Parramatta City Council

Limited Construction Environmental Management Plan

‘Parramatta Civic Link – Block 3’, Horwood Place, Parramatta, NSW, 2150

10 October 2025

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Emily Baonza / Beau Dubois

Graduate / Principal Environmental Consultant

Simon Spyrdz

Associate Technical Director - Contamination

Suzanne Geerdink

Senior Project Manager

Prepared By:
Arcadis Australia Pacific Pty Ltd
Level 16
580 George Street
Sydney, NSW 2000
Tel: (02) 8907 9000

Prepared For:
Emily Forrest
Senior Design Manager
City of Parramatta
9 Wentworth Street
Parramatta NSW 2150

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Acronyms and Abbreviations

Acronym / Abbreviation	Definition
ACM	Asbestos-containing material
AF/FA	Asbestos Fines /Fibrous Asbestos
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
Arcadis	Arcadis Australia Pacific Pty Ltd
AS	Australian Standard
ASS	Acid sulfate soils
BH	Borehole
CIR	Contamination Interpretive Report
CLM Act	Contaminated Land Management Act 1997
CEMP	Construction Environmental Management Plan
CoPC	Contaminant of potential concern
DP	Douglas Partners Pty Ltd
DPIE	Department of Planning, Industry and Environment
DSI	Detailed Site Investigation
EPA	Environment Protection Authority
ENM	Excavated natural material
GSW	General Solid Waste
LAA	Licenced Asbestos Assessor
L-CEMP	Limited Construction Environmental Management Plan (Contamination)
mbgl	metres below ground level
mAHD	metres Australian Height Datum
NATA	National Association of Testing Authorities
NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
NSW	New South Wales
PCC	Parramatta City Council
PPE	Personal protective equipment
Pty Ltd	Proprietary Limited
POEO Act	Protection of the Environment Operations (POEO) Act 1997
RRE	Resource recovery exemption
RRO	Resource recovery order

Acronym / Abbreviation	Definition
SWA	Special Waste Asbestos
VENM	Virgin Excavated Natural Material
WHSP	Work Health & Safety Management Plan

1 Introduction

Arcadis Australia Pacific Pty Ltd (Arcadis) was engaged by Parramatta City Council (PCC) to prepare a Limited Construction Environmental Management Plan (L-CEMP) for the management of potential contaminated soils during the project identified as 'Parramatta Civic Link – Block 3'; located at Horwood Place, Parramatta, NSW, 2150 (the Site). The Site location is shown in *Figure 1*.

This L-CEMP is to form a sub-plan to the construction contractor's CEMP, to provide procedures and controls to be implemented during construction to manage human health and environmental risks from potential residual bonded asbestos insitu, as reported in Douglas Partners Pty Ltd (DP) (2025) *Report on Detailed Site (Contamination) Investigation, Parramatta Civic Link – Block 3, Horwood Place, Parramatta, NSW*.

This L-CEMP should be read in conjunction with the Arcadis (2025b) *Remedial Action Plan, 'Parramatta Civic Link – Block 3', Horwood Place, Parramatta, NSW, 2150,* which provides a remedial and validation strategy to address any contamination risks from asbestos which may remain onsite.

1.1 Project Understanding

The Site is currently a publicly accessible open space area, comprising of Horwood Place and a portion of George Street (south), Phillip Street (north) and Auctioneer Lane at the entry into the Eat Street carpark, adjacent to Horwood Place in the central west of the Site. The Site is predominantly covered in hardstand with localised exposed soils in garden beds with well-established trees. The Site is a vehicle and pedestrian accessible thoroughfare for the public, with commercial shops and carparks in the immediate surrounds.

Arcadis understands the Site is proposed to be redeveloped into a planned green pedestrian and cycle-friendly corridor designed to connect Parramatta Square and the Parramatta River. The proposed works are to include upgrades to the pavements, upgrades to the services (power, sewer, water, irrigation, communications) including stormwater and utility adjustments (approximately up to 1.0mbgl), and tree planting (up to 2mbgl), refer to the 50% design civil plans (subject to change at 100% final design) and concept end state plan in *Appendix A*.

1.2 Purpose and Objectives

The purpose of preparing this L-CEMP was to provide PCC and the construction contractor with procedures and controls to adequately manage potential harm to human health and the environment from any residual asbestos contamination in site soils during the proposed construction works.

The objectives of the L-CEMP are as follows:

- Define the potential human health exposure risks if asbestos is encountered during the proposed construction works,
- Establish the safeguards required to complete the construction works in an environmentally acceptable manner,
- Advise on material handling, storage and tracking requirements to effectively manage the movement of soils onsite.
- Provide contingency measures to manage any unexpected finds of contamination.

1.3 Scope of Work

The scope of work undertaken to address the project objective included:

- Review of previous reports and relevant legislative and regulatory requirements applicable to this L-CEMP,
- Review the proposed construction plans and ground disturbance activities,
- Preparation of this L-CEMP.

2 Site Identification

Table 2-1 provides a summary of the identification details for the Site. The Site location and layout are shown in ***Figure 1*** and ***Figure 2***, respectively.

Table 2-2-1 Summary of Site Details

Item	Details
Site Address	Horwood Place, Parramatta, NSW, 2150
Site Coordinates (GDA 94 UTM 56s)	Easting: 315393.12 mE Northing: 6256755.92 mS
Title Information	A portion of Phillip Street, Horwood Place, Auctioneer Lane and George Street Road Corridors (no registered lot or deposited plan) and Lot 102, in Deposited Plan 241030.
Site Area	~5,000 m^2
Local Government Area	City of Parramatta Council
Current Land Use	The Site is currently open space publicly accessible land with vehicle accessible roadway which is to be redeveloped into a pedestrian access only open space area. The Site is consistent with 'Open Space/Recreational C' land use, as defined in the NEPM (2013)
Zoning	E2 – Commercial Centre under the *Parramatta Local Environmental Plan 2023*
Surrounding Land Uses	North – High density residential apartments with commercial premises on the ground floor, then Parramatta River and low density residential beyond. South – A mix of commercial and high density residential, including properties under construction, then Macquarie Street, high density residential/commercial and Parramatta Station beyond. East – A mix of commercial and high density residential, then Smith Street, high density residential/commercial properties and Parramatta Wharf beyond. West – Commercial properties and Eat Street carpark, then Church Street and a mix of commercial and high-density residential properties beyond

3 Statutory Requirements and Guidelines

3.1 Key Legislation and Regulatory Framework Summary

This L-CEMP has been prepared in consideration of the following guidance and legislative documents:

- National Environment Protection Council (NEPC) (2013)*National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999*, as amended May 2023, (the NEPM).
- NSW EPA (2014b). *Waste Classification Guidelines Part 1 – 4 and* NSW EPA (2016)). *Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste.* (*Waste Guidelines).*
- NSW Government (1997a). *Contaminated Land Management Act 1997 No 140 (CLM Act 1997).*
- NSW EPA (2015). *Guidelines of the Duty to Report Contamination under the Contaminated Land Management Act 1997*. (*Duty to Report Guidelines*)
- NSW Government (2021). *State Environment Planning Policy (Resilience and Hazards) 2021.*
- NSW Government (2005). *Protection of the Environment Operations (Waste) Regulation 2005 (Waste Regs),*
- NSW Government (1997b). *Protection of the Environment Operations (POEO) Act 1997 (POEO Act 1997).*

3.1.1 State Environmental Planning Policy (Resilience and Hazards) 2021

A review of the requirements under the NSW Government (2021) *State Environmental Planning Policy (Resilience and Hazards)* should be undertaken to confirm of the proposed works are considered to be Category 1 or Category 2 works. Appropriate assessment should be completed in discussion with City of Parramatta Council, and notification provided to the appropriate consent authority for the works proposed to be completed.

3.1.2 Protection of the Environment Operations Act 1997

The proposed activities are not required to be licensed under the *POEO Act 1997* since the works do not involve the following:

- Treat otherwise than by incineration and store more than 30 000 cubic metres of contaminated soil originating exclusively from the site, or
- Disturb more than an aggregate area of 3 hectares of contaminated soil originating exclusively from the Site.

3.1.3 Protection of The Environment Operations (Waste) Regulation 2014

The regulations make requirements relating to non-licensed waste activities and waste transporting. The proposed works on the Site will not require a license Section 42 of the *Waste Regs* stipulates special transportation, reporting, re-use and recycling requirements relating to asbestos waste and must be complied with regardless of whether the activity is licensed. The requirements for the transportation of asbestos waste include:

- bonded asbestos material must be securely packaged at all times,
- friable asbestos material must be kept in a sealed container,
- asbestos-contaminated soils must be wetted down,

- all asbestos waste must be transported in a covered, leak-proof vehicle.

The following information to be given to the NSW EPA prior to the transportation of asbestos waste loads:

- source site details including address, name and contact details,
- date of proposed transportation commencement,
- name, address and contact details of disposal site, and
- approximate weight of each class of asbestos in each load.

The transporter of asbestos waste must ensure the following information is given to the disposal site before or at delivery:

- unique consignment code issued by EPA in relation to that load; and
- any other information specified in the Asbestos and Waste Tyres Guidelines.

The requirements relating to the off-site disposal of asbestos waste are as follows:

- asbestos waste in any form must be disposed of only at a landfill site that may lawfully receive the waste,
- when asbestos waste is delivered to a landfill site, the occupier of the landfill site must be informed by the person delivering the waste that the waste contains asbestos,
- when unloading and disposing of asbestos waste at a landfill site, the waste must be unloaded and disposed of in such a manner as to prevent the generation of dust or the stirring up of dust,
- asbestos waste disposed of at a landfill site must be covered with virgin excavated natural material or other material as approved in the facility's environment protection licence.

Section 48 of the *Waste Regs* requires that wastes are stored in an environmentally safe manner. It also stipulates that vehicles used to transport waste must be covered when loaded.

3.1.3.1 Waste Classification Guidelines

All wastes generated and proposed to be disposed off-site shall be assessed, classified and managed in accordance with this guideline. 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 (NSW EPA, 2022b). Immobilisations are only anticipated to be required with unexpected finds that cannot be retained on site and cannot be disposed directly offsite to a licensed facility.

3.1.4 Contaminated Land Management Act 1997

The CLM Act 1997 provides a legislative framework for contaminated sites across NSW, reinforcing the need to prevent contamination of land and groundwater while protecting human health exposure to any contamination. This act is relevant to the L-CEMP as the proposed construction activities may interact with potentially contaminated material. Under the CLM Act 1997 there is a duty to report contamination based on the factors summarised below.

3.1.4.1 Guidelines of the Duty to Report Contamination under the CLM Act 1997

The Duty to Report Guidelines details requirements when landowners and parties responsible for land contamination must report the contamination to the NSW EPA under the CLM Act. Section 2.1 of the guidelines states the requirement to notify contamination. Assessment of the site conditions during works should be considered if situations arise that change the current understanding of the Site conditions and contamination status. Section 2.1 of the the *Duty to Report Guidelines* states the requirement to notify contamination is generally in the following circumstances:

- *The level of the contaminant in, or on, soil is equal to or above a level of contamination set out in Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure 1999*

(NEPC, 2013) or other approved guideline value with respect to a current or approved use of the land, and people have been, or foreseeably will be, exposed to the contaminant.

OR

- *The contamination meets a criterion prescribed by the regulations.*

OR

- *The contaminant or a by-product has entered, or will foreseeably enter, neighbouring land, the atmosphere, groundwater, or surface water, and is above, or will foreseeably be above, a level of contamination set out in National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 2013) or other approved guidelines and will foreseeably continue to remain equal to or above that level.*

The concept of 'foreseeable' to determine the likelihood of the presence of contamination or potential routes for its migration, is based on advice provided in section 2.3.7. of NSW EPA (2015) and depends on the following considerations:

- The physical and chemical properties of the contaminants.
- The quantity of the contaminants.
- The location of the site.
- The geological and hydrogeological conditions (soil stratigraphy, depth to groundwater, and direction and rate of groundwater or surface water flow); and
- The potential fate and transport mechanisms.

3.2 Health and Safety Legislation and Codes of Practice

Other relevant health and safety legislation relevant to this L-CEMP includes:

- NSW Government (2011). *Work Health and Safety Act 2011,*
- NSW Government (2017). *Work Health and Safety Regulation 2017.*

Guidelines covering asbestos contaminated environments are issued by SafeWork Australia, the SafeWork NSW, and by the Australian Safety and Compensation Commission (ASCC). These guidelines are the most relevant and are recognised as such by all workers in the asbestos field. Human health asbestos exposure is generally covered by the requirements of the SafeWork NSW Codes of Practice and NOHSC Guidance Notes:

- SafeWork NSW (2014). *Managing Asbestos in or on Soil.*
- SafeWork NSW (2022a), *Code of Practice: How to Manage and Control Asbestos in the Workplace,*
- SafeWork NSW (2022b). *Code of Practice: How to Safely Remove Asbestos,*
- SafeWork Australia (2005)*Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [National Occupational Health and Safety Commission [(NOHSC): 3003* (2005)*].*

3.2.1 Asbestos Removal Regulations and Codes of Practice

If fill containing asbestos is identified, it will be managed in accordance with the following NSW legislation and SafeWork codes of practice:

- *Work Health and Safety Act 2011,*
- *Work Health and Safety Regulation 2017,*
- Safework NSW (2014). *Managing Asbestos in or on Soil.*
- SafeWork NSW (2022a), *Code of Practice: How to Manage and Control Asbestos in the Workplace,*
- SafeWork NSW (2022b). *Code of Practice: How to Safely Remove Asbestos,*

Excavation, onsite remediation and removal of friable asbestos contaminated soils are required to be conducted by a Class A Asbestos Removal licensed contractor. All airborne asbestos fibre monitoring works must be undertaken by a Certified Occupational Hygienist / Licensed Asbestos Assessor (LAA), in accordance with SafeWork NSW requirements.

Before starting the affected works, the Contractor is required to obtain a site-specific permit approving the asbestos works from SafeWork NSW. A permit will not be granted without a current licence, and the permit application must be made at least seven days before the work is due to commence.

4 Site Contamination Status

Bonded asbestos containing material (ACM) has been identified onsite within the shallow road base fill (<0.3mbgl) within test pit TL02 (refer to *Figure 3*) and stockpiled material generated from onsite archaeological test pits. Additionally, field forms have been provided by Endeavour Energy Network Management Pty Ltd for Arcadis to review, and a map of asbestos electrical ducts/conduits used for utilities around the Site has been provided in *Appendix E*, along with an updated utilities survey completed by Durkin Construction Pty Ltd. There is the potential for further asbestos to be identified during the proposed construction works, which is expected primarily bonded asbestos based on the findings of the DP (2025) *Report on Detailed Site (Contamination) Investigation, Parramatta Civic Link – Block 3, Horwood Place, Parramatta, NSW*, and discussed in the Arcadis (2025a). *Contamination Interpretive Report*, *'Parramatta Civic Link – Block 3', Horwood Place, Parramatta, NSW, 2150* (the CIR). If asbestos is identified, it is to be managed in accordance with the Arcadis (2025b) *Remedial Action Plan, Parramatta Civic Link – Block 3', Horwood Place, Parramatta, NSW, 2150* (the RAP).

The section below provides an overview of the potential human health exposure risks to asbestos and a summary of the differences between the types of asbestos, as defined by the NEPM and SafeWork.

4.1 Asbestos Identification and Exposure Risks

Potential asbestos impacted material may be identified during the proposed construction works. Asbestos-related diseases are mainly cancers of the lungs, cancers of the chest lining (mesothelioma) and asbestosis, which is a non-cancerous condition. The lower the level of exposure to asbestos the lower the level of risk. Asbestos only poses a risk to human health when elevated levels of asbestos fibres are inhaled. Exposure likelihood is related to the following:

- Potential for the asbestos material to release free fibres,
- Whether asbestos is covered/ contained and moisture level,
- Operational management / control measures and Personal Protective Equipment (PPE) applied to limit generation and inhalation of fibres.
- Non-friable asbestos in sound condition represents a lower human health risk than friable asbestos or damaged/crumbling non-friable asbestos. Both friable asbestos and damaged non-friable asbestos have the potential to generate or release free fibres which require management to minimise the release of asbestos fibres into the air where they can potentially be inhaled.

The definitions of friable and non-friable asbestos provided by Safework NSW are as follows below.

- **Friable Asbestos**: material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry and contains asbestos.
- **Non-Friable Asbestos**: material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound (also known as bonded asbestos).

The friable or bonded nature of asbestos fragment materials within the NEPM (2013)is defined as follows:

- **Bonded ACM (bonded Asbestos)** – ACM which is in sound condition and where the asbestos is bound in a matrix such as cement or resin (e.g. asbestos fencing and vinyl tiles). Bonded ACM refers to, in this instance, material that cannot pass a 7 mm x 7 mm sieve.
- **Fibrous Asbestos** – Fibrous Asbestos (FA) material includes severely weathered cement sheet, insulation products and woven asbestos material. This material is in a degraded condition such that it can be broken or crumbled by hand pressure.
- **Asbestos Fines** – Asbestos Fines (AF) includes free fibres, small fibre bundles and small fragments of bonded ACM that pass through a 7mm x 7mm sieve.

From a risk to human health perspective, FA and AF are considered to be equivalent to ‘friable’ asbestos in Safe Work NSW (2022). Some examples of potential asbestos which may be encountered are shown in the images below:

Image 1 Example of Bonded (non-friable) Asbestos Containing Pipe

Image 2 Example of Bonded (non-friable) Asbestos Fibre-Cement Material

Image 3 Example of Friable Asbestos Lagging

Image 4 Close up Example of Typical Asbestos Containing Fibre-cement Fragments with Dimples

5 Contamination Site Management Plan

This section provides the management measures to be implemented throughout construction to mitigate the potential for migration and or cross contamination of asbestos impacted soils and prevent harm to contractors and the public.

5.1 Register of Contacts

A register of contact details of stakeholders considered relevant to the project, is presented in the table below.

Table 5-1 Key Stakeholders and Register of Contacts

Role	Person	Organisation	Contact
Site Owner/Planning Authority	--	Parramatta City Council	(02) 9806 5050
Environmental Regulatory Authority	--	NSW EPA	131 500
WHS Regulatory Authority	--	SafeWork NSW	131 050
Principal Contractor	Courtney Rheault	Arcadis	(02) 8907 2602
Construction Contractor (the Contractor)	To be determined (TBD)	(TBD)	(TBD)
Contamination Advisor	Beau Dubois	Arcadis	(02) 8907 8303
Remediation Contractor	Luke Slechta	Ross Mitchell & Associates (RMA Group)	1300 798 808
RMA Group Remediation Consultants	Nerilee Edwards	Douglas Partners	(02) 9809 0666

5.2 Hours of Operation and Security

The hours of operation at the Site will be set in consultation with PCC, however, are expected to be:

- Mondays to Friday: 7:00 am to 6:00 pm
- Saturday: 8.00 am to 1.00 pm
- Sundays and Public Holidays: No Work Permitted

Security of the Site will be maintained for the duration of the works, with appropriate boundary fencing/barricades and access point locks.

5.3 Induction and Environmental Awareness Training

Prior to the commencement of project activities, all site personnel (including sub-contractors) will attend a site induction. The Site induction shall include an outline of the requirements of this L-CEMP, environmental awareness including guidance on the identification of suspected asbestos material and the responsibilities and accountabilities of all site personnel. The project environmental site rules will be included in the induction session. Training records will be kept verifying who has attended the training. Site specific training requirements will be developed by the Contractor, or their authorised representative and will include operational safety and first aid requirements.

The Unexpected Finds Protocol in Section 7.2 has been developed for the Site. As part of the Site induction personnel should be made aware of this UFP and the requirements should unexpected contamination finds be encountered.

5.4 Site Access

Access to the site will be restricted to authorised staff and contractors who have been inducted and appropriately trained for the works being undertaken. No access to or thoroughfare of the Site will be provided to the general public. Any specific requirements for construction management as set out by PCC will be adhered to.

Additional exclusions zones (refer to Section 5.6.1) will apply to asbestos removal works with only authorised and trained personnel allowed access. Any other restricted access zones will be managed as per their relevant control plans.

5.4.1 Fencing and Signage

Fencing will be installed and maintained around the perimeter of the Site and the remediation area will also be secured from entry outside of remediation works occurring. Exclusion zones will be fenced or barricaded as appropriate. Signage, including site contact details and contact details of the remediation contractor, will be erected near the site entry gate. The sign will be maintained by the construction contractor until completion of construction works.

5.4.2 Vehicle Access

Vehicle access to the Site will be limited to those directly involved with on Site works. All subcontractors must be inducted by the Contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances. Any vehicle transporting loose materials will do so under NSW Road and Maritime Services requirements, with the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to or from the site.

Vehicle and plant site access/egress will be managed to prevent soils being tracked onto roads and pathways external to the site (e.g. gravels, gabions, cattle grids). Soil will be broomed or washed off tyres/tracks prior to the vehicle or plant leaving the remediation work area. Broomed/washed soil will be managed onsite, depending on its likely contamination status.

In the event soils are tracked onto roads or pathways external to the site, these soils will be removed by sweeping and/or shovelling.

5.5 General Workplace Health and Safety

5.5.1 Safe Work Method Statement

All parties intending to undertake tasks in the remediation area/s will prepare a safe work method statement (SWMS) that documents:

- The task/s to be undertaken and hazards associated with undertaking those task/s.
- A risk assessment of each hazard, considering consequence and likelihood.
- Control measures to be implemented to mitigate identified risks.

- A re-assessment of each hazard, assuming control measure implementation, and showing a demonstrable decrease to the risk.

5.5.2 Personal Protective Equipment

The following personal protective equipment (PPE) will be worn (as a minimum) by all persons working on, or visiting, the remediation work area/s:

- Long sleeves and long pants,
- A high visibility vest (or clothing),
- Hard hat,
- Protective footwear (e.g. safety boots),
- Eye protection (e.g. safety glasses or goggles),
- Cut resistant gloves.

Additional PPE or respiratory protective equipment may also be required, subject to the control measures set out in the SWMS for the task. For details refer to *Section 4.5 of Code of Practice: How to Safely Remove Asbestos* (SafeWork NSW, 2022).

5.6 Asbestos Management Controls

If asbestos is encountered during construction, an environmental practitioner should be engaged to assess the soils, and remediation should be conducted in accordance with the RAP (Arcadis, 2025b).The following provides general procedures and controls to be implemented in consultation with by a LAA.

5.6.1 Exclusions Zones

All Site works being undertaken within known asbestos contaminated areas, should be considered 'exclusion zone(s)' with restricted access, to authorised personnel, with appropriate personal protection equipment. Exclusion zones will be maintained during the duration of the works and only removed post decontamination and issuing of the asbestos clearance certificate. Access to the exclusion zone will be determined and controlled by the Contractor, or their nominated representative. Only authorised and inducted persons are to be permitted in the restricted work area. The general public is not permitted on-site.

Appropriate warning signs and/or barriers are to be placed around the work area maintaining at least 3m buffer from the impacted area. For details refer to *Section 3.7* and *Section 4.2 - Indicating the asbestos removal areas* of *Code of Practice: How to Safely Remove Asbestos* (SafeWork NSW, 2022b)

All asbestos clearance certification is to be issued by an independent competent person or Licenced Asbestos Assessor (LAA) as appropriate.

5.6.2 Excavation Methodology

Excavation of asbestos impacted soils will be carried out by a suitably qualified and experienced contractor under supervision of a Class A (friable) of Class B (non-friable) asbestos removal contractor using an excavator / backhoe. Consideration of the requirements provided in SafeWork NSW (2022a), *Code of Practice: How to Manage and Control Asbestos in the Workplace* and SafeWork NSW (2022b). *Code of Practice: How to Safely Remove Asbestos*.

During earthworks, dust generation and distribution will be minimised through the following:

- Dampening the surface of the Site and working area with a water cart or similar control,
- Deploying covers over stockpiled or exposed soils, and
- Ceasing work in strong winds.

When loading vehicles/plant for haulage of the impacted soils, they will be loaded in a manner that there is no spillage or loss of containment of the asbestos material during transport. Spillage of material on the side or edges of the truck body will be removed prior to commencement of material movement.

At the completion of the excavation works, the final scrape of the works area will be done in a manner that prevents cross contamination of clean soils. This could involve the "backing out" of the works area by scraping soils on exiting the area ready for validation.

5.6.3 Asbestos Clearance Certificate

Following any asbestos removal works, prior to reoccupation and removal of any plant/vehicles or equipment from the asbestos works area, an Asbestos Clearance Certificate will be issued by LAA. Asbestos clearance should be undertaken in accordance with the requirements outlined in *Section 3.10 - Clearance inspection* SafeWork NSW (2022b). Soil validation sampling of the removal area will be required. Refer to the RAP for soil sampling requirements.

Clearance certificates will be required for:

- Any plant and equipment being removed from the exclusion zones
- The excavation area following completion of removal works and final scrape
- Haul road at completion of material movement
- Final placement area post installation of 0.1m clean fill layer.

5.6.4 Air Monitoring

Airborne asbestos monitoring will be undertaken on site by a suitably competent person during friable asbestos removal or handling. Monitoring during bonded asbestos removal, will be undertaken, subject to advice provided by the occupational hygienist appointed to the project.

Monitoring will be used to validate controls put in place to mitigate potential asbestos exposure.

Portable battery-operated air monitors will be placed in static positions approximately 1.5m above the ground surrounding the asbestos handling / removal area.

Analysis of monitors will be undertaken by a NATA-accredited laboratory and the results of analysis will be compared to the criteria presented in Table 5-2 and the appropriate action applied.

Table 5-2 Asbestos Air Monitoring Concentrations and Actions

Detected Concentration (fibres/mm)	Action
<0.01	Continue with established control measures
0.01 to 0.02	1. Review established control measures. 2. Investigate probable cause. 3. Establish additional control to mitigate further fibre release.
>0.02	1. Stop works. 2. Notify the relevant regulatory authority that work has ceased. 3. Investigate probable cause. 4. Extent the works exclusion zone. 5. Establish additional control to mitigate further fibre release. 6. Do not re-commence work until detected concentrations are at or below 0.01 fibres per millilitre.

5.6.5 Decontamination and Occupational Hygiene

The following decontamination procedure will apply to all persons existing the remediation work area/s:

- Cleaning of protective footwear, including removal of potentially contaminated material from the soles of the footwear,
- Washing of hands (including prior to eating, drinking or smoking).
- Decontamination will involve hosing / removal of soil from the tracks and bucket as far as reasonably practicable by the Principal Contractor, or their nominated representative.
- Tools used shall be hosed down / wiped clean with a damp cloth.
- Upon completion of works boots and clothing will be wiped down with a damp cloth. Disposable PPE will be disposed as asbestos waste.

Prior to any plant or personnel leaving the exclusion zone, decontamination must be undertaken. The vehicle wash-down area will be inspected and sampled along with the treatment area footprint. Upon receipt of the final satisfactory results from the footprint of the treatment area, the exclusion zone will be lifted, and the area dismantled. This will include removal of the wheel wash. Prior to discharge to Site the water will be sampled for the presence of asbestos. If the sample reports no detection of asbestos the water will be discharged to the Site. Following the discharge of the wheel wash water, the sediment retained at the base of the wheel wash will be sampled for the presence of asbestos. Positive detection will require the sediments to be disposed off-site, while a negative result would allow the sediment to be placed on-site.

Details for decontamination procedures can be found in *Section 4.6 – Decontamination* of SafeWork NSW (2022b). Procedures to be applied should include but not be limited to the details outlined in the tables below.

Table 5-3 Personal Decontamination

Personal Decontamination Procedures

Issue	Appropriate hygiene and decontamination assist with minimising worker exposure and the transportation of potentially contaminated materials from work areas to more sensitive environments.
Criteria	No contaminated clothing or PPE to leave the work areas.
Controls	1) Eating, drinking, chewing gum and smoking will be prohibited at all times whilst working in potentially hazardous areas. 2) All individuals working at the Site will pass through a decontamination unit or decontamination prior to exiting work areas. All outer work material will be physically removed from personnel prior to exiting work areas. 3) Remain in full PPE in work areas at all times. 4) Plant operators are to remain inside vehicle during operation with windows and doors closed and air-conditioning on recycle only or switched off.

Table 5-4 Vehicle Decontamination

Vehicle/Plant Decontamination Procedures	
Issue	Appropriate vehicle and equipment decontamination assists with minimising worker exposure and the transportation of potentially contaminated materials from work areas to more sensitive environments
Criteria	No contaminated vehicle or equipment to leave the work areas
Controls	1) Trucks and equipment will remain within the works area until the completion of works. Vehicles will not traffic between work areas and other areas of the Site, including lunch areas, car parks, etc. 2) a designated cleaning areas will be used to wash down all vehicles and equipment potentially coming into contact with contaminated soil leaving all remediation or works areas. 3) Vehicles will be cleaned by the asbestos removalist in the designated wash down area to remove all viable soil and debris. 4) Plant / equipment can only be removed from the works area following inspection and the issuing of a clearance certificate.

5.7 Surface Water and Soil Management

5.7.1 Surface Water Management

Surface stormwater generated from (or travelling through) the remediation works area, will be managed using relevant measures set out in the Blue Book to control stormwater runoff, prevent erosion, and avoid contamination of nearby water bodies. The adopted system must ensure that overflow and unexpected discharge from site should not occur.

Captured stormwater should be assessed prior to discharge from site or reuse. Reuse can include dust suppression onsite and vehicle wash down. Prior to dewatering, refer to the requirements outlined in Section 5.7.5.

5.7.2 Sediment and Erosion Controls

A sediment and erosion control plan will be prepared by the construction contractor, to suit the nature and staging of the construction works. Erosion and sediment control measures to be implemented during the remediation program will be in accordance with the Landcom (2004) *Managing Urban Stormwater: Soils and Construction, Volume 1* (the 'Blue Book'). The plan will show the location of sediment control devices as required based on remediation works to be undertaken. Control measures will be operated and maintained by the contractor, until completion of works.

5.7.3 Stockpile Management

If there is a requirement for surplus material to be temporarily stockpiled onsite, the following stockpile management procedures should be implemented:

- A stockpile register should be maintained detailing the supplier and source location of the stockpiled material, location identification (documented on a site plan), material type, estimated volume and date the material was stockpiled.
- Stockpiles of materials from different suppliers and/or different material types are to be segregated.

- Stockpiles of site won fill material excavated are to be segregated from site won excavated natural material.
- Stockpiled material of unknown contamination status and awaiting sampling must be bunded and kept segregated from other material until sampling and classification has occurred.
- Sediment and erosion control measures are to be implemented in accordance with the 'Blue Book' and the Site's Construction Environmental Management Plan (CEMP).
- Dust control measures are to be implemented including the use of material covers and/or dust suppressants on stockpiles and during transport of stockpile material.
- Site inductions are to be undertaken to ensure workers are aware of the requirements of stockpile management.

5.7.4 Haulage of Soils

Soil must not be tracked off the Site as a result of vehicle, plant and equipment movements. To limit the potential for tracking of soil off-site via vehicle, plant or equipment movement, the following controls should be implemented:

- Vehicles, plant and equipment on the Site will be kept to a practical minimum.
- Dedicated plant will be located within the proposed excavation/placement and haulage areas.
- No soils being transported are permitted to spill or leak from the transporting vehicle.
- Dedicated haul road with exclusion zones will be dedicated for the haulage and onsite relocation of asbestos materials.
- Plant will be subject to full decontamination and asbestos clearance prior leaving the leaving the exclusion zone

5.7.5 Excavation Pump Out and Groundwater

Should excavations require water to be pumped out, the water will be sampled and analysed by a suitably experienced environmental consultant.

If the laboratory analytical results are less than the relevant aquatic ecosystem freshwater levels set out in ANZG (2018), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. (Retrieved from https://www.waterquality.gov.au/anz-guidelines) then the excavation water may be discharged to the local stormwater system, subject to approval by the planning authority.

Typically, if the laboratory analytical results are greater than the relevant aquatic ecosystem 95% freshwater levels (ANZG, 2018), then other options for the excavation water will be considered, including:

- Used for dust suppression onsite,
- Assessment of proposed receiving waters, in the context of the contaminant concentrations found in the excavation water,
- Removal and offsite disposal by a liquid waste contractor; and
- Discharge to sewer under an approval obtained from the relevant sewerage infrastructure operator.

In the event the site requires dewatering, development consent from the relevant planning authority and/or approvals from the state water authority, will be obtained (if required).

5.7.6 Rehabilitation

Areas of the Site that become exposed as a result of remedial works, will be stabilised progressively, as remedial works are completed. Stabilisation methods will be maintained until such time as they are no longer required (e.g. vegetation becomes established and self-sustaining, or site development work commences).

5.8 Noise and Vibration Control

Noice and vibration controls will be detailed in the Contractors CEMP. The following is a general summary of basic controls:

- Plant and equipment being utilised for remedial works, will be fitted with noise attenuation devices (e.g. exhaust mufflers). Where possible, selection and use of reversing alarms will avoid standard tonal pulse alarms.
- Vehicle access roads will be designed to mitigate the need for vehicles and mobile plant to reverse during travel (e.g. creation of turning circles in the immediate vicinity of remediation work area/s).
- 'Offensive noise', as defined under the POEO Act (1997b), will not be emitted beyond the site boundary, during remedial works.
- Vibrations generated during remedial works will be managed to mitigate risk of damage to structural assets and risk of amenity loss to adjacent land occupiers. Advice from geotechnical, structural or vibration consultants will be sought, if required.

5.9 Dust Control

The environmental pollution statutes in NSW, which apply to dust pollution regulations on Site includes:

- *Protection of the Environment Operations Act 1997,*
- *Protection of the Environmental Operations (Clean Air) Regulation 2010,*
- *Environmental Planning and Assessment Act 1979,*
- *Local Government Act 1993.*

Dust generated from onsite activities should be monitored and assessed in accordance with NSW EPA (2016) *Approved Methods for Modelling and Assessment of Air Pollution in NSW*. Continuous monitoring of dust deposition levels should be undertaken at all boundaries of the Site in conjunction with real-time visual assessment to ensure effective management.

Dust suppression activities should be carried out to reduce fugitive emissions, and may include but limited to, water trucks spraying vehicle access roads or temporary sealing of roadways, spray grass could be sprayed in low traffic areas where final construction levels have been achieved. In addition, works can be restricted to areas which are capable of being managed by the current dust management practices during periods of winds with dry climatic conditions.

Consideration will be given to the following control measures, to mitigate risk of dust emissions migrating beyond the boundary of the remediation work area/s:

- Maintaining site access / egress stabilisation methods,
- Covering loads during site access / egressing,
- Covering stockpiles of contaminated soil that remain on site for greater than 24 hours,
- Use of water sprays in areas prone to dust generation, including excavation surfaces and fill material (during offloading and spreading),
- Establishing screens around the perimeter of remediation work area/s (e.g. application of shade cloth to fencing),
- Minimising soil excavation and/or handling during windy days; and
- Sweeping of accumulated soil on hardstand areas.

5.10 Odour Control

Should odours be detected at the site boundary during remediation works, monitoring of those odours may be undertaken, using methods[1] suited to the odour type, based on recommendations from Arcadis' onsite consultant (if required). These controls will be detailed in the Contractors CEMP.

5.11 Traffic Management

General project specific Traffic Management details will be provided in the Contractor's CEMP. If remediation is required, the Remediation Contractor will be required to conduct the following in general accordance with the Contractor's CEMP:

- Utilise suitable experienced and qualified traffic controllers (if required),
- Ensure vehicles exit the site in a forward direction,
- Arrange for receipt and dispatch of materials during approved remedial working hours (refer Section 5.15).

Traffic and haulage routes will be selected based on:

- Preference for state-controlled roads (as opposed to local roads),
- Compliance with traffic road rules; and
- Opportunities to mitigate noise, vibration, dust and odour impacts to properties/occupants adjacent to the site.

5.12 Emergency Preparedness and Response

An emergency assembly point will be established at an appropriate location as detailed in the Contractor's CEMP, and this location communicated to workers and visitors during the Site induction process. In the event an emergency situation arises, workers and visitors will assemble at this location (if safe to do so) and await further instructions from the site supervisor, project manager or emergency services. Spill control kits and fire extinguishers will be located at appropriate locations at the site.

5.13 Community Relations

Community relations will be covered under the Contractor's CEMP. During any remediation works, occupants of properties adjoining the Site and located immediately south and north across the roads from the Site, will be provided with a notification of intent to undertake remedial works on the Site, a minimum of two business days before commencing those remedial works.

A register will be maintained on site, for the recording of remedial works related communications from the community. Communication received from community about the remedial works, will be directed to the project manager in the first instance. The project manager will arrange for the communication to responded to, in accordance with arrangements agreed to between the Remediation Contractor, the Contractor and PCC.

5.14 Communication with Stakeholders

Communication will be maintained in accordance with PCC communication team plans throughout the work with key stakeholders of the project.

Communication will also be maintained throughout the work via:

- Daily pre-starts,
- Weekly toolbox talks,
- Information and training awareness sessions as required,
- Daily airborne asbestos fibre monitoring reports,
- Community consultation.

5.15 Waste Management

Wastes generated during remedial works will be removed from site for recycling / disposal, with reference to *Waste Guidelines* and the relevant provisions of the *POEO Act 1997*.

The remediation contractor will maintain detailed records of each load of waste materials generated during remedial works, including:

- The date and time the waste was removed from the site,
- The location the waste was generated from,
- The classification of the waste,
- The vehicle registration number of the waste transport vehicle,
- The quantity of the load of waste removed from site,
- Waste receipt docket from the waste receiving facility, and
- Weighbridge docket from the waste receiving facility.

6 Import Fill Protocol

6.1 Suitable Fill Material Classifications

Material that is suitable for importation to the Site will be limited to:

- Virgin excavated natural material (VENM) as defined by the POEO Act
- Excavated natural material (ENM) as defined by the POEO Act.
- Other material defined under relevant NSW EPA resource recovery orders and exemptions (RRO/RRE) (NSW EPA, 2022), which are NSW EPA approved for application to land and are considered unlikely to pose a risk to human health or the environment, based on the proposed industrial/commercial land use scenario.

Potential import fill material is to be assessed and classified in accordance with the requirements of the *POEO Act* and relevant NSW EPA RRO/RRE for each material type as outlined below.

Fill material must also be compatible with the required geotechnical engineering properties associated with its intended use (compaction, density, moisture content), the details of which fall outside the scope of this L-CEMP.

6.1.1 VENM

Schedule 1 of the POEO Act defines VENM as:

Natural material (such as clay, gravel, sand, soil or rock fines):

a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities and

b) that does not contain any sulfidic ores or soils or any other waste.

and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.

The NSW EPA has not specified particular criteria for VENM classification beyond those encompassed by this definition. As such, material may be classified as VENM on the basis of the site history, surrounding land use, environmental setting, and material inspection. The material must be found to be:

- Free from manufactured chemical or process residues.
- Free from acid sulfate soils (ASS), potential acid sulfate soils (PASS) and sulfidic ores.
- Free from any other waste.
- Free from naturally occurring asbestos.

The justification for a VENM classification must be clearly set forth in the waste classification report for the material.

It is an additional requirement of this FMP that VENM which is proposed for import to the Site must include an assessment for relevant contaminants of potential concern (CoPC) based on the source site's historical activities and surrounding land use. Sampling of in-situ VENM is to be undertaken in accordance with the sampling requirements as detailed in Table 2 of the NSW EPA (2022a) *Contaminated Land Guidelines: Sampling Design Part 1, Application Guidelines*.

6.1.2 Quarried VENM

VENM that has been legally extracted from a quarry may be imported to the Site without assessment when accompanied by appropriate certification and documentation from the supplier demonstrating material suitability.

6.1.3 ENM

The Resource Recovery Order under Part 9, Clauses 91 – 93 of the POEO Act define ENM as:

> *Naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:*
>
> *a) been excavated from the ground, and*
> *b) contains at least 98% (by weight) natural material, and*
> *c) does not meet the definition of Virgin Excavated Natural Material in the Act.*
>
> *Excavated natural material does not include material located in a hotspot; that has been processed; or that contains asbestos, ASS, PASS or sulfidic ores.*

For material to be classified as ENM, it must be assessed in accordance with the sampling methodology and density outlined in the ENM Order (NSW EPA, 2014b)and be found to meet the relevant classification criteria for ENM also set out in the ENM Order. This includes assessment and analysis of asbestos (presence/absence) for the same sampling rate required for all other contaminants as detailed in the ENM Order.

6.1.4 Other Resource Recovery Material

Resource recovery orders and exemptions allow for the beneficial and safe reuse of some materials without the requirements of the usual NSW laws that control applying waste to land (NSW EPA, 2022). Materials of this type typically include backfill sands and aggregates for service trenches, aggregate for retaining wall drainage, levelling sand and sub-base aggregates for use under slabs and foundations, as well as materials used for landscaping (i.e. topsoil, mulch, compost and drainage aggregates).

Orders and exemptions are only appropriate if the reuse:

- Is genuine, rather than a means of waste disposal.
- Is beneficial or fit-for-purpose.
- Will not cause harm to human health or the environment.

Resource recovery material accepted at the Site must be accompanied by appropriate certification and documentation demonstrating compliance with the conditions specified within the relevant RRO/RRE including material assessment requirements and record keeping, as well as compliance with Open Space use criteria and any Site-specific derived criteria.

6.2 Importation Procedures and Controls

An overview of the fill material importation process is shown in the Chart below.

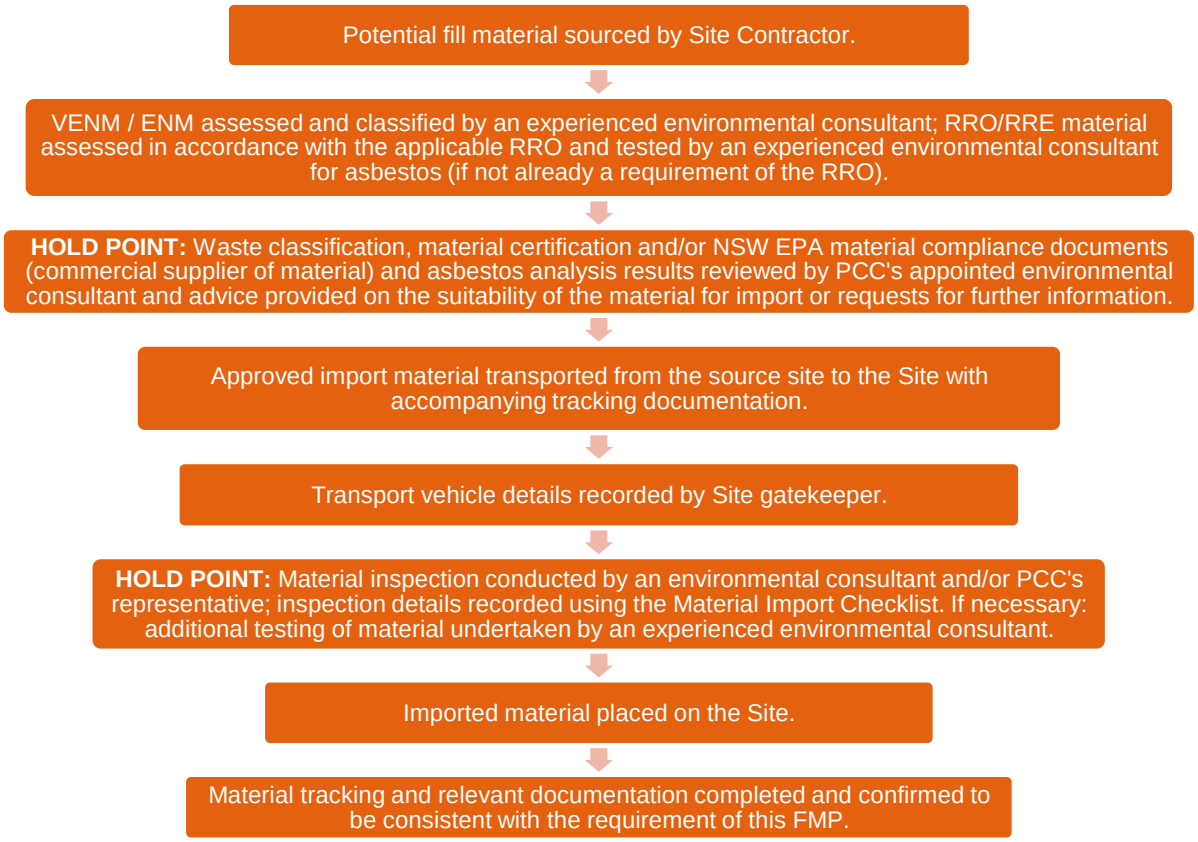

Chart 6-1 Material Importation Process

6.2.1 Pre-importation Material Assessment

All potential fill material is to be assessed and classified as VENM, ENM or as material covered by a relevant NSW EPA RRO/RRE, with additional assessment undertaken as described in Section 6 of this FMP. It is the responsibility of the Contractor to allow sufficient time for the assessment of material including sampling, testing and reporting. It is understood the management of costs associated with material assessment are the responsibility of the Contractor.

A waste classification, material certification and/or NSW EPA material compliance documents are to be provided to PCC's appointed environmental consultant for review. Documentation must clearly demonstrate compliance with the relevant requirements of the POEO Act, relevant EPA regulations as well as additional assessment requirements of this FMP.

HOLD POINT: *Material classification documentation is to be reviewed by PCC's appointed environmental consultant to assess whether the material has been classified in accordance with the requirements of the POEO Act, relevant EPA regulations and the requirements of this FMP.*

If the material is deemed suitable to be imported, and is classified as VENM or ENM, a source site inspection is to be undertaken by a PCC appointed environmental consultant to verify that the material at the source site is consistent with the material classification provided. The environmental consultant will provide advice on the suitability of the material for import or request further information prior to acceptance. Copies of all material classification documentation shall be supplied to the PCC Project Manager on request and included within the Validation Report.

The geotechnical suitability of the material and/or other suitability considerations are beyond the scope of any review undertaken by the environmental consultant.

6.2.2 Transportation of Material

Once approved for importation, the material is to be transported from the source site to the Site. It is the responsibility of the nominated transport company and material supplier to ensure trucks are cleaned prior to the acceptance of material at the source site to minimise the potential for contamination during transport.

The movement of all imported material is to be documented with the following information:

- Date.
- Material supplier details.
- Source site address.
- Transport company details.
- Truck and trailer registration details.
- Material description.
- Time that the load was picked up from the source site
- Time that the load arrived at the Site.
- Volume/weight of the load.
- Docket number.
- Location of material placement.

The information above should be recorded on a *Material Tracking Register,* with an example of expected information provided in *Appendix C*.

In addition, the Site gatekeeper must also maintain a record of vehicles entering and exiting the Site including vehicle registration, date and arrival/departure times. The security of the Site is to be maintained at all times, with perimeter fencing and a lockable gate to prevent unauthorised importation of material to the Site.

Tracking records are to be maintained by the Site Contractor receiving the material and be readily available for review by PCC's appointed environmental consultant and/or the Site Auditor, and the PCC Project Manager.

6.2.3 Imported Material Inspection and Supervision

HOLD POINT: The first load of all new, imported fill material should be inspected by an environmental consultant or PCC's authorised representative upon arrival at the Site. The environmental consultant is to assess for consistency between the source site material and material imported to the Site and undertake a thorough inspection of the material for evidence of contamination such as the presence of foreign materials including potential asbestos containing material, staining and/or odours.

If the material is considered suitable for the Site, then further importation may continue under the supervision of a PCC representative, with weekly attendance at the Site by an environmental consultant for a half-day (four hour onsite) material import inspection. If the material is suspected of being unsuitable, then the procedure in Section 7.4 should be implemented.

Documentation of all import material inspection and supervision should be recorded on a Material Import Checklist, with an example provided in Appendix C, and include the following:

- Name and position of the inspecting personnel.
- Date and time of the supervision.
- Details of the supervising personnel.
- Site location including the specific location for the placement of material.

- Material supplier details.
- Source site address.
- Transport company.
- Vehicle registration(s).
- Material description.
- Approximate volume/quantity of material inspected.
- Comments on the consistency of the imported material with the source site description.
- Evidence of contamination (if applicable).
- Photographic evidence.
- Placement location onsite.

6.2.4 Unsuitable Imported Material

Material arriving at the Site will be deemed unsuitable for use at the Site if any of the requirements of the FMP are not achieved including potential contamination being identified. Material suspected of being unsuitable is to be stockpiled, delineated/barricaded/fenced, and a clearly signposted exclusion zone established. The material is to be documented, photographed and assessed in accordance with the unexpected finds protocol outlined in Section 7.2, with additional assessment and testing undertaken to determine the suitability of the material for use at the Site.

In the event that the material is deemed to be unsuitable, the Principal contractor must be notified and the material returned to the supplier's source site or tested and classified for the purpose of offsite disposal to a licensed facility by an environmental consultant, in accordance with the NSW EPA (2014b) *Waste Classification Guidelines Part 1: Classifying Waste*. The unsuitable material is to be removed from the Site and disposed of lawfully at an approved landfill or resource recovery facility. The former footprint of the material is to be validated upon removal prior to work being undertaken in the area. Based on the contamination identified, suitable health and safety and environmental controls and monitoring should be implemented during handling of the material. This may require development of a management plan prior to undertaking the works. PCC will seek advice from the environmental consultant if this issue arises.

Depending on the identified cause of the issue, no further material is to be imported from the source site and/or transported by the engaged transport company until adequate confirmation that the issue has been rectified, subject to the satisfaction of PCC.

It is understood the management of expenses associated with additional testing, classification, validation and material removal will be the responsibility of the Contractor unless otherwise approved in writing by PCC.

6.3 Site-Won Fill Material

Arcadis has assumed onsite soils will be assessed and confirmed suitable to remain based on the proposed land use scenario, in accordance with the NEPM (2013). Existing material at the Site may be excavated and reused as fill material provided it has been validated for beneficial reuse. If PCC suspects contamination may be present resulting from onsite operations or unexpected finds of contamination, further assessment of potential contamination and the material suitability will be required. for Material assessment should be undertaken in accordance with the *Contaminated Land Guidelines: Sampling Design Part 1, Application Guidelines* (NSW EPA, 2022a) and the NEPM (2013) to determine the material suitability for beneficial reuse at the Site.

Material that is found unsuitable for beneficial reuse at the Site is to be classified in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014b). The unsuitable material is to be remediated, managed and/or disposed of lawfully in accordance with the preferred hierarchy of options for site clean-up as detailed in the NEPM (2013).

7 Contingency Plans and Unexpected Finds

7.1 Contingency Plans

There is an inherent degree of uncertainty associated with the importation of fill and particularly with the intended beneficial reuse of onsite material where unexpected subsurface conditions may be encountered. Contingency procedures developed to assist in the safe and efficient management of such situations, should they occur during site operations, are presented below.

Table 7-1 Contingency Plans

Scenario	Contingency
Unexpected, buried contamination or underground structures encountered (e.g. buried waste, underground sump/pit)	• Cease work. • Follow the Unexpected Finds Protocol outlined in Section 7.2 • If asbestos is identified, an Asbestos Management Plan is to be developed in accordance with Safework NSW. • A remedial action plan (RAP) will be required to be implemented to address the contamination, subject to approval by the Site Auditor.
Potential ASS encountered - recognised by the presence of pale-yellow mottles and coatings of jarosite	• Cease work. • Inspection to be completed by an environmental consultant and potential sampling to confirm the presence of ASS. • If confirmed, an Acid Sulfate Soil Management Plan is to be developed, and the ASS managed accordingly.
Chemical/fuel/oil spill	• Cease work. • Immediately contact the Site Manager. • Isolate the source of the spill if safe to do so. • Contain the spill using absorbent booms and/or a spill kit if safe to do so; use temporary measures such as an earth embankment if necessary. • If the spill cannot be contained quickly and safely at the source, install measures such as absorbent booms and earth embankments to protect nearby waterways (e.g. Parramatta River).
Worker exposed to chemicals	• Cease work. • Refer to the Site's Health and Safety Plan.
Excessive rain	• Cover exposed working areas, where possible, with plastic during off-shifts. • Inspect and maintain sediment controls and filter fencing. • Assess the need to temporarily suspend filling operations and associated earthworks in consultation with the Site Manager.
Excessive dust (e.g. due to high wind and dry material)	• Use water sprays and/or biodegradable dust suppressants to inhibit dust. • Cease dust-generating activities, such as unloading of materials, until conditions improve, and dust is being managed effectively.

Scenario	Contingency
	• If excessive dust proves to be an ongoing problem, install dust deposition gauges to monitor dust and the effectiveness of control measures.

7.2 Unexpected Finds Protocol

If unexpected finds are encountered at the Site during filling activities or associated earthworks, works should cease immediately, and the Site Manager notified.

Unexpected finds may include:

- Asbestos or large quantities of anthropogenic materials (>10%).
- Underground storage tanks/pits/sumps.
- Ingress of steady flow of groundwater.
- Odours emanating from soil or groundwater.
- Visible staining (e.g. dark colouring, discolouration) on soil surfaces.
- Sheen or visible contamination in or on the surface of groundwater.
- Contaminated import material.
- Material of unknown origin identified at, or imported to, the Site.

The nature, location and extent of the unexpected finds are to be recorded and photographed. The Site Manager is to notify and engage an appropriately qualified and experienced environmental consultant to assess the nature and extent of the unexpected find and to prescribe appropriate management requirements. Works may resume at the Site when the unexpected find has been satisfactorily investigated and any risks to human health and the environment managed.

A summary of the unexpected finds protocol is provided in the Chart below:

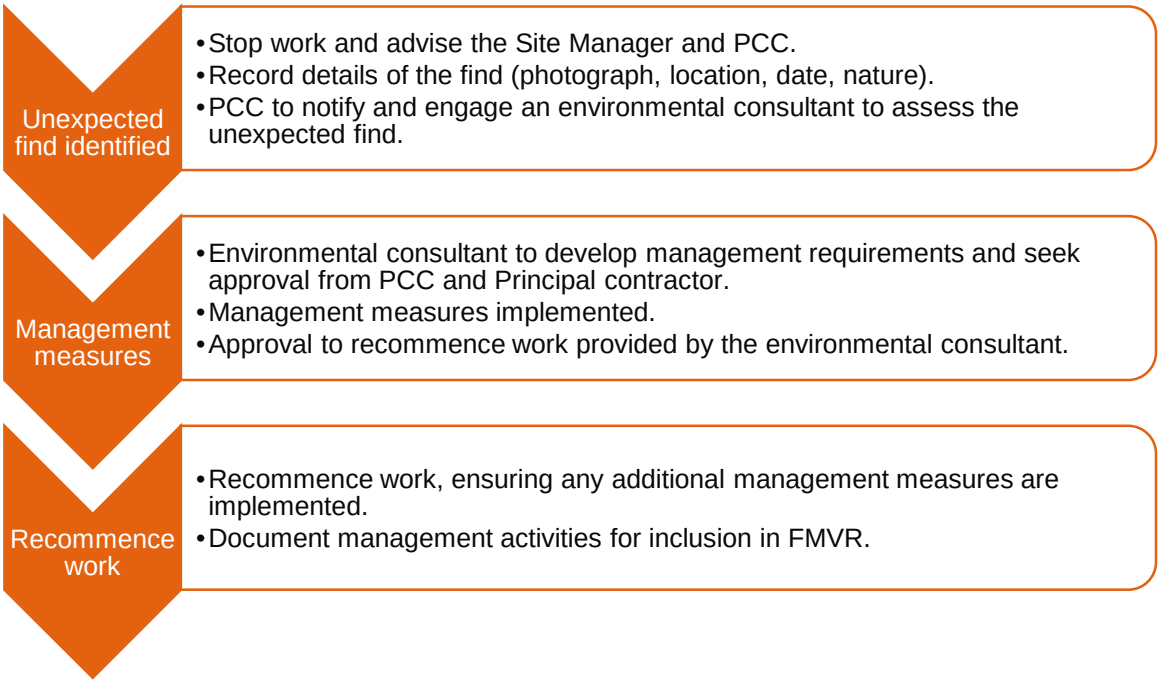

Chart 7-1 Unexpected Finds Protocol

Documentation of all unexpected finds should be recorded by the Site Manager on an *Unexpected Finds Form*, with an example provided in *Appendix B*, and include the following:

- Name and position/company of the person completing the form.
- Date and time at which the form was completed.
- Name(s) of the person(s) and position/company who identified the unexpected find.
- Name(s) of all person(s) onsite and in the vicinity of the unexpected find when identified.
- Site location.
- Specific location and extent of the unexpected find.
- Description of the unexpected find.
- Confirmation of action taken to isolate and clearly signpost the unexpected find.
- Photographic evidence of the unexpected find and action taken.

7.3 Record Keeping

All records pertaining to the importation and reuse of material should be retained for a minimum period of seven years. The record keeping requirements associated with the various aspects of material tracking are detailed in the table below.

Table 7-2 Record Keeping Requirements for Material Tracking

Material Classification Documentation	Material Classification Review Documentation	Material Tracking Register	Material Import Checklist	Unexpected Finds Form
Waste classification certificate / material certification including the following details: • Material source. • Material quantity. • Assessment methodology including sampling frequencies and test results (not required for quarried VENM). • Material description. • Material classification.	• Written evidence that the material classification has been reviewed by an environmental consultant in accordance with the requirements of the FMP. • Documentation including photographic evidence of the source site inspection and confirmation of consistency of the observed material with the material classification (VENM and ENM only). • Statement of the suitability of the material for use at the Site.	Material Tracking Register including the following details: • Date. • Material supplier details. • Source site address. • Transport company details. • Truck and trailer registration details. • Material description. • Time that the load was picked up from the source site • Time that the load arrived at the Site. • Volume/weight of the load. • Docket number. • Location of material placement.	Material Import Checklist including the following details: • Name and position of the inspecting personnel. • Date and time of the supervision. • Details of the supervising personnel. • Site location including the specific location for the placement of material. • Material supplier details. • Source site address. • Transport company. • Vehicle registration(s). • Material description. • Approximate volume/quantity of material inspected. • Comments on the consistency of the imported material with the source site description. • Evidence of contamination. • Photographic evidence.	• Name of the person completing the form. • Date and time at which the form was completed. • Name(s) of the person(s) who identified the unexpected find. • Name(s) of all person(s) onsite and in the vicinity of the unexpected find when identified. • Site location. • Specific location and extent of the unexpected find. • Description of the unexpected find. • Confirmation of action taken to isolate and clearly signpost the unexpected find. • Photographic evidence of the unexpected find and action taken.

8 The Contractor's CEMP

This L-CEMP is limited to the management of soils and potential contamination which may be identified during ground disturbance and potential remediation and will form a sub-plan to the construction contractor's main CEMP. Prior to commencement of construction on the site, a CEMP shall be prepared by the Construction Contractor, which documents the broad environmental monitoring and management measures required to be implemented during the construction related activities associated with the construction of the site. The CEMP should be prepared with reference to the 'Blue Book'.

An assessment of the proposed activities and the associated minimum elements required to be incorporated into the CEMP is provided in Table 8-1. The CEMP 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 8-1 Minimum Requirements of the CEMP

Section	Element Specific Minimum Requirements to be included in CEMP
Dust and Airborne Hazard Control	Real time airborne dust analyser monitoring. Asbestos air monitoring. Provisions for dust control based on monitoring results. Staging of asbestos works. Notification of surrounding buildings and implementation of control measures (e.g., closure of air vents or additional monitoring for asbestos fibres).
Flora and Fauna	As appropriate and advised by flora and flora consultant.
Heritage/Archaeological	In accordance with relevant heritage/archaeological studies.
Visual Impacts	Visual monitoring at site boundary Specific colour requirements for various controls/measures, including PPE (e.g., navy coveralls may be a suitable option in cooler conditions)
Emergency Response	As appropriate. Procedures required for spill incident response including material storage breach.
Noise Control	Hours of operation, consistent with the consent conditions. Boundary monitoring at commencement of work site activities with potential for environmental noise emissions. Potential noise monitoring at nearest receptors. Procedures for control and management of noise emissions, as appropriate (e.g., restricted hours).
Traffic	Controls on vehicle movements on public roads. Controls on transport in asbestos exclusion zones
Protection of Adjoining Structures	Procedures for management of potentially odorous works.
Odour Control	Soil and water management (stockpiling, site access, excavation pump out, reinstatement).
Handling of Contaminated Soil and Groundwater	Soil and water management (stockpiling, site access, excavation pump out, reinstatement).
Soil Storage/Placement Areas	Soil and water management (stockpiling, site access, excavation pump out, reinstatement). Bunding. Heavy vehicle/personnel decontamination.

Section	Element Specific Minimum Requirements to be included in CEMP
	Interim storage requirements for materials requiring later treatment. Site drainage requirements, incorporating clean/dirty areas and modifications to existing surface water and drainage controls beneath retained pavements. Monitoring as required.
Sediment Control	Bunding. Collection/treatment/handling impacted sediments.
Operation of Site Office	As appropriate.
Asbestos Works	Required notifications, permits, signage and exclusion zones. Required personal (e.g. Class A removalist, licences asbestos assessor). PPE and decontamination. Staging of asbestos and non-asbestos works.
Environmental Monitoring	Monitoring of dusts, noise, odour and fibres. Monitoring as required for vibration and water releases. Inspection checklists and field forms.
Environmental Criteria	Soil and water criteria as sourced from RAP.
Material Classification	As detailed in this RAP. Materials tracking, including QA/QC inspection and sampling.
Community Relations Plan	Refer to WHR project specific communication protocols, incorporating nomination of specific contact persons & details and requirements for communications/response register.
Incident Reporting	As appropriate, including standard form/checklist.
Security and Signage	Secure site perimeter. Site boundary signage. Asbestos exclusion zone signage.
EMP Review	As appropriate.
Training	As appropriate. Asbestos awareness training for all workers.
Contact Details	Company/personnel details, including names/phone numbers for: • Principal Contractor • Remediation Consultant • Remediation Contractor • OH&S Compliance • Environmental Compliance

8.1 Work Health and Safety Management Plan

A Work Health & Safety Management Plan (WHSP) shall be prepared by the Contractor prior to commencement of remediation works on the site. The Plan shall contain procedures and requirements that are to be implemented as a minimum during the works.

The objectives of the WHSP are:

- Ensure all regulatory requirements for the proposed works are satisfied,
- 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,
- 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,

Provision for contingencies that may arise while operations are being conducted at the Site.

9 References

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10 Limitations

The findings of this report are based on the Scope of Work described in this report. Arcadis performed the services in a manner consistent with the level of care and expertise exercised by members of the environmental profession. That standard of care may change, and new methods and practices of exploration, testing and analysis may develop in the future, which might produce different results.

No warranties, express or implied, are made. Subject to the Scope of Work, Arcadis' assessment is limited strictly to identifying typical environmental conditions associated with the subject property.

While normal assessments of data reliability have been made, Arcadis assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Arcadis, or developments resulting from situations outside the scope of this project.

Arcadis prepared this report for the sole and exclusive benefit and use of PCC and their contractors. Notwithstanding delivery of this report by Arcadis or PCC to any third party, any copy of this report provided to a third party is provided for informational purposes only, without the right to rely. Arcadis cannot accept any responsibility for any use of or reliance on the contents of prepared reports by any third party except where expressly agreed via an agreed and properly executed reliance letter. Subject to the terms of the reliance letter, Arcadis would disclaim all and any liability to any third person in respect of anything or in consequence of anything done or omitted to be done by that person in reliance, whether whole or partial.

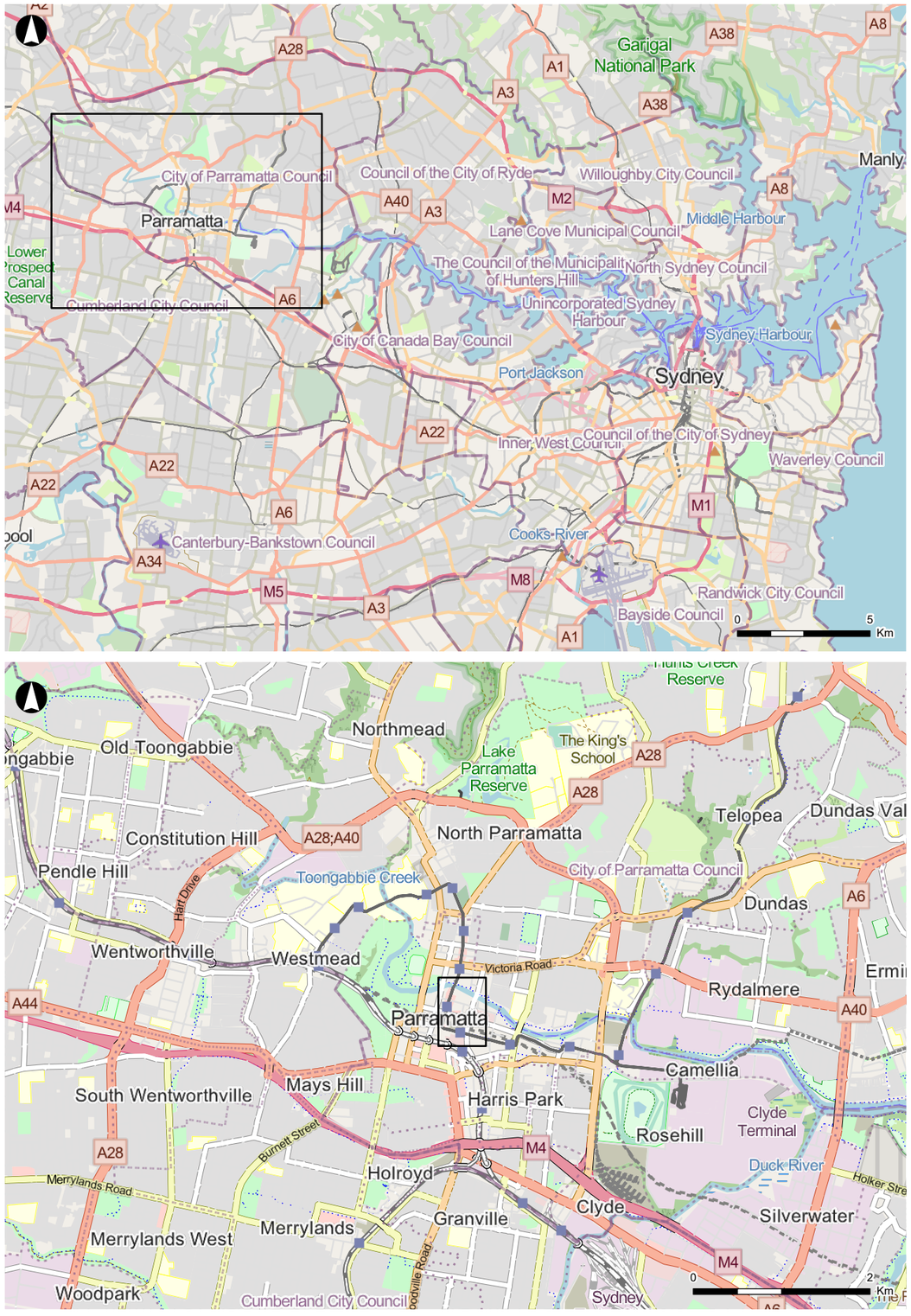
Information from samples collected by Arcadis or historical data reviewed relating to soil, groundwater, waste, air or other matrix conditions in this document is considered to be accurate at the date of issue. Surface, subsurface and atmospheric conditions can vary across a particular site or region, which cannot be wholly defined by investigation. As a result, it is unlikely that the results and estimations presented in this report will represent the extremes of conditions within the site that may exist. Subsurface conditions including contaminant concentrations can change in a limited period of time and typically have a high level of spatial heterogeneity.

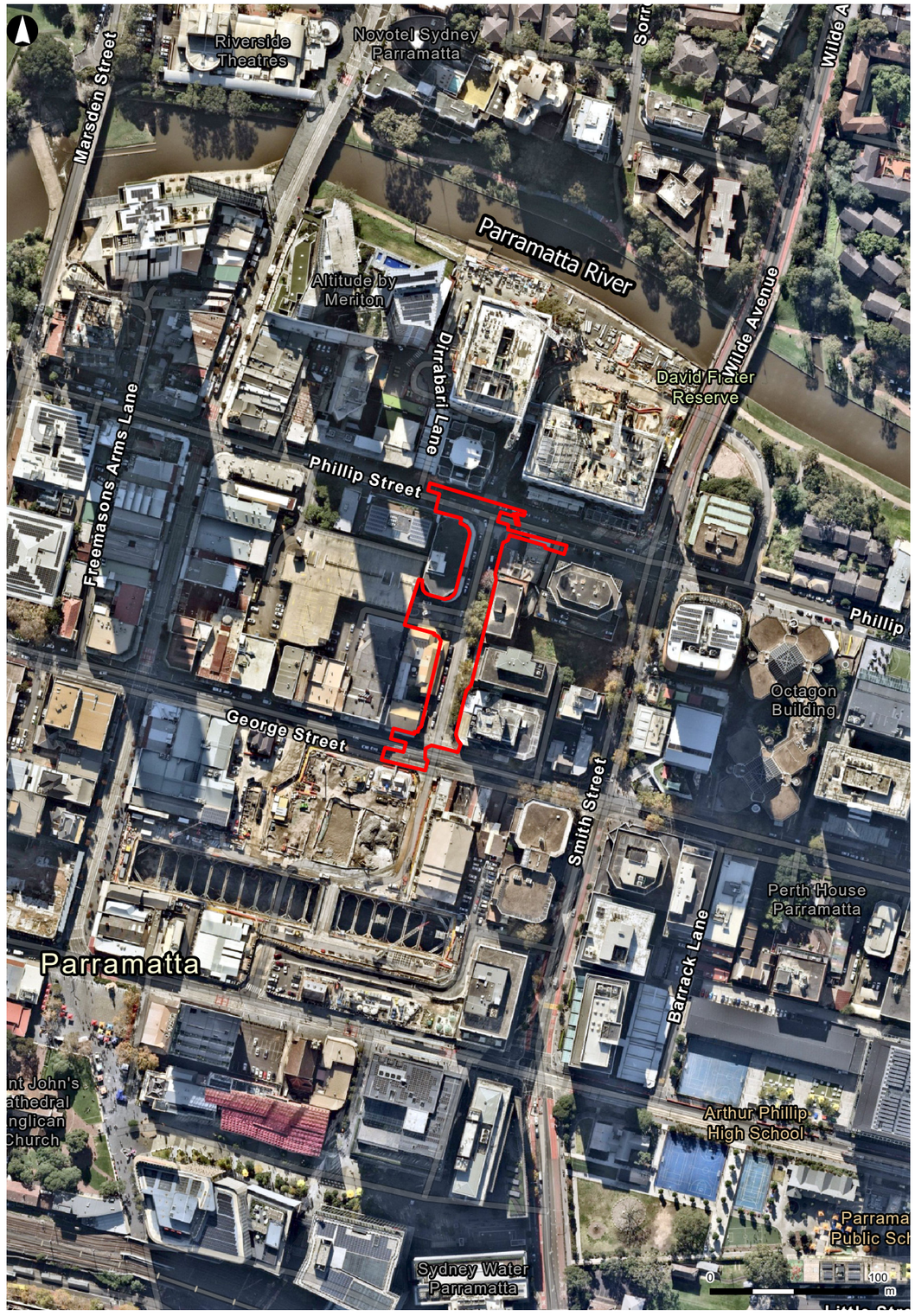
From a technical perspective, there is a high degree of uncertainty associated with the assessment of subsurface, aquatic and atmospheric environments. They are prone to be heterogeneous, complex environments, in which small subsurface features or changes in geologic conditions or other environmental anomalies can have substantial impact on water, air and chemical movement.

Arcadis' professional opinions are based upon its professional judgment, experience, and training. These opinions are also based upon data derived from the limited testing and analysis described in this report. It is possible that additional testing and analysis might produce different results and/or different opinions. Arcadis has limited its investigation(s) to the scope agreed upon with its PCC.

Figures

103072296 - Parramatta Civic Link - Block 3, Horwood Place





LEGEND

Approximate Site Boundary

CITY OF PARRAMATTA

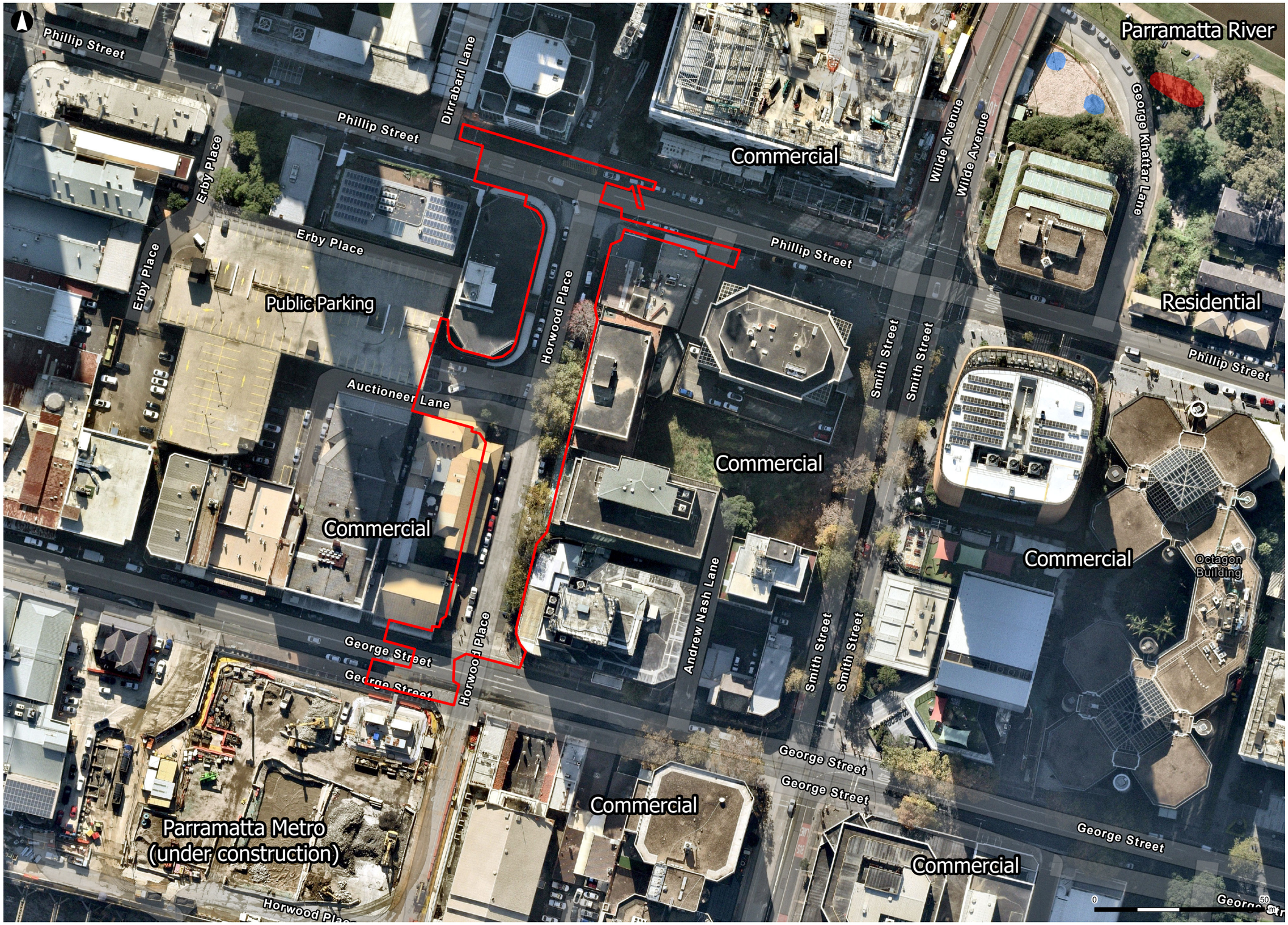
ARCADIS

ARCADIS AUSTRALIA PACIFIC PTY LTD
ABN 76 104 485 289
Level 16, 580 George St | Sydney NSW 2000
P: +61 (0) 2 8907 9000 | F: +61 (0) 2 8907 9001

Coordinate System: GDA2020 MGA Zone 56
Date issued: June 26, 2025
Topographic Service Layer Credits: OpenStreetMap
Imagery: Nearmap, captured on 28/05/2025

Figure 1 - Site Location

103072296 - Parramatta Civic Link - Block 3, Horwood Place



LEGEND

- Approximate Site Boundary
- Waste Stockpiles, EHOC (2025a and 2025b) - General Solid Waste
- Waste Stockpile, DP (2025a) - Special Waste Asbestos

1:1,100 at A3

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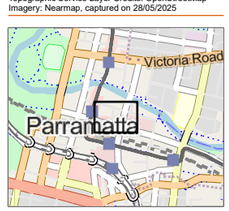
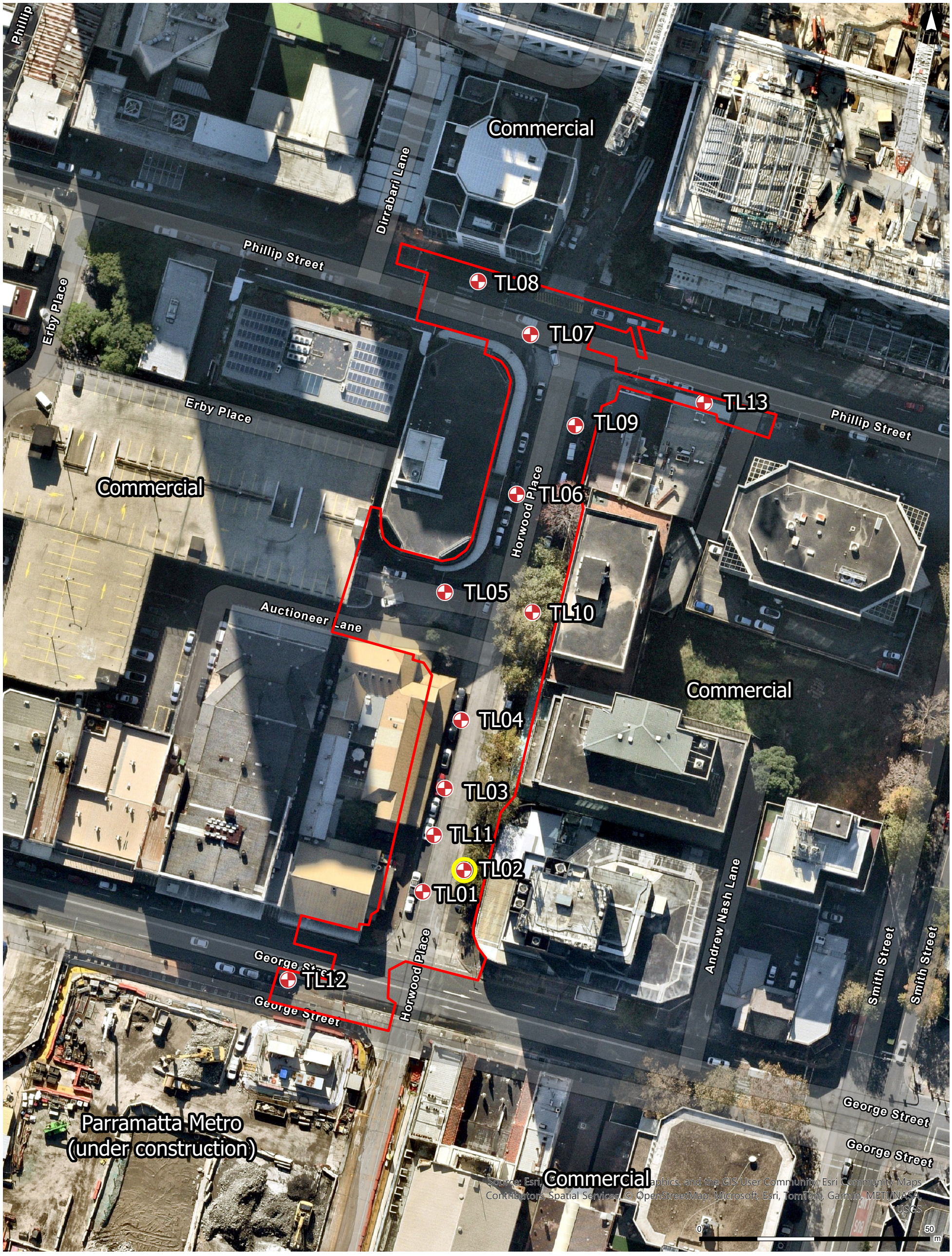


Figure 2 - Site Layout



LEGEND

- Approximate Site Boundary
- Douglas Partners (2025b) Sample Locations
- Asbestos Visually Detected

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P: +61 (0) 2 8907 9000 | F: +61 (0) 2 8907 9001

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Imagery: Nearmap, captured on 28/05/2025

1:800 at A3

ARCADIS

CITY OF PARRAMATTA

Figure 3 - Sample Locations and Asbestos Detected

Appendix A

Appendix A - Proposed Development Plan

General

- Site Boundary
- Awning overhead
- Provisional proposed lighting
- Grey precast seats

Walls & Edges

- WA01A
  Custom ribbon edge
  Brick, timber & steel elements
- WA01B
  Custom ribbon edge
  Brick, timber & steel elements
- WA01C
  Custom ribbon edge
  Brick, timber & steel elements
- New concrete kerb
- Existing kerb retained

Pavements & Surfaces

- Existing Asphalt
- COP Standard Paver
- Pavement Type
  PV01
  Civic Link granite paver 01 (veh)
- Pavement Type
  PV02
  Civic Link granite paver 02 (ped)
- Pavement Type
  PV03
  Stone setts (veh)
- Pavement Type
  PV04
  Timber planks

Softscape

- Softscape Type
  MP01
  Native Mix 'The Gully'
- Softscape Type
  MP02
  Native Mix Streetscape
- Softscape Type
  MP03
  Biofiltration swale
- TR
  Proposed tree

Client
City of Parramatta

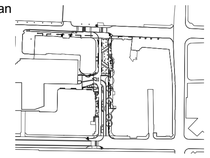
Project Team
ARCADIS
TERROIR

Project Name
Civic Link Block 3

Project No.
1066SYD

Address
Horwood Pl, Parramatta

Key Plan



Issue Log

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A	Concept Design Verification	AD/OM	16/11/2023

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All dimensions are in millimetres unless otherwise noted.
Do not scale from this drawing.

North

Phase
Schematic Design

Sheet Title
Concept Plan End State

Sheet No.
MCGC-SK-004

Rev
A

PHILLIP STREET

MAKE SMOOTH CONNECTION TO PHILLIP STREET WORKS DESIGN LEVELS.

PIT TO BE CONSTRUCTED ON EXISTING LINE. PIT TO INTERFACE WITH WATER SENSITIVE URBAN DESIGN TREATMENT MEASURES WITHIN THE GREEN SPINE.

MAKE SMOOTH CONNECTION TO PHILLIP STREET WORKS DESIGN LEVELS.

EXISTING PIT TO BE CONVERTED TO GRATED INLET PIT

PIT POTENTIALLY CONTAINS DIRECT CONNECTION FROM ADJACENT BUILDINGS. EXISTING PIT TO BE CONVERTED TO JUNCTION PIT.

ACCESS TO BUSINESSES TO BE RETAINED DURING CONSTRUCTION.

PIT POTENTIALLY CONTAINS DIRECT CONNECTION FROM ADJACENT BUILDINGS. EXISTING PIT TO BE CONVERTED TO JUNCTION PIT.

ACCESS TO BUSINESSES TO BE RETAINED DURING CONSTRUCTION.

FOR CONTINUATION REFER TO DRAWING PCL-AAP-MW-00-DRG-CI-0202

LEGEND

- HORWOOD PLACE WORKS SITE BOUNDARY
- PHILLIP STREET WORKS SITE BOUNDARY
- DESIGN CONTOURS
- EXISTING CONTOURS
- ARCHITECTURAL WORKS
- PROPOSED KERB INLET PIT
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NOTES

1. PAVEMENT MARKINGS AS PER NSW DELINEATION GUIDELINES.
2. SIGNS AS PER TfNSW GUIDELINES.
3. REFER TO DRAWING PCL-AAP-MW-00-DRG-CI-0251 FOR THE ROAD LONGITUDINAL SECTIONS.
4. REFER TO DRAWING PCL-AAP-MW-00-DRG-CI-0281 FOR THE ROAD CROSS SECTIONS.
5. STRATAVAULT CELLS TO BE DESIGNED AND DOCUMENTED AS PART OF LANDSCAPE ARCHITECTS DETAILS.
6. FOR DEMOLITION PLANS REFER TO LANDSCAPE ARCHITECTS DESIGN DRAWING MCGC_L_101 TO MCGC_L_103.
7. REFER TO DRAWING PCL-AAP-MW-00-DRG-CI-0361 FOR CIVILWORKS DETAILS.

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Surveyor: surveyplus, DURKIN

Architect: MCGREGOR COXALL

Client: CITY OF PARRAMATTA

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Original Issue Signatures			
Drawn	R. SANTOS	Original Size	A1
Designed	I. SUMMERS	Height Datum	AHD
Project Manager	G. DUNSTAN	Grid	MGA/20-56
Verified	M. KURTZ		

Project: PARRAMATTA CIVIC LINK
HORWOOD PLACE WORKS

Title: CIVIL WORKS PLAN
SHEET 1

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 16, 580 George Street
SYDNEY NSW 2000
ABN 76 104 485 289
Tel No: +61 2 8907 9000
www.arcadis.com/au

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Drawing No.: PCL-AAP-MW-00-DRG-CI-0201

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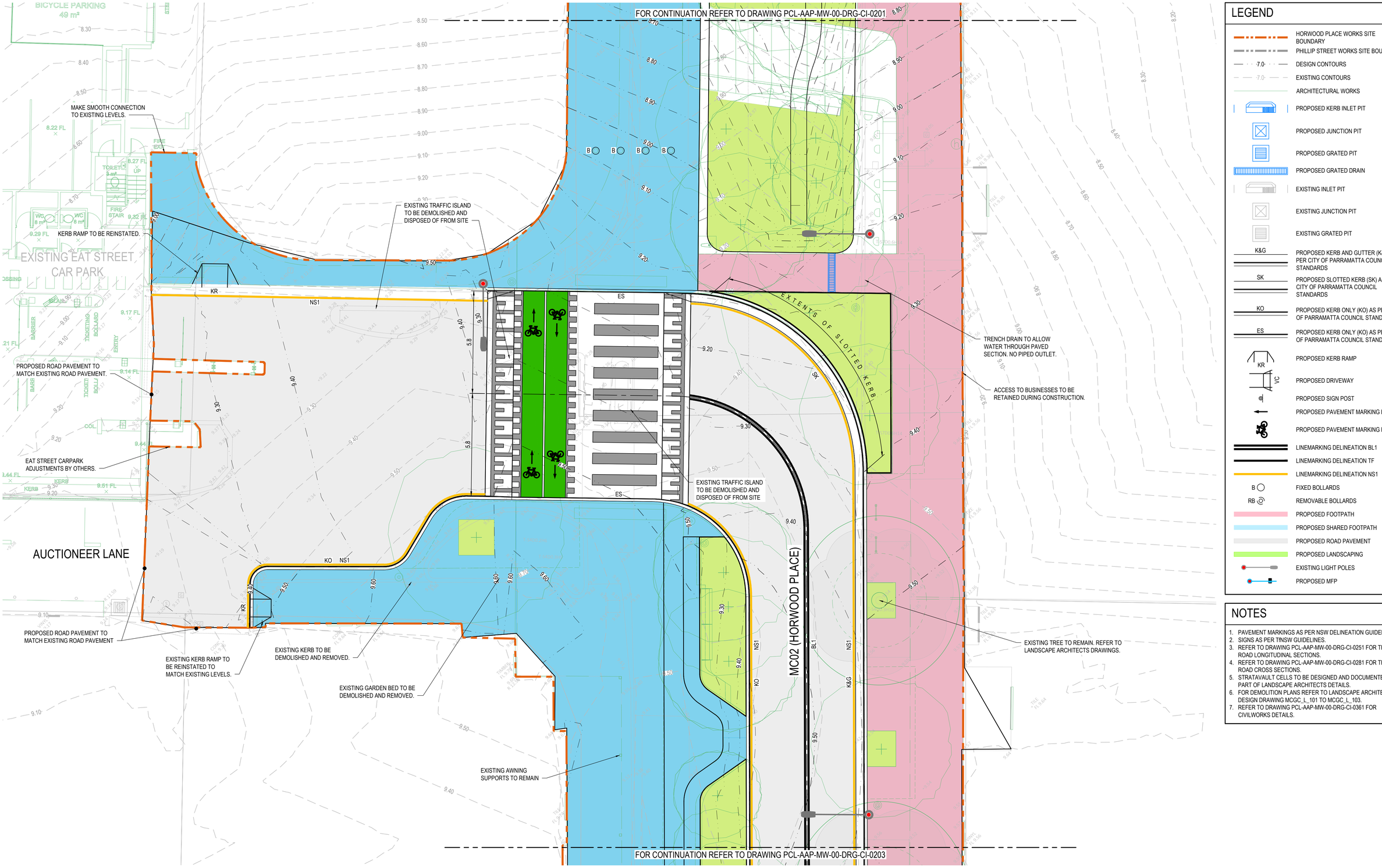

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Arcadis Australia Pacific Pty Limited
Level 16, 580 George Street
SYDNEY NSW 2000
ABN 76 104 485 289
Tel No: +61 2 8907 9000
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Issue: 01

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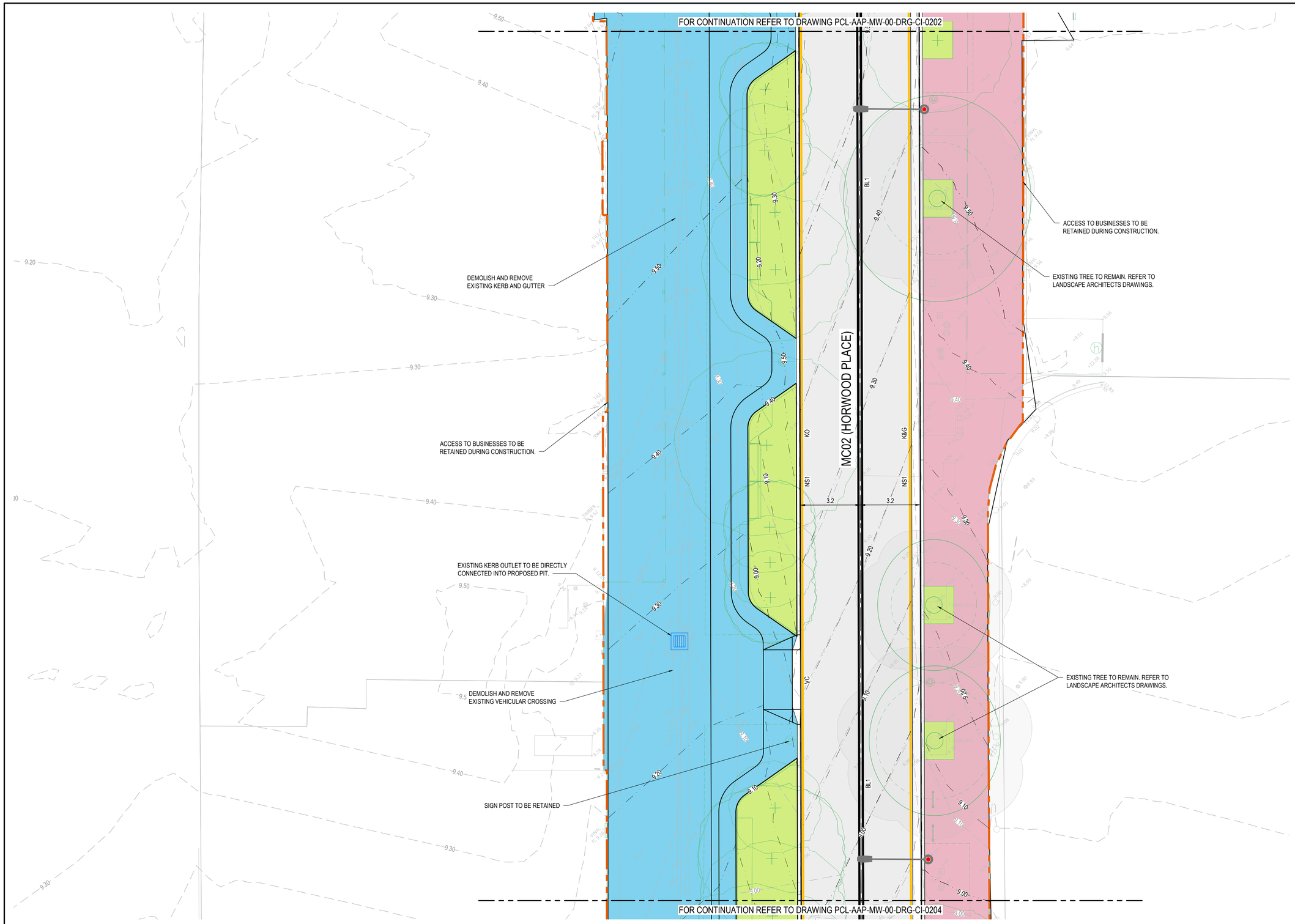

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Project Number: 30190380

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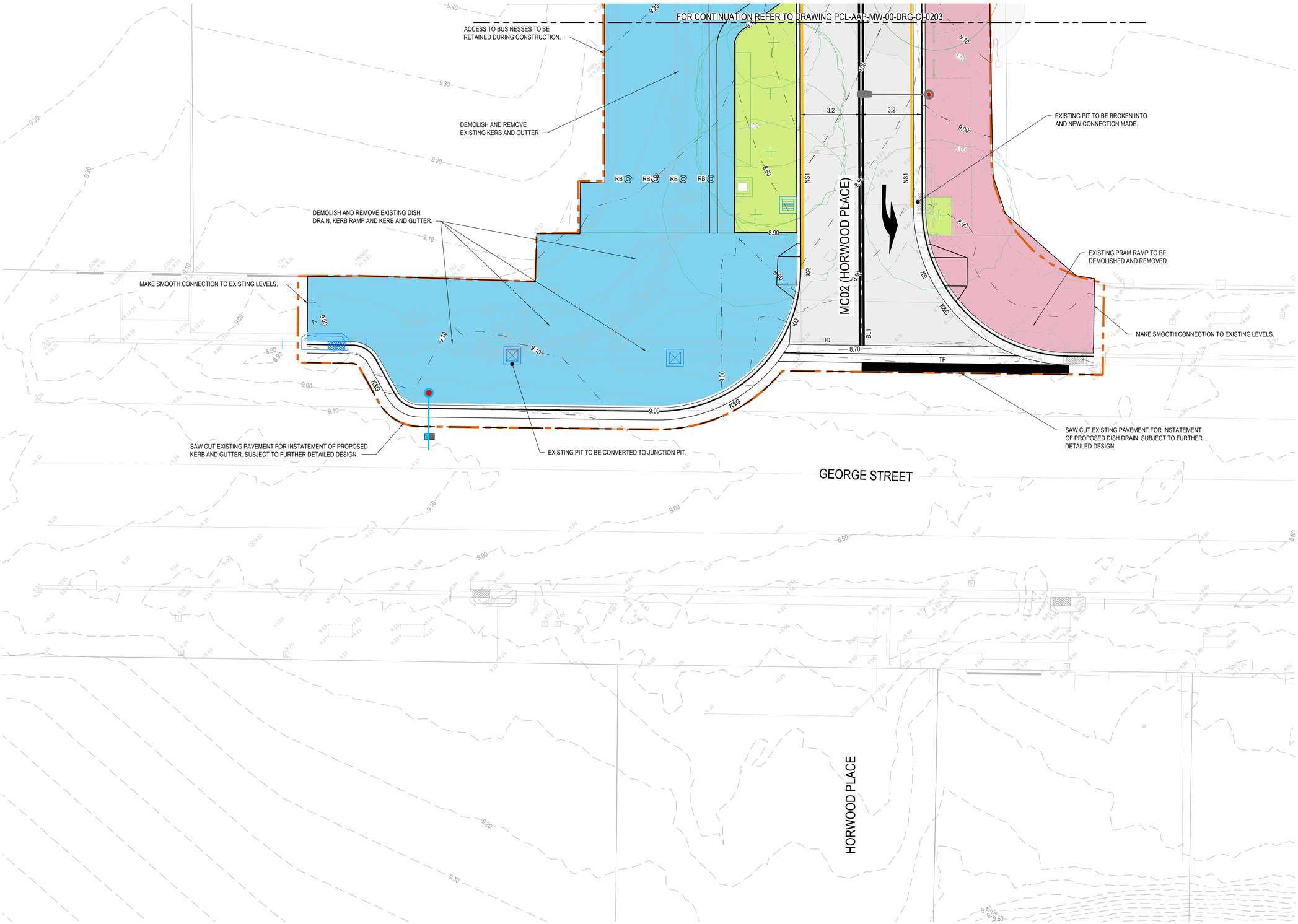

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NOT TO BE USED FOR CONSTRUCTION

Original Issue Signatures			
Drawn	R. SANTOS	Original Size	A1
Designed	I. SUMMERS	Height Datum	AHD
Project Manager	G. DUNSTAN	Grid	MGA/20-56
Verified	M. KURTZ		

Project: PARRAMATTA CIVIC LINK
HORWOOD PLACE WORKS

Title: CIVIL WORKS PLAN
SHEET 4

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 16, 580 George Street
SYDNEY NSW 2000
ABN 76 104 485 289
Tel No: +61 2 8907 9000
www.arcadis.com/au

Project Number: 30190380

Drawing No.: PCL-AAP-MW-00-DRG-CI-0204

Issue: 01

Date Plotted: 19 Feb 2025 - 04:30pm File Name: C:\Users\santosa4174\DC\ACCDocs\Arcadis ACC US\AAU-30190380-Parramatta Civic Link\Project Files\10_WIP\10_ARC_Civil_CI\Stage_MainWorks\DRG\PCL-AAP-MW-00-DRG-CI-0204-CivilWorksPlanSheet4.dwg

Appendix B

Appendix B – Unexpected Finds Protocol

UNEXPECTED FINDS FORM

(to be completed by Site Manager)

Name of person completing this form	
Date and time	
Project Name	
Site Address	
Unexpected Find Number	
This section to be completed in collaboration with personnel who encountered the unexpected find.	
Name(s) of personnel(s) who identified the unexpected find	
Name(s) of all personnel onsite	
General Location of Unexpected Find (e.g. Horwood Place, George Street, Phillip Street)	
Specific location and extent of unexpected find (provide GPS coordinates / Attach a mud map / location ID etc. to be as explicit as possible)	
Description of the unexpected find (include material type, approximate quantity identified etc.)	
Parties Notified	
Action Taken (e.g. controls)	
Unexpected find isolated and clearly signposted?	☐ Yes ☐ No
Photographic evidence taken/attached?	☐ Yes ☐ No
Name	
Signature	

[Mud Map of location and extent of Unexpected Find]

Appendix C

Appendix C – Material Tracking Register

MATERIAL TRACKING REGISTER

Date	Material supplier	Source site	Transport company	Vehicle registration	Material description	Volume / weight of load	Time of departure	Time of arrival	Docket number	Material placement location	Photographic evidence (Y/N)

MATERIAL TRACKING REGISTER

Date	Material supplier	Source site	Transport company	Vehicle registration	Material description	Volume / weight of load	Time of departure	Time of arrival	Docket number	Material placement location	Photographic evidence (Y/N)

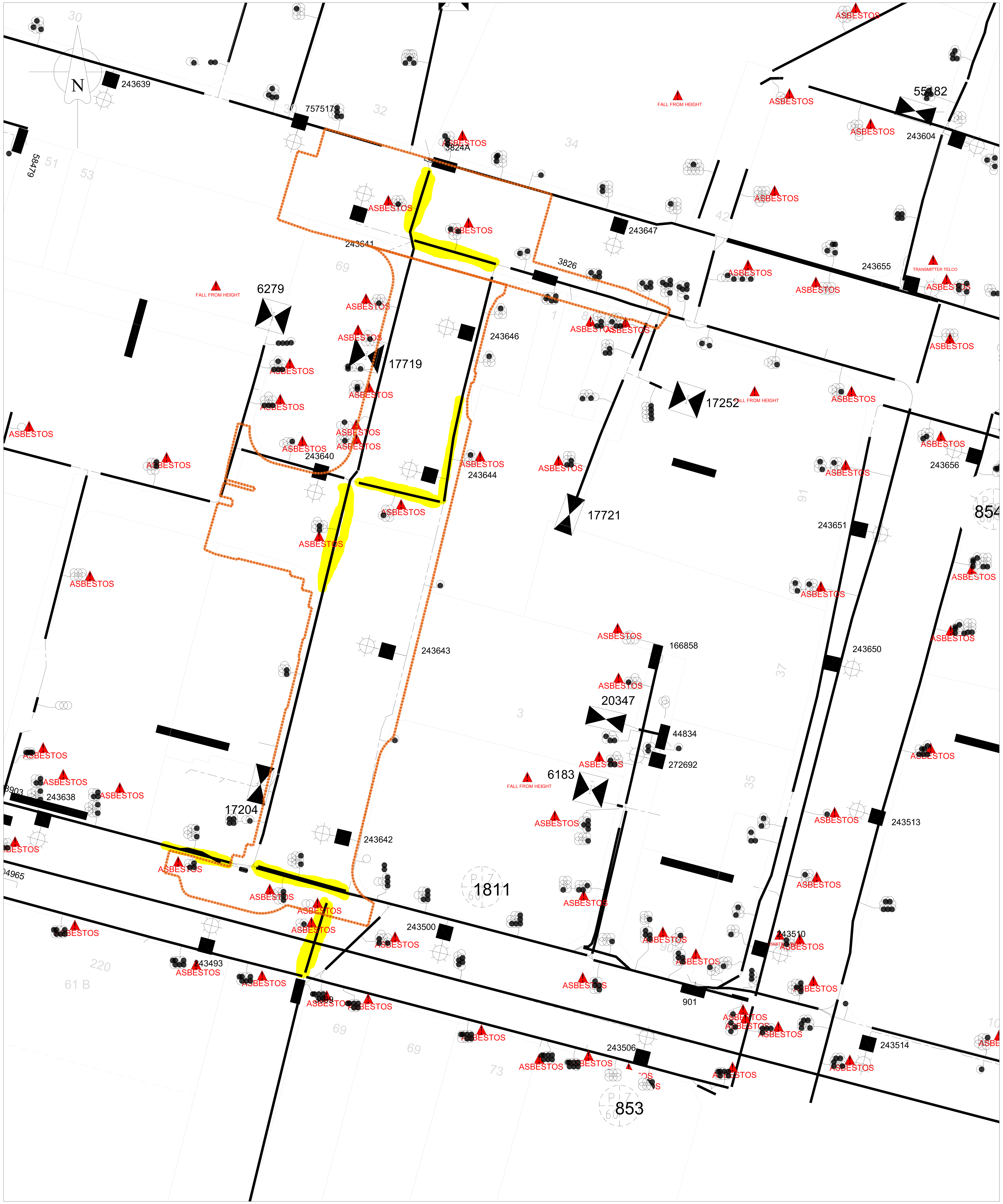
Appendix D

Appendix D – Material Import Checklist

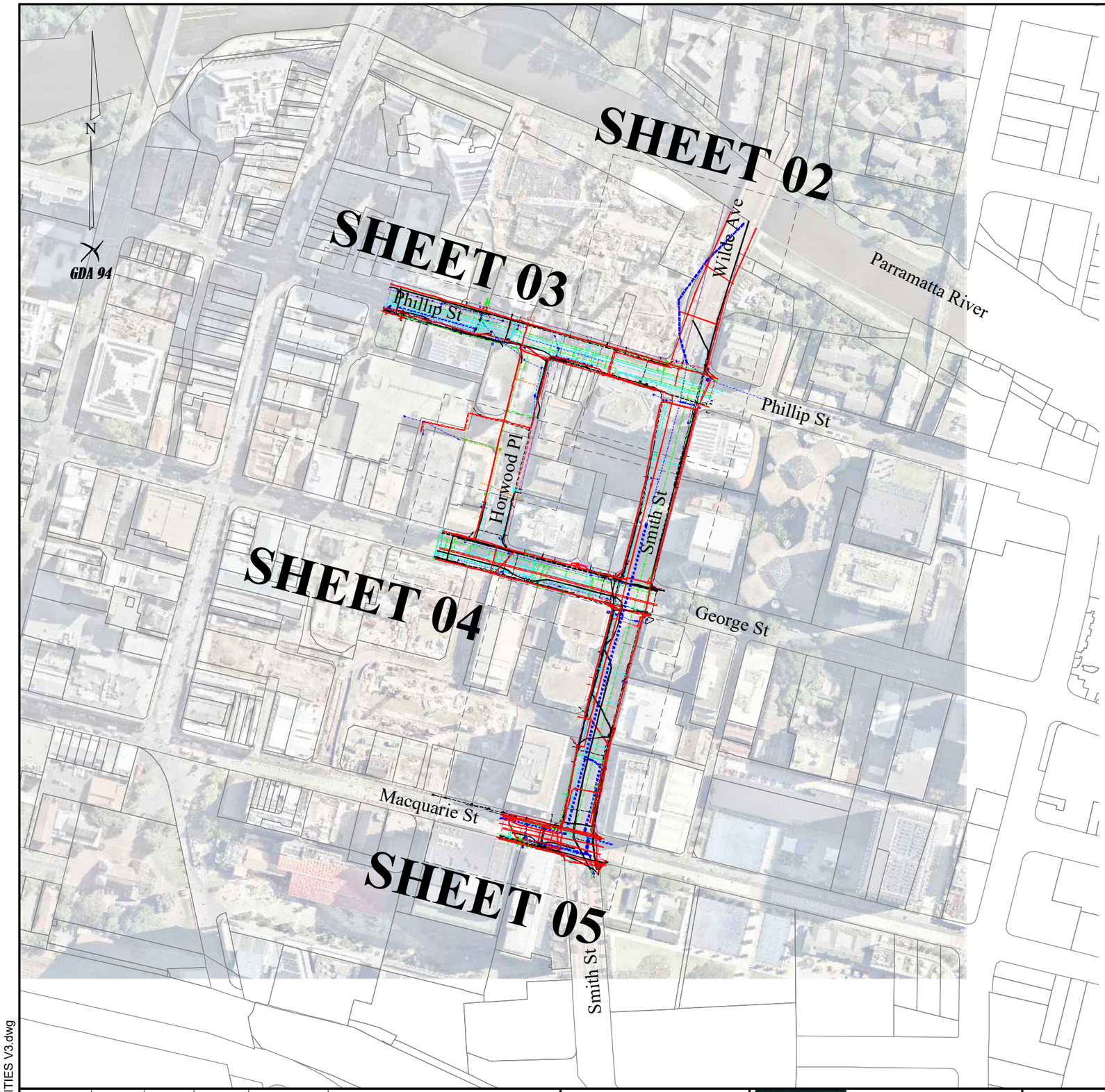
MATERIAL IMPORT INSPECTION CHECKLIST	
Name of inspecting personnel	
Title / position	
Date of inspection	
Time of inspection	
Site Address	
Placement of material location (e.g. Lot 9)	
Material supplier	
Source site address	
Transport company	
Vehicle registration(s)	
Material description	
Approximate volume/quantity inspected	
Consistency of material with source	
Evidence of contamination	
Other observations/comments	
Photographic evidence (Y/N)	
Map of placement location	

Appendix E

Appendix E – Survey and Asbestos Ducts


N
243639
757517
3824A
ASBESTOS
FALL FROM HEIGHT
55182
243604
243647
243641
3826
243655
TRANSMITTER TELCO
6279
17719
243646
17252
243640
243644
17721
243656
243651
166858
243643
243650
20347
44834
272692
6183
243638
17204
243642
243513
1811
243500
243510
243493
901
243514
243506
853

SITE PLAN



Electronic Subsurface Utility Information (SUI) detection techniques such as EM & GPR are influenced by Sub-Surface Utility (SSU) type & ground conditions. Best practice detection rates are 80-90% and depth accuracy ranges between +/- 300mm for 90% of readings with significant outliers for the remainder.

Quality levels (as per AS-5488-2019) are mentioned for each point. Please note that Quality Levels may vary for different points of a string. Please see the definitions of the Quality Levels for more information.

Telstra depths are indicative and to be used for design purposes only.
Telstra Guidelines regarding potholing must be followed prior to any construction works.
Telstra pipes, conduits and banks may contain optical fibres from other asset owners (e.g. Optus).

Electricity cables are not necessarily enclosed in conduits and are not necessarily covered with markers, tape or other indicators of their presence.

In some cases, depth and location of some pipe inside large chambers could not be measured accurately due to the shape of the chambers. In these cases, those specific points are marked as QL-B.

Storm Water assets are QL-A at SW Pits unless the pipes have not been accessible (pits full of dirt, rusted gatic lids, etc.) and QL-C between pits. Storm Water pipes have been shown where the judgment could be made based on the location of the SW surface features. In some areas, it's impossible to work out the alignments as the SW pipes bend and change directions. If the exact route of the SW pipes is needed for design purposes, a comprehensive drainage survey using CCTV techniques is required to confirm the alignments and connectivity.

"Measurements of all drainage and sewer pipes are to Invert Level, unless otherwise stated".
Not all of kerb outlets are shown in this drawing.

All diameters are in millimetres(mm) unless otherwise specified.
Potholing is recommended to confirm the depth & position of all utilities located.

DURKIN Utility location use BEFORE YOU DIG AUSTRALIA as one source if information only when locating utilities.

It remains the responsibility of the company and or individual conducting physical works to ensure an up to date version of BEFORE YOU DIG AUSTRALIA plans is consulted and available on site. Physical works may include, but not limited to, excavating, boring (horizontal or vertical) and drilling.

This plan shows a representation of a 3d utility model: UTIL D22868 UTILITIES V2 that should be viewed in a CADD Environment to interpret the 3d information.

This utility map has been generated for design purposes only. It needs to be printed in colour and at the specific page size noted in table on bottom of the page. Failure to do this will void all information indicated for this job.

Some utilities are shown outside of scope and these are shown as reference only. Other utilities may exist outside of scope and are not shown on this plan.

UTIL D22868 UTILITIES V3.dwg

DRAWING NUMBER	STATUS	VERSION	DATE	SPATIAL DATA PROCESSOR	AMENDMENT
D22868-UT-01	*FOR REVIEW*	V1	2023/07/13	CC	-
D22868-UT-01	*FOR REVIEW*	V2	2023/10/10	CC	add utility data - Auctioneer Ln

NOT TO SCALE

CO-ORDINATE SYSTEM: GDA 1994 (MGA Zone 56)
HEIGHT DATUM: AHD 71
FILE NAME: UTIL D22868 UTILITIES V2
DBYD ENQUIRY: BYDA DATE: 29-MAY-23
APPROVED: CR DATE: 13-JUL-23

DURKIN
DURKIN Construction Pty Ltd
3/50-52 Derby Street
Silverwater NSW 2128
Ph (02) 9712 0308
Fax (02) 9712 0308
www.durkinconstruction.com.au

UTILITIES:	MR/BS	DATE: 08-OCT-23
SURVEYED:	AF/MP/DH/MP	DATE: 08-OCT-23
COMPILED:	CC	DATE: 10-OCT-23
REVIEWED:	CR	DATE: 10-OCT-23

NOT FOR CONSTRUCTION

City of Parramatta Council

Civil Link Block 3, Parramatta, NSW 2150

UTILITY PLAN

DRAWING NUMBER: **D22868-UT-01**

DRAWING STATUS: **FOR REVIEW** VERSION: V2

No. of SHEETS: 05

SHEET No.: 01

ADJOINS SHEET 03

ADJOINS SHEET 04

Smith St

Wilde Ave

Philip St

GDA 94

N

Drainage
450RCP at 1680mm I.L.

Drainage
150RCP at 530mm I.L.

Drainage
150RCP at 520mm I.L.

Drainage
150RCP at 500mm I.L.

Drainage
150RCP at 480mm I.L.

Drainage
150RCP at 500mm I.L.

Drainage
100RCP at 470mm I.L.

Drainage
450RCP at 1030mm I.L.

Drainage
375RCP at 1050mm I.L.

Drainage
375RCP at 1460mm I.L.

Drainage
225RCP at 1010mm I.L.

Drainage
225RCP at 1300mm I.L.

end of trace; flexi rod stuck

end of trace; flexi rod stuck

end of trace; flexi rod stuck

Drainage
375RCP at 1130mm I.L.

Drainage
Ø375RCP at 1260mm I.L.

suspected alignment of stormwater; will need to get it CCTV to confirm alignment

possible location of buried pit

PIT I.L. 4010mm
CONFINED SPACE ENTRY REQUIRED

unable to flexi rod, need CSE

Drainage
Ø450RCP at 700mm I.L.

Drainage
Ø450RCP at 870mm I.L.

Drainage
Ø600RCP at 2030mm I.L.

Drainage
Ø450RCP at 1380mm I.L.

steel plate covered; no access

SW-D1 requires CSE to verify connection

Drainage
Ø525RCP at 2090mm I.L.

Drainage
Ø375RCP at 2090mm I.L.

Drainage
Ø525RCP at 2100mm I.L.

UTIL D22868 UTILITIES V3.dwg

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D22868-UT-01	*FOR REVIEW*	V2	2023/10/10	CC	add utility data - Auctioneer Ln

A3 SCALES
0 5 10 15 20
SCALE 1:500m

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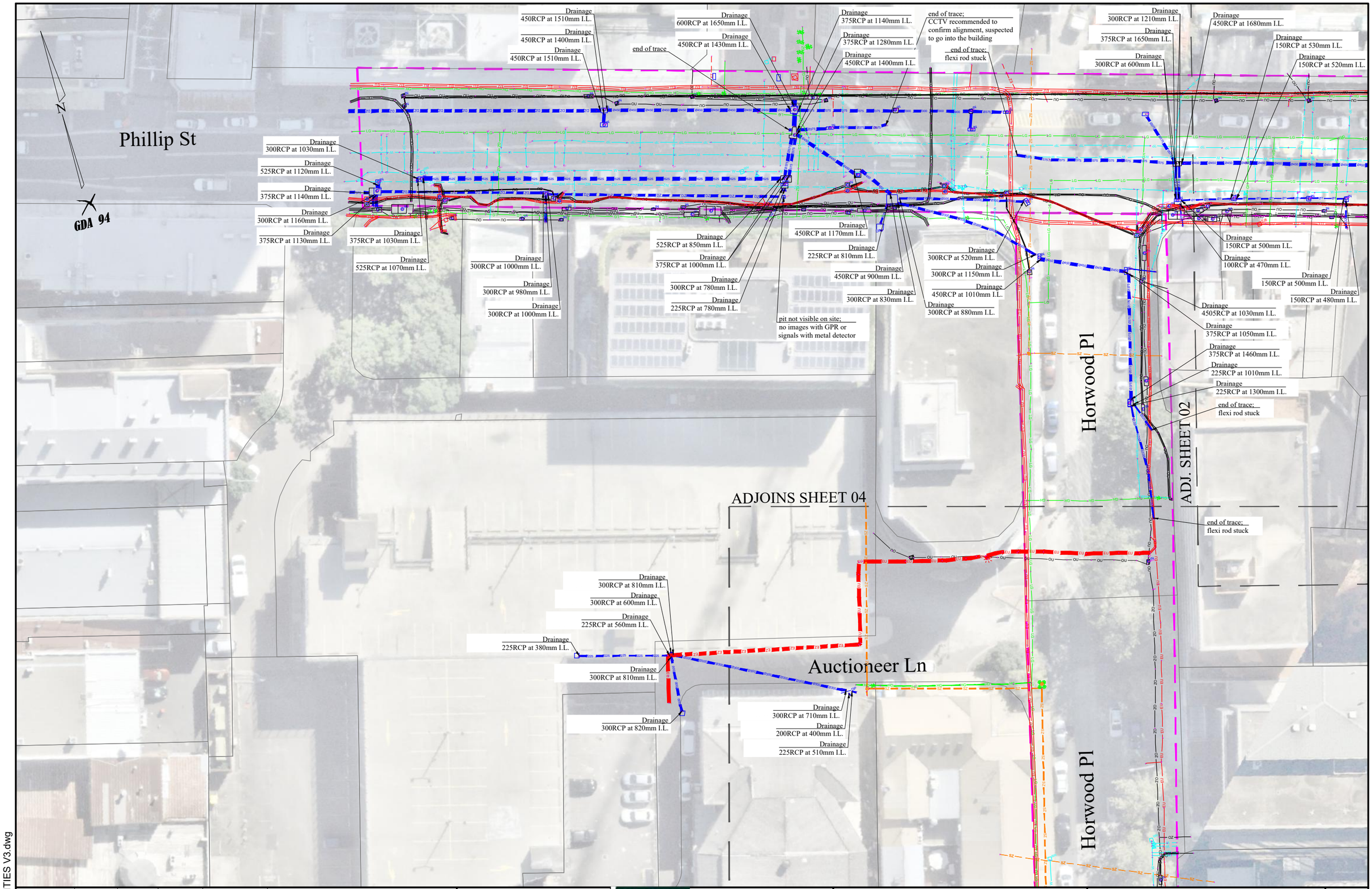
SHEET No. 02



UTIL D22868 UTILITIES V3.dwg

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UTILITY PLAN

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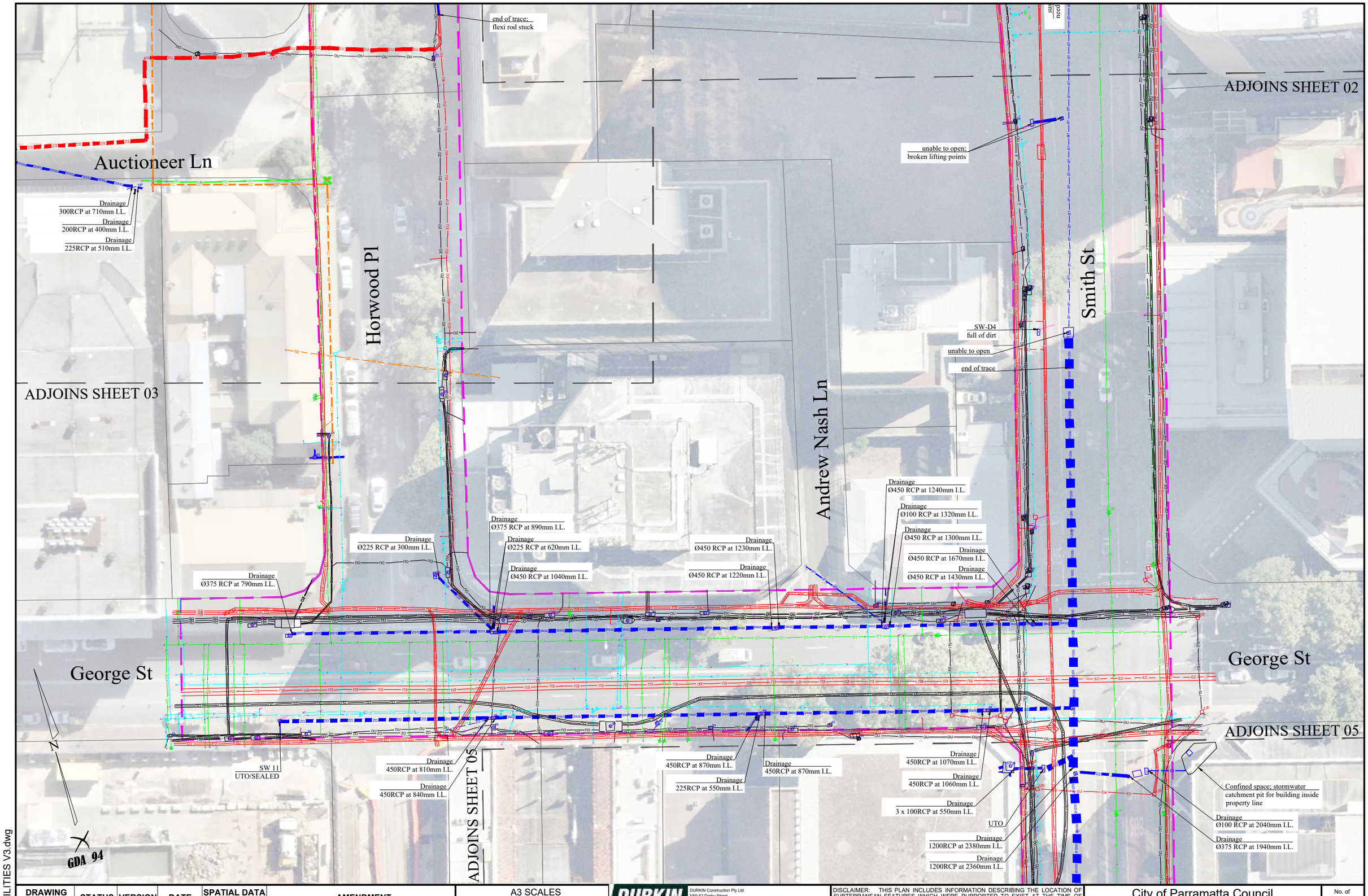
DRAWING STATUS: **FOR REVIEW** VERSION: V2

No. of SHEETS 05

SHEET No. 03



UTIL D22868 UTILITIES V3.dwg

DRAWING NUMBER	STATUS	VERSION	DATE	SPATIAL DATA PROCESSOR	AMENDMENT
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D22868-UT-01	*FOR REVIEW*	V2	2023/10/10	CC	add utility data - Auctioneer Ln

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0 5 10 15 20
SCALE 1:500m

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DRAWING STATUS: **FOR REVIEW** VERSION: V2

No. of SHEETS: 05

SHEET No.: 04

GDA 94

Macquarie St

Smith St

ADJOINS SHEET 04

Drainage
Ø225RCP at 1170mm I.L.

Drainage
Ø450RCP at 2270mm I.L.

Drainage
Ø225RCP at 1150mm I.L.

Drainage
Ø1200RCP at 3250mm I.L.

Drainage
Ø225RCP at 1250mm I.L.

Drainage
Ø375RCP at 2050mm I.L.

Drainage
Ø450RCP at 2270mm I.L.

Drainage
Ø525RCP at 2300mm I.L.

Drainage
Ø900RCP at 2320mm I.L.

Drainage
Ø525RCP at 2320mm I.L.

Drainage
Ø900RCP at 2350mm I.L.

CSE required; CCTV recommended; unable to trace

Drainage
Ø900RCP at 2950mm I.L.

Drainage
Ø225RCP at 1350mm I.L.

Drainage
Ø1200RCP at 3130mm I.L.

PIT FOD; no visible pipes

end of trace

Drainage
Ø1050RCP at 3250mm I.L.

Confined space entry required; unable to push flexi rod, gets stuck straight away; CCTV recommended

Drainage
Ø750RCP at 2640mm I.L.

Drainage
Ø600RCP at 2600mm I.L.

Drainage
Ø600RCP at 2420mm I.L.

Drainage
Ø600RCP at 2420mm I.L.

CSE required; CCTV recommended

Drainage
Ø600RCP at 2500mm I.L.

Drainage Culvert
1800W x 600H at 3400mm I.L.

Drainage
Ø1200RCP at 3300mm I.L.

Drainage
Ø1200RCP at 2590mm I.L.

Drainage
Ø100RCP at 810mm I.L.

Drainage
Ø1200RCP at 2480mm I.L.

Drainage
Ø900RCP at 2470mm I.L.

Drainage
Ø1200RCP at 2500mm I.L.

Drainage
Ø1200RCP at 2340mm I.L.

Drainage
Ø825RCP at 1390mm I.L.

Drainage
Ø225RCP at 2360mm I.L.

Drainage
Ø825RCP at 1630mm I.L.

Drainage
Ø255RCP at 2620mm I.L.

Drainage
450RCP at 870mm I.L.

Drainage
225RCP at 550mm I.L.

Drainage
450RCP at 870mm I.L.

Drainage
3 x 100RCP at 550mm I.L.

Drainage
1200RCP at 2360mm I.L.

Drainage
1200RCP at 2380mm I.L.

Drainage
450RCP at 1060mm I.L.

Drainage
450RCP at 1070mm I.L.

Drainage
Ø375 RCP at 1940mm I.L.

Drainage
Ø100 RCP at 2040mm I.L.

Confined space; stormwater catchment pit for building inside property line

UTO

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SCALE 1:500m

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No. of SHEETS: 05

SHEET No.: 05

UTIL D22868 UTILITIES V3.dwg

Durkin Legend

COMMUNICATIONS

- ITS Cable (IT)
- Optic Fibre (OU)
- Optic Fibre - Digitised (OZ)
- Telephone Line - House Connection (TY)
- Telephone Line (TN)
- Telephone Line - Digitised (TZ)
- Telephone Sump (TS)
- Telstra Single Concrete Pit (PTSP)
- Telstra Twin Concrete Pit (PTTP)
- Telstra Triple Concrete Pit (PT3P)
- Telstra Distribution Pillar (PTDP)
- Optic Fibre Pit (POFP)

ELECTRICITY

- Electric House Connection (EY)
- Electric Line Underground (EU)
- Electric Line Underground - Digitised (EZ)
- Electric Main Sump (EN)
- Electricity Cable Manhole (PEMH)
- Street Light Pole (PLPL)
- Power & Street Light Pole (PPLP)
- Electrical Junction Box (PEJB)
- Transformer Cabinet Centre (PETC)
- Electric Power Pole (PPPL)
- Electric Cable Marker (PECM)
- Power Service Pillar - Underground (PEUP)
- Electric Light with Outreach (LI)
- Electric Transformer Cabinet (EC)
- Electric Distribution Fuse Point (PEFP)

TCS

- Traffic Control Signal (PSGL)
- Traffic Signal Controller (PSCL)
- Traffic Signal Junction Box (PSJX)
- Traffic Signal Detector (PSDR)
- Traffic Light with Outreach (TO)

SEWER

- Sewer House Connection (SY)
- Sewer Main (SM)
- Sewer Main - Digitised (SZ)
- Sewer Manhole Cover (PSMH)
- Sewer Lamphole (PSLH)
- Sewer Vent Pipe (PSVP)

GAS

- Gas House Connection (DG)
- Gas Main Digitised (ZG)
- Gas Main High Pressure Pipeline (HG)
- Gas Main Low Pressure Pipeline (LG)
- Gas Manhole Cover (PGHL)
- Gas Valve Box (PGAS)
- High Pressure Gas Marker (PGHM)
- Gas Marker (PGPM)
- Gas Meter (PGMR)

WATER

- Water Main (WM)
- Water House Connection (WY)
- Water Main - Recycled (RM)
- Water Main - Digitised (WZ)
- Water Stop Valve (PWSV)
- Water Fire Hydrant (PWFB)
- Water Hydrant (PWHY)
- Water Tap (PWTP)
- Water Meter (PWMR)

DRAINAGE

- Box Culvert - Unspecified High (UB)
- Box Culvert - 150 High (B0)
- Box Culvert - 225 High (B1)
- Headwall Top (HW)
- Drainage Pipe - ØUnspecified (UU)
- Drainage - Digitised (DZ)
- Drainage Pipe - Ø225 (U1)
- Drainage Pipe - Ø300 (U2)
- Drainage Pipe - Ø375 (U3)
- Drainage Pipe - Ø450 (U4)
- Drainage Pipe - Ø525 (U5)
- Drainage Pipe - Ø600 (U6)
- Drainage Pipe - Ø750 (U7)
- Drainage Pipe - Ø900 (U9)
- Drainage Pipe - Ø1050 (V1)
- Drainage Pipe - Ø1200 (V2)
- Drainage Pipe - Ø1350 (V3)
- Drainage Pipe - Ø1500 (V5)
- Drainage Pipe - Ø1650 (V6)
- Drainage Pipe - Ø1800 (V8)
- Drainage Pit (DP)
- Gully Pit (IP)
- Gully Pit Point (PGUL)
- Kerb Inlet (KI)

MISC

- Bore Hole (PBHX)
- Gatic Cover Lid
- High Pressure Oil Pipeline (HO)
- High Pressure Oil Pipeline Mark (POHM)
- Unknown Surface Feature (PUSR)
- Unidentified Pipeline (UP)
- Miscellaneous Structure (OM)

DURKIN Definition & Abbreviation

B 600	Quality Level (as per AS-5488-2019) & Depth
UTT	Unable To Trace
UTL	Unable To Locate
UTO	Unable to Open
FOD / FOW	Full of Dirt/ Full of Water
EOT	End Of Trace
NGMV	No Gas Meter Visible at Locating Time
NWMV	No Water Meter Visible at Locating Time
PN	Property Number
DBYD	Dial Before You Dig
	Flow Direction
	Extent of Potholing Trench
	Approx. Extent of Utility Investigation

PIPE MATERIAL

CICL	Cast Iron Cement Lined
PVC	Polyvinylchloride
SGW	Salt Glazed Ware
VC	Vitrified Clay
DICL	Ductile Iron Cement (mortar) Lined
SCL	Steel Cement (mortar) Lined
oPVC	Polyvinylchloride - Oriented
uPVC	Polyvinylchloride - Unplasticised
EW	Earthenware
AC	Asbestos Cement
RCP	Reinforced Concrete Pipe
GI	Galvanised Iron
SCL IBL	Steel Cement Lined Internal Bitumen Lined
NB GI	Nominal Bore Galvanised Iron
PE	Polyethylene
HD PVC	High Density Polyvinylchloride
FC	Ferro Cement
NY	Nylon
ST	Steel
GRP	Glass Reinforced Plastics
DB	Direct Buried
A	Asbestos
CE	Concrete Encased
C	Concrete

Quality Levels of Sub-Surface Utility Investigation (SUI) AS 5488-2019

(Reproduced with permission from SAI Global under licence number 1610-c097)

This Standard provides a framework for the classification of subsurface utility location and attributes information in terms of specified quality levels. The objective of this Standard is to provide utility owners, operators and locators with a framework for the consistent classification of information concerning subsurface utilities. Project risks related to underground utilities can then be properly managed.

A quality level describes the amount and accuracy of information that is collected or held on a subsurface utility.

There are four quality levels D, C, B and A.

Quality Level D (QL-D) is the lowest of the four quality levels. The attribute information and metadata of a subsurface utility can be compiled from any, or a combination of, the following:

(a) Existing records.

(b) Cursory site inspection.

(c) Anecdotal evidence.

Quality Level-X (QL-X) Electronically located with Ground Penetrating Radar or other electronic locating techniques not compliant with AS5488. Estimated positional tolerance is +/-300mm in plan, +/-500mm in depth (high confidence level).

Quality Level Y(QL-Y) Electronically located but with reduced confidence in plan position/depth (medium confidence level).

Quality Level Z (QL-Z) Electronically located with low confidence level in plan position/depth (low confidence level).

Quality Level C (QL-C) is described as a surface feature correlation or an interpretation of the approximate location and attributes of a subsurface utility asset using a combination of existing records (and/or anecdotal evidence) and a site survey of visible evidence, and/or methods to indicate the existence of an undefined entity. The minimum requirement for quality level C is relative spatial position. Information is collected by correlating the survey of visible utility surface features such as marker plates or water hydrants and acquired dial-before-you-dig plans to “draw”a string which shows the approximate position of services.

Horizontal Tolerance of Surface Features: -/+ 300 mm

Quality Level B (QL-B) provides relative subsurface feature location in three dimensions. The minimum requirement for quality level B is relative spatial position. Information is collected by designating the horizontal and vertical location of underground utilities by using electromagnetic pipe and cable locators, sondes or flexi-trace, ground penetrating radar and acoustic pulse equipment.

Horizontal Tolerance: -/+ 300 mm

Vertical Tolerance: -/+ 500 mm

Quality Level A (QL-A) is the highest quality level and consists of the positive identification of the attribute and location of a subsurface utility at a point to an absolute spatial position in three dimensions. It is the only quality level that defines a subsurface utility as ‘validated’. Where the whole line segment cannot be verified by line of sight, quality level A shall not be attributed to the line segment between validated points. The vertical information for this locating method is to the top or shallowest part of the located service.

Horizontal and Vertical Tolerance: -/+ 50mm

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www.durkinconstruction.com.au

UTILITIES:	MR/BS	DATE: 08-OCT-23
SURVEYED:	AF/MP/DH/MP	DATE: 08-OCT-23
COMPILED:	CC	DATE: 10-OCT-23
REVIEWED:	CR	DATE: 10-OCT-23

NOT FOR CONSTRUCTION

City of Parramatta Council

Civil Link Block 3, Parramatta, NSW 2150

UTILITY PLAN

DRAWING NUMBER: **D22868-UT-01**

DRAWING STATUS: **FOR REVIEW** VERSION: V2

No. of SHEETS: 05

SHEET No.: -

Arcadis Australia Pacific Pty Ltd
Level 16
580 George Street
Sydney, NSW 2000
Tel: (02) 8907 9000
www.arcadis.com