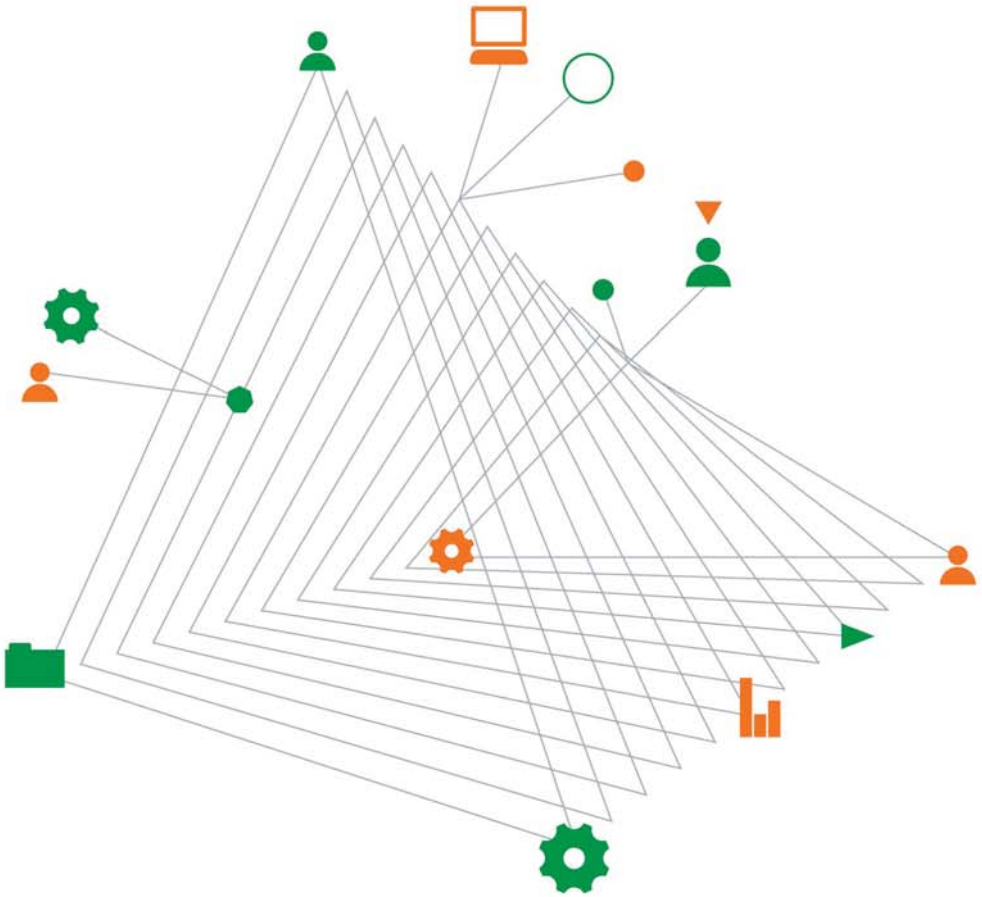
Richard Crookes Construction Pty Ltd

Validation Report: Alexandria Park Community School (Phase 1) – 7 Park Road, Alexandria NSW

754-SYDEN224285-R04

16 September 2020



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Validation Report: Alexandria Park Community School (Phase 1) – 7 Park Road, Alexandria NSW

Prepared for
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Executive Summary

Coffey Services Australia Pty Ltd (Coffey) was engaged by Richard Crookes Constructions Pty Ltd (RCC) to prepare this Validation Report for Phase 1 of the Alexandria Park Community School (APCS) Redevelopment, 7 Park Road, Alexandria, NSW 2015 (the 'site'). The legal description of the site is Part of Lot 20 in DP1263442.

RCC is redeveloping the APCS property on behalf of The Department of Education (DoE) which includes the construction of a new school. Development consent was granted for the redevelopment by the NSW Government Department of Planning and Environment (DP&E) on 11 February 2019 under State Significant Development (SSD) Application 8373.

Redevelopment is being undertaken in two phases as shown on Figure 2 (Appendix B), namely:

- Phase 1: The southern half of the property which is the subject of this validation report; and
- Phase 2: The northern half of the property.

Within the site boundary, the redevelopment comprised the demolition of all above ground structures, and construction of multiple school buildings, hard and soft landscaping, car parking, and installation of ancillary infrastructure services (including the replacement of an existing stormwater easement). A tree protection zone (TPZ) exists within the southern portion of the site which has also been landscaped as part of the redevelopment.

Previous investigations at the site identified non-friable (bonded) asbestos throughout the fill across the site (excluding tree protection zones) with respect to a school land use. A Remedial Works Plan (RWP) was developed for the APCS property by Coffey in June 2019 which included strategies to remediate:

- Soils which were reported to be contaminated with asbestos (within both Phase 1 and Phase 2 areas of the APCS property).
- An abandoned underground fuel storage tank (UST) within the Phase 2 area of the APCS property.

The RWP was prepared to supplement a Remedial Action Plan (RAP) which was submitted in support of the SSD. The proposed remedial strategy for the site presented in the RAP and RWP comprised capping of asbestos contaminated soils beneath various cover layers and ongoing management through preparation and implementation of an LTEMP.

The purpose of this Validation Report was to summarise the remediation and validation work carried out at the site (Phase 1) and provide an opinion on the suitability of the site (Phase 1) post remediation, with regards to contamination, for the intended land use as a school with soft and hard landscaping.

RCC, together with their civil subcontractor (Demolition Environmental Civil Contractors Pty Ltd (DECC)) were responsible for carrying out remedial works. Coffey was engaged by RCC to carry out the following validation services:

- Carry out periodic site visits.
- Prepare a waste classification assessment report to facilitate offsite disposal of surplus spoil.
- Provide asbestos fibre air monitoring and asbestos visual clearance inspections.
- Document the construction and management requirements for an asbestos borrow pit constructed at the site as part of a deviation to the Remedial Works Plan.
- Validate imported fill used within service trenches, capping and landscaping.
- Review of information provided by RCC and preparation of this Validation Report.

The adopted remedial strategy was generally consistent with the proposed remedial strategy outlined in the RAP and RWP and generally comprised:

- Onsite capping of contaminated fill using imported materials.
- Construction and capping of an asbestos borrow pit.
- Off-site export of surplus soil (virgin excavated natural material (VENM)) and offsite disposal of waste personal protective equipment / respiratory protective equipment (PPE/RPE).

A Long-Term Environmental Management Plan (LTEMP) is being prepared separately for the site.

Based on the information reviewed, visual observations made by Coffey during periodic site walkovers, Coffey concludes that:

- The asbestos contaminated soils requiring remediation:
- Have been capped in general accordance with the RAP and RWP; and
- Are unlikely to pose an unacceptable risk to human health of site users provided that the existing draft LTEMP is appropriately amended to reflect remedial works carried out and is implemented.
- One unexpected find comprising gas in soil was identified during remedial works, however this was managed appropriately, and ground gas is not considered to pose an unacceptable risk to human health for the proposed development.
- Waste was managed by RCC. Waste dockets appear to be valid and complete.
- Asbestos fibre air monitoring was carried out by Coffey. Results were less than the detection limit and equivalent to background levels. Progressive asbestos visual clearance certificates were prepared by Coffey to document ground surfaces free of visible asbestos prior to reoccupation.
- With the exception of the 10mm recycled aggregate imported by Planet Plumbing, imported materials for use as site grading, capping, backfilling trenches and landscaping were considered suitable (from a contamination perspective) for use at the site. The 10mm recycled aggregate will require ongoing management which shall be documented in the LTEMP.
- Asbestos licences and approvals held or obtained by DECC for the remedial works complied with appropriate regulatory requirements for the removal of asbestos.
- Subject to implementation of the LTEMP, the site is considered to be suitable for the proposed school development. A draft LTEMP was prepared by Coffey for the site to meet condition B12 of the SSD prior to remedial works commencing. The draft LTEMP will be updated to reflect the actual remedial works carried out.

This report should be read in conjunction with the attached “Important information about your Coffey Environmental Report”. Coffey has relied upon third party documentation from subcontractors outside of Coffey’s engagement.

Abbreviations

ACM	Asbestos-containing material
AHD	Australian height datum
ALS	Australian Laboratories Services Pty Ltd
amended ASC NEPM	National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (amended April 2013)
ANZECC	Australian and New Zealand Environment and Conservation Council
APCS	Alexandria Park Community School
ARCP	Asbestos Removal Control Plan
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASS	Acid Sulfate Soils
ASSMP	Acid Sulfate Soils Management Plan
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene and xylene
CEC	Cation exchange capacity
CLM	Contaminated Land Management
COC	Chain of custody
Coffey	Coffey Services Australia Pty Ltd
CoPC	Contaminants of Potential Concern
CSM	Conceptual site model
DECC	Demolition Environmental Civil Contractors Pty Ltd
DGB	Dense grade base
DoE	Department of Education
Douglas	Douglas Partners Pty Ltd
DP&E	Department of Planning and Environment
DQO	Data quality objectives
DSI	Detailed Site Investigation
EILs	Ecological investigation levels
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ESLs	Ecological screening levels
Eurofins	Eurofins MGT Pty Ltd
GDIR	Data Gap Investigation Report
GeoEnviro	GeoEnviro Consultancy Pty Ltd
H&A	Hibbs & Associates Pty Ltd
H2S	Hydrogen sulfide
HILs	Health investigation levels
HSLs	Health screening levels
LAA	Licenced asbestos assessor
LEL	Lower explosive limit
LNAPL	Light non-aqueous phase liquid

OCP	Organochlorine pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic aromatic hydrocarbons
PCA	Phil Clifton and Associates Pty Ltd
PCB	Polychlorinated biphenyls
POEO	Protection of the Environment Operations
PPE	Personal protective equipment
ppm	Parts per million
RAP	Remedial Action Plan
RCC	Richard Crookes Constructions Pty Ltd
RPE	Respiratory protective equipment
RWP	Remedial Works Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SEPP 55	State Environmental Planning Policy 55 – Remediation of Land
SOP	Standard Operating Procedures
SPOS	Peroxide oxidisable sulfur
SSD	State Significant Development
TCE	Trichloroethene
TKD	TKD Architects Pty Ltd
TPZ	Tree protection zone
TRH	Total recoverable hydrocarbons
UPSS	Underground Petroleum Storage Systems
UST	Underground fuel storage tank
VENM	Virgin excavated natural material
VHC	Volatile halogenated compounds
WHS	Work Health and Safety

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1. Introduction

Coffey Services Australia Pty Ltd (Coffey) was engaged by Richard Crookes Constructions Pty Ltd (RCC) to prepare this Validation Report for Phase 1 of the Alexandria Park Community School (APCS) Redevelopment, 7 Park Road, Alexandria, NSW 2015 (the 'site').

The legal description of the site is Part of Lot 20 in DP1263442. The site is within the APCS property as shown on Figure 1 (Appendix B). Coordinates showing the extent of the site boundary are provided in Appendix J.

1.1. Background and Site Redevelopment

RCC is redeveloping the APCS property on behalf of The Department of Education (DoE) which includes the construction of a new school. Development consent was granted for the redevelopment by the NSW Government Department of Planning and Environment (DP&E) on 11 February 2019 under State Significant Development (SSD) Application 8373.

Redevelopment is being undertaken in two phases as shown on Figure 2 (Appendix B), namely:

- Phase 1: The southern half of the property which is the subject of this validation report; and
- Phase 2: The northern half of the property.

Within the site boundary, the redevelopment comprised the demolition of all above ground structures, and construction of multiple school buildings, hard and soft landscaping, car parking, and installation of ancillary infrastructure services (including the replacement of an existing stormwater easement). A tree protection zone (TPZ) exists within the southern portion of the site which has also been landscaped as part of the redevelopment. Development drawings are provided in Appendix C.

A Remedial Works Plan[1] (RWP) was prepared to facilitate remediation of the APCS property by Coffey in June 2019 which included strategies to remediate:

- Soils which were reported to be contaminated with asbestos (within both Phase 1 and Phase 2 areas of the APCS property).
- An abandoned underground fuel storage tank (UST) within the Phase 2 area of the property.

The RWP was prepared to supplement a Remedial Action Plan[2] (RAP) which was submitted in support of the SSD. The RWP was required to provide more detail than the RAP regarding capping systems. The proposed remedial strategy for the site presented in the RAP and RWP comprised capping of asbestos contaminated soils beneath various cover layers and ongoing management through preparation and implementation of a Long-Term Environmental Management Plan (LTEMP). The LTEMP is being prepared separately by Coffey.

This Validation Report and separate LTEMP will be subject to review by a NSW Environment Protection Authority (EPA) accredited Site Auditor, following which a Site Audit Report (SAR) and Site Audit Statement (SAS) is intended to be prepared by the Site Auditor regarding the suitability of the site for its intended use as a school.

[1] Coffey. Alexandria Park Community School Redevelopment - Remedial Works Plan. Prepared for Richard Crookes Construction Pty Ltd. Report Ref: SYDEN224285-R02, 18 June 2019.
[2] Coffey, Remedial Action Plan, Alexandria Park Community School, Park Road, Alexandria NSW. Prepared for TKD Architects Pty Ltd. Ref: SYDEN199382.R03, dated 8 December 2017.

A separate validation report, LTEMP, SAR and SAS will be prepared for Phase 2 when redevelopment of that portion of the APCS property is complete.

1.2. Purpose

The purpose of this Validation Report was to summarise the remediation and validation work carried out at the site (Phase 1) and provide an opinion on the suitability of the site (Phase 1) post remediation, with regards to contamination, for the intended land use as a school with soft and hard landscaping.

1.3. Remedial goals

The remedial goal was to render the site suitable for the intended school land use.

2. Scope of Works

RCC, together with their civil subcontractor (Demolition Environmental Civil Contractors Pty Ltd (DECC)) were responsible for carrying out remedial works. Coffey was engaged by RCC to carry out the following validation services:

- Carry out periodic site visits.
- Prepare a waste classification assessment report to facilitate offsite disposal of surplus spoil.
- Provide asbestos fibre air monitoring and asbestos visual clearance inspections.
- Document the construction and management requirements for an asbestos borrow pit constructed at the site as part of a deviation to the RWP.
- Validate imported fill used within service trenches, capping and landscaping.
- Review of information provided by RCC and preparation of this Validation Report.

3. Site Information

3.1. Site Identification

Site identification details are summarised in Table 1. The location of the site is shown on Figure 1 and Figure 2 attached.

Table 1: Site Information

Item	Description
Property Address	7 Park Road, Alexandria, NSW 2015.
Title identification	Part of Lot 20 in DP1263442. The property was previously identifiable as Lot A and Lot B in DP 109038, Lot 1 in DP 74696, Lot 2 and 3 in DP 69494 and Lot 11 in DP 615964. A lot consolidation plan is provided in Appendix D.
Site Boundary	The site boundary is shown on Figure 2 and Figure 3 (Appendix B). Coordinates of the site boundary are shown on a survey plan in Appendix J.
Site area	Approximately 1.3 hectares
Current zoning	SP2 – Infrastructure - Educational Establishment under Sydney Local Environmental Plan 2012
Local Government Authority	Council of the City of Sydney (Council)
Surrounding land use	• North: Phase 2 of the APCS re-development, Buckland Street and residential properties. • East: Park Road and a business/commercial park (to the south east). • South: Commercial retail properties and high-density residential dwellings. • West: Belmont Street, commercial retail properties, and high-density residential dwellings.

3.2. Site Description (Post Remediation)

Campus plans and general arrangement plans are provided in Appendix C. A survey showing building numbers is provided in Appendix D. Following remediation, the site includes the following features:

- Five school buildings with two to three levels each (Buildings B1, B2, C, D and E) which includes
    - 67 permanent learning spaces
    - 3 High School and 3 Pre-School special education learning spaces
    - A roof top play area and rooftop community garden area.
- Pump Room.
- Soft and hard landscaping with planting.
- Play equipment in a central courtyard.
- Staff car park

- Perimeter fence (site hoarding between Phase 1 and 2 is to be removed upon completion of the APCS school redevelopment).

4. Data Quality Objectives

A process for establishing data quality objectives (DQOs) for an investigation has been defined by the US EPA and adopted in AS 4482.1-2005 and referenced in the • National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (amended April 2013) (amended ASC NEPM). DQOs are designed to:

- Set the study objectives;
- Collect the appropriate types and level of data (based on proposed recreational land use and Contaminants of Potential Concern (CoPC); and
- Select appropriate tolerance levels for potential decision-making errors.

The DQO process is a seven-step iterative planning approach used to plan for environmental data collection activities. It provides a systematic approach for defining the criteria that a data collection design should satisfy, including when, where, who and how to collect samples or measurements, determination of tolerable decision error rates and the number of samples or measurements that should be collected.

DQOs for remediation and validation were not defined in the RWP. Nevertheless, DQOs were adopted and are discussed in Appendix L.

5. Technical and Regulatory Framework

This Validation Report and validation works were carried out in general accordance with, and with reference to, the following legislation, industry standards, codes of practice, and guidance documents, where relevant:

- NSW Work Health and Safety (WHS) Act 2011 (WHS Act 2011)
- NSW WHS Regulation 2011 (WHS Regulation 2011)
- Contaminated Land Management (CLM) Act, 1997 (CLM Act 1997)
- Protection of the Environment Operations (POEO) Act 1997 (POEO Act 1997)
- POEO (Waste) Regulation 2014 (POEO Regulation 2014)
- National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (amended April 2013) (amended ASC NEPM)
- CRC Care Technical Report No. 10, Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, 2011 (CRC CARE 2011)
- NSW Environment Protection Authority (EPA) State Environmental Planning Policy 55 – Remediation of Land, 1998 (SEPP 55)
- NSW EPA, Contaminated Land Guidelines: Consultants Reporting on Contaminated Sites, 2020 (NSW EPA 2020)
- NSW EPA. Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme, 3rd Edition, 2017.

6. Environmental Setting Summary

The environmental setting of the site is summarised in Table 2 and is based on information presented in a Detailed Site Investigation (DSI) report[3] prepared by Coffey in 2017, the RWP[1], and a Data Gap Investigation[4] report (GDIR) prepared by Coffey in November 2019.

Table 2: Summary of Environmental Setting

Item	Discussion
Topography	The site is relatively flat and is situated at an elevation of approximately 13m Australian Height Datum (AHD).
Surface Waters	No surface water bodies are located within the site, however the historic Sheas Creek swamp area was previously located across the southern section of the site. This area was progressively reclaimed (presumably with fill material) between 1887 and circa 1900 based on historical parish maps. Alexandria Canal, which flows within a concrete lined channel, is the nearest surface water body to the site, approximately 950m southwest of the site. Alexandria Canal discharges to the Cooks River.
Geology	The DSI indicates that the site is underlain by Quaternary aged medium to fine-grained marine sand with podsols (known as Botany Sands). The Botany Sands are expected to be underlain by Hawkesbury sandstone at significant depth (i.e. 15-25m). The DSI indicates that fill was identified across the site overlying the Botany Sand.
Hydrogeology	Groundwater has been identified at the site at depths of approximately 3.5m below ground level. The inferred groundwater flow direction is in a south south-westerly direction across the site towards Alexandria Canal and Botany Bay. The site is situated within NSW Office of Water Botany Sands Management Zone 2 where domestic groundwater use is not permitted under the Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018. Groundwater was not encountered during remedial works, including during replacement of the stormwater culvert.

[3] Coffey. Detailed Site Investigation – Alexandria Park Community School, Park Road, Alexandria. Prepared for TKD Architects Pty Ltd. Ref SYDEN199382-R01-Rev02, dated 26 October 2017.
[4] Coffey. Alexandria Park Community School – Phase 1 & Part Phase 2 Data Gap Investigation Report. Prepared for Richard Crookes Construction Pty Ltd. Ref: 754-SYDEN224285-L03-Rev2, dated 27 November 2019.

Item	Discussion
Acid Sulfate Soils (ASS) Risk and Classification	The CSIRO Land & Water Atlas of Australian Acid Sulfate Soils indicates that the: • Northern portion of the site is mapped as having extremely low probability of acid sulfate soil occurrence • The southern portion of the site is mapped as disturbed terrain. The Sydney Local Environmental Plan 2012 indicates that the: • Northern portion of the site is mapped as Class 5 land (Acid sulfate soils are not typically found in Class 5 areas. Areas classified as Class 5 are located within 500 metres on adjacent class 1,2,3 or 4 land). • The southern portion of the site is mapped as Class 4 land (Acid sulfate soils in a class 4 area are likely to be found beyond 2 metres below the natural ground surface). The DSI indicates that potential acid sulfate soils have been identified at the property below 5m AHD. Acid sulfate soils were not encountered during remedial works, hence were not disturbed.

7. Site History Summary

The following has been summarised from the RWP[1]:

- The property was undeveloped in 1887, and a majority of the southern portion of the property was part of the Sheas' Creek swamp land.
- Between 1887 and 1893 the swamp land was reclaimed, and the property was predominantly developed with residential terrace dwellings. By 1930, the property and surrounding areas were developed for commercial/industrial uses. The property housed several large warehouses until circa 1975 when all the structures on property were demolished.
- The warehouses were occupied by several businesses, including Murray Brothers (furniture manufacture), Federal Match Company (match manufacture). Land surrounding the property was also occupied by various industrial uses. A historical property layout plan was obtained of the Federal Match Company property, which identified several areas of interest including a mechanics workshop, incinerator, tanks (above ground) and filler caps (a subsequent geophysical investigation was conducted for the area by Coffey, concluding that it was unlikely for infrastructure to remain in-situ).
- There are no demolition records for the former buildings located on the either the Phase 1 or Phase 2 property areas.
- By 1982, the school buildings and grounds of APCS were constructed on the southern half of the property. The northern half of the property remained vacant and was possibly used as a sporting oval. Land uses surround the property have been developed recently for a mixture of commercial and residential uses.

8. Previous Investigation Reports

A summary of previous environmental investigation and reports, and key information with respect to contamination is presented in Table 3.

Table 3: Summary of Previous Investigations

Report	Scope of Works and Report Findings and Recommendations
GeoEnviro Consultancy Pty Ltd (GeoEnviro). Geotechnical Investigation, Proposed Temporary School Buildings, Alexandria Park High School, Park Street, Alexandria NSW. Prepared for Kollanyi Architects Pty Ltd. REF: JG16980A-r1; dated September 2016.	GeoEnviro was commissioned by Kollanyi Architects Pty Ltd (acting on behalf of the DoE) to conduct a geotechnical investigation for the proposed temporary school buildings within the Alexandria Park Community School oval. The investigation did not include environmental sampling, however provided valuable information on the ground conditions. Twelve (12) boreholes were conducted as part of the investigation. The relevant results of the investigation revealed: • Fill material was encountered in all borehole locations to depths ranging from 0.4m to 3.4m below ground surface (bgs). The fill material predominately consisted of Gravelly Clayey SAND, with some gravelly silty sand and silty sand. Abundant anthropogenic materials were observed in the majority of the boreholes including bricks, concrete and sandstone fragments. • Natural sand was encountered within all of the boreholes from 0.4m to 3.4m bgs. • Groundwater inflow was encountered in BH1 to BH10 at depths varying from 2.4m to 3.7m bgs. • Bedrock was not encountered in the investigation.
Hibbs & Associates Pty Ltd (H&A). Phase 1 and Limited Soil Sampling Investigation, Waterloo High School. Prepared for Kollanyi Architects Pty Ltd. Ref: S9179; dated July 2016.	The report prepared by Hibbs & Associates presents a Phase 1 and limited soil sampling investigation for the sports field located at 7-11 Alexandria Park Road, Alexandria, which comprises the northern part of the property. This assessment was prepared prior to the construction of the temporary pop-up school, when the location was a vacant grassed field. The investigation found that there was potential for contamination to be present on site due to the known former industrial activities undertaken on site (furniture manufacturing, office machine development, mechanical industries). The key findings from these investigations are summarised below: • Drilling of five (5) hand augers to depths between 0.9m and 1.6mbgs. • Collection of soil samples from fill and residual soils for chemical analysis for CoPC identified by H&A, including heavy metals, total recoverable hydrocarbons (TRH) and, monoaromatic hydrocarbons (benzene, toluene, ethylbenzene and xylene (BTEX)). • Ground conditions encountered were described as approximately 200mm of dark brown silty clay topsoil, overlying grey to red to brown silty sand and clay fill to the maximum depth of investigation (1.6m bgs). Natural material was not encountered within the sampling locations. • No odorous or visibly stained/discoloured soils were noted by H&A during the investigation. No visible signs of asbestos-containing material (ACM) were noted during the investigations. PID headspace readings recorded concentrations ranging between non detect (presumed to be <0.1 parts per million (ppm) and 0.4ppm, indicating a low likelihood for ionisable VOCs to be present in soil samples collected. • A total of five (5) soil samples were submitted for chemical analysis. In summary, the analysis reported concentrations of organic COPC were reported below the adopted health investigation and screening levels for a generic low density residential land use (i.e. HIL A as presented within Schedule B1 of the amended ASC NEPM. • In conclusion, Hibbs & Associates 'has not encountered any soil conditions that would preclude the continued use of the site' as a school. Hibbs & Associates recommended that 'appropriate controls should be implemented during site development to manage the potential risk associated with the presence of asbestos beneath the site. This should include the development and implementation of an unexpected finds protocol".

Report	Scope of Works and Report Findings and Recommendations
Coffey. Detailed Site Investigation – Alexandria Park Community School, Park Road, Alexandria. Prepared for TKD Architects Pty Ltd. Ref SYDEN199382-R01-Rev02, dated 26 Octor 2017.	Coffey was commissioned by TKD to undertake a DSI (which included elements of the Phase 1 report prepared by H&A) for the property. As part of the works, Coffey reviewed the following relevant previous assessments: • Hibbs & Associated, 2016; Phase 1 and Limited Soil Sampling Investigation: Waterloo High School; and • GeoEnviro Consultancy Pty Ltd, 2016; Geotechnical Investigation: Proposed Temporary School Buildings, Alexandria Park High School, Park Road, Alexandria NSW. Coffey completed an intrusive investigation within the property, which comprised the following: • Excavation of six (6) test pits (denoted TP3 to TP8) to depths ranging between 1.4m and 2.4m bgs; • Drilling of seven (7) hand auger holes (denoted HA1 to HA7), which extended to a maximum depth of 1.1m bgs; • Drilling of three (3) boreholes (BH1 to BH3) to maximum depths of 6.0m bgs, and conversion of each borehole into monitoring wells (MW1 to MW3) • Soil and groundwater sampling from each soil bore / groundwater well location for a range of CoPC to assess soil and groundwater quality beneath the site. The lithology recorded during the investigation revealed a layer of fill (maximum thickness of 1.8m) overlying natural Botany Sands. A large quantity of foreign (or anthropogenic) materials were observed within the fill, including bonded asbestos cement fragments, which were observed and noted in various locations and depths within fill across the site. With the exception of the ACM, no other visual or olfactory indications of significant contamination were noted during the investigation. Anecdotal evidence from the construction manager of a temporary pop up school on the property, and visual observations within open service trenches (65m to 90m in length) during the site walkover revealed asbestos (bonded) fragments were located within fill material. Standing water levels within MW1 to MW3 ranged from 10.683mAHD (MW3) to 9.533mAHD (MW1) which indicated groundwater flow was towards the south-west. No odours, visible sheens or non-aqueous phase liquid (NAPL) were noted in the three groundwater wells that were sampled. The conceptual site model which was developed based on the results of the investigations identified several plausible pollutant linkages with regards to the proposed APCS redevelopment, including contaminant sources: • Bonded ACM within fill across the property; • Lead within fill; and • Volatile halogenated compounds (VHCs) within groundwater, which have the potential to present an indoor air vapour risk. The DSI also identified the following chemicals which exceeded ecological investigation criteria: • Fill materials containing concentrations of Benzo(a)pyrene, a PAH, that exceeds ecological criteria. • Copper in all three monitoring wells and total recoverable hydrocarbons (TRH) C6-C10 fraction within MW2 that exceed the ANZECC (2000)[5] marine aquatic criteria. It was assessed within the CSM, that the above ecological criteria would not present an unacceptable risk to environmental health, with regard to the proposed APCS redevelopment. Based on the data obtained from the property, a preliminary waste classification for the fill material on the site indicated a classification of General Solid Waste, to be managed as Special Waste (Asbestos). It was concluded that the property could be made suitable for the proposed development, subject to the preparation of a RAP to mitigate the health risks associated with the pollutant linkages identified. As a result of the identification of VHCs in groundwater, it was further recommended that a soil vapour investigation be conducted to determine if an unacceptable indoor vapour risk may be present.

[5] Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), National Water Quality Management Strategy Australian and New Zealand guidelines for fresh and marine water quality, 2000 (ANZEEC 2000)

Report	Scope of Works and Report Findings and Recommendations
Coffey. Soil Vapour Investigation – Alexandria Park Community School, Park Road, Alexandria NSW. Prepared for TKD Architects Pty Ltd. Ref: SYDEN199382-L02; dated 26 October 2017.	Coffey was commissioned by TKD to undertake an intrusive soil vapour investigation at the property. The objectives of the investigation were to: • Identify the presence of volatile organic compounds (VOCs), including VHCs at the location where VHCs were detected in groundwater (MW2); • Attempt to delineate the VOC vapours (if present); and • Preliminary assessment of the indoor vapour risk posed to future occupants of site buildings. Seven intrusive soil vapour locations (SS1 to SS7) were positioned in areas surrounding MW2. A soil vapour sample was collected from each location using 1.4L Suma canisters, which were sent to a NATA accredited laboratory for analysis for VOCs. The findings of the investigation did not identify the presence of VOCs at location MW2 (represented by SS1), however trichloroethene6 (TCE) was detected above the adopted soil vapour screening levels at SS3 and SS7. A subsequent preliminary health risk assessment revealed that the potential future indoor vapour risk associated with a slab on ground building is considered to be low, and acceptable at those locations. The report also detailed the finding of a previously unknown UST within the north eastern section of the property (outside of the temporary pup-up preschool site) where a temporary pop up school was being constructed to house secondary and primary school students during redevelopment, however due to access constraints caused by the construction activities at the time, the area around the UST could not be assessed. The UST, and other possible sources within the site (or adjacent sites) was recommended to be considered further within a RAP for the APCS redevelopment.
Environmental Investigation Services (EIS). Acid Sulfate Soils Assessment – Proposed New School Facilities, Alexandria Park Community School. Prepared for TKD Architects Pty Ltd. Ref: E30907Klet-ASS, dated 23 October 2017.	As noted above a limited Acid Sulfate Soil Assessment was conducted for the APCS by EIS (Ref: E30907Klet-ASS, dated 23 October 2017). EIS were commissioned by TKD to conduct the works. The findings of the assessment are summarised below: • Acid sulfate soil samples were collected from two borehole locations (BH1 in northern part of site and BH7 in southern part of APCS). • The investigation did not identify the presence of actual acid sulfate soils (AASS) in the soil samples collected. • However, the investigation identified potential acid sulfate soils (PASS) within two soil samples, with peroxide oxidisable sulfur (SPOS) detected up to 0.2% w/w. The two soils samples collected are within soil strata located below RL5m AHD. • An Acid Sulfate Soils Management Plan (ASSMP) was recommended to be prepared, should the soil below 5m AHD be disturbed as part of the proposed development of the APCS.
Coffey. Acid Sulfate Soil Management Plan – Alexandria Park Community School, Park Road, Alexandria NSW. Prepared for TKD Architects Pty Ltd. Ref: SYDEN199382-L03-Rev01; dated 26 October 2017.	Coffey was subsequently commissioned by TKD to prepare an Acid Sulfate Soils Management Plan for the APCS, to detail the appropriate management procedures should the soils beneath RL5mAHD be disturbed as part of the proposed redevelopment, or if the groundwater table is lowered beneath RL5mAHD. It was assessed that, based on the information provided to Coffey with regards to the proposed development, it was unlikely that soils beneath RL5mAHD would be disturbed, or that the water table would be lowered beneath RL5mAHD. The document contains an approach to manage the identified PASS below RL5mAHD should it be encountered (assessed to be unlikely).

[6] Also known as trichloroethylene.

Report	Scope of Works and Report Findings and Recommendations
Coffey. Remedial Action Plan – Alexandria Park Community School, Park Road, Alexandria NSW. Prepared for TKD Architects Pty Ltd. Ref: SYDEN199382-R03; dated 8 December 2017.	Coffey was commissioned by TKD to prepare a RAP for the redevelopment of the APCS property. The RAP was required to manage ground contamination identified within the Coffey (2017) DSI[3] in order to render the site suitable for the proposed redevelopment. The objectives of the RAP were to: • Set remediation goals and objectives; • Consider several remediation options and outline the preferred remedial strategy that will mitigate contamination risks and facilitate redevelopment of the site for its intended use; • Provide procedures and plans for implementation of the proposed remedial works; • Outline minimum controls necessary to complete the proposed remedial works in a manner that minimises risks to worker health and safety and the environment; and • An additional objective of the RAP was to assist TKD in meeting the minimum requirements of the Protection of the Environment Operations (Underground Petroleum Storage Systems) (UPSS) Regulation 2019 [superseded in 2019] with regard to the decommissioning, remediation and validation of the UST identified during the construction of the pop-up school. The RAP was developed to manage contamination which was determined to potentially pose an unacceptable risk to human health, namely: • Asbestos and lead within fill across the APCS; and • Potential hydrocarbon impacts associated with the UST discovered at the pop-up school 2 area (north-eastern portion of the APCS). The preferred remedial options were as follows: • Capping and on-going management of the fill; and • Decommissioning, excavation and removal of the UST offsite. The RAP identified various data gaps, including: • Quality of fill within inaccessible areas (namely the southern portion of the APCS, where existing buildings prevented test pit sampling); and • The quality of groundwater, primarily along the western edge of the APCS (also where future buildings will be constructed). The RAP concluded that subject to the successful implementation of the measures detailed within the document, it would be considered that the APCS could be made suitable for the proposed land-use as a school.
Zoic Environmental Pty Ltd (Zoic). Interim Advice 1 – Review of Existing Environmental Reports, APCS Redevelopment – Temporary Preschool, 7-11 Park Road, Alexandria NSW. Prepared for TKD Architects Pty Ltd. Ref: 18052 IA1_Existing Rpts 22Mar18.docx, dated 22 March 2018.	Rebekah Hall of Zoic was appointed by TKD Architects Pty Ltd (TKD), on behalf of the DoE, as the NSW EPA Accredited Auditor for the construction of a temporary pop-up preschool, within the APCS grounds. This interim advice related to reviews of existing contamination documentation for the whole APCS. Various comments were provided relating to the temporary pop-up preschool; however, comments were also made for the whole APCS (the site). These comments included the recognition of various data gaps for the whole APCS, including: • Further groundwater assessment for: • Areas of the site previously inaccessible (southern portion of the site); • Western side of the site; and • Downgradient of the identified UST • Further assessment of soil in areas of the site previously inaccessible for test pitting (southern part of the site). • Assessment of bulk ground gases within the site.
Coffey. Alexandria Park Community School – Phase 1 & Part Phase 2 Data Gap Investigation Report. Prepared for Richard Crookes Construction Pty Ltd. Ref: 754-SYDEN224285-L03-Rev2, dated 27 November 2019.	Coffey was engaged by RCC to carry out an additional assessment to address data gaps outlined within Condition B7 of the SSD (requiring additional testing of soils over the southern half of the site following demolition of the existing school buildings) and data gaps identified by the Site Auditor (refer to Interim Advice 1 above) in relation to Phase 1 of the redevelopment. The assessment comprised the following: • Additional assessment of fill within previously inaccessible areas of the site. • Additional assessment of groundwater and hazardous ground gas in areas where data was previously limited due to access constraints • Assessment of fill within the Tree Protection Zone which was previously inaccessible • Assessment of potential risks to human health (future site users) from VHCs detected in groundwater including a Tier 2 Health Risk Assessment for Vapour Inhalation. It was concluded by Coffey that: • No additional contamination was identified within the Phase 1 area of the site, or within groundwater beneath the Phase 2 area of the site which would warrant further investigation and/or additional management (in addition to that required by the RWP) during the redevelopment of Phase 1 area. • Amendment of the RAP to consider further remedial works (other than that required for asbestos in fill and the UST) was not considered necessary. • Remediation for asbestos was not required for the TPZ area.

9. Conceptual Site Model (Pre-Remediation)

A conceptual site model (CSM) is a representation of site-related information regarding potential sources of contamination, receptors and exposure pathways.

Contamination, if not managed appropriately could pose a potential risk to human health or the environment. For an unacceptable risk to exist, there must be a plausible pollutant linkage between the source and a receptor by means of a transport mechanism (pathway).

A revised CSM for the site was presented in the GDIR[4]. The nature and extent of contamination requiring management was outlined in the RWP[1] and is summarised in Table 4.

Table 4: CSM (Pre-Remediation)

Nature and Extent of Contamination Requiring Remediation	Source of Contamination	Contaminant of Concern	Potential Exposure Pathway(s)	Potential Disturbance and Transport Mechanisms	Potential Receptor(s)
Asbestos contaminated fill across the whole site with the exception of the TPZ area. Fill depth varied across the site upto 1.8m below ground level.	Uncontrolled fill and/or demolition of previous buildings containing hazardous-building materials.	Bonded asbestos as visible fragments.	Dust/fibre inhalation	Excavation during redevelopment Erosion and wind dispersion Excavation during future intrusive maintenance works Future site users playing within unsealed areas. Mowing of future grassed areas.	Current/future school users Current/future construction maintenance workers Users of adjoining land

10. Remedial and Validation Works

10.1. Proposed Remedial Strategy

A remedial options appraisal was carried out as part of the RAP[2]. The preferred remedial strategy for the site as discussed in the RWP[1] comprised

- Capping of the asbestos contaminated soil and long-term management.
- Off-site disposal of surplus soil as a contingency, if required.

10.2. Adopted Remedial Strategy

The adopted remedial strategy was generally consistent with the proposed remedial strategy and generally comprised:

- Onsite capping of contaminated fill using imported materials.
- Construction of an asbestos borrow pit (discussed in Section 10.6).
- Off-site export of surplus soil (virgin excavated natural material (VENM)) and offsite disposal of waste personal protective equipment / respiratory protective equipment (PPE/RPE).

An LTEMP is being prepared separately for the site.

10.3. Parties involved in Remediation and Validation

The following companies were involved in the remedial and validation works:

Table 5: Companies involved in Remedial and Validation Works

Company	Role
RCC	Principal Contractor / Developer
DECC	Earthworks contractor Class B Asbestos Removalist
Phil Clifton and Associates Pty Ltd (PCA)	Licenced asbestos assessor engaged by DECC.
Coffey	Validation consultant and occupational hygienist/licenced asbestos assessor engaged by RCC for asbestos fibre air monitoring and visual clearance certificates

10.4. Site Visits

A Senior Associate Environmental Consultant from Coffey periodically attended site on the following dates during remedial works to collect soil samples and verify that contaminated soil was being capped in accordance with the RWP. The RWP stipulated that “At a minimum, each capping surface should be inspected once during capping”. As capping was being carried out progressively across the site, it was not practical for Coffey to inspect the surface of each capping layer across the entire site. As such, Coffey carried out periodic inspections and relied upon photographs provided by RCC which documented the capping works. The final surface of each cap was carried out at the completion of the remedial works on 8 September 2020 and 15 September 2020. Photographs are provided in Appendix K..

Table 6: Site Visit Comments

Date	Comment
16 August 2019	Hardstand had been removed from the majority of the site. The borrow pit had been constructed in the centre of the site. Excavated sand from within the borrow pit had been temporarily stockpiled adjacent to the borrow pit for classification and offsite export (refer to Section 10.7). Trenches for building pile caps were visible. No groundwater was observed within the excavations which were approximately 3m deep.
29 October 2019	The replacement culvert in the north of the site was being constructed. White geofabric could be observed lining the culvert trench and the trench was being backfilled with imported quarried aggregate. Orange geofabric could be observed lining other excavation trenches. Buildings were being constructed.
31 October 2019	Orange crushed sandstone was being imported to site by DECC.

Date	Comment
18 November 2019	Approximately 60 tonnes of aggregate had been imported by DECC. The aggregate was described as dry coarse-grained sand with crushed demolition waste including fragments of bricks, metal, concrete, and plastic.
14 January 2020	With the exception of some soil along the Phase 1 and 2 hoarding, the site had been capped with concrete, building slabs or imported materials. Geofabric was visible in some areas protruding from beneath imported DGB20.
8 September 2020	Coffey visited the site on the 8 September 2020 and noted that: • Capping works were in progress and almost complete. • A hard scape zone was being prepared for asphalt and Pexipave™ adjacent to Building B2 in the north-east of the site. • The trafficable pavement zone and existing asphalt upgrade zone adjacent to Building B1 and Building B2 was complete. • The culvert replacement zone had been completed with imported soil and plants and was being prepared for mulching. • The majority of planting zones has been finished with planting and garden mulch (Enviro Fines) with the exception of a few areas which still required mulching. • The tree protection zones were completed with planting and mulch. • Material which would not be considered to be acceptable from an aesthetical point (i.e. suspected ACM, putrescible refuse, plastic, glass, brick, metal chemical staining, malodours, residue from animal burial such as bones) were not observed within exposed soils or mulch placed within the planting zones (including the culvert replacement zones). • The surface of hardscape, softscape, trafficable pavement and asphalt upgrade zones across the site appeared to be free of cracks.
15 September 2020	Coffey carried out a site visit at the completion of the remedial works on the 15 September 2020 and noted that: • Capping works had been completed. The remaining planting zones and culvert protection zone was finished with garden mulch (Enviro Fines). Material which would not be considered to be acceptable from an aesthetic point (i.e. suspected ACM, putrescible refuse, plastic, glass, brick, metal chemical staining, malodours, residue from animal burial such as bones) were not observed within the mulch placed within the planting zones (including the culvert replacement zones). • The hard scape zone adjacent to Building B2 in the north-east of the site had been finished with Pexipave™. • The surface of hardscape, softscape, trafficable pavement and asphalt upgrade zones across the site appeared to be free of cracks. • No suspected ACM was observed on the ground surface. • External construction works had been completed. Construction activities did not appear to have comprised the integrity of the surfaces installed as part of the capping systems.

10.5. Notifications, Approvals and Licences

10.5.1. DP&E Notification

The RWP required that notification be provided to Council 30 days prior to commencement of remedial works, however this was not required as the project was approved by DP&E as a state significant development (SSD). To satisfy condition B1 of the SSD, Schools Infrastructure NSW (on behalf of DoE) provided written notification to DP&E prior to commencement of physical works, a copy of the correspondence (dated 8 April 2019) is provided in Appendix E.

10.5.2. SafeWork NSW

RCC provided Coffey with a copy of the following:

- SafeWork NSW Notice of Intent to Remove Non-friable Asbestos (Ref: 940R-00250686-01), submitted by DECC.
- SafeWork NSW Non-Friable Asbestos Licence (AD211031) for DECC.
- Asbestos Removal Control Plan (ARCP) for the removal of non-friable asbestos (REF: DECC-FEBRUARY – 21 – 2019 | REV 3.5 | MP-008 Asbestos Remediation Control Plan, Revision 5, dated 23 October 2019), prepared by DECC.

Copies of the above documentation are provided in Appendix H. Coffey considers that the documentation provided complies with the asbestos licencing and approval requirements outlined in the RAP and associated asbestos regulatory requirements set by SafeWork NSW.

10.6. Borrow Pit

During excavation works, a significant amount fibre cement sheet containing asbestos was identified adhered to concrete footings. The ACM could not be completely removed from the concrete and as such an asbestos clearance certificate could not be provided by DECC's licenced asbestos assessor (LAA) (PCA) to facilitate offsite disposal of the concrete for recycling purposes. As such, a borrow pit was constructed at the site to contain the ACM and associated concrete debris. The location of the borrow pit is shown on Figure 3 (Appendix B). Coffey prepared a letter report documenting the location and depth of the borrow pit which is presented in Appendix F with a survey attached. The survey indicates that the:

- Base of the borrow pit prior to filling was 9.68m AHD
- Top of the borrow pit following filling was between 9.92m AHD and 11.31m AHD.

The letter prepared by Coffey concluded that encapsulation and long-term management of the materials within the borrow pit was an appropriate management strategy in line with remedial/management options outlined in guidance endorsed by the NSW EPA. Coffey recommended the following:

- *"The VENM reports and certificates prepared by PCA are reviewed and endorsed by Zoic. Copies of the VENM report(s) and certificate(s) will be required to be referenced and attached to the Validation Report prepared to be prepared by Coffey at the completion of remedial works.*
- *The LTEMP which has been prepared and provided to the Auditor should be updated to reflect the encapsulation of the materials within the borrow pit, including the long-term management of asbestos within the borrow pit, following completion of the remedial works."*

The VENM report prepared by PCA is provided in Appendix I and discussed in Section 10.7.1.

The borrow pit was covered with approximately 0.5 to 1.5m of asbestos contaminated soil from the site which was then covered with a geotextile separation/marker layer and various capping systems as outlined in Section 10.8.

10.7. Off-Site Export and Disposal

RCC provided Coffey with a Waste Disposal Register, a copy of which is provided in Appendix I. In summary, RCC exported and disposed offsite:

- 1,500 tonnes of sand exported as VENM
- 498.50 tonnes of soil disposed offsite as Special (Asbestos) Waste.
- PPE/RPE disposed offsite as Special (Asbestos) waste.

10.7.1. Export of VENM Sand

Alluvial sand was excavated from underlying the fill during construction of the borrow pit (refer to Section 10.6). The sand was temporarily stockpiled prior to offsite export as VENM. A review of the materials tracking register provided by RCC (Appendix I) indicates that 1,944 m^3 of sand was sent to Turtle Landscape Supplies, Cnr Windsor & Rouse Roads Rousehill between 13 August and 23 August 2019. The spoil was classified as VENM by PCA, a copy of the VENM report and VENM Certificate is provided in Appendix I.

10.7.2. Soil Disposal

Approximately 205m^3 of soil (including ACM) had been stockpiled at the site during civil works. The stockpile was deemed surplus to requirements and was subsequently disposed off-site by Hana Bros between 13-19 December 2019. Material underlying the stockpile comprised asbestos contaminated soil and as such the stockpile was not over-excavated.

RCC was responsible for materials tracking and disposal. The Waste Disposal Register and Waste Disposal Dockets provided by RCC (copies in Appendix I) indicates that 498.50 tonnes[7] of soil was disposed offsite at Eastern Creek Ecology Park, 1 Kangaroo Avenue Eastern Creek 2766 which is operated by Bingo Waste Services Pty Ltd. This waste management facility was recently known as the Dial a Dump Genesis Facility at Honeycomb Drive, Eastern Creek. A review of the NSW EPA POEO Public register online[8] indicates that Dial-a-Dump (EC) Pty Ltd is licenced to receive asbestos waste at the Genesis Facility operating under Environment Protection Licence (EPL) No. 13426. A copy of the EPL is provided in Appendix I for reference. Coffey considers that the EPL number (12588) referenced in the Waste Disposal Register is incorrect as that EPL relates to a facility in Spring Farm.

Waste dockets provided appear to be valid and complete.

Coffey carried out a waste classification assessment[9] prior to offsite disposal. A copy of the report is provided in Appendix I. The report classified approximately 205m^3 of surplus spoil comprising ACM impacted fill as Special (Asbestos) Waste mixed with General Solid Waste (non-putrescible). The mass disposed off-site (520.96 tonnes) is larger than would be expected for a 205m^3 stockpile of soil; Based on a bulk density of 1.65tonnes/m^3 an approximate mass of the stockpile would be 338 tonnes. The difference in the volume of material disposed with respect to that classified is considered to be

[7] Coffey notes there is a duplication of one docket (GEN1046306-1) in the Waste Disposal Register relating to 22.46 tonnes of soil.
[8] https://apps.epa.nsw.gov.au/prpoeoapp
[9] Coffey. Alexandria Park Public School: Stockpile Waste Classification Assessment. Ref: 54-SYDEN224285-L09, dated 12 December 2019.

attributed to uncertainty associated with estimating the volume of the stockpile which was based on qualitative visual observations rather than a volumetric quantitative survey. Nonetheless the number of soil samples collected and analysed (10) as part of the waste classification assessment would be considered sufficient to characterise a stockpile upto 2,500m^3 (4,125 tonnes).

10.7.3. Asbestos PPE/RPE

A review of the waste disposal register (Appendix I) indicates that 21.74 tonnes of contaminated PPE was disposed of at Elizabeth Drive Waste Management Facility operated by SUEZ Recycling and Recovery Pty Ltd. Associated waste disposal dockets are provided in Appendix I. Correspondence with RCC indicated that

- The PPE relates to civil works carried out by DECC upto the 16th of December after which civil works in contaminated areas were complete.
- The dockets are for waste collected from multiple sites (including Mona Vale Hospital Redevelopment) and as such the exact mass of PPE waste relating to the site remediation at APCS is unknown.
- A search of the POEO public register online[8] indicates that SUEZ Recycling & Recovery Pty Ltd is licenced (licence number 4068) to accept restricted solid waste at the Elizabeth Drive Landfill Facility, 1725 Elizabeth Dr, Kemps Creek, NSW 2178. A copy of the licence is provided in Appendix I for reference.

10.8. Capping

10.8.1. Proposed Capping Systems

Various capping systems were proposed in the RWP as summarised in Table 7 and illustrated on the Bulk Earthworks Plans in Appendix C. With the exception of an existing asphalt upgrade area and the TPZ, asbestos contaminated fill across the site was proposed to be covered with a high visibility geo-textile fabric material (to act as a separation and marker layer) prior to backfilling trenches and placement of capping materials.

Table 7: Proposed Capping Systems

Capping System	Proposed Capping Thickness (minimum thickness)	Proposed Capping Materials (top to bottom)
Building Zone	250mm	Reinforced concrete (150mm) Compacted engineered fill (dense grade base (DGB)) 100mm
Existing Asphalt Upgrade	205mm	New asphalt (25mm) Existing asphalt: (20mm) Existing road base: (160mm)
Tree Protection Zone	N/A	The TPZ area did not require capping but was proposed to be covered with a layer of mulch for aesthetic purposes.
Planting Zones	500mm	Mulch VENM* topsoil

Capping System	Proposed Capping Thickness (minimum thickness)	Proposed Capping Materials (top to bottom)
Soft Scape Zones	200mm	Surface finish pavement (50mm) Compacted engineered fill (150mm)
Hard Scape Zones	200mm	Surface finish pavement (50mm) Reinforced concrete (100mm) Compacted engineered fill (50mm)
Culvert Replacement Zones	500mm	Mulch VENM* Soil
Trafficable Pavement Zones	390mm	Asphalt (40mm) Compacted engineered fill (350mm)
Service Trenches & Swept Path Temporary Road Area	Engineered fill within the service trench and 200mm/500mm capping layer above the trenches depending on the surface finish	

Notes:
** Imported material was required to be VENM, ENM and/or appropriately validated for use (refer to Section 10.9).*

Furthermore:

- Where deep rooted trees, structures or other features were required to be placed through the geo-textile fabric, procedures where provided in the RWP which included measures aimed at preventing the spread of contamination above the separation layer, ensuring the extent of holes were minimised as far as reasonably practical, and covering holes with additional geotextile fabric prior to capping according to the finished surface as outlined in Table 5.
- Service trenches placed within contaminated fill were proposed to be lined with the geo-textile fabric prior to placement of services and backfilling with suitable material.
- Prior to placement of the geo-textile fabric in each of the designated capping areas (excluding the culvert replacement zone), visible asbestos-containing material was required to be removed and a clearance certificate was to be provided by a Licenced Asbestos Assessor.
- Granular capping products (i.e. soil, engineered fill including DGB road base and aggregate, crushed rock, mulch) used for capping and landscaping purposes were validated by Coffey prior to and during import to the site as discussed in Section 10.10 of this report.

10.8.2. Marker Layer

As per the RWP, a geotextile fabric marker layer was placed over asbestos contaminated fill to act as a separation layer (separating contaminated fill from imported capping material) and marker layer (for future intrusive works). The geotextile fabric used was Bidim, a high visibility (white and orange), non-woven, needle punched, continuous lament, polyester geotextile made from recycled polymer. A specification sheet is provided in Appendix G.

The geotextile was installed over asbestos contaminated fill and lining service trenches by overlapping adjacent sheets. To install deep rooted plants through the geofabric, a slit was made in the geotextile fabric which was then covered over with additional geofabric material around the stem following planting.

The location and reduced level of the marker layer was surveyed following placement as discussed in Section 11.

10.8.3. Installed Capping Systems

A Capping Survey Plan, Revised Bulk Earthworks Plan and Grading and Pavement Plan were provided by RCC, copies of which are presented in Appendix J. The plans show:

- The elevation and extent of the marker layer.
- The elevation of finished levels.
- Thickness of the cap (based on marker layer elevation and finished ground level at surveyed positions) with respect to the relevant capping systems used.
- The location of the Borrow Pit (refer to Section 10.6).
- Types of materials used for capping.
- The location of asbestos impacted 10mm aggregate (imported by Planet Plumbing) used to backfill service trenches (Ag line and stormwater trench) surrounding and to the rear of Building C (refer to Table 8).
- The location of a 200mm thick concrete haul road installed within the central courtyard. An aerial photo of the slab from March 2020 is included in Appendix K.

A review of the plans indicates that the proposed capping thicknesses were achieved for each of the proposed capping systems outlined in Table 7 with the exception of the following:

- Building Zones - 16 locations (215mm minimum thickness achieved)
- Hard scape zones - 1 location (195mm minimum thickness achieved)

The capping systems installed are outlined in Table 8 and shown in the Revised Bulk Earthworks Plan and Grading and Pavement Plan in Appendix J.

Table 8: Installed Capping Systems

Capping System	Capping Thickness (minimum thickness)	Capping Materials (top to bottom) (thicknesses are approximate and are not uniform)
Building Zone	215mm	Reinforced concrete (150mm) Compacted engineered fill (dense grade base (DGB)) (100mm)
Existing Asphalt Upgrade	205mm	New asphalt (25mm) Existing asphalt (20mm) Existing road base (160mm)
Tree Protection Zone	N/A	The TPZ area did not require capping but was covered with a 200mm layer of mulch for aesthetic purposes.
Planting Zones	500mm	Validated imported soil
Soft Scape Zones	200mm	Surface finish pavement (50mm) Compacted engineered fill (150mm) 200mm thick concrete slab (within part of the central courtyard area only)
Hard Scape Zones	195mm	Surface finish pavement (50mm) Reinforced concrete (100mm) / 200mm thick concrete slab (within part of the central courtyard area only) Compacted engineered fill (50mm)
Culvert Replacement Zones	500mm	Mulch Validated imported soil
Trafficable Pavement Zones	390mm	Asphalt (40mm) Compacted engineered fill (350mm)
Service Trenches & Swept Path Temporary Road Area	Engineered fill within the service trench and 200mm/500mm capping layer above the trenches depending on the surface finish outlined above.	

Although the building zones and hard scape zones did not meet the proposed capping thicknesses in all surveyed locations, Coffey does not consider this non-conformance to materially affect the outcome of the validation assessment and suitability of the site with respect to contamination given that:

- Concrete slabs and hard paving in these areas would be impenetrable to futures users of the site such as students, staff and site visitors.
- Intrusive maintenance workers would be required to follow procedures and implement controls outlined in the LTEMP where disturbance of the cap is required.

10.9. Validation of Imported Materials

RCC and their subcontractors imported various materials for use as capping, landscaping and/or to backfill service trenches. Materials imported to the site were progressively assessed by Coffey for validation purposes. Coffey carried out the following:

- Review of documentation provided by RCC that described the source and characteristics of each material imported to site.
- Visual inspection of selected materials.
- Sampling of selected materials during import, and submission of those samples to laboratories for analysis for CoPC. Quality control samples were also collected and analysed.

This section presents a discussion of the materials imported, sampling and analysis carried out, and a discussion of the results with respect to the intended land use.

10.9.1. Summary of Materials Imported

A summary of materials imported is provided in Table 8. A material import register, supplier documentation and delivery dockets are included in Appendix O.

As per the RWP, Coffey reviewed the source documentation provided by RCC and proposed a validation strategy for each material. This is summarised in Table 8.

Table 9: Summary of Imported Materials

Material	Quantity Imported (tonnes)	Source	Material Type	Location Used	Supplier Documentation Summary / Validation Strategy
DECC					
Recycled Aggregate	32 tonnes	Boral Recycling, Wetherill Park	Recycled construction and demolition waste	Site accommodation and planter beds soil cover	Coffey carried out a validation assessment of the recycled aggregate prior to and during import which included a review of supplier documentation, sampling and analysis of representative aggregate samples, and preparation of a letter report[10]. A copy of the report (Ref: 754-SYDEN224285-L04) is provided in Appendix P. Coffey concluded that the recycled aggregate was suitable (from a contamination perspective) for use at the site as a school.
Recycled DGB20	1,747.95 tonnes	Boral Recycling, St Peters	Recycled construction and demolition waste	Beneath Building Slabs for Buildings B2, C, D, E and external landscape areas	Coffey carried out a validation assessment of the DGB prior to and during importation which included a review of supplier documentation and import dockets, sampling and analysis of representative soil samples, and preparation of a letter report[11]. A copy of the report (Ref: 754-SYDEN224285-L10) is provided in Appendix P. Coffey concluded that: • The aggregate was suitable (from a contamination perspective) for its intended use at the site as backfill material for service trenches. • The aggregate contained asbestos at concentrations which are considered acceptable for the proposed land use. However, imported material containing asbestos may be considered a waste by the NSW EPA, and as such Coffey recommends that the aggregate is removed offsite (where practical). Where removal was considered impractical, Coffey recommend that the issue was raised with the Site Auditor and NSW EPA. Coffey understands the DGB was used beneath building slabs (Buildings B2, C, D, E) and within external landscape areas (excluding planting zones and tree protection zones). The DGB was placed above the geotextile fabric in areas shown on Figure 3. These areas of the site were subsequently covered with building slabs (building footprints) or 200mm of concrete (external landscape areas) as shown on the Capping Survey Plan in Appendix J. Coffey's assessment of the material (Ref: 754-SYDEN224285-L10) was based on an approximate volume of 243m^3 (based on a mass of 414 tonnes using a bulking factor of 1.7t/m^3). RCC imported a total of 1,747.95 tonnes (i.e. an additional 1,333.95 tonnes) equivalent to approximately 785m3 (using a bulking factor of 1.7t/m^3 for consistency). As Coffey collected and analysed 10 samples for the initial 243m^3 of DGB20, the sampling density adopted with respect to the total volume imported (approximately 1,028m^3) is equivalent to 1 sample per 103m^3, which is commensurate with the recommended rate provided in ASC NEPM 2013 for assessment of stockpiles (10 samples allows for characterisation of soil between 300m3 and 2,500m^3). Furthermore, the additional DGB20 imported by DECC was from the same source and was commensurate with the material sampled and analysed by Coffey. As such Coffey does not consider this discrepancy in volume imported to affect the conclusions made regarding suitability of the material for use at the site. Although the DGB was found to contain asbestos fines (as fibrous plaster) in 1 of the 10 samples analysed, the concentration (0.00042% w/w) was less than the amended ASC NEPM 2013 health screening level (0.001 % w/w), as such the material was not considered to pose an unacceptable risk to human health for the proposed development. As such Coffey does not consider that the DGB20 requires ongoing management.

[10] Coffey. Alexandria Park Community School (APCS) – Imported Recycled Aggregate from Boral. Prepared for Richard Crookes Construction Pty Ltd. Ref: 754-SYDEN224285-L04, dated 10 September 2019.
[11] Coffey. Alexandria Park Community School (APCS) – Imported Recycled DGB Aggregate (Boral). Prepared for Richard Crookes Construction Pty Ltd. Ref: 754-SYDEN224285-L10, dated 24 March 2020.

Material	Quantity Imported (tonnes)	Source	Material Type	Location Used	Supplier Documentation Summary / Validation Strategy
Quarried DGB20	78.36 tonnes	Boral Quarries supplied by Benedict Sand and Gravel, Frenches Forest	Quarried VENM	Landscape Areas	RCC did not provide VENM certification for the Quarried DGB as Benedict's no longer provide this certification. A letter from Boral[12] and a letter from the NSW EPA[13] stating that the material is VENM is included in Appendix O. Based on the documentation provided, Coffey recommended that the Quarried DGB20 be inspected during importation to confirm it was commensurate with the material described in the VENM report.
Crushed Sandstone	250m^3 (approximately 300 tonnes applying a bulk density of 1.2 tonnes/m^3)	18 Castlereagh St, Sydney, NSW	Construction Site VENM	Capping. Rear of Building D	Coffey was provided with a VENM assessment report[14] prepared by Douglas Partners Pty Ltd (Douglas) prior to importation. Based on the information provided Coffey recommended that the sandstone be sampled prior to and during importation for due diligence and validation purposes, respectively. A copy of the VENM report and Coffey's review[15] is provided in Appendix O. The crushed sandstone was not assessed prior to import; however, was validated (including visual inspections, and sampling and analysis) during importation as discussed in Section 10.9.
Hanna Bros					
Crushed Sandstone	524.2m^3 (approximately 629 tonnes applying a bulk density of 1.2 tonnes/m^3)	18 Castlereagh St, Sydney, NSW	Construction Site VENM	Backfilling of the culvert	This is the same material as the crushed sandstone imported by DECC (see above). The crushed sandstone was validated (including visual inspections, and sampling and analysis) during importation as discussed in Section 10.9.3.
10mm Aggregate	292.98 tonnes	Boral, Widemere Recycling	Quarried VENM		Coffey was provided with a VENM Assessment Report[16] prepared by Construction Sciences Pty Ltd (Construction Sciences) prior to importation. Construction Sciences concluded that the aggregate may be classified as VENM. A copy of the report is provided in Appendix O. Based on the information provided, Coffey recommended that the aggregate be inspected during importation to confirm the aggregate was commensurate with the material described in the VENM report.
20mm Aggregate	172.74 tonnes	Boral Recycling, St Peters			Coffey was provided with two VENM letter reports[17,18] and a geotechnical material testing report[19] prior to importation. A copy of the documentation is provided in Appendix O. Based on the information provided; Coffey recommended that the aggregates be inspected during importation to confirm they were commensurate with the material described in the VENM reports.
63mm Aggregate	72 tonnes	Boral, Dunmore Quarry, supplied by B&C Sands			

[12] Boral. Letter. Type of material - All Quarry Products.
[13] NSW EPA. Letter. Ref: DOC20/174111, dated 6 March 2020.
[14] Douglas Partners Pty Ltd. VENM Assessment (Northern and Eastern Portion of Site), Sydney Metro - North Station Shaft, Martin Place, 18 Castlereagh Street, Sydney. Prepared for Delta Group Pty Ltd. Ref: 86882.00.R.003.Rev0, dated 23 August 2018.
[15] Coffey. RE VENM Testing Requirement. Ref: CofSerAU-GCOR-000241.
[16] Construction Sciences Pty. Ltd. VENM Assessment – Gunlake Aggregates. Prepared for Gunlake Pty Ltd. Ref: 10848/P/151-B, dated 27 June 2019.
[17] Boral Quarries. VENM Report, Type of material – Rail Ballast, 20,14,10,7,20/70mm Drainage/Filter aggregate and Blue Quarry Sand. Dated 31 July 2018.
[18] Boral Quarries. VENM Report, Type of material – Rail Ballast. Dated 28 June 2018.
[19] Boral Construction Materials Technical Services. Test Report. Request No. 50332. Dated 3 December 2012

Material	Quantity Imported (tonnes)	Source	Material Type	Location Used	Supplier Documentation Summary / Validation Strategy
Landscape Solutions					
DGB20	789.87 tonnes	Lynwood Quarry, supplied by Benedict Sand and Gravel	Quarried VENM	Landscaping	Coffey was provided with a VENM Report[20] prepared by Construction Sciences prior to importation. Based on the information provided, Coffey recommended that the material be inspected during importation to confirm it was commensurate with the material described in the VENM report.
BQSAND	152.4 tonnes	Benedict's, Boral Quarries	Quarried VENM		Coffey was provided with a letter from Boral[12] and a letter from the NSW EPA[13] pertaining to the VENM status of the quarried sand. Copies of the letters are provided in Appendix O. Based on the information provided, Coffey recommended that the sand be inspected during importation to confirm it was commensurate with the material described in the VENM report.
Playground Mulch	200 tonnes	ANL, North Ryde	Radiata Pine Bark, Commercial Supplier		Coffey was provided with a specification sheet for the mulch prior to importation, a copy of which is provided in Appendix O. Based on the information provided, Coffey recommended that the mulch be visually inspected during importation to confirm it was commensurate with the material described in the specification sheet.
Garden Mulch (Horticultural Grade Pine Bark)	168m^3 (approximately 67.2 tonnes using an estimated bulk density of 0.4t/m^3)	Hills Bark Blower	Recycled timber		Coffey was provided with delivery confirmation records for Garden Mulch imported on 28 August 2020 and 29 August 2020. Correspondence and documentation supplied by Hills Bark Blower's Research Manager (included in Appendix O) revealed that the mulch is made from recycled timber supplied by Bingo (Genesis Facility at Eastern Creek) which is tested quarterly and on an ad hoc basis for chemical constituents and asbestos in accordance with the NSW EPA resource recovery order and exemption for Mulch. A laboratory report provided by Hills Bark Blower (Envirolab Report 244944, also included in Appendix O) indicates that organochlorine pesticides (OCPs) were less than the laboratory detection limit, metals were not detected or were below the adopted site validation criteria for soil (refer to Section 10.9.5) and asbestos was not detected. The mulch was inspected during import by RCC and by Coffey at completion of remedial works (refer to Section 10.4). As the documentation was provided following importation to site, Coffey recommended that the Auditor be consulted to provide comment on the level of validation required, however to the knowledge of Coffey this recommendation was not fulfilled. Based on the information provided and visual observations made during import and at completion of remediation (refer to Section 10.4), Coffey considers that the mulch poses a low to negligible risk of contamination to future users of the site and is suitable for use.
SMARTMIX 6	464.63 tonnes	Benedict Sand and Gravel. Menangle	Recycled Organic Mix		Coffey was provided with letter[23] and soil properties test report[24] from Benedict Sand and Gravel prior to importation of the Smartmix 6. Following an interim review of the documentation, Coffey recommended that the Smartmix 6 be sampled and assessed prior to and during importation for due diligence and validation purposes respectively. The outcome of the assessment is discussed in Section 10.9.7.
Crushed Sandstone	1 load (approximately 10 tonnes)	16 May Street, Bardwell Park, NSW	Construction Site VENM		Coffey was provided with a Waste Classification Report[25] prepared by National Asbestos Solutions. Based on the information provided Coffey recommended that the sandstone be sampled prior to and during importation for due diligence and validation purposes, respectively. A copy of the VENM report is provided in Appendix O. The material was sampled prior to and during import, as discussed in Section 10.9.7.

[20] Construction Sciences Pty Ltd. Lynwood Quarry Preliminary Site Investigation, 2020 Extraction Zone VENM Assessment. Ref: P/278, dated 25 November 2019.
[23] Benedict Sand and Gravel. Letter to Landscape Solutions Pty Ltd. Dated 4 May 2020.
[24] SESL Australia Pty Ltd. Annual Landscape testing 2020. Batch Number 55439, Sample No.9. Dated 3 March 2020.
[25] National Asbestos Solutions. Waste Classification Report. Confidential Client. Report Number: 00004299.01.WCR, dated 14 July 2020.

Material	Quantity Imported (tonnes)	Source	Material Type	Location Used	Supplier Documentation Summary / Validation Strategy
Planet Plumbing					
10mm Aggregate	156.61 tonnes	Benedict Sand and Gravel	Recycled construction and demolition waste	Service Trenches (Hydraulic Trenches, Wet Area and Ag Line Building C)	Coffey carried out an assessment of the aggregate prior to and during importation to site which included a review of supplier documentation and import dockets, sampling and analysis of representative soil samples, and preparation of a letter report[26]. A copy of the report (Ref: 754-SYDEN224285-L08) is provided in Appendix P. Coffey concluded that: • The aggregate contained asbestos fines at levels that could pose unacceptable risks to human health from inhalation of asbestos fibres if disturbed without implementation of appropriate controls. Coffey recommended (where practical) excavating and disposing of the asbestos contaminated aggregate to an appropriately licenced landfill facility; or (if the aggregate is retained on site) encapsulating the aggregate and incorporating appropriate control measures into the LTEMP to manage potential risks to future users of the site. • The source of the asbestos reported in the samples was unknown, however it was considered plausible that either cross contamination between asbestos impacted fill onsite and the imported aggregate has occurred, and/or the aggregate was impacted with asbestos prior to importation to the site. The asbestos impacted aggregate was placed within service trenches (Ag line and stormwater) to the rear of Building C as shown on a plan within the report and on the Bulk Earthworks Plan in Appendix J. Coffey's assessment of the material (Ref: 754-SYDEN224285-L8) was based on an approximate volume of 83m^3 (based on a mass of 100tonnes using a bulking factor of 1.2t/m^3). RCC imported a total of 156.61 tonnes (i.e. an additional 56.61 tonnes) equivalent to approximately 47m^3 (using a bulking factor of 1.2t/m^3 for consistency). As Coffey collected and analysed 4 samples for the initial 83m^3 of recycled aggregate, the sampling density adopted with respect to the total volume imported (130m^3) is equivalent to 1 sample per 33m^3, which is slightly less than recommended rate provided in ASC NEPM 2013 for characterisation of stockpiles up to 200m^3 (recommended rate of 1 sample per 25m^3).The additional aggregate imported by DECC was from the same source and was commensurate with the material sampled and analysed by Coffey. As such Coffey does not consider this discrepancy in volume imported to affect the conclusions made regarding suitability of the material for use at the site.
10mm Aggregate	858.18 tonnes	Gunlakes Quarries, Supplied by Benedict Sand and Gravel	Quarried VENM	Service Trenches (Hydraulic Trenches, Wet Area and Ag Line)	This is the same material as the 10mm Aggregate imported by Hana Bros (see above). Based on the information provided, Coffey recommended that the material be inspected during importation to confirm it was commensurate with the material described in the VENM letter[16].
BQSAND	11.74 tonnes	Boral, Dunmore Quarry, supplied by Benedict Sand and Gravel			This is the same material as the BQSAND imported by Landscape Solutions (see above). Based on the information provided, Coffey recommended that the material be inspected during importation to confirm it was commensurate with the material described in the VENM letter[21].
10mm Aggregate	8 tonnes	Albion Park Quarry, Supplied by MBS Sand and Cement		Service Trenches	Coffey was provided with a VENM classification letter[27] prepared by Cleary Bros (Bombo) Pty Ltd, a copy of which is provided in Appendix O. Based on the information provided, Coffey recommended that the material be inspected during importation to confirm it was commensurate with the material described in the letter.
20mm Aggregate	15 tonnes	Albion Park Quarry, Supplied by MBS Sand and Cement			

[26] Coffey. Alexandria Park Community School (APCS) – Imported Recycled 10mm Aggregate (Benedicts). Prepared for Richard Crookes Construction Pty Ltd. Ref: 754-SYDEN224285-L08, dated 8 October 2019.
[27] Cleary Bros (Bombo) Pty Ltd. RE: Classification of Cleary Bros Drainage Aggregates. Dated 04 March 2020

Material	Quantity Imported (tonnes)	Source	Material Type	Location Used	Supplier Documentation Summary / Validation Strategy
Pro Electrical					
BQSAND	55.88 tonnes	Boral, Dunmore Quarry	Quarried VENM	Electrical B2 to substation trench	This is the same material as the BQSAND imported by Landscape Solutions (see above). Based on the information provided, Coffey recommended that the material be inspected during importation to confirm it was commensurate with the material described in the VENM letter[21].

10.9.2. Visual Inspections (RCC)

RCC's site engineer carried out a visual inspection of each load of material imported. No unexpected finds were reported (including suspected ACM or malodours) during importation of each of the materials listed in Table 8. The materials were visually commensurate with the documentation provided. Photographs of the materials taken by Coffey and RCC during import are provided in Appendix K.

10.9.3. Field Observations and Samples Collected

This section documents the observations made and samples collected for the:

- Crushed sandstone imported from 18 Castlereagh St, Sydney, NSW
- Crushed sandstone imported from 16 May Street, Bardwell Park, NSW
- Smartmix 6 imported from Benedict Sand and Gravel. Menangle

Fieldwork was carried out by appropriately qualified and experienced environmental consultants or occupational hygienists from Coffey in accordance with Coffey's Standard Operating Procedures (SOPs) which are based on consistent with relevant guidelines.

Primary Samples

Coffey carried out periodic site visits to observe materials imported and collect validation samples for subsequent laboratory analysis, as outlined in Table 9.

Table 10: Validation Sampling

Material	Sampling Location	Date of Sampling	Number of Validation Samples Collected	Sample ID	Sampling Purpose
Crushed Sandstone - 18 Castlereagh St, Sydney, NSW)	On site during import	31 October 2019 and 8 November 2019	6 x 250ml Jars for chemical analysis and 6 x 500ml zip-lock bag for asbestos analysis	CS01 through to CS06	Validation
Crushed Sandstone - 16 May Street, Bardwell Park, NSW	At Source	31 July 2020	3 x 250ml Jars for chemical analysis and 3 x 500ml zip-lock bag for asbestos analysis	BP_V01, BP_V02 and BP_V03	Due Diligence
	On site during import	21 July 2020	3 x 250ml Jars for chemical analysis and 3 x 500ml zip-lock bag for asbestos analysis	BP-SS01, BP-SS02 and BP-SS03	Validation

Material	Sampling Location	Date of Sampling	Number of Validation Samples Collected	Sample ID	Sampling Purpose
Smartmix 6 - Benedict Sand and Gravel. Menangle	At Source	10 June 2020	3 x 250ml Jars for chemical analysis and 3 x 500ml zip-lock bag for asbestos analysis	BSM1, BSM2 and BSM3	Due Diligence
	On site during import	17 August 2020	10 x 250ml Jars for chemical analysis and 10 x 500ml zip-lock bag for asbestos analysis	BSM_A through to BSM_J	Validation

Samples for chemical analysis were collected by hand directly from beneath the surface of stockpiles. Representative samples were collected by choosing sampling locations which were equidistance from each other around the stockpile such that a uniform sample point distribution was adopted based on the homogenous nature of the stockpiled materials. Each sample was placed into a laboratory supplied 250ml glass jar with teflon lined lid. Samples were collected as rapidly as possible and the jars filled with zero headspace where practicable, attempting to minimise volatile losses.

Samples for asbestos analysis were screened in the field. For each sample:

- Approximately 10 litres of the material was collected and screened on site with a sieve with 7mm apertures.
- A 500ml subsample of the retained sieved material was collected in a zip-lock bag supplied by the laboratory.

New nitrile gloves were donned between collection of each sample to reduce the potential for cross contamination to occur. The sieve and 10L bucket used for asbestos field screening was decontaminated between collection of each sample location as follows:

- Scrubbing of the surface of the equipment with a wire brush to remove soil;
- Scrub the equipment in a bucket filled with a solution of phosphate free detergent (Decon 90), using a brush;
- Rinsing of the equipment in potable water.

Samples were placed directly into an ice filled cooler and transported to the laboratories under chain of custody protocol. Eskies not dispatched immediately to the laboratory were temporarily stored in a fridge. Samples were submitted as soon as possible to the laboratories to prevent loss while in storage or transit and analysed within recommended holding times.

Field instruments requiring calibration were not used during sampling. Field screening using a photo-ionisation detector (PID) was not considered necessary as each sample collected was analysed for volatile contaminants of concern (i.e. benzene and/or VOCs). Field observations did not indicate the likely presence of volatile organic compounds.

Field Quality Control Samples

Field quality control samples were collected during sampling of each imported material on site comprising:

- One intra-laboratory and one inter-laboratory duplicates per source material

- One rinsate blank per source material
- One trip blank per source material
- One trip spike per source material

Field duplicate soil samples were collected from soil immediately adjacent to the primary sample by placing approximately equal portions of the primary sample into two sample jars. Samples were labelled so as to conceal their relationship to the primary sample from the laboratory.

Rinsate blanks consisted of pre-preserved bottles filled with laboratory prepared water that was passed over a nitrile glove and then collected in laboratory supplied bottles. Rinsate were preserved in a similar manner to the original samples.

Trip blank and trip spike samples were prepared by the primary laboratory, carried to the field unopened and subjected to the same preservation methods as the primary field samples.

Field quality control samples collected, and quality control results are discussed in Appendix U.

Observations

Potential contamination of properties which would not be considered acceptable from an aesthetical point (refer to Section 10.9.5) (i.e. suspected ACM, putrescible refuse, plastic, glass, brick, metal chemical staining, malodours, residue from animal burial such as bones) were not noted in each of the three imported materials during sampling. The materials were described during site visits and sampling as:

- Smartmix 6: Brown organic loamy sand with some coarse-grained angular gravel and wood fragments.
- Crushed Sandstone (16 May Street, Bardwell Park): yellow-grey, coarse-grained sand (crushed sandstone) and sandstone cobbles.
- Crushed Sandstone (18 Castlereagh St, Sydney, NSW): orange, coarse-grained sand (crushed sandstone) and sandstone cobbles.

The materials were visually commensurate with the documentation provided.

10.9.4. Laboratory Analysis

Eurofins MGT Pty Ltd (Eurofins) and Australian Laboratories Services Pty Ltd (ALS) were engaged as the primary and secondary or 'check' laboratories for chemical testing, respectively. The soil samples collected were analysed for CoPC and ecological parameters as outlined in Table 10.

Table 11: Laboratory Analysis

Material	Sampling Location	Number of Primary Samples Analysed	Analytical Rate	Contaminants of Potential Concern / Physical Properties	Sampling Purpose
Crushed Sandstone - 18 Castlereagh St, Sydney, NSW)	On site during import	6	1 sample per 250m^3 with a minimum of 3 samples	TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, VOC, Asbestos	Validation
Crushed Sandstone - 16 May Street, Bardwell Park, NSW	At Source	3	Nominal	TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, VOC, Asbestos	Due Diligence
	On site during import	3	At least 1 sample per 250m^3 with a minimum of 3 samples	TRH, BTEX, PAH, OCP, OPP, PCB, VOC, Asbestos	Validation
Smartmix 6 - Benedict Sand and Gravel. Menangle	At Source	3	Nominal	TRH, BTEX, PAH, OCP, OPP, PCB, Asbestos	Due Diligence
		1	Nominal	Iron, CEC, pH, total organic carbon, clay content	
	On site during import	10	1 sample per 250m^3 with a minimum of 3 samples	TRH, BTEX, PAH, OCP, OPP, PCB, Asbestos	Validation
		1	Nominal	R21	

TRH: Total recoverable hydrocarbons
BTEX: Benzene, toluene, ethylbenzene and xylene
PAH: Polycyclic aromatic hydrocarbons
OCP: Organochlorine pesticides
OPP: Organophosphorus Pesticides (OPP)
PCB: Polychlorinated biphenyls
Metals: arsenic, cadmium, chromium, lead, nickel, zinc, mercury and copper
CEC: cation exchange capacity

The sampling and analytical frequency was commensurate with the minimum number of samples recommended in ASC NEPM 2013 for stockpile sampling.

10.9.5. Adopted Validation Criteria

Aesthetic considerations

There are no specific numeric aesthetic guidelines, however site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity as outlined in Schedule B1 of the amended ASC NEPM 2013. General assessment considerations for this assessment include:

- That chemically discoloured/odorous 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.

For validation purposes, soils imported to the site for use in planting zones (including within the culvert replacement zones) were required to not:

- Contain significant quantities of anthropogenic material (i.e. putrescible refuse, plastic, glass, brick, metal) which could be considered unsightly to future site users.
- Be malodourous.
- Be discoloured (i.e. chemical staining).
- Contain residue from animal burial such as bones.

Soil Criteria

To assess the risk of analytes detected and provide comment on suitability of use of the two sources of crushed sandstone and Smartmix 6 at the site, the analytical results were compared to assessment criteria summarised in Table 11 and presented in Table A (Appendix N). Further discussion is provided in Appendix M.

Table 12: Summary of Adopted Validation Assessment Criteria for Imported Materials

Type	Criteria	Source	Criteria relevant to	Applicable pathway
Health based	Health investigation levels (HILs) for soil contaminants	ASC NEPM 2013	HIL A - residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary schools	Direct contact (dermal contact and incidental ingestion and inhalation of soil/dust particles)
Health based	Soil health screening levels (HSLs) for vapour intrusion	ASC NEPM 2013	HSL A & HSL B Low – high density residential Sandy soil, depth of 0-1m applied.	Vapour intrusion and inhalation
Health based	Soil HSLs for direct contact	CRC CARE 2011	HSL-A - Residential (Low Density)	Direct contact (dermal contact

Type	Criteria	Source	Criteria relevant to	Applicable pathway
				and incidental ingestion and inhalation of soil/dust particles)
Health based	Soil HSLs for direct contact	CRC CARE 2011	Intrusive maintenance worker	Direct contact (dermal contact and incidental ingestion and inhalation of soil/dust particles)
Health based	Soil HSLs for vapour intrusion	CRC CARE 2011	HSL-intrusive maintenance worker Sandy soil, depth of 0-2m applied.	Vapour Inhalation
Health based	HSLs for asbestos contamination in soil	ASC NEPM 2013	Residential A with garden/accessible soil also includes children's day care centres, preschools and primary schools	Asbestos Inhalation
Ecological based	Generic ecological investigation levels (EILs) for aged As, fresh DDT and fresh naphthalene	ASC NEPM 2013	Urban residential and public open space land use	Terrestrial ecosystems
Ecological based	Conservative EILs (added contaminant limits) for metals (chromium, copper, nickel and zinc)	ASC NEPM 2013	Urban residential and public open space land use	Terrestrial ecosystems
Ecological based	Ecological screening levels (ESLs) for TRH, BTEX and benzo(a)pyrene	ASC NEPM 2013	Urban residential and public open space land use	Terrestrial ecosystems
Management limits	Management Limits for TPH fractions F1-F4 in soil	ASC NEPM 2013	Residential, parkland and public open space land use Coarse soil type applied.	Formation of light non-aqueous phase liquid (LNAPL), fire and explosion, and property damage

10.9.6. Quality Assurance and Quality Control

Investigation specific QA/QC procedures were implemented to improve transparency, consistency, comparability, completeness, and confidence in the data collected.

A discussion of field and laboratory QA/QC procedures and an evaluation of field and laboratory quality control results is presented in Appendix U. In summary the data is considered to be adequately complete, comparable, representative, precise, accurate and usable for the objective of the works.

10.9.7. Results and Discussion

Laboratory certificates of analysis and associated chain of custody (COC) documentation are provided in Appendix Q. Analytical results in comparison to the adopted assessment criteria are presented in Table A (Appendix N). Six soil samples with prefix HBB shown on COC 724603 relate to plant mix which was not imported to the site.

A review of the analytical results indicates that CoPC were less than the adopted assessment criteria.

Based on source documentation provided, visual observations made by RCC and Coffey, and analytical results, the materials imported are considered to be suitable for their use at the site.

10.10. Asbestos Fibre Air Monitoring

Asbestos fibre air monitoring was carried out during civil works by Coffey on 166 separate occasions between 23 July 2019 and 29 August 2020. The number of fibres reported during air monitoring was equivalent to the detection limit (<0.01 fibres per millilitre of air (f/mL) and as such the results were:

- Less that the control and action limits (0.01 f/ml and 0.02f/ml respectively) defined within the NSW Code of Practice (August 2019) *How to Safely Remove Asbestos*; and
- Considered to be equivalent to background concentrations.

Copies of the air monitoring results are provided in Appendix R.

10.11. Asbestos Clearances

Coffey prepared 28 asbestos visual clearance inspection reports between 12 July 2020 (prior to instructive works commencing) and 18 June 2020. Clearance reports were requested by RCC prior to placement of geotextile fabric and also to document the absence of ACM in specific areas of the site as required to facilitate construction works in those areas. A copy of the clearance reports are provided in Appendix S.

10.12. Unexpected Finds

Coffey understands that one unexpected find was identified within the site boundary during remedial works comprising the identification of flammable gas in soil in the north-west of the site as shown on Figure 3 (Appendix B) and a plan in Appendix T. In summary:

- Flammable gas was identified by RCC during saw cutting of concrete adjacent to a footing excavation for Building B1. Sparks hit the ground which resulted in flames and white smoke. The incident occurred around midday on 3 October 2019. RCC stopped works in the work area.
- Coffey was engaged to attend site on 4 October 2019 to monitor gas concentrations in the area where flames and smoke where reported.
    - Discussions with RCC site engineer indicated that:
        - This area of the site previously contained a brick building (a gas meter enclosure) where a high-pressure underground gas pipe entering the site terminated.
        - The gas pipe which entered the site had been cut and capped within the road reserve outside the property boundary by Jemena on 19 August 2019. Correspondence from RCC and Jemena confirming this is provided in Appendix T. The correspondence also confirms that the new gas service was connected by Jemena (to Jemena and Australian Standards) within the Stage 2 redevelopment area on 15 June 2020 as illustrated on a hydraulic plan attached to the correspondence.
        - The redundant gas pipe which previously led to this area of the site was removed by RCC approximately one week prior to the incident. The gas pipe was removed from approximately 600mm below ground surface. The footing excavation was approximately 1m deep in the north and ramped up to the surface in the vicinity of where flames were observed.
        - Proposed works in this area of the site comprised additional saw cutting, screw piling and placement of a concrete slab for Building B1.
    - Coffey measured concentrations (using a MX6 gas monitor) of the following parameters in six discrete locations (six manually dug test pits to between 0.2 and 0.5m below surface and inside one redundant gas value pit) and across the ground surface in the area where flames had been reported. Monitoring locations are shown on a plan in Appendix T.
        - Lower explosive limit (LEL).
        - Hydrogen sulfide (H_2S).
        - VOCs.
    - Readings were taken at each hand dug pit prior to, during and following excavation. Headspace readings were also taken at each location by placing soil into a zip lock bag. All results were indicative of background gas concentrations (0% LEL, 0ppm for H2S and 0ppm for VOCs).
    - Ground conditions comprised sand with some bricks and concrete across the monitoring area.
    - The gas monitor (Type MX6) used was calibrated by the supplier (Air-Met Scientific Pty Ltd) and bump checked in the field using span gasses for CH4, H2S and isobutylene.
    - No gas odours or vapours were noted during sampling. Concentrations were equivalent to background concentrations of ambient air at all locations (0% LEL, 0ppm H2S, and 0ppm VOC) including head space readings.

Based on the monitoring results and planned future works in this area of the site, Coffey recommended that any future works with the potential to generate a spark/ignition source (prior to

placing the concrete slab) should be carried out as hot works with controls in place for due diligence/risk mitigation including atmospheric gas monitoring as a conservative measure.

No further incidents or odours attributable to flammable gases were experienced by RCC on site following air monitoring by Coffey. Based on the location of the flames in relation to former gas meter enclosure and gas pipe which had been removed one week prior to the incident, Coffey considers that the flames were likely produced as a result of trapped gas located within the pore space of the sand, and the source of that gas had emanated from the gas pipe which had been removed. A spark caused during saw cutting was the likely ignition source.

A copy of the calibration certificate of the gas monitoring instrument, photos and gas monitoring results are provided in Appendix T.

For an unacceptable risk to human health to exist, there must be a plausible pollutant linkage between the source and a receptor by means of a transport mechanism (pathway). Using a multiple lines of evidence approach, Coffey considers that the flammable gas identified by RCC no longer poses an unacceptable risk to human health as:

- The primary source of the gas (the redundant gas pipe) has been removed.
    - Correspondence from Jemena confirming the gas pipe was capped outside the site boundary is provided in Appendix T. The correspondence also confirms that the new gas service was connected by Jemena (to Jemena and Australian Standards) within the Stage 2 redevelopment area.
    - Coffey did not observe the gas pipe during the monitoring event.
- The secondary source (trapped gas within soil pore space) has been removed.
    - Gas monitoring carried out by Coffey did not identify gas concentrations above background levels for ambient air. No gas or vapour odour was noted during monitoring.
    - No further gas incidents were noted by RCC whilst installing footings or constructing the building in this area of the site.
- Preferential transport mechanisms have been removed. RCC removed the redundant gas pipe from the site. A plastic PVC gas pipe was also removed by RCC. A photo showing the location of where the plastic pipe was formerly located is provided in Appendix T. The former gas value pit was infilled with site spoil as part of the site redevelopment.

11. Long Term Environmental Management Plan

Potential health risks associated with contaminated soil at the site have been remediated by encapsulation of asbestos contaminated soil beneath a geotextile fabric marker layer and various capping layers. As the remedial strategy relies on the presence and integrity of the cap, a LTEMP will be required throughout ongoing occupation of the site to ensure the integrity of the cap is maintained, ensure any works penetrating the capping system are appropriately controlled and the cap appropriately reinstated and to ensure appropriate repairs are made promptly to any damaged areas of the capping system. The LTEMP also addresses potential asbestos risks associated with the imported 10mm recycled aggregate imported by Planet Plumbing (shown on the Capping Survey in Appendix J).

A draft LTEMP[28] was prepared by Coffey for the site to meet condition B12 of the SSD prior to remedial works commencing. The draft LTEMP will be updated to reflect the actual remedial works carried out.

[28] Coffey. Long Term Environmental Management Plan, Alexandria Park Community School (Phase 1) – Park Road, Alexandria NSW. Prepared for Richard Crookes Construction Pty Ltd. Ref: SYDEN224285-R03 (Initial Draft), dated 21 June 2019.

12. Conclusions

Based on the information reviewed, visual observations made by Coffey during periodic site walkovers, Coffey concludes that:

- The asbestos contaminated soils requiring remediation:
  - Have been capped in general accordance with the RAP[2] and RWP[1]; and
  - Are unlikely to pose an unacceptable risk to human health of site users provided that the draft LTEMP is appropriately amended to reflect remedial works carried out and is implemented.
- One unexpected find comprising gas in soil was identified during remedial works, however this was managed appropriately, and ground gas is not considered to pose an unacceptable risk to human health for the proposed development.
- Waste was managed by RCC. Waste dockets appear to be valid and complete.
- Asbestos fibre air monitoring was carried out by Coffey. Results were less than the detection limit and equivalent to background levels. Progressive asbestos visual clearance certificates were prepared by Coffey to document ground surfaces free of visible asbestos prior to reoccupation.
- With the exception of the 10mm recycled aggregate imported by Planet Plumbing, imported materials for use as site grading, capping, backfilling trenches and landscaping were considered suitable (from a contamination perspective) for use at the site. The 10mm recycled aggregate will require ongoing management which shall be documented in the LTEMP.
- Asbestos licences and approvals held or obtained by DECC for the remedial works complied with appropriate regulatory requirements for the removal of asbestos.
- Subject to implementation of the LTEMP, the site is considered to be suitable for the proposed school development. A draft LTEMP was prepared by Coffey for the site to meet condition B12 of the SSD prior to remedial works commencing. The draft LTEMP will be updated to reflect the actual remedial works carried out.

13. Limitations

This report should be read in conjunction with the attached “Important information about your Coffey Environmental Report”. Coffey has relied upon third party documentation from subcontractors outside of Coffey’s engagement.

Appendix A – Limitations

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice.

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

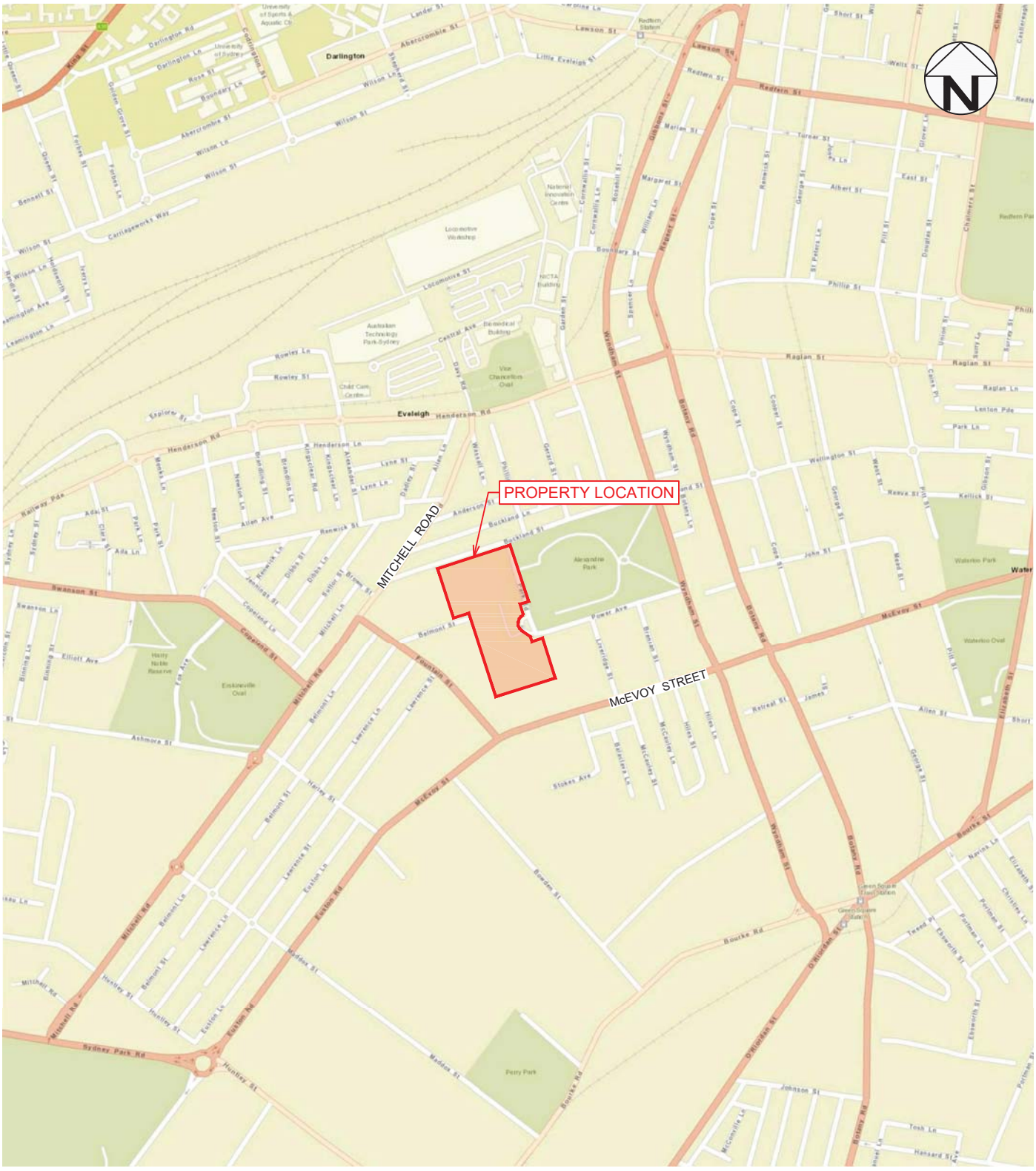
The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

Appendix B – Figures



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Scale (metres) 1:10000

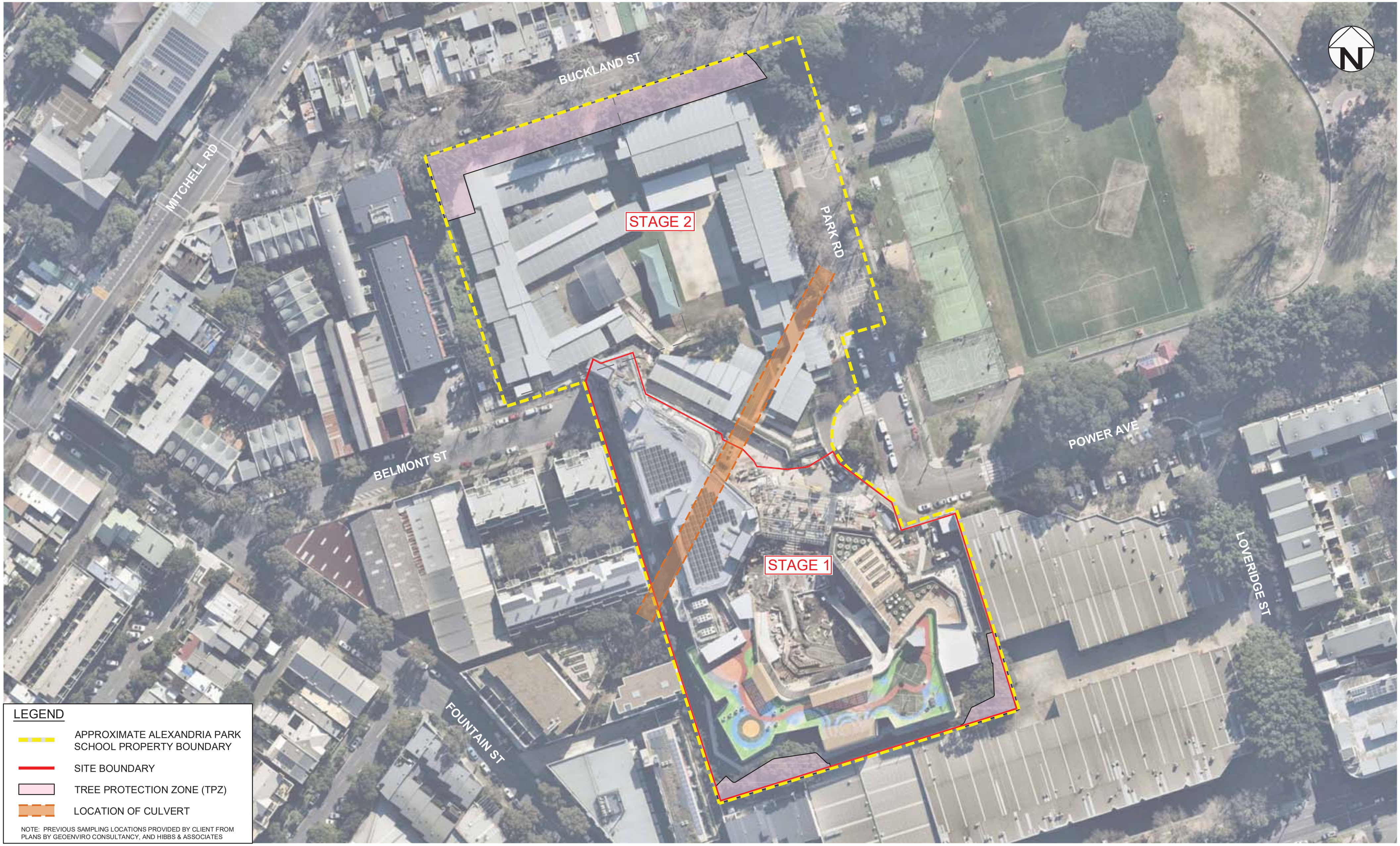
IMAGERY SOURCE: WORLD STREET MAP
SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

drawn	AP / AW
approved	AP
date	15/09/2020
scale	AS SHOWN
original size	A4

coffey
A TETRA TECH COMPANY

client:	RICHARD CROOKES CONSTRUCTION PTY LTD
project:	ALEXANDRIA PARK COMMUNITY SCHOOL PARK ROAD, ALEXANDRIA, NSW
title:	PROPERTY LOCATION PLAN
project no:	754-SYDEN224285-R04
figure no:	FIGURE 1
rev:	A

PLOT DATE: 15/09/2020 1:52:59 PM DWG FILE: F:\1. PROJECTS\1. SYDENENV\2018\SYDEN224285 APCS REDEVELOPMENT RICHARD CROOKES\CAD\754-SYDEN224285-R04.DWG



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SOURCE: NEARMAP IMAGE - 1/08/2020

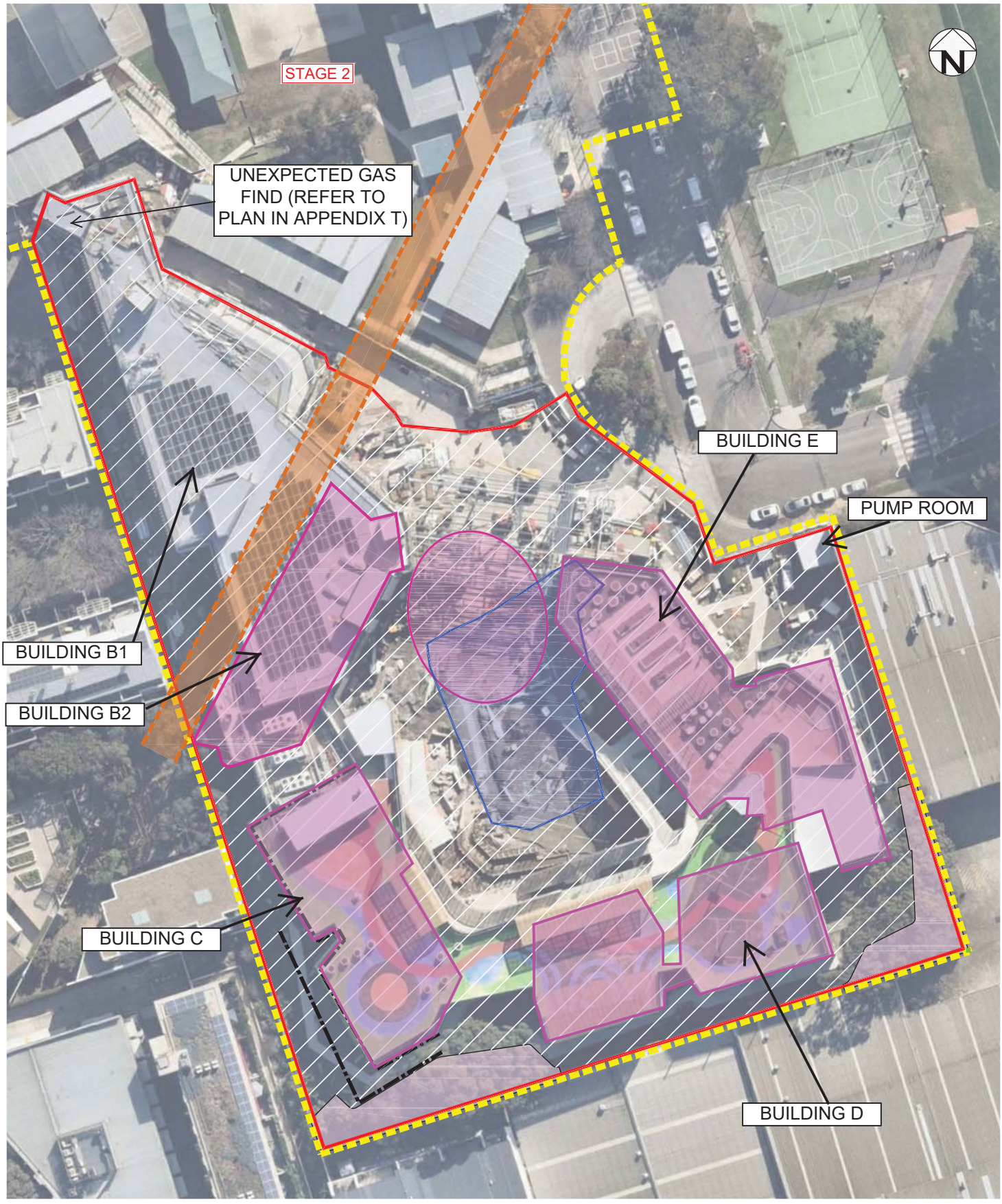
revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	AW	AP	15/09/2020

drawn	AP / AW
approved	AP
date	15/09/2020
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client:	RICHARD CROOKES CONSTRUCTION PTY LTD
project:	ALEXANDRIA PARK COMMUNITY SCHOOL PARK ROAD, ALEXANDRIA, NSW
title:	PROPERTY LAYOUT PLAN
project no:	754-SYDEN224285-R04
figure no:	FIGURE 2
rev:	A

PLOT DATE: 15/09/2020 1:53:54 PM DWG FILE: F:\1. PROJECTS\1. SYDENENV\2018\SYDEN224285 APCS REDEVELOPMENT RICHARD CROOKES\CAD\754-SYDEN224285-R04.DWG



revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

LEGEND

- APPROXIMATE ALEXANDRIA PARK SCHOOL PROPERTY BOUNDARY
- SITE BOUNDARY
- TREE PROTECTION ZONE (TPZ)
- LOCATION OF CULVERT
- BORROW PIT BOUNDARY
- RECYCLED DG B20 CONTAINING ASBESTOS (NOT CONTAMINATED)
- CAPPING EXTENT (refer to Appendix J for detailed capping plan)
- ASBESTOS CONTAMINATED 10mm AGGREGATE IN SERVICE TRENCHES

5 0 5 10 15 20

Scale (metres) 1:600

drawn	AP / AW
approved	AP
date	15/09/2020
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

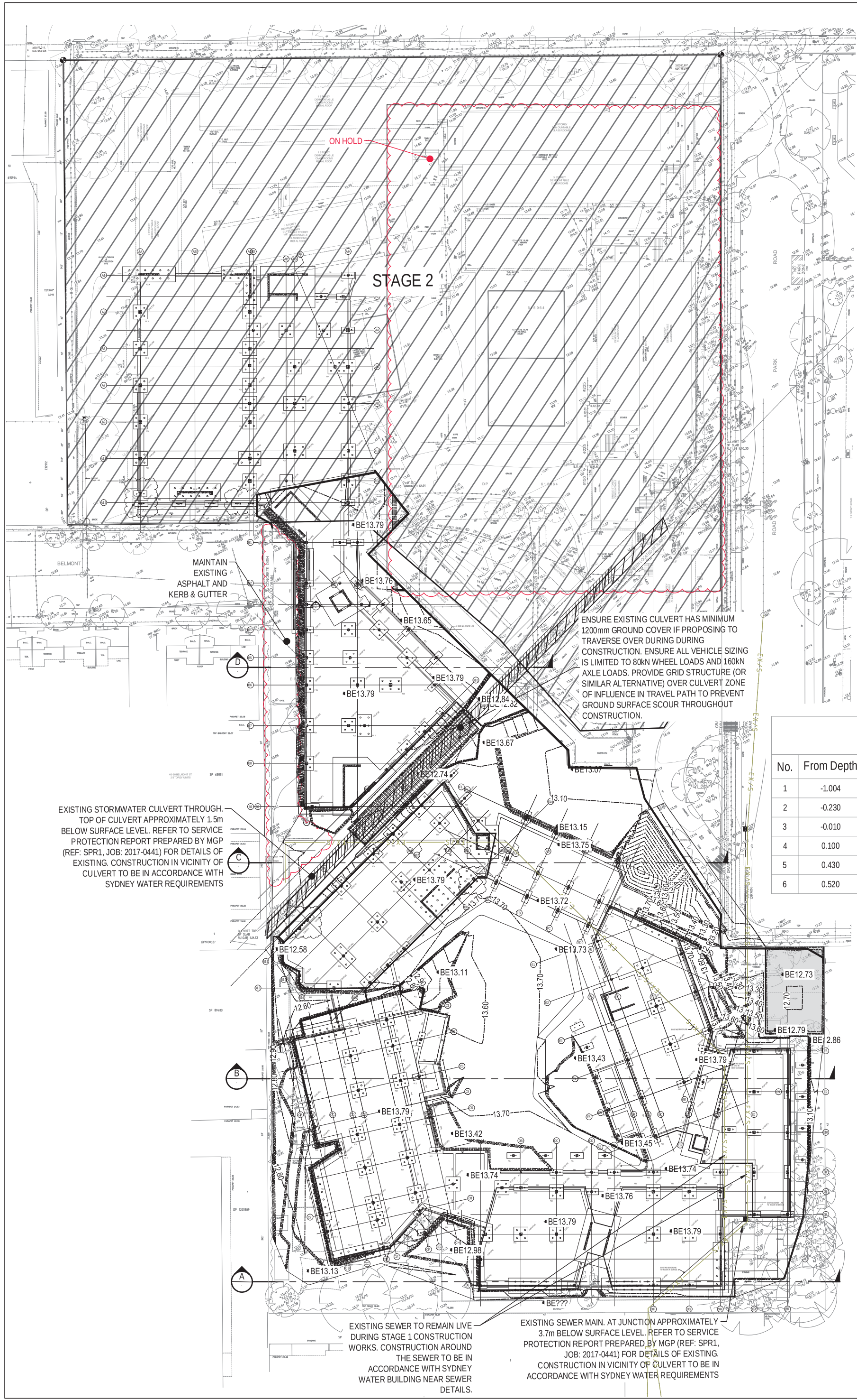
client: RICHARD CROOKES CONSTRUCTION PTY LTD

project: ALEXANDRIA PARK COMMUNITY SCHOOL
PARK ROAD, ALEXANDRIA, NSW

title: SITE LAYOUT PLAN

project no: 754-SYDEN224285-R04 | figure no: FIGURE 3 | rev: A

Appendix C –
Development Drawings



Levels Table

No.	From Depth	To Depth	Colour	Depth Range Volume
1	-1.004	-0.230		269m³
2	-0.230	-0.010		366m³
3	-0.010	0.100		921m³
4	0.100	0.430		2372m³
5	0.430	0.520		294m³
6	0.520	0.920		96m³

TOP SOIL STRIPPING

FOLLOWING DEMOLITION OF ALL BUILDINGS, INCLUDING THEIR FOOTINGS, AND PAVEMENTS WITHIN THE DEVELOPMENT FOOTPRINT, SITE PREPARATION WILL REQUIRE REMOVAL OF A NUMBER OF TREES. STRIPPING OF ROOT AFFACTED SOIL WILL ALSO BE REQUIRED TO A NOMINAL DEPTH OF ABOUT 0.1m. THESE STRIPPED TOPSOIL MATERIALS SHOULD BE TAKEN OFFSITE AS THEY ARE NOT SUITABLE FOR REUSE AS ENGINEERED FILL. THE ROOT AFFACTED SOIL, MAY , HOWEVER, BE SEPARATELY STOCKPILED AND USED FOR LANDSCAPING PURPOSES.

SUBGRADE PREPARATION

SUBGRADE PREPARATION FOLLOWING STRIPPING OF THE SITE TO DESIGN BULK EXCAVATION LEVEL SHOULD INCLUDE PROOF-ROLLING WITH A 5-TONNE MINIMUM, SMOOTH DRUM ROLLER, TOGETHER WITH THOROUGH MOISTENING OF THE SAND. PROOF-ROLLING SHOULD BE CARRIED OUT UNDER THE DIRECTION OF AN EXPERIENCED SITE FORMAN OR GEOTECHNICAL ENGINEER TO ASSIST IN THE DETECTION OF UNSTABLE AREAS WHICH WERE NOT DISCLOSED BY THIS INVESTIGATION. UNSTABLE AREAS IDENTIFIED DURING PROOF-ROLLING MUST BE EXCAVATED DOWN TO A STABLE BASE AND REPLACED WITH WELL COMPACTED SAND FILL. ALL FILL TO BULK EXCAVATION LEVEL TO BE COMPACTED INSITU TO ACHIEVE A CBR>3% AND 70% DENSITY INDEX. COMPACTION TESTING AND CERTIFICATION OF SUITABILITY OF SUBGRADE USE FOR SLAB ON GROUND TO BE PROVIDED BY GEOTECHNICAL ENGINEER.

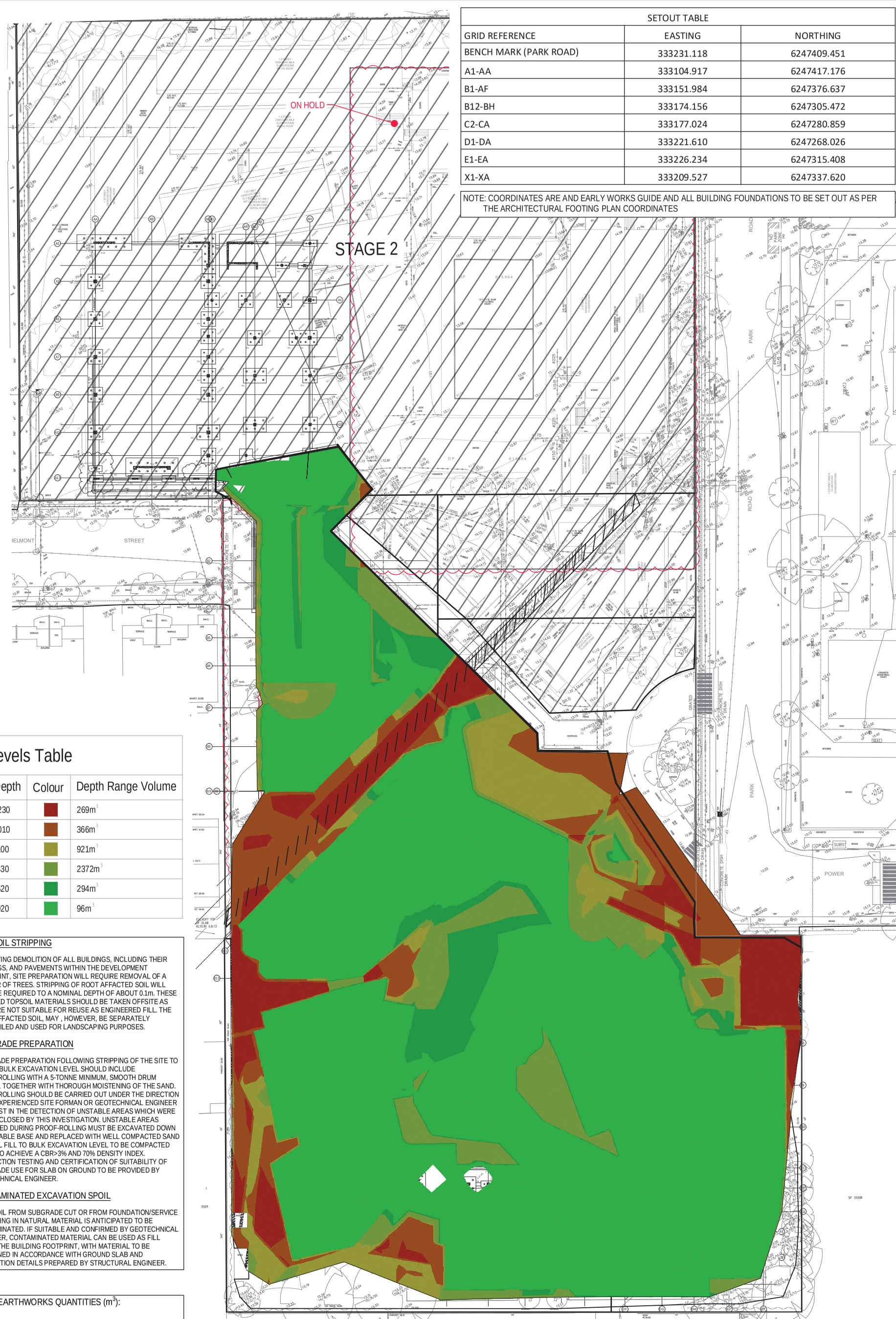
CONTAMINATED EXCAVATION SPOIL

ALL SPOIL FROM SUBGRADE CUT OR FROM FOUNDATION/SERVICE TRENCHING IN NATURAL MATERIAL IS ANTICIPATED TO BE CONTAMINATED. IF SUITABLE AND CONFIRMED BY GEOTECHNICAL ENGINEER, CONTAMINATED MATERIAL CAN BE USED AS FILL UNDER THE BUILDING FOOTPRINT, WITH MATERIAL TO BE CONTAINED IN ACCORDANCE WITH GROUND SLAB AND FOUNDATION DETAILS PREPARED BY STRUCTURAL ENGINEER.

BULK EARTHWORKS QUANTITIES (m^3):

TOP 50mm SURFACE STRIPPING: 559

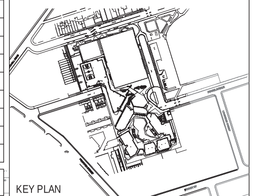
CUT: 439
FILL: 5594
TOTAL: 5154 (FILL)



SETOUT TABLE

GRID REFERENCE	EASTING	NORTHING
BENCH MARK (PARK ROAD)	333231.118	6247409.451
A1-AA	333104.917	6247417.176
B1-AF	333151.984	6247376.637
B12-BH	333174.156	6247305.472
C2-CA	333177.024	6247280.859
D1-DA	333221.610	6247268.026
E1-EA	333226.234	6247315.408
X1-XA	333209.527	6247337.620

NOTE: COORDINATES ARE AND EARLY WORKS GUIDE AND ALL BUILDING FOUNDATIONS TO BE SET OUT AS PER THE ARCHITECTURAL FOOTING PLAN COORDINATES



KEY PLAN

DIAL BEFORE YOU DIG www.1100.com.au

NORTH

NOTE:

- QUANTITIES DO NOT ALLOW FOR BULKING OR COMPACTION FACTORS
- QUANTITIES HAVE NO ALLOWANCES FOR UNSUITABLE OR CONTAMINATED MATERIAL LOST
- SURFACE STRIPPING DEPTH IS AN ESTIMATED ASSUMPTION. DEPTH MAY VARY DEPENDING ON LEVEL OF DEMOLITION AND AREA OF SITE
- TEMPORARY BULK EARTHWORKS BATTER TO BE MAXIMUM 1(V):2(H)

Rev	Revision Description	Date
B	ISSUE FOR CONSTRUCTION	01/08/2019
A	ISSUE FOR CONSTRUCTION	15/07/2019
09	ISSUE FOR CC2	12/07/2019
08	ISSUE FOR CC2	24/06/2019
07	ISSUE FOR CC2	28/05/2019
06	ISSUE FOR CC2	15/05/2019
05	ISSUE FOR TENDER	10/05/2019
04	ISSUE FOR TENDER	03/05/2019
03	ISSUE FOR TENDER	15/04/2019
02	ISSUE FOR TENDER	11/04/2019
01	ISSUE FOR INFORMATION	09/04/2019

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T (02) 9267 9312

Client: RICHARD CROOKES CONSTRUCTIONS
NSW Education School Infrastructure

Project: ALEXANDRIA PARK COMMUNITY SCHOOL

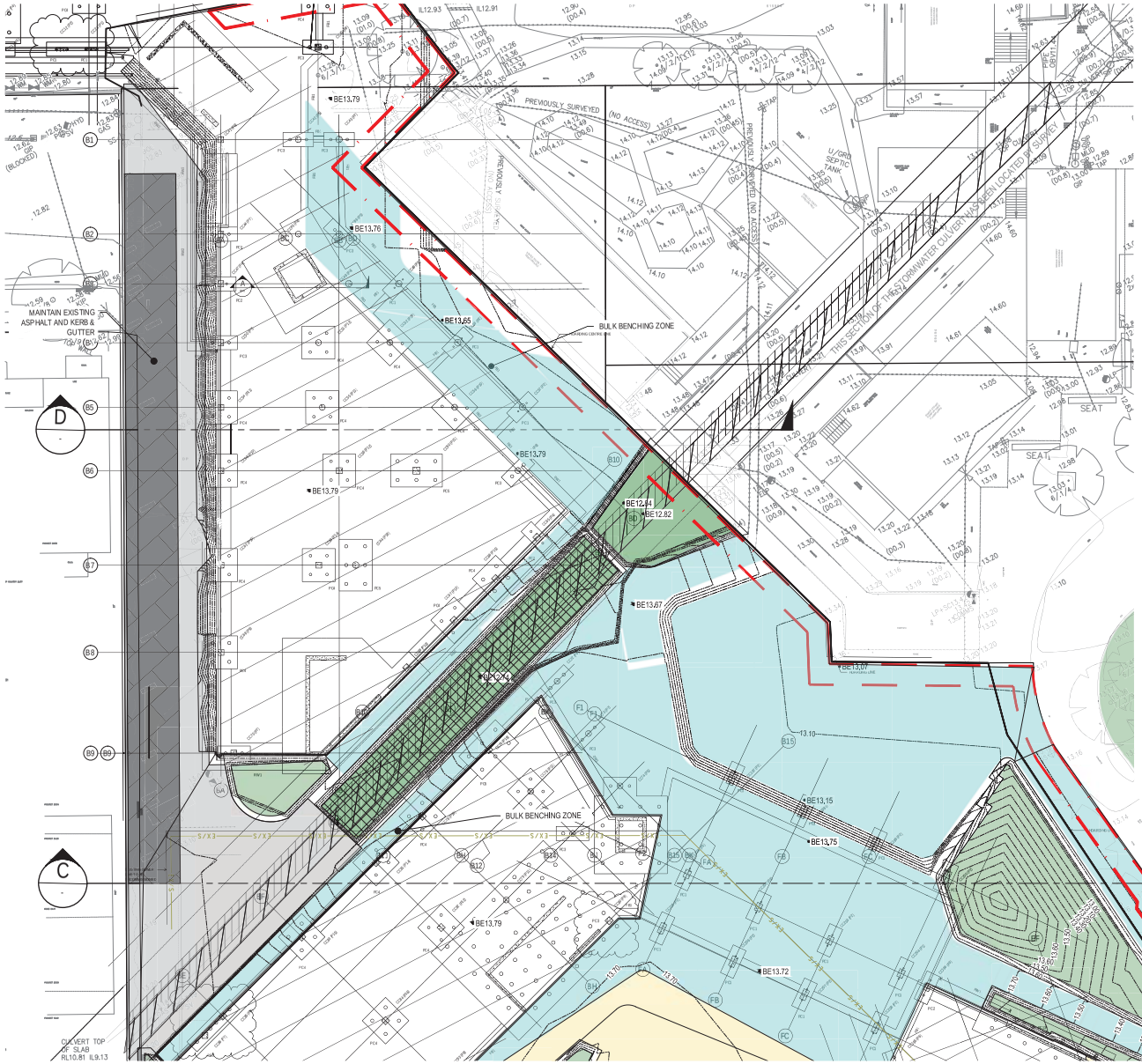
Title: BULK EARTHWORKS PLAN AND DETAILS - STAGE 1

Scale: 1:500 at A1

Drawn	Checked	Approved
BH	JB	

Project Number	Drawing Number	Revision
180168	SCP-CV-DWG-1300	B

NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.



LEGEND

PROPOSED BUILDING ZONE
- PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB
- 100mm SUB BASE LAYER COMPACTED DGB20

EXISTING ASPHALT UPGRADE
- ASPHALT CAPPING LAYER MIN 25mm
- 180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES
- LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES
- TREE PROTECTION ZONES
  NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES
- MIN 500mm VENM
- MARKER LAYER
- EXISTING COMPACTED CONTAMINATED SUBGRADE
  NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES
- MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
  (REFER TO LANDSCAPE PLANS FOR DETAILS)
- 150mm COMPACTED DGB20 BASE COURSE TO ENGINEER'S DETAIL
- MARKER LAYER
- EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES
- 50mm SURFACE FINISH PAVEMENT
  (REFER TO LANDSCAPE PLANS FOR DETAILS)
- 100mm REINFORCED CONCRETE
- 50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
- MARKER LAYER
- EXISTING COMPACTED CONTAMINATED SUBGRADE

CULVERT REPLACEMENT ZONES
- 500mm VENM
- TOP OF REPLACED CULVERT
- MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES
- ASPHALT CAPPING 40mm
- 150mm COMPACTED DGB20 BASECOURSE
- 200mm COMPACTED DSG40 SUBBASE
- MARKER LAYER
- EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA
- 200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
- NEW LAYER OF MAKER LAYER
- DSG40 OR APPROVED EQUIVALENT FILL
- CONTAMINATED SUBGRADE

HOARDING LOCATIONS
- CURRENT HOARDING LEGS 900mm WITHIN PHASE 1
- NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

KEY PLAN

NORTH

Rev	Revision Description	Date
B	ISSUE FOR CONSTRUCTION	01/08/2019
A	ISSUE FOR CONSTRUCTION	15/07/2019
07	ISSUE FOR CC2	12/07/2019
06	ISSUE FOR CC2	24/06/2019
05	ISSUE FOR CC2	28/05/2019
04	ISSUE FOR CC2	15/05/2019
03	ISSUE FOR TENDER	10/05/2019
02	ISSUE FOR TENDER	06/05/2019
01	ISSUE FOR TENDER	11/04/2019

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Client: RICHARD CROOKES CONSTRUCTIONS
NSW Education School Infrastructure

Project: ALEXANDRIA PARK COMMUNITY SCHOOL

Title: BULK EARTHWORKS PLAN B1

Scale: 0 4000 10000
1:200 @ A1

Drawn	Checked	Approved	
BH	JB	---	

Project Number	Drawing Number	Revision
180168	SCP-CV-DWG-1302	B

NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.

HOARDING LOCATIONS

CURRENT HOARDING LEGS 900mm WITHIN PHASE 1

NEW LOCATION OF HOARDING FOR PHASE 2, 1800mm WIDE

CULVERT REPLACEMENT ZONES

500

500mm VENM

TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES

390

ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA

200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

PROPOSED BUILDING ZONE

150 / 100

PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB

100mm SUB BASE LAYER COMPACTED DGB20

EXISTING ASPHALT UPGRADE

205

ASPHALT CAPPING LAYER MIN 25mm

180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES

200

LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES

TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES

500

MIN 500mm VENM

MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES

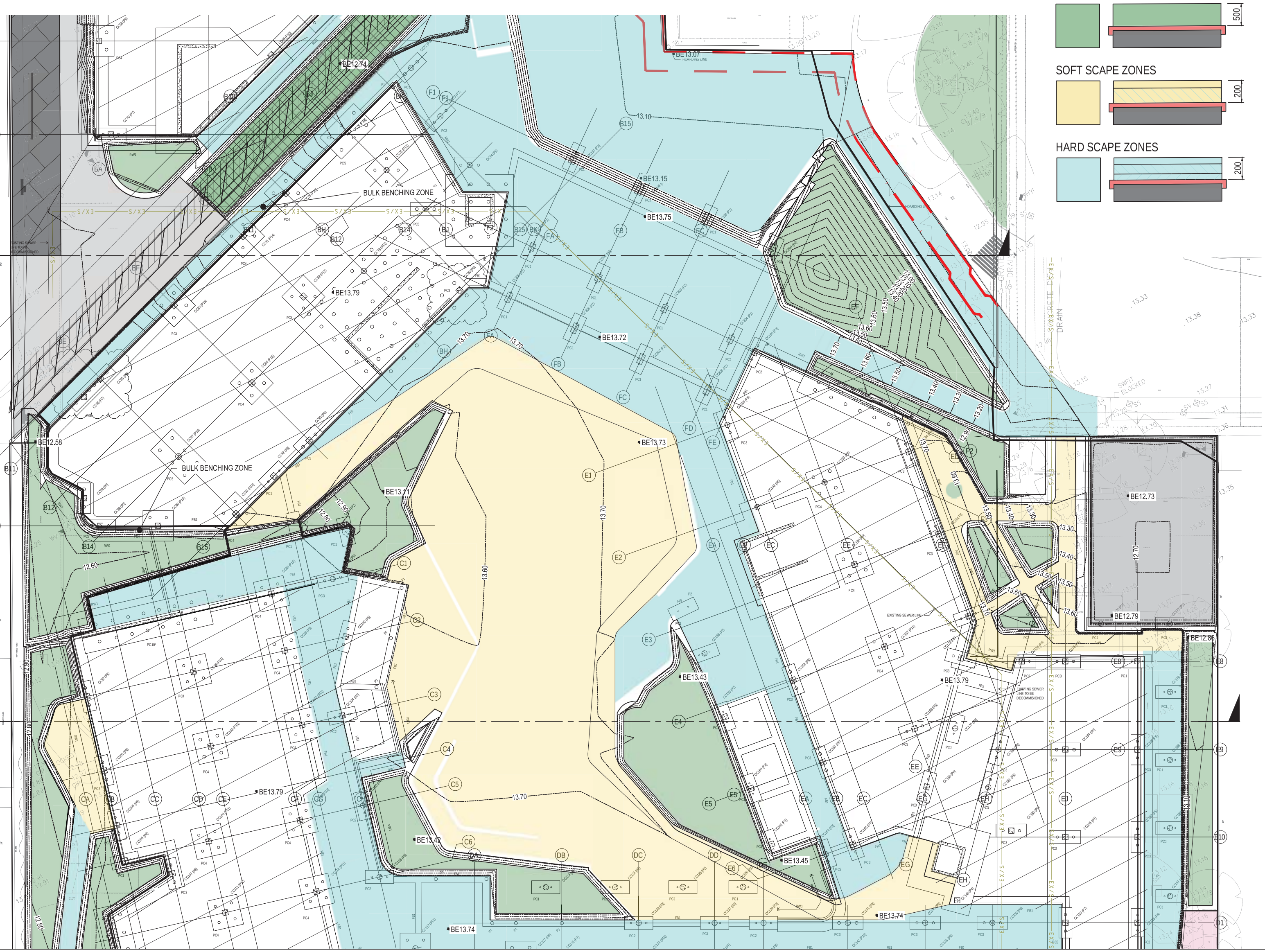
200

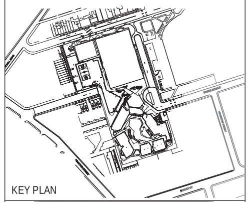
MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEERS'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES

200

50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE





KEY PLAN

DIAL BEFORE YOU DIG www.1100.com.au

NORTH

Rev	Revision Description	Date
B	ISSUE FOR CONSTRUCTION	01/08/2019
A	ISSUE FOR CONSTRUCTION	15/07/2019
07	ISSUE FOR CC2	12/07/2019
06	ISSUE FOR CC2	24/06/2019
05	ISSUE FOR CC2	28/05/2019
04	ISSUE FOR CC2	15/05/2019
03	ISSUE FOR TENDER	10/05/2019
02	ISSUE FOR TENDER	08/05/2019
01	ISSUE FOR TENDER	11/04/2019

scp engineers and development consultants
L2 Danchen House
507 Kent St Sydney NSW 2000
ABN 80 003 076 024
T (02) 9267 9312
mail@scpconsult.com.au
www.scpconsult.com.au

Client: RICHARD CROOKES CONSTRUCTIONS
NSW GOVERNMENT Education School Infrastructure

Project: ALEXANDRIA PARK COMMUNITY SCHOOL

Title: BULK EARTHWORKS PLAN B2

Scale: 0 4000 10000 1:200 @ A1

Drawn	Checked	Approved
BH	JB	---

Project Number	Drawing Number	Revision
180168	SCP-CV-DWG-1303	B

NOTE: REFER TO PAVEMENT PLAN FOR SPECIFICATIONS OF RESPECTIVE PAVEMENTS USED AS PART OF CAPPING STRATEGY.

CULVERT REPLACEMENT ZONES

500

500mm VENM

TOP OF REPLACED CULVERT
MARKER LAYER TO BELOW REPLACED CULVERT

TRAFFICABLE PAVEMENT ZONES

390

ASPHALT CAPPING 40mm
150mm COMPACTED DGB20 BASECOURSE
200mm COMPACTED DSG40 SUBBASE
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

TRENCHES AND SWEPT PATH TEMPORARY ROAD AREA

200mm/500mm CAPPING LAYER ABOVE DEPENDING ON PAVEMENT FINISH
NEW LAYER OF MAKER LAYER
DSG40 OR APPROVED EQUIVALENT FILL
CONTAMINATED SUBGRADE

PROPOSED BUILDING ZONE

150
100

PROPOSED BUILDING SLAB WITH 150mm CONCRETE SLAB

100mm SUB BASE LAYER COMPACTED DGB20

EXISTING ASPHALT UPGRADE

205

ASPHALT CAPPING LAYER MIN 25mm

180mm EXISTING ASPHALT ROAD WITH ROAD BASE

TREE PROTECTION ZONES

200

LAYER OF RECYCLED MULCH APCS PREVIOUSLY REMOVED TREES

TREE PROTECTION ZONES
NOTE: IF TESTING REVEALS NO ASBESTOS

PLANTING ZONES

500

MIN 500mm VENM

MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE
NOTE: REFER TO VEGETATION LANDSCAPING PLAN

SOFT SCAPE ZONES

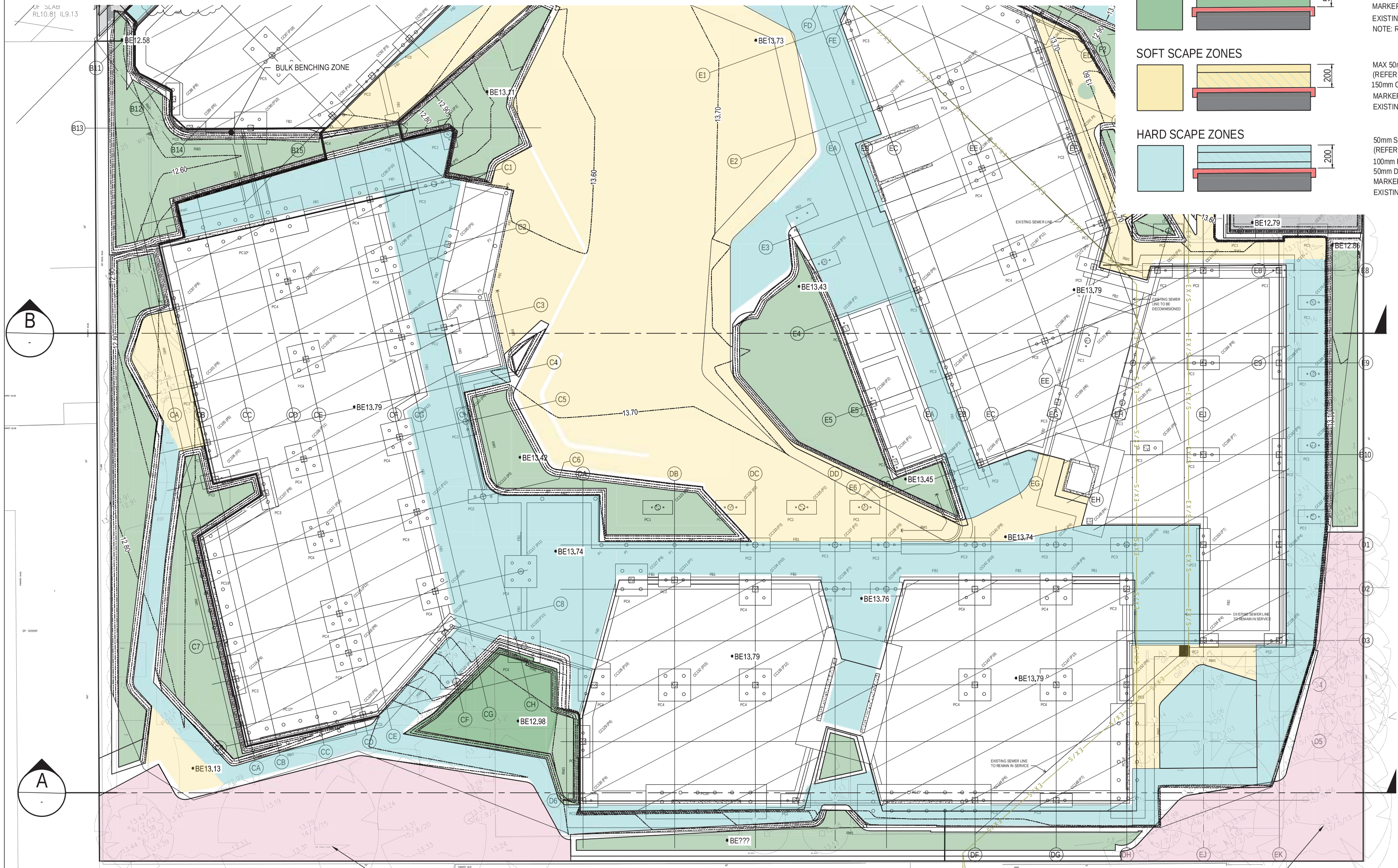
200

MAX 50mm FOR BEDDING AND SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
150mm COMPACTED DGB20 BASE COURSE TO ENGINEERS'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE

HARD SCAPE ZONES

200

50mm SURFACE FINISH PAVEMENT
(REFER TO LANDSCAPE PLANS FOR DETAILS)
100mm REINFORCED CONCRETE
50mm DGB20 BASE COURSE TO ENGINEER'S DETAIL
MARKER LAYER
EXISTING COMPACTED CONTAMINATED SUBGRADE



ESTABLISH TREE PROTECTION ZONE IN ACCORDANCE WITH ARBORIST REPORT. MINOR EARTHWORKS TO RAISE SURFACE LEVELS AROUND TREES TO BE COMPLETED WITH NON-CONTAMINATED FILL AND COMPLETED WITH CAUTION TO MINIMISE IMPACT TO LOCAL VEGETATION

ESTABLISH TREE PROTECTION ZONE IN ACCORDANCE WITH ARBORIST REPORT. MINOR EARTHWORKS TO RAISE SURFACE LEVELS AROUND TREES TO BE COMPLETED WITH NON-CONTAMINATED FILL AND COMPLETED WITH CAUTION TO MINIMISE IMPACT TO LOCAL VEGETATION

KEY PLAN

NORTH

Rev	Revision Description	Date
B	ISSUE FOR CONSTRUCTION	01/08/2019
A	ISSUE FOR CONSTRUCTION	15/07/2019
07	ISSUE FOR CC2	12/07/2019
06	ISSUE FOR CC2	24/06/2019
05	ISSUE FOR CC2	28/05/2019
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03	ISSUE FOR TENDER	10/05/2019
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01	ISSUE FOR TENDER	11/04/2019

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Client RICHARD CROOKES CONSTRUCTIONS
NSW Education School Infrastructure

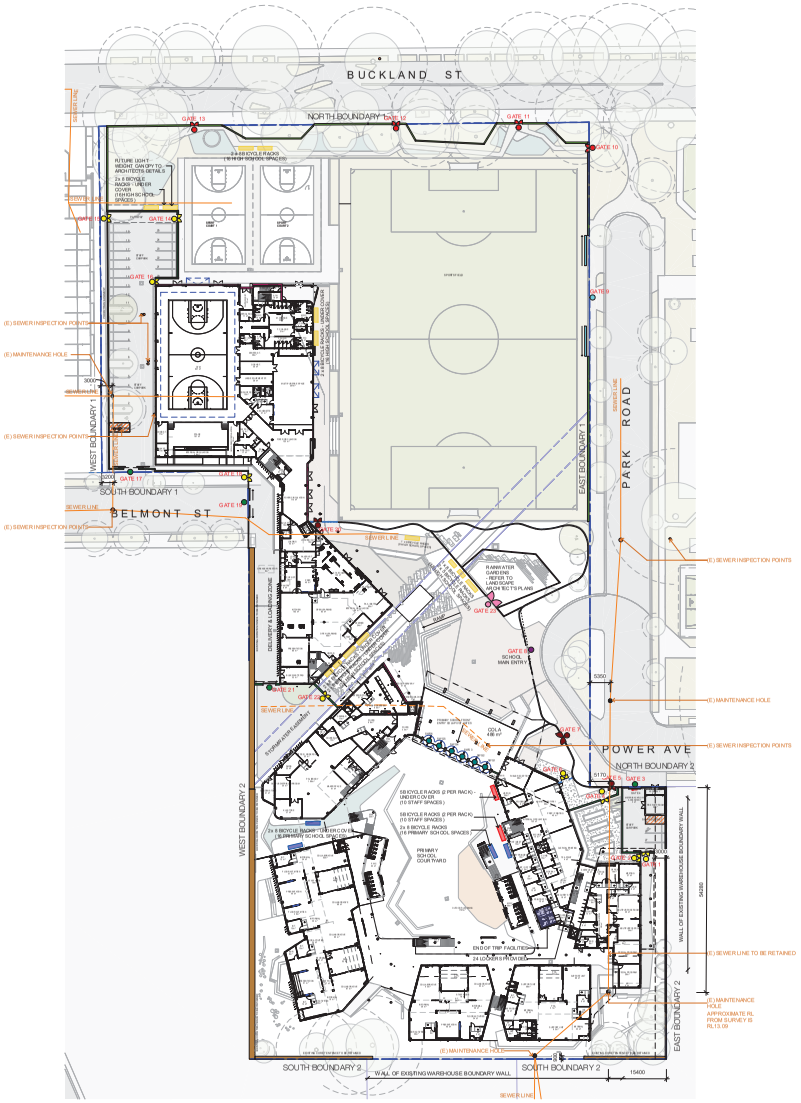
Project
ALEXANDRIA PARK COMMUNITY SCHOOL

Title
BULK EARTHWORKS PLAN C

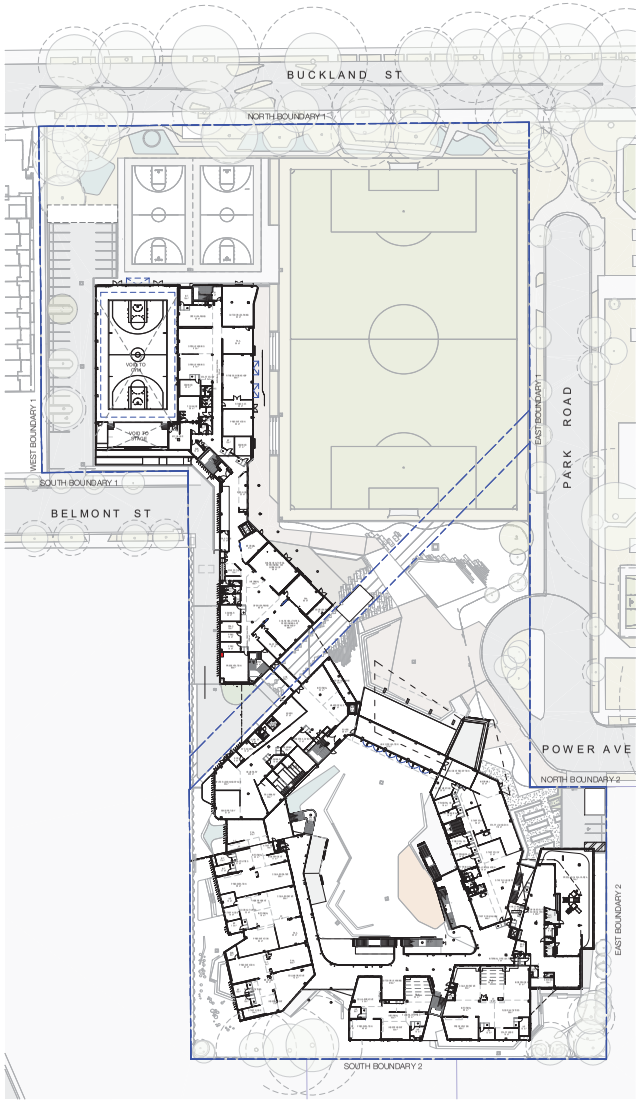
Scale
0 4000 10000
1:200 @ A1

Drawn	Checked	Approved
BH	JB	---

Project Number	Drawing Number	Revision
180168	SCP-CV-DWG-1304	B



1 GROUND FLOOR - CAMPUS PLAN
1 : 500



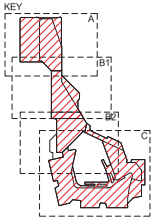
2 FIRST FLOOR - CAMPUS PLAN
1 : 500

CLIENT
DEPARTMENT OF EDUCATION
T + 61 2 9561 1927
F + 61 2 9561 8077

BUILDER
RICHARD CROOKES CONSTRUCTIONS
T + 61 2 9902 4700
F + 61 2 9439 1114

PROJECT MANAGER
SAVILLS AUSTRALIA
T + 61 2 8913 4812

KEY



NSW Nominated Architects: Robert Denton Reg No. 5758, Alex Kibble Reg. No. 6976

Rev	Date	Description	Checked	Auth.
A	08.05.19	Issue for Information	AH	AK
B	17.05.19	Issue For Information	AH	AK

NOT FOR CONSTRUCTION

Tanner Kibble Denton Architects Pty Ltd
PO Box 660 Darlinghurst NSW 1300 Australia
Level 1, 19 Foster Street, Surry Hills NSW 2010 Australia
T +61 2 9281 4399
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www.tkdac.com.au

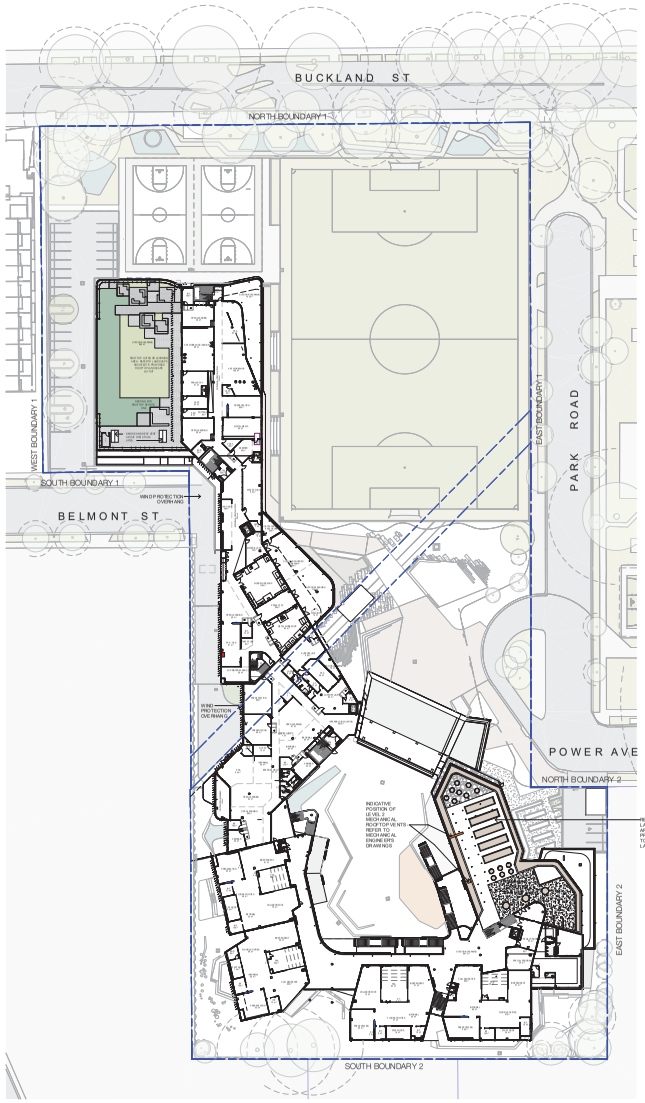
TKDArchitects Tanner Kibble Denton

Project
Alexandria Park Community School

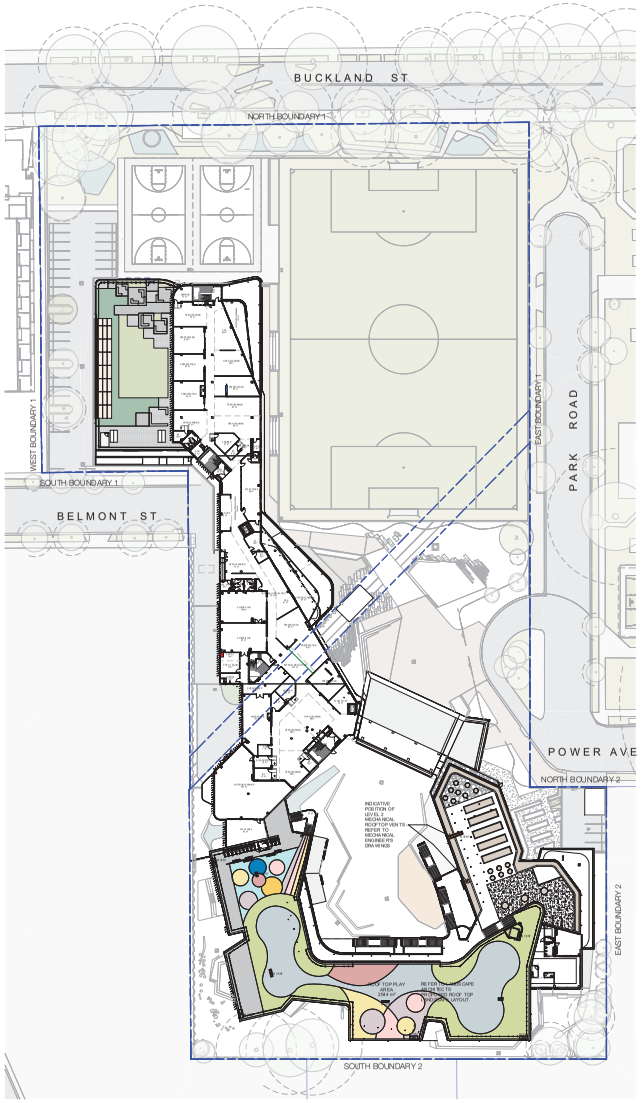
Drawing Title
CAMPUS PLANS - GROUND AND FIRST FLOORS

Proj. Dir	Proj. Arch	Drawn	
AK	AH	BO/HC	
Job No.	Sheet	Scale	Date
161044	A0	1 : 500	01/23/17

Drawing No. AR-CD-2001
Revision B



1 SECOND FLOOR - CAMPUS PLAN
1 : 500



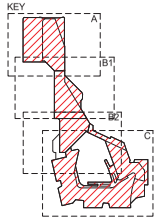
2 THIRD FLOOR - CAMPUS PLAN
1 : 500

CLIENT
DEPARTMENT OF EDUCATION
T + 61 2 9561 1927
F + 61 2 9561 8077

BUILDER
RICHARD CROOKES CONSTRUCTIONS
T + 61 2 9562 4700
F + 61 2 9439 1114

PROJECT MANAGER
SAVILLS AUSTRALIA
T + 61 2 8913 4812

KEY



NSW Nominated Architects: Robert Denton Reg No. 5782, Alex Kibble Reg. No. 6973

Rev	Date	Description	Checked	Auth.
A	08.05.19	Issue for Information	AH	AK
B	17.05.19	Issue For Information	AH	AK

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TKDArchitects
Tanner Kibble Denton

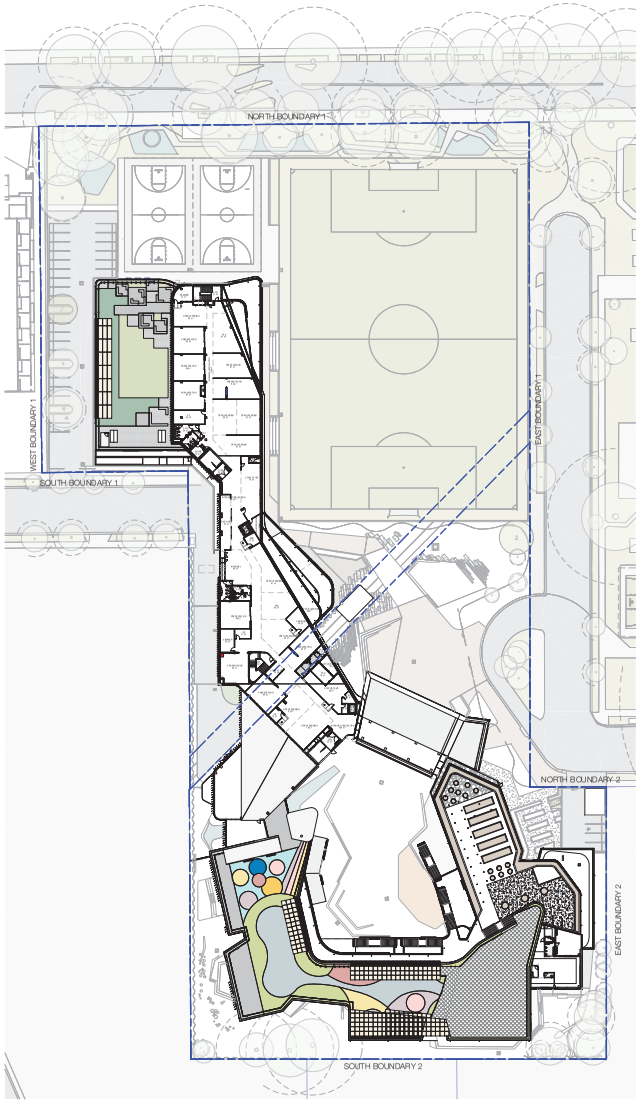
Project
Alexandria Park Community School

Drawing Title
CAMPUS PLANS - SECOND AND THIRD FLOORS

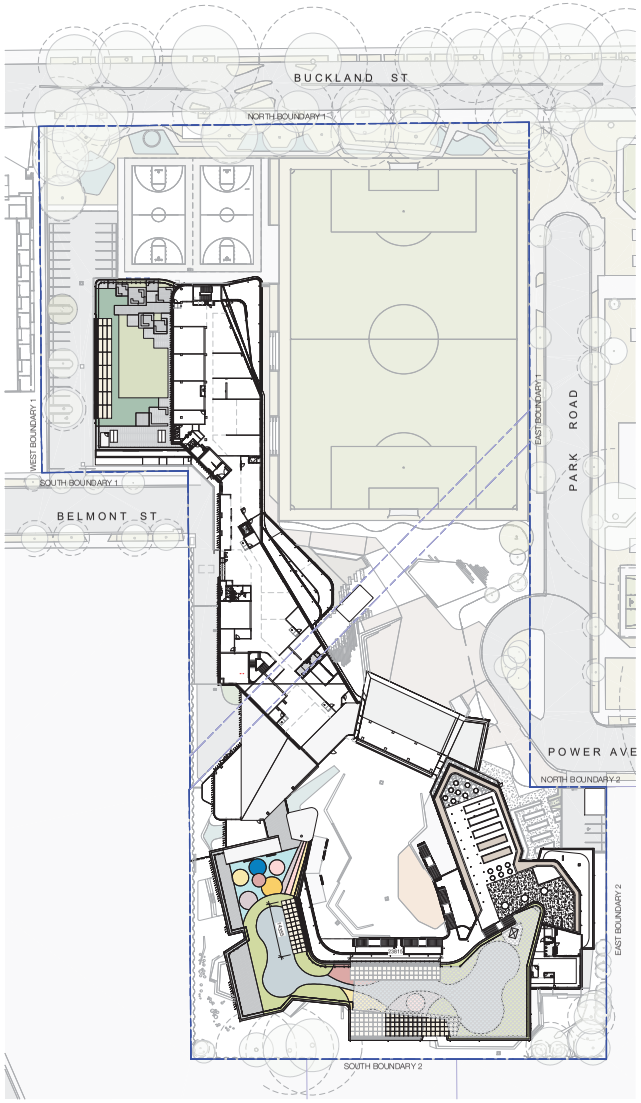
Proj. Dir	Proj. Arch	Drawn
AK	AH	BO/HC

Job No.	Sheet	Scale	Date
161044	A0	1 : 500	01/23/17

Drawing No. AR-CD-2002
Revision B



1 LEVEL 4 FLOOR PLAN - 1 to 500
1 : 500



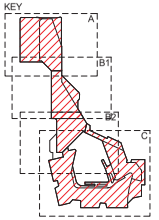
2 ROOF PLAN - 1 to 500
1 : 500

CLIENT
DEPARTMENT OF EDUCATION
T + 61 2 9561 1927
F + 61 2 9561 8077

BUILDER
RICHARD CROOKES CONSTRUCTIONS
T + 61 2 9562 4700
F + 61 2 9439 1114

PROJECT MANAGER
SAVILLS AUSTRALIA
T + 61 2 8913 4812

KEY



Rev	Date	Description	Checked	Auth.
A	08.05.19	Issue for Information	AH	AK
B	17.05.19	Issue For Information	AH	AK

NOT FOR CONSTRUCTION

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TKDArchitects
Tanner Kibble Denton

Project
Alexandria Park Community School

Drawing Title
CAMPUS PLANS - FOURTH FLOOR AND ROOF

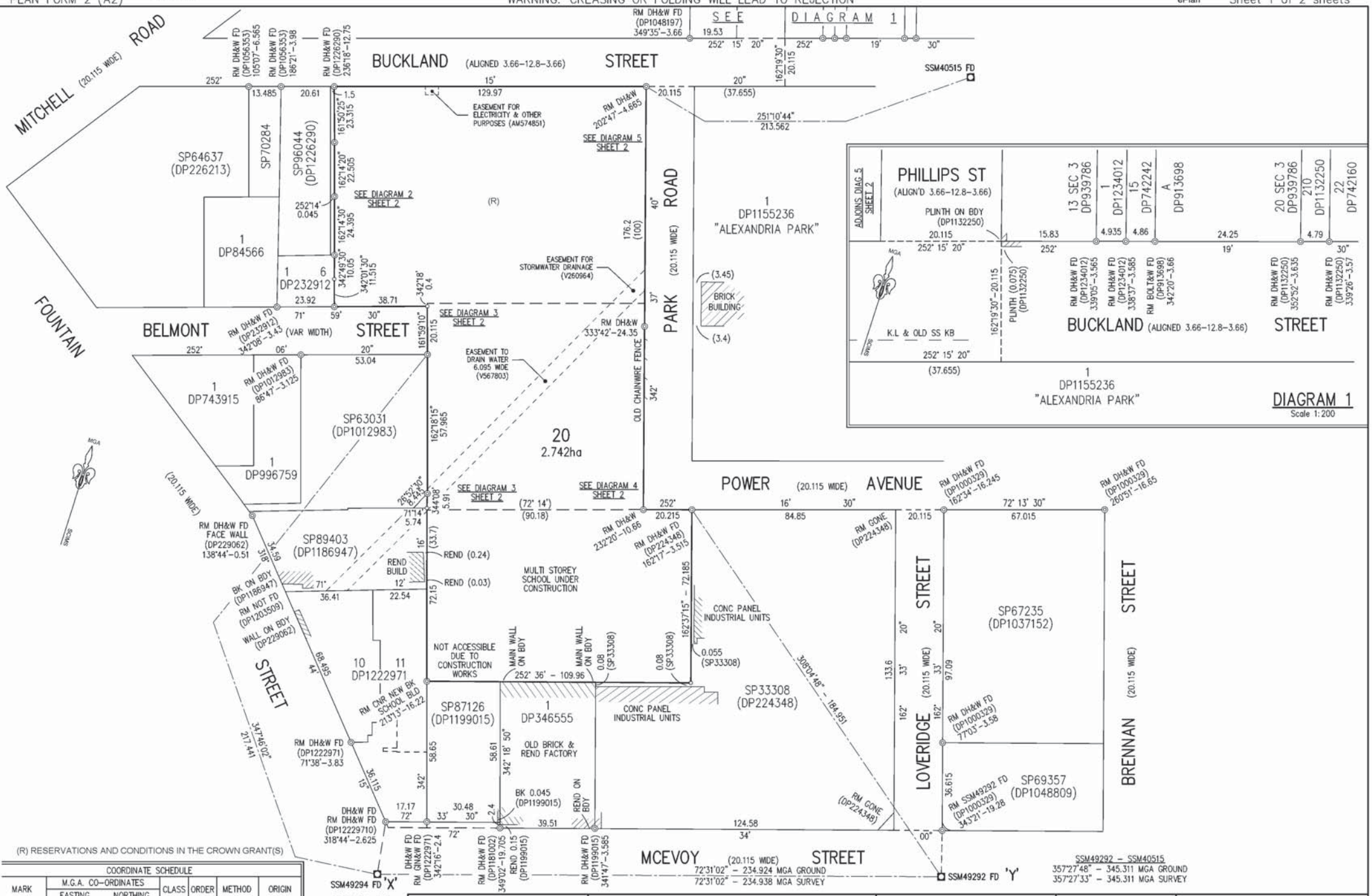
Proj. Dir	Proj. Arch	Drawn
AK	AH	BO/HC

Job No.	Sheet	Scale	Date
161044	A0	1 : 500	01/23/17

Drawing No. AR-CD-2003
Revision B

Appendix D – Lot Consolidation Plan and Boundary Survey

PLAN FORM 2 (A2) DP1263442 WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION ePlan Sheet 1 of 2 sheets



(R) RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

COORDINATE SCHEDULE						
MARK	M.G.A. CO-ORDINATES		CLASS	ORDER	METHOD	ORIGIN
	EASTING	NORTHING				
SSM 40515	333403.142	6247561.949	B	2	SCIMS	FOUND
SSM 49292	333418.424	6247216.998	B	2	SCIMS	FOUND
SSM 49294	333194.366	6247146.427	B	2	SCIMS	FOUND

DATE OF SCIMS CO-ORDINATES: 1/8/2019 MGA ZONE: 56 MGA DATUM: GDA94
COMBINED SCALE FACTOR 0.999937

SURVEYOR	PLAN OF CONSOLIDATION OF LOTS 2 & 3 DP69494, LOT 1 DP74696, LOTS A & B DP109038 & LOT 11 DP615964	LGA: SYDNEY Locality: ALEXANDRIA Reduction Ratio. 1:1000 Lengths are in metres.	Registered 18/05/2020	DP1263442
Name: William Hamer Date: 26/11/2019 Reference: 190726–DP				

20 30 40 50 60 Table of mm 100 110 120 130 140 150

DIAGRAM 2

Scale 1:300

BUCKLAND STREET (ALIGNED 3.66–12.8–3.66)

RM DH&W FD (DP1056353) 186°21'–3.98

NAIL&WINGS RM DH&W FD (DP1226290) 236°18'–12.75

K.L. OLD S.S. KB

20.61

1.5

PICKET FENCE

NEW METAL (2.3 FCE)

161°50'25" 23.315

EASEMENT FOR ACCESS 2.2 WIDE & VARIABLE (DP1046627)

101 DP1226290 (PUBLIC WALKWAY)

NAIL&WINGS RM DH&W FD (DP1226290) 226°09'–2.025

SP70284

SP96044 (DP1226290)

162°14'20" 22.505

20

252°14' 0.045

NAIL&WINGS

NAIL&WINGS RM DH&W FD (DP1226290) 249°34'–1.845

MGA

SWCS

162°14'30" 24.395

EASEMENT TO DRAIN WATER 2.2 WIDE (T440027)

1 DP84566

RM DH&W FD (DP1226290) 236°56'–1.98

NAIL&WING ON FACE OF WALL

(0.01) OLD BK WALL

342°49'30" 10.05

1 6 DP232912 VACANT (CAR PARKING AREA)

CNR INACCESSIBLE

(0.08) OLD BK WALL

342°01'30" 11.515

EASEMENT FOR ACCESS 2.2 WIDE & VARIABLE (DP1046627)

OLD BRICK FACTORY

BK (0.025) (DP232912)

23.92

OLD BK WALL ON BDY

OLD BK WALL

71° 59° (0.31) 30°

RM DH&W FD (DP232912) 342°08'–3.43

DH&W'S RM DH&W FD IN GUTTER (DP1046627) 312°39'–4.13 (0.15)

ADJOINS DIAG 3

BELMONT (20.115 WIDE) STREET

DIAGRAM 3

Scale 1:300

ADJOINS DIAG 2

38.71

71° 59' 30"

342°18'15" 0.4

NAIL&WINGS IN BITUMEN

BELMONT STREET (20.115 WIDE)

161°59'10" 20.115

20

RM DH&W PATH 84°10'–7.59

DH&W'S CONC

(1.255) SP63031

3 STOREY BRICK UNIT BUILDING No.44–58

(1.215) SP63031

MGA

SWCS

SP63031 (DP1012983)

162°18'15" 57.965

(1.315) SP63031

3 STOREY BRICK UNIT BUILDING No.44–58

EASEMENT TO DRAIN WATER 6.095 WIDE (V567803)

1 DP1030527

RM WALL FD (DP1012983) 164°30'–5.93 (NOT ACCESSIBLE)

26°52'30" 8.445

344°08' 5.91

SP89403 (DP1186947)

NOT ACCESSIBLE TO CONSTRUCTION

DIAGRAM 5

Scale 1:300

39 DP1048197

38 37 36 35 SECTION 2 DP939786

PHILLIPS ST (ALIGN'D 3.66–12.8–3.66)

19.53

RM DH&W FD (DP1048197) 349°35'–3.66

252° 15' 20"

K.L. & OLD SS KB

BUCKLAND STREET (ALIGNED 3.66–12.8–3.66)

K.L. OLD STONE KERB

NEW METAL PICKET FENCE

(0.14) LOW STONE WALL

K.L. OLD STONE KERB

20"

20.115

DH&W'S ON TOP OF WALL RM DH&W 202°47'–4.665

(0.3)

NEW METAL PICKET FENCE

20

PARK ROAD (20.115 WIDE)

1 DP1155236 "ALEXANDRIA PARK"

MGA

SWCS

DIAGRAM 4

Scale 1:300

PARK ROAD (20.115 WIDE)

POWER AVENUE (20.115 WIDE)

NAIL&WINGS IN BITUMEN RM DH&W 232°20'–10.66

(5.96)

252° 16' 30"

20.215

NAIL&WINGS IN BITUMEN RM DH&W FD (DP224348) 162°17'–3.515

(0.1) (SP33308)

(0.065) (SP33308)

(5.62)

BRICK WALL

20

CONC PANEL INDUSTRIAL UNITS No.25

162°37'15" 72.185

SP33308 (DP224348)

SURVEYOR	PLAN OF CONSOLIDATION OF LOTS 2 & 3 DP69494, LOT 1 DP74696, LOTS A & B DP109038 & LOT 11 DP615964	LGA: SYDNEY Locality: ALEXANDRIA Reduction Ratio. 1:300 Lengths are in metres.	Registered 18/05/2020	DP1263442
Name: William Hamer Date: 26/11/2019 Reference: 190726–DP				

20 30 40 50 60 Table of mm 100 110 120 130 140 150

PLAN FORM 6 (2019)	**DEPOSITED PLAN ADMINISTRATION SHEET**	Sheet 1 of 2 sheet(s)

Office Use Only

Registered: 18/05/2020

Title System: TORRENS

Office Use Only

DP1263442

PLAN OF CONSOLIDATION OF LOTS 2 & 3 DP69494, LOT 1 DP74696, LOTS A & B DP109038 & LOT 11 DP615964

LGA: SYDNEY

Locality: ALEXANDRIA

Parish: ALEXANDRIA

County: CUMBERLAND

Survey Certificate

I, William Hamer

of TSS Total Surveying Solutions Pty Ltd

Suite 8, 448 Pacific Highway, Lane Cove North 2066

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

*(a) The land shown in the plan was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, is accurate and the survey was completed on 26/11/2019

~~*(b) The part of the land shown in the plan (*being/*excluding ** .....~~
~~.....)~~
~~was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, the part surveyed is accurate and the survey was completed on, ... the part not surveyed was compiled in accordance with that Regulation, or~~

*(c) ~~The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2017*~~.

Datum Line: 'X' – 'Y'

Type: *Urban/*~~Rural~~

The terrain is *~~Level-Undulating / *Steep-Mountainous~~.

Signature: ..... Dated: 12/12/2019

Surveyor Identification No: 1606
Surveyor registered under
the *Surveying and Spatial Information Act 2002*

*Strike out inappropriate words.

**Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature: .....

Date: .....

File Number: .....

Office: .....

Subdivision Certificate

I, ...

*Authorised Person/*General Manager/*Accredited Certifier, certify that the provisions of section 6.15 *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: .....

Accreditation number: .....

Consent Authority: .....

Date of endorsement: .....

Subdivision Certificate number: .....

File number: .....

*Strike through if inapplicable.

Plans used in the preparation of survey/~~compilation~~.

DP69494	DP74696	DP84566	DP86975
DP109038	DP117466	DP222269	DP224348
DP232912	DP346555	DP615964	DP980928
DP1000329	DP1012983	DP1037152	DP1046627
DP1048197	DP1048809	DP1132250	DP1186947
DP1199015	DP1222971	DP1226290	DP1234012

Statements of intention to dedicate public roads, create public reserves and drainage reserves, acquire/resume land.

Surveyor's Reference: 190726-DP

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

ePlan

PLAN FORM 6A (2018) **DEPOSITED PLAN ADMINISTRATION SHEET** Sheet 2 of 2 sheet(s)

Office Use Only

Registered: 18/05/2020

Office Use Only

DP1263442

PLAN OF CONSOLIDATION OF LOTS 2 & 3 DP69494, LOT 1 DP74696, LOTS A & B DP109038 & LOT 11 DP615964

~~Subdivision Certificate number: ....~~

~~Date of Endorsement: ....~~

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2017*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

STREET ADDRESSES

Lot	Street Number	Street Name	Street Type	Locality
20	7-11	PARK	ROAD	ALEXANDRIA

EXECUTED BY THE MINISTER FOR EDUCATION AND EARLY CHILDHOOD LEARNING BY HER DULY APPOINTED DELEGATE IN THE PRESENCE OF

[signature]
Signature of Delegate

Anthony Manning
Name of Delegate

ILDIKO CSERGA
Name of Witness

[signature]
Signature of Witness

259 George St, Sydney 2000 NSW
Address of Witness

If space is insufficient use additional annexure sheet

Surveyor's Reference: 190726-DP

TSS TOTAL SURVEYING SOLUTIONS
Sydney, Gosford, & Melbourne
448 Pacific Highway, Lane Cove North NSW 2066
Email:tss@totalsurveying.com.au
Ph.1300 877 000

Our Reference: 190726-1
Date of Survey: 08/09/2020

Richard Crookes Constructions
Attn: Andrew Buchanan

Identification Survey Report

Alexandria Park Community School
Lot 20 DP 1263442

Dear Andrew,

In accordance with your instructions, we have surveyed for Identification purposes Lot 20 in Deposited Plan No.1263442 being the whole of the land comprised in Certificate of Title Folio 20/1263442 Edition No.1 dated 18/5/2020.

The subject property is identified as No.7-11 Park Road, Alexandria, in the Local Government Area (LGA) of City of Sydney and has a frontage to both Buckland Street and Park Road.

Upon the land stands a few multi-storey concrete and brick buildings. The buildings standing in relation to the boundaries and the building levels are as shown on the attached sketch.

The building heights are generally consistent with the DA approved plans.

No easements were investigated in this survey except where shown in the sketch.

This report and relevant details shown on the attached plan are for Identification and Building Certificate purposes only. Any improvements to be erected on or near the boundaries will require further survey. If any construction is to be carried out on or near the boundaries, survey marks should be placed to define the boundaries.

Yours Faithfully,

Dennis Liu
Registered Land Surveyor
Surveyor ID: 9126