ISPT Pty Ltd

c/o Aliro Management Pty Ltd

Elevation @ Greystanes
Remedial Action Plan

30 September 2020

58238/132823

JBS&G Australia Pty Ltd

www.jbsg.com.au

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Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AF/FA	Asbestos Fines/Fibrous Asbestos
AHD	Australian Height Datum
Aliro	Aliro Management Pty Ltd
ASS	Acid Sulfate Soils
AST	Aboveground Storage Tank
AQ	Asbestos Quantification
bgs	Below Ground Surface
BOM	Bureau of Meteorology
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
Btoc	Below Top of Casing
COPC	Contaminants of Potential Concern
Council	Cumberland Council
CSM	Conceptual Site Model
DGI	Data Gap Investigation
DLWC	Department of Land and Water Conservation
DP	Deposited Plan
DPI	Department of Primary Industry
DPIE	Department of Planning, Industry and the Environment
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
ha	Hectare
HBMS	Hazardous Building Material Survey
HDPE	High Density Polyethylene
IBC	Intermediate Bulk Container
IP	Interface Probe
ISPT	ISPT Pty Ltd
JBS&G	JBS&G Australia Pty Ltd
LEP	Local Environmental Plan
LOR	Limit of Reporting
LPI	Land and Property Information
NAPL	Non-Aqueous Phase Liquid
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NEMP	PFAS National Environmental Management Plan 2.0
NSW	New South Wales
OCP	Organochlorine Pesticides
OEH	Office of Environment and Heritage
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per and Polyfluoroalkyl Substances
PSI	Preliminary Site Investigation
RAP	Remedial Action Plan
RPD	Relative Percent Difference
SEPP	State Environmental Planning Policy
SWLs	Standing Water Levels
SSDA	State Significant Development Application
sVOC	Semi Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
UCL	Upper Confidence Limit
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) has been engaged by ISPT Pty Ltd (ISPT, the client) care of Aliro Management Pty Ltd (Aliro) to prepare a remedial action plan (RAP) for a property known as Elevation @ Greystanes (the site). The site address, approximate area and cadastre boundaries are detailed in **Table E.1**. The site location and layout are shown on **Figure 1** and **2** respectively.

Table E.1: Site Address, Cadastre and Area

Address	Current Land Use	Cadastre	Area (ha)
44 Clunies Ross Street, Pemulwuy, NSW, 2145	Austral Masonry	Lot 10 DP 1022044	12.58
Clunies Ross Street, Pemulwuy, NSW, 2145		Lot 216 DP 1030744	0.28
Clunies Ross Street, Pemulwuy, NSW, 2145		Lot 601 DP 1047403	0.03
Clunies Ross Street, Pemulwuy, NSW, 2145		Lot 602 DP 1047403	1.42
615A Great Western Highway, Pemulwuy, NSW, 2145	Former Council Depot	Lot 63 DP 752051	0.81
Clunies Ross Street, Pemulwuy, NSW, 2145	Former Boral Concrete & Brick Head Office	Lot 107 DP 1028208	5.07
		Total Site Area	**20.19**

The site has historically been used for agricultural/pastoral purposes (owned by dairy farmers) and small-scale quarrying (blue metal) prior to regional quarrying activities which saw the stockpiling of quarried materials on site and masonry manufacturing. Following cessation of large-scale quarrying activities, the northern portion of the site has continued to be utilised for masonry/manufacturing activities (Austral Masonry) with the southern portion utilised for commercial (Boral Concrete and Brick Head Offices) and vacant land (Council depot/stockpiling yard) land uses.

The site has been the subject of previous environmental investigation which reported the following contamination/aesthetic issues:

Austral Masonry

- **AEC 1:** Surficial Anthropogenic Waste including disused plant/machinery, wooden pallets, truck tyres, scrap metal generally restrained to the north western portion.
- **AEC 2**: Approximately 233m^3 of friable asbestos exceeding the adopted human health criteria.
- **AEC 3**: Sub-surface inclusions of anthropogenic materials (brick and other inert materials) to varying degrees in fill material across the majority of the property. It is noted this is only considered to represent an aesthetic issue where accessible to future maintenance personal (i.e. service trenches and landscaped areas). This area is to be either be paved or covered with 0.3m of environmentally suitable material. Services are required to be backfilled with environmentally suitable material.
- **AEC 4**: Approximately 514m^3 of odorous (hydrocarbon/chemical) soil representing an aesthetic issue.
- **AEC 5**: Bonded ACM and anthropogenic waste impacted fill exceeding the adopted site criterion (no visible ACM) and representing an aesthetic issue. These materials were reported to be located within the north west of the property (between approximately 6,624m^3 to 10,200 m^3), south east of Plant 2 (approximately 9m^3) and adjacent to Lot 63 (approximately 148m^3).
- **AEC 6**: Confirmation is required that underlying fill/soil is not impacted with hydrocarbons/oil following the removal of hydrocarbon/chemical infrastructure and/or storage areas (i.e. ASTs/UST/storage areas/transformers (current and former, where

characterisation data has not been collected demonstrating the infrastructure does not represent an issue)).

Former Council Depot

- **AEC 7**: Approximately 32m^3 (16m^2 x 2m in depth) of friable asbestos (AF/FA) impacted fill around a power pole within the north east corner of the property exceeding the adopted human health criteria. This material was also reported to contain anthropogenic materials representing an aesthetic issue;

Former Boral Concrete & Brick Head Office (also known as Boral House)

- **AEC 8:** Approximately 200m^3 of fill material inferred to contain bonded ACM fragments exceeding the adopted site criterion (no visible ACM) and representing an unacceptable health.
- **AEC 9**: Approximately 15m^3 of friable asbestos exceeding the adopted human health criteria.
- **AEC 10**: Surficial and sub-surface anthropogenic materials representing an aesthetic issue requiring management/remediation in accordance with NEPC (2013).
- **AEC 11**: Potential ACM and anthropogenic impacts within a redundant service easement along the southern/south westerner property extent.
- **AEC 12**: Confirmation is required that underlying fill/soil is not impacted with hydrocarbons and/or PCBs following the removal of the AST and transformers.

The following summaries the preferred remedial strategy:

- Removal of surface anthropogenic material (**AEC 1** and **AEC 10**) to a landfill/licensed waste facility;
- Excavation and off-site disposal of AF/FA impacted fill at **AEC 2**, **AEC 7** and **AEC 9**;
- Sub-surface inclusions of anthropogenic materials (brick and other inert materials) within the Austral Masonry property extent (**AEC 3**). The nature and extent varies from trace levels to greater than 60% of the excavated volume. It is noted the inert waste is only considered to represent an aesthetic issue where accessible to future maintenance personal (i.e. service trenches and landscaped areas). Where accessible, the inert waste is required to be overlain with a hardstand pavement or covered with 0.3m of environmentally suitable material. Newly installed services are required to be backfilled with environmentally suitable material;
- Excavation and relocation of **AEC 4** such that it is not accessible to future maintenance personal. It is required to be overlain with 2m of environmentally suitable soil or a permanent engineered concrete slab associated with the built form such that it's not considered to represent an aesthetic issue. It is noted this process of covering may negate the requirement to excavate and relocate if not accessible by future maintenance personnel;
- Excavation of fill identified to contain bonded ACM (**AEC 5**, **AEC 8** and **AEC 11**) above the health criterion and picking/removal of ACM fragments from the fill soil profile for on-site reuse of fill following validation and off-site disposal of ACM fragments; and
- Removal of petroleum/chemical infrastructure (**AEC 6** and **AEC 12**) and associated impacted soils by off-site disposal where identified as not suitable to be retained on-site.

The locations of the aforementioned AECs are shown on **Figure 7**.

The site is proposed to be developed as a warehouse logistic estate (Elevation @ Greystanes, as shown on **Figure 3**). Remediation/management is required to address contamination and aesthetic issues identified in order for the site to be considered suitable for the proposed commercial/industrial land use unencumbered by an environmental management plan (EMP).

This document presents a RAP that outlines the principles of remedial/validation works required for the site, that when completed, will make and demonstrate the site as suitable for commercial/industrial land use.

This RAP has been prepared with reference to relevant guidelines made or endorsed by the NSW Environment Protection Authority (EPA) inclusive of NEPC (2013[1]) and the requirements of SEPP 55[2].

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

[2] *Managing Land Contamination – Planning Guidelines SEPP 55 Remediation of Land.* Department of Urban Affairs and Planning. Environment Protection Authority 1998 (DUAP 1998)

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) has been engaged by ISPT Pty Ltd (ISPT, the client) care of Aliro Management Pty Ltd (Aliro) to prepare a remedial action plan (RAP) for a property known as Elevation @ Greystanes (the site). The site address, approximate area and cadastre boundaries are detailed in **Table 1.1**. The site location and layout are shown on **Figure 1** and **2** respectively.

Table 1.1: Site Address, Cadastre and Area

Address	Land Parcel ID	Cadastre	Area (ha)
44 Clunies Ross Street, Pemulwuy, NSW, 2145	Austral Masonry	Lot 10 DP 1022044	12.58
Clunies Ross Street, Pemulwuy, NSW, 2145		Lot 216 DP 1030744	0.28
Clunies Ross Street, Pemulwuy, NSW, 2145		Lot 601 DP 1047403	0.03
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615A Great Western Highway, Pemulwuy, NSW, 2145	Council Depot	Lot 63 DP 752051	0.81
Clunies Ross Street, Pemulwuy, NSW, 2145	Boral Concrete & Brick Head Office	Lot 107 DP 1028208	5.07
		Total Site Area	**20.19**

The site has historically been used for agricultural/pastoral purposes (owned by dairy farmers) and small-scale quarrying (blue metal) prior to regional quarrying activities which saw the stockpiling of quarried materials on site and masonry manufacturing. Following cessation of large-scale quarrying activities, the northern portion of the site has continued to be utilised for masonry/manufacturing activities (Austral Masonry) with the southern portion utilised for commercial (Boral Concrete and Brick Head Offices) and vacant land (Council depot/stockpiling yard) land uses

The site has been the subject of previous environmental investigations (Coffey 2013[3], JBS&G 2019a[4], JBS&G 2020a[5], JBS&G 2020b[6] and JBS&G 2020c[7]) which reported areas of fill/soil impact, generally exceeding the adopted ecological criteria, and at relatively few locations (for asbestos only) the adopted health-based criteria (**Appendix A**, analytical summary tables). One underground storage tank (UST) and a number of aboveground storage tanks (ASTs) are present on site (**Figure 4**). Hydrocarbons exceeded land management limit criterion at one location. A number of aesthetic impacts remain requiring management.

The site is proposed to be developed as a warehouse logistic estate (Elevation @ Greystanes, as shown on **Figure 3** and in **Appendix B**). Remediation/management is required to address contamination/aesthetic issues identified in previous site investigations in order for the site to be considered suitable for the proposed commercial/industrial land use.

This document presents a RAP that outlines the principles of remedial/validation works required for the site, that when completed, will make and demonstrate the site as suitable for the proposed land use.

[3] *Due Diligence Environmental Site Assessment – Clunies Ross Street, Prospect, NSW*. Coffey Environments Pty Ltd dated 2 May 2013 reference ENAURHOD04463AA (Coffey 2013).

[4] *Cumberland Council Remedial Action Plan – 615a Great western Highway, Pemulwuy, NSW*. Prepared by JBS&G Australia Pty Ltd ref. 56047/124781 Revision 1 dated 30 September 2019 (JBS&G 2019a)

[5] *ISPT Pty Ltd c/o Aliro Management Pty Ltd Phase 1 and 2 Environmental Site Assessment – Prospect Logistic Estate, Pemulwuy, NSW*. Prepared by JBS&G Australia Pty Ltd ref. 58238/130144 Revision 0 dated 3 June 2020 (JBS&G 2020a)

[6] *Draft Cumberland City Council Validation Report – 615A Great Western Highway, Pemulwuy, NSW*. Prepared by JBS&G Australia Pty Ltd ref. 56994/130723 Revision A dated 1 September 2020 (JBS&G 2020b)

[7] *ISPT Pty Ltd c/o Aliro Management Pty Ltd Data Gap Investigation – Prospect Logistics Estate, Pemulwuy, NSW*. Prepared by JBS&G Australia Pty Ltd ref. 58238/132732 Revision 0 dated 23 September 2020 (JBS&G 2020c)

This RAP has been prepared with reference to relevant guidelines made or endorsed by the NSW Environment Protection Authority (EPA) inclusive of NEPC (2013[8]) and the requirements of SEPP 55[9].

1.2 Objective

The objectives of this RAP are to:

- Characterise and document the known extent of environmental/aesthetic impact within the site via presentation of a conceptual site model (CSM);
- Identify the remedial strategy(ies)/framework to be adopted by an assessment of remedial options and development objectives; and
- Document the procedures and standards to be followed in order to remove the risks posed by contaminated soils and aesthetic impacts to make the site suitable for suitable for the proposed commercial/industrial land use (without the requirement for ongoing management), while ensuring the protection of human health and the surrounding environment.

1.3 Proposed Development

As noted above, the site is proposed to be developed as a warehouse logistic estate to be called Elevation @ Greystanes. Significant cut and fill activities are required to accommodate the proposed development (**Appendix B**). As shown on development-related plans in **Appendix B** and the proposed layout as **Figure 3**, upon completion of the built form, the majority of the site will be paved with hardstands and occupied by large warehouses and a newly constructed driveway network.

With the exception of Prospect Hill in the southeast, which will remain surfaced with grass cover, and minor areas of landscaping lining the periphery of the site and long the newly constructed driveway network, access to fill/soil will be largely restricted by hardstand areas and building footprints.

With the exception of Prospect Hill, it is envisaged landscaped area will be in newly constructed garden beds (imported growing media) rather than existing site fill/soil.

[8] *National Environment Protection (Assessment of Site Contamination) Measure, Amendment No 1 (2013)*. National Environment Protection Council (NEPC 2013)

[9] *Managing Land Contamination – Planning Guidelines SEPP 55 Remediation of Land.* Department of Urban Affairs and Planning. Environment Protection Authority 1998 (DUAP 1998)

2. Site Condition, History & Surrounding Environment

2.1 Site Identification

The location of the site is shown in **Figure 1**. The current layout with cadastral boundaries is shown in **Figure 2**. Site details are summarised in **Table 2.1** and discussed in detail in the following section.

Table 2.1: Summary of Site Details

Lot and Address	**Austral Masonry** Lot 10 DP 1022044 - 44 Clunies Ross Street, Pemulwuy, NSW, 2145 Lot 601 DP 1047403 - Clunies Ross Street, Pemulwuy, NSW, 2145 Lot 602 DP 1047403 - Clunies Ross Street, Pemulwuy, NSW, 2145 Lot 216 DP 1030744 - Clunies Ross Street, Pemulwuy, NSW, 2145 **Former Boral Concrete & Brick Head Office** Lot 107 DP 1028208 - Clunies Ross Street, Pemulwuy, NSW, 2145 **Former Council Depot** Lot 63 DP 752051 - 615A Great Western Highway, Pemulwuy, NSW, 2145
Approximate Site Area	20.19 ha
Local Government Authority	Cumberland City Council Blacktown City Council
Site Geographic Coordinates (MGA 56)	Refer to **Figure 2**
Current Zoning	Zone IN1 General Industrial
Former Land Use	Agricultural Purposes (owned by dairy farmers) and subject to Minor Quarrying Activities
Current Land Use	Commercial/Industrial (former offices, masonry manufacturing and council depot (vacant land))
Proposed Land Use	Commercial (warehouses)
Site Owner	ISPT Pty Ltd[10]
Approximate Relative Level (RL) m Australian Height Datum (AHD)	106 m AHD – south eastern site extent 52 m AHD – north eastern site extent

2.2 Site Condition

The site has been the subject of previous investigations (**Section 3**). The following key site features, as shown on **Figure 4**, were reported:

Austral Masonry

This portion of the site appears to have been subject to cut/fill activities to accommodate the built form, resulting in a tiered landscape. The majority of the property was reported to be surfaced with hardstand pavements. Two large warehouses and associated works/storage areas (Plant Area 1 and Plant Area 2) occupied the northern and southern property extents, respectively. Areas external to the built former were largely used as laydown areas associated with the storage and distribution of masonry. The following presents a summary of key features:

Plant Area 1

- Plant 1 housed a boiler, a number of hydraulic operated machines, curing chambers and hoppers on a concrete hardstand pavement, noted to be in good repair, for masonry production.
- Two hydraulic (oil) pump houses were located immediately to the north of Plant 1.
- A bunded polish wash unit was reported immediately outside the north western extent of Plant 1. Immediately to the east of the polishing unit, a minor chemical storage (bunded) area. Historically, these chemicals were observed to include urea and hydraulic oil "Renolin

[10] It is noted that Lot 602 is included in the site boundary however is understood to be owned by Boral and will be transferred to ISPT and/or Council as part of the site development.

B Plus" in 1,000L containers. Previous investigations identified a hydraulic oil AST (approximately 3m x 1m in size) in a bunded area to the south of the polish wash and a sump pit to the west.

- A former diesel AST in the west of Plant 1, presumably positioned within a bunded area atop former curing chambers.
- Finished masonry products were observed to be stored in paved open yard areas located to the north of Plant 1. A sales yard/display suite fronted Clunies Ross Street.
- An administration office building and staff car parking associated with the sales/display suite and general operations occupied the south eastern Plant Area 1 extent.
- A raw material yard was reported to the south of the Plant 1. This area was noted to be a 2-5 meters higher than Plant 1. Over the years, this portion of the property was used to store raw materials including sand, ash and slag in concrete bunded areas.
- An oxide tank farm comprising six ASTs was located in the southern Plant Area 1 extent, within an appropriate concrete bund.
- A settling pit was located to the west of Plant 1. The settling pit were reported to be concrete lined. The pits collected overland flow and allowed for suspended sediments to fall out of entrainment prior to discharge to the recycling water treatment wetland at the north-western corner of the property. Flocculation was reportedly used.
- Significant volumes of waste/disused plant and equipment was observed within the north western portion of the property.
- The northern property extent comprised a riparian zone, housing the recycling water treatment wetland.
- A wastewater storage dam is present within the southern western Plant 1 Area extent.

<u>Plant Area 2</u>

- Plant 2 is located near the centre of the Plant 2 Area. The factory building was reported to house a number of hydraulic operated machines, a workshop, curing chambers, hoppers, sand stockpiles on the western half of the building for masonry production.
- Minor chemical and fuel storage areas were reported within Plant 2. The central/eastern half of the building comprised a polishing wash unit, a gas-powered boiler, some electric machineries and a small steel shot blaster unit on a concrete hardstand pavement, noted to be in good repair. The roof was noted to be fibre cement sheet construction containing asbestos. Antidotally, Plant 2 was used to house brick making facilities prior to Austral Masonry/Boral's operations.
- An in-ground wastewater recycling sump/settling pit was present immediately to the south of the southern wall of the Plant 2. The sump was understood to be connected to the polishing wash unit inside Plant 2.
- An interceptor wash bay was noted to the immediate north of Plant 2.
- An abandoned UST was reported to the north east of Plant 2 adjacent to the former brickwork's office building (underlying current brick wall/pavers). An operational diesel AST was reported, located to the east of Plant 2.
- Chemical storage was reported located immediately to the south west of Plant 2. A number of AST oxide tanks associated with the 'colour farm' were observed within a bund. Storage of chemicals/hydraulic oil drums was reported to the west of the 'colour farm' in a bunded room.

- A series of diesel ASTs and an isolated area of waste oil storage was historically reported to the south east of Plant 2, within an appropriately bunded area.
- Chemical/hydrocarbon and gas storage was reported within the workshop adjacent to the south east of Plant 2.
- Similar to Plant Area 1, finished masonry products were stored in paved yard areas to the north of Plant 2. A raw material yard was reported to the south of the Plant 2. This area was noted to be approximately 10m higher than Plant 1. The yard and the Plant 2 were separated by retaining wall structures and some landscaped area. The yard comprised stockpile bays for storage of raw materials including ash and slag. A hopper, conveying line and a disused crusher were located between parking area in the south and Plant 2.
- In addition to raw materials storage, the southern extent of Plant Area 2 was paved and used for plant/vehicle parking. Some areas of landscaping (grass/exposed fill/soil/stockpiled raw material) were apparent.
- An unlined settling pit (first flush pit) was reported to be present in the northern extent of the finished masonry product storage yard. Brick and concrete rubble/general waste were observed.
- An earth-bunded settling pit was located to the north west the abovementioned unlined waste pit. The pit collected overland flow and allowed for suspended sediments to fall out of entrainment prior to discharge to the recycling water treatment wetland at the north-western corner of the property. Flocculation was reportedly used.

Former Council Depot

Historical quarrying activities and later use as a council depot resulted in this portion of the site being extensively filled. Asbestos, heavy metal and aesthetic impacts were reported as requiring remediation/management (JBS&G 2019a).

The property was remediated and validated to the extent practicable (JBS&G 2020b), however, an area of approximately 15m^2 x 2m in depth around a power pole in the north east corner of the property was not able to be remediated. Fill material in this location contains friable asbestos (and aesthetic impacts) requiring remediation/management.

On completion of remedial works the property comprised vacant land parcel which had been hydroseeded. Minor areas of timbered vegetation lined the northern and western property periphery.

The property was noted to slope to the north and north west and be appropriately 2 to 5m higher than the Austral Masonry property to the north, with an exposed earthen embankment to the north of the property exposing natural weathered dolerite.

Former Boral Concrete and Brick Head Office (Boral House)

This portion of the site was reported to have been subject to minor cut/fill activities to accommodate the built form. The majority of the property was surfaced with hardstand pavements and/or grass cover and noted to slope towards the north/north west. The following present a summary a key feature:

- A large modern commercial office building occupied the central and central southern property extent.
- Two pad mounted electrical transformers were present to the east of the commercial building. The transformers were reported to be relatively new with no evidence of leaks or staining in adjacent surface soils.

- A single 2,500 L diesel AST was identified within the north eastern portion of the commercial building. The AST was reportedly bunded, with no evidence of leaks or spills.
- An earthen mound/embankment potentially contain redundant service infrastructure of asbestos containing material (ACM) construction was reported within the southern/south western property extent.
- General household waste/building and demolition rubble was reported along the earthen mound/embankment alignment and stockpiled to the west of the commercial office building (within dense vegetation).
- Fill material impacted with asbestos (friable and boned) totalling approximately 215 m^3 was reported along the north/north eastern property periphery.
- Prospect Hill, of heritage significance, is located within the south eastern property extent.

2.3 Surrounding Land Uses

The current land use of adjacent properties or properties across adjacent roads are summarised following.

- North – The site is bound to the north by a vacant vegetated parcel of land which is dissected by Girraween Creek;
- South – The site is bound to the south by commercial/industrial allotments (large open plan warehouses);
- East – The south eastern portion of the site is bound by an earthen road and a vacant parcel of land associated with Prospect Hill. The site is bound by Clunies Ross Street to the east and north east, across which there are low density residential allotments and commercial/industrial warehouses; and
- West – The site is primarily bound to the west by commercial/industrial allotments (large open plan warehouses) and Girraween Creek. Vacant land bound the site to the north west.

The closest environmental receptor is Girraween Creek located approximately 15 m north west of the site to the south of The Great Western Highway. A dam is present within the north western site extent

2.4 Natural Site Setting

Based on review of previous investigations (**Section 3**), the environmental setting of the site is presented in **Table 2.2**.

Table 2.1: Summary of Environmental Characteristics

Environmental Aspect	Characteristics
Topography	Ground levels of approximately 106m AHD are present atop Prospect Hill, falling to 52m AHD along the northern site boundary, in close proximity to Girraween Creek. As noted in **Section 2.2**, the site appears to have been subject to cut and fill activities to accommodate the built form resulting in a tiered landscape in areas.
Geology/Soil	The site is present within the following natural geological and soil landscapes: **Geology**: Northern portion of site is situated on Bringelly Shale – comprising shale, carbonaceous claystone, laminate and fine to medium grained lithic sandstone, rare coal tuff of the Wianamatta Group. The southern portion of site lies on Jurassic Prospect Picrite – comprising picrite, dolerite and minor basalt. **Landscape**: Topography varies from level plains to undulating terrain and has been disturbed by human activity to a depth of at least 100cm. Most of these areas have been levelled to slopes of <5 %.

	Soils: Northern portion of site is situated on Blacktown soil horizon – comprising red and brown podzols on crests, yellow podzols on lower slopes and drainage lines. The southern portion of the site contains Disturbed Terrain - the original soil has been removed, greatly disturbed or buried. Landfill may include soil, rock, building and waste material. **Limitations**: Blacktown – moderately reactive highly plastic subsoil, localised seasonal waterlogging and water erosion hazard, localised surface movement potential. Disturbed Terrain – dependent on the nature of fill material – often includes subsidence resulting in a mass, movement hazard, soil impermeability leading to poor drainage, and low fertility. Previous assessment activities as discussed in **Section 3** have identified fill material to variable depths underlying the site. Fill materials have been found to be heterogeneous generally comprising a combination of gravelly clay and to a lesser extent gravelly sand. Generally, fill comprised a combination of reworked natural material (shale/igneous rock) associated with former brick works/quarrying activities with minor anthropogenic inclusions including bricks, metal, sandstone, in addition to minor ash and slag inclusions reported within the fill soil profile. Natural soils have been encountered under fill materials. Natural soils were noted to generally comprise residual clay/silt horizons overlying shale (northern portion) and igneous bedrocks (southern portion of the site). Lenses of sand/sandy clay were identified in the northern portion of the site (toward Girraween Creek/on-site retention ponds), albeit to a limited extent.
Acid Sulfate Soils (ASS)	The site is located within an area of 'no known occurrence of Acid Sulfate Soils'. With consideration to the site setting and geological and soil characteristics of the site, management of development activities is not required to address the potential for impact on ASS.
Hydrogeology	Girraween Creek, a tributary of Toongabbie Creek and in turn the Parramatta River, is located approximately 15m north west of the north western site boundary. The Girraween Creek sub-catchment covers an area of 936 ha extending from the eastern edge of Prospect Reservoir through Fox Hills Golf Course, Girraween Park and a linear recreation reserve in Toongabbie until its confluence with Toongabbie Creek and in turn the Parramatta River. Girraween Creek has been identified as a highly disturbed urban drainage channel which has been significantly altered (evidenced by historic aerial photographs which indicate the creek alignment downgradient of the site has been re-directed/altered to facilitate construction of a regional flood detention basin). Girraween Creek is considered to likely receive road and stormwater runoff from the surrounding land uses which comprise a combination of commercial/industrial, agricultural and urban/residential. A dam, fed by overland flow upgradient of the site, is present on site. As discussed in **Section 2.2**, the site comprises a combination of unpaved (landscaped areas) and paved (buildings/laydown area/driveways) surfaces. As such, precipitation falling onto the site in unsealed areas is expected to infiltrate surface soils at a rate reflective of the permeability of the underlying site soils (refer to geology above). During periods of heavy precipitation, overland flow is expected to be captured and treated by the site's stormwater network before being discharged into Girraween Creek located to the north west of the site. In sealed areas of the site surface waters are anticipated to be captured and treated by the site's stormwater network before being discharged into Girraween Creek located to the north west of the site.
Hydrogeology	The majority of the site is underlain by disturbed terrain overlying a dolerite/picrite formation and Bringelly Shale, as such there is a potential for perched water at the fill/natural and soil/rock interface. A deeper confined groundwater system is expected to be resident in the fractures/porous lenses within the underlying igneous bedrock/Bringelly Shale. Groundwater has been reported at the following depth in previous investigations: Based on the reported geology, topography and site observations, the permanent groundwater table is likely to be variable across the site and is expected to be encountered at depth (greater than 13 m bgs) within the southern portion of the site and located within zones of higher permeability associated with bedrock faults, joints and weathered zones. Groundwater is anticipated to be encountered at shallower depths toward the north of the site at variable depths (within perched fill layers and/or at the natural/bedrock interface) and is expected to flow north-northwest towards Girraween Creek. Groundwater is considered not to be a potable resource due to its saline nature.

Salinity	The site was noted to lie within an area of moderate to high salinity potential. Saline affected soils may have implications in the design/construction of future buildings. Saline affected soils are likely to be present in low lying areas, in proximity to fluvial deposits adjacent Girraween Creek. It was noted previous investigations did not identify salt scarring or evidence of saline soils at the site.
Meteorology	Average climatic data obtained indicated the sites meteorological setting is characterised by average minimum temperatures which vary from 6.1 ^{o}C in July to 17.8 ^{o}C in February; average maximum temperatures which vary from 16.9 ^{o}C in July to 28.6 ^{o}C in January; average annual rainfall of approximately 873.7 mm with rainfall greater than 1 mm occurring on an average of 83.9 days per year; monthly rainfall varies from 46.5 mm in September to 98.8 mm in February.

2.5 Summary of Site History

A review of aerial photos, discussions with representatives of the former site operators, heritage records and records held by government agencies has been previously reported in JBS&G (2020a and JBS&G 2020c). On the basis of these reviews it has been found that the site was generally used for pastoral/agricultural land uses and subject to minor quarrying activities prior to large scale quarry activities regionally between the 1960s to 1990s where the site was used to stockpile quarried material and/or subject to the manufacturing of masonry products (brick works). Masonry production continues to this day within the northern site extent.

In the intervening years the central southern (Lot 63 DP 752051) and southern (Lot 107 DP 1028208) site extents were divested/repurposed as a council depot and for commercial purposes (offices, Boral Concrete and Brick Head Office, otherwise known as Boral House).

To accommodate the built form, the site has subject to cut and fill activities, with brick rejects and quarried materials not suitable for curing used to establish former/current site levels. The council depot portion of the site was reported to have been used for disposal of road construction and building materials with inclusions ACM. As discussed in JBS&G (2020b), this portion of the site has been remediated to the extent practicable, however, an area of approximately 15m^2 x 2m in depth around a power pole in the north east corner of property was not able to be remediated. This land/property is current the subject of a non-statutory site audit under the *Contaminated Land Management Act 1997* (CLM Act 1997).

Land title and public records note that portions of Lot 63 DP 752051 have been used for the dumping of waste/filling and that the property is subject to potential salinity issues.

The search indicated Austral Masonry (NSW) Pty Ltd previously owned by Boral Recycling Pty Ltd holds an Environmental Protection Licence (EPL 4664) for concrete works.

Searches of dangerous goods records reported the storage of the following dangerous goods:

- Liquified Petroleum Gas (LPG);
- Dissolved acetylene;
- Compressed oxygen;
- Argon shield universal; and
- Compressed argon.

One UST and a number of ASTs were either identified in dangerous goods search records or during detailed site inspection/intrusive investigations, as shown on **Figure 4**. The UST located within the central eastern site extent (Plant Area 2) was reported to provide fuel to adjacent kilns (and potentially fuel for truck fuelling) and was subsequently decommissioned (filled with water) in 1983. Relevant records/details as to decommissioning of the UST were not provided. A number of above ground chemical storage and oxide tanks and possible oil tank farms were also reported (**Figure 4**).

3. Previous Investigations

A number of assessment reports, prepared by others/JBS&G, have been summarised in third party reports or made available for review by JBS&G. The following sections provide a summary of the information and site characterisation data presented within key assessment reports. These reports include both historical and information relating to investigations conducted at that time.

Comments in relation to contaminants of potential concern (COPC) are provided in the following text in relation to assessment criteria adopted by the author at the time of report preparation. This comprises the range of health investigation levels presented in NEPC (1999[11]) and EPA (1994[12]) for investigation results generally up to and including the end of 2012; ANZECC (2000[13]) for groundwater thresholds until 2018; and NEPC (2013) and ANZG (2018[14]) for results from 2012 and 2019, respectively.

Analytical summary tables, against criteria in **Section 7.3**, are provided in **Appendix A**. Historical field logs are provided in **Appendix C**. Site features and historical sample locations are shown on **Figures 4** and **5**, respectively. Exceedances of the adopted criteria are shown on **Figures 6A** to **6C**.

3.1 Austral Masonry

3.1.1 Phase 1 and 2 Environmental Site Assessment (WC 2000[15])

The following is a summary of information presented in an excerpt of WC (2000) (as provided in Coffey 2013). Detailed analytical results were not cited by JBS&G. As such the information has been summarised to provide broad site background information and supplement more recent environmental data.

WC (2000) conducted a Phase 1 and 2 environmental site assessment (ESA) for the Boral Block and Paving Facility (now Austral Masonry). As part of the site history review the following was noted based on site observations and anecdotal evidence:

- One disused 10,000L petrol and/or diesel UST (installed in 1962) was identified beneath brick pavers near the brickwork's office (understood to have been drained and water filled in 1983). A bunded heavy fuel oil tank farm was noted to have been present at the site (removed prior to 1984) comprising 4 x 45,000L ASTs in the south eastern corner of the former brick works factory building (kiln firing);
- Various operating facilities were present on the site including one fuel oil AST outside the southern wall of the besser block factory, two in-ground (concrete) oxide effluent tanks connected to the settling pits, minor hydraulic oil spills, two above ground LPG tanks (7,500L) near the former tank farm, 8 steel ASTs - storing oxides, a first flush pit and disused machinery area within the north western portion of the property;
- Asbestos building materials were noted in structures, including fuel lines to kilns. An area of buried asbestos in plastic bags (lagging from a portion of the kiln fuel oil lines) was reported to a depth of 3m in an area fringing a disused shed to the west of the former factory building in 1978. The buried asbestos was noted to have been backfilled with "waste material", the nature of which was unable to be ascertained. In addition, the following was noted:

[11] *National Environment Protection (Assessment of Site Contamination) Measure, 1999*. National Environment Protection Council, 1999 (NEPC 1999)

[12] *Contaminated Sites: Guidelines for Assessing Service Station Sites*. NSW EPA December 1994 (EPA 1994)

[13] *Australian and New Zealand Guidelines for Fresh and Marine Waste Quality, Volume 1.* Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand, October 2000 (ANZECC 2000)

[14] *Australia and New Zealand Guidelines for Fresh & Marine Water Quality 2018 (ANZG 2018)*

[15] *Phase 1 and 2 Environmental Site Assessment – Boral Block and Paving Facility, Greystanes, NSW.* Woodward-Clyde Pty Limited dated 2000 (WC 2000)

- Buried asbestos was subsequently believed to have been disposed off-site in 1996 based on an internal audit report prepared in 1999 by Boral (not cited). Based on anecdotal evidence, an asbestos survey was carried out at the site. Documentation was not provided in WC (2000); and
- JBS&G consider the reported location of the buried waste to be incorrectly inferred around the existing shed to the south of the warehouse and was more likely present in vicinity of a former shed identified to the south west of the current shed (as evidenced in the 1991 aerial photograph) which was subsequently demolished;

- Two former oil (drum) stores were identified to the northern end of the former factory building which contained various oils, grease and solvents. An internal audit by Boral in 1996 (not cited by WC 2000 or JBS&G) noted that the surface soils in the area were contaminated with oil;
- It was noted that ash was deployed in manufacturing Besser bricks. The ash was noted to have been stockpiled on unsealed ground 100m west of the former factory building. The exact location of stockpiled ash was unable to be ascertained by JBS&G;
- WC (2000) cited an internal audit report by prepared by Boral (1996) (a copy of which was not provided) indicated the following:
  - Various polychlorinated biphenyl (PCB) containing equipment (transformers and capacitors) were present on the site in various locations including outside the south-western wall of Plant 2. The capacitors were reportedly disposed off-site when Boral vacated the site.; and
  - A large stockpile of waste (bricks and raw materials) was present to the south east of the Plant 1.
- Wastewater from the colouring machines (oxides) and polishers was identified to be pumped via underground lines to two settling pits prior to being direct to an overland wastewater recycling system;
- Localised staining was observed underlying large manufacturing equipment (besser block presses) within the factory building (Plant 1 near sample location JB63; and
- Disused machinery was being stored outside the western wall of the former brickwork's factory building on sealed and unsealed ground.

WC (2000) undertook a program of soil, sediment and surface water sampling and analysis to assess the potential impacts from the identified land uses. The investigation included the advancement of eight-seven soil bores. Analytical data was not cited by JBS&G. WC (2000) reported:

- Generally low levels of contaminants with most analytes below the criteria for industrial land use (compared against NEPC 1999). Traces of total petroleum hydrocarbon (TPH) were detected in three soil samples below the relevant criteria (maximum concentration of 665 mg/kg in SB73); and
- Water and sediment samples showed low levels of contamination, all of which were within the relevant human health criteria for industrial land use, although some of the latter exceeded the (then) interim sediment quality guidelines for chromium, copper, nickel, lead and zinc.

JBS&G note the investigation involved the collection of composite samples to target areas of environmental concern (AEC)s and provide broad site coverage. Sampling and analysis for COPCs was considered to be generally appropriate. Noting the lapse in time since the investigation was conducted, WC (2000) is generally considered to provide a reasonable baseline understanding of the

site setting and potential contamination sources under occupation by Boral Bricks, prior to occupation of the property by Austral Masonry.

3.1.2 Coffey Due Diligence Environmental Site Assessment (Coffey 2013)

Coffey (2013) documented a due diligence assessment within Lot 10 DP 1022044 and Lot 216 DP 1030744, with the objective to characterise the environmental status and establish suitability for ongoing commercia/industrial land use.

The scope of work undertaken by Coffey (2013) the following:

- Review of WC (2000);
- Targeted soil, sediment and surface water investigation program at selected AECs, supplemented by a limited sampling program in low risk areas to provide broad site coverage which involved the collection of:
    - Soil samples from forty borehole locations and sediment samples from three locations, with selected samples analysed for heavy metals, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, toluene, xylene (BTEX), TPHs/total recoverable hydrocarbons (TRH), organochlorine pesticides (OCPs), polychlorinated biphenyl (PCBs) and asbestos. Laboratory results were compared against health/ecological criteria in NEPC (1999) pursuant to commercial/industrial land use; and
    - Surface water samples from three locations, with selected sampled analysed for heavy metals, PAHs, BTEX, and TPHs and compared against ANZECC (2000) 95% species protection for freshwater aquatic ecosystems.

Analytical data presented in Coffey (2013) is provided in **Appendix A**. The following was reported by Coffey (2013):

- Laboratory analysis of selected soil and sediment samples returned concentrations below the respective laboratory limit of reporting (LOR) for all COPC;
- Laboratory analysis of surface water samples returned concentrations below the respective LOR with the exception of sample SW2, where heavy metal concentrations returned minor exceedances of the adopted criteria for arsenic, cadmium, chromium, cobalt, copper, lead, nickel, and zinc. The surface water sample was collected from a concrete lined settling pit located to the west of Plant 1;
- Groundwater seepage was reported at a depth of 3.3 m bgs at one borehole location (BH17). JBS&G note this may indicate the potential for perched groundwater within this portion of the site; and
- Asbestos was identified at sample BH8/0.0-0.2m. Coffey inferred that the asbestos was potentially sourced from fall-out from asbestos roofing which was adjacent the sample location.

In summary, Coffey (2013) concluded that no gross or widespread contamination existed and deemed the property suitable for a continued commercial/industrial land use scenario.

JBS&G noted laboratory analysis was conducted for a limited suite of contaminants and did not address all COPC for identified AECs. No PCB or semi/volatile organic compound (s/VOC) analysis was conducted in vicinity of waste oil and petroleum storage and handing are as. The investigation did not address potential contamination associated with known former petroleum storage infrastructure, including a former UST identified by WC (2000). Groundwater was not assessed as part of the investigation.

Coffey (2013) did not conduct further investigation in an area noted by WC (2000) to contain buried asbestos waste. Noting WC (2000) reported the asbestos waste to have been removed in 1996

(based on anecdotal evidence only), JBS&G consider the potential for residual asbestos impacts within this area to remain.

Coffey (2013) reported that the thickness of the fill material could not be determined during the investigation, however the maximum recorded depth of 4m was encountered at BH22. Noting this, no sampling and analysis of fill material was conducted at depth (predominate fill analysis was conducted within the top 0.5 m bgs).

3.1.3 Combined Phase 1 and Phase 2 Environmental Assessment (DLA 2017[16])

DLA (2017) prepared a Phase 1 and 2 ESA for Lot 10 DP 1022044. The scope of works included:

- A review of previous investigations (WC 2000);
- Detailed site inspection;
- The collection soil samples from 32 borehole locations and two sediment samples; and
- Collection of surface water samples from two locations and the installation and sampling of a single groundwater monitoring well.

Analytical data as presented by DLA (2019) is provided in **Appendix A**. The following was reported:

- Various anthropogenic wastes (ash, building rubble and other filling) were noted in soil, albeit to a limited extent;
- Analysis of collected soil and sediment samples indicated that all concentrations were below the relevant NEPC (2013) health and ecological criteria for commercial/industrial land;
- Low level copper concentrations were reported to exceed the adopted ecological criteria for 95% species protection for freshwater in two surface water samples collected from settling ponds (SP2 and SP3) and in groundwater from one monitoring well (MW30);
- Hazardous building materials (asbestos, PCBs) were identified within site structures;
- DLA (2017) indicated that previous investigations reported the existence of ACM burial at 'AEC10', however no sample locations were made available to JBS&G; and
- In the present state, DLA (2017) consider the site to be suitable for continuing commercial/industrial land use.

JBS&G note DLA (2017) did not compare analytical results against relevant ecological investigation levels (EILs) pursuant to the requirements of NEPC (2013). DLA (2017) did not conduct further investigation in an area noted by WC (2000) to contain buried asbestos waste. Noting WC (2000) reported the asbestos waste to have been removed in 1996 (based on anecdotal evidence only).

DLA (2017) conducted a broad suite of analysis to target identified AECs. JBS&G note samples were not collected nor analysed from surface soils (or directly underlying hardstand pavement). Samples were collected at a depth of 0.5-0.6 m bgs. As such, JBS&G consider that should localised contamination be present in surface soils (including potential leaks/spills associated with hydrocarbon/chemical storage and/or asbestos contamination from known hazardous building materials etc.) they may not have been captured as part of the investigation.

JBS&G note that only one groundwater well was advanced (BH30/MW30) and that the groundwater assessment is not considered adequate given the historical land use/amount of petroleum hydrocarbon storage and handling reported.

[16] *Combined Phase 1 and Phase 2 Environmental Assessment, Prospect Masonry, 44 Clunies Ross Street, Prospect NSW 2148.* DLA Environmental Services Pty Ltd, dated 2 March 2017, Ref: DL4032_S006335 (DLA 2017)

3.2 Boral Concrete & Brick Head Office (as known as Boral House)

3.2.1 Preliminary Contaminated Land Assessment (JBS&G 2019b[17])

JBS&G (2019a) conducted a preliminary contaminated land assessment. The scope of works comprised the following:

- Detailed site inspection;
- Review of environmental setting, planning certificates, EPA licences and environmental incidents, historical photographs, as well as heritage records pertaining to the property and immediate surrounds;
- Advancement of 42 soil sampling locations (27 test pits, 8 surface samples, 4 hand augers (IDs) and 3 boreholes) to depths between 0.1 and 8 m bgs and collection of representative soil samples;
- Conversion of three boreholes to groundwater monitoring wells (BH01/MW01 to BH03/MW03) to a depth of 8 m. It was reported the wells were dry at the time of assessment; and
- Comparison of laboratory results against commercial/industrial land use criteria as derived from NEPC (2013).

The site condition was noted to be similar to that in **Section 2.2**. Based on the investigation the following was reported:

- Laboratory results returned concentrations of heavy metals and PAHs (benzo(a)pyrene (BaP)) above the adopted ecological criteria, however JBS&G (2019b) did not consider the minor exceedances to represent an unacceptable risk under a proposed commercial/industrial land use scenario, and given the existence of established and healthy site vegetation;
- Groundwater was inferred to be present at depths greater than 8m bgs;
- Approximately 215m^3 of asbestos impacted fill material was identified adjacent to the north eastern portion of the property;
- Asbestos fragments were observed on the surface of an earthen mound/embankment within the south/south western site extent. It was reported that potential remains for redundant service infrastructure of ACM construction it be present within the earthen mound/embankment;
- Approximately 50m^3 of scattered anthropogenic material including building and demolition waste (brick, concrete, scrap metal) and general rubbish (discarded fencing, tyres etc) were identified in the south western portion of the property; and
- In summary, JBSG (2019b) concluded that remediation/management of asbestos impacted soil was required to ensure the site was suitable for commercial/industrial site suitability.

3.2.2 South East Boral House - Asbestos Clearance (JBS&G 2020d[18]))

JBS&G (2020d) reported the removal of ACM on the surface of an earthen mound/embankment within the south/south western site extent following make-safe works by others.

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[17] *Preliminary Contaminated Land Assessment – Lot 107 DP 1028208, Clunies Ross Street, Pemulwuy, NSW (Rev 1)*. JBS&G Australia Pty Ltd dated 17 June 2019 (JBS&G 2019b)

[18] *South East Boral House – Asbestos Clearance (Rev 1).* JBS&G Australia Pty document 56425/127379 Ltd dated 11 February 2020 (JBS&G 2020c)

JBS&G (2020d) concluded that, following make-safe works, bonded ACM at the site surface had been adequately removed and that the area was safe for re-occupation under normal controls. JBS&G (2020d) noted the potential remained for further ACM infrastructure to be present within the earthen mound/embankment.

3.3 Council Depot

3.3.1 Due Diligence Contamination Investigation (DP 2018[19])

DP (2018) completed a due diligence assessment for this portion of the site. The due diligence comprised a combined desktop study and limited soil sampling across accessible portions of the property. DP (2018) reviewed and included two earlier reports relating to the property:

- Alliance Geotechnical Pty Ltd, Supplementary Stage 1 Preliminary Site Investigation, 615A Great Western Highway, Pemulwuy, NSW, Lot 63 in DP752051, reference 8068-ER-1-1 dated 10 October 2018 (Alliance 2018); and
- Geotechnique Pty Ltd, Preliminary Contamination Assessment (Revised), Lot 63 in DP752051, Clunies Ross Street, Pemulwuy, NSW, reference 11762/1-AAR1, dated 28 July 2008 (Geotechnique 2008).

The intrusive investigation was limited to the advancement of seven test pits via use of an excavator within accessible areas.

DP (2018) reported the following:

- The site comprised a generally vacant vegetated parcel of land which had been subject to significant ground disturbance (filling) between 1965 and 1982.
- Potential sources of contamination were identified as:
  - Imported fill; and
  - Fly tipped waste.
- Soil analysis undertaken on collected samples indicated that chemicals of concern were generally within the adopted commercial/industrial land use criteria in NEPC (2013);
- Field works reported fill containing anthropogenic material (glass, brick, tyre, plastic, concrete etc.) to a maximum depth of 1.5m bgs. Weathered dolomite was encountered underlying fill materials at three locations;
- Fill was noted to contain elevated heavy metal concentrations;
- Surface anthropogenic materials were identified and require removal prior to commencement of earthworks. It was estimated 20 to 40m^3 of waste will require to be removed; and
- Bonded ACM was identified at three of the seven advanced locations (TP1, TP4 and TP5).

DP (2018) concluded a low potential for contamination.

JBS&G note the number of sampling locations advanced in DP (2018) was not acquiescent with EPA (1995[20]) *Sampling Design Guidelines* for an area of 8,114 m^2 and that further sampling/analysis may be warranted given the extensive fill nature of the site to accurately conclude on the potential for land contamination.

[19] *Report on Due Diligence Contamination Investigation - Proposed Commercial Development 615A Great Western Highway,* Pemulwuy. Douglas Partners Pty Ltd dated 7 December 2018, DP (2018)

[20] *Contaminated Sites: Sampling Design Guidelines*. NSW EPA 1995 (EPA 1995)

3.3.2 Due Diligence Assessment (JBS&G 2018a[21])

JBS&G (2018a) reported additional characterisation activities as part of purchase considerations for ISPT. The investigation included a review of DP (2018) and the implementation of a sampling program in accordance EPA (1995) sampling design guidelines.

The field program involved the advancement of 20 test pit locations via an excavator on an approximate grid basis. Asbestos analysis undertaken on collected soil samples indicated the following:

- Trace asbestos fines/friable asbestos (AF/FA) within fill material at six (JB03, JB06, JB08, JB10, JB11 and JB16) of the 20 sample locations. AF/FA exceeded the adopted health-based criterion in fill at one sample location (JB06);
- ACM fragments were identified within fill at ten (JB01, JB02, JB03, JB05, JB06, JB07, JB08, JB09, JB10 and JB16) of the 20 sample locations; and
- Aesthetic issues in the form of general and building/demolition waste within the fill material were identified. JBS&G (2018a) noted where fill material is to remain, consideration should be given to placement of impacted soils within areas where they will not be accessible/observable to future site occupants/workers upon completion of development activities.

JBS&G (2018a) made the following conclusions/recommendations:

- It was recommended that, prior to submission of development applications to Council, the client conducts a detailed investigation of the property to refine the remedial;
- The site will be required to be managed under an asbestos management plan (AMP) given the identification of asbestos; and
- Additional investigations and a RAP would be required to be prepared to address the presence of the aforementioned impacts and provide an appropriate framework for implementation of management/remediation activities and subsequent validation to demonstrate the suitability of the property.

3.3.3 Detailed Site Investigation (JBS&G 2019c[22])

JBS&G (2019c) documented a detailed site investigation (DSI) to further characterise the property and refine the remedial extents. The investigation comprised a review of previous investigations, updated EPA/heritage searches, and involved implementation of a systematic and targeted soil sampling program (48 test pit location). The sampling density was double EPA (1995) *Sampling Design Guidelines* as required by WA DOH (2018[23]).

Asbestos quantification (AQ) was completed on fill material to a maximum depth of 3.0m bgs. Asbestos impacted fill was restricted to a distinct fill horizon which overlayed reworked dolerite/shale and/or natural soil/bedrock which was reported to be free of anthropogenic material and asbestos.

JBS&G (2019c) reported the following:

- Surface (0-0.1 m) ACM was observed at twenty-nine of the advanced sample locations;

[21] *Additional Land Contamination Assessment – 615A Great Western Highway, Pemulwuy, NSW*. JBS&G Australia Pty Ltd dated 18 December 2018 reference 55756/119840 Revision 1 (JBS&G 2018a)

[22] *Detailed Site Investigation – 615A Great Western Highway, Pemulwuy, NSW*. JBS&G Australia Pty Ltd, reference 56047/121406 Rev 1 dated 1 April 2019 (JBS&G 2019c)

[23] Guidelines for the Assessment Remediation and Management of Asbestos-Contaminated Sites in Western Australia, May 2009. Western Australia Department of Health (DOH), (DOH 2018)

- Sub-surface ACM (present/absent) was reported in fill at thirty locations;
- ACM in fill (below 0.1 m bgs) exceeded the adopted commercial/industrial health screening level (HSL D) criterion at six locations (AQ14 0-0.4, AQ24 0.1-1.1, AQ27 0.1-0.7, AQ32 0.1-0.7, AQ34 0-1.0 and AQ38 0.1-1.1). ACM was reported below the adopted criterion at twenty-one additional locations;
- A total of 98 soil samples were submitted to the laboratory for asbestos analysis. Five samples (AQ19 0.1-0.9, AQ20 0.1-1.1, AQ40 0.1-1.1, QC01 (AQ40 0.1-1.1) and AQ44 0.1.-0.6) from fill at four locations exceeded the adopted AF/FA criterion of 0.001% w/w. Ten additional locations reported trace levels of AF/FA in fill below the adopted AF/FA criterion;
- Based on the results, asbestos impacted fill (absence/presence) was restricted to a discrete soil type of brown silty clay with varied inclusions of porcelain, brick, metal, slag, timber identified from surface to a maximum depth of 2.0m bgs across the majority of the property. Anthropogenic inclusions observed in fill under a commercial/industrial land use scenario were not considered to pose an unacceptable aesthetic issue with the notable exception of one discrete location;
- Lead was reported at two locations (3 samples; AQ40 0.5-1.1 (2100 mg/kg) and duplicate QC01J (1900 mg/kg) and AQ45 0.1-0.2 (1800 mg/kg)) exceeding the adopted health criterion. Following statistical evaluation of the data set, the lead exceedances were not considered to represent an unacceptable health risk;
- Heavy metal concentrations exceeded the adopted ecological criteria at a number of locations. However, with consideration of the proposed development comprising a commercial/industrial allotment surfaced by hardstands these exceedances were not considered to represent unacceptable risk noting established site vegetation at the time of investigation appeared healthy and any future flora to be established in this portion of the site would likely be within constructed garden beds/imported growing media;
- Fill was reported to generally contain low leachate properties and not to represent a risk to groundwater and future develop would further restrict infiltration/migration. Notwithstanding, fill at sample location AQ40 0.5-1.1, which reported lead concentrations slightly in excess of those across the broader property required removal due to AF/FA exceedances (AQ40 0.1-1.1);
- Based on a detailed desktop assessment, groundwater was noted likely to be saline and located at depth, and on this basis, it was not considered be suitable for beneficial re-use;
- It was estimated approximately 100 to 200m^3 of rubbish was present on the ground surface;
- Reworked dolerite/shale materials and natural weathered dolerite were identified underlying fill materials. There was no evidence of staining, odours, ACM or gross anthropogenic waste observed in materials underlying fill; and
- Based on review of the analytical results fill materials and reworked natural soils were reported to generally fall within the general solid waste (GSW) (non-protrusible) NSW Waste Classification (EPA 2014[24]) thresholds, and classifiable as Special (Asbestos) Waste where asbestos was reported. Fill at sample location AQ40 0.5-1.1 was classifiable as restricted solid waste (RSW)/Special (asbestos).

JBS&G (2019c) concluded:

[24] *Waste Classification Guidelines Part 1: Classifying Waste*. NSW EPA 2014 (EPA 2014)

- A RAP should be prepared to address the above aesthetic/asbestos impacted media as follows:
    - surficial and sub-surface anthropogenic materials representing an aesthetic issue requiring remediation;
    - AF/FA impacted fill at five locations (approximately 550m^3); and
    - ACM was identified within a discrete fill horizon and considered to pose an unacceptable health risk requiring remediation to facilitate commercial/industrial land use without ongoing management. Following removal of AF/FA impacted fill, it was estimated that 3,800 m^3 of ACM impacted soil required remediation.

3.3.4 Remedial Action Plan (JBS&G 2019d[25])

JBS&G (2019d) documented the principles of remedial/validation works required, that when completed, would demonstrate the property as suitable for the proposed land use unencumbered by any management plans.

The preferred remedial method included excavation and off-site dispose of AF/FA exceeding the land use criterion, and rake/tyne and picking of bonded ACM and anthropogenic waste considered to pose human health and aesthetic issue, respectively. It is noted JBS&G (2019d) adopted a validation criterion of no visible ACM, consistent with the validation requirements of this RAP.

3.3.5 Validation Report (JBS&G 2020b)

JBS&G (2020d) documents the remedial and validation works undertaken to remove asbestos, lead and aesthetic impacts.

Remediation of the property included the excavation of a total of 5,230m^3 of impacted fill material. Four friable asbestos hotspots (5 historical locations) identified to pose an unacceptable health risk were excavated and disposed of off-site (including an area of moderate lead leachability). During remedial works, an unexpected find (UF01: friable impacted fill material) comprising approximately 250 m^3 was identified in the north east of the property and was remediated/validated in accordance with the unexpected find protocol in the RAP (JBS&G 2019d).

Following removal of surface rubble/waste and in turn subsurface friable asbestos and aesthetic impacts, and successful validation, approximately 4,500m^3 of fill material was excavated and treated to remove ACM to acceptable levels (no visible ACM was the adopted criterion). Following removal of ACM, the treated fill material was validated in accordance with DOH (2018) and NEPC (2013) for asbestos. In addition, representative fill samples were submitted for leach assessment to further substantiate that heavy metal and PAH concentrations contained low leachate properties.

It was reported that remediation and validation was undertaken to the extent practicable, however, an area of approximately 15m^2 x 2m in depth around a power pole in the north east corner of the property was not able to be remediated. Fill material in this location was reported to contain friable asbestos (and aesthetic impacts) requiring remediation/management. This area was excluded from the validation extent and as such outside the area subject to site audit under the *CLM Act*.

Based on the results of the validation assessment, it was reported that the portion of the property subject to remediation and validation was to a standard such that this portion of the site was considered suitable for ongoing commercial/industrial land use without the requirement for ongoing management.

[25] *Remedial Action Plan – 615A Great Western Highway, Pemulwuy, NSW*. JBS&G Australia Pty Ltd, reference 56047/123106 Rev 1 dated 16 July 2019 (JBS&G 2019d)

3.4 Site Wide

3.4.1 Phase 1 and 2 ESA (JBS&G 2020a)

JBS&G (2020a) documents a site wide ESA (otherwise known as a DSI) to satisfy the requirements of SEPP 55 and supported the State Significant Development Application (SSDA) for the site.

The scope of works included a review of previous investigation and update of the government searches and the environmental. The review reported that:

- The site has historically been utilised for a combination of commercial and light industrial activities associated with regional quarrying and manufacturing and has been subject to significant ground disturbance (in areas). Following cessation of large-scale quarrying activities, the northern portion of the site has continued to be utilised for masonry/manufacturing activities (Austral Masonry) with the southern portion utilised for commercial (Boral Concrete and Brick Head Offices) and vacant land (Council depot/stockpiling yard) land uses;
- Review of historic contamination assessments identified the following with regard to the current contamination status of the site:
    - Sample densities generally meet the minimum in EPA (1995) *Sampling Design Guidelines*, noting there were a few data gaps (discussed below);
    - A range of potentially contaminating land use activities, including the presence of current/former petroleum and chemical storage, hazardous building materials, waste material production and placement of fill of unknown origin were identified and targeted by previous investigations;
    - Fill was reported present across the majority of the site to depths of between 0.1 m and 4m bgs and was noted to comprise a combination of sandy gravelly clays and reworked natural materials (shales/dolerite);
    - Lot 63 DP 752051 (council depot) has been subject to extensive characterisation and was in the process of being remediated at the time of reporting. As noted above, the property was remediated and validated to the extent practicable, however, an area of approximately 15m^2 x 2m in depth around a power pole in the north east corner of the property was not able to be remediated. Fill material in this location contains friable asbestos (and aesthetic impacts) requiring remediation/management. The balance of the property was reported as suitable for ongoing commercial/industrial land use without ongoing management.
    - ACM on the ground surface of an earthen mound/embankment within Lot 107 (Boral Concrete and Brick head Office) within the south/south western site extent had been removed. Notwithstanding, potential remained for further ACM infrastructure to be potentially present within the earthen mound/embankment.
    - Approximately 215m^3 of asbestos impacted fill material (200m^3 of bonded and 15m^3 of AF/FA) was identified adjacent to the north eastern Lot 107 (Boral Concrete and Brick head Office) site extent;
    - Scattered anthropogenic material including building and demolition waste (brick, concrete, scrap metal) and general rubbish (discarded fencing, tyres etc) were identified in two district locations within Lot 107 (Boral Concrete and Brick head Office) and at a number of locations within Lot 10 (Austral Masonry);
    - ACM was observed at sample location BH8 within surface soils adjacent to Plant 2 within Lot 10 (Austral Masonry);

- A UST and numerous ASTs were reported, requiring remediation/management,
- With the exception of the aforementioned asbestos impacts, no exceedances of the health criteria in **Section 7.3** were reported. One location exceeded the TRH Management Limit criterion (JB63 0.1-0.2).
- A number of ecological exceedances were reported, however, were not considered to represent an unacceptable ecological risk under the proposed redevelopment scenario;
- Limited sediment assessment identified low level heavy metal concentrations exceeding the conservative ecological assessment criteria (ANZG 2019) for the 95% species protection in freshwater environments. Heavy metals were considered not to represent an unacceptable risk, noting they were likely reflective of natural background conditions (associated with the underlying geology and/or conditions to be expected in urban environments); and
- Limited surface water and groundwater analysis at the site did not identify gross or widespread contamination. Low level heavy metal concentrations reported above the adopted ecological site criteria were considered reflective of regional background conditions as to be expected in urban/industrial environments and were not considered to represent an unacceptable risk at the site or to downgradient disturbed natural environments (Girraween Creek).

As part of the review, JBS&G (2020a) identified a number of data gaps across the site that required further consideration.

Concurrently with the review of previous investigations, twelve sample locations were advanced within Lot 107 (Boral Concrete and Brick Head Office) to address a data gap (i.e. to make this property acquiescent with EPA (1995) minimum sampling densities). JBS&G (2020a) reported the following:

- Fill material within the south western portion of the property was generally consistent with reworked natural material (shales and dolerite) as previously identified across the broader property and was considered to not represent an unacceptable health/ecological risk;
- Chromium reported above the adopted ecological criterion at one location (TP 207), however, was considered representative of the underlying igneous geology (subject to quarrying) and not considered to represent an unacceptable risk to future ecological receptors; and
- No further ACM was identified within the former service easement. Noting detailed intrusive investigation was precluded by dense vegetation.

JBS&G (2020a) recommend that a data gap investigation (DGI) be conducted to address the aforementioned AECs/data gaps, and a RAP prepared such that when implemented would render the site suitable for its proposed land use.

3.4.2 Data Gap Investigation (JBS&G 2020c)

JSB&G (2020c) reported additional investigations undertaken to address data gaps identified in JBS&G (2020a). The report documented the implementation of a targeted program of soil/sediment, soil vapour, surface water and groundwater assessment. The sampling plan included the advancement of one hundred and twenty-two soil sampling locations, ten sediment sampling locations, installation and sampling of seven groundwater monitoring wells, and installation and screening of twenty-two soil vapour locations to supplement the existing environmental data. The DGI was considered to have adequately addressed identified data gaps and characterised the site.

JBS&G (2020c) reported as part of the current DGI and existing data set:

- With the exception of asbestos, no exceedances of the adopted health criteria for chemical constituents were reported for any soil, soil vapour, sediment, surface water or groundwater sample locations;
- Isolated heavy metal, TRH and PAH concentrations in soil and sediment reported in exceedance of the adopted ecological criteria, however, were considered to be generally attributed to background concentrations anticipated in urban settings and/or reflective of the underlying geology and with consideration to the proposed redevelopment considered not to pose an unacceptable risk to ecological receptors at the site;
- Reported concentrations of heavy metals in surface water/groundwater exceeding the adopted ecological criteria were considered reflective of urban background concentrations and/or reflective of the underlying geology and considered not to represent an unacceptable risk at the site;
- Asbestos impacted fill materials were reported at several locations. Based on review of previous investigations and the results of the DGI, the following areas (as shown on **Figure 6A** and **6C**) were identified to contain asbestos impacts considered to pose an unacceptable risk and require remediation/management:
    - Approximately 15m^3 of AF/FA impacted fill at sample location AQ13 within the north eastern Lot 107 (Boral Concrete and Brick Head Office) property extent;
    - Approximately 200m^3 of ACM (and anthropogenic) impacted material was identified within the north eastern Lot 107 (Boral Concrete and Brick Head Office) property extent;
    - It was reported that potential remains for redundant service infrastructure of ACM construction it be present within the earthen mound/embankment within the southern/south western Lot 107 (Boral Concrete and Brick Head Office) extent.
    - Approximately 30m^3 (15m^2 x 2m in depth) of AF/FA (and anthropogenic material) around a power pole in the north east corner of Lot 63 (council depot) was not able to be remediated;
    - Approximately 150m^3 of fill identified to contain bonded ACM and anthropogenic waste along the Lot 10 (Austral Masonry) and Lot 63 (Boral Concrete and Brick Head Office) cadastre boundary;
    - Between approximately 4,000 and 8,000m^3 of bonded ACM impacted fill material intermingled with anthropogenic materials in the north western site extent (Lot 10, Austral Masonry);
    - Approximately 150m^3 of AF/FA impacted fill material at sample location JB95 (to a depth of 2.0m bgs) in the north west of the site (Austral Masonry); and
    - Approximately 5m^3 of AF/FA impacted surface soils at one location (PT2-6) and approximately 10m^3 of bonded ACM impacted surface soils at one location (BH8) surrounding Plant 2 in the central portion of the site (Austral masonry). Potential remains for asbestos impacts in accumulated sediment within drainage pits/infrastructure (if present) in close vicinity of Plant 2.
- Targeted soil vapour assessment did not identify the presence of vapour concentrations underlying the site considered to pose a potentially unacceptable vapour intrusion risk, noting that petroleum infrastructure and associated potentially impacted fill/soil surrounding the infrastructure require removal;

- Strong to moderate hydrocarbon/chemical odours in soil at JB63 and JB93 (Austral masonry) were considered to pose an aesthetic issue and will require remediation and/or management;
- TRH concentrations at one sample location (JB63, Austral Masonry) exceeding the adopted Management Limit criterion and was considered not to pose an unacceptable risk to groundwater, noting soils at this location will require remediation/management to address odours;
- General site wide fill materials have been identified to contain brick to varied degrees which may pose an aesthetic issue. As part of redevelopment works, consideration should be given to the end-use (placement) of fill material co-mingled with brick (in accordance with aesthetic considerations presented in NEPC 2013);
- Gross anthropogenic waste materials were identified in fill material at isolated locations (generally co-mingled with ACM impacted fill) at the site and were considered to pose an unacceptable aesthetic issue requiring remediation and/or management; and
- One UST, a number of ASTs, and former/current chemical storage and handling areas require remediation/management.

JBS&G (2020c) concluded that a RAP should be prepared for the site to address the reported contamination, petroleum/chemical storage and handling infrastructure and aesthetic impacts.

4. Conceptual Site Model

A conceptual site model has been presented following as:

- The extent of contamination;
- Potential fate and transport of contaminants;
- Potential receptors to site contamination; and
- Potentially complete exposure pathways.

This is detailed in the following sections.

4.1 Extent of Contamination

A range of previous assessments have been completed on the site as detailed in **Section 3**. On the basis of these investigations, the following contamination issues have been identified on the site:

Austral Masonry

- **AEC 1:** Surficial Anthropogenic Waste including disused plant/machinery, wooden pallets, truck tyres, scrap metal generally restrained to the north western portion.
- **AEC 2**: Approximately 228m^3 (114m^2 x 2m in depth) of friable asbestos (AF/FA) impacted fill material at location JB95 in the north west of the property and approximately 5 m^3 (51m^2 x 0.1m in depth) of friable asbestos (AF/FA) impacted fill material at location PT2-6 exceeding the adopted human health criteria. Confirmation is required that friable asbestos is not present within inground drainage alignments in vicinity of Plant 2.
- **AEC 3**: Sub-surface inclusions of anthropogenic materials (brick and other inert materials) in fill material across the majority of the property. It is noted this is only considered to represent an aesthetic issue where accessible to future maintenance personal (i.e. service trenches and landscaped areas).
- **AEC 4**: Odorous (hydrocarbon/chemical) soils at JB63 (211m^2 x 2m in depth, totalling 422m^3) and JB93 (46m^2 x 2m in depth, totalling 92m^3) in exceedance of the adopted management limit (JB63) and representing an aesthetic issue.
- **AEC 5**: Bonded ACM and anthropogenic waste impacted fill exceeding the adopted site criterion (no visible ACM) and representing an aesthetic issue. These materials are located within the north west of the property (between approximately 6,624m^3 to 10,200 m^3), BH8 south east of Plant 2 (approximately 9m^3) and adjacent to Lot 63 (approximately 148m^3).
- **AEC 6**: Confirmation is required that underlying fill/soil is not impacted with hydrocarbons/oil following the removal of hydrocarbon/chemical infrastructure and/or storage areas (i.e. ASTs/UST/storage areas/transformers (current and former, where characterisation data has not been collected demonstrating the infrastructure does not represent an issue)).

Former Council Depot

- **AEC 7**: Approximately 32m^3 (16m^2 x 2m in depth) of friable asbestos (AF/FA) impacted fill around a power pole within the north east corner of the property exceeding the adopted human health criteria. This material was also reported to contain anthropogenic materials representing an aesthetic issue;

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- **AEC 8:** Approximately 200m^3 (400m^2 x 0.5m in depth) of fill material within a discrete fill horizon in the north eastern property extent inferred to contain bonded ACM fragments

exceeding the adopted site criterion (no visible ACM) and representing an unacceptable health.

- **AEC 9**: Approximately 15m^3 (15m^2 x 1m in depth) of friable asbestos (AF/FA) impacted fill at one location (AQ13 0.6-1.0) in the north eastern property extent exceeding the adopted human health criteria.
- **AEC 10**: Surficial and sub-surface anthropogenic materials representing an aesthetic issue requiring management/remediation in accordance with NEPC (2013).
- **AEC 11**: Potential ACM and anthropogenic impacts within a redundant service easement along the southern/south westerner property extent.
- **AEC 12**: Confirmation is required that underlying fill/soil is not impacted with hydrocarbons and/or PCBs following the removal of the AST and transformers.

Note, with regard to AEC 11, previous investigations did not identify the presence of further ACM within the southern/south western site extent. Notwithstanding, given the potential for further redundant infrastructure which may comprise ACM to be present within the identified embankment/service alignment, the sub-surface has been identified as an AEC which will require further assessment and/or remediation (if ACM is identified).

Levels of soil, sediment, soil vapour (excluding those around petroleum/chemical infrastructure), surface water and groundwater constituents otherwise have not been reported at a level that will pose a potential health or ecological risk. The locations of the aforementioned health and aesthetic impacts and the location of petroleum/chemical infrastructure is shown on **Figure 7**.

4.2 Potential Fate and Transport of Contaminants

Contaminants generally migrate from a site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review and previous investigation are generally in either a solid form (e.g. asbestos) or liquid form (e.g. hydrocarbons, oils).

As the site is largely covered by a combination of pavement and vegetation (grass cover), the potential for windblown dust migration of contamination from the site is generally low. The potential for contamination migration via surface water movement and infiltration of water and subsequent migration through the soil profile is further considered generally to be low noting impermeable pavements and/or the physical forms of contaminants identified. In unsealed areas, a moderate potential remains of infiltration.

Where petroleum hydrocarbon impacted soils are still present in the proximity of the current/former petroleum/chemical infrastructure, there is a potential for petroleum vapours to be present. Petroleum hydrocarbon vapours may pose a potential risk by intrusion to structures and accumulation within.

4.3 Potential Receptors

Potential human populations who may be exposed to site impacts in the future (if they are not remediated or appropriate management is not implemented prior to or during development) include:

- Current and future site occupants/workers/visitors who may potentially be exposed to COPC through direct contact with impacted soils, groundwater and/or inhalation of dusts/fibres/vapours associated with impacted soils; and/or
- Excavation/construction/maintenance workers conducting activities at the site, who may potentially be exposed to COPC through direct contact with impacted soils and groundwater present within excavations and/or inhalation of dusts/fibres/vapours associated with impacted soil.

Potential ecological receptors identified on and in proximity of the site include flora species established on the site; and downgradient ecological receptors including the fresh (but highly disturbed) waters of Girraween Creek.

4.4 Potential Exposure Pathways

Based on the contaminants of concern identified in various media as discussed above, the potential exposure pathways for the site include:

- Potential dermal and oral contact to impacted soils and groundwater as present at shallow depths and/or accessible by future service excavations at isolated locations associated with asbestos impact and/or petroleum/chemical infrastructure;
- Inhalation of potential COPC including asbestos fibres released from ACM impacted soils and/or vapours migrating upwards from petroleum/chemical infrastructure; and
- Potential contaminant uptake by vegetation within landscaped areas.

4.5 Preferential Pathways

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPC as either liquids or gases.

Man-made preferential pathways are present throughout the site, generally associated with fill materials, and at near surface depths over the remainder of the site. Fill materials are anticipated to have a high permeability.

Sub-surface services are also present, or will be present as part of site redevelopment, throughout the site. Preferential pathways can be created by the generally higher permeability backfill used to re-instate these trenches.

Preferential pathways are also important in the assessment of potential off-site sources of COPC. Preferential pathways are potentially present in the adjoining road network, as associated with service easements.

5. Remedial Options

5.1 Remedial Goal

The goal for the remediation and/or management of environmental impact is to remove unacceptable risks to human populations whom will potentially use the site in the future; and to undertake remedial works in a manner that best complies with the principles of ecologically sustainable development (ESD). It is a further objective the remedial works are undertaken to a standard such that the site is not encumbered by any environmental management plan (EMP)

5.2 Extent of Remediation

Remediation is required to address the following areas of site contamination:

Austral Masonry

- **AEC 1:** Surficial Anthropogenic Waste including disused plant/machinery, wooden pallets, truck tyres, scrap metal generally restrained to the north western portion.
- **AEC 2**: Approximately 228m^3 (114m^2 x 2m in depth) of friable asbestos (AF/FA) impacted fill material at location JB95 in the north west of the property and approximately 5 m^3 (51m^2 x 0.1m in depth) of friable asbestos (AF/FA) impacted fill material at location PT2-6 exceeding the adopted human health criteria. Confirmation is required that friable asbestos is not present within inground drainage alignments in vicinity of Plant 2.
- **AEC 3**: Sub-surface inclusions of anthropogenic materials (brick and other inert materials) in fill material across the majority of the property. It is noted this is only considered to represent an aesthetic issue where accessible to future maintenance personal (i.e. service trenches and landscaped areas).
- **AEC 4**: Odorous (hydrocarbon/chemical) soils at JB63 (211m^2 x 2m in depth, totalling 422m^3) and JB93 (46m^2 x 2m in depth, totalling 92m^3) in exceedance of the adopted management limit (JB63) and representing an aesthetic issue.
- **AEC 5**: Bonded ACM and anthropogenic waste impacted fill exceeding the adopted site criterion (no visible ACM) and representing an aesthetic issue. These materials are located within the north west of the property (between approximately 6,624m^3 to 10,200m^3), BH8 south east of Plant 2 (approximately 9m^3) and adjacent to Lot 63 (approximately 148m^3).
- **AEC 6**: Confirmation is required that underlying fill/soil is not impacted with hydrocarbons/oil following the removal of hydrocarbon/chemical infrastructure and/or storage areas (i.e. ASTs/UST/storage areas/transformers (current and former, where characterisation data has not been collected demonstrating the infrastructure does not represent an issue)).

Former Council Depot

- **AEC 7**: Approximately 32m^3 (16m^2 x 2m in depth) of friable asbestos (AF/FA) impacted fill around a power pole within the north east corner of the property exceeding the adopted human health criteria. This material was also reported to contain anthropogenic materials representing an aesthetic issue;

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- **AEC 8:** Approximately 200m^3 (400m^2 x 0.5m in depth) of fill material within a discrete fill horizon in the north eastern property extent inferred to contain bonded ACM fragments exceeding the adopted site criterion (no visible ACM) and representing an unacceptable health.

- **AEC 9**: Approximately 15m^3 (15m^2 x 1m in depth) of friable asbestos (AF/FA) impacted fill at one location (AQ13 0.6-1.0) in the north eastern property extent exceeding the adopted human health criteria.
- **AEC 10**: Surficial and sub-surface anthropogenic materials representing an aesthetic issue requiring management/remediation in accordance with NEPC (2013).
- **AEC 11**: Potential ACM and anthropogenic impacts within a redundant service easement along the southern/south westerner property extent.
- **AEC 12**: Confirmation is required that underlying fill/soil is not impacted with hydrocarbons and/or PCBs following the removal of the AST and transformers.

Note, with regard to AEC 11, previous investigations did not identify the presence of further ACM within the southern/south western site extent. Notwithstanding, given the potential for further redundant infrastructure which may comprise ACM to be present within the identified embankment/service alignment, the sub-surface has been identified as an AEC which will require further assessment and/or remediation (if ACM is identified).

5.3 Assessment of Remedial Options

The approach adopted in this RAP is consistent with the preferred hierarchy of options for site clean-up and/or management provided in NEPC (2013) and (EPA 2017[26]), which are listed as follows:

- on-site treatment so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
- off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site; or

if the above are not practicable,

- consolidation and isolation of the soil on-site by containment within a properly designed barrier; and
- removal of contaminated soil to an approved site or facility, followed where necessary, by replacement with appropriate material;

or

- where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

In addition, it is also a requirement that remediation should not proceed in the event that it is likely to cause a greater adverse effect than leaving the site undisturbed. And, where there are large quantities of soil with low levels of contamination, alternative strategies are required to be considered or developed (EPA 2017).

Remedial options have been assessed for the site as detailed in **Table 5.1** following. Remedial options have been considered specific to each of the site contamination issues identified as requiring to be addressed by this RAP.

[26] Contaminated land Management – Guidelines for the NSW Site Auditor Scheme (3rd Edition). NSW EPA 2017 (EPA 2017)

Table 5.1: Assessment of Remedial Options

Remedial Option	Applicability	Assessment
1. On-site treatment so that the contaminants are either destroyed or the associated hazards are reduced to an acceptable level.	<u>Hydrocarbons (petroleum)</u> Given that soil contaminants associated with petroleum storage consist of hydrocarbon constituents, there is a potential that they may be able to be remediated on site by a bioremediation style remediation method. Bioremediation occurs where contaminants are chemically broken-down by the metabolic processes of micro-organisms into less toxic or non-toxic forms. NSW EPA guidance requires bioremediation methods to demonstrate that pollutant emissions are not discharged to the atmosphere. On this basis, the lateral extent of the bioremediation activity requires to be restricted to ensure that air emissions from remediation materials are able to be collected.	<u>Hydrocarbons (petroleum)</u> Potential option. Given the likely development time constrains and time it may take to remediate fill/soils to a level that they do not represent an unacceptable risk and/or contribute to groundwater impacts, this method may not practicable but is feasible.
	<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> The waste material poses an aesthetic issue that cannot be treated on-site.	<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> Not a suitable option.
	<u>AF/FA Impacted Soil</u> No available technology to economically remove or destroy AF/FA impacted soil.	<u>AF/FA Impacted Soil</u> Not a suitable option.
	<u>ACM</u> Mechanic or manual picking of ACM within fill material is labour intensive, however, it is more in keeping with the principals of ESD, reducing the need to dispose of material to landfill and import material to reinstate excavations. Should the material be particularly high in ACM content, clay or anthropogenic materials, or prove difficult to achieve validation, consideration should be given to off-site disposal.	<u>ACM</u> Where practicable, this is the preferred option as this reduces material requiring disposal to landfill, the physical resources that would be required to remediate the material are minor and is considered consistent with ESD objectives for the project.
2. Off-site treatment so that the contaminants are either destroyed or the associated hazards are reduced to an acceptable level, after which the soil is returned to the site.	<u>Hydrocarbons (petroleum)</u> As above (Option 1), however, additional time, energy and costs are incurred to take soils off-site and return them to the site, in addition to there being no/limited currently licensed facilities in close proximity of the site to undertake soil treatment.	<u>Hydrocarbons (petroleum)</u> Not a suitable option. Energy/resource use associated with the transport and return of materials is not considered consistent with ESD objectives for the project and as noted there are no/limited currently licensed facilities in close proximity of the site.
	<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> The waste material poses an aesthetic issue which can't be removed from site, treated and returned.	<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> Not a suitable option.

Remedial Option	Applicability	Assessment
	<u>AF/FA Impacted Soil</u> No available technology to economically remove or destroy AF/FA impacted soil.	<u>AF/FA Impacted Soil</u> Not a suitable option.
	<u>ACM</u> As per Option 1, however, there are reductions in noise and dust emissions on-site in comparison to on-site treatment, but these are offset by increased truck movements and the potential for exposure to emissions over a wider area. It is also noted that there are licensing issues, associated costs and limited licensed off-site treatment facilities in the surrounding area	<u>ACM</u> Not a suitable option. The resources that would be required to remediate the material and available facilities precludes consideration of this option.
3. On-site in situ management of the soil by physical separation	<u>Hydrocarbons (petroleum) and Asbestos</u> Although feasible, this option is not being considered given the objective of the remediation to allow for commercial/industrial land use without the requirement for ongoing management.	<u>Hydrocarbons (petroleum) and Asbestos</u> Not the preferred option.
	<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> Anthropogenic materials (not sorted/screened) may be relocated at depth or placed in a location(s) not readily accessible (i.e. below an engineered concrete slab associated with the built form) such that they do not represent an aesthetic issue. On this basis, ongoing management is not required (i.e., no requirements for an environmental management plan (EMP)).	<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> The preferred option. Given the volume of material and with consideration to the principles of ESD this is the preferred option as it is technically feasible and practicable.
4. Excavation and off-site removal of the impacted material.	<u>Hydrocarbons (petroleum), AF/FA, ACM and Anthropogenic Material and Material Representing an Aesthetics Issue</u> There are currently suitably licensed waste facilities in the Sydney Metropolitan region capable of accepting the identified contaminants within fill materials. These are generally located within proximity of the site.	<u>Hydrocarbons (petroleum) and AF/FA</u> The preferred option given that the material is likely to be impacted with lead which is not easily remediated. Notwithstanding, upon excavation, consideration will also be given to Option 1
		<u>ACM</u> Not the preferred option but an option if ACM is difficult to remove.
		<u>Anthropogenic Material and Material Representing an Aesthetics Issue</u> This option is inferior to Option 3, but an option should time and or geotechnical issue identify the material as not being suitable to be retained.

5.4 Preferred Remedial Strategy

A number of potential remedial options have been considered in **Table 5.1**. The preferred remedial strategy for the site is:

- Removal of surface anthropogenic material (**AEC 1** and **AEC 10**) to a landfill/licensed waste facility;
- Excavation and off-site disposal of AF/FA impacted fill at **AEC 2**, **AEC 7** and **AEC 9**;
- Sub-surface inclusions of anthropogenic materials (brick and other inert materials) within the Austral Masonry property extent (**AEC 3**). The nature and extent varies from trace levels to greater than 60% of the excavated volume. It is noted the inert waste is only considered to represent an aesthetic issue where accessible to future maintenance personal (i.e. service trenches and landscaped areas). This area is to be either be paved or covered with 0.3m of environmentally suitable material. Services are required to be backfilled with environmentally suitable material such that it's not considered to represent an aesthetic issue.
- Excavation and relocation of **AEC 4** such that it is not accessible to future maintenance personal. It is required to be overlain with 2m of environmentally suitable soil or a permanent engineered concrete slab associated with the built form such that it's not considered to represent an aesthetic issue. It is noted this process of covering may negate the requirement to excavate and relocate if not accessible by future maintenance personnel;
- Excavation of fill identified to contain bonded ACM (**AEC 5**, **AEC 8** and **AEC 11**) above the health criterion and picking/removal of ACM fragments from the fill soil profile for on-site reuse of fill following validation and off-site disposal of ACM fragments; and
- Removal of petroleum/chemical infrastructure (**AEC 6** and **AEC 12**) and associated impacted soils by off-site disposal where identified as not suitable to be retained on-site.

The locations of the aforementioned AECs are shown on **Figure 7**.

Note, with regard to **AEC 11**, previous investigations did not identify the presence of further ACM within the southern/south western site extent. Notwithstanding, given the potential for further redundant infrastructure which may comprise ACM to be present within the identified embankment/service alignment, the sub-surface has been identified as an AEC which will require further assessment and/or remediation (if ACM is identified).

6. Remedial Plan

6.1 Regulatory and Planning Requirements

This RAP has been prepared with reference to the following guidelines and legislation.

6.1.1 Environment Planning and Assessment Act 1979/SEPP 55

The site is listed as a State Significant Site within Schedule 3 of the Major Projects State Environmental Planning Policy. As such development approval for the project falls under the provisions of Part 4 of the *Environment Planning and Assessment Act 1979* (*EP&A Act*).

The specific State Environmental Planning Policy which is relevant to remediation of the site is SEPP 55 (Remediation of Land), which requires that development consent is not granted unless contamination has been considered and, if required, remediated.

JBS&G understand that the project is being assessed under Part 4 of the EP&A Act, with consideration of remediation works, and the consent authority for the remediation works is the Director General of the NSW Department of Planning, Industry and Planning (DPIE).

Specifically, in relation to the subject site, SEPP 55 also requires that:

- The proposed remediation works are carried out in accordance with the DUAP (1998[27]) and any guidelines in force under the *CLM Act*;
- The proposed remediation works are carried out in accordance with any development consent conditions; and
- Notice of completion is provided to the local council and the consent authority (DPIE) within 30 days of completion of the works, with the details required under clause 18 of SEPP 55.

6.1.2 Environment Planning and Assessment Regulation 2000 – Schedule 3 Designated Development

The proposed remediation works is greater than 3 ha and will incorporate on-site treatment of soil (refer to **Table 5.1**) and will require specific development consent.

6.1.3 Protection of the Environment Operations Act 1997

All potential discharges from the remediation works will require to be maintained below applicable assessment criteria/threshold guidelines during the remediation works. This would apply to potential emissions in air and water. Levels of discharges are typically assessed at a site boundary.

Site specific environmental management plans, as prepared and maintained by remedial contractor, will require to ensure appropriate controls and monitoring criteria to assess compliance with these aspects.

The proposed remediation/validation activities are required to be licensed under the *Protection of the Environment Operation Act 1997 (POEO Act*). The remedial area is greater than 3 aggregated ha, does not propose handling of greater than 30,000 m^3 of contaminated fill and hence does not trigger the licensing requirements.

6.1.4 Water Management Act 2000

Dewatering is not anticipated for remedial works.

[27] *Managing Land Contamination – Planning Guidelines SEPP 55 Remediation of Land*. NSW EPA Department of Urban Affairs and Planning 1998 (DUAP 1998)

Should groundwater dewatering be required, a dewatering licence will be obtained from the NSW Department of Primary Industry – Water (DPI). The approval will require to be obtained prior to the undertaking of any groundwater dewatering and treatment.

If rainwater accumulates at the site and requires removal from the site, any discharge is required to be in accordance with the *POEA Act*.

If any water is required to be discharged from site to sewer as part of the remedial works scope, approval from the asset owner (Sydney Water) will be required. Sydney Water's approval conditions will require to be upheld by the Principal/Remediation Contractor and demonstration thereof included as part of the validation report.

6.1.5 Protection of the Environment Operations (Waste) Regulation 2014

The POEO (Waste) Regulation makes requirements relating to non-licensed waste activities and waste transporting. The proposed works on the site will not require to be licensed. Section 48 of the Regulation requires that wastes are stored in an environmentally safe manner. It is also stipulated that vehicles used to transport waste must be appropriately licensed and covered when loaded with impacted materials. For transport activities this regulation also details additional tracking requirements for vehicles carrying Special (asbestos) waste if material is identified to contain asbestos following waste classification activities.

Provision is provided in the Regulation and EPA (2014) guidelines for the NSW EPA to approve the immobilisation of contaminants in waste (if required with unexpected finds).

6.1.6 Waste Classification Guidelines

All wastes generated and proposed to be disposed off-site shall be assessed, classified and managed in accordance with EPA (2014). Where wastes require immobilisation prior to off-site disposal (to reduce waste classifications) an immobilisation approval shall be sought in accordance with Part 2 of the guideline. Immobilisation is not anticipated.

6.1.7 Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014

The removal of petroleum infrastructure will be undertaken in accordance with SafeWork NSW requirements and a validation report will be provided in accordance with the provisions of the *Protection of the Environment Operations (UPSS) Regulation 2014*. The validation process in this RAP meets the requirements of the regulation and associated EPA guidance.

In addition, all removal works will be required to be undertaken in accordance with relevant Australian standards, regulations and codes of practice including Australian Standard AS 4976-2008: *The removal and disposal of underground petroleum storage tanks*, and AS 1940-2004: *Storage and handling of flammable and combustible liquids*), as amended.

6.1.8 Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017

All remediation works should be undertaken in accordance with requirements of the *Work Health and Safety Act 2011 (WHS Act)* and *Work Health and Safety Regulation 2017 (WHS Regulation)*. The information and data provided in this RAP should be considered by the remedial contractor in preparation of their health and safety plans for the remedial works (refer to **Section 9.2**).

6.1.9 Blacktown (2015) and Holroyd (2013) Development Control Plant

The site is subject to development controls as specified in the Holroyd Development Control Plan 2013 (DCP) and Blacktown 2015 DCP, which have been incorporated into this RAP.

6.1.10 Asbestos Removal and Management

The removal and disposal of asbestos will be managed in accordance with the *WHS Act* and *WHS Regulation* and relevant Australian standards, regulations and codes of practice.

A licensed asbestos removalist and SafeWork notification regarding the scope of the removal works is required. It will be the requirement of the appointed remedial contractor to obtain the appropriate approvals and prepare an asbestos management plan (AMP).

6.2 Site Establishment

The extent of remediation is summarised in **Section 5.2** and shown on **Figure 7**. The remedial contractor shall secure the site to ensure that all safety and environmental controls are implemented. These controls will include, but not be limited to:

- Locate and isolate all required utilities in the proximity of the works;
- Assess need for and implement of any necessary traffic controls;
- Work area security fencing;
- Site signage and contact numbers;
- Stabilised site entry gate;
- Appropriate decontamination areas for personnel and plant, if required;
- Sediment fencing (attached to security fencing); and
- Stormwater runoff and sediment controls (e.g. silt fences and hay bales).

6.3 Remedial Works

Areas requiring remediation are discussed in **Section 5.2** and shown on **Figure 7**. The remedial works are required to be undertaken by a remedial contractor with appropriately qualifications, licenses and experience, under the supervision of JBS&G.

6.3.1 AEC 1 and AEC 10 (surficial anthropogenic materials)

The following remediation works shall be undertaken to remove surface aesthetic impacts:

- Complete a walk over to confirm the remedial extent shown on **Figure 7**;
- Direct load out of foreign materials that represent an aesthetics issue to an appropriately licensed waste facility;
- The extents/volumes are to be recorded for material volume reconciliation; and
- Validation inspection by JBS&G that anthropogenic materials have been successfully removed to a level which does not represent and aesthetics issue.

6.3.2 AEC 2, AEC 7 and AEC 9 (AF/FA impacted soil)

The following remedial works to remove AF/FA impacts shall be undertaken subsequent to remedial activities in **Section 6.3.1**:

- Where AF/FA has been reported to exceed the land use criteria, these materials are to be located and boxed out (excavated) as per the lateral and vertical extents on **Figure 7** and loaded directly onto trucks and disposed of off-site to an appropriately licensed waste facility;
- Excavations are to be validated by JBS&G as per **Section 7**. Should validation fail, the failed walls and/or base of the excavation will be excavated a further 0.5m in the direction of the failure and the validation process repeated until validation is achieved; and

- The lateral and vertical extents of each excavation are to be surveyed for material volume reconciliation.

Confirmation is required that friable asbestos is not present within inground drainage alignments in vicinity of Plant 2.

6.3.3 AEC 3 and AEC 4 (sub-surface anthropogenic/aesthetic impacted materials)

The following remedial works shall be undertaken subsequent to remedial activities in **Section 6.3.2** to remove sub-surface aesthetic impacts:

- Progressive excavation of fill materials identified to either contain inert anthropogenic materials and/or odours (**Figure 7**) where fill is accessible by future maintenance personnel. Stockpiling shall be undertaken to restrict potential environmental emissions in accordance with the requirements of the Remediation Environmental Management Plan (REMP) as discussed in **Section 9**;
- Excavations are to be validated by JBS&G as per **Section 7**. Should validation fail, the failed walls and/or base of the excavation will be excavated a further 0.3 m in the direction of the failure and the validation process repeated until validation is achieved;
- This area is to be either be paved or covered with 0.3m of environmentally suitable material such that it is not accessible by future site receptors. Services are required to be backfilled with environmentally suitable material; and
- The final placement location(s) is required to be surveyed such that the lateral and vertical extents are recorded relative to the final finished level.

6.3.4 AEC 6 and 12 (removal of petroleum/chemical infrastructure)

Petroleum/chemical infrastructure, as shown on **Figure 7**, is required to be removed, inclusive of the following anticipated infrastructure:

- Hydraulic oil pumps;
- Hydraulic oil lines/infrastructure;
- USTs/ASTs;
- Sumps/Pits/Transformers;
- Remote fill points;
- Vent points and associated venting lines;
- Bunding (i.e. concrete bunding);
- Fuel dispensers (bowsers);
- Fuel pipework;
- Any liquid waste; and
- Tank anchors.

Removal of petroleum/chemical infrastructure (USTs/ASTs) and associated contents is required to be undertaken in accordance with SafeWork NSW requirements and relevant provisions of the *Protection of the Environment Operations (UPSS) Regulation 2014* as applicable. In addition, all removal works are required to be undertaken in accordance with relevant Australian standards, regulations and codes of practice including AS 4976-2008: *The removal and disposal of underground petroleum storage tanks*, and AS 1940-2004: *Storage and handling of flammable and combustible liquids*.

Where present, bedding sand and associated impacted fill/soil will also be removed and stockpiled as necessary for characterisation pending off-site disposal (where impacts are identified). Remedial excavation validation samples will be subsequently collected by JBS&G field staff for field screening and laboratory analysis in accordance (**Section 7**).

Stockpiling shall be undertaken to restrict potential environmental emissions in accordance with the requirements of the REMP as discussed in **Section 9**. Hydrocarbon impacted soils, including the bedding sand, as may be identified in conjunction with the infrastructure removal work are required to be remediated. Remedial options, following collection of analytical data are likely to include off-site disposal to a facility lawfully able to accept the material or onsite bioremediation should large volume be encountered. Should the material be identified as not be impact, the material may be the subject of a beneficial reuse evaluation.

Validation of UST removal works and associated remediation of impacted material shall be undertaken in accordance with *UPSS Technical Note: Site Validation Reporting* (DECCW 2010), and validation of AST removal will be consistent with the requirements of NEPC (2013) and other guidance as applicable. In addition, detailed notes and documentation (including photographs and description of UST contents) will be made during removal of the petroleum infrastructure.

Removal and validation of other petroleum/chemical infrastructure (i.e. transformers/hydraulic oil pumps) will be completed in accordance with relevant Australian Standards and/or guidelines.

6.3.5 AEC 6 and 12 (excavation of petroleum hydrocarbon impacted soil)

Fill/soils in the vicinity of the identified petroleum/chemical infrastructure (**Section 6.3.4**) are inferred to be a potential source of impacts, as discussed above. As such, fill/soils within these portions of the site are required to be excavated and separated from the balance of the site fill/natural soils.

Fill/natural soils will be removed to the extent practicable with consideration of boundary conditions/structural stability issues and place on a hardstand (or hard plastic) to limit cross contamination or migration of contaminants. The locations and extents are shown on **Figure 7**.

Impacted material will be identified visually, from olfactory detection, and through the use of a PID and will be chased out under the direction/supervision of one of JBS&G's qualified and experienced scientists/engineers. Excavated fill materials will be temporarily stockpiled. Stockpiling shall be undertaken to restrict potential environmental emissions in accordance with the requirements of REMP as discussed in **Section 9**.

Impacted material deemed unsuitable for on-site retention based on validation assessment results will be remediated via removal from the site to a facility lawfully able to accept the material. All materials requiring off-site disposal are required to be classified in accordance with EPA (2014) *Waste Classification Guidelines*.

In addition to the above, discrete samples will be collected below infrastructure following removal (i.e. sumps/electrical transformers) to verify the associated infrastructure have not resulted in surface impacts to underlying soil.

Remedial excavation validation samples will be subsequently collected by JBS&G field staff for field screening and laboratory analysis.

6.3.6 AEC 5, AEC 8 and AEC 11 (removal of bonded ACM and anthropogenic materials)

The extent of remediation is summarised in **Section 5.2** and shown on **Figure 7**. The remedial contractor shall undertake the following to remove ACM and anthropogenic material to acceptable levels. Please note AEC 8 contains high glass/scrap metal content:

- Fill identified to contain bonded ACM (and anthropogenic material) is to be progressively excavated and stockpiled in approximately 70m^3 batches,

- The lateral and vertical extent of the excavation and associated stockpiled soils are to be surveyed for material volume reconciliation;
- The bonded ACM/anthropogenic impacted fill is to be spread by the remedial contractor to form pad/s not more than 0.1 m thick, within the designated pad sorting area (more than one pad may be used);
- The dimensions of each pad are to be documented such that the volume of material can be verified and meet the validation sampling density required;
- ACM fragments are to be collected by raking (teeth >10 cm long and not more than 7 mm spacing) and picking of the spread material by the remedial contractor or their appointed contractor and collected ACM fragments disposed of off-site to an appropriately licensed waste facility. A minimum of two passes of picking and raking will be made with a 90° direction change between each;
    - Note, anthropogenic materials generated as a result of the treatment process, and free of ACM, are proposed to be managed in accordance with the process in **Section 6.3.3**;
    - Note: other methodologies may be deployed based on a cost/benefit evaluation by remedial contractor such as use of a Table Screen (or similar) due to the variable anthropogenic inclusions which may make it difficult to sort/treat manually;
- Following the initial screening process, the remedial contractor or their appointed contractor shall complete a second walkover of the pads to confirm there is no visible ACM;
- Pads will be validated by JBS&G as per **Section 7**. Should validation fail the pad will be subjected to an additional rake, walk/pick by the remedial contractor or their appointed contractor and re-validated by JBS&G until such time as validation is achieved;
- At completion of validation of a prepared pad, it will be excavated and placed in a holding stockpile and the process restarted with the placement of a new pad;
- The footprint of all stockpiles/pads and material underlying impacted fill (following excavation) are to be validated by JBS&G as per **Section 7.** Should validation fail, the failed base of the excavation/pad/stockpile will be excavated a further 0.2 m in the direction of the failure and the validation process repeated until validation is achieved; and
- Materials will be tracked from source, through required remedial activities to final placement/disposal, noting remediation undertaken and validation outcome.

6.4 Asbestos Management Requirements

Based on the available characterisation information, distinct fill materials within the site are impacted with asbestos and are provisionally classified as asbestos contaminated soils until deemed otherwise by further assessment. Asbestos contaminated soil necessitating management for potential asbestos exposure is defined in *How to Manage and Control Asbestos in the Workplace Code of Practice* (SWA 2019) as:

- Soil that contains visible asbestos as determined by a competent person; or
- Soil that contains asbestos fibres at quantities exceeding trace levels (considered to be the analytical detection limit in lieu of alternate guidance) as reported by analysis undertaken in accordance with AS4964:2004 *Method for the qualitative identification of asbestos in bulk samples*.

Environmental, health and safety management requirements for the handling of these materials will be documented in an AMP to be prepared by the remedial contractor and based on the requirements provided for asbestos-related works in SWA (2019). This will include preparation of an

asbestos register and associated asbestos removal control/management plan as outlined in SWA (2019). Appropriate signage specific to asbestos removal works will be provided.

Where sampling and analysis of specific fill materials is completed in conjunction with inspection by an appropriately qualified person, and the results indicate the material does not fall within the "asbestos contaminated soil" definition, the requirements for management of "asbestos contaminated soils" will not be required to be implemented. For the purposes of remediation works within the site, a competent person shall be considered to be a person who holds a tertiary degree in a science or engineering discipline, has experience in contaminated site assessment and has completed a WorkSafe approved Asbestos Removal Supervisor course.

Additional requirements for asbestos remediation works will be documented within the AMP, which shall make specific reference to the requirement for:

- Decontamination procedures;
- Air monitoring;
- Exclusion zones;
- Fencing and signage; and
- Other relevant controls identified stipulated within SWA (2019).

6.5 Asbestos Air Monitoring

During the remedial works, perimeter air monitoring will be conducted on each of the site boundaries. Additional downwind monitoring locations will be included in the air monitoring program as required.

Air monitoring will be conducted in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC) Asbestos Code of Practice and Guidance Notes, in particular the *Guidance note for the estimation of airborne asbestos dust* [NOHSC 3002:2005].

6.6 Off-site Disposal

Fill materials shall be classified in accordance with EPA (2014) *Waste Classification Guidelines* or an appropriate exemption as created under the *Protection of the Environment Operations (Waste) Regulation 2014*.

Should natural soils/bedrock require off-site disposal then these shall also be classified in accordance with EPA (2014) *Waste Classification Guidelines* also.

Waste certificates will be prepared for each stockpile and/or material type that is to be disposed.

The waste facility must be lawfully licensed to receive the material sent to it for disposal.

The remedial contractor must be aware of and conduct all waste disposal in accordance with all relevant regulations. All waste tracking documentation including disposal dockets must be maintained by the remedial contractor and must be provided to JBS&G/the client for inclusion in the validation report.

6.7 On-site Reuse

Following remediation of AECs and successful validation, fill materials are proposed to be re-used on site.

6.8 Materials Importation

If material is to be imported to the site (i.e. for the reinstatement of site surfaces, raise site levels) then it shall be validated as per **Section 7**.

6.9 Surveying

A qualified surveyor will conduct surveying of excavations, stockpiles and remedial extent such that the remedial/validation objectives can be achieved.

6.10 Validation

Validation of the remedial works will be conducted by JBS&G to demonstrate that the remediation objectives have been achieved. Details of the validation program are provided in **Section 7.**

6.11 Site Disestablishment

On completion of the remediation works all plant/equipment and safety/environmental controls shall be removed from the site by the appointed remedial contractor. All equipment used during remediation works will need to be appropriately decontaminated or disposed of as waste in accordance with relevant waste regulations.

7. Validation Plan

7.1 Overview

Validation data is required to be collected to verify the effectiveness of the remedial works and document the final site conditions as being suitable for the proposed future use(s).

The following sections establish the data quality objectives (DQOs) to be adopted during validation of the site remediation works.

7.1.1 State the Problem

The site, which has historically been used for commercial/industrial land uses is proposed to be redeveloped for ongoing commercial/industrial land use.

Past assessment activities, as summarised in **Section 3** have identified that, prior to redevelopment, remediation of contamination/aesthetic impacts are required.

During remediation activities, sufficient validation of the site activities is required to demonstrate that the identified environmental and health-based risks to future site user(s) have been adequately managed to render the site suitable for the proposed land use/development.

7.1.2 Identify the Decision

The decisions which are required to be made for validation of the site are as follows:

- Are contaminant concentrations in remedial excavations above the adopted site remediation criteria?
- Are there any aesthetic issues remaining following remediation works?
- Are there any outstanding regulatory compliance issues?
- Is the site considered suitable for the proposed use (without ongoing management)?

During the remediation activities, sufficient validation of site activities is required to demonstrate that the identified environmental and health-based risks to future use(s) of the site have been adequately managed to render the site suitable for the proposed land use.

7.1.3 Identify Inputs to the Decision?

The inputs to the decision are:

- Field observations in relation to inspection of all excavation bases, walls, pads and stockpiles for odours, sheen, ACM, discolouration, and other indicators of potential contamination;
- Soil validation analysis data collected from, pads, the exposed ground surface and from the base and walls of the remedial excavations;
- Waste classification and material characterisation data obtained during assessment of fill material prior to and during remediation works;
- Survey data;
- Disposal dockets and relevant documents in relation to appropriate disposal of material to be removed from site as part of the remediation works (landfill dockets, beneficial reuse / recycling dockets, trade waste disposal, etc.);
- Relevant guideline criteria for validation and waste classification; and
- Data quality indicators (DQIs) as assessed by quality assurance/quality control (QA/QC).

7.1.4 Define the Study Boundaries

The site boundaries are defined in **Section 2.1** and presented on **Figures 1** and **2**. The surrounding land uses are outlined in **Section 2.3**. The vertical extent of the works will be the maximum depth of remedial excavations (refer to **Figure 7**).

Validation works will be completed within development timelines to be informed by Aliro. It is understood the site may be signed off in a staged manner.

7.1.5 Develop a Decision Rule

The decision rules adopted to answer the decisions identified in **Section 7.1.2** are discussed below in **Table 7.1** following.

Table 7.1: Summary of Decision Rules

Decision Required to be Made	Decision Rule
1. Are contaminant concentrations in remedial excavations above the adopted site remediation criteria?	Soil analytical data for chemical COPCs will be compared against the adopted criteria in the RAP. For the validation sample sets, statistical analysis of the data will be undertaken in accordance with relevant guidance documents, as appropriate, to facilitate the decisions. The following statistical criteria will be adopted with respect to soils: Either: the reported concentrations will be below the site criteria; Or, the 95% Upper Confidence Limit (UCL) of the average concentration for each analyte will be below the adopted health-based site criterion, no single analyte concentration will exceed 250% of the adopted health based site criterion, and the standard deviation of the results will be less than 50% of the site health based criterion. Analytical results for asbestos in soils will be directly compared to the site criteria. No statistical assessment for asbestos in soils will be undertaken. and If the statistical criteria stated above are satisfied, the answer to the decision will be No. If the statistical criteria are not satisfied, the answer to the decision will be Yes.
2. Are there any aesthetic issues remaining following remediation works?	If there are any remaining unacceptable odours, soil inclusions or soil discolouration, the answer to the decision will be Yes. Otherwise, the answer to the decision will be No.
3. Are there any outstanding regulatory compliance issues?	Qualitative assessment of the works in relation to EPA, SafeWork/WorkCover, Council, Sydney Water etc. approvals will be undertaken during and following the completion of remediation activities. If this review identifies non-compliance or outstanding issues the answer to the decision will be Yes. Otherwise, the answer to the decision will be No.
4. Is the site considered suitable for the proposed use (without ongoing management)?	Was the answer to any of the above decisions Yes? If the answer was Yes, then the answer to the decision questions is No and additional works are required to achieve the RAP objective. If there are no outstanding issues, then the answer to the decision questions will be Yes.

7.1.6 Specify Limits of Decision Error

This step is to establish the decision maker's tolerable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data. Data generated during this project must be appropriate to allow decisions to be made with confidence.

Specific limits for this project have been adopted in accordance with the appropriate guidance from the NSW EPA including NEPC (2013), appropriate indicators of data quality (DQIs used to assess QA/QC) and standard JBS&G procedures for field sampling and handling.

To assess the usability of the data prior to making decisions, the data will be assessed against pre-determined DQIs for completeness, comparability, representativeness, precision and accuracy.

The pre-determined Data Quality Indicators (DQIs) established for the project are discussed below in relation to precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS parameters), and are shown in **Table 7.2**.

- **Precision** - measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples.
- **Accuracy** - measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this study is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards.
- **Representativeness** –expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the site, and by using an adequate number of sample locations to characterise the site to the required accuracy.
- **Comparability** - expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples; ensuring analysing laboratories use consistent analysis techniques and reporting methods.
- **Completeness** – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study.
- **Sensitivity** – expresses the appropriateness of the chosen laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted criteria.

If any of the DQIs are not met, further assessment of the data set will be required in order to determine whether the non-conformance has significant effects on the usefulness of the data. Corrective action to correct an adverse impact on the reliability of the dataset may include, but is not limited to, the request of further information from samplers and/or analytical laboratories, downgrading of the quality of the data or alternatively, re-collection of the data.

Table 7.2: Summary of Quality Assurance/Quality Control Program

Data Quality Indicators	Frequency	Data Quality Criteria
Precision		
Split duplicates (intra laboratory)	1 / 20 samples	<50 % RPD[1]
Blind duplicates (inter laboratory)	1 / 20 samples	<50 % RPD[1]
Laboratory Duplicates (not asbestos)	1 / 20 samples	<50 % RPD[1]
Accuracy		
Surrogate spikes (not asbestos)	All organic samples	70-130 %
Laboratory control samples (not asbestos)	1 per lab batch	70-130 %
Matrix spikes (not asbestos)	1 per lab batch	70-130 %
Representativeness		
Sampling appropriate for media and analytes	All samples	-[2]
Samples extracted and analysed within holding times	All samples	Soil: organics (14 days, other than vinyl chloride – 7 days), inorganics (6 months) Groundwater: metals (6 months, other than mercury – 28 days), sVOCs (PAHs, TRH<C_{10} – 7 days), VOCs/TRH>C_{10} – 14 days).
Laboratory Blanks (not asbestos)	1 per lab batch	<LOR
Trip spike (not asbestos and waste classification samples)	1 per lab batch	70-130% recovery
Storage blank (not asbestos and waste classification samples)	1 per lab batch	<LOR

Data Quality Indicators	Frequency	Data Quality Criteria
Rinsate sample (not asbestos and waste classification samples)	1 per sampling event/media	<LOR
Comparability		
Standard operating procedures for sample collection & handling	All Samples	All Samples
Standard analytical methods used for all analyses	All Samples extracted and analysed within holding times	NATA accredited methods for all sample analysis
Consistent field conditions, sampling staff and laboratory analysis	All Samples	All samples[2]
Limits of reporting appropriate and consistent	All Samples extracted and analysed within holding times	All samples[2]
Completeness		
Sample description and chain of custody completed and appropriate	All Samples	All samples[2]
Appropriate documentation	All Samples	All samples[2]
Satisfactory frequency and result for QC samples		95% compliance
Data from critical samples is considered valid	-	Critical samples valid
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted Site assessment criteria	All samples	LOR<= Site assessment criteria

(1) If the RPD between duplicates is greater than the pre-determined data quality indicator, a judgment will be made as to whether the excess is critical in relation to the validation of the data set or unacceptable sampling error is occurring in the field.
(2) A qualitative assessment of compliance with standard procedures and appropriate sample collection methods will be

7.1.7 Optimise the Design for Obtaining Data

The purpose of this step is to identify a resource-effective field validation sampling design that generates data that are expected to satisfy the decision performance criteria, as specified in the preceding steps of the DQO process. The output of this step is the sampling design that will guide development of the field sampling and analysis plan. This step provides a general description of the activities necessary to generate and select data collection designs that satisfy decision performance criteria.

The remediation validation and subsequent laboratory analysis program as outlined in the following sections will need to be implemented during site remediation activities to demonstrate the successful completion of works in compliance with the RAP goals. The validation/characterisation sampling and analytical program for the site is outlined in **Table 7.3** below.

Table 7.3: Characterisation/Remediation Validation Program

Item	RAP Sampling Frequency		Analytical Suite
Classified in accordance with EPA (2014) *Waste Guidelines*	Soils requiring classification for off-site disposal will be sampled by JBS&G as per the sampling density for stockpiled materials in NEPC (2013)		Heavy metals TRH PAH Asbestos (presence/absence: 40 g) TCLP heavy metals and PAHs
AF/FA Remedial Excavation (AEC 2, AEC 7 and AEC 9)			
	Excavation Floors	Excavation Walls	
AF/FA remedial excavation	Visual, and 1 per 100m^2 (10 m grid) or minimum 1x sample per base	1 per 10m lineal (from each distinct horizon/material type/1 m vertical soil profile). Minimum 1 x sample per wall. If excavation is shallow, i.e. wall height ≤ 0.2 m, then wall samples are not required.	Asbestos (NEPM protocol: 500 mL)

ACM Remedial/Removal Activities (AEC 5, AEC 8 and AEC 11)			
	Excavation Floors	Excavation Walls	
Treated ACM impacted fill	N/A	N/A	Visual Inspection by JBS&G + Asbestos (NEPM protocol: 500 mL)
	Stockpiled Material ACM (and anthropogenic) impacted fill is to be placed as pads no thicker than 0.1 m. Following remedial activities by remedial contractor and confirmation that the material is free of ACM (and materials deemed to represent and aesthetics issue), JBS&G is required to inspect the remediated soil via walking 1 m north/south and then east/west transects and confirm the material as free of visible ACM (and aesthetic impacts) . If no ACM (and aesthetic impacts) is apparent, a 500 mL validation sample is required to be collected at a density of 1 sample per 70m^3 with a minimum of 1 sample per pad (if less than 70m^3).		
Exposed ground surface (following stockpiling, sorting and excavation of ACM impacted fill)	Visual, and 1 per 100m^2 (10 m grid) or minimum 1x sample per base	1 per 10m lineal (from each distinct horizon/material type/1 m vertical soil profile). Minimum 1 x sample per wall. If excavation is shallow, i.e. wall height ≤ 0.2 m, then wall samples are not required.	Visual Inspection by JBS&G + Asbestos (NEPM protocol: 500 mL)
Removal of Foreign Material from Surface Soils (AEC 1 and AEC 10)			
	Excavation Floors	Excavation Walls	
Anthropogenic material on the ground surface	Remove materials that present a potential physical hazard such as sheet metal, car parts, tyres.	Remove materials that present a potential physical hazard such as sheet metal, car parts, tyres.	Visual Inspection by JBS&G
Removal of Foreign Material from Subsurface Soils (AEC 3 and AEC 4)			
	Excavation Floors	Excavation Walls	
Anthropogenic material within the fill soil profile	Remove materials that present a potential physical hazard such as sheet metal, car parts, tyres and mass brick.	Remove materials that present a potential physical hazard such as sheet metal, car parts, tyres and mass brick.	Visual Inspection by JBS&G (this area is to be either be paved or covered with 0.3m of environmentally suitable material. Services are required to be backfilled with environmentally suitable material)
Validation of Petroleum/Chemical Infrastructure Removal (AEC 6 and AEC 12)			
	Excavation Floors	Excavation Walls	
UST/Pits/Sumps	1 sample per 25m^2, with a minimum of 1 sample per former UST location	5m of excavation wall, with a minimum of 1 sample per wall	TRH/BTEX PAH VOCs Phenols Lead
Discrete sample locations under other petroleum/chemical infrastructure (i.e. ASTs, remote fill points, fuel dispensers) including capacitors/transformers. In the event that significant impacted soil volumes are removed from these areas, the adopted sampling frequency for excavation bases and walls following UST removal will be adopted; and sample locations at a linear spacing of 5m underlying pipelines. Analysis as above.			
Hydrocarbon Impacted Fill Remedial Excavation (AEC 6 and AEC 12)			
	Excavation Floors	Excavation Walls	
Petroleum/chemical remedial excavation following infrastructure removal	1 sample per 25m^2, with a minimum of 1 sample per excavation	5m of excavation wall, with a minimum of 1 sample per wall	TRH/BTEX PAH VOCs Phenols Lead
Materials Importation			
Imported VENM	Minimum of 5 samples per source site/material type up to 10,000 m^3 then 1 sample per 1000 m^3 thereafter		TRH/BTEX PAH Heavy Metals

			OCP/PCBs Asbestos (NEPM protocol: 500 mL)
Quarry VENM materials (e.g. blue metal, sandstone, shale)	Confirmation that the material is quarried rock (VENM) prior to importation, and visual confirmation.		Source site inspection required
Recycle materials including 'quarry' products that are recycled.	Letter showing compliance with the EPL from the source facility and supplemented with analytical data at a density of 3 samples per material type/batch up to 2,000m^3 then 1 sample per 500m^3 thereafter		TRH/BTEX PAH Heavy Metals Asbestos (NEPM protocol: 500 mL)
Imported ENM	As per the order/exemption		As per the order/exemption + asbestos (500 mL)
Unexpected Finds			
	Excavation Floors	Excavation Walls	
Unexpected Find	1 per 25m^2	1 per 5m lineal	As appropriate, depending on the location and characteristics of the unexpected find

The nominated sampling densities and analytical program have considered sample density guidance provided in EPA made and endorsed guidelines.

7.2 Soil Sampling Methodology

7.2.1 Validation of Excavation(s)

Samples will need to be collected by an appropriately trained and experienced environmental scientist/engineer using a hand trowel or from the bucket of mechanical excavation equipment, at the required densities to meet the project DQOs.

Prior to collection of each sample, hand tools will need to be thoroughly decontaminated using phosphate free detergent and distilled water as per **Section 76.2.6**.

During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indicators of contamination will need to be noted on the field documentation.

7.2.2 Stockpile Sampling

For stockpile sampling, material will be obtained from a minimum depth of 0.3m into the surface of the stockpile at the time of sampling. Appropriate decontamination activities shall be followed following the collection of each sample.

During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indications of contamination will be noted on the field documentation.

7.2.3 Sampling for Asbestos Assessment

Bulk soil samples (minimum 10L) will be collected and weighed in the field. Collected bulk sample will be sieved in the field (≤7mm passing) and separated fragments retained and weighed in the field, or spread out on contrasting plastic. The asbestos concentration as ACM in soil will be calculated in accordance with NEPC (2013) and WA DOH (2019) and based on the weight of collected fragment/s (assuming 15% asbestos content) divided by the weight of the collected 10L soil sample, providing a w/w %.

JBS&G note for the purposes of the outcomes of the investigation a w/w of 0% will be required (i.e. no visible ACM) to achieve validation, at the request of the client such that ongoing management is not required to fulfil WHS requirements. Notwithstanding, should conditions not be amenable to the removal of all visible ACM, validation criteria will be adopted in accordance with NEPC (2013) for the permissible land use.

A separate 500mL soil sample will be collected from the same location as a bulk sample, labelled and sent to the laboratory for asbestos analysis according to NEPM (2013) protocol.

7.2.4 Sample Handling

Collected samples will be immediately transferred to sample containers of appropriate composition (glass jars for chemical analysis, plastic bags for asbestos). Sample labels recorded: job number; sample identification number; and date of sampling.

Sample containers will be transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form will be completed and forwarded with the samples to the testing laboratory.

7.2.5 Soil Duplicate and Triplicate Sample Preparation and QA/QC Requirements

Field duplicate and triplicate samples for the characterisation/validation assessment will be obtained during sampling using the procedures outlined at a frequency outlined in **Table 7.2**. The primary sample will be divided laterally into three samples with minimal disturbance to reduce the potential for loss of volatiles and placed in three clean glass jars and / or plastic bags. All jars will be filled completely with no headspace to reduce the potential for loss of volatiles and separately labelled as the primary, duplicate and triplicate samples before being placed in the same chilled esky for laboratory transport.

Trip spike, storage blank and rinsate samples will be collected as per **Table 7.2**.

7.2.6 Soil Sampling Equipment Decontamination

The following procedure will be used to clean non-disposable equipment, including the trowel, pick etc., prior to the collection of each sample:

- Scrubbing with a wire brush to remove gross contamination;
- Pressure spray with Decon 90 detergent and potable water mix;
- Pressure spray rinse with potable water; and
- Air drying.

Rinsate samples will be obtained during the field decontamination procedures at regular intervals during characterisation/validation sampling activities. Each rinsate sample will be obtained by rinsing the trowel with laboratory grade demineralised water following the decontamination procedure. The water sample will be appropriately preserved and stored with the site samples prior to transport to the laboratory for chemical analysis.

7.2.7 Laboratory Analyses

Eurofins MGT Pty Ltd at Lane Cove, NSW will function as the primary laboratory for the required analyses. The secondary laboratory to be contracted for the works will be Envirolab Services Pty Ltd (Envirolab) at Chatswood, NSW. All laboratories are National Association of Testing Authorities (NATA) registered for the relevant analyses. In addition, the laboratories are required to meet JBS&G's internal QA/QC requirements.

7.3 Validation Criteria

Based on the proposed development details and in accordance with the decision process for assessment of urban redevelopment sites (EPA 2017), validation criteria sourced from the publications have been adopted:

- NEPC (2013) Health-based Investigation Levels (HILs) for commercial/industrial land use (HIL- D);
- NEPC (2013) Health Screening Levels (HSLs) for petroleum hydrocarbons considering potential for vapour intrusion, fine grained soil for commercial/industrial land use (HSL D) land use at 0.0-1.0 m depth;

- NEPC (2013) site specific ecological investigation levels (EILs) derived through the added contaminant limits for commercial/industrial land use;
- NEPC (2013) Management Limits for TRH, fine grained soils for commercial/industrial land use;
- NEPC (2013) Ecological Screening Levels (ESLs) for TRH fractions, BTEX and benzo(a)pyrene in fine grained soil for commercial/industrial land use; and
- Where there are no NSW EPA endorsed thresholds the laboratory LOR has been adopted as an initial screening value for the purposes of this validation assessment.

It is noted, whilst there are NEPC (2013) HSLs that can allow for asbestos in soils at acceptable levels, the client has requested that the site not be encumbered by any EMP or AMP. As such it is noted validation for the known asbestos impact will attempt to achieve no visible ACM and friable asbestos is required to be below NEPC (2013) criterion such that it does not constitute an asbestos impacted environment under WHS Regulations.

Refence will be made to NEPC (2013) under a commercial/industrial setting to establish what constitutes an aesthetics issue.

7.3.1 Application of Soil Assessment Criteria

For soils to be considered as meeting the health/ecological based assessment criteria (i.e., not posing an unacceptable risk), the following criteria will be adopted:

Either:

- All contaminant concentrations were less than the adopted site assessment criteria,

Or:

- The upper 95% confidence limit on the average concentration for each analyte (calculated for samples collected from consistent soil horizons, stratigraphy or material types) was below the adopted criterion;
- No single analyte concentration exceeded 250% of the adopted criterion; and
- The standard deviation of the results was less than 50% of the criterion.

Analytical results for asbestos in soils will be directly compared to the site criteria. No statistical assessment for asbestos in soils will be undertaken.

In addition to the numerical criteria, the following visual observations will also supplement the assessment process:

- No visible asbestos containing material in addition to laboratory analysis results; and

7.3.2 Off-site Disposal

Where contaminated fill/soil is not suitable for on-site retention or is surplus to site requirements, materials are proposed to be remediated by off-site removal and disposal. Materials shall be classified in accordance with EPA (2014) *Waste Classification Guidelines* or an appropriate resource recovery order/exemption (RRO/RRE) as created under the *Protection of the Environment Operations (Waste) Regulation 2014*.

Material will require to be removed to a facility lawfully able to receive it.

7.3.3 Imported Materials

In accordance with current EPA policy, only material that does not represent an environmental or human health risk at the receiving site may be considered for resource recovery. Imported materials

will only be accepted to the site if they meet the restrictions placed on these materials and meet the definition of:

- VENM as defined in as defined in EPA (2014) *Waste Classification Guidelines* and the *Protection of the Environment Operations Act* (1997) Schedule 1;
- Excavated Natural Material (ENM) as defined in the ENM RRO/RRE; or
- Recycle materials as per relevant RRO/RRE.

All material imported onto site are required to be accompanied by appropriate documentation that has been verified by the appointed site contamination (environmental) consultant.

Sampling of materials as per relevant RRO/RRE (recycled products) is required to be undertaken by the facility prior to import. In addition, where materials are proposed for beneficial reuse under a relevant RRO/RRE (i.e. imported to the site), fill material will need to be further assessed by JBS&G for land use suitability (refer to **Section 7.1.7**).

7.4 Validation Report

The validation report shall be prepared by the environmental consultant written in general accordance with EPA reporting guidelines (EPA 2020[28]). The validation report will be submitted to the client at the completion of remedial works at the site.

The validation report should contain information including:

- Results of previous investigations conducted at the site;
- Details of the remediation works conducted;
- Information demonstrating that the objectives of the RAP have been achieved;
- Information demonstrating compliance with appropriate regulations and guidelines;
- All material tracking data;
- Any variations to the strategy undertaken during the implementation of the remedial works; and
- Details of any environmental incidents occurring during the remedial works and the actions undertaken in response to these incidents; and
- Other information as appropriate.

It is understood the site may be signed off in a staged manner.

[28] *Consultants Reporting on Contaminated Land. Contaminated land Guideline*. NSW EPA 2020 (EPA 2020)

8. Contingency Plan

A review of the proposed contamination-related aspects of the works associated with development of the site has been undertaken and has identified a number of potential risks, outlined in the following sections that required the development of contingencies to ensure that the objectives of this RAP are met.

The Contingency Plan is required to be part of the REMP, as described in **Section 9.1**, below, and part of the Work Health and Safety Plan (WHSP), as described in **Section 9.2**.

8.1 Unexpected Finds

The possibility exists for hazards that have not been identified to date to be present within fill materials or underlying pavements/building on the site. The nature of hazards which may be present, and which may be discovered at the site are generally detectable through visual or olfactory means, for example:

- The presence of significant aggregates of friable asbestos materials (visible) as opposed to minor occurrences of fibre bundles in soil; and/or
- Excessive quantities of construction/demolition waste that represents an aesthetics issue beyond that reported to date (visible); and/or
- Hydrocarbon/chemical impacted materials beyond that reported to date (visible/odorous); and/or
- Drums, waste pits (visible); and/or
- Oily Ash and/or oily slag contaminated soils/fill materials (visible/odorous); and/or
- Tarry like impacted soil/fill material (visible/odorous); and/or
- Potential chlorinated hydrocarbon impact (sweet odour soils).

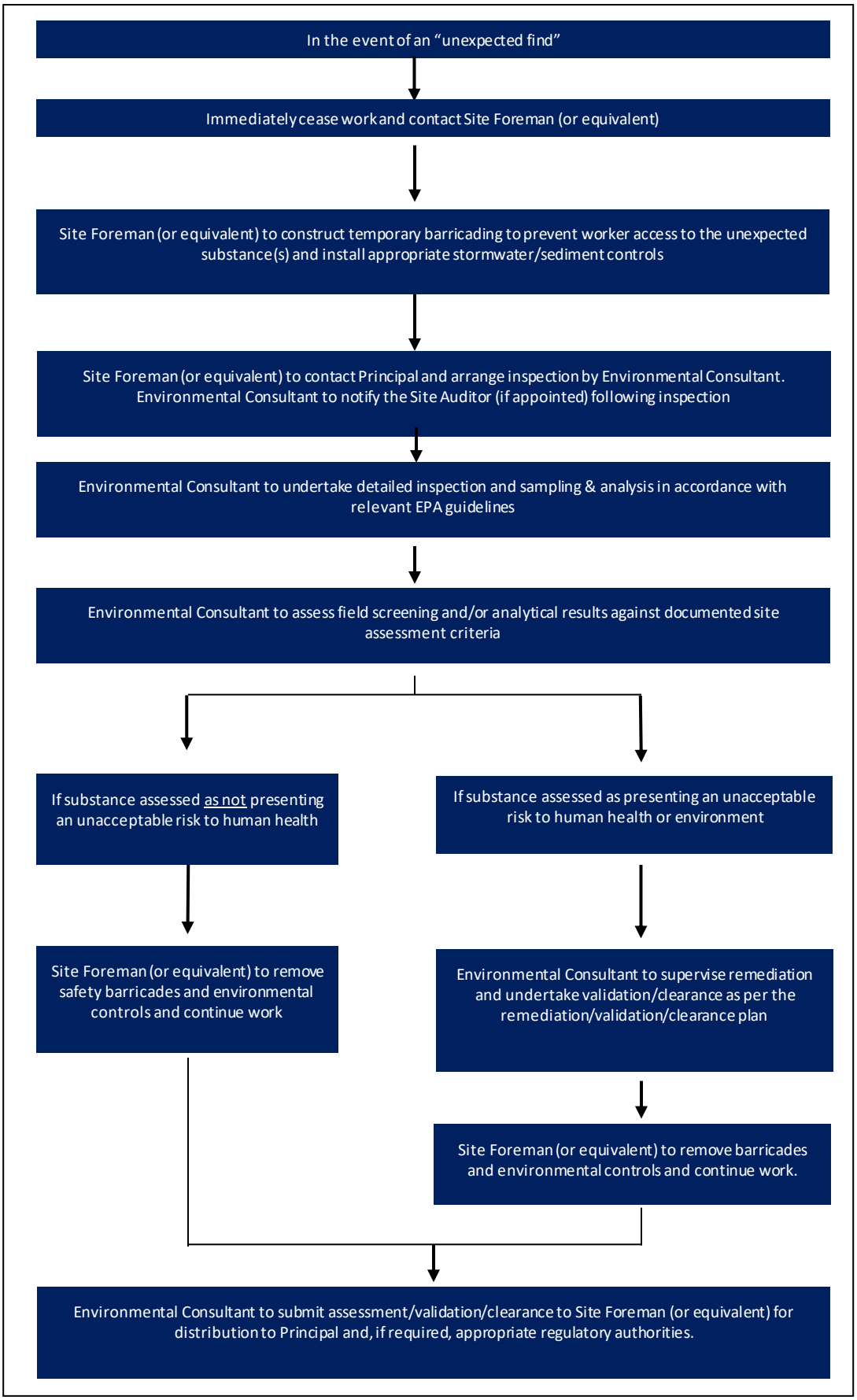
As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances (or any other unexpected potentially hazardous substance) be identified, the procedure summarised in **Flow Chart 8.1** is to be followed.

An enlarged version of the Unexpected Finds Protocol, suitable for use on the site, should be posted in the Site Office and referred to during the site-specific induction by the Principal Contractor.

The sampling strategy for each "unexpected find" shall be designed by the environmental consultant. The strategy will, however, be aimed at determining the nature of the substance – that is, is it hazardous and, if so, is it at concentrations which pose an unacceptable risk to human health or the environment.

The sampling frequency of the identified substance/materials shall meet the minimum requirements outlined in EPA (1995) in addition to those outlined in **Section 7**.

Flowchart 8.1 – Unexpected Finds Protocol



8.1.1 Identification of Additional Underground Storage Tanks

There is the potential that additional USTs may be encountered during demolition of the pavements or subsequent earthworks. In the event of such an occurrence, the Unexpected Finds Protocol (**Flow Chart 8.1**) will be implemented and remediation and validation actions defined with consideration to the requirements for known USTs as documented in **Sections 6** and **7**.

8.1.2 Identification of Oily or Tarry Materials

In the event that oily/tarry materials are encountered, the provisions outlined in the Unexpected Finds Protocol will be implemented, comprising inspection, testing and appropriate action as advised by the Environmental Consultant (**Section 8.1**).

Any suspected oily/tarry materials must be segregated from other excavated materials and placed in a designated area with appropriate odour and sediment controls until such time as appropriate assessment is completed and a methodology is confirmed for their appropriate management. In the event that the oily/tarry materials do not meet the site validation criteria, then they shall be stored in a secure area for later treatment or classified and removed from the site for treatment and/or disposal at an appropriately licensed facility.

8.1.3 Identification of Petroleum Hydrocarbon Impact

In the event that petroleum hydrocarbon impacted materials are encountered in areas where none are anticipated, the provisions outlined in the Unexpected Finds Protocol will be implemented, comprising inspection, testing and appropriate action as advised by the Environmental Consultant (**Section 8.1**).

Any suspected petroleum hydrocarbon impacted materials must be segregated from other excavated materials and placed in a designated area with appropriate odour and sediment controls until such time as appropriate assessment is completed and a methodology is confirmed for their appropriate management. In the event that the materials do not meet the site validation criteria, then they shall be stored in a secure area for later treatment or classified and removed from the site for treatment and/or disposal at an appropriately licensed facility.

8.1.4 Material Storage Breach

In the event that any materials storage containment controls are breached and stockpiled materials classified as asbestos contaminated soil or otherwise have escaped (or have the potential to escape), then the management controls shall be rectified and investigations undertaken to review the adequacy of the controls and any improvements implemented. The REMP (**Section 9**) shall include a documented process for identifying and responding to such incidents.

8.1.5 Emissions Complaints

Due to the nature of the activities and type of contaminants identified within the site, there is a potential for complaints to be received from members of the public and/or occupants of surrounding properties relating to environmental emissions including:

- Odour emissions arising from handling of malodorous soil;
- Noise and vibration arising from excavation, piling and other works;
- Dust emissions arising from excavation, material handling and placement; and
- Visibly impacted water quality in surface water discharge from the site.

Monitoring of all environmental emissions shall be undertaken during the works as detailed in the REMP (discussed in **Section 9**) and appropriate actions taken to further control emissions following receipt of a complaint. The REMP shall contain provision for contingency actions where excessive

emissions occur, however it is anticipated that one or more of the following actions will be considered:

- Increased application of odour screening/masking chemicals on odorous materials;
- Disturbance of soils during meteorologically favourable periods only; and/or
- Covering of impacted soils.

9. Other Remediation Documents

9.1 Environmental Management

9.1.1 Preparation of a Remediation Environmental Management Plan

Prior to commencement of remediation works, a REMP shall be prepared by the remedial contractor which documents the environmental monitoring and management measures required to be implemented during the remediation and construction related activities associated with the construction of the site.

The REMP shall address each of the nominated items in **Section 9.1.2** following and shall include the Contingency Plan, referred to in **Section 8**, above. Additional environmental management requirements may be required as part of development consent.

9.1.2 Required Elements/Procedures

An assessment of the proposed activities and the associated elements required to be incorporated into the REMP is provided in **Table 9.1**. The REMP is required to address each of the required elements and procedures in full detail and to include detailed monitoring processes and procedures, corrective actions and reporting requirements.

Table 9.1 Required Elements of the REMP

Element	Specific Minimum Requirements to be included in REMP
1. Dust and Airborne Hazard Control	Dust and asbestos air monitoring. Provisions for dust control based on monitoring results.
2. Flora and Fauna	As appropriate.
3. Heritage/Archaeological	In accordance with relevant heritage/archaeological studies.
4. Visual Impacts	Visual monitoring at site boundary Specific colour requirements for various controls/measures, including PPE (e.g., masks/coveralls).
5. Emergency Response	As appropriate. Procedures required for spill incident response including material storage breach.
6. Noise Control	Hours of operation, consistent with the consent conditions.
7. Traffic	Controls on vehicle movements on public roads. Controls on transport of impacted materials.
8. Protection of Adjoining Structures	As appropriate.
9. Odour Control	Management of all potential odour generating activities (i.e., excavation of petroleum hydrocarbon contaminated soils) with appropriate odour controls incorporating safeguards and monitoring. Daily monitoring of odour levels at site boundary during handling of malodorous materials. Procedures for addressing elevated odour monitoring results, including, but not limited to reduction in earthworks activities within odorous material areas during adverse meteorological conditions; application of odour masking solutions at the odour source or between identified source(s) and receptor(s).
10. Handling of Contaminated Soil and Groundwater	Soil and water management (stockpiling, site access, excavation pump out, reinstatement).
11. Soil Storage/Placement Areas	Soil and water management (stockpiling, site access, excavation pump out, reinstatement). Bunding. Heavy vehicle/personnel decontamination. Site drainage requirements, incorporating clean/dirty areas and modifications to existing surface water and drainage controls beneath retained pavements. Monitoring as required.
12. Sediment Control	Bunding. Collection/treatment/handling impacted sediments.

Element	Specific Minimum Requirements to be included in REMP
13. Operation of Site Office	As appropriate.
14. Decontamination of Heavy Equipment	As appropriate.
15. Environmental Monitoring	Monitoring of dusts, noise, odour and fibres. Monitoring as required for vibration and water releases. Inspection checklists and field forms.
16. Environmental Criteria	Soil and water criteria as presented in this RAP
17. Material Classification	As detailed in this RAP.
18. Community Relations Plan	Specific communication protocols, incorporating nomination of specific contact persons & details and requirements for communications/response register.
19. Incident Reporting	As appropriate, including standard form/checklist.
20. Security and Signage	Secure site perimeter. Site boundary signage.
21. Training	As appropriate.
22. Contact Details	Company/personnel details, including names/phone numbers for: - Principal Contractor - Remediation Consultant - Remediation Contractor - OH&S Compliance - Environmental Compliance
23. Stockpiling	No stockpiles of soil or other materials shall be placed on footpaths or nature strips unless prior Council approval has been obtained. All stockpiles of soil or other materials shall be placed away from drainage lines gutters or stormwater pits or inlets. All stockpiles of soil or other materials likely to generate dust or odours shall be covered. All stockpiles of chemically contaminated soil shall be stored in a secure area and be covered if remaining more than 24 hours. All stockpiles of asbestos contaminated soils shall be kept damp and covered to minimise potential fibre release, and if left for more than 24 hours, be stored in a secure area.

9.1.3 Certification

Prior to commencement of remediation works, the remedial contractor is required to have the REMP endorsed as acceptable by the environmental consultant or the client.

9.1.4 Hours of Site Operation/Duration of Works

Remediation works shall be completed in accordance with the permissible hours of work and noise as nominated in of the Development Consent.

The appointed remediation contractor will be required to include a proposed schedule of remediation works within the REMP submitted for endorsement as discussed above.

9.2 Health and Safety

9.2.1 Work Health and Safety Management Plan

A WHSP shall be prepared by the remedial contractor prior to commencement of remediation works. The plan shall contain procedures and requirements that are to be implemented as a minimum during the works, in addition to the Contingency Plan, referred to in **Section 8**.

The objectives of the WHSP are:

- To apply standard procedures that minimises risks resulting from the works;
- To ensure all employees are provided with appropriate training, equipment and support to consistently perform their duties in a safe manner; and
- To have procedures to protect other site workers and the general public.

These objectives will be achieved by:

- Assignment of responsibilities;
- An evaluation of hazards;
- Establishment of personal protection standards, mandatory safety practices and procedures;
- Monitoring of potential hazards and implementation of corrective measures; and
- Provision for contingencies that may arise while operations are being conducted at the site.

9.2.2 Additional Site-Specific Elements/Procedures

In addition to the normal construction-related matters, the WHSP shall address the following site-specific hazards associated with the works relating to the management of contaminated soil and groundwater:

- Under/aboveground services, specifically former petroleum infrastructure;
- Use of plant and machinery within confined spaces (i.e. tank pit excavations);
- Contact to asbestos contaminated soils;
- Contact with contaminated soil (lead, TRH) other than asbestos; and
- Heat/cold stress.

9.2.3 Asbestos

During asbestos-related remedial works, perimeter asbestos in air monitoring will be conducted at each applicable remedial works area boundary when soil with asbestos are being disturbed. Air monitoring will be conducted on a daily basis at relevant locations whilst disturbance of asbestos contaminated areas takes place.

Air monitoring will be conducted during any ground disturbance activities associated with asbestos remedial works to verify that implementation of appropriate control measures has been successful at managing the risk of air borne fibre generation. Air monitoring will be undertaken in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC) Asbestos Code of Practice and Guidance Notes, in particular the *Guidance note for the estimation of airborne asbestos dust* [NOHSC 3002:2005].

10. Conclusions and Recommendations

10.1 Conclusions

Overall, it is considered that the proposed actions outlined in this RAP conform to the requirements of the *Contaminated Sites Guidelines for the NSW Site Auditor Scheme (3rd Edition)* (EPA 2017) because they are: technically feasible; environmentally justifiable; and consistent with relevant laws policies and guidelines endorsed by NSW EPA.

Subject to the successful implementation of the measures described in this RAP and the recommendations below, it is concluded that the site can be made suitable for the intended uses and that the risks posed by contamination can be managed in such a way as to be adequately protective of human health and the environment.

10.2 Recommendations

It is recommended that the processes outlined in this RAP be implemented and that the following documentation be developed and implemented to ensure the risks and impacts during remediation works are controlled in an appropriate manner:

- A REMP, to document the monitoring and management measures required to control the environmental impacts of the works and ensure the validation protocols are being addressed; and
- A WHSP to document the procedures to be followed to manage the risks posed to the health of the remediation workforce.

11. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

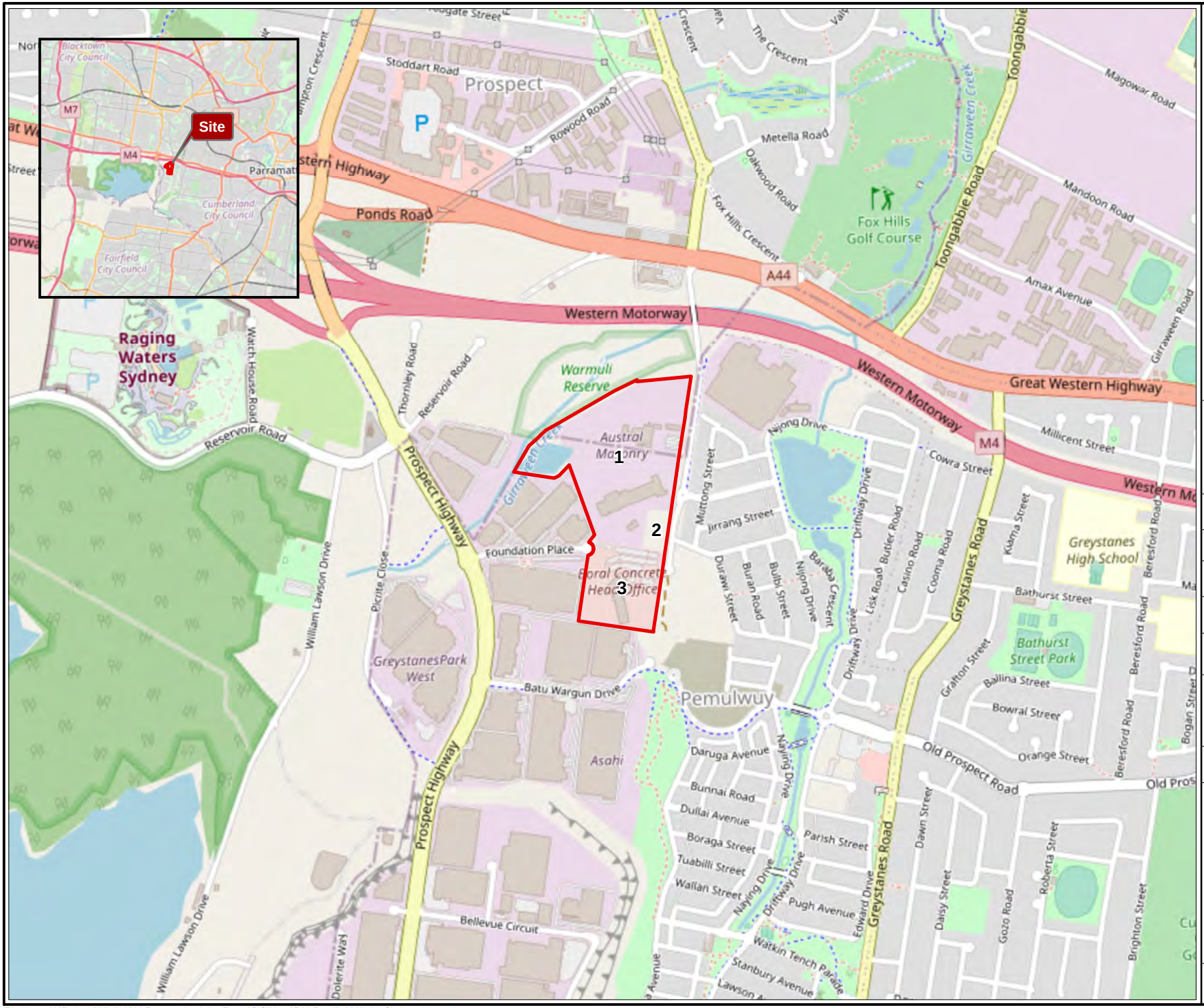
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures



Legend

- Approximate Site Boundary
1. Austral Masonry
2. Council Depot
3. Boral Concrete & Brick Head Office

JBS&G

Job No: 58238

Client: ISPT

Version: R03 Rev 0	Date 24/09/2020
Drawn By: JA	Checked By: NC

Scale 1:15,000

0 100 200
metres

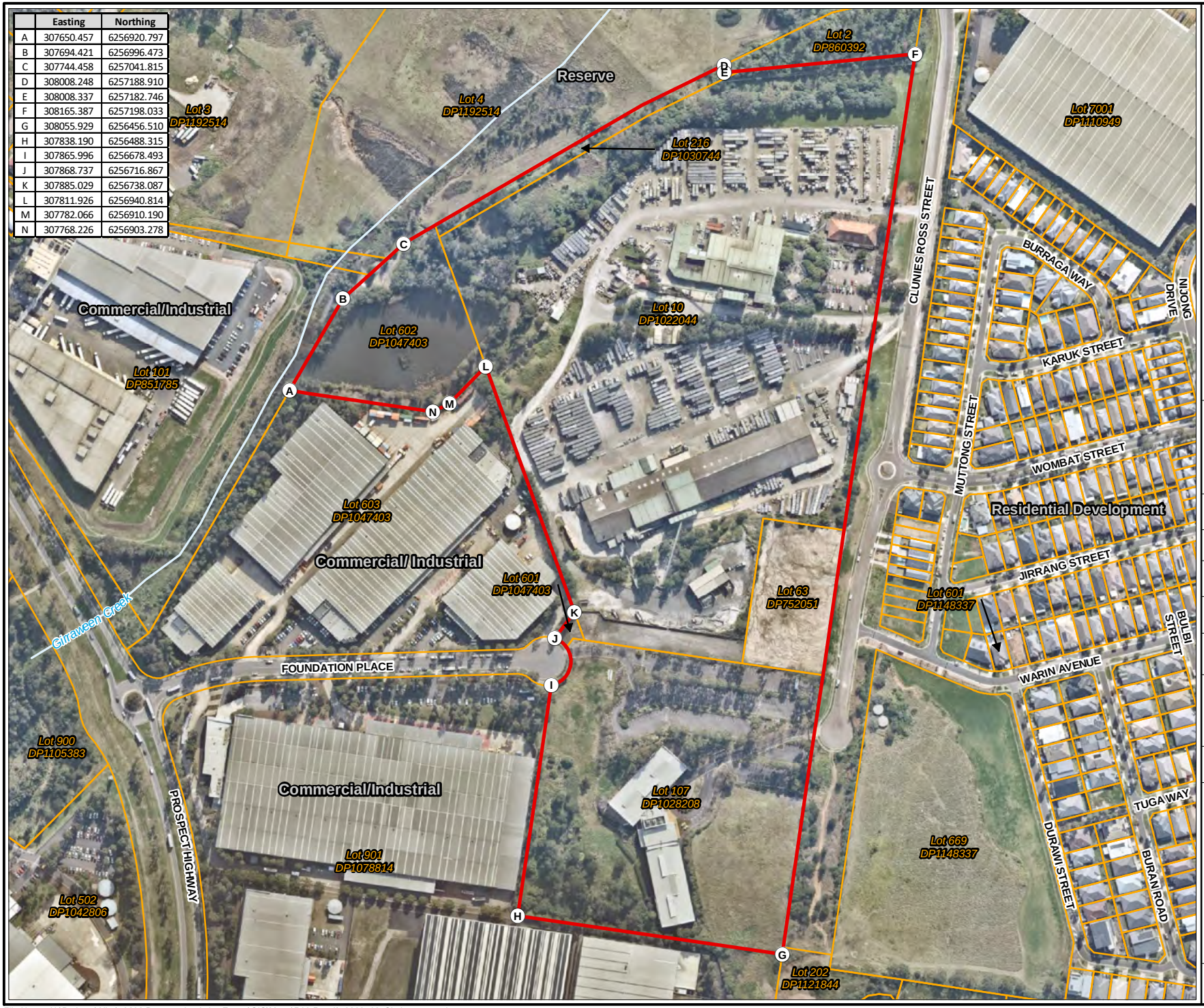
Coord. Sys. GDA 1994 MGA Zone 56

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

SITE LOCATION

FIGURE 1

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_01_SiteLocation.mxd
Reference: © OpenStreetMap (and) contributors, CC-BY-SA



	Easting	Northing
A	307650.457	6256920.797
B	307694.421	6256996.473
C	307744.458	6257041.815
D	308008.248	6257188.910
E	308008.337	6257182.746
F	308165.387	6257198.033
G	308055.929	6256456.510
H	307838.190	6256488.315
I	307865.996	6256678.493
J	307868.737	6256716.867
K	307885.029	6256738.087
L	307811.926	6256940.814
M	307782.066	6256910.190
N	307768.226	6256903.278

Legend

- Approximate Site Boundary
- NSW Cadastre (DFSI, 2020)

JBS&G

Job No: 58238

Client: ISPT

Version: R03 Rev 0 | Date 23/09/2020

Drawn By: JA | Checked By: NC

Scale 1:4,250

0 50 100
metres

Coord. Sys. GDA 1994 MGA Zone 56

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

SITE LAYOUT

FIGURE 2

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_02_SiteLayout.mxd
Reference: Nearmap - www.nearmap.com.au (Capture date:03/08/2020)

Legend

Approximate Site Boundary

JBS&G

Job No: 58238	
Client: ISPT	
Version: R03 Rev 0	Date 23/09/2020
Drawn By: JA	Checked By: NC

Scale 1:4,250

0 50 100

metres

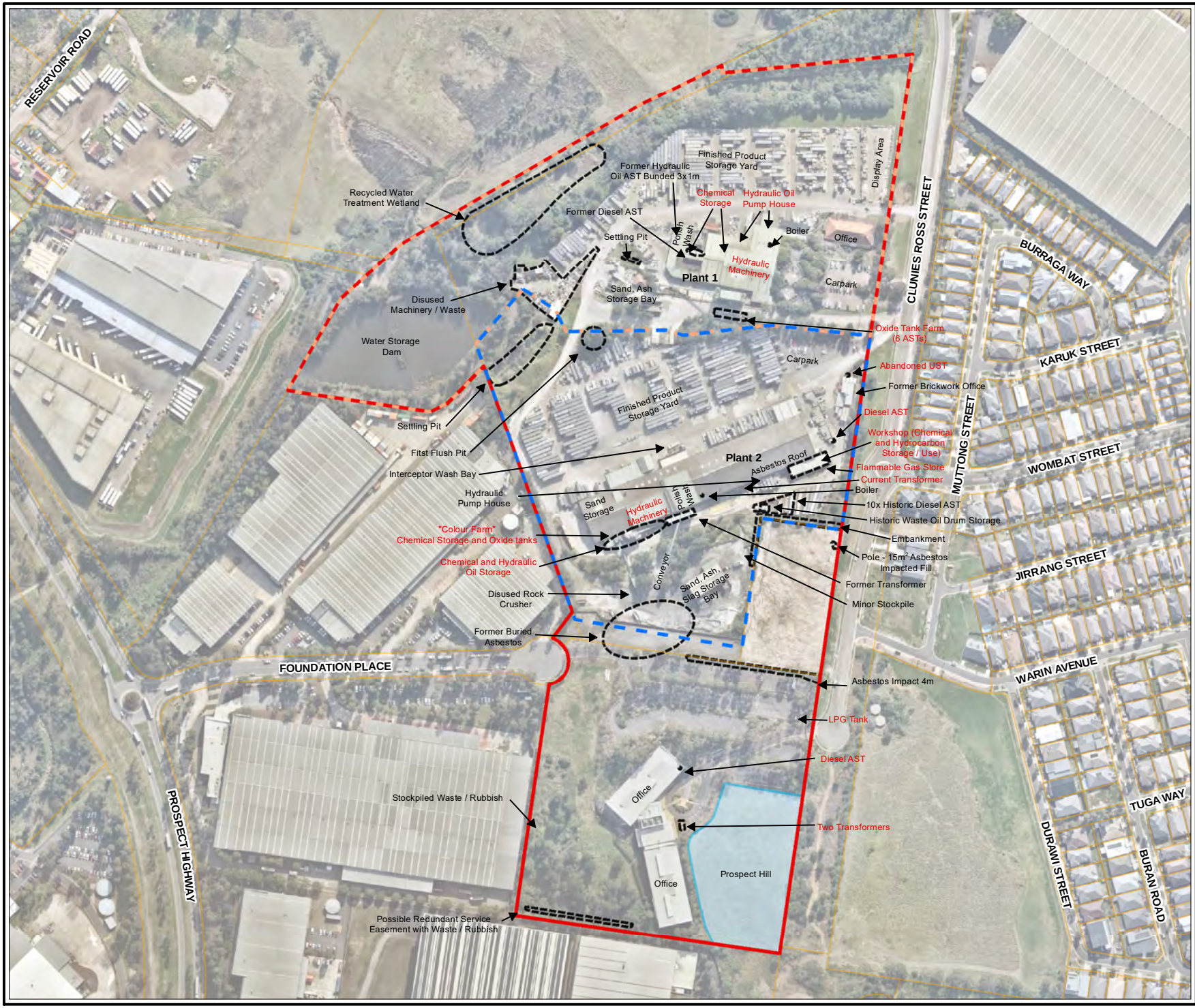
Coord. Sys. GDA 1994 MGA Zone 56

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

PROPOSED SITE LAYOUT

FIGURE 3

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_03_ProposedSiteLayout.mxd
Reference: Nearmap - www.nearmap.com.au (Capture date:03/08/2020)



Legend

- Approximate Site Boundary
- Prospect Hill
- Plant Area 1
- Plant Area 2
- Cadastre (NSW LPI, 2019)
- ABC Current Petroleum / Chemical Infrastructure

JBS&G

Job No: 58238	
Client: ISPT	
Version: R03 Rev 0	Date 25/09/2020
Drawn By: JA	Checked By: NC
Scale 1:4,250	

0 50 100
metres

Coord. Sys. GDA 1994 MGA Zone 56

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

SITE FEATURES

FIGURE 4

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_04_SiteFeatures.mxd
Reference: Nearmap - www.nearmap.com.au (Capture date:03/08/2020)

Legend:

Approximate Site Boundary
Cadastre (NSW LPI, 2019)

JBS&G

0 25 50
metres

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

HISTORIC SAMPLE LOCATIONS

Job No: 58238		Scale: 1:2,500		
Client: ISPT		Coord. Sys. GDA 1994 MGA Zone 56		
Drawn By: JA	Checked By: NC	Version: R03 Rev 0	Date: 24-Sep-2020	**FIGURE 5**

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_05_HistoricSampleLocs.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 03/08/2020)

JB63	Depth	Concentration	Criteria
Analyte	(m bgs)		
C16-C34	0.1-0.2	9300 mg/kg	Mgmt Lmt (NEPM 2013)

JBSED05	Depth	Concentration	Criteria
Analyte	(m bgs)		
Nickel		64 mg/kg	Sed DGV (ANZG 2018)

JBSED04	Depth	Concentration	Criteria
Analyte	(m bgs)		
Nickel		64 mg/kg	Sed DGV (ANZG 2018)

JBSED07	Depth	Concentration	Criteria
Analyte	(m bgs)		
C10-C40 (Sum of total)		310 mg/kg	Sed DGV (ANZG 2018)

JBSED-01	Depth	Concentration	Criteria
Analyte	(m bgs)		
Nickel		94 mg/kg	Sed DGV (ANZG 2018)
Zinc		1000 mg/kg	Sed DGV (ANZG 2018)

JB96	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.1-0.2	Present	Site Specific

JB98	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.5-0.6	Present	Site Specific

JB54	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.3-0.4	Present	Site Specific

JB95	Depth	Concentration	Criteria
Analyte	(m bgs)		
Asbestos from FA & AF in Soil	0.9-1.0	0.0171 %	HSL D (NEPM 2013)

JB94	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.-0.2	Present	Site Specific

JBSED-10	Depth	Concentration	Criteria
Analyte	(m bgs)		
Zinc		730 mg/kg	Sed DGV (ANZG 2018)
C10-C40 (Sum of total)		561 mg/kg	Sed DGV (ANZG 2018)

JBSED-03	Depth	Concentration	Criteria
Analyte	(m bgs)		
Zinc		640 mg/kg	Sed DGV (ANZG 2018)

JB53	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	1-1.1	Present	Site Specific

JB24	Depth	Concentration	Criteria
Analyte	(m bgs)		
Chromium (III+VI)	2-2.1	430 mg/kg	EIL (NEPM 2013)

JB20	Depth	Concentration	Criteria
Analyte	(m bgs)		
Chromium (III+VI)	0.2-0.3	850 mg/kg	EIL (NEPM 2013)
Bonded ACM	0-0.1	Present	Site Specific

JB84	Depth	Concentration	Criteria
Analyte	(m bgs)		
Chromium (III+VI)	1.4-1.5	810 mg/kg	EIL (NEPM 2013)

JB17	Depth	Concentration	Criteria
Analyte	(m bgs)		
Chromium (III+VI)	1-1.1	580 mg/kg	EIL (NEPM 2013)
Bonded ACM	0-0.1	Present	Site Specific

JB16	Depth	Concentration	Criteria
Analyte	(m bgs)		
Chromium (III+VI)	3-3.1	620 mg/kg	EIL (NEPM 2013)

JB15	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0-1.0	Present	Site Specific

JB14	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.2-1.3	Present	Site Specific

JB14A	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.15-0.6	Present	Site Specific

JB13	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.1-0.12	Present	Site Specific

HA02	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.0-0.1	Present	Site Specific

HA03	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.0-0.5	Present	Site Specific

BHB	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.0-0.2	Present	Site Specific

PT2-6	Depth	Concentration	Criteria
Analyte	(m bgs)		
Asbestos from FA & AF in Soil		0.0011 %	HSL D (NEPM 2013)

JB22A	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0-0.1	Present	Site Specific

JB21	Depth	Concentration	Criteria
Analyte	(m bgs)		
Chromium (III+VI)	0-0.1	460 mg/kg	EIL (NEPM 2013)

AQ13	Depth	Concentration	Criteria
Analyte	(m bgs)		
Asbestos from FA & AF in Soil	0.6-1.0	0.0016 %w/w	HSL D (NEPM 2013)
Bonded ACM	0.0-0.4	Present	Site Specific

HA04	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.0-0.4	Present	Site Specific

AQ15	Depth	Concentration	Criteria
Analyte	(m bgs)		
Bonded ACM	0.0-0.6	Present	Site Specific

Legend:

- Approximate Site Boundary
- Cadastre (NSW LPI, 2019)

Sample Exceedance

- No
- Yes

JBS&G

0 25 50
metres

Job No: 58238 | Scale: 1:2,250

Client: ISPT | Coord. Sys. GDA 1994 MGA Zone 56

Drawn By: JA | Checked By: NC | Version: R03 Rev 0 | Date: 24-Sep-2020

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

ASSESSMENT AREA - SOIL AND SEDIMENT EXCEEDANCES

FIGURE 6A

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_06a_SoilSedimentExceedances.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 03/08/2020)

JBSW07	Concentration	Criteria
Analyte		
Zinc (Filtered)	0.073 mg/L	Freshw ater 80% (ANZG 2018)

JBSW04	Concentration	Criteria
Analyte		
Copper (Filtered)	0.003 mg/L	Freshw ater 80% (ANZG 2018)
Zinc (Filtered)	0.048 mg/L	Freshw ater 80% (ANZG 2018)

JBSW-01	Concentration	Criteria
Analyte		
Copper (Filtered)	0.003 mg/L	Freshw ater 80% (ANZG 2018)

JBSW-03	Concentration	Criteria
Analyte		
Copper (Filtered)	0.003 mg/L	Freshw ater 80% (ANZG 2018)

MW07	Concentration	Criteria
Analyte		
Zinc (Filtered)	0.047 mg/L	Freshw ater 80% (ANZG 2018)

Legend:

- Approximate Site Boundary
- Cadastre (NSW LPI, 2019)

Sample Exceedance

- No
- Yes

JBS&G

0 25 50 metres

Job No: 58238

Scale: 1:2,250

Client: ISPT

Coord. Sys. GDA 1994 MGA Zone 56

Drawn By: JA | Checked By: NC | Version: R03 Rev 0 | Date: 24-Sep-2020

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

ASSESSMENT AREA - GROUNDWATER EXCEEDANCES

FIGURE 6B

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_06b_GroundwaterExceedances.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 03/08/2020)

Location	Depth (m bgs)	Impact	PID (ppm)
JB63	0.1-2.0	Strong chemical/hydrocarbon odour	3.8

Location	Depth (m bgs)	Impact	PID (ppm)
JB31	0.05-0.1	Slight chemical odour	2.7

Location	Depth (m bgs)	Impact	PID (ppm)
JB93	0.4-2.0	Strong hydrocarbon (diesel) odour	32.2

Location	Depth (m bgs)	Impact	PID (ppm)
JB105	0.05-0.1	Slight chemical odour	5.7

Legend:

- Approximate Site Boundary
- Cadastre (NSW LPI, 2019)
- Anthropogenic Waste in Fill Material
- Discarded Equipment, Disused Plant and General Waste

Sample Exceedance

- No
- Yes

JBS&G

0 25 50 metres

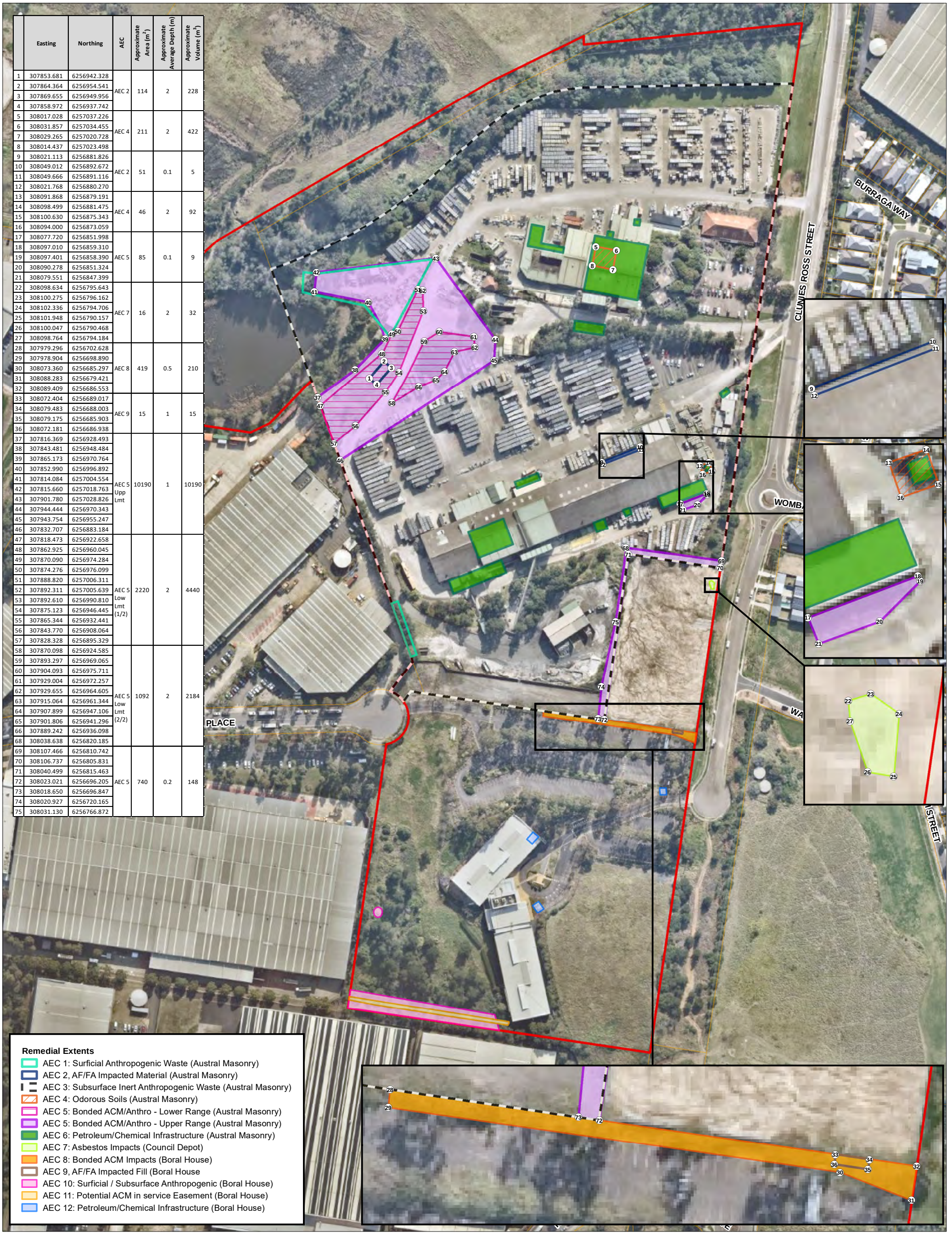
Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

ASSESSMENT AREA - AESTHETIC IMPACTS

Job No: 58238		Scale: 1:2,250		
Client: ISPT		Coord. Sys. GDA 1994 MGA Zone 56		
Drawn By: JA	Checked By: NC	Version: R03 Rev 0	Date: 25-Sep-2020	**FIGURE 6C**

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_06c_AestheticImpacts.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 03/08/2020)

	Easting	Northing	AEC	Approximate Area (m^2)	Approximate Average Depth (m)	Approximate Volume (m^3)
1	307853.681	6256942.328	AEC 2	114	2	228
2	307864.364	6256954.541				
3	307869.655	6256949.956				
4	307858.972	6256937.742				
5	308017.028	6257037.226	AEC 4	211	2	422
6	308031.857	6257034.455				
7	308029.265	6257020.728				
8	308014.437	6257023.498				
9	308021.113	6256881.826	AEC 2	51	0.1	5
10	308049.012	6256892.672				
11	308049.666	6256891.116				
12	308021.768	6256880.270				
13	308091.868	6256879.191	AEC 4	46	2	92
14	308098.499	6256881.475				
15	308100.630	6256875.343				
16	308094.000	6256873.059				
17	308077.720	6256851.998	AEC 5	85	0.1	9
18	308097.010	6256859.310				
19	308097.401	6256858.390				
20	308090.278	6256851.324				
21	308079.551	6256847.399				
22	308098.634	6256795.643	AEC 7	16	2	32
23	308100.275	6256796.162				
24	308102.336	6256794.706				
25	308101.948	6256790.157				
26	308100.047	6256790.468				
27	308098.764	6256794.184				
28	307979.296	6256702.628	AEC 8	419	0.5	210
29	307978.904	6256698.890				
30	308073.360	6256685.297				
31	308088.283	6256679.421				
32	308089.409	6256686.553				
33	308072.404	6256689.017	AEC 9	15	1	15
34	308079.483	6256688.003				
35	308079.175	6256685.903				
36	308072.181	6256686.938				
37	307816.369	6256928.493	AEC 5 Upp Lmt	10190	1	10190
38	307843.481	6256948.484				
39	307865.173	6256970.764				
40	307852.990	6256996.892				
41	307814.084	6257004.554				
42	307815.660	6257018.763				
43	307901.780	6257028.826				
44	307944.444	6256970.343				
45	307943.754	6256955.247				
46	307832.707	6256883.184				
47	307818.473	6256922.658	AEC 5 Low Lmt (1/2)	2220	2	4440
48	307862.925	6256960.045				
49	307870.090	6256974.284				
50	307874.276	6256976.099				
51	307888.820	6257006.311				
52	307892.311	6257005.639				
53	307892.610	6256990.810				
54	307875.123	6256946.445				
55	307865.344	6256932.441				
56	307843.770	6256908.064				
57	307828.328	6256895.329				
58	307870.098	6256924.585	AEC 5 Low Lmt (2/2)	1092	2	2184
59	307893.297	6256969.065				
60	307904.093	6256975.711				
61	307929.004	6256972.257				
62	307929.655	6256964.605				
63	307915.064	6256961.344				
64	307907.899	6256947.106				
65	307901.806	6256941.296				
66	307889.242	6256936.098				
68	308038.638	6256820.185				
69	308107.466	6256810.742	AEC 5	740	0.2	148
70	308106.737	6256805.831				
71	308040.499	6256815.463				
72	308023.021	6256696.205				
73	308018.650	6256696.847				
74	308020.927	6256720.165				
75	308031.130	6256766.872				



Legend:
- Approximate Site Boundary
- Cadastre (NSW LPI, 2019)

Note: AEC 6 is indicative locaton. Following removal, visual inspection for impact (underlying)

JBS&G

0 25 50 metres

Elevations @ Greystanes, Clunies Ross Street, Pemulwuy, NSW

REMEDIAL EXTENTS

Job No: 58238		Scale: 1:2,500		
Client: ISPT		Coord. Sys. GDA 1994 MGA Zone 56		
Drawn By: JA	Checked By: NC	Version: R03 Rev 0	Date: 25-Sep-2020	**FIGURE 7**

File Name: N:\Projects\Aliro\58238 Prospect Logistics Estate\GIS\Maps\R03 Rev 0\58238_07_RemedialExtents.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 03/08/2020)

Appendix A Analytical Summary Tables

Table A: Soil Analytical Results
Project Number: 52238
Project Name: Prospect Logistics Estate DGI

| | | | | Metals & Metalloids | | | | | | | | | | TPHs (NEPC 1999) | | | | TRHs (NEPC 2013) | | | | | BTEXN | | | | | | | PAH | | | | | | | | | |

Table A: Soil Analytical Results
Project Number: 52238
Project Name: Prospect Logistics Estate DGI

| | Metals & Metalloids | | | | | | | | | | | | TPHs (NEPC 1999) | | | | TRHs (NEPC 2013) | | | | | | BTEXN | | | | | | | PAH | | | | | | | | | | | |

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

| | Organochlorine Pesticides | | |

Table A: Soil Analytical Results
Project Number: 52238
Project Name: Prospect Logistics Estate DGI

| | Organochlorine Pesticides | | |

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

| | Semivolatile Organic Compounds | | |

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

| | Semivolatile Organic Compounds | | |

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

| | | | | | | | | | | | | | | | | | MAH | | | | | | | | Miscellaneous Hydrocarbons | | | | | | | | | Chlorinated Benzenes | | | | | | | | | | | | | | | | Trihalomethanes | | | | Asbestos | | | | | | | | | | | | Herbicides & Fungicides | | | | Phthalates | | | | | | | Nitrobenzenes | | Nitrotoluenes | Anilines | | | | | |
|---|---|---

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

| | | |

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

				Organic Sulfur Compounds	Organic Alcohols	Non-Metallic Inorganics	Ionic Balance			Inorganics	Chlorinated Hydrocarbons		Other
				Carbon disulfide	Benzyl Alcohol	Cyanide (Free)	CEC	Conductivity (1:5 aqueous extract)	pH (aqueous extract)	Moisture	Hexachlorocyclopentadiene	Hexachlorobutadiene	Moisture Content at (dried @ 103°C)
				mg/kg	mg/kg	mg/kg	MEQ/100G	US/CM	pH Units	%	mg/kg	mg/kg	%
				0.5	1	1	0.05	10	0.1	0.1	0.5	0.5	1
ANZG (2018) - Sediment Quality GV-high, freshwater													
NEPM 2013 Table 1A(1) HILs Comm/ind D Soil						1500							
NEPM 2013 Table 1A(3) Comm/ind D Soil HSL for Vapour Intrusion, Clay 0-1m													
NEPM 2013 Table 1A(3) Comm/ind D Soil HSL for Vapour Intrusion, Sand 0-1m													
NEPM 2013 Table 1B(1-5) Specific ESL - Comm/ind													
NEPM (2013) Table 1B(6) ESL - Comm/ind, Fine Soil													
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil													
NEPM 2013 Table 7 Comm/Ind D Soil HSL for Asbestos in Soil													
Field_ID	**SampleCode**	**Lab_Report_Number**	**Matrix_Type**										
DR-1	S20-Se33590	745190	SOIL	-	-	-	-	-	-	-	-	-	-
DR-2	S20-Se33591	745190	SOIL	-	-	-	-	-	-	-	-	-	-
DR-3	S20-Se33592	745190	SOIL	-	-	-	-	-	-	-	-	-	-
JB01_0.4-0.5	S20-Se13658	742676	soil	-	-	-	-	-	-	-	-	-	7.9
JB02_0.5-0.6	S20-Se13659	742676	soil	-	-	-	-	-	-	-	-	-	11
JB03_0.3-0.4	S20-Se13660	742676	soil	-	-	-	-	-	-	-	-	-	12
QC20200905-CK1	250686-5	250686	soil	-	-	-	-	-	-	15	-	-	-
QA20200905-CK2	S20-Se13721	742676	soil	-	-	-	-	-	-	-	-	-	6.9
JB03_2.4-2.5	S20-Se13661	742676	soil	-	-	-	-	-	-	-	-	-	9.9
QA20200905-CK1	S20-Se13720	742676	soil	-	-	-	-	-	-	-	-	-	12
QC20200905-CK2	250686-6	250686	soil	-	-	-	-	-	-	13	-	-	-
JB04 0.2-0.3	S20-Se07080	742039	soil	-	-	-	-	-	-	-	-	-	17
JB05 0.5-0.6	S20-Se07078	742039	soil	-	-	-	-	-	-	-	-	-	12
JB05 0-0.1	S20-Se07077	742039	soil	<0.5	-	-	-	-	-	-	<0.5	<0.5	9.2
JB05 2-2.1	S20-Se07079	742039	soil	-	-	-	-	-	-	-	-	-	14
JB06_2.0-2.1	S20-Se13662	742676	soil	-	-	-	-	-	-	-	-	-	12
JB07_0-0.1	S20-Se13663	742676	soil	-	-	-	-	-	-	-	-	-	2
JB07A_0-0.1	S20-Se13411	742692	soil	-	-	-	-	-	-	-	-	-	20
JB08_1.5-1.6	S20-Se13664	742676	soil	-	-	-	-	-	-	-	-	-	8.2
JB10 0.5-0.6	S20-Se07075	742039	soil	-	-	-	-	-	-	-	-	-	5.7
JB10 0-0.1	S20-Se07074	742039	soil	-	-	-	-	-	-	-	-	-	11
JB10 2-2.1	S20-Se07076	742039	soil	<0.5	-	-	-	-	-	-	-	-	11
QA20200829_MN02	S20-Se07116	742039	soil	-	-	-	-	-	-	-	-	-	11
QC20200829-MN02	250482-2	250482	soil	-	-	-	-	-	-	12	-	-	-
JB100_0.0-0.1	S20-Se13726	742676	soil	-	-	-	-	-	-	-	-	-	12
JB100_0.4-0.5	S20-Se13727	742676	soil	-	-	-	-	-	-	-	-	-	17
JB100_1.2-1.3	S20-Se13728	742676	soil	-	-	-	-	-	-	-	-	-	17
JB101_0.15-0.2	S20-Se13714	742676	soil	-	-	-	-	-	-	-	-	-	20
JB103 0.4-0.5	S20-Se13715	742676	soil	<0.5	-	-	-	-	-	-	-	-	9.9
JB105_0.05-0.1	S20-Se13716	742676	soil	<0.5	-	-	-	-	-	-	-	-	13
JB11 0-0.1	S20-Se07072	742039	soil	-	-	-	-	-	-	-	-	-	7.2
JB11 1-1.1	S20-Se07073	742039	soil	<0.5	-	-	-	-	-	-	-	-	8
JB110_0.6-0.7	S20-Se26723	744324	SOIL	-	-	-	-	-	-	-	-	-	21
JB110_0-0.1	S20-Se26722	744324	SOIL	<0.5	-	-	42	57	-	-	-	-	17
JB111_0.5-0.6	S20-Se26725	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	21
JB111_0-0.1	S20-Se26724	744324	SOIL	-	-	-	-	-	-	-	-	-	-
JB113_0-0.1	S20-Se26726	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	25
JB114_0.5-0.6	S20-Se26728	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	23
JB114_0-0.1	S20-Se26727	744324	SOIL	-	-	-	-	-	-	-	-	-	-
JB115_0.4-0.5	S20-Se26730	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	21
JB115_0-0.1	S20-Se26729	744324	SOIL	-	-	-	-	-	-	-	-	-	-
JB116_0-0.1	S20-Se26731	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	22
JB117_0.4-0.5	S20-Se26733	744324	SOIL	-	-	-	-	-	-	-	-	-	43
JB117_0-0.1	S20-Se26732	744324	SOIL	-	-	-	-	-	-	-	-	-	19
JB118_0-0.1	S20-Se26734	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	19
JB12 0.3-0.4	S20-Se07067	742039	soil	<0.5	-	-	-	-	-	-	-	-	17
JB12 1.1-1.2	S20-Se07068	742039	soil	-	-	-	-	-	-	-	-	-	10
JB13_0.5-0.6	S20-Se13665	742676	soil	-	-	-	-	-	-	-	-	-	7.2
JB14 0-0.1	S20-Se07071	742039	soil	-	-	-	-	-	-	-	-	-	6.1
JB14_0.5-0.6	S20-Se13666	742676	soil	-	-	-	-	-	-	-	-	-	14
JB14A_0.5-0.6	S20-Se13667	742676	soil	-	-	-	-	-	-	-	-	-	8.4
JB14A_1.0-1.1	S20-Se13668	742676	soil	-	-	-	-	-	-	-	-	-	-
JB14B_0-0.1	S20-Se13669	742676	soil	-	-	-	-	-	-	-	-	-	7
JB14B_1.5-1.6	S20-Se13670	742676	soil	-	-	-	39	1600	7.9	-	-	-	14
JB14D_0-0.1	S20-Se13671	742676	soil	-	-	-	-	-	-	-	-	-	7.2
JB15 0-0.1	S20-Se07069	742039	soil	<0.5	-	-	-	-	-	-	-	-	10
JB15 2-2.1	S20-Se07070	742039	soil	-	-	-	-	-	-	-	-	-	10
JB15_0.2-0.5	S20-Se13412	742692	soil	-	-	-	-	-	-	-	-	-	15
JB16 0-0.1	S20-Se07065	742039	soil	-	-	-	-	-	-	-	-	-	24
JB16 3-3.1	S20-Se07066	742039	soil	-	-	-	-	-	-	-	-	-	28
JB17 0-0.1	S20-Se07063	742039	soil	-	-	<1	-	-	-	-	-	-	19
JB17 1-1.1	S20-Se07064	742039	soil	-	-	<1	-	-	-	-	-	-	27
JB17a 0-0.1	S20-Se07689	742039	soil	-	-	-	-	-	-	-	-	-	20
JB17a 1-1.1	S20-Se07690	742039	soil	<0.5	-	-	-	-	-	-	-	-	10
JB18 0.5-0.6	S20-Se07062	742039	soil	-	-	-	-	-	-	-	-	-	13
JB18 0-0.1	S20-Se07061	742039	soil	<0.5	-	-	-	-	-	-	-	-	9.3
JB19-03	S20-Se07059	742039	soil	-	-	-	-	-	-	-	-	-	19
JB19-05	S20-Se07060	742039	soil	-	-	-	-	-	-	-	-	-	6.1
JB20_0.2-0.3	S20-Se13673	742676	soil	-	-	-	-	-	-	-	-	-	27
JB21_0-0.1	S20-Se13674	742676	soil	-	-	-	-	-	-	-	-	-	21
JB22A_0-0.1	S20-Se13675	742676	soil	<0.5	-	<1	-	-	-	-	-	-	8.6
JB22A_FRAG	S20-Se13676	742676	soil	-	-	-	-	-	-	-	-	-	-
JB22B_0-0.1	S20-Se13677	742676	soil	-	-	-	-	-	-	-	-	-	23
JB23_0-0.1	S20-Se13413	742692	soil	-	-	-	-	-	-	-	-	-	9.8
JB24 0-0.1	S20-Se07092	742039	soil	-	-	-	-	-	-	-	-	-	8
JB24 2-2.1	S20-Se07093	742039	soil	-	-	-	-	-	-	-	-	-	48
JB25_0-0.1	S20-Se13414	742692	soil	-	-	-	-	-	-	-	-	-	9.1
JB26_0-0.1	S20-Se13415	742692	soil	-	-	-	-	-	-	-	-	-	8
JB27_0.5-0.6	S20-Se13679	742676	soil	-	-	<1	-	-	-	-	-	-	13
JB27_0-0.1	S20-Se13678	742676	soil	<0.5	-	<1	31	45	8.5	-	-	-	3.6
QA20200904-1	S20-Se13717	742676	soil	-	-	<1	-	-	-	-	-	-	3.4
QC20200904-1	250686-1	250686	soil	-	-	<0.5	-	-	-	3	-	-	-
JB28_0.2-0.3	S20-Se13680	742676	soil	<0.5	-	-	-	-	-	-	<0.5	<0.5	19
JB28_0.5-0.6	S20-Se13681	742676	soil	-	-	-	-	-	-	-			18
JB28_1.5-1.6	S20-Se13682	742676	soil	<0.5	-	-	-	-	-	-	<0.5	<0.5	15
JB29_0.1-0.2	S20-Se13683	742676	soil	-	-	-	-	-	-	-	-	-	12
JB30_0.05-0.1	S20-Se13684	742676	soil	-	-	-	-	-	-	-	-	-	12
JB30_1.0-1.1	S20-Se13685	742676	soil	-	-	-	-	-	-	-	-	-	25
JB31_0.05-0.1	S20-Se13686	742676	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	12
JB31_0.9-0.1	S20-Se13687	742676	soil	-	-	-	-	-	-	-	-	-	22
JB32 0.05-0.35	S20-Se07084	742039	soil	-	-	-	-	-	-	-	-	-	8.3
JB32 0.4-0.5	S20-Se07085	742039	soil	-	-	-	-	-	-	-	-	-	11
JB32 0.9-1.1	S20-Se07086	742039	soil	<0.5	-	-	-	-	-	-	<0.5	<0.5	25
JB32 5-5.1	S20-Se07087	742039	soil	-	-	-	-	-	-	-	-	-	10
JB35_2.1-2.2	S20-Se13688	742676	soil	<0.5	-	<1	-	-	-	-	-	-	15
JB35_4.0-4.1	S20-Se13689	742676	soil	-	-	-	-	-	-	-	-	-	4.7
JB36_0.05-0.1	S20-Se13690	742676	soil	-	-	<1	-	-	-	-	-	-	7.9
JB37_0.05-0.1	S20-Se13691	742676	soil	-	-	-	-	-	-	-	-	-	9
JB37_4.0-4.1	S20-Se13692	742676	soil	-	-	-	-	-	-	-	-	-	22
JB38_0.1-0.2	S20-Se13693	742676	soil	<0.5	-	-	-	-	-	-	-	-	22
JB38_1.8-1.9	S20-Se13694	742676	soil	-	-	-	-	-	-	-			21
JB39_0.2-0.3	S20-Se13695	742676	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	23

Table A: Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate DGI

				Organic Sulfur Compounds	Organic Alcohols	Non-Metallic Inorganics	Ionic Balance			Inorganics	Chlorinated Hydrocarbons		Other
				Carbon disulfide	Benzyl Alcohol	Cyanide (Free)	CEC	Conductivity (1:5 aqueous extract)	pH (aqueous extract)	Moisture	Hexachlorocyclopentadiene	Hexachlorobutadiene	Moisture Content at (dried @ 103°C)
				mg/kg	mg/kg	mg/kg	MEQ/100G	US/CM	pH Units	%	mg/kg	mg/kg	%
				0.5	1	1	0.05	10	0.1	0.1	0.5	0.5	1
ANZG (2018) - Sediment Quality GV-high, freshwater													
NEPM 2013 Table 1A(1) HILs Comm/ind D Soil						1500							
NEPM 2013 Table 1A(3) Comm/ind D Soil HSL for Vapour Intrusion, Clay 0-1m													
NEPM 2013 Table 1A(3) Comm/ind D Soil HSL for Vapour Intrusion, Sand 0-1m													
NEPM 2013 Table 1B(1-5) Specific ESL - Comm/ind													
NEPM (2013) Table 1B(6) ESL - Comm/ind, Fine Soil													
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil													
NEPM 2013 Table 7 Comm/Ind D Soil HSL for Asbestos in Soil													
Field_ID	**SampleCode**	**Lab_Report_Number**	**Matrix_Type**										
JB40 0.3-0.5	S20-Se07088	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	20
JB40 1.6-1.7	S20-Se07089	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	5.3
QA-JB02_0830	S20-Se07118	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	12
QCJB-2-0830	250482-5	250482	soil	-	-	<0.5	-	-	-	15	<2	<0.5	-
JB40 1.6-2.0	S20-Se07090	742039	soil	-	-	-	-	-	-	-	-	-	-
JB40 7-7.1	S20-Se07091	742039	soil	-	-	-	-	-	-	-	-	-	8.7
JB41_0.1-0.2	S20-Se13696	742676	soil	<0.5	-	<1	-	-	-	-	-	-	23
QC202009O5-2	250686-4	250686	soil	-	-	-	-	-	-	26	-	-	-
QA202009O5-2	S20-Se13719	742676	soil	-	-	-	-	-	-	-	-	-	22
JB42_0.05-0.1	S20-Se13697	742676	soil	<0.5	-	-	-	-	-	-	-	-	8.6
JB43_0-0.1	S20-Se13698	742676	soil	-	-	-	-	-	-	-	-	-	8.5
JB43A_0-0.1	S20-Se13699	742676	soil	-	-	-	-	-	-	-	-	-	5.9
JB44_0-0.1	S20-Se13700	742676	soil	-	-	-	-	-	-	-	-	-	14
JB45_0.05-0.1	S20-Se13701	742676	soil	-	-	-	-	-	-	-	-	-	17
JB46 0.5-0.6	S20-Se07056	742039	soil	-	-	-	-	-	-	-	-	-	17
JB46 0-0.1	S20-Se07055	742039	soil	-	-	-	-	-	-	-	-	-	15
JB48 0.1-0.2	S20-Se07106	742039	soil	<0.5	-	<1	-	-	-	-	-	-	11
JB48 0.9-1	S20-Se07107	742039	soil	-	-	-	-	-	-	-	-	-	15
JB49_0.05-0.1	S20-Se13702	742676	soil	-	-	-	-	-	-	-	-	-	13
JB50_0.1-0.2	S20-Se13703	742676	soil	<0.5	-	-	-	-	-	-	-	-	5
JB50_3.3-3.4	S20-Se13704	742676	soil	-	-	-	-	-	-	-	-	-	15
JB52_0.5-0.6	S20-Se13736	742676	soil	<0.5	-	-	-	-	-	-	-	-	11
JB53 0.3-0.4	S20-Se07039	742039	soil	<0.5	-	<1	-	-	-	-	-	-	9.2
JB53 2-2.1	S20-Se07040	742039	soil	-	-	-	-	-	-	-	-	-	10
JB53 3-3.1	S20-Se07041	742039	soil	-	-	-	-	-	-	-	-	-	-
JB53_FRAG	S20-Se07128	742039	soil	-	-	-	-	-	-	-	-	-	-
JB54 0.3-0.4	S20-Se07052	742039	soil	-	-	-	-	-	-	-	-	-	23
JB54 0-0.1	S20-Se07051	742039	soil	-	-	-	-	-	-	-	-	-	-
JB54 1-1.1	S20-Se07053	742039	soil	-	-	-	-	-	-	-	-	-	11
JB54 2-2.1	S20-Se07054	742039	soil	-	-	-	-	-	-	-	-	-	11
JB54_FRAG	S20-Se07109	742039	soil	-	-	-	-	-	-	-	-	-	-
JB55 0-0.1	S20-Se07048	742039	soil	-	-	-	-	-	-	-	-	-	14
JB55 1-1.1	S20-Se07049	742039	soil	<0.5	-	<1	-	-	-	-	-	-	13
JB55 3-3.1	S20-Se07050	742039	soil	-	-	-	-	-	-	-	-	-	20
JB58 0.3-0.4	S20-Se07033	742039	soil	-	-	-	-	-	-	-	-	-	23
JB58 0-0.1	S20-Se07032	742039	soil	-	-	-	-	-	-	-	-	-	16
JB58 3-3.1	S20-Se07034	742039	soil	-	-	-	-	-	-	-	-	-	23
JB59 0-0.1	S20-Se26747	744324	SOIL	-	-	-	-	-	-	-	-	-	29
JB60 0-0.1	S20-Se07035	742039	soil	-	-	-	-	-	-	-	-	-	13
JB60_0.3-0.4	S20-Se13894	742676	soil	<0.5	-	-	-	-	-	-	-	-	12
JB61_0-0.1	S20-Se26748	744324	SOIL	-	-	-	-	-	-	-	-	-	24
JB62_0-0.1	S20-Se26749	744324	SOIL	-	-	-	-	-	-	-	-	-	16
JB63_0.1-0.2	S20-Se13705	742676	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	8
JB63_2.1-2.2	S20-Se13706	742676	soil	<0.5	-	-	-	-	-	-	<0.5	<0.5	18
JB65_0.05-0.1	S20-Se13707	742676	soil	-	-	-	-	-	-	-	-	-	8.7
JB66 0.5-0.6	S20-Se07103	742039	soil	-	-	-	-	-	-	-	-	-	21
JB66 2-2.1	S20-Se07104	742039	soil	-	-	-	-	-	-	-	-	-	27
JB66 4-4.1	S20-Se07105	742039	soil	-	-	-	-	-	-	-	-	-	23
JB67 3.0-3.1	S20-Se13708	742676	soil	-	-	-	45	2400	8.2	-	-	-	21
JB68_1.3-1.4	S20-Se13709	742676	soil	-	-	-	-	-	-	-	-	-	16
JB70 0-0.1	S20-Se13710	742676	soil	-	-	-	-	-	-	-	-	-	22
JB75_0.5-1	S20-Se13407	742692	soil	-	-	-	-	-	-	-	-	-	21
JB75_0-0.1	S20-Se13406	742692	soil	-	-	-	-	-	-	-	-	-	21
JB76_0-0.1	S20-Se13408	742692	soil	-	-	-	-	-	-	-	-	-	19
JB77_0-0.1	S20-Se13409	742692	soil	-	-	-	-	-	-	-	-	-	27
JB78_0-0.1	S20-Se13410	742692	soil	-	-	-	-	-	-	-	-	-	-
JB80 0-0.1	S20-Se13711	742676	soil	-	-	-	-	-	-	-	-	-	17
JB81 0.5-0.6	S20-Se07098	742039	soil	-	-	-	-	-	-	-	-	-	17
JB81 0.9-1	S20-Se07099	742039	soil	-	-	-	-	-	-	-	-	-	17
QA JB01_0829	S20-Se07119	742039	soil	-	-	-	-	-	-	-	-	-	24
QCJB01-0829	250482-4	250482	soil	-	-	-	-	-	-	25	-	-	-
JB81 1.5-1.6	S20-Se07100	742039	soil	-	-	-	-	-	-	-	-	-	18
JB81 4-4.1	S20-Se07101	742039	soil	-	-	-	-	-	-	-	-	-	16
JB81 5.5-5.6	S20-Se07102	742039	soil	-	-	-	-	-	-	-	-	-	23
JB82 0-0.1	S20-Se07081	742039	soil	-	-	-	-	-	-	-	-	-	11
JB83 0.1-0.2	S20-Se07082	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	6.1
JB83 0.5-0.6	S20-Se07083	742039	soil	-	-	-	-	-	-	-	-	-	13
QA202008Z9_MN01	S20-Se07115	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	6
QC202008Z9-MN01	250482-1	250482	soil	-	<1	<0.5	-	-	-	9.8	<2	<0.5	-
JB84 0-0.1	S20-Se07057	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	7.5
QA202008Z9_MN03	S20-Se07117	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	9.7
QC202008Z9-MN03	250482-3	250482	soil	-	<1	<0.5	-	-	-	10	<2	<0.5	-
JB84 1.4-1.5	S20-Se07058	742039	soil	-	-	-	-	-	-	-	-	-	30
JB85 0.5-0.7	S20-Se07094	742039	soil	<0.5	-	-	-	-	-	-	-	-	20
JB85 0.5-1.0	S20-Se07095	742039	soil	-	-	-	-	-	-	-	-	-	-
JB85 2-2.2	S20-Se07096	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	29
JB85 4.8-5.0	S20-Se07097	742039	soil	-	-	-	-	-	-	-	-	-	11
JB86 0.3-0.4	S20-Se07045	742039	soil	<0.5	-	<1	-	-	-	-	-	-	11
JB86 2-2.1	S20-Se07046	742039	soil	<0.5	-	-	-	-	-	-	-	-	12
JB86A 0.3-0.4	S20-Se07047	742039	soil	-	-	-	-	-	-	-	-	-	8.5
JB87 0.3-0.4	S20-Se07036	742039	soil	-	-	-	-	-	-	-	-	-	11
JB87 1-1.1	S20-Se07037	742039	soil	-	-	-	-	-	-	-	-	-	10
JB87 2-2.1	S20-Se07038	742039	soil	-	-	-	-	-	-	-	-	-	9.8
JB88 0.5-0.6	S20-Se07043	742039	soil	<0.5	-	-	-	-	-	-	-	-	25
JB88 0-0.1	S20-Se07042	742039	soil	-	-	-	-	-	-	-	-	-	14
JB88 3-3.1	S20-Se07044	742039	soil	-	-	-	-	-	-	-	-	-	19
JB89_0.4-0.5	S20-Se13735	742676	soil	-	-	-	-	-	-	-	-	-	-
JB89A_0.2-0.3	S20-Se13737	742676	soil	-	-	-	-	-	-	-	-	-	-
JB93_0.4-0.5	S20-Se13712	742676	soil	<0.5	-	-	-	-	-	-	<0.5	<0.5	26
JB93_2.0-2.1	S20-Se13713	742676	soil	<0.5	-	-	-	-	-	-	-	-	14
QA202009O5-1	S20-Se13718	742676	soil	<0.5	-	<1	-	-	-	-	-	-	26
QC202009O5-1	250686-3	250686	soil	-	-	<0.5	-	-	-	26	-	<1	-
JB94_0.9-1.0	S20-Se13733	742676	soil	-	-	-	-	-	-	-	-	-	-
JB94_2.4-2.5	S20-Se13734	742676	soil	-	-	-	-	-	-	-	-	-	-
JB94-A	S20-Se13740	742676	soil	-	-	-	-	-	-	-	-	-	-
JB95_0.9-1.0	S20-Se13732	742676	soil	-	-	-	-	-	-	-	-	-	-
JB96_0.0-0.1	S20-Se13731	742676	soil	-	-	-	-	-	-	-	-	-	-
JB96-A	S20-Se13739	742676	soil	-	-	-	-	-	-	-	-	-	-
JB98_0.0-0.1	S20-Se13729	742676	soil	-	-	-	40	820	8.4	-	-	-	14
JB98_1.9-2.0	S20-Se13730	742676	soil	-	-	-	-	-	-	-	-	-	29
JB98-A	S20-Se13738	742676	soil	-	-	-	-	-	-	-	-	-	-
JBSED-01	S20-Se13264	742668	soil	<0.5	-	-	-	-	-	-	-	-	77
JBSED-02	S20-Se13265	742668	soil	<0.5	-	-	-	-	-	-	-	-	33
JBSED-03	S20-Se13266	742668	soil	<0.5	-	-	-	-	-	-	-	-	61
JBSED04	S20-Se26735	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	66
JBSED05	S20-Se26736	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	45
JBSED06	S20-Se26737	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	49
JBSED07	S20-Se26738	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	72
JBSED08	S20-Se26739	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	57
JBSED09	S20-Se26740	744324	SOIL	<0.5	-	-	-	-	-	-	-	-	75
JBSED-10	S20-Se13589	745190	SOIL	-	-	-	-	-	-	-	-	-	46
PT2-6	S20-Se22816	743842	soil	-	-	-	-	-	-	-	-	-	-
PT2-7	S20-Se22817	743842	soil	-	-	-	-	-	-	-	-	-	-
QC202008Z9-MN01 - [TRIPLICATE]	250482-6	250482	soil	-	<1	-	-	-	-	-	<2	<0.5	-
SED01	S20-Se07114	742039	soil	<0.5	-	<1	-	-	-	-	<0.5	<0.5	62
				60	4	31	5	5	4	10	22	23	180
				0	0	0	5	5	4	10	0	0	180
				<0.5	<1	<0.5	31	45	7.9	3	<0.5	<0.5	2
				ND	ND	ND	31	45	7.9	3	ND	ND	2
				<0.5	<1	<1	45	2400	8.5	26	<2	<1	77
				ND	ND	ND	45	2400	8.5	26	ND	ND	77
				0.25	0.5	0.46	39	984	8.3	15	0.39	0.26	18
				0.25	0.5	0.5	40	820	8.3	14	0.25	0.25	15
				0	0	0.093	5.2	1019	0.26	7.8	0.3	0.052	13

Table B: Soil Leachate Data
Project Number: 58238
Project Name: Prospect Logistics Estate

		Metals & Metalloids												PAH																	Ionic Balance						Inorganics
		Arsenic AS3/7/TCLP	Cadmium AS3/7/TCLP	Chromium (iii+VI) TCP	Chromium (iii+VI) AS/LP	Copper TCLP	Copper ASLP	Lead TCLP	Lead ASLP	Mercury AS3/7/TCLP	Nickel TCLP	Nickel ASLP	Zinc TCLP	Zinc ASLP	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(b)+(j)perylene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene - PAH	Phenanthrene	Pyrene	PAHs (Sum of total)	pH of Leaching Fluid	pH (after HCl)	pH (final)	pH (final)	pH (initial)	pH (initial)	Leachate fluid
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	PH UNITS	pH Units	pH Units	pH Units	pH Units	pH Units	Comment
EQL		0.005	0.0005	0.01	0.01	0.01	0.01	0.01	0.01	0.0001	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1	0.1	0.1	0.1	0.1	0.1	
NSW 2014 General Solid Waste TCLP1 (leached)		c#1	c#1	c#2	c#2			c#3	c#3	0.2#4	2#4	2#4								0.04#5																			
Field_ID	**Sampled_Date_Time**																																					
JB113_0-0.1	11/09/2020	<0.005	<0.0005	<0.05	0.56	<0.05	0.08	<0.01	-	<0.0001	0.01	0.29	<0.05	0.17	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.9	1.7	6.2	8.5	6.9	8	4
JB116_0-0.1	11/09/2020	<0.005	<0.0005	<0.05	0.35	<0.05	0.05	<0.01	0.01	<0.0001	0.01	0.16	0.08	0.12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.9	1.7	5.7	8.5	6.8	7.7	4
JB24 2-2.1	30/08/2020	<0.005	<0.0005	<0.05	0.04	<0.05	0.04	<0.01	-	<0.0001	0.03	0.31	<0.05	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	1.7	5.1	7.4	6.7	7.4	4
JB41 0.1-0.2	30/08/2020	<0.005	<0.0005	<0.05	0.34	<0.05	0.04	<0.01	-	<0.0001	0.06	0.23	<0.05	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	1.7	5.2	8.5	8.6	9.1	4
JB83 0.1-0.2	30/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	5.8		8.9		-
JB84 1.4-1.5	30/08/2020	<0.005	<0.0005	<0.05	1.5	<0.05	0.09	<0.01	-	<0.0001	0.03	0.7	<0.05	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	1.7	5.1	7.2	6.7	7.8	4
JBSED-01	30/08/2020	<0.005	<0.0005	<0.05	0.02	<0.01	-	<0.01	-	<0.0001	<0.01	-	0.06	0.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	1.7	5.1	6.3	6.5		4
Statistical Summary																																						
Number of Results		6	6	6	6	6	5	6	1	6	6	5	6	6	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	6	7	7	6	7	5	6
Number of Detects		0	0	0	6	0	5	0	1	0	5	5	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7	7	6	7	5	6
Minimum Concentration		<0.005	<0.0005	<0.05	0.02	<0.01	0.04	<0.01	0.01	<0.0001	<0.01	0.16	<0.05	0.06	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.9	1.7	5.1	6.3	6.5	7.4	4
Minimum Detect		ND	ND	ND	0.02	ND	0.04	ND	0.01	ND	0.01	0.16	0.06	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.9	1.7	5.1	6.3	6.5	7.4	4
Maximum Concentration		<0.005	<0.0005	<0.05	1.5	<0.05	0.09	<0.01	0.01	<0.0001	0.06	0.7	0.08	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.1	1.7	6.2	8.5	8.9	9.1	4
Maximum Detect		ND	ND	ND	1.5	ND	0.09	ND	0.01	ND	0.06	0.7	0.08	0.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.1	1.7	6.2	8.5	8.9	9.1	4
Average Concentration		0.0025	0.00025	0.025	0.47	0.022	0.06	0.005		0.00005	0.024	0.34	0.04	0.19						0.0005												6	1.7	5.5	7.7	7.3	8	4
Median Concentration		0.0025	0.00025	0.025	0.345	0.025	0.05	0.005	0.01	0.00005	0.02	0.29	0.025	0.145	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	6.1	1.7	5.2	7.95	6.8	7.8	4
Standard Deviation		0	0	0	0.55	0.0082	0.023	0		0	0.021	0.21	0.024	0.18						0												0.1	0	0.44	0.92	1	0.65	0
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

#1:Hazardous Waste Management System: Identification and Listing of Hazardous Waste –Toxicity Characteristics Revisions, Final Rule (USEPA 2012b) for TCLP levels. Refer to NSW Waste Criteria Nov 2014 p.16 footnote 2
#2:Trigger value adopted from Chromium VI
#3:See Hazardous Waste Management System: Identification and Listing of Hazardous Waste –Toxicity Characteristics Revisions, Final Rule (USEPA 2012b) for TCLP levels. Refer to NSW Waste Criteria Nov 2014 p.16 footnote 2
#4:Calculated from Australian Drinking Water Guidelines (NHMRC 2011). Refer to NSW Waste Criteria Nov 2014 p.16 footnote 10
#5:Calculated from Hazardous Waste: Identification and Listing (USEPA 2012a). Refer to NSW Waste Criteria Nov 2014 p.16 footnote 3, 4

Table C: Groundwater/Surface Water Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | Heavy Metals | | | | | | | | TPHs (NEPC 1999) | | | | TRHs (NEPC 2013) | | | | | | BTEXN | | | | PAHs | | | | | | | |

Table C: Goundwater/Surface Water Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | Chlorinated Alkanes | | | | | | | | | | | | | | | | | | Chlorinated Alkenes | | | | | | | | | | | | | | | Solvents | PFAS | | | | | | | | | | | | | | | | | |

Table C: Goundwater/Surface Water Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | | |

Table D: Soil Vapour Analytical Results
Project Number: SE238
Project Name: Prospect Logistics Estate DGI

						TRHs (NEPC 2013)				BTEXN				Chlorinated Alkanes																Chlorinated Alkenes											MAH						
						C6-C10	F2 (C6-C10 minus BTEX)		F1 (C6-C10 less Naphthalene)	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloropropene	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Carbon tetrachloride	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Ethylbenzene	n-propylbenzene	Naphthalene	sec-butylbenzene	Styrene	tert-butylbenzene	n-propylbenzene
EQL						mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
						2.85714285714	2.85714285714	2.85714285714	2.85714285714	0.071428571	0.071428571	0.071428571	0.214285714	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571
Regional Screening Levels for Commercial Air US EPA 2020 [1]																																								1.3	1.3	-						
NEPM 2013 Table 1A(1) Comm/Ind D Soil Vap VOC< HILs															230																																
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay 0-1m									cm/cm³	mm³	5	6500	1800	1200	6																																
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m									680[a]	320[a]	4	4800	1300	840	3																																
Field_ID	**Location_Code**	**Sampled_Date_Time**	**SampleCode**	**Monitoring_Round**	**Lab_Report_Number**																																										
VP01	VP01	29/08/2020	S20-Se02840	JB&G 2020	741371	**6.14**		**10.1**	**6.14**	**10.1**	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	**0.114**	<0.0716	**0.0857**	<0.0716	<0.0716	**0.0857**	<0.716	<0.0716	<0.0716
VP02	VP02	29/08/2020	S20-Se02842	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP03	VP03	29/08/2020	S20-Se02844	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP04	VP04	29/08/2020	S20-Se02846	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP07	VP07	29/08/2020	S20-Se02848	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP08	VP08	29/08/2020	S20-Se02850	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP09	VP09	29/08/2020	S20-Se02852	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP10	VP10	30/08/2020	S20-Se02854	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP11	VP11	30/08/2020	S20-Se02856	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP12	VP12	30/08/2020	S20-Se02858	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	**0.171**	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP13	VP13	30/08/2020	S20-Se02860	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP15	VP15	30/08/2020	S20-Se02862	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP16	VP16	30/08/2020	S20-Se02864	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP17	VP17	30/08/2020	S20-Se02866	JB&G 2020	741371	**5.00**	<2.86	**5.00**	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP18	VP18	30/08/2020	S20-Se02868	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP19	VP19	30/08/2020	S20-Se03070	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP20	VP20	1/09/2020	S20-Se12751	JB&G 2020	742620	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP21	VP21	1/09/2020	S20-Se12753	JB&G 2020	742620	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	**0.129**	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
VP22	VP22	1/09/2020	S20-Se12755	JB&G 2020	742620	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
FB (Field Blank)	-	1/09/2020	S20-Se12759	JB&G 2020	742620	<2.86	<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
FB@BLANK	-	30/08/2020	S20-Se02872	JB&G 2020	741371	<2.86	<2.86	<2.86	<2.86	<0.0716	**0.200**	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716

Statistical Summary																																																
Number of Results						21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Number of Detects						2	1	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	4	2	1	0	0	1	0	0	0
Minimum Concentration						<2.86	<2.86	<2.86	<2.86	<0.0716	<0.0716	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716
Minimum Detect						6.14	10.1	6.14	10.1	ND	0.129	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.271	ND	ND	ND	0.0857	0.0857	0.0857	ND	ND	0.0857	ND	ND	ND
Maximum Concentration						5	10.1	5	10.1	<0.0716	0.2	<0.0716	<0.216	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	<0.0716	4.57	<0.0716	<0.0716	<0.0716	0.357	0.171	0.0857	<0.0716	<0.0716	0.0857	<0.716	<0.0716	<0.0716
Maximum Detect						5	10.1	5	10.1	ND	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.57	ND	ND	ND	0.357	0.171	0.0857	ND	ND	0.0857	ND	ND	ND
Average Concentration						1.7	1.8	1.7	1.8	0.036	0.054	0.036	0.11	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.28	0.036	0.036	0.036	0.068	0.045	0.038	0.036	0.036	0.038	0.36	0.036	0.036
Median Concentration						1.43	1.43	1.43	1.43	0.0357	0.0357	0.0357	0.107	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357
Standard Deviation						0.95	1.9	0.95	1.9	0	0.048	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.99	0	0	0	0.046	0.031	0.011	0	0	0.011	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Vedc Comments

#1:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#2:To obtain F2 subtract naphthalene from the >C10 - C16 fraction.
#3:US EPA (2020) indoor air based criteria have been adjusted by a factor of 0.005 to account for attenuation from the sub-surface to the indoor air and consistent with the factor adopted in the NEPM for derivation of soil vapour criteria for other petroleum hydrocarbon constituents.

Table D: Soil Vapour Analytical Results
Project Number: SE238
Project Name: Prospect Logistics Estate DGI

	Miscellaneous Hydrocarbons		Chlorinated Benzenes						Trihalomethanes				Organic Alcohols	Chlorinated Hydrocarbons
	1,1-Dichloroethene	Dichloromethane	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Chlorobenzene	Bromodichloromethane	Chloroform	Tribromomethane	Dibromochloromethane	2-Propanol	Hexachlorobutadiene
	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
EQL	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	0.071428571	1.428571429	0.071428571
Regional Screening Levels for Commercial Air US EPA 2020 [1]														
NEPM 2013 Table 1A(3) Comm/Ind D Soil Vap VSCC HSL														
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay 0-1m														
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand 0-1m														
Field_ID	**Location_Code**	**Sampled_Date_Time**	**SampleCode**	**Monitoring_Round**	**Lab_Report_Number**											
VP01	VP01	29/08/2020	520-5e02082	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP02	VP02	29/08/2020	520-5e02062	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP03	VP03	29/08/2020	520-5e02063	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP06	VP06	29/08/2020	520-5e02066	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP07	VP07	29/08/2020	520-5e02068	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP08	VP08	29/08/2020	520-5e02050	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP09	VP09	29/08/2020	520-5e02052	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP10	VP10	30/08/2020	520-5e02054	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP11	VP11	30/08/2020	520-5e02056	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP12	VP12	30/08/2020	520-5e02058	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP13	VP13	30/08/2020	520-5e02060	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP15	VP15	30/08/2020	520-5e02062	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP16	VP16	30/08/2020	520-5e02064	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP17	VP17	30/08/2020	520-5e02066	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP18	VP18	30/08/2020	520-5e02068	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP19	VP19	30/08/2020	520-5e02070	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP20	VP20	1/09/2020	520-5e12751	JBS&G 2020	762620	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
VP21	VP21	1/09/2020	520-5e12753	JBS&G 2020	762620	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
Dp1	VP21	1/09/2020	520-5e12755	JBS&G 2020	762620	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
FB (Field Blank)	-	1/09/2020	520-5e12759	JBS&G 2020	762620	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
FIELD BLANK	-	30/08/2020	520-5e02072	JBS&G 2020	761371	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
Statistical Summary																
Number of Results						21	21	21	21	21	21	21	21	21	21	21	21	21	21
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<1.43	<0.0714
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.72	0.036
Median Concentration						0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.0357	0.715	0.0357
Standard Deviation						0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Sids Comments

#1:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#2:To obtain F2 subtract naphthalene from the >C10 - C16 fraction.
#3:US EPA (2020) indoor air based criteria have been adjusted by a factor of 0.005 to account for attenuation from the sub-surface

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | | | | Metals & Metalloids | | | | | | | | | | TPHs (NEPC 1999) | | | | | TRHs (NEPC 2013) | | | | | | | BTEXN | | | | | | | Polycyclic Aromatic Hydrocarbons | | | | | | | | | |

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

	Metals & Metalloids										TPHs (NEPC 1999)					TRHs (NEPC 2013)							BTEXN								Polycyclic Aromatic Hydrocarbons																					
	Arsenic (Total)	Cadmium	Chromium (Total)	Cobalt	Copper	Lead	Mercury (Inorganic)	Nickel	Titanium	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Total)	>C10-C16 Fraction	>C16-C34 Fraction	>C34-C40 Fraction	>C10-C40 Fraction (Total)	>C10-C16 less Naphthalene (F2)	C6-C10 Fraction	C6-C10 less BTEX (F1)	Benzene	BTEX (Total)	Ethylbenzene	Toluene	Xylene (o)	Xylene (m & p)	Xylene (Total)	Naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Carcinogenic PAHs as B(a)P TEQ	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	PAHs (Total)	Pyrene	Benzo(b,j+k)fluoranthene	Total Positive PAHs
	mg/kg	mg/kg	mg/kg

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | | | | Metals & Metalloids | | | | | | | | | | TPHs (NEPC 1999) | | | | | TRHs (NEPC 2013) | | | | | | | BTEXN | | | | | | | Polycyclic Aromatic Hydrocarbons | | | | | | | | | |

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | Metals & Metalloids | | | | | | | | | | TPHs (NEPC 1999) | | | | | TRHs (NEPC 2013) | | | | | | | BTEXN | | | | | | | Polycyclic Aromatic Hydrocarbons | | | | | | | | | |

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

				Organochlorine Pesticides																								Organophosphorus Pesticides																	Carbamate & Other Pesticides				VOC	Chlorinated Alkanes																													
				4,4-DDE	Aldrin	Aldrin + Dieldrin (Sum of Total)	alpha-BHC	alpha-Chlordane	beta-BHC	Chlordane	DDD	DDT	DDT+DDE+DDD (Sum of Total)	Dieldrin	delta-BHC	Endosulfan alpha	Endosulfan beta	Endosulfan sulphate	Endrin	Endrin aldehyde	gamma-Chlordane	Endrin ketone	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	Toxaphene	Azinphos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	Total MAH*	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Carbon tetrachloride	Chloroethane	Chloromethane	Dichlorodifluoromethane	Dichloromethane	Trichlorofluoromethane
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05	0.05	0.05	0.1	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.1	1																		0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG (2019) - Sediment Quality DGVs																		

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

| | | | | Organochlorine Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | Organophosphorus Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | Carbarmate & Other Pesticides | | | | VOC | Chlorinated Alkanes | | | | | | | | | | | | | | | | | | |

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

				Organochlorine Pesticides																								Organophosphorus Pesticides																		Carbamate & Other Pesticides				VOC	Chlorinated Alkanes																													
				4,4-DDE	Aldrin	Aldrin + Dieldrin (Sum of Total)	alpha-BHC	alpha-Chlordane	beta-BHC	Chlordane	DDD	DDT	DDT+DDE+DDD (Sum of Total)	Dieldrin	Endosulfan alpha	Endosulfan beta	Endosulfan sulphate	Endrin	Endrin aldehyde	gamma-Chlordane	Endrin ketone	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	Toxaphene	Azinphos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	b-BHC	b-BHC	d-BHC	g-BHC (Lindane)	Total MAH*	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Carbon tetrachloride	Chloroethane	Chloromethane	Dichlorodifluoromethane	Dichloromethane	Trichlorofluoromethane
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05	0.05	0.05	0.1	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.1	1																0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG (2019) - Sediment Quality DGVs																																																																					
NEPM 2013 EIL - Commercial Industrial (Specific)												640																																																																						
NEPM 2013 ESL Commercial and Industrial, Fine Soil																																																																																					
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D																																																																																			
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL																																																																																			
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																																																																																		
NEPM 2013 Soil HIL D						45				530			3600					100				50			2500	160			2000																																																						
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																																																																																				
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																																																																																			
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																																																																																			

| Field_ID | Sampled_Date-Time | Lab_Report_Number | Matrix_Type | | | | | | | | | | | | | | | | | | |

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

	Organochlorine Pesticides																									Organophosphorus Pesticides															Carbamate & Other Pesticides				VOC	Chlorinated Alkanes																											
	4,4-DDE	Aldrin	Aldrin + Dieldrin (Sum of Total)	alpha-BHC	alpha-Chlordane	beta-BHC	Chlordane	DDD	DDT	DDT+DDE+DDD (Sum of Total)	Dieldrin	Endosulfan alpha	Endosulfan beta	Endosulfan sulphate	Endrin	Endrin aldehyde	gamma-Chlordane	Endrin ketone	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	Toxaphene	Azinphos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	b-BHC	b-BHC	d-BHC	g-BHC (Lindane)	Total MAH*	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Carbon tetrachloride	Chloroethane	Chloromethane	Dichlorodifluoromethane	Dichloromethane	Trichlorofluoromethane
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.1	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.1	1																0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG (2019) - Sediment Quality DGVs																																																																		
NEPM 2013 EIL - Commercial Industrial (Specific)									640																																																								
NEPM 2013 ESL Commercial and Industrial, Fine Soil																																																															
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NEPM 2013 Soil HIL D			45				530			3600					100				50			2500	160			2000																																								
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																																																														
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																																																														
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																																																														

| Field_ID | Sampled_Date-Time | Lab_Report_Number | Matrix_Type | | | | | | | | | | | | | | | | | | |

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

				Chlorinated Alkenes														Solvents	Polychlorinated Biphenyls								Monocyclic Aromatic Hydrocarbons									Miscellaneous Hydrocarbons							Chlorinated Benzenes							Trihalomethanes				Misc Chemicals
				1,1-dichloroethene	1,1-dichloropropene	1,3-dichloropropene	2-chlorotoluene	3-chloropropene	4-chlorotoluene	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichloroethene	Vinyl Chloride	2-Propanone (Acetone)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)	1,2,4-trimethyl benzene	1,3,5-trimethyl benzene	4-isopropyl toluene	Bromobenzene	Isopropylbenzene	n-butyl benzene	n-propyl benzene	sec-butyl benzene	Styrene	Tert-butyl benzene	1,2-dibromoethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Bromomethane	Cyclohexane	Dibromomethane	Iodomethane	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-Dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene	Bromodichloromethane	Chloroform	Dibromochloromethane	Tribromomethane	Hexachlorobutadiene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	1		1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	1	0.5	0.5	1	1	1	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	1	1	0.5	0.5	0.5	0.5	0.5	0.05	0.5	0.5	0.5	0.5	1
ANZG (2019) - Sediment Quality DGVs																																																			
NEPM 2013 EIL - Commercial Industrial (Specific)																																																		
NEPM 2013 ESL Commercial and Industrial, Fine Soil																																																		
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D																																																		
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL																																																		
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																																																		
NEPM 2013 Soil HIL D																									7[#18]																										80				
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																																																		
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																																																		
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																																																		
Field_ID	**Sampled_Date-Time**	**Lab_Report_Number**	**Matrix_Type**																																															
Coffey (2013)																																																		
BH01 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02 0.0-0.2	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04 0.0-0.1	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06 0.16-0.26	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.08-0.13	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.2-0.3	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.4-0.5	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09 0.0-0.1	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10 0.16-0.26	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11 0.19-0.29	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12 0.4-0.5	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13 0.13-0.23	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15 0.15-0.25	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-6.0	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19 0.4-0.5	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 0.0-0.2	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 3.0-3.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 3.9-4.0	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22 0.0-0.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23 0.08-0.18	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 0.08-0.18	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 1.1-1.2	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH25 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH26 0.18-0.28	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27 0.17-0.27	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27 0.4-0.5	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28 0.16-0.26	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH30 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH31 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH31 0.4-0.5	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH32 0.08-0.18	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH33 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH34 0.09-0.19	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH34 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH35 0.08-0.18	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH35 0.4-0.5	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH36 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH37 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH38 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH38 0.4-0.5	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH39 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH40 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP2	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP3	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP3A	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP5	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP5A	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP7A	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED1	21/02/2013	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED2	21/02/2013	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED3	21/02/2013	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

				Chlorinated Alkenes														Solvents	Polychlorinated Biphenyls								Monocyclic Aromatic Hydrocarbons										Miscellaneous Hydrocarbons							Chlorinated Benzenes							Trihalomethanes				Misc Chemicals
				1,1-dichloroethene	1,1-dichloropropene	1,3-dichloropropene	2-chlorotoluene	3-chloropropene	4-chlorotoluene	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichloroethene	Vinyl Chloride	2-Propanone (Acetone)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)	1,2,4-trimethyl benzene	1,3,5-trimethyl benzene	4-isopropyl toluene	Bromobenzene	Isopropylbenzene	n-butyl benzene	n-propyl benzene	sec-butyl benzene	Styrene	Tert-butyl benzene	1,2-dibromoethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Bromomethane	Cyclohexane	Dibromomethane	Iodomethane	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-Dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene	Bromodichloromethane	Chloroform	Dibromochloromethane	Tribromomethane	Hexachlorobutadiene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	1		1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	1	0.5	0.5	1	1	1	0.5	1	0.5	0.5	0.5	1	0.5	0.5	1	1	0.5	0.5	0.5	0.5	0.5	0.05	0.5	0.5	0.5	0.5	1
ANZG (2019) - Sediment Quality DGVs																																																							
NEPM 2013 EIL - Commercial Industrial (Specific)																																																					
NEPM 2013 ESL Commercial and Industrial, Fine Soil																																																					
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D																																																					
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL																																																					
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																																																					
NEPM 2013 Soil HIL D																									7[#18]																									80					
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																																																					
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																																																					
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																																																					
Field_ID	**Sampled_Date-Time**	**Lab_Report_Number**	**Matrix_Type**																																																			
DLA (2017)																																																					
BH1 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH1 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH4 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4 5.9-6.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH6 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH7 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH8 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH9 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH9 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH10 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH11 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH12 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH13 2.5-2.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13 7.4-7.5	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH14 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH16 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH17 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH18 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH19 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH2 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH21 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH22 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH24 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH25 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH25 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH26 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH26 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH27 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH28 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH29 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH3 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH30 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH30 5.9-6.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH31 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH31 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH32 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
BH32 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA15 0.2-0.4	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA15 0-0.2	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
HA20 0.2-0.3	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
HA20 0.5-0.6	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA23 0.1-0.2	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
HA23 0.2-0.3	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA5 0.2-0.3	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
HA5 0.4-0.5	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD2	2/08/2017	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD3	2/08/2017	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

	Chlorinated Alkenes														Solvents	Polychlorinated Biphenyls									Monocyclic Aromatic Hydrocarbons										Miscellaneous Hydrocarbons							Chlorinated Benzenes							Trihalomethanes				Misc Chemicals
	1,1-dichloroethene	1,1-dichloropropene	1,3-dichloropropene	2-chlorotoluene	3-chloropropene	4-chlorotoluene	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichloroethene	Vinyl Chloride	2-Propanone (Acetone)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)	1,2,4-trimethyl benzene	1,3,5-trimethyl benzene	4-isopropyl toluene	Bromobenzene	Isopropylbenzene	n-butyl benzene	n-propyl benzene	sec-butyl benzene	Styrene	Tert-butyl benzene	1,2-dibromoethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Bromomethane	Cyclohexane	Dibromomethane	Iodomethane	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-Dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene	Bromodichloromethane	Chloroform	Dibromochloromethane	Tribromomethane	Hexachlorobutadiene
	mg/kg	mg/kg	mg/kg

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

	Chlorinated Alkenes														Solvents	Polychlorinated Biphenyls								Monocyclic Aromatic Hydrocarbons										Miscellaneous Hydrocarbons							Chlorinated Benzenes							Trihalomethanes				Misc Chemicals
	1,1-dichloroethene	1,1-dichloropropene	1,3-dichloropropane	2-chlorotoluene	3-chloropropene	4-chlorotoluene	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichloroethene	Vinyl Chloride	2-Propanone (Acetone)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Total)	1,2,4-trimethyl benzene	1,3,5-trimethyl benzene	4-isopropyl toluene	Bromobenzene	Isopropylbenzene	n-butyl benzene	n-propyl benzene	sec-butyl benzene	Styrene	Tert-butyl benzene	1,2-dibromoethane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Bromomethane	Cyclohexane	Dibromomethane	Iodomethane	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-Dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene	Bromodichloromethane	Chloroform	Dibromochloromethane	Tribromomethane	Hexachlorobutadiene
	mg/kg	mg/kg	mg/kg

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

		Asbestos											Ionic Balance			Other	
		Approx. Sample Mass	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil	Mass ACM	Mass Asbestos in ACM	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Total Asbestos#1	Cation Exchange Capacity	EC 1:5 soil:water	pH 1:5 soil:water	% Moisture 103oC	Moisture
		g	%w/w	%w/w	g	g	g	g	g	g	g	g/kg	meq/100g	µS/cm	ph Units	%	%
EQL												0.1	0.05	5	0.1	1	0.1
ANZG (2019) - Sediment Quality DGVs																	
NEPM 2013 EIL - Commercial Industrial (Specific)																	
NEPM 2013 ESL Commercial and Industrial, Fine Soil																	
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D			0.05[ab]														
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL				0.001[a9]													
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																	
NEPM 2013 Soil HIL D																	
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																	
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																	
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																	
Field_ID	**Sampled_Date-Time**	**Lab_Report_Number**	**Matrix_Type**														
Coffey (2013)																	
BH01 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02 0.0-0.2	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04 0.0-0.1	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06 0.16-0.26	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.08-0.13	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.2-0.3	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.4-0.5	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09 0.0-0.1	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10 0.16-0.26	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11 0.19-0.29	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12 0.4-0.5	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13 0.13-0.23	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH15 0.15-0.25	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17 0.5-6.0	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19 0.4-0.5	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 0.0-0.2	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 3.0-3.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21 3.9-4.0	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22 0.0-0.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23 0.08-0.18	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 0.08-0.18	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 0.5-0.6	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24 1.1-1.2	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH25 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH26 0.18-0.28	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27 0.17-0.27	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27 0.4-0.5	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28 0.16-0.26	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH30 0.19-0.29	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH31 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH31 0.4-0.5	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH32 0.08-0.18	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH33 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH34 0.09-0.19	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH34 1.0-1.1	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH35 0.08-0.18	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH35 0.4-0.5	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH36 0.0-0.2	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH37 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH38 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH38 0.4-0.5	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH39 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH40 0.0-0.2	21/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP2	18/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP3	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP3A	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP5	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP5A	19/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP7A	20/02/2013	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED1	21/02/2013	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED2	21/02/2013	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED3	21/02/2013	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

				Asbestos											Ionic Balance			Other	
				Approx. Sample Mass	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil	Mass ACM	Mass Asbestos in ACM	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Total Asbestos#1	Cation Exchange Capacity	EC 1:5 soil:water	pH 1:5 soil:water	% Moisture 103oC	Moisture
				g	%w/w	%w/w	g	g	g	g	g	g	g	g/kg	meq/100g	µS/cm	ph Units	%	%
EQL														0.1	0.05	5	0.1	1	0.1
ANZG (2019) - Sediment Quality DGVs																			
NEPM 2013 EIL - Commercial Industrial (Specific)																			
NEPM 2013 ESL Commercial and Industrial, Fine Soil																			
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D					0.05[88]														
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL						0.001[89]													
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																			
NEPM 2013 Soil HIL D																			
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																			
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																			
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																			
Field_ID	**Sampled_Date-Time**	**Lab_Report_Number**	**Matrix_Type**																
DLA (2017)																			
BH1 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
BH1 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
BH4 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.6
BH4 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27
BH4 5.9-6.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
BH6 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
BH6 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
BH7 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
BH7 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
BH8 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
BH8 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5
BH9 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
BH9 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
BH10 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
BH10 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
BH11 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
BH11 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
BH12 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
BH12 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8
BH13 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
BH13 2.5-2.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
BH13 7.4-7.5	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7
BH14 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
BH14 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
BH16 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7
BH16 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7
BH17 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
BH17 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27
BH18 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1
BH18 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2
BH19 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
BH19 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
BH2 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
BH2 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
BH21 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.3
BH21 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1
BH22 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
BH22 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
BH24 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
BH24 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
BH25 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
BH25 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
BH26 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6
BH26 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
BH27 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
BH27 1.9-2.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
BH28 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
BH28 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
BH29 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
BH29 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
BH3 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
BH3 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
BH30 0.5-0.6	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
BH30 5.9-6.0	7/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
BH31 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
BH31 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1
BH32 0.5-0.6	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
BH32 1.9-2.0	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
HA15 0.2-0.4	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
HA15 0-0.2	8/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.4
HA20 0.2-0.3	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
HA20 0.5-0.6	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
HA23 0.1-0.2	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
HA23 0.2-0.3	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
HA5 0.2-0.3	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
HA5 0.4-0.5	9/02/2017	-	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9
SD2	2/08/2017	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SD3	2/08/2017	-	Sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

		Asbestos											Ionic Balance			Other	
		Approx. Sample Mass	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil	Mass ACM	Mass Asbestos in ACM	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Total Asbestos#1	Cation Exchange Capacity	EC 1:5 soil:water	pH 1:5 soil:water	% Moisture 103oC	Moisture
		g	%w/w	%w/w	g	g	g	g	g	g	g	g/kg	meq/100g	µS/cm	ph Units	%	%
EQL												0.1	0.05	5	0.1	1	0.1
ANZG (2019) - Sediment Quality DGVs																	
NEPM 2013 EIL - Commercial Industrial (Specific)																	
NEPM 2013 ESL Commercial and Industrial, Fine Soil																	
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D			0.05[88]														
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL				0.001[89]													
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																	
NEPM 2013 Soil HIL D																	
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																	
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																	
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																	
Field_ID	**Sampled_Date-Time**	**Lab_Report_Number**	**Matrix_Type**														
JBS&G (2019b)																	
EMB1	30/05/2019	658838	Soil	561	0	0	0	0	0	0	0	0	-	-	-	-	9	-
FRAG01	30/05/2019	658838	Soil	77	0	0	0	0	0	0	0	0	-	-	-	-	-	-
HA01	30/05/2019	658838	Soil	548	0	0	0	0	0	0	0	0	-	-	-	-	6.8	-
HA02	30/05/2019	658838	Soil	747	0	0	0	0	0	0	0	0	-	-	-	-	9.4	-
HA03	30/05/2019	658838	Soil	615	0	0	0	0	0	0	0	0	-	-	-	-	13	-
HA04	30/05/2019	658838	Soil	845	0	0	0	0	0	0	0	0	-	-	-	-	9.4	-
SS01	30/05/2019	658838	Soil	484	0	0	0	0	0	0	0	0	-	-	-	-	9.4	-
SS02	30/05/2019	658838	Soil	490	0	0	0	0	0	0	0	0	-	-	-	-	12	-
SS03	30/05/2019	658838	Soil	577	0	0	0	0	0	0	0	0	-	-	-	-	21	-
SS04	30/05/2019	658838	Soil	492	0	0	0	0	0	0	0	0	-	-	-	-	15	-
SS05	30/05/2019	658838	Soil	560	0	0	0	0	0	0	0	0	-	-	-	-	9.5	-
SS06	3/06/2019	659015	Soil	1146	0	0	0	0	0	0	0	0	-	-	-	-	-	-
SS07	3/06/2019	659015	Soil	874	0	0	0	0	0	0	0	0	-	-	-	-	-	-
MW01 0-0.1	30/05/2019	658838	Soil	359	0	0	0	0	0	0	0	0	-	-	-	-	12	-
MW01 1.9-1.0	30/05/2019	658838	Soil	825	0	0	0	0	0	0	0	0	-	-	-	-	-	-
MW01 6.9-7.0	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-
MW02 0.9-1.0	30/05/2019	658838	Soil	877	0	0	0	0	0	0	0	0	-	-	-	-	11	-
MW02 0-0.1	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	-
MW03 0.9-1.0	30/05/2019	658838	Soil	136	0	0	0	0	0	0	0	0	-	-	-	-	14	-
QA02	30/05/2019	658838	Soil	809	0	0	0	0	0	0	0	0	-	-	-	-	8.2	-
QC02	30/05/2019	218764	Soil	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	12
MW03 7.9-8.0	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	-
TP01 0.3-0.4	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	45	94	7.1	13	-
TP01 0-0.1	30/05/2019	658838	Soil	660	0	0	0	0	0	0	0	0	-	-	-	-	16	-
TP01 1.4-1.5	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	62	530	7.1	14	-
TP01 1-1.1	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-
TP02 0-0.1	30/05/2019	658838	Soil	487	0	0	0	0	0	0	0	0	-	-	-	-	17	-
TP02 1-1.1	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-
TP03 0-0.1	30/05/2019	658838	Soil	492	0	0	0	0	0	0	0	0	-	-	-	-	17	-
TP04 0.5-0.6	30/05/2019	658838	Soil	530	0	0	0	0	0	0	0	0	-	-	-	-	11	-
TP04 0-0.1	30/05/2019	658838	Soil	1069	0	0	0	0	0	0	0	0	-	-	-	-	<1	-
TP05 0-0.1	30/05/2019	658838	Soil	490	0	0	0	0	0	0	0	0	-	-	-	-	16	-
TP05 2-2.2	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-
TP06 0-0.1	30/05/2019	658838	Soil	549	0	0	0	0	0	0	0	0	-	-	-	-	19	-
QA01	30/05/2019	658838	Soil	534	0	0	0	0	0	0	0	0	-	-	-	-	16	-
QC01	30/05/2019	218764	Soil	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	21
TP06 1.4-1.5	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-
TP07 0-0.1	30/05/2019	658838	Soil	758	0	0	0	0	0	0	0	0	-	-	-	-	16	-
TP08 0-0.1	30/05/2019	658838	Soil	612	0	0	0	0	0	0	0	0	-	-	-	-	11	-
TP09 0.4-0.5	30/05/2019	658838	Soil	888	0	0	0	0	0	0	0	0	-	-	-	-	7.3	-
TP10 0-0.1	30/05/2019	658838	Soil	713	0	0	0	0	0	0	0	0	-	-	-	-	7.4	-
TP10 1-1.1	30/05/2019	658838	Soil	846	0	0	0	0	0	0	0	0	-	-	-	-	9.5	-
TP11 0.3-0.4	30/05/2019	658838	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	9.1	-
TP11 0-0.1	30/05/2019	658838	Soil	532	0	0	0	0	0	0	0	0	-	-	-	-	11	-
TP11 2.7-2.8	30/05/2019	658838	Soil	764	0	0	0	0	0	0	0	0	-	-	-	-	5.7	-
TP12 0.5-0.6	30/05/2019	658838	Soil	1410	0	0	0	0	0	0	0	0	-	-	-	-	9.6	-
TP12 0-0.1	30/05/2019	658838	Soil	465	0	0	0	0	0	0	0	0	-	-	-	-	15	-
AQ01 0-0.6	14/06/2019	660830	Soil	582	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ02 0.3-1.0	14/06/2019	660830	Soil	495	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ03 0.1-0.95	14/06/2019	660830	Soil	598	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ04 0-0.6	14/06/2019	660830	Soil	553	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ05 0-0.1	14/06/2019	660830	Soil	585	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ05 2.4-3.0	14/06/2019	660830	Soil	612	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ06 0.4-1.1	14/06/2019	660830	Soil	773	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ07 0-0.2	14/06/2019	660830	Soil	458	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ08 0.9-1.6	14/06/2019	660830	Soil	630	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ08 0-0.9	14/06/2019	660830	Soil	670	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ09 0.3-1.3	14/06/2019	660830	Soil	697	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ09 0-0.3	14/06/2019	660830	Soil	448	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ09 1.5-2.1	14/06/2019	660830	Soil	720	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ10 0.4-1.0	14/06/2019	660830	Soil	625	0	0.0002	0	0	0	0	0.004	0.001	0.001	-	-	-	-	-	-
AQ10 0-0.4	14/06/2019	660830	Soil	644	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ11 0.6-1.0	14/06/2019	660830	Soil	708	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ11 0-0.6	14/06/2019	660830	Soil	740	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ12 0.1-1.1	14/06/2019	660830	Soil	640	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ12 0-0.1	14/06/2019	660830	Soil	586	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ13 0.6-1.0	14/06/2019	660830	Soil	672	0	0.0016	0	0	0	0	0.024	0.0106	0.0106	-	-	-	-	-	-
AQ13 0-0.6	14/06/2019	660830	Soil	708	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ14 0-1.0	14/06/2019	660830	Soil	711	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ14 1-1.5	14/06/2019	660830	Soil	720	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ15 0.5-1.5	14/06/2019	660830	Soil	434	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
AQ15 0-0.5	14/06/2019	660830	Soil	667	0	0.0006	0	0	0	0	0.004	0.004	0.004	-	-	-	-	-	-

Table E: Historic Soil Analytical Results
Project Number: 58238
Project Name: Prospect Logistics Estate

	Asbestos											Ionic Balance			Other	
	Approx. Sample Mass	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil	Mass ACM	Mass Asbestos in ACM	Mass FA	Mass Asbestos in FA	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Total Asbestos#1	Cation Exchange Capacity	EC 1:5 soil:water	pH 1:5 soil:water	% Moisture 103oC	Moisture
	gs	%w/w	%w/w	gs	gs	gs	gs	gs	gs	gs	g/kg	meq/100g	µS/cm	ph Units	%	%
EQL											0.1	0.05	5	0.1	1	0.1
ANZG (2019) - Sediment Quality DGVs																
NEPM 2013 EIL - Commercial Industrial (Specific)																
NEPM 2013 ESL Commercial and Industrial, Fine Soil																
NEPM 2013 HSL Asbestos in Soil - Bonded ACM - Commercial/Industrial - HSL D		0.05[#8]														
NEPM 2013 HSL Asbestos in Soil - FA & AF - HSL			0.001[#9]													
NEPM 2013 Mgnt Limits - Commercial and Industrial, Fine																
NEPM 2013 Soil HIL D																
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 0 to <1m																
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 1 to <2m																
NEPM 2013 Soil HSL D for Vapour Intrusion - Clay 2 to <4m																

Field_ID	Sampled_Date-Time	Lab_Report_Number	Matrix_Type															
JBS&G (2020)																		
TP200_0.0-0.1	9/03/2020	707966	SOIL	272	0	0	0	0	0	0	0	0	-	19	31	5.6	12	-
TP201_0.9-1.0	9/03/2020	707966	SOIL	427	0	0	0	0	0	0	0	0	-	-	-	-	12	-
TP202_0.0-0.1	9/03/2020	707966	SOIL	352	0	0	0	0	0	0	0	0	-	-	-	-	14	-
TP203_0.5-0.6	9/03/2020	707966	SOIL	255	0	0	0	0	0	0	0	0	-	-	-	-	12	-
TP204_0.0-0.1	9/03/2020	707966	SOIL	381	0	0	0	0	0	0	0	0	-	2.9	16	5.2	14	-
TP205_0.4-0.5	9/03/2020	707966	SOIL	451	0	0	0	0	0	0	0	0	-	-	-	-	14	-
TP206_0.0-0.1	9/03/2020	707966	SOIL	451	0	0	0	0	0	0	0	0	-	-	-	-	17	-
TP207_0.0-0.1	9/03/2020	707966	SOIL	271	0	0	0	0	0	0	0	0	-	-	-	-	25	-
TP208_0.9-1.0	9/03/2020	707966	SOIL	410	0	0	0	0	0	0	0	0	-	-	-	-	21	-
TP209_0.9-1.0	9/03/2020	707966	SOIL	427	0	0	0	0	0	0	0	0	-	-	-	-	18	-
TP210_0.4-0.5	9/03/2020	707966	SOIL	520	0	0	0	0	0	0	0	0	-	-	-	-	15	-
TP211_0.0-0.1	9/03/2020	707966	SOIL	380	0	0	0	0	0	0	0	0	-	-	-	-	23	-

Env Stds Comments
#1:Adopted from TPHs total
#2:TV taken for Chromium (III), Clay Content of 1%
#3:TV taken for pH 6
#4:TV taken for CEC 30
#5:TV taken for pH 6 and CEC 30
#6:ESLs are of low reliability.
#7:ESLs are of moderate reliability.
#8:Commercial/industrial D includes premises such as shops, offices, factories and industr
#9:The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friat
#10:Management limits of BTEX and naphthalene are not available, hence should not be
#11:Limits applied after consideration of relevant ESLs and HSLs
#12:Key limitations of HSL should be referred to prior to application in Friebel and Nadeb
#13:TV adopted from Chromium (VI)
#14:Assumptions of HSL are presented in Friebel and Nadebaum (2011a and 2011b).
#15:Refer to HSL and soil saturation concentration limit.
#16:Refer to Section 8.2 and Appendix J in Friebel and Nadebaum (2011a).
#17:TV maybe be multiplied by a factor to account for biodegradation of vapour
#18:HIL relates to non-dioxin-like PCBs only. If PCB source is suspected a site-specific asse
#19:To obtain F2 subtract naohthalene from >C10-C16.
#20:To obtain F1 subtract the sum of BTEX from C6-C10.

Appendix B Design Plans

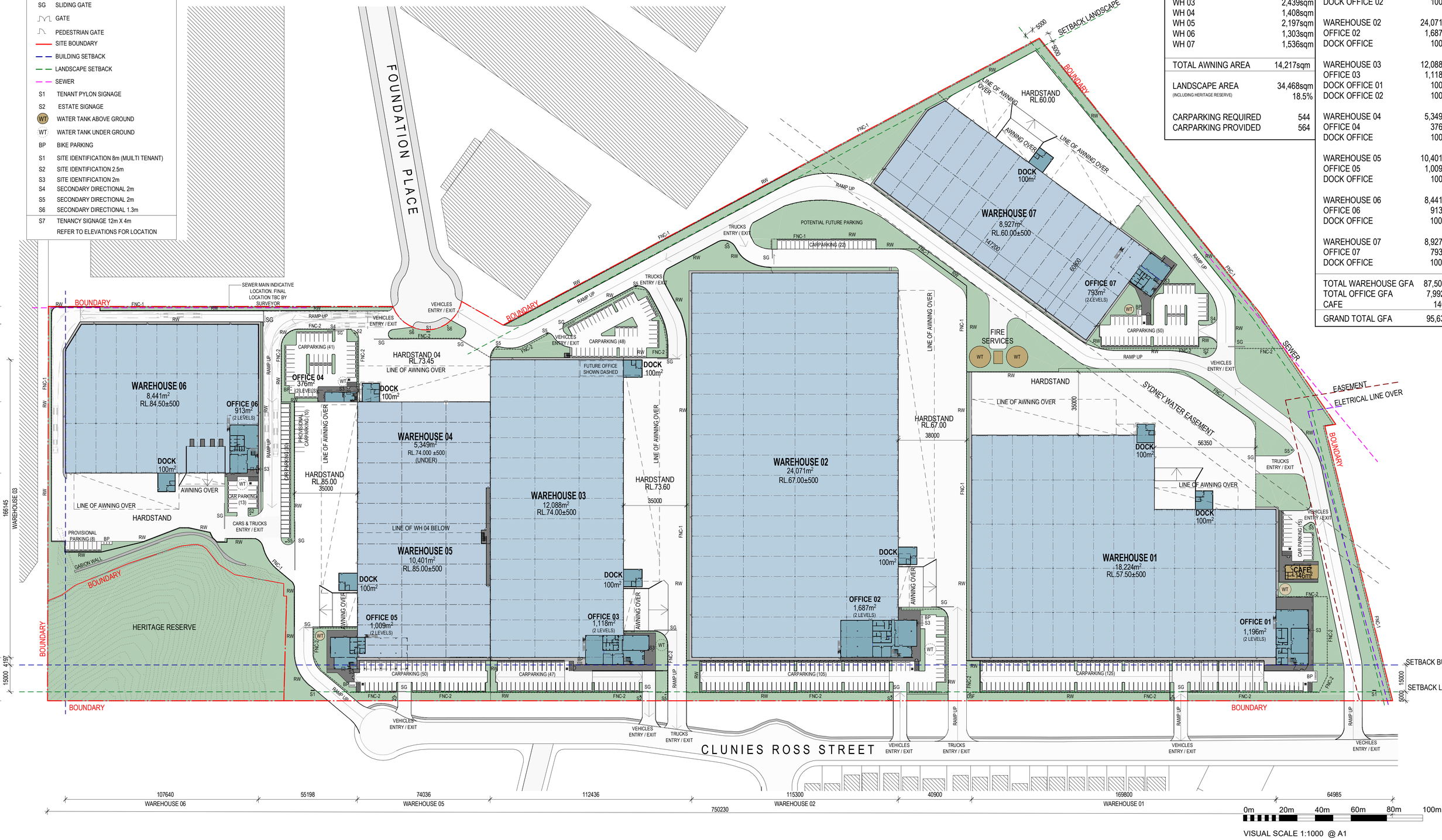
Aliro

SITE LEGEND

- FNC-1, CHAINMESH FENCING
- FNC-2, PALISADE FENCING
- RW — RETAINING WALL - INDICATIVE
- SG — SLIDING GATE
- GATE
- PEDESTRIAN GATE
- SITE BOUNDARY
- BUILDING SETBACK
- LANDSCAPE SETBACK
- SEWER
- S1 — TENANT PYLON SIGNAGE
- S2 — ESTATE SIGNAGE
- WT — WATER TANK ABOVE GROUND
- WT — WATER TANK UNDER GROUND
- BP — BIKE PARKING
- S1 — SITE IDENTIFICATION 8m (MUILTI TENANT)
- S2 — SITE IDENTIFICATION 2.5m
- S3 — SITE IDENTIFICATION 2m
- S4 — SECONDARY DIRECTIONAL 2m
- S5 — SECONDARY DIRECTIONAL 2m
- S6 — SECONDARY DIRECTIONAL 1.3m
- S7 — TENANCY SIGNAGE 12m X 4m
  REFER TO ELEVATIONS FOR LOCATION

AREA SCHEDULE (GFA)	
SITE COVERAGE	51.2%
AWNINGS AREA	
WH 01	2,205sqm
WH 02	3,129sqm
WH 03	2,439sqm
WH 04	1,408sqm
WH 05	2,197sqm
WH 06	1,303sqm
WH 07	1,536sqm
TOTAL AWNING AREA	14,217sqm
LANDSCAPE AREA (INCLUDING HERITAGE RESERVE)	34,468sqm 18.5%
CARPARKING REQUIRED	544
CARPARKING PROVIDED	564

AREA SCHEDULE (GFA)	
SITE AREA (INCLUDING HERITAGE RESERVE)	**186,596.5 sqm**
WAREHOUSE 01	18,224sqm
OFFICE 01	1,196sqm
DOCK OFFICE 01	100sqm
DOCK OFFICE 02	100sqm
WAREHOUSE 02	24,071sqm
OFFICE 02	1,687sqm
DOCK OFFICE	100sqm
WAREHOUSE 03	12,088sqm
OFFICE 03	1,118sqm
DOCK OFFICE 01	100sqm
DOCK OFFICE 02	100sqm
WAREHOUSE 04	5,349sqm
OFFICE 04	376sqm
DOCK OFFICE	100sqm
WAREHOUSE 05	10,401sqm
OFFICE 05	1,009sqm
DOCK OFFICE	100sqm
WAREHOUSE 06	8,441sqm
OFFICE 06	913sqm
DOCK OFFICE	100sqm
WAREHOUSE 07	8,927sqm
OFFICE 07	793sqm
DOCK OFFICE	100sqm
TOTAL WAREHOUSE GFA	87,501sqm
TOTAL OFFICE GFA	7,992sqm
CAFE	146sqm
GRAND TOTAL GFA	95,639sqm



VISUAL SCALE 1:1000 @ A1

SBA ARCHITECTS
Commercial Industrial Residential Retail Interior Design
Phone: 02 9929 9188 Web: www.sbaarch.com.au

M	ISSUED FOR DA	22.05.20
L	ISSUED FOR DA	21.05.20
K	ISSUED FOR DA	20.05.20
J	PRELIMINARY ISSUED	08.05.20
H	PRELIMINARY ISSUED	30.04.20
G	PRELIMINARY ISSUED	21.04.20
F	FOR INFORMATION	27.03.20
#	DESCRIPTION	DATE

CLIENT: Aliro

ELEVATION @ GREYSTANES

LOTS 107, 63 & 10 CLUNIES ROSS STREET, GREYSTANES

NORTH

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FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING. ALL DIMENSIONS TO BE CHECKED ONSITE.
THIS DOCUMENT NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED & ISSUED FOR CONSTRUCTION.

TITLE: SITE PLAN

DATE	SCALE	PROJECT NO.	DWG NO.	REVISION
22.05.20	As indicated @ A1	19280	DA100	M

EARTHWORKS VOLUMES

VOLUMES (APPROXIMATE ONLY):

STAGE 1

CUT	= – 100 900 m³
FILL	= + 57 000 m³
DETAILED EXCAVATION (1,500m³/Ha over 4.97Ha)	= – 7 500 m³
REINFORCED EARTH WALL BACKFILL	= – 37 600 m³
BALANCE	= – 89 000 m³ (EXPORT)

STAGE 2

CUT	= – 38 200 m³
FILL	= + 206 000 m³
WETLAND REGRADING	= ± 0 m³ (CUT/FILL BALANCE)
DETENTION BASIN REGRADING	= – 13 900 m³
DETAILED EXCAVATION (1,500m³/Ha over 12.62Ha)	= – 18 900 m³
REINFORCED EARTH WALL BACKFILL	= – 38 200 m³
BALANCE	= + 96 800 m³ (IMPORT)

OVERALL

STAGE 1 BULK EARTHWORKS	= – 89 000m³
STAGE 2 BULK EARTHWORKS	= + 96 800 m³
BALANCE	= + 7 800 m³ (IMPORT)

EARTHWORK VOLUMES ARE PRELIMINARY ONLY AND HAVE BEEN BASED ON A TOPSOIL STRIP/SLAB TRIM OF 200mm OVER THE ENTIRE SITE. THE VOLUMES HAVE ALSO BEEN BASED ON AN OVERALL PAVEMENT STRUCTURAL THICKNESS OF 300mm ACROSS THE SITE. NO ALLOWANCE HAS BEEN MADE IN THE ABOVE VOLUMES FOR EROSION & SEDIMENT CONTROL BACKFILLING, BULKING OR COMPACTION OF FILLED SOILS, THE REMOVAL OF UNCONTROLLED FILL OR CONTAMINATED MATERIAL, TEMPORARY DRAINAGE SWALES WITHIN BUILDING PADS, OR ANY OTHER UNSPECIFIED EXCAVATION RELATED TO FUTURE WAREHOUSE CONSTRUCTION.

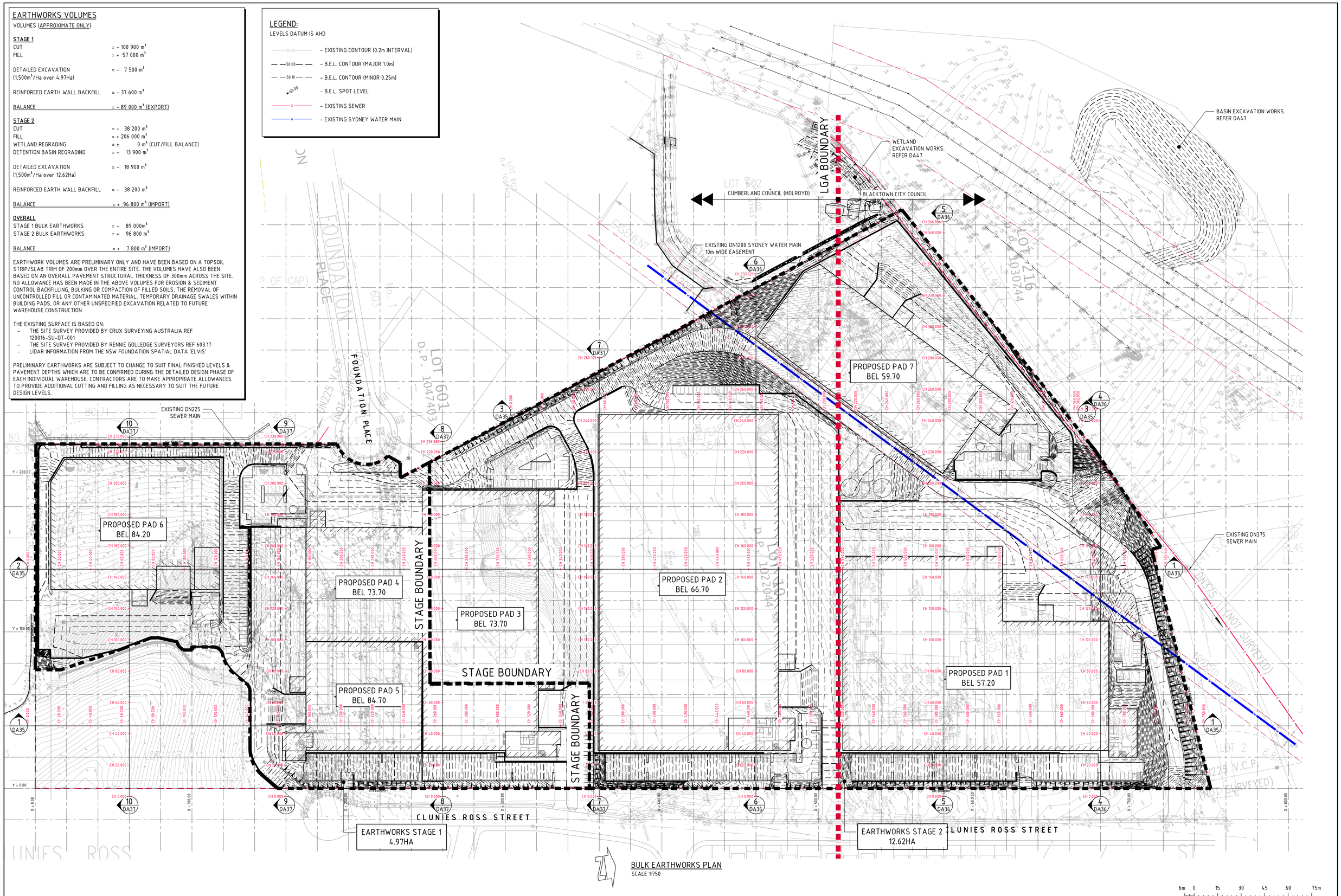
THE EXISTING SURFACE IS BASED ON:
- THE SITE SURVEY PROVIDED BY CRUX SURVEYING AUSTRALIA REF 120016-SU-DT-001
- THE SITE SURVEY PROVIDED BY RENNIE GOLLEDGE SURVEYORS REF 603.17
- LIDAR INFORMATION FROM THE NSW FOUNDATION SPATIAL DATA 'ELVIS'

PRELIMINARY EARTHWORKS ARE SUBJECT TO CHANGE TO SUIT FINAL FINISHED LEVELS & PAVEMENT DEPTHS WHICH ARE TO BE CONFIRMED DURING THE DETAILED DESIGN PHASE OF EACH INDIVIDUAL WAREHOUSE. CONTRACTORS ARE TO MAKE APPROPRIATE ALLOWANCES TO PROVIDE ADDITIONAL CUTTING AND FILLING AS NECESSARY TO SUIT THE FUTURE DESIGN LEVELS.

LEGEND:

LEVELS DATUM IS AHD

- 50.00 – EXISTING CONTOUR (0.2m INTERVAL)
- 50.00 – B.E.L. CONTOUR (MAJOR 1.0m)
- 50.10 – B.E.L. CONTOUR (MINOR 0.25m)
- 58.05 – B.E.L. SPOT LEVEL
- S – EXISTING SEWER
- W – EXISTING SYDNEY WATER MAIN



BULK EARTHWORKS PLAN
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A0 SIZE SHEET

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	03.06.20	C
ISSUED FOR INFORMATION	22.04.20	B
ISSUED FOR INFORMATION	19.03.20	A

ARCHITECT
SBA ARCHITECTS
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T 02 9929 0998 F 02 9923 9699
e info@sbaarch.com.au w www.sbaarch.com.au

CLIENT
Aliro

PROJECT
STATE SIGNIFICANT DEVELOPMENT APPLICATION
44 CLUNIES ROSS STREET, GREYSTANES

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
IO	IO	MAR '20	M.W.	A0	AS SHOWN	C013251.06-DA30

Costin Roe Consulting Pty Ltd.
Consulting Engineers ACN 003 696 448
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 9251-7699 Fax: (02) 9241-5721
email: mail@costinroe.com.au

Costin Roe Consulting
PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE
BULK EARTHWORKS PLAN
LEVELS PLAN

DRAWING No. C013251.06-DA30 ISSUE C

LEGEND:

LEVELS DATUM IS AHD

- 50.00 – EXISTING CONTOUR (0.2m INTERVAL)
- 50.00 – B.E.L. CONTOUR (MAJOR 1.0m)
- 50.10 – B.E.L. CONTOUR (MINOR 0.25m)
- 50.00 – B.E.L. SPOT LEVEL
- S – EXISTING SEWER
- W – EXISTING SYDNEY WATER MAIN

DEPTH RANGE			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	-10.000	-8.000	
2	-8.000	-6.000	
3	-6.000	-4.000	
4	-4.000	-2.000	
5	-2.000	0.000	
6	0.000	2.000	
7	2.000	4.000	
8	4.000	6.000	
9	6.000	8.000	
10	8.000	10.000	

LGA BOUNDARY

CUMBERLAND COUNCIL (HOLROYD)

BLACKTOWN CITY COUNCIL

STAGE BOUNDARY

STAGE BOUNDARY

STAGE BOUNDARY

EARTHWORKS STAGE 1
4.97HA

EARTHWORKS STAGE 2
12.62HA

CLUNIES ROSS STREET

CLUNIES ROSS STREET

FOUNDATION PLACE

FOUNDATION PLACE

LOT 601 D.P. 1047403

LOT 602 D.P. 1047403

LOT 2 D.P. 1030744

EASEMENT (SURVEYED)

DN375 (NOT SURVEYED)

DN225 (NOT SURVEYED)

M.H. FOUND
S.L. 78.06
I.L. 75.96 (INLET)
I.L. 75.91 (OUTLET)

M.S. FOUND
S.L. 77.34 (TOP OF CAP)
I.L. 75.19

BULK EARTHWORKS CUTFILL PLAN
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A0 SIZE SHEET

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	03.06.20	C
ISSUED FOR INFORMATION	22.04.20	B
ISSUED FOR INFORMATION	19.03.20	A

ARCHITECT: SBA ARCHITECTS
Suite 702, 65 Mount Street, North Sydney NSW 2060
t 02 9929 0999 f 02 9929 9999
info@sbaarch.com.au www.sbaarch.com.au

CLIENT: Aliro

PROJECT: STATE SIGNIFICANT DEVELOPMENT APPLICATION
44 CLUNIES ROSS STREET, GREYSTANES

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE
ID	ID	MAR '20	M.W.	A0	AS SHOWN

CAD REF: C013251.06-DA31

Costin Roe Consulting Pty Ltd.
Consulting Engineers ACN 003 696 448
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 9251-7699 Fax: (02) 9241-3721
email: mail@costinroe.com.au ©

Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: BULK EARTHWORKS CUT/FILL PLAN

DRAWING No: C013251.06-DA31 ISSUE: C

Appendix C Historical Field Logs

TEST PIT JB01

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Well sorted recycled DGB gravel, heterogenous, loose, dry with inclusions of crushed concrete, brick, glass and porcelain		JB01 0.0-0.1	1.5	No Odour, ACM or Staining
							JB01 0.4-0.5	1.4	No Odour, ACM or Staining
		1		RWN	Fill - Shale stone, heterogeneous, with traces of brick				
		1.5					JB01 1.5-1.6	1.5	No Odour, ACM or Staining
									End of Testpit due to Refusal on Shale
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB02

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Gravel road base, heterogeneous, Grey, blue metal and quartz with minor inclusions of crushed brick and concrete		JB02 0.0-0.1	1	No Odour, ACM or Staining
		0.5		Fill	'Fill - Silty stabilised gravelly sand, Heterogeneous, highly compacted, with inclusions of well sorted crushed rock and concrete		JB02 0.5-0.6	1.1	No Odour, ACM or Staining
		1		Fill	Fill - Shale gravel, Heterogeneous, Light Brown, poorly sorted loose shale and mudstone gravels (0.5 - 30cm)				
		1.5					JB02 1.5-1.6	1.6	No Odour, ACM or Staining
		2							
		2.5		Fill	Fill - Clay, Homogenous. Brown		JB02 2.6-2.7	1.9	No Odour, ACM or Staining
		3							End of Testpit on Natural as Per Scope
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB03

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Gravel road base, heterogeneous, Grey, blue metal and quartz with minor inclusions of crushed brick and concrete		JB03 0.0-0.1	1.6	No Odour, ACM or Staining
				Fill	Fill - Silty stabilised gravelly sand, Heterogeneous, highly compacted, with inclusions of well sorted crushed rock and concrete		JB03 0.4-0.3	1.9	No Odour, ACM or Staining
		0.5							QA/QC20200905-CK
		1					JB03 1.0-1.1	1.8	No Odour, ACM or Staining
				Fill	Fill - Shale gravel, Heterogeneous, Light Brown, poorly sorted loose shale and mudstone gravels (0.5 - 30cm)		JB03 1.3-1.4	1.8	No Odour, ACM or Staining
		1.5							
		2							
		2.5					JB03 2.4-2.5	1.2	No Odour, ACM or Staining
									QA/QC20200905-CK
		3					JB03 3.0-3.1	1	No Odour, ACM or Staining
									End of Testpit due to Excavator Reach
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB04

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty sand (crushed cement), grey, dry, heterogeneous, with inclusion of gravels.		JB04 0.0-0.1		No ACM, odours or staining observed.
				Fill	Fill - Sandy gravel, brown/red, damp, heterogeneous, loose.		JB04 0.2-0.3		No ACM, odours or staining observed.
				Fill	Fill - Sandy silty clay, grey, damp, heterogeneous, firm, medium plasticity, with inclusion of shale.		JB04 0.5-0.6		No ACM, odours or staining observed.
		1		Fill	Fill - Shale, light brown, dry, heterogeneous, stiff.		JB04 1.0-1.1		No ACM, odours or staining observed.
		1.5							Refusal at 1.5 m bgs.
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB05

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly silty sand, brown/grey, damp, heterogeneous, medium dense.		JB05 0.0-0.1 JB05 0.3-0.4		No ACM, odours or staining observed.
		1		Fill	Fill - Gravelly silty sand, brown/grey, damp, heterogeneous, medium dense, with inclusion of shale and clasts of clay.		JB05 0.5-0.6		No ACM, odours or staining observed.
		1.5		Fill	Fill - Shale, light brown, dry, heterogeneous, hard.		JB05 1.0-1.1		No ACM, odours or staining observed.
		2					JB05 2.0-2.1		
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

TEST PIT JB06

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Gravel road base, heterogeneous, Grey, blue metal and quartz with minor inclusions of crushed brick and concrete		JB06 0.0-0.1	1.9	No Odour, ACM or Staining
				Fill	Fill - Silty stabilised gravelly sand, Heterogeneous, highly compacted, with inclusions of well sorted crushed rock and concrete		JB06 0.5-0.6	1.8	No Odour, ACM or Staining
		1		Fill	Fill - Clayey shale gravel, Heterogenous, Grey, poorly sorted, wet, with inclusions of bricks and trace of timber		JB06 1.1-1.2	1.9	No Odour, ACM or Staining
		2		Fill	Fill - Clayey Shale gravel, Heterogeneous, Light Brown, poorly sorted, with inclusions of loose shale and mudstone gravels (0.5 - 30cm)		JB06 2.0-2.1	1.4	No Odour, ACM or Staining
		3					JB06 2.8-2.9	1.5	No Odour, ACM or Staining
									End of Testpit due to Excavator Reach
		4							
		5							

TEST PIT JB07

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Blue metal and quartz gravel road base, heterogeneous, Grey, with minor inclusions of crushed brick and concrete		JB07 0.0-0.1	1	No Odour, ACM or Staining
				Fill	Fill - Silty stabilised gravelly sand, Heterogeneous, highly compacted, with inclusions of well sorted crushed rock and concrete		JB07 0.5-0.6	1.2	No Odour, ACM or Staining
		1		Fill	Fill - Shale gravel, Heterogeneous, Light Brown, poorly sorted loose shale and mudstone gravels (0.5 - 30cm)				
		1.5					JB07 1.5-1.6	1.9	No Odour, ACM or Staining
		2							
		2.5		CH	Clay, Homogenous, brown with mottles, mod plasticity, fine grained, dense and damp		JB07 2.7-2.8	1.5	No Odour, ACM or Staining
		3							End of Testpit on Natural as Per Scope
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB08

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Blue metal and quartz gravel road base, heterogeneous, Grey, with minor inclusions of crushed brick and concrete		JB08 0.0-0.1	0.6	No Odour, ACM or Staining
				Fill	Fill - Silty stabilised gravelly sand, Heterogeneous, highly compacted, with inclusions of well sorted crushed rock and concrete		JB08 0.5-0.6	0.2	No Odour, ACM or Staining
		0.5		Fill	Fill - Shale gravel, Heterogeneous, Light Brown, poorly sorted loose shale and mudstone gravels (0.5 - 30cm)		JB08 1.5-1.6	0.4	No Odour, ACM or Staining
		1							
		1.5							
		2		CH	Clay, Heterogenous, brown with mottles, mod plasticity, fine grained, dense and damp		JB08 2.3-2.4	0.9	No Odour, ACM or Staining
		2.5							End of Testpit on Natural as Per Scope
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB09

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Gravel road base, heterogeneous, Grey, blue metal and quartz with minor inclusions of crushed brick and concrete		JB09 0.0-0.1	1.9	No Odour, ACM or Staining
				Fill	Fill - Silty stabilised gravelly sand, Heterogeneous, Red-Brown, highly compacted, with minor inclusions of brick and crushed gravels				No Odour, ACM or Staining
		0.5					JB09 0.5-0.6	0.2	
		1			Fill - Silty stabilised gravelly sand, Heterogeneous, Dark Grey, highly compacted, with minor inclusions of brick and crushed gravels				No Odour, ACM or Staining
				Fill			JB09 1.1-1.2	0.5	
		1.5		Fill	Fill - Clayey shale gravel, Heterogeneous, Grey, poorly sorted, wet, with inclusions of bricks and trace of timber				No Odour, ACM or Staining
							JB09 1.6-1.7	0.5	
		2							End of Testpit due to Refusal on Shale
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB10

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly silty sand, brown/grey, damp, heterogeneous, medium dense.		JB10 0.0-0.1 JB10 0.2-0.3		No ACM, odours or staining observed.
		1		Fill	Fill - Shale, grey, damp, heterogeneous, hard, with inclusion of some clay.		JB10 0.5-0.6 JB10 1.0-1.1		No ACM, odours or staining observed.
		1.5							
		2					JB10 2.0-2.1		
		2.5		Dolerite	Weathered dolerite, brown turns lighter brown at 2.6 m bgs, dry, homogeneous.		JB10 2.8-2.9		No ACM, odours or staining observed.
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB11

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5 1 1.5		Fill Fill	Fill - Sandy gravel, grey, dry, heterogeneous, loose, with inclusion of shale. Fill - Shale, grey, dry, heterogeneous, hard.		JB11 0.0-0.1 JB11 0.3-0.4 JB11 0.5-0.6 JB11 1.0-1.1 JB11 1.4-1.5		No ACM, odours or staining observed. No ACM, odours or staining observed. Refusal at 1.5 m bgs.

TEST PIT JB12

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly silty sand, grey, dry, heterogenous, very loose, fine sand.		JB12 0.0-0.1		No ACM, odours or staining observed.
				Fill	Fill - Silty clay, brown, dry, heterogeneous, medium plasticity, with inclusion of bricks.		JB12 0.3-0.4		No ACM, odours or staining observed.
							JB12 0.5-0.6		
		1		Fill	Fill - Shale, grey, dry, with minor inclusion of bricks.		JB12 1.1-1.2		No ACM, odours or staining observed.
		1.5		Fill	Fill - Shale, grey, dry, with more inclusion of bricks and terracotta.				No ACM, odours or staining observed.
		2		Dolerite	Weathered dolerite, brown, dry, homogeneous.		JB12 2.0-2.1		No ACM, odours or staining observed.
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB13

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill- Silty Gravel roadbase, Heterogenous, Grey, igeneous. Well sorted		JB13 0.0-0.1	0.9	No Odour, ACM or Staining
				Fill	Fill - Silty Clay, Heterogeneous, Orange Brown, with inclusions of bricks, plastic, glass, rusted scrap metal and ACM		JB13 0.5-0.6	0.8	Wedge of ACM Impacted Fill Identified in the Wall of the Testpit (0.2-0.25)
		1		Fill	Fill - Clay, brown				No Odour, ACM or Staining
		1.5							End of Testpit on Natural as Per Scope
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB14

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Silty sand (crushed cement), grey, dry, heterogeneous, loose.		JB14 0.0-0.1	1.5	No ACM, odours or staining observed.
		0.5		Fill	Fill - Silty Clay, Heterogeneous, Orange Brown, with inclusions of bricks, plastic, glass, rusted scrap metal and ACM		JB14 0.3-0.4		ACM observed
							JB14 0.5-0.6	1.4	No Odour and Staining, ACM Observed
		1					JB14 1.0-1.1	1.9	No Odour and Staining, ACM Observed
		1.5		Fill	Fill - Clayey shale gravel, Heterogeneous, with nil inclusions noted		JB14 1.5-1.6	1.8	No Odour, ACM or Staining
				CH	Silty Clay, Homogenous, Brown, medium- high plasticity		JB14 1.6-1.7	0.3	No Odour, ACM or Staining
		2					JB14 2.0-2.1		End of Testpit on Natural as Per Scope
		2.5		Dolerite	Weathered dolerite, brown, dry, homogeneous.				No ACM, odours or staining observed.
		3					JB14 3.0-3.1		
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB14A

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill- Silty Gravel roadbase, Heterogenous, Grey, igeneous. Well sorted		JB14A 0.0-0.1	0.6	No Odour, ACM or Staining
				Fill	Fill - Silty Clay, Heterogeneous, Red Brown, with inclusions of bricks, plastic, glass, rusted scrap metal and ACM		JB14A 0.5-0.6	0.6	ACM Impacted fill tapered out to the west of test pit (to 1mbg), layer ends 4m from fence
		1		Fill	Fill - Clayey shale gravel, Heterogeneous, Brown with no inclusions noted		JB14A 1.0-1.1	0.8	No Odour and Staining, or ACM
		1.5					JB14A 1.5-1.6	0.7	No Odour, ACM or Staining
				CL	Silty Clay, Heterogeneous, Dark Brown, some roots		JB14A 1.8-1.9	0.6	End of Testpit on Natural as Per Scope
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

TEST PIT JB14B

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill- Silty Gravel roadbase, Heterogenous, Light Grey, igeneous. Well sorted		JB14B 0.0-0.1	0.5	No Odour, ACM or Staining
				Fill	Fill - Gravelly Clay, Heterogeneous, Grey, poorly sorted with inclusions of shale gravel				
		0.5					JB14B 0.5-0.6	0.5	No Odour, ACM or Staining
		1							
		1.5		Fill	Fill - Sandy, Brown, with inclusions of bricks		JB14B 1.5-1.6	0.3	No Odour, ACM or Staining
				CL	Silty Clay, dark brown		JB14B 1.7-1.8	0.8	No Odour, ACM or Staining
		2							End of Testpit on Natural as Per Scope
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB14C

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill- Silty Gravel roadbase, Heterogenous, Grey, igeneous. Well sorted		JB14C 0.0-0.1	0.6	No Odour, ACM or Staining
				Fill	Fill - Stablised sand, pink				
				Fill	Fill - Sandy gravel, heterogeneous, Grey, well sorted with inclusions of bricks				No Odour, ACM or Staining
		1		CL-ML	Silty Clay, Brown		JB14C 0.5-0.6	0.5	
							JB14C 1.0-1.1	0.5	No Odour, ACM or Staining
		1.5					JB14C 1.5-1.6	0.6	No Odour, ACM or Staining
		2							End of Testpit on Natural as Per Scope
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB14D

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill- Silty Gravel roadbase, Heterogenous, Grey, igeneous. Well sorted		JB14D 0.0-0.1	0.4	No Odour, ACM or Staining
		0.5		Fill	Fill - Clay, Brown Grey, ith inclusions of shale and minor inclusions of brick		JB14D 0.5-0.6	0.9	No Odour, ACM or Staining
		1					JB14D 1.0-1.1	0.5	No Odour, ACM or Staining
		1.3		CL	Clay, brown		JB14D 1.3-1.4	0.2	No Odour, ACM or Staining
		1.4							End of Testpit on Natural as Per Scope
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB15

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly silty clay, orange brown, dry, heterogeneous with inclusions of timber, terracotta, glass, porcelain and ACM		JB15 0-0.1		No ACM, odours or staining observed.
							JB15 0.2-0.5		ACM identified. No odour/staining.
							JB15 0.5-1		No Odour, Staining or ACM
		1		CL	Clay, brown, heterogeneous, moderately plastic. No inclusions.				
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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SOIL BOREHOLE JB15A

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 253 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Sandy clay, light brown, heterogeneous with inclusions of quartz gravels		JB15A 0-0.1		No Odour, Staining or ACM
		1					JB15A 0.2-0.5		No Odour, Staining or ACM
		1.5					JB15A 0.5-1		No Odour, Staining or ACM
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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TEST PIT JB16

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sandy clay, brown, dry, heterogeneous, firm, medium plasticity, with inclusion of gravelly sand.		JB16 0.0-0.1 JB16 0.3-0.4 JB16 0.5-0.6		No ACM, odours or staining observed.Glass and metal at surface of test pit, adjacent to Lot 63
		1		Fill	Fill - Gravelly silty sand, grey, dry, heterogeneous, loose.		JB16 1.0-1.1		No ACM, odours or staining observed.
		1.5		Fill	Fill - Gravelly sandy clay, brown, dry, heterogeneous, firm, medium plasticity, with inclusion of gravelly sand.		JB16 2.0-2.1		No ACM, odours or staining observed.
		2.5		Dolerite	Weathered dolerite, brown, dry, homogeneous.		JB16 3.0-3.1		No ACM, odours or staining observed.
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB17

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand, grey, dry, heterogeneous, loose.		JB17 0.0-0.1 JB17 0.3-0.4 JB17 0.5-0.6		ACM identified at surface (adjacent to Lot 63), no odours or staining observed.
		1		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, medium plasticity.		JB17 1.0-1.1		No ACM, odours or staining observed.
		1.5		Dolerite	Weathered dolerite, brown, dry, homogeneous.		JB17 1.9-2.0		No ACM, odours or staining observed. Ground level.
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB17A

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, soft, medium plasticity, with inclusion of rootlets.		JB17a 0.0-0.1		No ACM, odours or staining observed.
							JB17a 0.3-0.4		
		0.5		Fill	Fill - Shale, grey, dry, heterogeneous, firm, with inclusion of clay at 1.4 m bgs.		JB17a 0.5-0.6		No ACM, odours or staining observed.
									Service observed at 0.6 m.
		1					JB17a 1.0-1.1		
		1.5					JB17a 1.5-1.6		End of hole at excavator limit.
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB18

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand, grey, dry, heterogeneous, loose.		JB18 0.0-0.1 JB18 0.3-0.4 JB18 0.5-0.6		No ACM, odours or staining observed.
		1		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, medium plasticity.		JB18 1.0-1.1		No ACM, odours or staining observed.
		1.5		Dolerite	Weathered dolerite, brown, dry, homogeneous.		JB18 1.9-2.0		No ACM, odours or staining observed. Ground level.
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB19-01

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand (crushed cement), grey, dry, heterogeneous, loose, with inclusion of rootlets, plastic and concrete fragments.		JB19-01 0.3-0.4		No ACM, odours or staining observed.

TEST PIT JB19-02

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand (crushed cement), grey, dry, heterogeneous, loose, with inclusion of rootlets, plastic and concrete fragments.		JB19-02 0.2-0.3		No ACM, odours or staining observed.

TEST PIT JB19-03

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand (crushed cement), grey, dry, heterogeneous, loose, with inclusion of rootlets, plastic and concrete fragments.		JB19-03 0.1-0.2		No ACM, odours or staining observed.

TEST PIT JB19-04

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand (crushed cement), grey, dry, heterogeneous, loose, with inclusion of rootlets, plastic and concrete fragments.		JB19-04 0.4-0.5		No ACM, odours or staining observed.

TEST PIT JB19-05

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand (crushed cement), grey, dry, heterogeneous, loose, with inclusion of rootlets, plastic and concrete fragments.		JB19-05 0.3-0.4		No ACM, odours or staining observed.

SOIL BOREHOLE JB20

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0		Fill	Fill - Brown silty clay, low plasticity, heterogeneous, dry, soft, including shale, brick fragments and rootlets and glass		JB20 0.0-0.1	0.1	ACM observed, No Odour or Staining
		0.5		CL-ML	Brown silty clay, homogeneous, low plasticity, dry, soft		JB20_0.2-0.3	0.3	No Odour, ACM or Staining
		1							End of Hand Auger on Natural as Per Scope
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB21

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, brown, low plasticity, heterogeneous, dry, firm, including rootlets, trace glass		JB21_0.0-0.1	1.3	ACM observed, No Odour or Staining
				CL-ML	Silty Clay, Homogenous, Brown, Low plasticity, Firm and Dry		JB21 0.2-0.3	0.9	No Odour, ACM or Staining
		1							End of Hand Auger on Natural as Per Scope
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB22a

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, brown, heterogeneous, dry, low plasticity, soft, including scrap metal, glass		JB22A 0.0-0.1	0.9	ACM Observed, No Odour or Staining Sample collected from a mound of scrap metal waste observed within the embankment adjacent to Lot 63
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB22B

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, brown, heterogeneous, dry, low plasticity, with incursion of large igneous ballast		JB22B_0.0-0.1 JB22B_0.3-0.4	0.8 0.4	No Odour, ACM or Staining
		1							End of Hand Auger due to Refusal on Igneous Gravel
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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GROUNDWATER WELL JB24/MW05

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** 308,048.67
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** 6,256,818.71
CLIENT	**DRILL RIG**	**ELEVATION** 66.706 m AHD
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 8 m bgl	**COORD SOURCE** Surveyor
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 3.5 - 8 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0		Fill	Fill - Gravelly Sand, light brown, dry, heterogeneous, loose, coarse grained, inclusions of gravels, concrete	D	JB24/MW05 0-0.1		ACM observed, no odours staining
			0.5		Fill	Fill - Silty Sand, yellow / brown, damp, heterogeneous, dense, medium coarse grained, trace inclusions of roots & tiny gravels	SM	JB24/MW05 0.4-0.5		No Odour, Staining or ACM
			1					JB24/MW05 1.0-1.1		No Odour, Staining or ACM
			1.5							
			2					JB24/MW05 2.1-2.2		No Odour, Staining or ACM
			2.5							
			3		SM	Silty Sand, yellow / brown, damp, heterogeneous, dense, medium coarse grained, trace inclusions of roots & tiny gravels	SM	JB24/MW05 3.4-3.5		No Odour, Staining or ACM
			3.5							
			4							
			4.5		SG-SM	Weathered Dolerite; Gravelly Silty Sand, brown / black, damp, heterogeneous, dense, granular medium coarse grained.	SM	JB24/MW05 5.0-5.1		No Odour, Staining or ACM
			5							
			5.5							
			6							
			6.5							
			7							
			7.5							Refusal at 8mbgs
			8			Termination Depth at:8.000 m.				
			8.5							
			9							
			9.5							

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SOIL BOREHOLE JB27

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Fill	Fill - Gravelly sandy silt, grey, heterogeneous, dry, loose, including small angular gravels, crushed brick, shale gravels		JB27_0.0-0.1		No Odour, ACM or Staining
		1		Fill	Fill - Gravelly sandy silty, brown, heterogeneous, dry, loose, including rust/corroded metal		JB27_0.5-0.6		No Odour, ACM or Staining
		1.5					JB27_1-1.1		
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB28

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB28_0.2-0.3		No Odour, ACM or Staining
				Fill	Fill - Gravelly silty clay, heterogeneous, dry, brown, soft, high plasticity, including gravels, shale		JB28_0.5-0.6		Slight fuel odour, minor grey staining, no ACM
		1		CL-ML	Silty clay, grey with red mottles, stiff, medium plasticity, homogeneous, including ironstone		JB28_0.7-0.8		No Odour, ACM or Staining
		1.5		CL-ML	Weathered silty clay, grey with red mottles, homogeneous, dry, medium plasticity, stiff		JB28_1.5-1.6		No Odour, ACM or Staining
		2			Weathered silty clay, grey with gold mottles, homogeneous, dry, medium plasticity, stiff		JB28_2.1-2.2		Grey Staining, slight chemical odour, no ACM
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB29

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0		Concrete	Concrete		JB29_0.1-0.2		No Odour, ACM or Staining
		0.5		Dolerite	Weathered dolerite, gold brown, very hard, dry, including corroded metal / rust		JB29_0.5-0.6		No Odour, ACM or Staining
		1							
		1.5					JB29_1.6-1.7		
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB30

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB30_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, brown, heterogeneous, dry, loose, fine grained, including gravels, shale, metal, brick, pebbles, concrete		JB30_0.5-0.6		No Odour, ACM or Staining
		1							
		1.5		Fill	Fill - Silty clay, red / brown, heterogeneous, dry, stiff, medium plasticity, including gravels		JB30_1.5-1.6		No Odour, ACM or Staining
		2		Fill	Fill - Silty clay, black, heterogeneous, dry, stiff, medium plasticity, including roots (organic matter)		JB30_2.1-2.2		No Odour, ACM or Staining
		2.5		Fill	Fill - Silty clay, brown, heterogeneous, dry, stiff, medium plasticity, including roots (organic matter)				No Odour, ACM or Staining
		3					JB30_3.0-3.1		
		3.5							
		4		CL	Weathered clay, grey with gold mottles, hard, dry		JB30_3.7-3.8		No Odour, ACM or Staining
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB31

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB31_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, light brown / green / grey, heterogeneous, dry, loose including gravels		JB31_0.4-0.5		Green / grey staining, minor chemical odour, no ACM
		1		Fill	Fill - Silty clay, brown, heterogeneous, dry, stiff, medium plasticity, including small gravels		JB31_0.9-1.0		No Odour, ACM or Staining
		1.5			Fill - Silty clay, black, heterogeneous, dry, stiff, medium plasticity, including crushed besser block				Black organics, no odour or ACM
		2			Fill - Silty clay, brown / black, heterogeneous, dry, stiff, medium plasticity, including trace sand, concrete fragments		JB31_2.0-2.1		No Odour, ACM or Staining
		2.5		Fill			JB31_2.4-2.5		No Odour, ACM or Staining
				CL-ML	Residual silty clay, grey with gold mottles, firm, medium plasticity		JB31_2.8-2.9		No Odour, ACM or Staining
		3		Shale	Weathered shale, brown, dry, stiff				
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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TEST PIT JB34

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly Sand, Heterogeneous, Non plastic, firm consistency, loose density and damp, with inclusions of angular crushed brick		JB34 0.2-0.3	2.1	No Odour, ACM or Staining
		1		Fill	Fill - Gravelly Clay, Heterogeneous, High plasticity, stiff consistency, medium coarse density and damp		JB34 0.6-0.7	1.5	No Odour, ACM or Staining
		1.5		CH	Clay, Homogenous, brown with black mottles, high plasticity, fine grained, dense and damp		JB34 1.2-1.3	1.8	No Odour, ACM or Staining
		2							End of Testpit on Natural as Per Scope
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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SOIL BOREHOLE JB35

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0		Fill	Fill - Gravelly sandy silt, grey / brown, heterogeneous, dry, loose / medium density, fine grained including gravels, concrete pebbles		JB35_0.0-0.1		No Odour, ACM or Staining
		0.5		Fill	Fill - Gravelly silty clay, brown, heterogeneous, dry, stiff, low plasticity, including gravels, slag, shale and sand		JB35_0.5-0.6		No Odour, ACM or Staining
		1					JB35_1.0-1.1		
		1.5							
		2			Fill - Gravelly silty clay, brown, heterogeneous, dry, stiff, low plasticity, including gravels, slag, shale, sand with green staining		JB35_2.1-2.2		Green oxidation, no Odour or ACM
				Fill			JB35_2.4-2.5		No Odour, ACM or Staining
		2.5		Fill	Fill - Gravelly silty clay, black, heterogeneous, dry, stiff, low plasticity, including gravels, slag, shale, sand with green staining				Green staining, no Odour or ACM
		3		Fill	Fill - Clay, reworked, grey / brown weathered		JB35_3.1-3.2		
		3.5							
		4		Fill	Fill - Sand, yellow, fine grained, homogeneous, dry, loose		JB35_4.0-4.1		No Odour, ACM or Staining
		4.5		Fill	Fill - Silty clay, brown, heterogeneous, dry, stiff, low plasticity, including gravels				No Odour, ACM or Staining
		5		CL	Residual clay, grey with gold mottles, homogeneous, dry, stiff, low plasticity		JB35_5.0-5.1		No Odour, ACM or Staining
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB36

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB36_0.05-0.1		No Odour, ACM or Staining
		1		Fill	Fill - Gravelly sandy silt, heterogeneous, brown, dry, loose, including gravels, brick, concrete, slag, shale,crushed besser brick, clay layers		JB36_1.0-1.1		No Odour, ACM or Staining
		1.5							
		2					JB36_2.0-2.1		
		2.5							
		3					JB36_3.2-3.3		
		3.5		ML-CL	Residual clayey silt, brown / gold, homogeneous, dry, medium density, including ironstone				No Odour, ACM or Staining
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB37

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB37_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, heterogeneous, grey / brown, dry, loose, including gravels, bricks, slag		JB37_0.6-0.7		No Odour, ACM or Staining
		1		Fill	Fill - Silty clay, brown / grey, stiff, medium plasticity, including gravels, brick				No Odour, ACM or Staining
		1.5					JB37_1.5-1.6		
		2							
		2.5					JB37_2.6-2.7		
		3		CL-ML	Silty clay, grey with gold mottles, homogeneous, dry, stiff, medium plasticity				No Odour, ACM or Staining
		3.5							
		4		CL-ML	Residual silty clay, grey with gold mottles, stiff, low plasticity, dry		JB37_4-4.1		Green oxidation, no Odour or ACM
							JB37_4.1-4.2		
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB38

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB38_0.1-0.2		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, heterogeneous, grey / brown, dry, loose, including gravels, concrete				No Odour, ACM or Staining
		1					JB38_1.0-1.1		
				Fill	Fill - Silty clay, brown, damp, heterogeneous, firm, high plasticity, including gravells, brick				No Odour, ACM or Staining
		1.5			Fill - Silty clay, dark grey, damp, heterogeneous, firm, high plasticity, including gravells, brick		JB38_1.8-1.9		No Odour, ACM or Staining
				Fill			JB38_2.0-2.1		
		2		CL	Residual clay, gold / brown, homogeneous, dry, stiff, low plasticity				No Odour, ACM or Staining
		2.5							
		3					JB38_3.0-3.1		
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB39

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB39_0.2-0.3		No Odour, ACM or Staining
				CL-ML	Silty clay, green / brown, homogeneous, dry, medium plasticity, firm / stiff				No Odour, ACM or Staining
		1					JB39_0.9-1.0		
		1.5		CL-ML	Residual silty clay, gold with grey mottles				No Odour, ACM or Staining
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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GROUNDWATER WELL JB40/MW06

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** 308,084.04
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** 6,256,897.57
CLIENT	**DRILL RIG**	**ELEVATION** 66.564 m AHD
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 7.6 m bgl	**COORD SOURCE** Surveyor
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 3.1 - 7.6 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0		Concrete	Fill - Concrete	D	JB40/MW06 0.3-0.5		No Odour, Staining or ACM
			0.5		Fill	Fill - Clay, greenish brown, damp, heterogeneous, medium - high plasticity, firm / stiff, inclusions of reddish brown shales, trace roots, some black mottled	SM	JB40/MW06 0.9-1.0		No Odour, Staining or ACM
			1							
			1.5					JB40/MW06		
			2		Fill	Fill - Gravelly Clay, brown, damp, heterogeneous, low plasticity, firm, inclusions of shales, weathered rock	SM	JB40/MW06 1.6-2		No Odour, Staining or ACM
			2.5							
			3		CL	Weathered Clay, brown, damp, heterogeneous, non plastic, inclusions of dolerite	SM	JB40/MW06 2.8-3.0		No Odour, Staining or ACM
			3.5							
			4					JB40/MW06 3.9-4.0		No Odour, Staining or ACM
			4.5							
			5							
			5.5							
			6		Shale	Weathered Shales / Dolerite, brown some moisture	SM			
			6.5							
			7					JB40/MW06 7.0-7.1		No Odour, Staining or ACM
			7.5		Sandstone	Sandstone, weathered, light grey, fine grained	SM			
			8			Termination Depth at:7.600 m.				
			8.5							
			9							
			9.5							

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SOIL BOREHOLE JB41

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0		Concrete	Concrete		JB41_0.1-0.2		No Odour, ACM or Staining
		0.5		Dolerite	Weathered dolerite, gold / brown, stiff, dry, including corroded metal / rust				No Odour, ACM or Staining
		1					JB41_1.0-1.1		
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB42

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB42_0.05-0.1		No Odour, ACM or Staining
		1		ML	Silt, gold / brown, homogeneous, dry, fine		JB42_1.0-1.1		No Odour, ACM or Staining
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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TEST PIT JB43

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Sandy Clay, Topsoil		JB43 0.0-0.1	0.5	No Odour, ACM or Staining
				CL-ML	Silty Clay, Dark Brown, weathered dolorite				No Odour, ACM or Staining
							JB43 0.5-0.6	0.8	End of Testpit on Natural as Per Scope

TEST PIT JB43A

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Sandy Gravel, Heterogeneous, with pockets of fine stabilised sand and crushed concrete		JB43A 0.0-0.1	0.5	No Odour, ACM or Staining
				Dolerite	Weathered Dolorite, Red Brown, Granular with composition more toward bedrock toward bottom		JB43A 0.4-0.5	0.6	No Odour, ACM or Staining
		1					JB43A 1.0-1.1	0.4	No Odour, ACM or Staining
		1.5							End of Testpit on Natural as Per Scope
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB44

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Gravelly Clay, heterogeneous, Brown, with inclusions of roots, gravel and mulch		JB44 0.0-0.1	0.9	No Odour, ACM or Staining
				Fill	Fill - Silty gravel, Heterogeneous, Light Grey, with igeneous road base		JB44 0.3-0.4	0.9	No Odour, ACM or Staining
		0.5		Dolerite	Weathered Dolorite Silty Clay, Dark Brown,				
		1					JB44 1.0-1.1	0.7	No Odour, ACM or Staining
				CL-GC	Stiff Clay with inclusions of weathered bedrock				End of Testpit on Natural as Per Scope
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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SOIL BOREHOLE JB45

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0		Concrete	Concrete		JB45_0.05-0.1		No Odour, ACM or Staining
		0.5		Dolerite	Weathered dolerite, gold / brown, stiff, including oxidised iron/rust		JB45_0.5-0.6		No Odour, ACM or Staining
		1					JB45_1.1-1.2		
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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TEST PIT JB46

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, brown, damp, heterogeneous, soft:low/medium plasticity, with inclusion of some bricks and gravels.		JB46 0.0-0.1 JB46 0.3-0.4		No ACM, odours or staining observed.
		1		Fill	Fill - Sandy gravel, brown, damp, heterogeneous, loose, with inclusion of bricks.		JB46 0.5-0.6 JB46 1.0-1.1		No ACM, odours or staining observed. End of hole at excavator limit.
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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GROUNDWATER WELL JB48/MW03

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** 307,862.98
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** 6,256,899.36
CLIENT	**DRILL RIG**	**ELEVATION** 66.075 m AHD
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 9 m bgl	**COORD SOURCE** Surveyor
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 3 - 9 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0		Fill	Fill - Stabilised roadbase	D	JB48/MW03 0.1-0.2		No Odour, Staining or ACM
					Fill	Fill - Clay, dark grey, damp, homogeneous, low - medium plasticity, firm, inclusions of sand, tiny gravels	SM	JB48/MW03 0.4-0.5		No Odour, Staining or ACM
			0.5		Fill	Fill - Clayey Gravel, black / grey, shale layer	SM	JB48/MW03 0.9-1.0		No Odour, Staining or ACM
			1							
			1.5					JB48/MW03 1.9-2.0		No Odour, Staining or ACM
			2							
			2.5							
			3							
			3.5							
			4					JB48/MW03 4.0-4.1		No Odour, Staining or ACM
					CL	Clay, light brown, saturated, heterogeneous, medium plasticity, inclusions of shale grounds	M			
			4.5							
			5							
			5.5							
			6							
			6.5							
			7							
			7.5							
			8							
			8.5							
			9			Termination Depth at:9.000 m.				
			9.5							

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SOIL BOREHOLE JB49

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB49_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly silty sand, heterogeneous, dry, loose, fine grained, including brick, gravels, shale, slag		JB49_0.5-0.6		No Odour, ACM or Staining
		1		Fill	Fill - Silty clay, brown / grey, heterogeneous, stiff, high plasticity, including brick, asphalt, shale, gravels				No Odour, ACM or Staining
		1.5							
		2		CL-ML	Silty clay, dark brown, dry, stiff, medium plasticity		JB49_2.0-2.1		No Odour, ACM or Staining
		2.5		CL-ML	Weathered silty clay, rey with gold mottles, homogeneous, dry, stiff, low plasticity		JB49_2.5-2.6		No Odour, ACM or Staining
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB50

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Asphalt		JB50_0.1-0.2		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, grey / brown, heterogeneous, dry, loose, including gravels, slag		JB50_0.3-0.4		No Odour, ACM or Staining
				Fill			JB50_0.5-0.6		No Odour, ACM or Staining
		1		Fill	Fill - Silty clay, brown / gold, shale gravels, stiff, hard, low plasticity		JB50_1.0-1.1		No Odour, ACM or Staining
		1.5			Fill - Silty sand, brown, heterogeneous, dry, loose, including gravels				No Odour, ACM or Staining
		2			Fill - Silty sand, brown, heterogeneous, dry, loose, fine grained, including small angular gravels, pebbles				
		2.5		Fill	Fill - Silty clay, red / brown, heterogeneous, dry, stiff, low plasticity, including gravels		JB50_2.4-2.5		No Odour, ACM or Staining
		3		Fill	Fill - Shale, brown / grey		JB50_3.0-3.1		No Odour, ACM or Staining
		3.5		Fill	Fill - Silty clay, red / brown, heterogeneous, dry, stiff, low plasticity		JB50_3.3-3.4		No Odour, ACM or Staining
		4							
		4.5							
		5		Dolerite	Dolerite, grey with gold mottles		JB50_4.8-4.9		No Odour, ACM or Staining
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB51

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 250 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, brown, heterogeneous, damp with inclusions of brick fragments, igenous rock trace glass/tile and roots		JB51 0-0.3		No Odour, Staining or ACM Refusal on asphalt

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TEST PIT JB52

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill-sandy silty gravelly Clay, Heterogeneous, Brown, Low plasticity, soft consistency and dry with inclusions of gravel and concrete cobbles.		JB52 0.1-0.2	0.9	No Odour, ACM or Staining
				Fill	Fill- sandy silty gravelly Clay, Heterogeneous, Brown, Low plasticity, soft consistency and dry with inclusions of fine gravel.		JB52 0.5-0.6	0.6	No Odour, ACM or Staining
		1		Shale	Shale - Homogeneous, Brown, Dense, hard and damp		JB52 0.9-1.0	0.4	No Odour, ACM or Staining
					Termination Depth at:1.000 m.				End of Testpit on Natural Shale
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB52A

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - sandy gravelly Clay, Heterogeneous, Brown, poor graded, coarse and loose density with inclusions of gravel, concrete and brick cobbles.		JB52A	1.1	No Odour, ACM or Staining
					Termination Depth at:0.500 m.				

TEST PIT JB53

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, firm, low plasticity, with inclusion of gravels, bricks and scrap metal.		JB53 0.0-0.1 JB53 0.3-0.4 JB53 0.5-0.6 JB53 1.0-1.1		No ACM, odours or staining observed.
				Fill	Fill - Silty clay, brown/grey, dry, heterogeneous, dense, hard, high plasticity, with inclusion of bricks and some plastic.		JB53 2.0-2.1 JB53 3.0-3.1		ACM observed. No odours or staining observed. Ground level.

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TEST PIT JB54

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

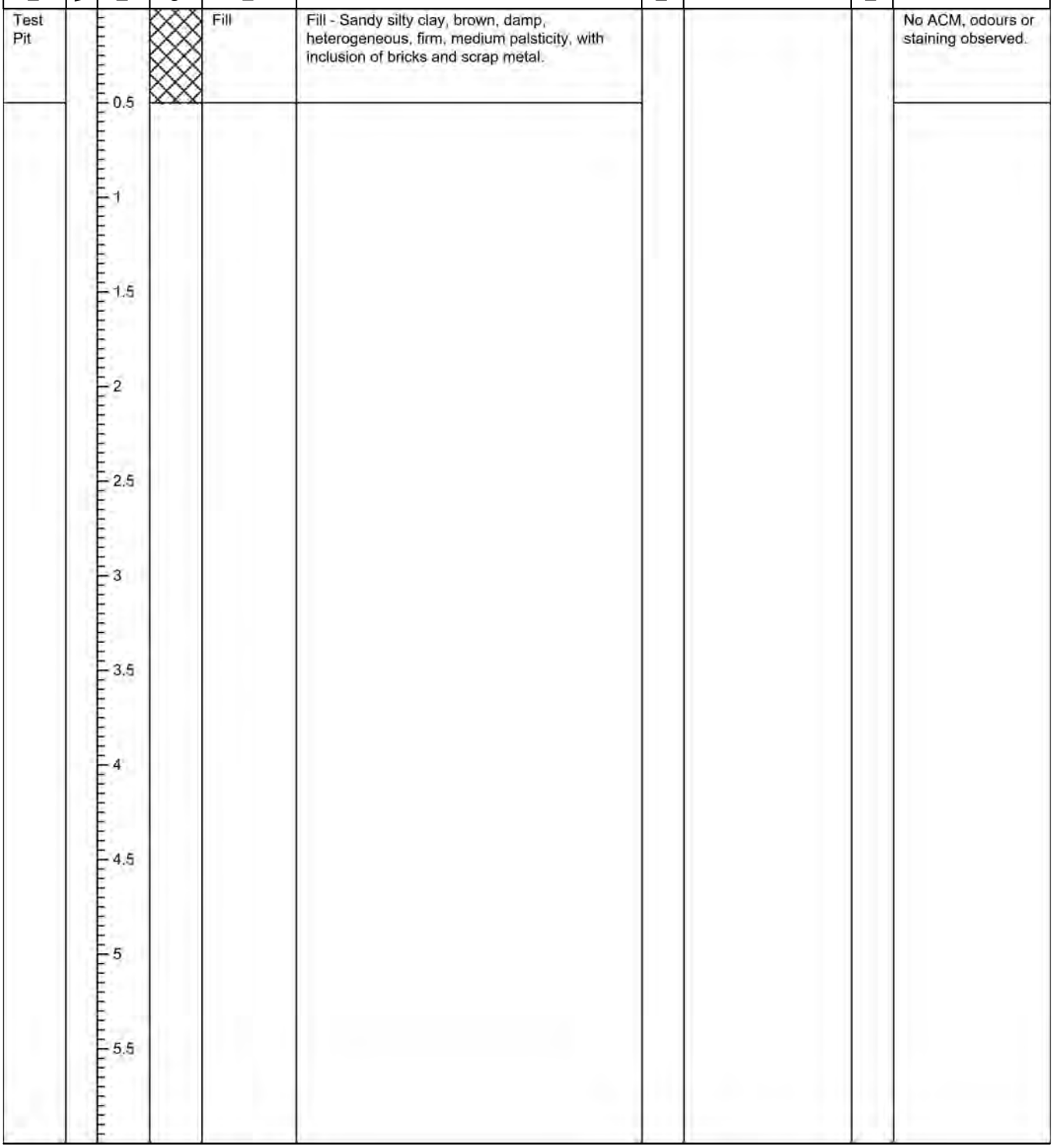
Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5		Fill	Fill - Sandy silty clay, brown, damp, heterogeneous, firm, medium palsticity, with inclusion of concrete fragments and bricks.		JB54 0.0-0.1 JB54 0.3-0.4 JB54 0.5-0.6 JB54 1.0-1.1		No ACM, odours or staining observed. ACM observed. No odours or staining observed. Redundant Service observed at 0.5 m bgs. No ACM, odours or staining observed.
				Fill	Fill - Sandy silty clay, grey/olive/brown, damp, heterogeneous, firm, medium palsticity, with inclusion of traces of bricks and gravels.		JB54 2.0-2.1 JB54 3.0-3.1		

TEST PIT JB54a

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, brown, damp, heterogeneous, firm, medium palsticity, with inclusion of bricks and scrap metal.				No ACM, odours or staining observed.



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TEST PIT JB55

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, soft, low plasticity, with inclusion of gravels, bricks concrete and rootlets.		JB55 0.0-0.1 JB55 0.3-0.4 JB55 0.5-0.6		No ACM, odours or staining observed.
		1		Fill	Fill - Sandy gravel, grey, dry, heterogeneous, loose.		JB55 1.0-1.1		No ACM, odours or staining observed.
		1.5		Fill	Fill - Silty clay, brown/grey/olive, damp, heterogeneous, firm, high plasticity, with inclusion of gravels.		JB55 2.0-2.1		No ACM, odours or staining observed.
		2							
		2.5							
		3					JB55 3.0-3.1		
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB55a

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, grey/brown, dry, heterogeneous, firm, medium plasticity.				No ACM, odours or staining observed.
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB58

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5		Fill Fill Fill Fill	Fill - Silty clay, dark brown, dry, heterogeneous, soft, low/medium plasticity, with inclusion of rootlets and traces of gravels. Fill - Sandy silty clay, light brown, dry, heterogeneous, firm, medium plasticity, with inclusion of roots. Fill - Sandy silty clay, dark brown, dry, heterogeneous, with inclusion of bricks. Fill - Silty clay, dark brown, dry, stiff, high plasticity.		JB58 0.0-0.1 JB58 0.3-0.4 JB58 0.5-0.6 JB58 1.0-1.1 JB58 2.0-2.1 JB58 3.0-3.1		No ACM, odours or staining observed. No ACM, odours or staining observed. No ACM, odours or staining observed.

SOIL BOREHOLE JB59

PROJECT NUMBER 58238	**DRILLING COMPANY** JBS&G	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Gravelly silty topsoil, heterogenous, Brown, Moist, with inclusions of roots, rootlets and road base		JB59 0.0-0.1	1.6	No Odour, ACM or Staining End of Hand Auger due to Refusal on Igneous Gravel

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TEST PIT JB60

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy gravel, (stabilised sand) brown/light grey, dry, heterogeneous, hard. Brick and igneous inclusions underlying stabilised sand.		JB60 0.0-0.1		No ACM, odours or staining observed.
							JB60 0.2-0.3		
							JB60 0.3-0.4	1.5	No Odour, ACM or Staining
		1		CH	Clay, Homogenous, brown with black mottles, high plasticity, fine grained, dense and damp		JB60 0.8-0.9	1.6	No Odour, ACM or Staining
							JB60 1.3-1.2	1.9	No Odour, ACM or Staining
		1.5							End of Testpit on Natural as Per Scope
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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SOIL BOREHOLE JB61

PROJECT NUMBER 58238	**DRILLING COMPANY** JBS&G	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0		Fill	Fill - Silty Gravel road base, heterogeneous, Brown, with inclusions of crushed brick		JB61 0.0-0.1	1.2	No Odour, ACM or Staining
		0.5							End of Hand Auger due to Refusal on Tree Roots
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB62

PROJECT NUMBER 58238	**DRILLING COMPANY** JBS&G	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Gravelly silty topsoil, heterogenous, Brown, with inclusions of roots, rootlets, gravel and road base		JB62 0.0-0.1	1.5	No Odour, ACM or Staining End of Hand Auger due to Refusal on Ballast Gravel
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB63

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB63_0.1-0.2		No Odour, ACM or Staining
		1		ML	Silt, minor clay, brown, homogeneous, dry, medium density		JB63_0.5-0.6		Strong chemical/hydrocarbon odour, No ACM or staining
		1.5		CL-ML	Weathered silty clay, brown, homogeneous, dry, low plasticity, stiff		JB63_1.5-1.6		Strong to moderate odour, No ACM or staining. No odour beyond 2 m bgs
		2					JB63_2.1-2.2		
		2.5					JB63_2.6-2.7		
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB64

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 250 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, dark brown, damp inclusions of rootlets		JB64 0-0.1		No Odour, Staining or ACM
		1		CL	Clay, light grey, highly plastic. No inclusions.		JB64 0.2-0.5		No Odour, Staining or ACM
		1.5					JB64 0.5-1		No Odour, Staining or ACM
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB65

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB65_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly silty sand, brown / grey, loose, dry, fine grained, heterogeneous, including gravel, shale, roadbase		JB65_0.2-0.3		Green / grey oxidation, No Odour or ACM
		1		Fill	Fill - Silty clay, red / brown & grey, firm / stiff, high plasticity (reworked), dry, homogeneous		JB65_1.0-1.1		No Odour, ACM or Staining
							JB65_1.2-1.3		
		1.5		CL-ML	Silty clay, red / brown, homogeneous, with orange & grey mottles, firm / stiff, high plasticity, dry				No Odour, ACM or Staining
		2		CL-ML	Silty clay, red / brown, homogeneous, with orange & grey mottles, firm / stiff, high plasticity, dry, including ironstone		JB65_2.1-2.2		No Odour, ACM or Staining
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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GROUNDWATER WELL JB66/MW01

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** 308,148.61
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** 6,257,151.7
CLIENT	**DRILL RIG**	**ELEVATION** 56.761 m AHD
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 10 m bgl	**COORD SOURCE** Surveyor
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 7 - 10 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0.5		Fill	Fill - Clay, brown, damp, medium plasticity, firm, inclusions of roots, concrete, ceramic, bricks	SM	JB66/MW01 0-0.1		No Odour, Staining or ACM
								JB66/MW01 0.5-0.6		No Odour, Staining or ACM
			1					JB66/MW01 1.0-1.1		No Odour, Staining or ACM
			1.5		Fill	Fill - Clay, grey and brown, damp, medium - high plasticity, firm, trace inclusions of tiny bricks, ceramic frags	SM			
			2					JB66/MW01 2.0-2.1		No Odour, Staining or ACM
			2.5		Fill	Fill - Clay, dark black /brown, damp, medium - high plasticity, frim, inclusions of tiny glass, ceramics, gravels	SM			
			3					JB66/MW01 3.0-3.1		No Odour, Staining or ACM
			3.5							
			4					JB66/MW01 4.0-4.1		No Odour, Staining or ACM
			4.5		Fill	Fill - Clay, brown, damp, medium plasticity, frim, trace sand content, inclusions of trace rock	SM			
					CL	Clay, light brown / brown, damp, low - medium plasticity	SM			
			5					JB66/MW01 5.0-5.1		No Odour, Staining or ACM
			5.5							
			6		CL	Clay, light brown, damp, low plasticity, stiff	SM	JB66/MW01 6.0-6.1		No Odour, Staining or ACM
			6.5							
			7					JB66/MW01 7.0-7.1		No Odour, Staining or ACM
			7.5							
			8							
			8.5							
			9							
			9.5							
			10			Termination Depth at:10.000 m.				

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TEST PIT JB67

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Clay, Brown, medium plasticity and moist, at 0.3 -2.0 reworked grey-black and light grey clay, highly plastic with organic inclusions, and scattered brick, shale and ironstone nodules throughout, sandy toward base with large basalt igneous rock inclusions		JB67 0.0-0.1	0.6	No Odour, ACM or Staining
		1					JB67 0.5-0.6	0.9	No Odour, ACM or Staining
		1.5					JB67 1.0-1.1	1.5	No Odour, ACM or Staining
		2					JB67 1.5-1.6	1.4	No Odour, ACM or Staining
		2.5					JB67 2.0-2.1	1.6	No Odour, ACM or Staining
		3					JB67 3.0-3.1	1.7	No Odour, ACM or Staining
		3.5							End of Testpit due to Excavator Reach
		4							
		4.5							
		5							
		5.5							

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SOIL BOREHOLE JB68

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0		Concrete	Pavers		JB68_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, grey, heterogeneous, dry, loose, including gravels, concrete pebbles		JB68_0.5-0.6		No Odour, ACM or Staining
		0.5		Fill	Fill - Silty clay, brown, heterogeneous, stiff, dry, low plasticity, including brick, gravel, slag, concrete				No Odour, ACM or Staining
		1					JB68_1.3-1.4		
		1.5		Fill	Fill - Silty clay, grey / black, heterogeneous, stiff, dry, low plasticity, including brick, gravel, slag, concrete				No Odour, ACM or Staining
		2					JB68_2.3-2.4		
		2.5		CL-ML	Silty clay, red / brown, homogeneous, dry, stiff, medium plasticity				No Odour, ACM or Staining
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB69

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Pavers		JB69_0.05-0.1		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, grey / brown, heterogeneous, dry, loose, including gravels		JB69_0.4-0.5		No Odour, ACM or Staining
		1		Fill	Fill - Silty clay, red / brown, dry, stiff, medium plasticity, including gravels		JB69_0.7-0.8		No Odour, ACM or Staining
		1.5			Fill - Shale, grey, hard, heterogeneous, dry, including gravels, brick, slag				No Odour, ACM or Staining
		2							
		2.5							
		3							
		3.5		CL-ML	Silty clay, brown, homogeneous, dry, stiff, medium plasticity		JB69_3.3-3.4		No Odour, ACM or Staining
		4		CL	Weathered clay, light grey / brown, homogeneous, dry, stiff, low plasticity		JB69_3.8-3.9		No Odour, ACM or Staining
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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TEST PIT JB70

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Sandy silty clay, heterogeneous, Dark Brown, moist with inclusions of roots and rootlets and crushed brick		JB70 0.0-0.1	1.2	No Odour, ACM or Staining
		0.5		Fill	Fill - Gravelly clay, heterogeneous, Light Brown, damp to dry loose, medium plasticity. Inclusions of small shale gravel and ironstone nodules		JB70 0.5-0.6	1	No Odour, ACM or Staining
		1					JB70 1.0-1.1	0.6	No Odour, ACM or Staining
		1.5		Fill	Fill - Silty, heterogeneous, concentrated inclusions of small crushed gravel, shale and ironstone				
		2					JB70 2.1-2.2	0.9	No Odour, ACM or Staining
		2.5							End of Testpit due to Excavator Reach in Confined Area
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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SOIL BOREHOLE JB75

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 250 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill Fill	Fill - Silty clay, dark brown, damp inclusions of rootlets Fill - Silty clay, (reworked) orange brown, firm		JB75 0-0.1 JB75 0.2-0.5 JB75 .5-1		No Odour, Staining or ACM No Odour, Staining or ACM No Odour, Staining or ACM
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB76

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 251 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, dark brown, damp inclusions of rootlets		JB76 0-0.1		No Odour, Staining or ACM
				Fill	Fill - Silty clay, (reworked) orange brown, firm		JB76 0.2-0.5		No Odour, Staining or ACM
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB77

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 257 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, dark brown, damp inclusions of rootlets		JB77 0-0.1		No Odour, Staining or ACM
				Fill	Fill - Silty clay, (reworked) grey brown, firm		JB77 0.2-0.5		No Odour, Staining or ACM
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB78

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 256 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty clay, dark brown, damp inclusions of rootlets		JB78 0-0.1		No Odour, Staining or ACM
				Fill	Fill - Silty clay, (reworked) grey brown, firm		JB78 0.2-0.5		No Odour, Staining or ACM
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB79

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 255 mm	**LOGGED BY** ML

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill Fill	Fill - Silty clay, dark brown, damp inclusions of rootlets Fill - Silty clay, (reworked) orange brown, firm		JB79 0-0.1 JB79 0.2-0.5 JB79 0.5-1		No Odour, Staining or ACM No Odour, Staining or ACM No Odour, Staining or ACM

TEST PIT JB80

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty sandy topsoil, heterogeneous, Brown, high plasticity, with inclusions of beige besser bricks, and plastic		JB80 0.0-0.1	0.8	No Odour, ACM or Staining
		1		Fill	Fill - Gravelly silty sandy clay, heterogeneous, Light Brown, with small shale and ironstone nodules		JB80 0.5-0.6	0.4	No Odour, ACM or Staining
		1.5					JB80 1.0-1.1	0.6	End of Testpit due to Excavator Reach in Confined Area
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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GROUNDWATER WELL JB81/MW02

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** 307,959.86
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** 6,257,073.03
CLIENT	**DRILL RIG**	**ELEVATION** 56.928 m AHD
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 7.5 m bgl	**COORD SOURCE** Surveyor
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 4.5 - 7 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA	▽		0.5		Fill	Fill - Stabilised roadbase	D	JB81/MW02 0.1-0.2		No Odour, Staining or ACM
					Fill	Fill - Clay, brown, damp, homogenous, low plasticity	SM	JB81/MW02 0.5-0.6		No Odour, Staining or ACM
			1		Fill	Fill - Clay, brown, heterogeneous, low - medium plasticity, inclusion black grey shales	SM	JB81/MW02 0.9-1.0		No Odour, Staining or ACM
			1.5		Fill	Fill - Gravelly Clay, dark brown, heterogeneous, damp, low - medium plasticity, firm, inclusions of rock, crushed bricks, shales, plastic	SM	JB81/MW02 1.5-1.6		No Odour, Staining or ACM
			2					JB81/MW02 1.6-2.1		No Odour, Staining or ACM
			2.5					JB81/MW02 2.0-3.1		No Odour, Staining or ACM
			3		Fill	Fill - Clay, greyish brown, moist, heterogeneous, medium - high plasticity, inclusions of fine bricks, fine rocks, ironstones, shale	M	JB81/MW02 3.0-3.1		No Odour, Staining or ACM
			3.5							
			4		CH-MH	Silty Clay, light brown, moist, homogenous,medium - high plasticity, soft – firm, inclusions of fine rocks, gravels	M			
			4.5					JB81/MW02 4.6-4.7		No Odour, Staining or ACM
			5							
			5.5					JB81/MW02 5.5-5.6		No Odour, Staining or ACM
			6							
			6.5							
			7							
			7.5			Termination Depth at:7.500 m.				
			8							
			8.5							
			9							
			9.5							

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TEST PIT JB82

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0		Fill	Fill - Gravelly silty sand, brown, damp, heterogeneous, low/medium plasticity, with inclusion of gravel and shale.		JB82 0.0-0.1		No ACM, odours or staining observed.
							JB82 0.3-0.4		
		0.5		Fill	Fill - Silty sandy clay, brown/grey, damp, heterogeneous, medium plasticity, with inclusion of shale.		JB82 0.5-0.6		No ACM, odours or staining observed.
		1							Refusal at 0.9 m bgs.
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB83

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, with inclusion of rootlets, gravels and traces of ash.		JB83 0.1-0.2		No ACM, odours or staining observed.
		1		Fill	Fill - Gravelly silty sand, light brown/grey, dry, heterogeneous, loose.		JB83 0.3-0.4		No ACM, odours or staining observed.
		1.5		Fill	Fill - Shale, grey, dry, heterogeneous, hard, with inclusion of clasts of clay		JB83 0.5-0.6		No ACM, odours or staining observed.
		2					JB83 1.0-1.1		
		2.5					JB83 2.0-2.1		
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB84

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 29-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Gravelly sand, grey, dry, heterogeneous, very loose.		JB84 0.0-0.1 JB84 0.3-0.4		No ACM, odours or staining observed.
		1		Dolerite	Weathered dolerite, brown turns darker brown at 1.0 m bgs, dry, homogeneous.		JB84 0.5-0.6 JB84 1.0-1.1 JB84 1.4-1.5		No ACM, odours or staining observed.
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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GROUNDWATER WELL JB85/MW04

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** 308,099.91
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** 6,256,940.99
CLIENT	**DRILL RIG**	**ELEVATION** 66.149 m AHD
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 6.1 m bgl	**COORD SOURCE** Surveyor
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 3.1 - 6.1 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0.5		Fill	Fill - Stabilised roadbase	D	JB85/MW04 0.05-0.3		No Odour, Staining or ACM
					Fill	Fill - Sand, brown, damp, heterogeneous, coarse, dense, inclusions of fine glass, fine grounds, brick frag	SM	JB85/MW04 0.3-0.5		No Odour, Staining or ACM
			1		Fill	Fill - Clay, reddish brown / dark brown with grey mottled, damp, heterogeneous, low - medim plasticity, inclusions of shale	SM	JB85/MW04 0.5-1.0		No Odour, Staining or ACM
			1.5		Fill	Fill - Clay, brown, damp, heterogeneous, high plasticity, inclusions of shale	SM	JB85/MW04 1.0-1.1		No Odour, Staining or ACM
			2		CH-MH	Silty Clay, dark brown / black, moist, medium - high plasticity, soft, inclusions of roots, organics, shales	SM	JB85/MW04 1.2-1.4		No Odour, Staining
			2.5		CL	Clay, orange and grey mottled, homogenous, damp, medium plasticity, firm, stiff, inclusions of shales and roots	SM	JB85/MW04 2.0-2.2		No Odour, Staining or ACM
			3		CL	Clay, orange and white mottled, heterogeneous, dry, stiff, inclusions of shale chunkcs, some sand	D	JB85/MW04 2.6-2.8		No Odour, Staining or ACM
			3.5					JB85/MW04 3.4-3.5		No Odour, Staining or ACM
			4.5		Shale	Weathered Shale, grey with very fine sand.	SM	JB85/MW04 4.8-5.0		No Odour, Staining or ACM
			5.5							
			6			Termination Depth at:6.100 m.				
			6.5							
			7							
			7.5							
			8							
			8.5							
			9							
			9.5							

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TEST PIT JB86

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, firm, medium plasticity, with inclusion of bricks, gravels and plastic from 0 to 0.3 m bgs and scrap metal pipe at 0.3 m bgs.		JB86 0.0-0.1 JB86 0.3-0.4 JB86 0.5-0.6 JB86 1.0-1.1 JB86 2.0-2.1		No ACM, odours or staining observed. Ground level.
				Fill	Fill - Silty clay, grey/brown, dry, heterogeneous, hard, high plasticity, with inclusion of wood.		JB86 3.0-3.1		No ACM, odours or staining observed.

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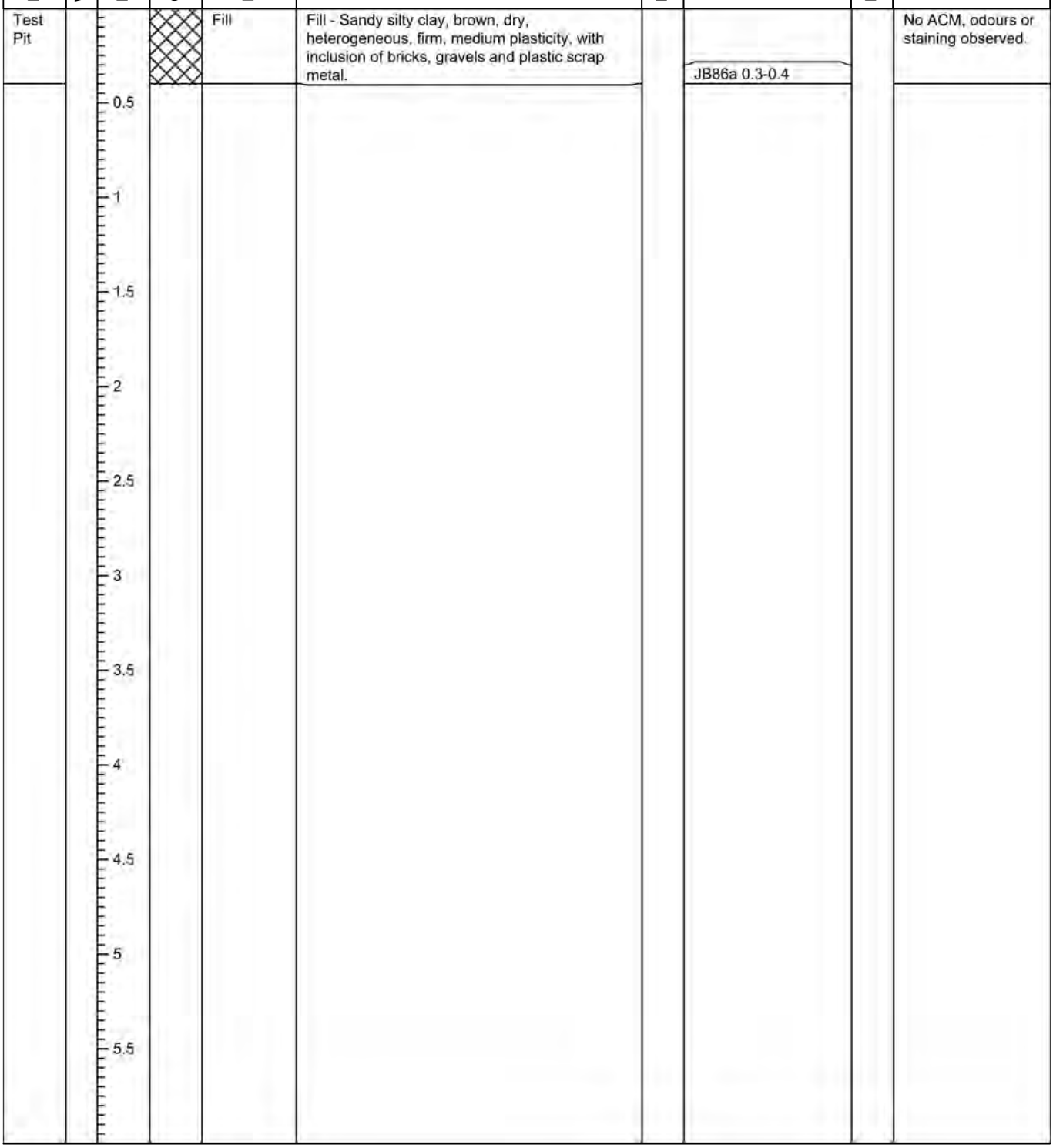
TEST PIT JB86a

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, firm, medium plasticity, with inclusion of bricks, gravels and plastic scrap metal.		JB86a 0.3-0.4		No ACM, odours or staining observed.



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TEST PIT JB87

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, grey/brown, dry, heterogeneous, with inclusion of plastic and brick, trace scrap metal and shale.		JB87 0.0-0.1 JB87 0.3-0.4 JB87 0.5-0.6 JB87 1.0-1.1		No ACM, odours or staining observed.
		1.5		Fill	Fill - Silty clay, brown, dry, heterogeneous, with inclusion of traces of plastic.		JB87 2.0-2.1 JB87 3.0-3.1		No ACM, odours or staining observed. Ground level.
		2 2.5 3 3.5 4 4.5 5 5.5							

TEST PIT JB88

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

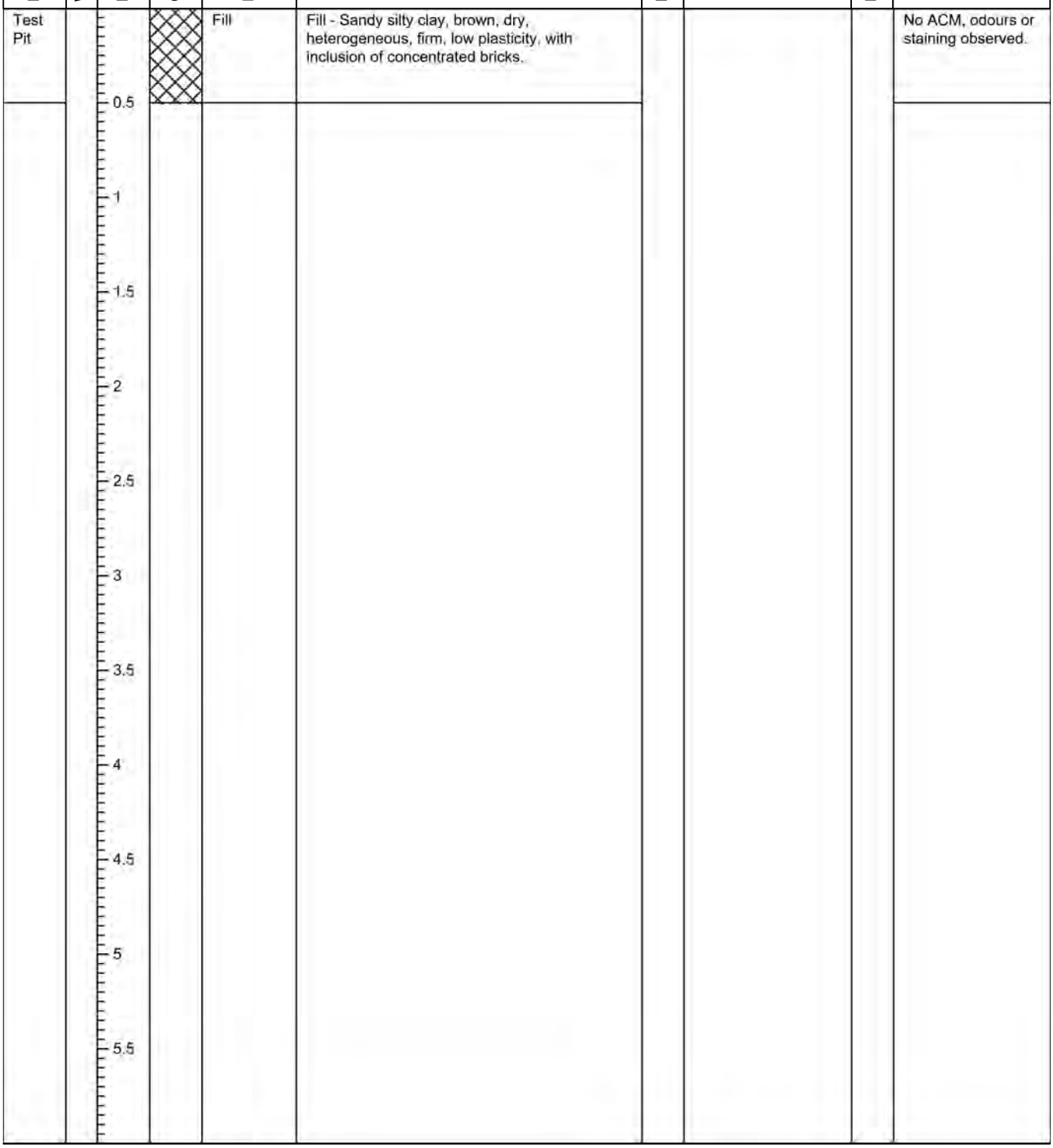
Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5 1 1.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, firm, low plasticity, with inclusion of rootlets, bricks, concrete, and metal pipe.		JB88 0.0-0.1 JB88 0.3-0.4 JB88 0.5-0.6 JB88 1.0-1.1		No ACM, odours or staining observed.
		2 2.5 3		Fill	Fill - Silty clay, light brown turns grey at 2.5 m bgs, dry, heterogeneous, firm, medium plasticity, with inclusion of shale.		JB88 2.0-2.1 JB88 3.0-3.1		No ACM, odours or staining observed.
		3.5 4 4.5 5 5.5							

TEST PIT JB88a

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Coles	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** MN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sandy silty clay, brown, dry, heterogeneous, firm, low plasticity, with inclusion of concentrated bricks.				No ACM, odours or staining observed.



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TEST PIT JB89

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Clay, Heterogeneous, Brown: Low plasticity, firm consistency and dry with inclusions of gravel, brick and concrete boulders.		JB89 0.1-0.2	0.5	No Odour, ACM or Staining
							JB89 0.4-0.5	1.4	No Odour, ACM or Staining
		1					JB89 1.0-0.9	1.2	No Odour, ACM or Staining
		1.5		Fill	Fill - Sand, Heterogeneous, Blue Green: poorly graded, coarse and medium density.		JB89 1.8-1.9	1.2	No Odour, ACM or Staining
		2		Fill	Fill -Silty Clay, Heterogeneous, Brown, Low plasticity, firm consistency and dry with inclusions of gravel, brick and concrete boulders.		JB89 2.3-2.4	1.1	No Odour, ACM or Staining
		2.5			Termination Depth at:2.500 m.				End of Testpit due to Excavator Reach
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB89A

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill -Silty Clay, Heterogeneous, Brown, Low plasticity, firm consistency and dry with inclusions of gravel, brick and concrete boulders.		JB89A 0.2-0.3	1	No Odour, ACM or Staining
					Termination Depth at:0.500 m.				End of Testpit at Base of Mound

TEST PIT JB90

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty sandy gravelly Clay, Heterogeneous, Brown. Low plasticity, firm consistency and dry with inclusions of gravel, brick and concrete boulders.		JB90 0.2-0.3	0.5	No Odour, ACM or Staining
							JB90 0.5-0.6	0.9	No Odour, ACM or Staining
					Termination Depth at 0.600 m.				End of Testpit due to Refusal on Concrete

TEST PIT JB91

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Clay, Homogenous, Brown, Low Plasticity, Soft consistency, Loose density		JB91 0.0-0.1	1.1	No Odour, ACM or Staining
		1		Fill	Fill - Clay, Heterogeneous, Brown, Low Plasticity, Medium density and damp, with inclusions of angular gravelly boulders, bricks and shale some scrap metal		JB91 0.4-0.5	1.5	ACM Identified. No Odours or Staining
		1.5							
		2					JB91 1.8-1.9	0.5	No Odour, ACM or Staining End of Testpit due to Refusal on Shale
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB94

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty gravelly Clay, Heterogeneous, Brown, Low plasticity, firm consistency and dry with inclusions of brick and shale cobbles.		JB94 0.1-0.2	0.6	No Odour and Staining, ACM Fragment Found
		1		Fill	Fill -Clay, Heterogeneous, Black Grey, Medium plasticity, hard consistency and dry with inclusions of brick and shale fines.		JB94 0.9-1.0	0.8	No Odour, ACM or Staining
		1.5							
		2					JB94 1.9-2.0	0.4	No Odour, ACM or Staining
		2.5					JB94 2.4-2.5	0.9	No Odour, ACM or Staining
									End of Testpit due to Excavator Reach
		3			Termination Depth at:2.800 m.				
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB95

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sand, Heterogeneous, Red, poorly graded, coarse and loose density with inclusions of brick dust.		JB95 0.1-0.2	0.5	No Odour, ACM or Staining
		1					JB95 0.9-1.0	0.6	No Odour, ACM or Staining
		1.5					JB95 1.6-1.7	0.4	No Odour, ACM or Staining
		2		Fill	Fill - Silty, gravelly clay, Heterogeneous, Grey, Low plasticity, firm consistency and dry with inclusions of brick and shale boulders.		JB95 1.9-2.0	1.1	No Odour, ACM or Staining
		2.5			Termination Depth at:2.000 m.				End of Testpit due to Refusal on Concrete
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

TEST PIT JB96

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Sand, Heterogeneous, Grey White mottles, well graded, fine to coarse and loose density with inclusions of significant bricks and concrete .		JB96 0.0-0.1	1.5	No Odour and Staining, ACM Fragment Found
							JB96 0.4-0.5	0.5	No Odour, ACM or Staining
		1					JB96 0.9-1.0	0.8	No Odour, ACM or Staining
		1.5							
		2					JB96 1.9-2.0	0.7	No Odour, ACM or Staining
									End of Testpit due to Refusal on Concrete
					Termination Depth at:2.200 m.				
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB97

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Sand, Heterogeneous, Grey Brown, well graded, fine to coarse and loose density with inclusions of significant bricks and concrete .		JB97 0.1-0.2	0.5	No Odour, ACM or Staining
							JB97 0.4-0.5	0.4	No Odour, ACM or Staining
		1					JB97 0.9-1.0	0.2	No Odour, ACM or Staining
		1.5							
		2					JB97 1.9-2.0	0.8	No Odour, ACM or Staining
									End of Testpit due to Excavator Reach
		2.5			Termination Depth at:2.300 m.				
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB98

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Sand, Heterogeneous, Grey Brown, well graded, fine to coarse and loose density with inclusions of significant bricks and concrete .		JB98-A	0.5	No Odour and Staining, ACM Fragment Found
							JB98 0.4-0.5	0.4	No Odour, ACM or Staining
		1					JB98 0.9-1.0	0.9	No Odour, ACM or Staining
		1.5							
		2					JB98 1.9-2.0	0.8	No Odour, ACM or Staining
		2.5			Termination Depth at:2.000 m.				End of Testpit due to Refusal on Concrete
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

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TEST PIT JB99

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Sand, Heterogeneous, Grey, poor graded, fine to coarse and loose density with inclusions of brick dust.		JB99 0.1-0.2	0.4	No Odour, ACM or Staining
				Fill	Fill - Sand, Heterogeneous, Red, poor graded, coarse and loose density with inclusions of brick dust.		JB99 0.4-0.5	0.6	No Odour, ACM or Staining
					Termination Depth at:0.600 m.				End of Testpit due to Refusal on Concrete

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TEST PIT JB100

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 04-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Robert Sharp

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Silty Sand, Heterogeneous, Grey, well graded, fine to coarse and loose density with inclusions of significant bricks and concrete .		JB100 0.0-0.1	0.9	No Odour, ACM or Staining
				Fill	Fill - Silty Sand, Heterogeneous, Red, well graded, fine to coarse and loose density with inclusions of significant bricks and concrete .		JB100 0.4-0.5	1	No Odour, ACM or Staining
		1		Fill	Fill - Silty Sand, Heterogeneous, Grey, well graded, fine to coarse and loose density with inclusions of significant bricks and concrete .		JB100 1.2-1.3	0.8	No Odour, ACM or Staining
		1.5			Termination Depth at:1.400 m.				End of Testpit due to Refusal on Concrete and Brick
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							

SOIL BOREHOLE JB101

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB101_0.15-0.2		No Odour, ACM or Staining
				Fill	Fill - Gravelly sandy silt, gold / brown, heterogenous, dry, dense, fine grained, including corroded, metal / rust, gravels				No Odour, ACM or Staining
		1					JB101_1.0-1.1		
		1.5		Dolerite	Weathered Dolerite- Gravelly sandy silt, gold / brown, heterogenous, dry, dense, fine grained, rusted metal (oxidised rock)		JB101_1.5-1.6		No Odour, ACM or Staining
		2							
		2.5					JB101_2.3-2.4		
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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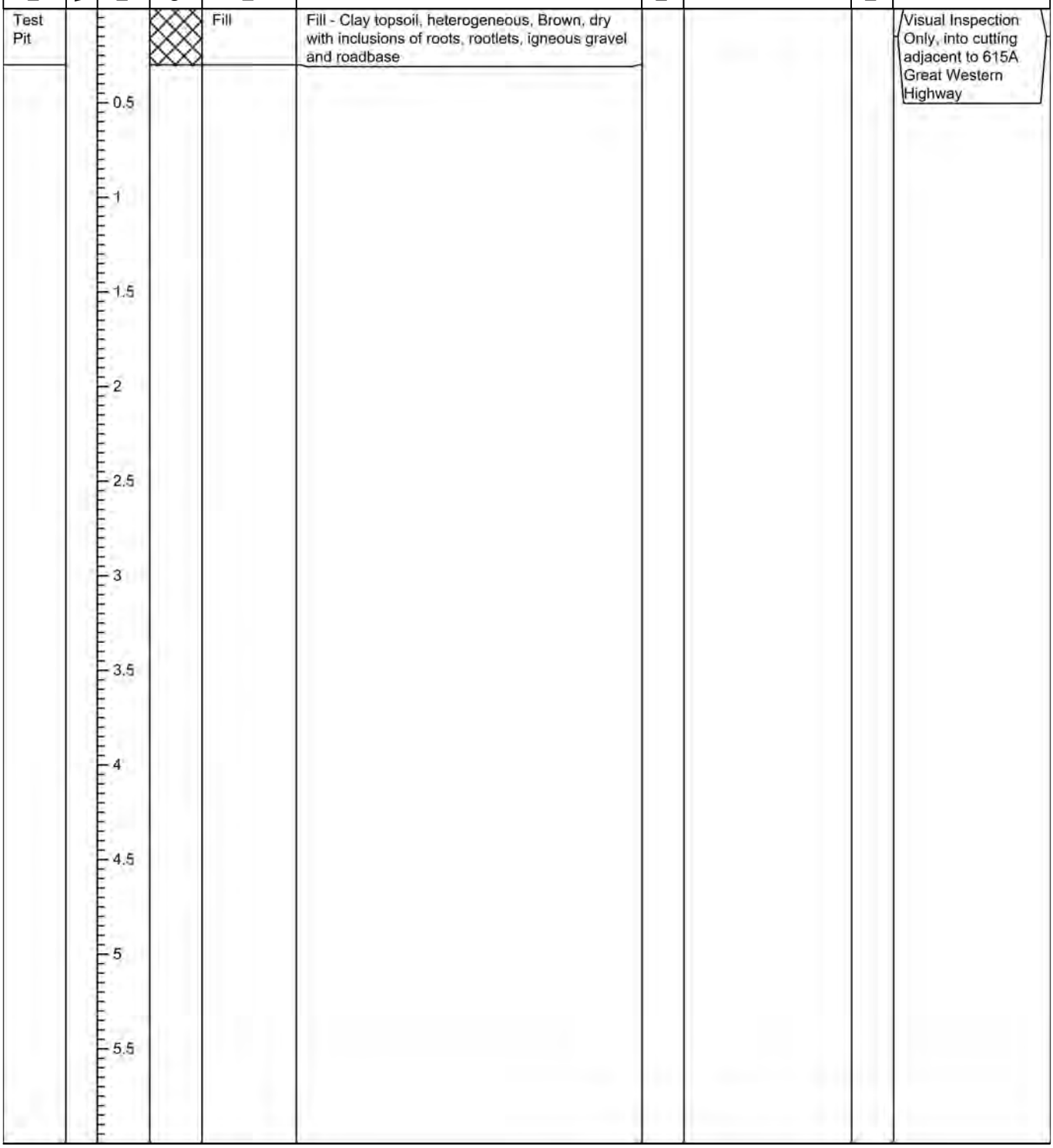
TEST PIT JB102

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Clay topsoil, heterogeneous, Brown, dry with inclusions of roots, rootlets, igneous gravel and roadbase				Visual Inspection Only, into cutting adjacent to 615A Great Western Highway



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TEST PIT JB103

PROJECT NUMBER 58238	**DRILLING COMPANY** Ken Cole	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Test Pit	**COORD SOURCE**
	DIMENSIONS x m	**LOGGED BY** Chris Kauffman

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.5		Fill	Fill - Stabilised Sand, with inclusions of concrete and igeneous gravel		JB103 0.0-0.1	0.9	No Odour, ACM or Staining
				Fill					No Odour, ACM or Staining
				Dolerite	Fill - Stabilised Sand and concrete, with inclusions of large brick and igneous rock		JB103 0.4-0.5	0.9	End of Testpit on Natural as Per Scope
					Hard igneous Dolerite with crystalline possible iron oxide				

SOIL BOREHOLE JB104

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB104_0.2-0.3		No Odour, ACM or Staining
		1		CL-ML	Weathered dolerite, silty clay, grey with gold mottles, stiff, low plasticity, dry		JB104_1.0-1.1		No Odour, ACM or Staining
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB105

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Push Tube	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** JN

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT		0.5		Concrete	Concrete		JB105_0.05-0.1		No Odour, ACM or Staining
		1		Fill	Fill - Gravelly sandy silt, brown / gold, heterogeneous, dry, medium density, including gravels, slag, shale, sand layers, including green / grey crushed material		JB105_0.5-0.6		Slight chemical smell, no ACM or Staining
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB110

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.5		Fill	Heterogeneous brown Fill - Silty SAND. plasticity, consistency and damp with inclusions of trace rootlets and gravels.	D	JB110 0.0-0.1		No odours, staining or ACM observed.
	▽			Fill	Heterogeneous grey Fill - CLAY. medium to high plasticity, soft consistency and damp.	D	JB110 0.6-0.7		No odours, staining or ACM observed.
		1			Termination Depth at:0.800 m.				
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB111

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
	▽	0.5		Fill	Heterogeneous greyish brown Fill - Silty CLAY. medium plasticity, soft consistency and damp with inclusions of rootlets and gravels.	D	JB111 0.0-0.1 JB111 0.5-0.6		No odours, staining or ACM observed. No odours, staining or ACM observed.
					Termination Depth at:0.700 m.				

SOIL BOREHOLE JB112

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.5		Fill	Heterogeneous brown Fill - Silty CLAY. medium plasticity, soft consistency and damp with inclusions of rootlets and wood.	D	JB112 0.0-0.1		No odours, staining or ACM observed.
	▽			Fill	Heterogeneous dark brown Fill - Silty CLAY. medium plasticity, soft consistency and damp.	D	JB112 0.4-0.5		No odours, staining or ACM observed.
		1			Termination Depth at:0.800 m.				
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB113

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0		Fill	Heterogeneous dark brown Fill - Silty CLAY. medium plasticity, soft consistency and damp.	D	JB113 0.0-0.1		No odours, staining or ACM observed.
		0.5		Fill	Heterogeneous light brown Fill - CLAY. medium plasticity, firm consistency and damp.	D	JB113 0.4-0.5		No odours, staining or ACM observed.
	▽				Termination Depth at:0.700 m.				

SOIL BOREHOLE JB114

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.5		Fill	Heterogeneous dark brown Fill Clayey SILT. low plasticity plasticity, firm consistency and damp with inclusions of trace gravels and wood.	D	JB114 0.0-0.1		No odours, staining or ACM observed.
	▽			Fill	Heterogeneous brown Fill - CLAY. medium to high plasticity, firm consistency and damp.	D	JB114 0.5-0.6		No odours, staining or ACM observed.
		1			Termination Depth at:0.800 m.				
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB115

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
	▽	0.5		Fill	Heterogeneous dark brown Fill - Silty CLAY. medium plasticity, soft consistency and damp.	D	JB115 0.0-0.1 JB115 0.4-0.5		No odours, staining or ACM observed. No odours, staining or ACM observed.
					Termination Depth at:0.700 m.				

SOIL BOREHOLE JB116

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.5		Fill	Heterogeneous dark brown Fill - Silty CLAY. medium plasticity, soft consistency and damp with inclusions of trace bitumen.	D	JB116 0.0-0.1		No odours, staining or ACM observed.
	▽	1		Fill	Heterogeneous brown Fill - CLAY. medium to high plasticity, firm consistency and damp with inclusions of trace gravels.	D	JB116 0.4-0.5		No odours, staining or ACM observed.
					Termination Depth at:1.000 m.				
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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SOIL BOREHOLE JB117

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.5		Fill	Heterogeneous dark brown Fill - Silty CLAY. medium plasticity, soft consistency and damp.	D	JB117 0.0-0.1 JB117 0.4-0.5		No odours, staining or ACM observed. No odours, staining or ACM observed.
	▽				Termination Depth at:0.600 m.				

SOIL BOREHOLE JB118

PROJECT NUMBER 58238	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 11-Sep-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER 50 mm	**LOGGED BY** MS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
	▽			Fill	Heterogeneous dark brown Fill - Silty CLAY. medium plasticity, soft consistency and damp.	D	JB118 0.0-0.1		No odours, staining or ACM observed.
		0.5			Termination Depth at:0.300 m.				
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							
		7.5							
		8							
		8.5							
		9							
		9.5							

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GROUNDWATER WELL MW07

PROJECT NUMBER 58238	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME	**DRILLING DATE** 05-Sep-20 - 30-Aug-20	**NORTHING** N/A
CLIENT	**DRILL RIG**	**ELEVATION** N/A
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS Clunies Ross St, Pemulwuy, NSW	**TOTAL DEPTH** 9 m bgl	**COORD SOURCE**
	DIAMETER 150 mm	**LOGGED BY** KY
COMPLETION	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 6 - 9 m bgl
COMMENTS		

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0		Asphalt	Asphalt	D			
					Fill	Fill - Silty Clay, dark brown / black, moist, medium - high plasticity, soft, inclusions of roots, organics, shales	D			
			3		Fill	Fill - Clay, orange and grey mottled, homogenous, damp, medium plasticity, firm, stiff, inclusions of shales and roots	D			
			5		Shale	Weathered Shale, grey with very fine sand.	SM			
			9			Termination Depth at:9.000 m.				

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