of the footprint of former stockpile SP24, indicating possible incomplete removal of SP24 materials. On 3 December 2024, the additional material was consolidated into a stockpile and placed on geofabric. Complete offsite disposal of SP24 was achieved on 21 January 2025. Further information on disposal is provided in **Section 7.3**.

7.2.1.1 Field Observations

On 21 November 2024, the material was investigated by a contaminated land professional and ‘competent person’. The material was described as gravelly clayey silt, dark brown, fine to coarse grained with low plasticity and inclusions of plastic, timber, and brick. No suspected asbestos containing material was identified. With the aid of an excavator, the material was placed on geofabric adjacent to the SP24 source area, and three representative samples were collected from a minimum depth of 0.5 m from the stockpile surface. The material volume of SP24 was estimated at approximately 52.2 m^3.

The remedial excavations within SP24 terminated at natural soil comprising yellow/brown sandy silty clay or clayey silt, as confirmed by Stantec on 21 November 2024. The inspection confirmed that no visible evidence of asbestos-impacted materials, or other contamination were present on residual ground surfaces. Photos of the inspection are provided in **Appendix O**.

As stated in **Section 7.2.1**, on 2 December 2024, the appointed site auditor identified incomplete removal of SP24 materials and requested further remedial excavation in the vicinity of the SP24 source area, which occurred on 3 December 2024. The additional material was placed on geofabric adjacent to the SP24 source area.

An inspection of the ground surfaces of the remedial excavation from which waste materials of SP24 were removed was completed by Stantec on 3 December 2024. Remaining surfaces comprised natural soil and no visible evidence of asbestos-impacted materials, or other contamination were noted.

Following disposal of the remaining SP24 materials on 21 January 2025, a final inspection of the remedial excavations was undertaken by Stantec on 31 January 2025. The remaining ground surfaces within the SP24 remediation area and immediate surroundings comprised natural soil described as yellow/brown sandy silty clay or clayey silt. No visible evidence of asbestos-impacted materials, or other contamination were noted. Photos of the inspections Photos of the inspection are provided in **Appendix O**.

7.2.1.2 Analytical Results

As per the validation requirements in **Section 6.6**, upon completion of remediation excavations terminated at natural soil, validation was limited to a visual inspection by a contaminated land professional and competent person or LAA to confirm that no visible evidence of asbestos-impacted materials, or other contamination, remained on residual natural ground surfaces. Due to the absence of contaminant indicators or asbestos, validation sampling was not justified.

7.2.2 SP25 – Overview

To facilitate dewatering of the central dam, a portion of the central dam wall was excavated between the 25th and 29th November 2024. The material was temporarily stockpiled in the north-eastern portion of the site within remediation area R-1 (see **Figure 3**, **Appendix A**), noting that at the time of placement of these materials, the R-1 area had been successfully remediated (see **Section 7.1.1**). It is noted that soil from the central dam wall was previously investigated as reported in the DSI (2024b) and in more detail in the DGI (Stantec 2024d) (see **Section 3.1**), with soils found to contain contaminant concentrations below the applicable criteria.

On 2 December 2024, the appointed site auditor identified bulk anthropogenic waste mixed within the stockpiled material. One of Stantec's contaminated land professionals and competent person evaluated the material on 3 December 2024 and considered that the material presented a non-conformance to the aesthetic requirements for the development, as well as unlikely to be suitable for filling purposes from a geotechnical standpoint. Bulk waste items within the stockpile were limited to aesthetic issues and no asbestos of other signs of potential contaminated material were identified by Stantec. Based on this, on 3 December 2024, bulk waste items were segregated from the soil and were stockpiled separately in the north-eastern portion of the site and assigned the identifier SP25.

Based on the data collected during the DSI (Stantec 2024b) and DGI (Stantec 2024d), the segregated anthropogenic waste-free stockpiled soil was considered suitable for onsite re-use without further classification and/or management. The material segregation was achieved using an excavator and

bucket-sieve and supervised by one of Stantec's contaminated land professionals on 3 December 2025, who visually confirmed successful segregation of anthropogenic waste containing soil from the stockpile. No photos were taken of the segregation process.

The location of SP25 is shown on **Figure 3**, **Appendix A**. SP25 materials were disposed offsite on 21 January 2025 as per waste classification issued on 10 December 2024, provided in **Appendix F**. Further information on disposal is provided in **Section 7.3**.

7.2.2.1 Field Observations

On 3 December 2024, SP25 materials were investigated by a contaminated land professional and 'competent person' from Stantec. Stockpile SP25 had an estimated volume of approximately 54 m^3 and was described as clayey silt, low plasticity, fine to medium grained, brown with fine to medium grained sand. Anthropogenic inclusions included demolition rubble, bricks, concrete, polythene, plastic bottles, and metal offcuts. No suspected asbestos containing material was identified. Three representative samples were collected from the stockpile.

In accordance with the validation requirements outlined in **Section 6.6**, remedial excavations and the SP25 stockpile footprint were inspected by a contaminated land professional, environmental scientist and competent person from Stantec on 31 January 2025. The inspection confirmed that remaining soil comprised natural soil described as yellow/brown sandy silty clay or clayey silt. No visible evidence of asbestos-impacted materials, or other contamination were noted on residual ground surfaces. Photos of the inspection are provided in **Appendix O**.

7.2.2.2 Analytical Results

As per the validation requirements in **Section 6.6**, upon completion of remediation excavations terminated at natural soil, validation was limited to a visual inspection by a contaminated land professional and competent person or LAA to confirm that no visible evidence of asbestos-impacted materials, or other contamination, remained on residual natural ground surfaces. Due to the absence of contaminant indicators or asbestos, validation sampling was not justified.

7.3 Offsite Disposal

The following material types and approximate quantities, as detailed on tipping dockets provided by the disposal facilities, were disposed offsite:

- General Solid Waste (non-putrescible) – 1,661.12 tonnes;
- General Solid Waste (non-putrescible) mixed with Special (asbestos) Waste – 8,658.63 tonnes; and
- Restricted Solid Waste – 43.21 tonnes.

A detailed breakdown of the disposed materials including stockpile IDs, waste types, removal dates, quantities, and licensed facilities, is provided in **Appendix I**.

Waste classification reports for the materials disposed offsite are provided in **Appendix F**. Waste disposal dockets are provided in **Appendix J**.

7.4 Asbestos Air Monitoring

Asbestos air monitoring was undertaken by Aztech during asbestos remediation works and material loadouts between 4 November 2024 and 21 November 2024. The concentrations of asbestos fibres were reported below the laboratory reporting limit (<0.01 fibres/mL). Asbestos air monitoring reports are provided in **Appendix K**.

7.5 Material Importation

The following materials were imported to the site:

- Electrical Embedment Sand (approximately 200 m^3), sourced from P.F. Formation Sand and Concrete at 1 Patricia Fay Drive, Maroota NSW;
- 40/70 recycled gravel (approximately 140 m^3), sourced from Boral Quarries, Hume St, Marulan South NSW;
- DGB20 recycled roadbase (approximately 150 m^3), sourced from Hi-Quality Group, 1503 Elizabeth Drive, Kemps Creek NSW; and
- DGB20 recycled subbase (approximately 150 m^3), sourced from Boral Recycling, 39a Widemere Rd, Wetherill Park NSW.

The imported materials were characterised in accordance with the requirements specified in **Section 6.7** and considered suitable based on Stantec's assessment. Material importation assessments are provided in **Appendix L**.

8 Quality Assurance/Quality Control

8.1 Field Primary and Duplicate/Triplicate Evaluation

Replicate samples were collected from the remedial excavations at a rate of 1 duplicate and 1 triplicate for 21 primary samples, noting that these figures do not include primary/duplicate samples collected and analysed during the DSI (Stantec 2024b), dam water assessment (Stantec 2024c), and DGI (Stantec 2024d). Based on this, the minor non-conformance from the 1:20 primary/replicate sampling frequency proposed in **Section 4** is not considered to impact the precision or accuracy of the field sampling program and reliability of the data obtained. Relative percentage difference (RPD) was calculated for each chemical analyte through comparison of data from the primary and QA/QC sample pairs.

With exception of the soil RPD results summarised in **Table 8-1** the calculated RPD meet the acceptance criteria specified in **Section 4**. The RPD calculations are tabulated and provided in **Appendix M**.

Table 8-1 Primary/Replicate Soil Sample RPD Outliers Summary

Primary Sample	Replicate Sample	Analyte	Primary Result (mg/kg)	Replicate Result (mg/kg)	RPD (%)
SP_R3-02-A	QA201	Arsenic	9.2	18	65
	QA201	Chromium (III+VI)	19	28	38
	QC201	Chromium (III+VI)	19	9.6	66
SP_R3_03_A	QA401	Copper	38	17	76
	QC401	Copper	38	14	92
	QC401	Chromium (III+VI)	16	9.5	51
	QA401	Lead	22	16	32
	QA401	Zinc	59	39	41
	QC401	Zinc	59	39	41
SP_R4_07-A	QC402	Chromium (III+VI)	13	8.7	40
SP_R1_01-E	QC501	Chromium (III+VI)	31	20	43
	QC501	Copper	17	11	43
	QC501	Nickel	9.8	5.1	63
	QC501	Zinc	45	29	43
SP_R1_02_A	QC502	Chromium (III+VI)	33	17	64
	QC502	Copper	27	14	63
	QC502	Lead	30	21	35
	QC502	Nickel	14	6.2	77
	QC502	Zinc	58	31	61
SP_R1_05-C	QC601	Chromium (III+VI)	22	15	38

Primary Sample	Replicate Sample	Analyte	Primary Result (mg/kg)	Replicate Result (mg/kg)	RPD (%)
	QC601	Copper	23	16	36
	QA601	Lead	21	31	38
	QC601	Zinc	52	37	34
SP13-A	QC802	Arsenic	21	11	62
	QC802	Chromium (III+VI)	45	23	65
	QA802	Copper	28	19	38
	QC802	Copper	28	13	73
	QA802	Lead	37	26	35
	QC802	Lead	37	22	51
	QA802	Nickel	16	9.1	55
	QC802	Nickel	16	6.3	87
	QA802	Zinc	72	50	36
	QC802	Zinc	72	39	59
SP16-A	QC803	Chromium (III+VI)	36	23	44
	QC803	Copper	34	16	72
	QC803	Lead	40	29	32
	QC803	Nickel	16	8.2	64
	QC803	zinc	76	39	64

The unacceptable RPDs are considered to likely be the result of heterogeneity in the sampled materials and difficulty in mixing replicates due to the variability of the sample matrix composition (fill soil). For the purpose of validation of the site, the most conservative concentrations were adopted and the RPD non-conformances are not considered to impact the validity of the results or reliability for validating the site.

8.2 Laboratory QA/QC

In accordance with Stantec's QAQC procedures and AS4482.1 (2005), samples were stored in insulated transport containers containing ice and delivered to the designated laboratories under Chain of Custody documentation following sample collection. Chain of Custody records are included in **Appendix N**.

Eurofins and SGS, the chosen analytical laboratories, are NATA accredited and undertook internal QA/QC procedures which include the analysis of method blanks, internal duplicate samples, laboratory control samples, matrix spikes and surrogate recovery. Additionally, laboratory QA/QC procedures include sample receipt, logging, storage, preservation and analysis within the method specified holding time. Samples were received and stored appropriately, and all samples were analysed within the specified holding time

A review of the laboratory QA/QC procedures indicated that, with the exception of the outliers noted below in **Table 8-2**, laboratory QA/QC were recorded within the acceptance criteria.

Table 8-2 Laboratory QA/QC Outliers Summary

Laboratory	Report ID	Analyte	QA/QC Outlier	Notes
Eurofins	1148662	Arsenic Chromium Copper Lead Zinc	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1151478	TRH C15-C28 TRH C29-C36 TRH >C16-C34 Lead	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1154163	Nickel	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1154169	Copper	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1154171	Copper	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1154173	Copper Lead Zinc	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."

Laboratory	Report ID	Analyte	QA/QC Outlier	Notes
	1154174	TRH C29-C36	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1154175	Copper	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1154178	TRH C29-C36	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1156614	Nickel Zinc	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1156994	Chromium Copper	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159303	4.4'-DDT	Lab Spike - % recovery limit outside the acceptance limits	Lab Spike - % recovery limit failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference."

Laboratory	Report ID	Analyte	QA/QC Outlier	Notes
	1159305	4.4'-DDT	Lab Spike - % recovery limit outside the acceptance limits	Lab Spike - % recovery limit failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference."
	1159306	4.4'-DDT	Lab Spike - % recovery limit outside the acceptance limits	Lab Spike - % recovery limit failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference."
	1159310	TRH >C16-C34	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159317	4.4'-DDT TRH >C16-C34	Lab Spike - % recovery limit outside the acceptance limits for 4.4'-DDT Lab duplicate outside acceptable RPD range for TRH >C16-C34	4.4'-DDT Lab Spike - % recovery limit failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference." TRH >C16-C34 RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159319	TRH C10-C14 TRH C15-C28	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC -

Laboratory	Report ID	Analyte	QA/QC Outlier	Notes
				Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159322	TRH C10-C14 TRH C15-C28	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159323	4.4'-DDT	Lab Spike - % recovery limit outside the acceptance limits	Lab Spike - % recovery limit failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference."
	1159324	TRH C10-C14 TRH C15-C28	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159328	TRH C15-C28 TRH >C16-C34	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1159331	TRH C15-C28 TRH C29-C36	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."
	1160344	Arsenic	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the

Laboratory	Report ID	Analyte	QA/QC Outlier	Notes
				Internal Quality Control Review and Glossary page of this report.”
	1162854	Lead Arsenic	Lab duplicate outside acceptable RPD range	RPD failed acceptance criteria due to sample heterogeneity. Eurofins stated that: “The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.”

8.3 Data Usability

The data validation procedure employed in the assessment of the field and laboratory QA/QC data indicate that the reported analytical results are representative of the conditions at the sample locations. Variability in contaminant concentrations was resultant from sample heterogeneity and as a conservative measure, the highest values have been adopted for interpretation.

It is concluded that overall, the quality of the analytical data gathered is acceptable and reliable for the intended purpose of remediation and validation of soil contamination.

9 Site Characterisation

9.1 Was remediation undertaken in accordance with the RAP?

The site remediation and validation activities were undertaken in general accordance with the RAP. Any deviations from the RAP are detailed in **Section 9.2**.

9.2 Where there any deviations and did they impact the outcome of the validation?

10 L Gravimetric Asbestos Sampling

Section 6.6 specifies the requirement for a gravimetric assessment of ACM within remediation excavations where the excavation did not extend to natural soils and ACM may remain. This was not completed at discrete locations for remediation area R-2 (i.e. the western dam wall). At discrete locations, relatively small volumes of residual fill remained within the footprint of R-2.

The existence of fill soil is not considered to impact the outcome of remediation and validation based on the following:

- Data obtained during the DGI (Stantec 2024d) indicated that ACM concentrations in fill material was below the HSL-D (0.05% w/w).
- Multiple clearance inspections were conducted over several days in between rain events. Any surface ACM fragments identified were removed by Aztech when observed.
- A final emu-pick of ACM fragments was completed on 22 November 2024 and subsequently no visible asbestos remained on ground surfaces. Following the emu-pick and asbestos clearance inspection, all dam wall soils were placed at depth (>2 m below finished surface level) in the dam void, rendering the SPR linkage incomplete.

Source Site Inspection for Imported Materials

The RAP specified the requirement for imported materials to be inspected and approved at the source site prior to importation to the site. This was not conducted prior to importation of materials.

A desktop review of applicable documentation that was provided by the relevant source sites was conducted by Stantec. Further, soil assessment and laboratory analysis were completed by Stantec and the analytical results indicated that all imported materials are suitable for the intended land use. Therefore, the non-conformance with the RAP and validation of imported materials (**Section 6.7**) is insignificant and not considered to impact the outcome of the validation.

9.3 Are validation results below the validation criteria?

The concentrations of CoPCs in final validation samples were less than the adopted validation criteria and therefore there were no CoPCs at concentrations remaining on the site that pose an unacceptable risk to future onsite receptors.

The imported materials were characterised and analytical results for all imported materials were below the adopted validation criteria.

9.4 Is the site suitable for the proposed development from a contamination viewpoint?

Subject to the limitations presented in **Section 12**, remediation works at the site have been completed in general accordance with the requirements of the RAP (Stantec 2024e) and the site is suitable for the proposed development from a contamination viewpoint.

9.5 Is an Environmental Management Plan required for long-term management of contamination at the site following its remediation?

Based on current information, the known contamination at the site was successfully remediated and an EMP for long-term management of contamination is not required.

9.6 Is ongoing monitoring at the site required post-remediation?

No ongoing monitoring at the site is required post-remediation.

10 Conclusions and Recommendations

Based on the data obtained during remediation and validation works, and in accordance with the RAP and subject to limitations in **Section 12**, it is concluded that the site is suitable for the proposed commercial/industrial land use as a data centre.

Stantec recommend the following for the construction phase of the development:

- Any material requiring removal from the site during construction must be classified in accordance with the NSW EPA Waste Classification Guidelines (2014) or a current NSW EPA Resource Recovery Order / Exemption (as applicable).
    - Consideration should be given to sustainable spoil management during construction works, along with implementing an appropriate waste tracking procedure.
- During construction, the contractors Construction Environmental Management Plan (CEMP) must incorporate an Unexpected Finds Protocol (UFP) to ensure that any potentially contaminated materials are appropriately managed.

Upon completion of remediation activities and site validation, Stantec has considered the site conditions in the context of the NSW EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*:

- The potential scenario of contaminated materials existing beyond the site boundary has been considered per the NSW EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. Stantec consider that there is no duty to notify the NSW EPA under section 60 of the Contaminated Land Management Act 1997 due to:
    - Fill materials at the site boundary, if any, would be considered '*widespread diffuse urban pollution that is not attributed to a specific industrial, commercial or agricultural activity'*, which in accordance with Section 2.5 of the NSW EPA Guidelines (2015) is not intended to be captured by the duty to report.
    - Based on the information available to Stantec at the time of preparing this report, no other conditions were known to exist that would trigger the requirement to notify the NSW EPA under Section 60 of the CLM Act 1997.

11 References

JK Geotechnics (2023). Geotechnical Investigation. Prepared for CDC Data Centres. Ref: 35737SCrpt1. Issued 23 November 2023.

Stantec Australia Pty Ltd (2024a). Preliminary Site Investigation – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision 0. Issued 8 April 2024.

Stantec Australia Pty Ltd (2024b). Detailed Site Investigation – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision 2. Issued 12 August 2024.

Stantec Australia Pty Ltd (2024c) Dam water assessment memo – CDC Data Centres – Marsden Park. Revision 1. Issued 9 September 2024.

Stantec Australia Pty Ltd (2024d) Data Gap Investigation – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision A. Issued 5 November 2024.

Stantec Australia Pty Ltd (2024e) Remediation Action Plan – CDC Data Centres – Marsden Park. Prepared for CDC Data Centres. Revision 3. Issued 20 November 2024.

Asbestos Management Plan, 105 & 113 Hollingsworth Road, Marsden Park NSW, prepared for BY Group Pty Ltd, 22 October 2024, Rev 0, Stantec Australia Pty Ltd (Stantec 2024f)

12 Limitations

This document has been prepared in general accordance with the current industry standards for the purpose and objectives and scope identified in this report. These standards are set out in:

- NEPC (1999) National Environment Protection (Assessment of Site Contamination) Measure (NEPM). National Environment Protection Council (NEPC) 1999, Amendment 2013 (NEPC 2013)
- NSW EPA (2020) Consultants Reporting on Contaminated Land, Contaminated Land Guidelines. NSW EPA, April 2020, Updated May 2020.
- The agreed scope of this Site Remediation and Validation Report has been limited for the current purposes of the client. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This document has been provided by Stantec subject to the following limitations:

- This document has been prepared for the particular purpose outlined in Stantec's proposal and no responsibility is accepted for the use of this document, in whole or in part, in other contexts or for any other purpose
- The scope and the period of Stantec's services are as described in Stantec's proposal, and are subject to restrictions and limitations. Stantec did not perform a complete assessment of all possible conditions or circumstances that may exist at the study area referenced in the document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Stantec in regards to it
- Conditions may exist which were undetectable given the limited nature of the enquiry Stantec was retained to undertake with respect to the study area. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the study area which have not been revealed by the investigation and which have not therefore been taken into account in the document. Accordingly, additional studies and actions may be required
- In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Stantec's opinions are based upon information that existed at the time of the production of the Document. It is understood that the services provided allowed Stantec to form no more than an opinion of the actual conditions of the site at the time this Document was prepared and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations
- Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in this Document
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- Stantec may have retained sub consultants affiliated with Stantec to provide services for the benefit of Stantec. To the maximum extent allowed by law, the Client acknowledges and

agrees it will not have any direct legal recourse to, and waives any claim, demand, or cause of action against, Stantec's affiliated companies, and their employees, officers and directors.

This document is not any of the following:

- A site audit report or site audit statement as defined under the Contaminated Land Management Act 1997
- A detailed environmental site assessment or environmental site investigation sufficient for an environmental auditor to be able to conclude a site audit report and site audit statement
- A geotechnical report and the bore logs or test pit logs may not be sufficient as the basis for geotechnical advice
- A detailed hydrogeological assessment in conformance with NSW DEC (2007) Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination
- An assessment of groundwater contaminants potentially arising from other sites or sources nearby
- A total assessment of the site and broader surrounds to determine suitability of the entire parcel of land at the study area for one or more beneficial uses of land.

Appendix A Figures

Appendix B Concept Design

Appendix C Aztech SWMS

Appendix D Aztech ARCP

Appendix E Safework NSW Notification

Appendix F Waste Classifications

Appendix G Asbestos Clearance Reports

Appendix H Validation Soil Analytical Results

Appendix I Offsite Disposal Records

Appendix J Tip Dockets

Appendix K Asbestos Air Monitoring Reports

Appendix L Material Import Assessments

Appendix M QA/QC Summary Tables

Appendix N Laboratory Reports and Chain of Custody

Appendix O Validation Inspection Photos – SP24 & SP25

Photo 1: SP24 removal and placement on geofabric (21 November 2024)

Photo 2: SP24 ground surfaces comprising natural soil following remediation (21 November 2024)

Photo 3: SP24 additional removal and placement on geofabric (3 December 2024)

Photo 4: SP24 ground surfaces comprising natural soil following additional removal (3 December 2024)

Photo 5: SP24 final inspection following complete removal (31 January 2025)

Photo 6: SP24 final inspection following complete removal (31 January 2025)

Photo 7: SP25 segregated soil including bulk waste material (3 December 2024)

Photo 8: SP25 segregated soil including bulk waste material (3 December 2024)

	
Photo 9: SP25 ground surfaces comprising natural soil following remediation (31 January 2025)	Photo 10: SP25 ground surfaces comprising natural soil following remediation (31 January 2025)

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