

15 October 2025

Our Reference: NP25.112
OCG Reference: AP2025/007, OUT25/4586
IC.MM.

Assessment Manager
Office of the Coordinator-General
PO Box 15517
CITY EAST QLD 4002

Via email: marcus.peck@coordinatorgeneral.qld.gov.au

Attention: Marcus Peck – Senior Project Officer

Dear Marcus,

Response to Information Request SDA Application for a Material Change of Use for Medium Impact Industry and Warehouse and Reconfiguring a Lot (One into Two) in the Townsville SDA located at 110 Penelope Road, Stuart and formally identified as Lot 12 on SP338024

Northpoint Planning act on behalf of the applicant, McDonald Constructions, with respect to the abovementioned development application, and refer to the Information Request issued by the Office of the Coordinator-General (OCG) on 15 September 2025 (refer **Attachment 1**). The information included in this correspondence is provided as the Applicant's full response to the Information Request.

Response to Information Request

The Information Request provided for 5 request items. In response to these items, please refer to Table 1 below.

Table 1 – Response to Information Request

Request Item 1 – Defined Uses and Precinct Intent

This item requires the applicant to provide a description of the proposed activities on the southern tenancy to demonstrate the use achieves the medium impact industry definition. Furthermore, the applicant is required to demonstrate that the proposed uses are suitable for the location and are not better located elsewhere.

Response

The proposed southern tenancy is considered to meet the definition of a Medium impact industry use. Specifically, the proposed activities and operations involve the following as outlined within the Statement of Requirements at **Attachment 2**:

- Servicing and assembly of mineral extraction equipment and parts.



- Clean room assembly of bearings.
- Rubber and lining removal.
- Rubber lining and steam curing activities.
- Blasting, painting and ceramic lining activities.
- Dynamic balancing of machine parts.
- Heavy press operation.
- Washdown activities.
- Warehousing and parts storage.
- Storage of Class 2.1, 2.2, 3, 5.1, 6, 8 and 9 hazardous materials in small quantities.
- External hardstand equipment storage.
- Waste disposal in accordance with the prepared Waste Management Plan (refer **Attachment 3**).

The proposed development involves the processing, repairing, storing, and treating of products, activities which align with the definition of a Medium impact industry use under TSDA. Furthermore, the proposed use requires sufficient buffer from sensitive land uses due to the potential for adverse noise and fume impacts associated with the proposed operations on the site, with the subject site location considered suitable to mitigate these impacts.

Additionally, whilst a Warehouse use is broad, both proposed uses are defined as preferred development intent for the precinct and comply with what TSDA envisions for the locality. The proposed northern warehouse has been intentionally designed to be of sufficient scale to accommodate a variety of industrial tenancies which are expected in the locale, with the design provisioning the opportunity for purpose-built fit outs suitable for long-term tenancies. The proposed construction of the northern warehouse building will streamline future tenancy and promote growth and diversity within CBIP, and tenants who wish to utilise the facility under an altered defined use (e.g. Medium impact industry use) can apply for a change following purchase of the premises.

The proposed uses on the subject site are considered suitably located within the TSDA given the extent and economic contributions of operations. The proposed southern tenancy, being Weir Minerals, is a use of industrial significance given the operations directly support the wider mining sector and contributes to the efficient conduction of large-scale mineral extraction operations. The proposed tenant services and stores large scale equipment associated with extractive and general industry operations, including pumping and slurry transportation, concentrate and filtration, and dewatering equipment.

The scale of the relevant equipment requires the utilisation of large vehicles, such as B-doubles and road trains, with efficient transportation and movement reliant on strategic proximity to major road, rail and port connections. Proximity to corridors such as the Flinders and Bruce Highways provisions connection to rural localities within Western Queensland which host large-scale extractive operations, with the proposed location promoting the efficient and timely operation of a significant industry-supporting establishment. It is anticipated that similar to Weir Minerals, future tenants of the proposed northern warehouse will be seeking a location which supports the efficiency of their operation via connection to major transport networks.

It is noted that this item requests amended plans to describe and label the proposed land uses accordingly, as the current plans label each as a 'warehouse'. For clarity, the term 'warehouse' on the plans is utilised as a built-form descriptor and classification in this instance, and that a defined Warehouse use and Medium impact industry use will be located in each constructed warehouse respectively.



Request Item 2 – Responses to SDA Wide Assessment Criteria

This item requires the applicant to provide a full assessment of the proposed development against each of the SDA wide assessment criteria. Additional assessment of the proposed subdivision is also required against the Townsville SDA vision, objectives and SDA wide assessment criteria.

Response

In response to this item, please find a complete assessment of the proposed development against the SDA wide assessment criteria at **Attachment 4**.

Request Item 3 – Consistency with Minimum Lot Sizes

This item requires the applicant to consider a more appropriate lot size or use for the site consistent with the prescribed minimum lot size and preferred development intent of the Medium impact industry precinct. Alternatively, the applicant is required to provide sufficient justification and economic analysis to support the proposed lot sizes.

Response

The proposed subdivision component of the development seeks to provision separate freehold title to each proposed use on the subject site. Whilst the proposed allotments are below the nominated lot size, the SDA wide criteria for Reconfiguring a Lot states *“Lot sizes are adequate to accommodate a development footprint consistent with the preferred development intent of each precinct. A range of lot sizes is preferred to accommodate development...”*.

It has been demonstrated that 1ha allotments can suitably accommodate and support built form and operations which align with the preferred development intent of the precinct. Specifically, an identical subdivision was approved along Penelope Road to the south (Ref. ADP2023/008) which sought to provision freehold title to a proposed Medium impact industry use of similar scale, with the remaining lot to remain vacant. The proposed construction of two warehouses, one on either allotment, provides confidence that the proposed lot size can accommodate large-scale industrial operations and will have minimal limitations in finding tenancy. The proposed lot configuration provides each respective building and associated hardstand, access, parking and servicing arrangements to be wholly contained within each resultant allotment without resulting in restrictions or limitations on operations.

Additionally, the proposed development is located within the Special purpose zone of the *Townsville City Plan 2014* (planning scheme), with the purpose of the zone being to *facilitate industrial development that is of regional, state and national significance*. The nominated minimum lot size of this zone is 5,000m², with the proposed lot configurations providing land areas ranging between the prescribed lot size of TSDA and the planning scheme. In reference to the purpose of the Special purpose zone, it is evident a reduced lot size is considered suitable in accommodating and supporting significant and large-scale industrial uses.

Further, a supporting letter regarding the economic viability of the proposed lot layout has been prepared by Colliers Townsville (refer **Attachment 5**). Specifically, the documentation states that:

- Based on experience of the industrial land market, it is confirmed that there is a demonstrated demand for 1ha freehold allotments particularly from tenants who desire ownership rather than leasehold arrangements.
- 1ha allotments are suitable in accommodating a variety of medium-scale industrial operations, such as those proposed.
- The site is appropriately sized and dimensioned to accommodate standard industrial building footprints alongside associated access, manoeuvring, parking and landscaping arrangements.



- The demand profile is consistent with Townsville's industrial market, with users requiring locations with close connection to major transport infrastructure including road, rail and port facilities.
- 1ha industrial allotments are considered viable, market appropriate and attractive configurations for industrial operators.

Evidently, the reduced lot sizes can support a plethora of tenancies which directly rely on the strategic location and landscape of CBIP that do not require excessive operation areas and promotes a diverse range of industrial uses and operations

We wish to note that the proposed uses, being a Warehouse and Medium impact industry use, are both nominated as preferred development within the Medium impact industry precinct of the Townsville SDA and are therefore considered consistent with the type of development anticipated for the locality.

Request Item 4 – Plan of Subdivision

This item requires the applicant to provide a standalone plan of subdivision encompassing a schedule of existing easements on the site.

Response

In response to this item, please find attached a revised subdivision proposal plan inclusive of the existing easement on the subject site at **Attachment 6**.

Request Item 5 – Fire Services - Water

This item requires the applicant to amend plans to provide adequate and accessible water supply for firefighting purposes to the southern allotment.

Response

In response to this item, please find an amended site plan at **Attachment 7** provisioning a pump and fire tank to the north-western side of the on-site car park servicing the southern allotment.

Proceeding

We trust the attached information is sufficient for the Office of the Coordinator-General to continue its assessment and look forward to the receipt of draft conditions. We welcome the opportunity to discuss the application further, should any additional clarification or information be required.

Please do not hesitate to contact the undersigned should you have any queries in relation to this application.

Yours faithfully,

Meredith Hutton

DIRECTOR
Northpoint Planning



Attachment 3 – Waste Management Plan
Attachment 4 – SDA Wide Criteria Response Table
Attachment 5 – Colliers Townsville Subdivision Supporting Letter
Attachment 6 – Amended Site Plan
Attachment 7 – Revised Subdivision Plan
Attachment 8 – Preliminary Site Investigation
Attachment 9 – Geotechnical Investigation Report
Attachment 10 – Energy Efficiency Report
Attachment 11 – Stormwater Infrastructure Plans



Attachment 1

Our ref: OUT25/4586

Your ref: NP25.112

15/09/2025

McDonald Constructions
c/- Meredith Hutton
Director
Northpoint Planning
meredith@northpointplanning.com.au

Dear Ms Hutton

AP2025/007 – SDA application for a material change of use for medium impact industry and warehouse and reconfiguring a lot (one into two) in the Townsville State Development Area (SDA)

Receipt of your SDA application for a material change of use for medium impact industry and warehouse and reconfiguring a lot (one into two) in the Townsville SDA is acknowledged. The application was deemed properly made on 1 September 2025 in accordance with section 84D of the *State Development and Public Works Organisation Act 1971*.

Please find enclosed a request detailing the additional information required in order to properly assess your application. In accordance with Schedule 2, Part 2, section 2.1(4) of the Townsville SDA Development Scheme (May 2019), your response to the Office of the Coordinator-General is due on or before 5 December 2025. The application will lapse if you do not provide, to the satisfaction of the Coordinator-General, the requested information by the required date.

Once the Coordinator-General has received a response to the request for additional information, the application will be referred to the following referral entities for their assessment and to identify if any further information is required.

- Townsville City Council
- Department of Transport and Main Roads

If the Coordinator-General receives any requests for additional information from the referral entities, the Coordinator-General will coordinate the request and forward it to you for your response.

In accordance with Schedule 2, Part 2, section 2.3(1) of the Townsville SDA Development Scheme, it has been determined that the public consultation stage of the assessment process does not apply to your application, as medium impact industry and warehouse are both defined uses that support the preferred development intent of the medium impact industry precinct. Further, the public consultation stage does not apply to SDA applications for reconfiguring a lot under the Townsville SDA Development Scheme.

If you require any further information, please contact Marcus Peck, Senior Project Officer, Office of the Coordinator-General, on 07 3243 1613 or at marcus.peck@coordinatorgeneral.qld.gov.au who will be pleased to assist.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Steff Poetzsch', written in a cursive style.

Steffen Poetzsch
A/Assistant Coordinator-General
Industry and Infrastructure Development
(as delegate of the Coordinator-General)

Enc.

The proponent is required to provide the Coordinator-General with a response to the information requested below.

The requested additional information seeks to clarify inadequacies in the application material provided and the impacts of the proposed development.

Responding comprehensively to this request may assist in streamlining the assessment process.

No.	Issue	Information requested
Impacts of proposed development		
1	Defined uses and precinct intent	The SDA application proposes a medium impact industry use on the southern allotment. However, the planning report and proposed plans of development refer to a warehouse on the southern allotment. The planning report (reference NP25.112) prepared by Northpoint Planning and dated 11 July 2025 (planning report) does not provide a description of activities being undertaken, or the size and scale of the 'mineral extraction parts and equipment'. The specialised areas on the proposed plans suggest maintenance or engineering activities. Further, Warehouse is a broad definition and, while it is listed as a use consistent with the preferred development intent of the Medium Impact Industry, users in the Townsville SDA are expected to be significant industry for the Townsville region and rely on direct access to the Port of Townsville and key road and rail networks in accordance with the strategic vision and overall objectives for development in the Townsville SDA. The proponent is requested to: a) Update the planning report to confirm the uses proposed to provide a description of the proposed activity on site. This should also confirm any additional impacts and services, including hazardous materials, waste services etc. b) demonstrate the proposed activities meet the definition of a medium impact industry

		c) ensure the SDA application reflects the correct uses, update the planning report and proposed plans so that the proposed land use is described correctly. <i>Note: Medium impact industry means the use of premises for industrial activities that include the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring, treating of products and have one or more of the following attributes:</i> <i>(a) potential for noticeable impacts on sensitive land uses due to offsite emissions including aerosol, fume, particle, smoke, odour and noise</i> <i>(b) generates high traffic flows in the context of the locality or road network</i> <i>(c) generates an elevated demand on local infrastructure network</i> <i>(d) potential for noticeable offsite impacts in the event of fire, explosion or toxic release</i> <i>(e) onsite controls are required for emissions and dangerous goods risks</i> <i>(f) the use is primarily undertaken indoors (g) evening or night activities are undertaken indoors and not outdoors.</i> <i>Note: Examples of medium impact industry include spray painting and surface coating, wooden and laminated product manufacturing (including cabinet making, joining, timber truss making or wood working).</i> <i>Warehouse means the use of premises for:</i> <i>(a) storing or distributing goods, whether or not carried out in a building or</i> <i>(b) the wholesale of goods, if the use is ancillary to the use in paragraph (a).</i> <i>Note: Examples of a warehouse include a self-storage facility, storage yard.</i>
2	Responses to SDA wide assessment criteria	A response has been provided in section 6.4 of the planning report to each of the SDA wide assessment criteria in the Townsville SDA development scheme (May 2019). However, the majority of the assessment responds to the category of assessment criteria and contains limited assessment against the individual criteria of the development scheme. Additionally, majority of the assessment is in relation to the material change of use component of the proposed development, with the reconfiguring a lot only assessed against particular criteria. Additional detail in the assessment is required to understand the impacts and mitigating factors of the proposed development. The proponent is requested to provide a full assessment of the proposed development against each of the SDA wide assessment criteria, including discussion of impacts and any mitigation measures required. Additional assessment against the reconfiguring a lot components of the proposed development is required against the Townsville SDA vision, objectives and SDA wide assessment criteria.

Reconfiguring a lot considerations		
3	Consistency with minimum lot sizes	The proposed reconfiguration does not meet the minimum lot sizes for the Medium Impact Industry Precinct in the Townsville SDA development scheme. Minimum lot sizes are intended to accommodate development that is consistent with, and envisioned for, the preferred development intent of the precinct. In accordance with section 2.4.3 of the Development Scheme, the precinct is to accommodate medium impact industrial development that: (i) includes the manufacturing and processing of products that are associated with identifiable and measurable impacts (ii) requires buffers from sensitive land uses (iii) is reliant on and maximises the use of key transport and supply chain infrastructure. The application proposes lot sizes that are more consistent with the Low Impact Industry Precinct, which is not the intent of the precinct the site is located within. The proponent is advised that the proposed SDA application may not be recommended for approval in its current form. The proponent is requested to consider a more appropriate lot size or use for the site, consistent with the minimum lot sizes proposed in the Medium Impact Industry Precinct and the preferred development intent. Alternatively, the proponent is requested to provide sufficient justification and economic analysis to support consideration of lot sizes smaller than the minimum lot size. This justification should include evidence that the removal of serviced medium industry zoned land would not have a negative impact on the supply within the Townsville region and provide evidence to justify additional low impact industrial land in this area. The proponent is strongly encouraged to discuss any proposed changes with the Office of the Coordinator-General before the subsequent information request items are responded to.

4	Plan of subdivision	Section 3.3 of the planning report contains a snapshot of a survey plan for the proposed reconfiguring a lot component of development as part of Figure 6. However, a standalone copy of the plan (complete with schedule of easements) is required to assess the proposed reconfiguration and to form part of the considered plans should the SDA application be approved. The proponent is requested to provide a standalone plan of subdivision also encompassing a schedule of easements identifying the purpose and owner of each easement.
5	Fire services - water	Section 3.2 of the planning report states that the proposed northern allotment will contain a water tank for fire services, designed to cater for both proposed allotments. The proposal is for a reconfiguration of a lot to create two separately titled lots. There is a risk that any future owner of the proposed northern allotment may prevent access to the fire services water to the proposed southern allotment, causing a safety risk. Additional measures are required to ensure that the proposed southern allotment will have water available for fire services. The proponent is requested to provide an adequate and accessibly supply of water for firefighting purposes to the southern lot.



Attachment 2

SOR

STATEMENT OF REQUIREMENTS

PROJECT TSU C101: WORKSHOP FACILITY

Revision: 3
Date: 24th July 2025
Status: Issued for AFL

Statement of Requirements

TS.001.24-C101 - Workshop Facility



Revision History

Rev.	Date	Purpose	Revised By	Reviewed By	Approved By
0	5 Dec 2025	First Issue	B. Crosby	J. Truss, B. Case	
1	2 May 2025	Issued for HOA	B. Crosby	J. Truss, B. Case	
2	14 May 2025	For HOA – site layout drawing ref updated	B. Crosby	J. Truss, B. Case	
3	24 Jul 2025	Issued for AFL – see rev markers	B. Crosby		

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1 Weir

Weir is a mining technology company. Our technologies help customers in mining and similar industries operate with the highest productivity and lowest environmental impact.

Customers rely on our solutions and our service to keep their mission-critical operations running efficiently and drive their sustainability footprint down. We are located close to them wherever they are in the world. With our integrated network of technology hubs, manufacturing operations and local service centres, it is Weir technology, Weir brands and Weir people that are at the heart of the global mining industry.

Weir is a global family of c.12,000 people working across more than 50 countries across the globe focused on making mining smart, efficient and sustainable today, and for the future.

2 Project TSU – Townsville Service Upgrade

Weir Minerals Australia (WMA) operates a sales and service centre in Townsville that is currently located at 688 Ingham Road in Bohle in Queensland. Project TSU involves relocation of the existing operation to a new facility that accommodates the facility infrastructure needs for the Townsville sales and service business.

The relocation of the existing operation is required to be fully completed by the end of March 2026.

3 Purpose of SOR

This Statement of Requirements (SOR) was initially prepared to provide a high-level summary of the conceptual requirements for the proposed new Workshop Facility. The purpose was to provide interested parties an initial basis on which to prepare offers.

A Request for Proposals (RFP) process was facilitated by uTenant Pty Ltd on Weir's behalf. The RFP issued to interested parties was based revision 0 of this SOR. Offers were received and assessed and the proposal submitted by Virtus Property Group (VPG) for a newly constructed Workshop Facility at Lot 12 on SP338024, 110 Penelope Rd, Stuart, Queensland 4811 was selected as the most preferred proposal.

Revision 2 of this SOR included updates to conform the requirements for the New Workshop Facility with the latest operational requirements for the Townsville sales and service business as well as to conform with the latest VPG proposal. It was to serve as Weir's design brief for the detailed design of the new facility. It was referenced in the Heads of Agreement (HOA). Revision 3 has very minor updates. It is intended to be referenced in the Agreement For Lease (AFL).



4 Facility Requirements

The new facility is to be used as a servicing workshop (inclusive of washdown, burn room lining removal, blast and paint, parts balancing, clean room assembly, rubber lining and ceramic lining facilities), parts storage, chemical storage, corporate office and hardstand storage.

Building Area:	Workshop	2,200 m2
	Office	300 m2
	Hardstand	2,000 m2
Location:	Lot 12 on SP338024, 110 Penelope Rd, Stuart, QLD 4811 Medium Impact Industry Zoning	
Site Land Area:	9,100 m2	
Vehicle Access:	Semi Trailer and B-double accessible Located close to high wide load corridor	
Use:	Corporate office Servicing and assembly workshop Clean room assembly of bearings Rubber and lining removal using a burn room Rubber lining and steam curing activities Blasting, painting and ceramic lining activities Dynamic balancing of machine parts Heavy press operation Washing activities Warehousing and parts storage Hazchem storage External hardstand storage	

 Lease Commencement: 15 May 2026
(staged early access is required 5 weeks prior to lease commencement)

Lease Term: 10 years + option for 5+5

4.1 Buildings

4.1.1 Workshop

Size: 2,200 m²

- 2 bays of 20 metres minimum width each
- Workshop concrete floor load bearing capacity of 25 kPa
- Overhead gantry cranes; minimum 6m hook height; capacities 2 x 10T
- Largest forklift 14T
- Inclusive workshop amenities including female and male showers, toilets and change/locker room (for 20 - 25 staff)
- Washdown bay (36 m²) with industrial liquid waste collection and management system consisting of:
 - 100L silt trap
 - Holding tank (volume equal to or greater than oil separator capacity)
 - Non emulsifying pump, sized so as not exceed oil separator capacity
 - Coalescing plate oil water separator, minimum capacity 1000L per hour inflow
 - Waste collection
- Painting bay (36 m²) and ventilation suitable for paint shop:
 - As an allowance in initial offers, paint bay is to be an open faced modular type bay similar to a Blastone Masterflo (blastone.com.au).
 - Nominal dimensions 5m L x 5m W x 4m ceiling H, with a crane slot in the ceiling.
 - Supplied in accordance with Spray Booth Standard AS4114.
 - Include replaceable dry panel filter system, exhaust fan, ducting and stack for uniform air flow of minimum 0.5m/sec across face of booth work area.
 - Include cornice lighting system.
- Sandblasting area (36 m²) suitable for container blasting, complete with ventilation systems, supplied and installed by Weir.
- Wear lining application bay (36 m²) with ventilation system:
 - As an allowance in initial offers, the wear lining bay (and ventilation system) can be an exact duplicate of the Paint Bay installation (as described above).
- Clean room (48 m²).
- Hazardous materials storage cage for storage of small quantities of Class 2.1, 2.2, 3, 5.1, 6.1, 8 and 9 Dangerous Goods
- Workshop cooling and ventilation consisting of:
 - Metal roof insulation with minimum R0.2 m².K/W thermal break R value
 - Quantity of Powerfoil® X4 large industrial ceiling fans (fan diameter tbc)
 - wall mounted louvre vent panels (size and qty to be confirmed)

Statement of Requirements

TS.001.24-C101 - Workshop Facility



4.1.2 Office & Amenities

Size: 300 m2

- Single storey
- Individual offices x 4
- Desk spaces x 15
- Small meeting rooms / Quiet rooms x 3-4
- Medium meeting rooms x 1 (to fit 8 people)
- Toilets - Male, female, unisex
- Showers and lockers
- No reception
- Full Services – including A/C, NBN, Power
- Kitchen / breakout, meals - required opening onto alfresco (meals area to be used for large meeting up to 30 staff)

4.1.3 Supplementary Buildings

Equipment Lean-To

Size: 72 m2 (size to be confirmed during detailed design)

- To accommodate compressors and ventilation equipment for paint bay, blast bay and lining bay.
- To accommodate wash bay liquid waste management equipment.

4.2 External Works

4.2.1 Hardstand

Size: 2,000 m2

- Concrete paved area for external equipment storage
- Hardstand concrete floor load bearing capacity of 25 kPa

4.2.2 Vehicle Access

Size: To be confirmed by Developer

- 35 on site light vehicle parking bays
- Dedicated heavy vehicle access and egress
- One way heavy vehicle movements onsite
- Separate carpark for staff and visitor parking with dedicated access
- Building and equipment protection bollards

4.2.3 Power Supply

- Required power is not expected to exceed 1000 KVA (subject to max demand calculation)
- Rooftop PV system on Weir's side of meter:
 - The solar system to meet ESG requirements is for supplementing the "base" load power for the office, amenities and 240v equipment and GPO's.
 - The final size will need to be reviewed and confirmed by an accredited solar system supplier and installer.
 - For the basis of initial offer, please provide an allowance for a 20kW commercial solar battery system with 20kW solar array, 20kW inverter and 20kWh battery storage.

4.2.4 Security

- Perimeter fence (cyclone mesh including 3 rows of barbed wire) to a height of 2,100m on all site boundaries
- Palisade fencing to street frontage sides of site
- Automatic sliding gates

4.2.5 Boiler, Autoclave, LPG Storage & Cold Room

- Concrete works for supporting Weir's existing Boiler Room, Autoclave, LPG Storage Tanks and Cold Room. This equipment will be relocated to the new facility by Weir during the early access period.
- Note: Access for Weir's subcontractor will be required to allow for the installation of any buried services ahead of floor slabs being placed.



4.2.6 Other

- Landscaping and gardens
- Water and fire water reticulation.
- Hardstand lighting as required – to be confirmed

4.3 ESG

Weir is on a journey to redefine our operating model, facilities and offices in line with our organisational vision, strategy and ESG roadmap. Newly constructed facilities are to achieve Green Star Buildings 5-Star rating. This will include:

- Installation of a solar array and battery storage.
- MHE, mobile plant and motor vehicle charging stations
- Rainwater harvesting tanks for re-use through toilet flushing and irrigation
- Solar hot water system

- Low VOC paints, carpets and sealants
- Water-efficient bathroom hardware
- Provision of an intelligent lighting control system to manage and minimise power consumption
- LED light fittings to the entire facility (including the underside of awnings) alongside light harvesting systems

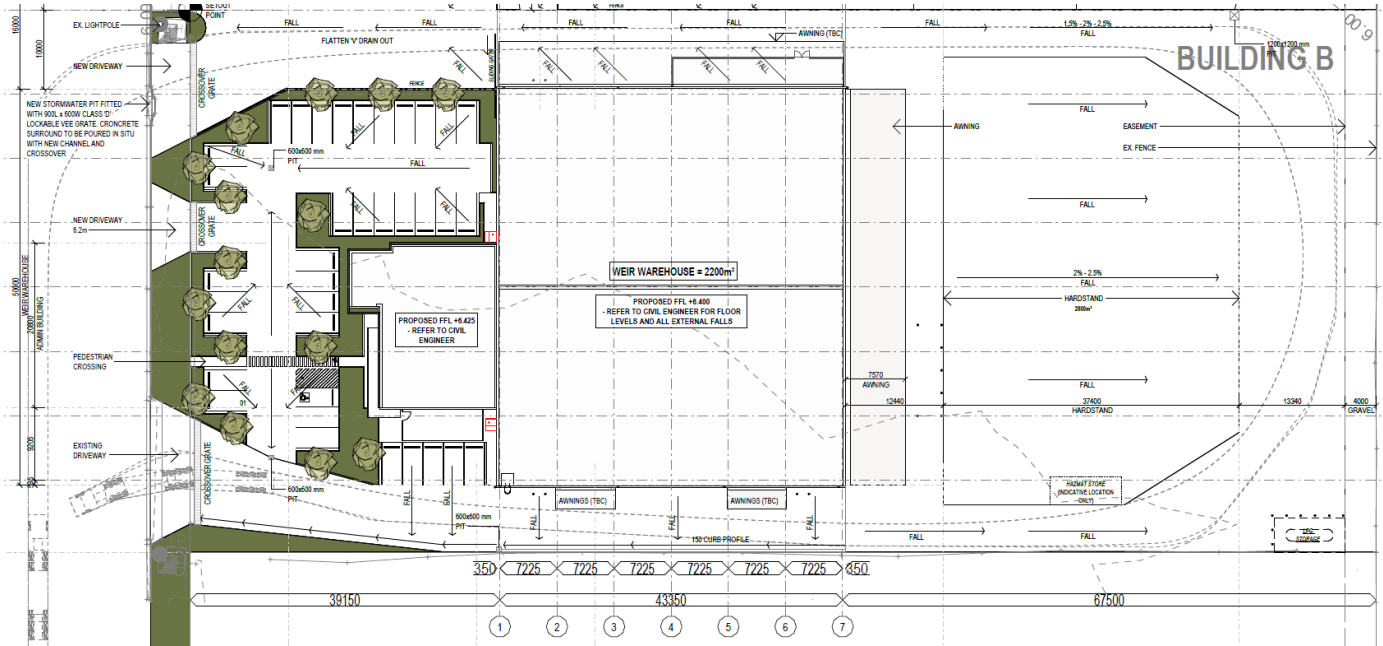
4.4 VPG Proposal - Scope Clarifications

The final proposal submitted by VPG, file name reference VPG_RFP_Lot 12_FINAL.pdf, included the following facility scope related clarifications:

- Signs - Illuminated signage is currently not included.
- Security system (Cameras and Alarms) - The tenant is responsible for service and repairs of any security system installed. The Lessor shall be responsible for all repairs and replacements of the security systems that are a capital nature.
- Automatic sliding gates - Tenant is responsible for service and repairs of any automated sliding gates installed. The Lessor shall be responsible for all repairs and replacements of the gates that are a capital nature.
- Oil Separator - Tenant is responsible for service and repairs of the oil separator installed. The Lessor shall be responsible for all repairs and replacements of the oil separator that are a capital nature.
- Wash Bay Cleaning Equipment (If installed) - The tenant is responsible for service and repairs to any wash bay cleaning equipment installed. The Lessor shall be responsible for all repairs and replacements of the wash bay cleaning equipment that are a capital nature.
- Pest Control - The Tenant is responsible for the periodic or annual pest control as per the agreed maintenance schedule. The Lessor shall be responsible for any pest control of a capital nature.

5 Site Layout

3 The site layout image below is derived from site plan drawing A2504.B-0101(K).



6 Attachments

3 Attachment 1:

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CONFIDENTIAL - Access on a need to know basis



Attachment 3

**LOT 12A & 12B
110 PENELOPE ROAD
STUART QLD 4811**

SITE WASTE MANAGEMENT PLAN

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5.1 FIGURE– SITE WASTE PLAN	Error! Bookmark not defined.

1.0 INTRODUCTION

1.1 Purpose

This Site Waste Management Plan provides management of construction site waste through effective management and disposal of waste. The plan has been designed to streamline the waste management process by the following:-

- Improve Productivity and Reduce Costs
- Stay Compliant to Regulatory Standards for Waste Disposal
- Reuse/Recycle Materials

This document will be maintained throughout the life of the project.

1.2 Scope of this plan

This Plan provides an approach to site waste management through the following:

- Allocating responsibilities
- Identifying waste
- Managing waste
- Disposing of waste
- Organizing materials and waste
- Communication

2.0 ROLES AND RESPONSIBILITIES

2.1 Roles and Responsibilities

ROLE	AUTHORITY AND RESPONSIBILITY
Environmental and Safety Manager	- Promote waste hierarchy across the project - Keep and maintain waste register - Deliver toolbox talks and education training on best practise waste management to site staff
Project Manager	- Classify all waste generated on site during construction in accordance with Waste Classification Guidelines prior to transporting offsite. - When transporting waste to a premise other than a licensed facility, ensure the premises can lawfully accept this waste - Make available resources for implementation of Waste Management Plan
Site Manager	- Keep site free of litter and maintain good housekeeping - Do not cause, permit or allow waste generated outside of the project site to be received for storage, treatment processing or disposal on the project site except as expressly permitted under licence - Obtain and provide waste dockets/receipts for waste removed to the Environment and Sustainability Manager - Ensure waste is collected and stored properly - Reuse excavated spoil and other waste material onsite where possible Ensure portable toilets are emptied regularly - When transporting waste to a premises other than a licensed facility, ensure the premises can lawfully accept this waste
Contracts Manager	- Where possible, implement agreements with suppliers to return excess construction materials or packaging for future reuse. - Establish list of preferred suppliers of waste management services

3.0 DISPOSAL OF MATERIAL

3.1 Disposal of Materials

Waste may be disposed at the following locations:-

Material	Name	Location
Recyclable - Asphalt	Concrete Recyclers	Markwell Recycling
Recyclable - Concrete	Concrete Recyclers	Markwell Recycling
Recyclable - Road Base	Concrete Recyclers	Markwell Recycling
Asbestos Containing Material	Contaminated waste	Townsville City Council commercial waste
Restricted Solid Waste		Townsville City Council commercial waste
Hazardous Waste	Chemical Waste	Tropical Waste/Cleanaway
General Solid Waste	Plastic, timber, etc.	Townsville City Council commercial waste

4.0 WASTE STREAM AND MANAGEMENT

4.1 Waste Stream and Management Measures

The following is the classification and management of site waste:-

Waste Type	Storage & Handling Method	Potential reuse, recycling, disposal method
Vegetation (logs, mulched timber, weeds)	Separate native and weed species Separate temporary stockpiles of materials where space is available; or Load into trucks or skip bins	- Native Vegetation - Reuse as biodiversity measures such as mulch onsite; or recycled through a licensed contractor or facility or - Disposal to licensed waste facility - Weeds - Offsite disposal at a licensed facility
Excavated top soil	Stockpile separately to subsoil Segregate waste classes Implement CMP measures	- Reuse onsite e.g. landscaping and revegetation; or offsite recycling through a licensed contractor or facility or - Disposal to licensed waste facility.
Excavated sub soil	Load into trucks or skip bins or stockpile separately to topsoil Stockpile different waste class in separate storages (bays, skips, stockpiles etc.) Implement CSWMP measures	- Disposal to licensed waste facility or approved development site - Reuse onsite if Geotechnical confirm ok for reuse
Excavated rock	Load into trucks or stockpile separately to subsoil and topsoil Implement CMP measures	- Reuse off project at approved development sites - Disposal to licenced recycling facility - Disposal to licensed waste facility
Contaminated Soils	Contain in separate receptacles or load directly to trucks. Implement CSWMP measures	- Where the soil chemical properties is consistent with the land use criteria it may be reused as fill material at that location. - Disposal to licensed waste facility - Where applicable immobilise and reuse on project.
Acid Sulfate Soils (ASS)	Stockpile and treat in accordance with ASSMP, QLD EPA Waste Classification Guidelines Part 4: Acid Sulfate Soils Implement CMP measures	Disposal to licensed waste facility
Pavements i.e. concrete, asphalt and gravel	Progressive excavation in layers to separate asphalt, concrete, road base and fill layers. Place waste in separate bins or stockpiles where space is available or load directly into trucks for transportation to relevant laydown	Reuse as backfill, off-site recycling or disposal to licensed facility.

Waste Type	Storage & Handling Method	Potential reuse, recycling, disposal method
Concrete (solids and washouts)	Establish specific areas for concrete washout e.g. construct pit washout or lined sump. Remove concrete when set and place in separate bin	- Reuse as backfill or as road base on site - Transfer to offsite recycling facility
Waste water Storm water runoff .e.g. collected in excavations after rainfall;	Refer to CMP.	- Reuse for dust suppression, watering revegetation areas, reuse in compaction activities - Dispose to storm water system or sewer system in accordance with CSWMP - Dispose to licensed waste facility
Bulk electrical cabling	Store In metal recycling receptacle	Transfer to offsite recycling facility
Plastic conduit / pipes	Place in separate receptacle for recycling.	Transfer to offsite recycling facility
Geo -textile material and other open or close weave bio- degradable material; e.g. sediment fence / jute mesh	Reclaim material which can be reused - store under cover Place non-reusable material in general waste receptacle	- Reuse for erosion and sediment control and landscaping; or - Disposal to licensed waste facility
Timber e.g. cable drums, pallets, form work, packaging timber, off cuts etc.	Place in separate receptacle for recycling.	- Cable drums and pallets returned to client or supplier or transfer to offsite recycling facility - All other timber products transfer to offsite recycling facility
Empty oil and other drums	Handle in accordance with the relevant State legislation and guidelines Place empty drums in steel recycling receptacle	- Transfer to offsite recycling facility - Disposal at a licensed facility
Packaging (recyclable) e.g. paper/ cardboard / steel straps	Place in separate receptacle for recycling.	- Transfer to offsite recycling facility - Disposal at a licensed facility
Packaging (non - recyclables) e.g. Shrink wrap / Styrofoam	Place in general waste bin	- Transfer to offsite recycling facility - Disposal at a licensed facility
Pesticides, herbicides, spill cleans ups, paints and other chemicals	Contain in secure bunded area	Disposal at a licensed facility
Hydrocarbons e.g. oil and fuel	Contain in secure bunded area	- Transfer to offsite recycling facility; or - Disposal to licensed waste facility
Asbestos	Store and Handle in accordance with the Australian standards	Disposal to licensed waste facility
Tyres	Store onsite in segregated area	Beneficial reuse in site works e.g. stabilising or supporting pipes, tracking plant across pavement, retaining walls, etc.
Waste generated by the maintenance of equipment including air and oil filters and rags.	Contain in secure bunded area	- Transfer to offsite recycling facility; or - Disposal to licensed waste facility
Batteries	Contain in secure bunded area	- Transfer to offsite recycling facility; or - Disposal to licensed waste facility

5.0 SITE WASTE LOCATION

5.1 Site Waste Service Location:

Refer to attached site plan showing the location of waste services on site.



Blue: Site office and sheds
 Green: parking
 Yellow: Waste storage area



Attachment 4



TSDA Development Scheme 2019 – SDA Wide Assessment Criteria

SDA Wide Assessment Criteria	Response
Infrastructure and Services	
1. Development maximises the use of and minimises the cost for infrastructure associated with telecommunications, transport, water, wastewater, recycled water and energy networks.	Complies The proposed development will utilise the existing infrastructure services constructed to specifically support CBIP and anticipated land uses. The proposed development will not require any upgrade or significant augmentation of the existing infrastructure servicing the site.
2. Development plans for and manages impacts on existing and future known telecommunications, transport, water, wastewater, recycled water and energy networks.	Complies The proposed development is located within the Cleveland Bay Industrial Park which has been adequately designed and constructed to afford appropriate servicing of future industrial uses within the locality. It is considered the existing infrastructure servicing the subject site is suitable to support the proposed development without adverse impacts on the established networks.
3. Development is adequately serviced by telecommunications, transport, water, wastewater, recycled water and energy networks as relevant.	Complies The proposed development will be appropriately serviced by the existing infrastructure services located within CBIP with no upgrade or significant augmentation of the existing servicing infrastructure required.
4. Development incorporates waste minimisation practices and considers refuse collection or disposal.	Complies The proposed development will be appropriately connected to Council's reticulated sewerage network, with an existing wastewater pressure main traversing the full extent of the western property boundary. Furthermore, the proposed development provisions suitable access for refuse collection and disposal via a local road, being Penelope Road. The proposed development will provision appropriate waste management practices in accordance with the Waste Management Plan prepared by McDonald Constructions (refer Attachment 3)
5. Development avoids or minimises adverse impacts on existing or proposed State or local government infrastructure and services.	Complies The proposed development is anticipated to not have any impact on existing or proposed State or local government infrastructure. The proposal is located within CBIP which has been designed and constructed to appropriately accommodate industrial land uses such as those proposed. Therefore, it is considered the existing infrastructure will be of sufficient capacity to support the proposal.



SDA Wide Assessment Criteria	Response
6. Development provides for and protects the safety, functionality and efficiency of the Bruce Highway, North Coast rail line, TPAR and Flinders Highway (Stuart Bypass) and the Townsville Eastern Access Rail Corridor (TEARC).	Complies The proposed development is not anticipated to impact the existing function of the Bruce Highway, North Coast rail line, and Townsville Port Access Road. The anticipated traffic and vehicles associated with the proposed development are consistent with that anticipated within the locality. The proposal will utilise key transport routes, including Rob McLean Road (TPAR) and Heleen Downs Road, which have been designed to accommodate traffic anticipated by industrial uses within the locality.
Emissions	
1. Development is designed to avoid or minimise: (a) adverse impacts from air, noise and other emissions that will affect the health and safety, wellbeing and amenity of communities and individuals (b) conflicts arising from (but not limited to), spray drift, odour, noise, dust, light spill, smoke or ash emissions with sensitive and/or incompatible land uses.	Complies The proposed development has been designed and will operate in a manner which avoids and mitigates adverse impacts from air, noise and other emissions that will affect the health and safety, wellbeing and amenity of communities and individuals. The proposal is located within the Cleveland Bay Industrial Park of Townsville SDA, with the area intentionally located and designed with consideration to nearby sensitive receptors particularly to the north.
2. Development supports the achievement of the relevant acoustic and air quality objectives of the Environmental Protection (Noise) Policy 2008 and the Environmental Protection (Air) Policy 2008.	Complies The proposed development has been suitably designed to achieve the relevant objectives of the Environmental Protection Policy 2008. Specifically, the proposed development is suitably buffered from sensitive land uses, being located within a purpose-built industrial locality.
3. Development with the potential to impact on the air quality of Townsville will be expected to conduct air shed modelling, in accordance with current best practice, to demonstrate compliance with air quality standards.	Complies The proposed development has been suitably designed to mitigate any impacts on the air quality within Townsville and will operate in accordance with relevant standards and guidelines. The proposed development will not involve components which pose a risk to the air quality of the immediate and wider locality.



SDA Wide Assessment Criteria	Response
Contaminated Land	
1. Development on land likely to be contaminated or recorded on the Environmental Management Register or Contaminated Land Register does not adversely impact on human health or the environment by exposure, management, or movement of contaminants.	Complies The subject site is not identified on the Environmental Management Register or Contaminated Land Register as the subject site has historically been utilised for livestock grazing and hay cropping. A preliminary site investigation prepared by Terra Solutions has confirmed no evidence of contamination on the site (refer Attachment 8)
2. Where required, develop a strategy to manage any existing contamination and the potential for additional contamination such that human health and the environment are not adversely affected.	Complies The subject site is not identified as contaminated land under the Contaminated Land Register, with the proposed uses anticipated to not result in any contamination of the site. Any identified contaminated land on the subject site not currently made aware will be addressed and mitigated in accordance with relevant standards and works, if required.
Acid Sulfate Soils	
1. Development, in accordance with current best practice, is to: (a) avoid the disturbance of acid sulfate soils (ASS) or (b) ensure that the disturbance of ASS avoids or minimises the mobilisation and release of acid and metal contaminants.	Complies The subject site has been improved to accommodate future industrial land uses, with earthworks occurring during initial establishment of CBIP to ensure the site is above the defined 1% AEP flood event. The proposed development does not require any earthworks. The site has been determined as comprising soils with an extremely low probability of the occurrence of acid sulphate conditions within the Geotechnical Investigation Report prepared by PGI (refer Attachment 9).
Climate Change	
1. Development minimises its emission of greenhouse gases and demonstrates how it will adapt to projected climate change conditions.	Complies The proposed development comprises uses which are considered to result in minimal emissions of greenhouse gases. The proposed development will operate in accordance with best practices to ensure compliance and achievement of relevant emission levels.



SDA Wide Assessment Criteria	Response
Transport	
1. Increased traffic arising from development is either able to be accommodated within existing road networks or works are undertaken to minimise adverse impacts on existing and future uses and road networks.	Complies Traffic generation associated with the proposed uses on the site are considered appropriate and can be suitably accommodated by the existing road network within the locality. The proposed uses are anticipated within the Medium impact industry precinct of TSDA, with vehicles types and daily trips associated with the site anticipated to not exceed those expected within the locale.
2. Local road networks within the Townsville SDA are to be designed to accommodate the proposed vehicle type and predicted traffic volumes associated with the development and the precinct/s.	Complies The surrounding road network has been intentionally designed to accommodate anticipated vehicle types and traffic levels generated by the proposed development and similar industrial uses.
3. Development is designed to facilitate safe and efficient vehicular ingress and egress and does not unduly impact on the safe and efficient operation of transport infrastructure.	Complies The proposed development has been intentionally designed to appropriately accommodate anticipated vehicle types and ensure safe ingress/egress and manoeuvring within the subject site. It is considered the proposed access arrangements will no unduly impact on the safe and efficient operation of transport infrastructure within the locality. The anticipated traffic associated with the proposed development is considered consistent with that observed within the wider CBIP area.
4. Adequate car parking for the number and nature of vehicles expected are provided on site.	Complies Sufficient on-site parking is provided to service each proposed tenancy and specifically accommodates for anticipated parking associated with each respective land use.



SDA Wide Assessment Criteria	Response
Environment, Cultural Heritage and Community	
1. Environmental values, cultural heritage values, and community values of the premises on which the development is undertaken, and immediate surrounds, are identified and managed, consistent with current best practice.	Complies The subject site is located within Stage 1 of CBIP and does not maintain any significant environmental, cultural heritage or community values. The proposed development involves industrial use within a designated industrial locality and is therefore considered to not result in adverse impacts on environmental values, ecological processes or cultural/community values.
2. Development is designed and sited to: (a) avoid adverse impacts on environmental values including matters of local, State and national environmental significance, or where adverse impacts cannot be avoided, impacts are minimised, mitigated or offset (b) maintain ecological connectivity and processes (c) maintain the outstanding universal value of the Great Barrier Reef World Heritage Area (d) avoid adverse impacts on cultural heritage and community values, or where adverse impacts cannot be avoided, impacts are minimised, mitigated or offset.	Complies The subject site is not identified as containing matters of local, State or national environmental significance. The proposed development is located within Stage 1 of CBIP which has been intentionally designed for industrial uses with consideration to surrounding environmental values. The proposed development will discharge stormwater in accordance with relevant quality standards and guidelines, retaining the Penelope Road frontage as the lawful point of discharge and mitigating adverse impacts on the values and functionality of the GBRWHA.
3. Environmental offsets are provided in accordance with the relevant commonwealth or State environmental offset framework.	Not Applicable The subject site is not identified as containing matters of local, State or national environmental significance. The proposed development is located within Stage 1 of CBIP which has been intentionally designed for industrial uses with consideration to surrounding environmental values.
4. Environmental offsets should be accommodated within the Environmental Management Precinct before seeking solutions external to the Townsville SDA.	Not Applicable The subject site is not identified as containing matters of local, State or national environmental significance. The proposed development is located within Stage 1 of CBIP which has been intentionally designed for industrial uses with consideration to surrounding environmental values.



SDA Wide Assessment Criteria	Response
5. Where the development requires a buffer to mitigate the impacts of the development, that buffer must be accommodated within the development site.	Not Applicable The proposed development does not require a buffer to mitigate impacts.
Engineering and Design Standards	
1. Development is designed and constructed in accordance with the relevant engineering and design standards (and any subsequent revisions to the relevant standards) stated in Table 8 below. Alternative innovative solutions that demonstrate compliance with the relevant standards are encouraged.	Complies The proposed development will be designed and constructed in accordance with the relevant standards.
Other Government Matters	
1. Development is to demonstrate consistency with any other relevant legislative requirements for the development to proceed and operate. Development, to the extent practicable, is to be consistent with regional plans, the State Planning Policy, and the State Development Assessment Provisions where the State interests articulated by these instruments are likely to be affected by the development.	Complies The proposed development is considered consistent with other government matters to the full extent practicable
Energy and Water Efficiency	
1. Building, site design and layout maximises energy efficiency having regard to: (a) building orientation and passive solar design (b) maximising opportunities for cross ventilation (c) appropriate shade treatments (d) landscaping treatments to the western side of the building	Complies The proposed development has been designed to maximise energy efficiency, with intentional building orientation, provision of awnings, and maximised opportunity for cross ventilation. Landscaping is provided to the road frontage only given the proposed development comprises an industrial use, however this layout is considered suitable for the site and is sufficiently oriented to the west. An Energy Efficiency Report for the proposed development has been prepared by Anderson Energy Efficiency, confirming the proposed layout and built form is compliant with the relevant standards and guidelines (refer Attachment 10).



SDA Wide Assessment Criteria	Response
2. Water efficiency is optimised through the use of alternative water supply sources, including: (a) rainwater harvesting systems (b) recycled water source.	Complies The proposed development will be suitably connected to Council's reticulated water network. Where necessary, alternative water supply sources may be included following commencement of the development on the site.
Visual Impacts	
1. Visual impacts of buildings, retaining structures or other development are minimised through building design, landscaping or other mitigation measures when viewed from a publicly accessible view point such as major roads, public parks or Cleveland Bay.	Complies The proposed development has been appropriately designed to mitigate visual impacts from publicly accessible viewpoints. Specifically, the proposal provisions extensive landscaping to the road frontage, retains the existing fenceline traversing the eastern boundary and is intentionally set back sufficiently from the Port Access Road frontage.
2. Development incorporates high quality urban design and landscape treatments particularly for those areas highly visible from public roads.	Complies The proposed development has been designed to deliver high quality industrial amenity. The proposed development involves extensive landscaping to the western façade of the proposed warehouses, reducing built form bulk from the streetscape.
Built Form	
1. The scale, character and built form of development contributes to a high standard of amenity.	Complies The proposed industrial development has been intentionally designed to maintain a high standard of amenity and is of a scale sympathetic to surrounding industrial uses within CBIP.



SDA Wide Assessment Criteria	Response
2. Development must incorporate crime prevention through environmental design (CPTED) principles.	Complies The proposed development sufficiently incorporates crime prevention measures including appropriate lighting, fencing and surveillance measures.
Reconfiguring a Lot	
1. Development provides lawful, safe and practical access.	Complies The proposed development provides lawful, safe and practical access to each resultant allotment.
2. Infrastructure is provided generally in accordance with established infrastructure planning.	Complies The proposed development is provided infrastructure generally in accordance with the established infrastructure planning for CBIP.
3. Lot sizes are adequate to accommodate a development footprint consistent with the preferred development intent of each precinct. A range of lot sizes is preferred to accommodate development in each precinct. Minimum lot sizes for development precincts are generally consistent with the following: (a) Low Impact Industry Precinct – 1 hectare (ha) (b) Medium Impact Industry Precinct – 2 ha (c) High Impact Industry Precinct – 25 ha (d) Port Industry Precinct – 2 ha.	Alternate Solution The proposed development seeks to subdivide the subject site into two allotments for the purpose of provisioning the two proposed uses with separate freehold title. Whilst the minimum lot size for the Medium impact industry precinct of the <i>TSDA Development Scheme</i> is 2ha, the proposed development provisions allotments comprising 1ha. The development scheme nominates a preference to a variety of lot sizes to provision allotment within each precinct, with the proposed lot sizes considered adequate in accommodating the proposed and potential future industrial uses and operations on the subject site. It has been demonstrated that 1ha allotments can suitably accommodate and support built form and operations which align with the preferred development intent of the Medium impact industry precinct. Specifically, an identical subdivision was approved along Penelope Road to the south (Ref. ADP2023/008) which sought to provision freehold title to a proposed warehouse of similar scale on the site with the other lot comprising no confirmed use.



SDA Wide Assessment Criteria	Response
	Evidently, the reduced lot sizes are able to support a plethora of tenancies which directly rely on the strategic location and landscape of CBIP that do not require extortionate operation areas and promotes a diverse range of industrial uses and operations. The provision of freehold title to two respective structures on the subject site further ensures long-term tenancy and tenant confidence within the site, improving the longevity of the industrial park. Each respective building, use and associated hardstand, access, parking and servicing arrangements will be wholly contained within each resultant allotment without resulting in restrictions and limitations on operations. Additionally, the proposed development is located within the Special Purpose Zone of the <i>Townsville City Plan 2014</i>, with the purpose of the zone being to <i>facilitate industrial development that is of regional, state and national significance</i>. The nominated minimum lot size of this zone is 5,000m², with the proposed lot configurations providing land areas in between the prescribed lot size of TSDA and the planning scheme. In reference to the purpose of the Special purpose zone, it is evident a reduced lot size is considered suitable in accommodating and supporting significant and large scale industrial uses.
4. Further subdivision of the Environmental Management, Infrastructure Corridors, and Resources Precincts is not supported, unless being undertaken for operational, management or regulatory purposes, or if there is an overriding need.	Not Applicable The proposed development does not involve reconfiguring a lot within the Environmental Management, Infrastructure Corridors or Resources Precincts.
Landscaping	
1. Development provides landscaping that: (a) minimises the visual impacts of the development (b) incorporates at least 50% local species (c) maintains and enhances significant vegetation (d) is low maintenance.	Complies The proposed development provides for extensive on-site landscaping, particularly to the façade of the development, with this designed to reduce the impact of built form on the Penelope Road streetscape. Specifically, a 2m wide landscaping strip is proposed along the frontage of the southern lot, with a 6m wide landscaping strip proposed along the frontage of the northern lot. Extensive landscaping is incorporated into parking and access areas associated with each warehouse. The proposed landscaping will incorporate local species to the full extent practicable and be of low maintenance.



SDA Wide Assessment Criteria	Response
Natural Hazards – Flooding, including Storm Tide Inundation	
1. Development, in accordance with current best practice: (a) achieves an appropriate level of flood immunity (b) does not adversely affect existing flow rates, flood heights or cause or contribute to other flooding impacts on upstream, downstream or adjacent properties or the State transport network. This includes potential impacts from changes to stormwater flows and local flooding (c) avoids, minimises or mitigates adverse impacts from flooding to protect people and property, and enhances the community's resilience to flooding (d) supports, and does not hinder disaster management capacity and capabilities (e) avoids risks to public safety and the environment from the location of the storage of hazardous materials and the release of these materials as a result of a natural hazard.	Complies The proposed development is located within the Cleveland Bay Industrial Park, with the locality previously undergoing earthworks to ensure flood immunity of future industrial premises such as that proposed. The proposed development will not require extensive earthworks, with the proposed warehouses designed and sited to achieve appropriate flood immunity. Any storage of hazardous materials on the premises will be done in accordance with relevant standards to mitigate leaking and contamination during potential flood events. The proposal has been designed to incorporate internal stormwater infrastructure which seamlessly integrates with the existing stormwater management regime of the locality and avoids adverse impacts on the existing network (refer Attachment 11) The development is not considered to hinder disaster management capacity and capabilities.
2. Where development includes flood mitigation works: (a) development may consider flood mitigation works within the Environmental Management Precinct where it cannot otherwise be accommodated within the development precinct. Development will demonstrate that the extent of such works must be proportional to the total flood balance and must not restrict the development of other land (b) any flood mitigation works are to integrate environmental, cultural heritage and stormwater management outcomes.	Complies The proposed development does not involve any flood mitigation works. The proposed development is located within CBIP, which has previously been improved to incorporate wider flood mitigation measures. The proposed development will retain the existing flood mitigation measures of the locality, with the stormwater infrastructure associated with the site to discharge and integrate with the existing CBIP wide stormwater management regime.
Natural Hazards – Other	
1. Development, in accordance with current best practice: (a) identifies relevant natural hazards that may impact upon the development (b) appropriately manages risk associated with identified hazards (c) avoids increasing the severity of the natural hazard (d) for coastal hazards, avoid erosion prone areas wherever possible.	Complies The proposed development is located within CBIP, with the locality previously improved to accommodate industrial uses such as those proposed and mitigate adverse impacts of natural hazards on people and property. The subject site is identified as containing area of low to medium flood hazard, however the proposed development has been designed with building pads and integrated stormwater infrastructure to minimise flood impacts on the property. The property is not identified as containing area susceptible to other natural hazards. The proposed development will be constructed in accordance with relevant standards to mitigate risk of natural hazard events such as cyclones. Appropriate methods and procedures will be undertaken in the event of natural hazards implicating the site and surrounds.



SDA Wide Assessment Criteria	Response
Water Quality	
1. Development is located, designed, constructed and operated to avoid or minimise adverse impacts on environmental values of receiving waters arising from: (a) altered stormwater quality and hydrology (b) wastewater (other than contaminated stormwater and sewage) (c) the creation or expansion of non-tidal artificial waterways (d) the release and mobilisation of nutrients and sediments.	Complies The proposed development has been intentionally designed to ensure the warehouses will be constructed and operated to avoid or minimise adverse impacts on environmental values of receiving waters. The proposed development has been intentionally designed to incorporate internal stormwater management infrastructure which seamlessly integrates with the established stormwater drainage regime of the locality (refer Attachment 11). It is considered the proposed infrastructure will assist in ensuring stormwater discharged from the proposed development is of quality compliant with relevant standards. Furthermore, it is considered the requirement for a site-specific stormwater quality management plan can be included as a condition of approval.
2. Development encourages a precinct-wide stormwater management approach that achieves an improved water quality outcome.	Complies The proposed development and associated site-specific stormwater drainage regime has been intentionally designed to seamlessly integrate with the wider TSDA stormwater management regime.





Attachment 5

Federation Place,
Level 1, 42 Sturt Street
Townsville QLD 4810

PO Box 5075
Townsville QLD 4810
www.colliers.com

Main: +61 7 4722 2444
Fax: +61 7 4721 2811
Email: aaron.power@colliers.com



3rd October 2025

Coordinator-General
Department of State Development, Infrastructure, Local Government and Planning

Dear Sir/Madam,

RE: Market Demand for 1ha Industrial Lots – Townsville Region

Colliers Townsville has been actively engaged in the marketing and sale of industrial land and facilities across the Townsville region for many years. Based on our experience in the market, we can confirm that there is demonstrated demand for 1ha freehold industrial lots, particularly from end users who prefer ownership rather than leasehold arrangements.

One-hectare lots are well suited to a diverse range of medium-scale industrial operators including warehousing, servicing, transport and logistics businesses. These sites provide a functional footprint capable of accommodating standard industrial building formats (generally 1,500–2,500m²), while allowing for manoeuvring areas for heavy vehicles, loading bays, on-site parking, and landscaping.

The demand profile is consistent with Townsville's industrial market, which is underpinned by a broad mix of medium-scale users servicing the mining, construction, defence, logistics, and resources sectors across North Queensland. Importantly, these users require close connection to major transport infrastructure including road, rail and port facilities, all of which are strategically accessible from Townsville's industrial precincts.

In our professional opinion, 1ha industrial lots are considered viable, market-appropriate and attractive to purchasers within the Townsville region and will continue to form an important part of the city's industrial land supply.

Regards,

A handwritten signature in blue ink, appearing to read "AP", with a horizontal line extending to the right.

Aaron Power | Executive
Colliers Townsville



Attachment 6

DRAWING SCHEDULE		
#	Name	REV
0000	COVER SHEET	C
0001	FOR INFORMATION	B
0101	SITE PLAN	L
0102	STAGING PLAN	C
0110	EXTERNAL WORKS PLAN	D
1201	STRUCTURAL SETOUT PLAN	F
1301	FLOOR PLAN	H
2001	ROOF PLAN	D
3001	REFLECTED CEILING PLAN	D
4001	3D VIEWS	E
4101	ELEVATIONS	E
4102	ELEVATIONS	E
4201	SECTIONS	F
4202	SECTIONS	F
5101	DETAIL SECTIONS	B
6001	FLOOR PLAN - OFFICE	F
6002	RCP - OFFICE	E
6101	KITCHEN DETAILS	A
7001	METALWORK DETAILS - GENERAL	A
7002	METALWORK DETAILS - SCREENS	A
8101	WINDOW SCHEDULE	A
8401	DOOR SCHEDULE SHEET LIST	B
8402	DOOR SCHEDULE	B
8501	EXTERNAL FINISHES SCHEDULE	A

NOTES:
Only use figured dimensions. Do not scale from drawings.

10.07.2025	C	FIRE TANK	BC
18.06.2025	B	FOR CONSTRUCTION	PM
12.05.2025	A	PRELIMINARY	BC
date	no	revision history	chkd

key plan north

project/client

BUILDING B

LOT 12/ 110 PENELOPE
RD

FOR
MCDONALD CONSTRUCTIONS

seriestwo
architects

Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

Series Two Architects Pty Ltd

drawing title

COVER SHEET

project no:	scale:

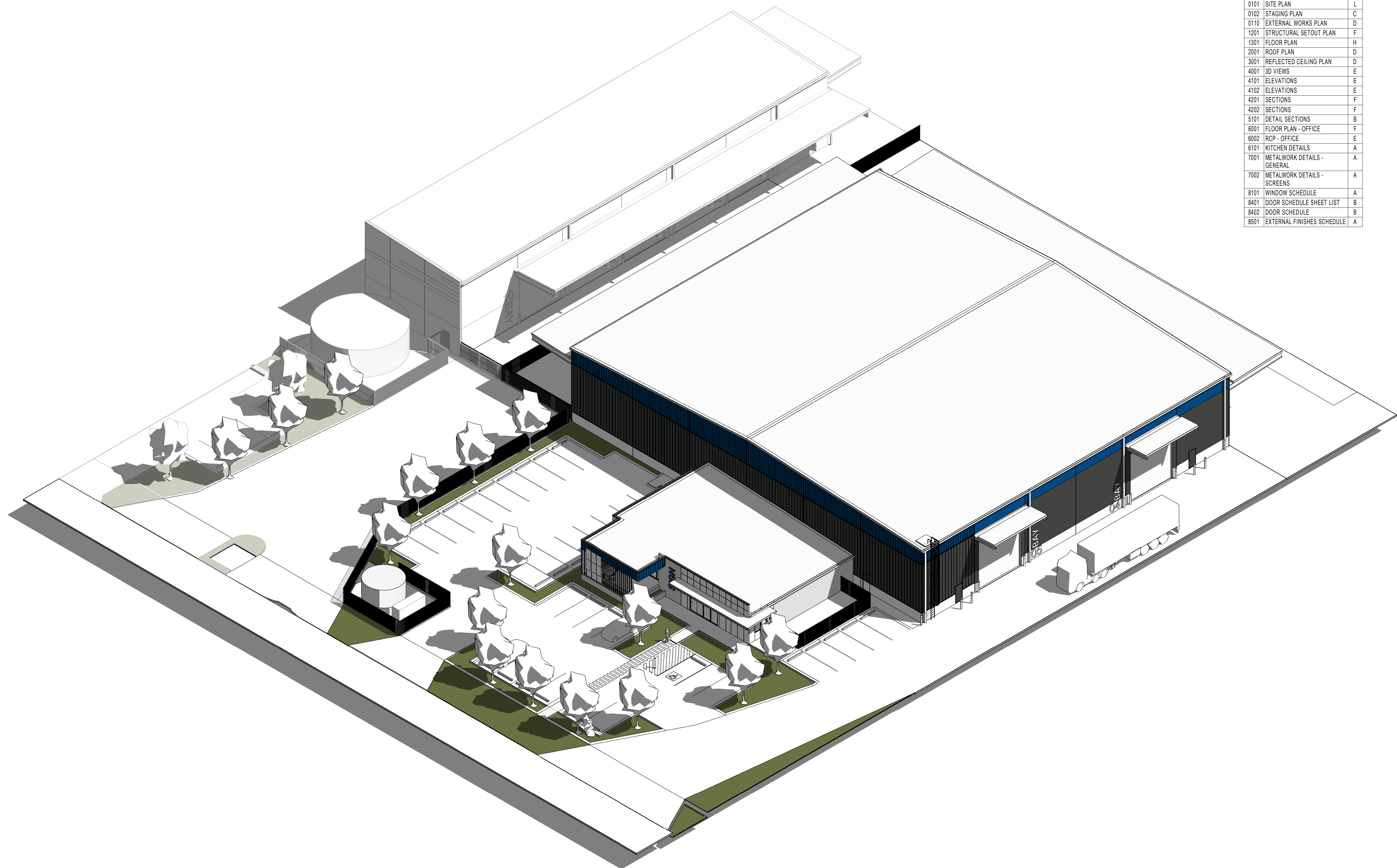
A2504.B NTS @A1

discipline	stage	dwg no	rev no

A	DD	0000	C

A	DD	0000	C

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BUILDING B

LOT 12/ 110 PENELOPE RD

Local Authority: TOWNSVILLE CITY COUNCIL

Lot/s:	12

RP/SP: SP315832

Site Area: 2ha.

FOR CONSTRUCTION

project no:		A2504.B		scale:		NTS		@A1	
discipline		stage		dwg no		rev no			
A		DD		0000		C			



INDICATIVE ONLY - CONTRACTOR/ CONSULTANT TO VERIFY SITE CONDITIONS SHOWN ON THIS DRAWING WITH CONTOUR AND DETAIL SURVEY AND ACTUAL SITE CONDITIONS.

NOTE - FOR ALL FLOOR LEVELS - REFER TO CIVIL ENGINEERS DRAWINGS

REAL PROPERTY DESCRIPTION
ADDRESS: 110 PENELOPE ROAD
LOT No: 12
RP/SP: SP315832
AREA: 2ha

BUILDING AREAS	
WAREHOUSE	2200m²
ADMIN.	300m²
TOTAL	2500m²

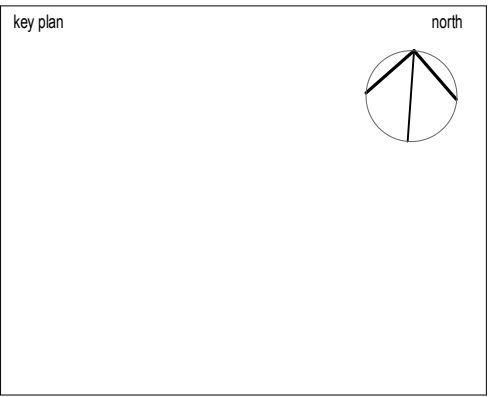
EXTERNAL AREAS	
OUTDOOR AREA (STAFF)	29m²
SERVICE AREA	292m²
EQUIPMENT AREA	88m²
HARDSTAND	2000m²

CAR PARKING: 36 CARS

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

date	no	revision history	chd
10.07.2025	L	FIRE TANK	BC
18.06.2025	K	FOR CONSTRUCTION	PM
03.06.2025	J	FOR INFORMATION	PM
02.06.2025	I	FOR CONSTRUCTION	PM
28.05.2025	H	PRELIMINARY	PM
21.05.2025	G	PRELIMINARY	PM
15.05.2025	F	PRELIMINARY	BC
13.05.2025	E	PRELIMINARY	BC
12.05.2025	D	PRELIMINARY	BC
09.05.2025	C	PRELIMINARY	BC
06.05.2025	B	PRELIMINARY	BC
02.05.2025	A	PRELIMINARY	BC



project/client
BUILDING B

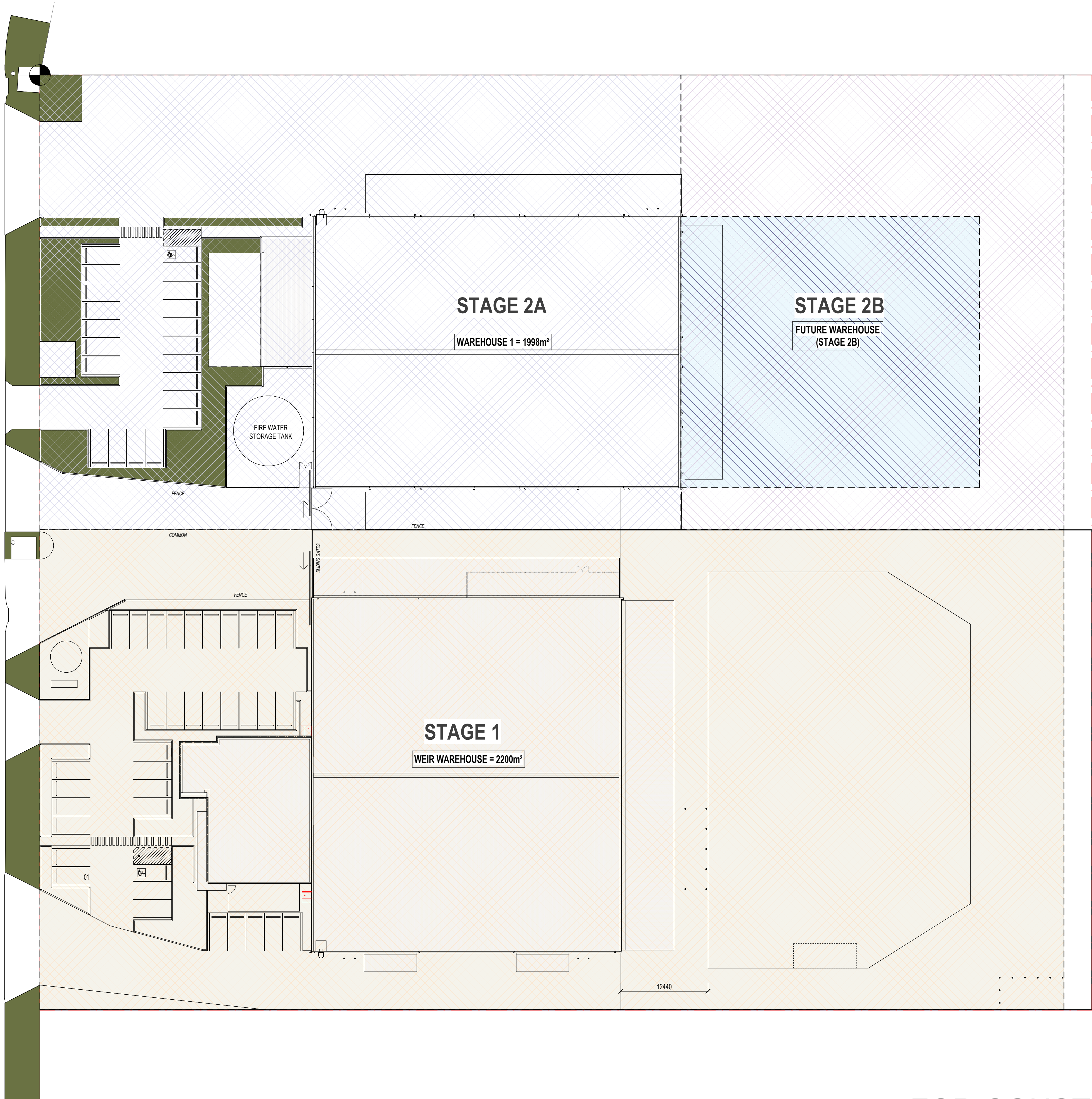
LOT 12/ 110 PENELOPE RD
FOR
MCDONALD CONSTRUCTIONS

seriestwo architects
Level 1 / 212 Constance St.
Fortitude Valley QLD 4006
Telephone (07) 3113 4082
hello@seriestwo.com.au
Series Two Architects Pty Ltd

drawing title			
SITE PLAN			
project no:	A2504.B	scale:	As indicated
discipline	stage	dwg no	rev no
A	DD	0101	L

FOR CONSTRUCTION





INDICATIVE ONLY - CONTRACTOR/ CONSULTANT
TO VERIFY SITE CONDITIONS SHOWN ON THIS
DRAWING WITH CONTOUR AND DETAIL SURVEY
AND ACTUAL SITE CONDITIONS.

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

10.07.2025	C	FIRE TANK	BC
18.06.2025	B	FOR CONSTRUCTION	PM
21.05.2025	A	PRELIMINARY	PM
date	no	revision history	chld



project/client
BUILDING B

**LOT 12/ 110 PENELOPE
RD**

FOR
MCDONALD CONSTRUCTIONS

**seriestwo
architects**

Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

Series Two Architects Pty Ltd

drawing title STAGING PLAN			
project no:	A2504.B	scale:	1 : 300 @A1
discipline	stage	dwg no	rev no
A	DD	0102	C

FOR CONSTRUCTION





Attachment 7



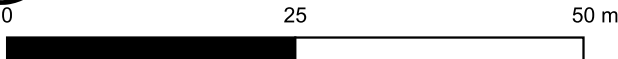
Proposed Reconfiguring a Lot - One Lot into Two Lot Subdivision

110 Penelope Road, Stuart
Proposed Lot 1 & 2
Cancelling Lot 12 on SP338024



PRELIMINARY PLAN ONLY

Note: dimensions are approximate only and are subject to site survey



Date	15 Oct 2025	Drawn	KJ
Scale	1:1000 at A3		
Drawing	NP25.112.D.01	Revision	B
Project Ref.	NP25.112		





Attachment 8



Preliminary Site Investigation

110 Penelope Road – Lot 12/SP338024, Stuart

Reference No:202519-1

Prepared for: McDonald Constructions

19 July 2025

Document Control

Document	Preliminary Site Investigation
Project Name	110 Penelope Road – Lot 12/SP338024, Stuart
Client	McDonald Constructions
Project Number	202519-1
Version Number	1

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Version No.	Date	Prepared By	Reviewed By	Approved For Issue By
1	19 July 2025	Alex Leurquin	Anton Fitzgerald	Anton Fitzgerald

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TERRA SOLUTIONS Company Details

Approved by	Anton Fitzgerald		
Address	Unit 2/106 Dalrymple Service Road, Currajong QLD 4812		
Signature			
Telephone	0435 752 239		
Email	anton@terrasolutions.com.au	Website	www.terrasolutions.com.au

The information within this document is and shall remain the property of:
Terra Solutions Pty Ltd and McDonald Constructions.

Important Notice

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1 Introduction

1.1 General

Terra Solutions Pty Ltd was engaged by McDonald Constructions to conduct a Preliminary Site Investigation (PSI) of Lot 12 on SP338024, at 110 Penelope Road in Stuart. The proposed lease area is comprised of unsealed land, historically used for livestock and hay cropping.

McDonald Constructions is undertaking the Preliminary Site Investigation (PSI) to assess the current contaminant status of the lease and identify any potential environmental risks, along with future obligations for their management.

The site is located within Stuart, a suburb within the Townsville City Council Local Government Area, located approximately 7 km from the Townsville City Central Business District (Figure 1) and within the designated Townsville State Development Area.

The purpose of the assessment was to inform the statutory planning process and identify potential contamination resulting from historical land uses. The site was previously classified as greenfield land, and there is no record of past industrial or commercial activity. It is anticipated that the likelihood of contamination is low.

1.2 Objectives

The objectives of the PSI are to:

- Evaluate the potential for site contamination arising from both historical and current activities conducted on the site.
- Assess the likelihood that contaminating activities on adjoining properties may have impacted the sites.

1.3 Scope of Work

To fulfil the above objectives of the PSI, Terra Solutions undertook the following:

- Review of the environmental and physical setting of the site, including geology, hydrogeology, and topography.
- Review the site history using available records including historical aerial photographs.
- Develop and implement a Sampling and Analysis Quality Plan.
- Site investigation by an experienced environmental scientist to identify potentially contaminating activities, adjoining sensitive receptors and collect soil samples for analysis.
- Preparation of this report presenting the findings of the PSI and conclusion with respect to the objectives in Section 1.2.

1.4 Published Guidelines

The assessment has been undertaken in general accordance with applicable guidelines including:

- Queensland Auditor Handbook for Contaminated Land–Module 6: Contaminated land investigation documents, auditor certification and compliance assessment (DES, 2018).
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (DCCEEW, 2013).
- National Environment Protection Council (NEPC) Act 1994 (DCCEEW, 2021).
- Australian Standard AS 4482.1–2005. Guide to the investigation and sampling of sites with potentially contaminated soil -Part 1: Non-volatile and semi-volatile compounds (Standards Australia, 2005a).
- Australian Standard AS 4482.2–2005. Guide to the sampling and Investigation of potentially contaminated soil - Part 2: Volatile substances (Standards Australia, 2005b).
- PFAS National Environmental Management Plan Version 3.0 (HEPA, 2025).
- Sampling design part 1 – application. Contaminated Land Guidelines (NSW EPA, 2022a).
- Sampling design part 2 – interpretation. Contaminated Land Guidelines (NSW EPA, 2022b).

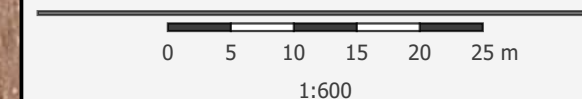
- Industrial Waste Resource Guidelines (IWRG701), Sampling and analysis of waters, wastewaters, soils and wastes (EPA Victoria, 2009), and
- Landfill Acceptance Criteria and Guide (Townsville Waste Services, 2021).



Terra

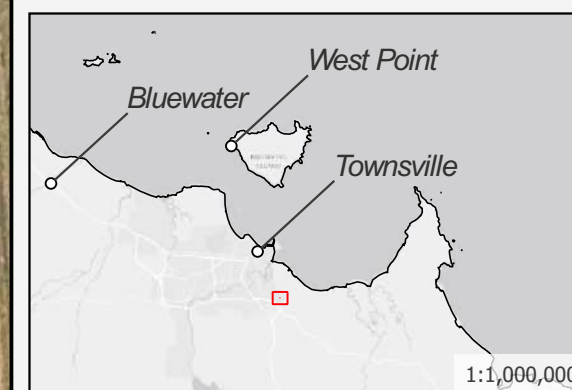
SOLUTIONS

FIGURE 1: SOIL SAMPLING SITES
AT LOT 12 ON SP338024



LEGEND:

- Soil Sampling Sites
- Lot 12 on SP338024
- 5m Buffer from Lot Boundary



PAGE SIZE: A3
CLIENT: McDONALD CONSTRUCTIONS
DATE: 12/06/2025
AUTHOR: A LEURQUIN
COORDINATE SYSTEM: GDA2020 / MGA zone 55

CREDITS:
Map data ©2015 Google, © State of Queensland (Department of Resources) 2024

2 Site Information

2.1 Site Details

The site and immediate surrounding area are shown in Figure 1, with the site particulars are summarised in Table 1.

Table 1: Site Particulars

Descriptor	Site Description
Real Property Description	Lot 12 SP338024
Local Government	Townsville City
Registered Owner	TBA
Address	110 Penelope Road, Stuart 4811,
Area	An approximate square shaped parcel of land approximately 2.02 ha, adjacent to Ron Mclean Drive (Southern Port Road) connecting to the Port of Townsville. Figure 1 shows the site layout.
Townsville City Planning Scheme	Special Purpose - located within the designated Townsville State Development Area
Land Use Zone	
Previous Land Use	Used for livestock and hay cropping
Proposed Land Use	Industrial site development
Surrounding Land Use	<u>North</u>: North of the site lies undeveloped Special Purpose zoned land - Designated Townsville State Development Area, and Ron McLean Drive. <u>East</u>: East of the site lies marsh and wetlands associated with Sandfly Creek located approximately 750 m to the east, and Ron McLean Drive including a roadside truck laydown and inspection area adjacent to the site. The JBS Australia meatworks facility is located approximately 2 km to the southeast of the site. <u>South</u>: South of the site lies the intersection of the Bruce and Flinders Highway located approximately 1.6 km to the south of the site. Manufacturing and industrial lots are located approximately 2.5 km to the south of the site associated with the Glencore Copper Refineries. <u>West</u>: Immediately west of the site lies Penelope Road and lots currently being developed for industrial purposes. Marsh and wetlands associated with Stuart Creek are located approximately 400 m to the west. Residential lots within the suburb of Cluden are located approximately 1,200 m to the west.

2.2 Site Layout

The site consists of predominantly unsealed land including a demountable site office and temporary buildings.

The working surface of the site is characterised by imported fill, with sealed roadways and verges to the east and the west of the site. Ron McLean road runs north to south to the east of the site and Penelope Road runs north to south to the west of the site.

Manufacturing and industrial sites are located within 2 km of the site to the southeast (JBS Australia meatworks facility), 2.5 km to the south (Glencore Copper Refineries) and 2 km to the southwest (Aurizon Freight Terminal).

2.3 Topography

The site is topographically flat, with the elevation generally varying between 4-6 m AHD (Australian Height Datum).

2.4 Acid Sulphate Soil Risk

Acid sulphate soils (ASS) are characteristic of low-lying coastal environments in Queensland, particularly where landform elevations are below 5m AHD. The geomorphic and site description criteria that are applied to determine if ASS is likely to occur, include:

- Land with elevation less than 5m AHD.
- Soil and sediment of recent geological age (Holocene), and
- Marine and estuarine sediments and tidal areas.

National acid sulphate soil (ASS) mapping (Fitzpatrick, Powell and Marvanek, 2011) indicates there is a low probability of ASS occurring at the site. Acid sulphate soils are unlikely to pose a constraint to the Project.

2.5 Regional Geology

The *Detailed geology (surface) - Queensland* 1:100,000 mapping indicates the site is underlain by sodosols – mottled yellow - consistent with recent quaternary alluvial systems likely associated with the nearby Stuart Creek and Ross River. The detailed surface geology attributes are presented in Table 2.

Table 2: Mapped Detailed Surface Geology of the Site

Map Symbol	Rock Unit Name	Lithological Summary	Dominant Rock	Rock Type & Age
Qpa	Qpa-QLD	Clay, silt, sand and gravel; flood-plain alluvium on high terraces	Alluvium	Stratified unit (including volcanic and metamorphic) Pleistocene (10,000 y - 2.5 mya)

2.6 Lithology

Observations made of the subsurface profile during excavation of test pits indicated the site is characterised by a compacted layer of imported gravel-based fill varying from 0.1 – 0.3 m below ground level (mBGL) and an imported yellow clay to 0.7 – 0.9 mBGL. This fill layer was underlain by predominantly brown and black clays. Test pits terminated at approximately 1.5 mBGL.

2.7 Hydrology

The site is located within the Stuart Creek freshwaters of the Ross River Basin as defined under the *Environmental Protection (Water and Wetland Biodiversity Policy) 2019 Ross River Basin and Magnetic Island Environmental Values and Water Quality Objectives*. Stuart Creek, a fifth order watercourse flows southwest to northeast approximately 400 m west of the site. Stuart Creek discharges into the Ross River approximately 4 km north northwest of the site.

An unnamed tributary of Stuart Creek flows east to southwest approximately 400 m to the north of the site.

Most of the site's surface water drains as overland flow into Stuart Creek during the wet season and heavy rainfall typically received during the months of December – April.

A visible constructed storm water drain runs along the eastern boundary of the site.

No on-site detention (OSD) was observed at the site.

2.8 Hydrogeology

A fractured or fissured, extensive aquifer of low to moderate productivity underlies the site. Two registered sub artesian groundwater bores are located within a 1 km radius of the site (Appendix A). There are no bores located within the site. Details of registered groundwater bores are presented in Table 3.

Table 3: Registered groundwater bores near site

Registered bore number	Direction/ distance from site	Standing water level (SWL) (mBGL)	Status	Roles	Screen depth (m)	Strata description at casing
RN209772	529 m south	-	Existing	-	Unknown	Brown sandy clay
RN186008	783 m southwest	6.00	Existing	Controlled flow	unknown	Coarse sand

3 Site History and Observations

3.1 General

Site history information was compiled based on a review of the following information sources:

- Historical aerial photography
- Information gathered from interviewing the previous landholder (Ross Kiernen), and
- Department of Environment and Science (DES) Environmental Management Register (EMR) and Contaminated Land Register (CLR) register

A site inspection was carried out by an experienced environmental scientist from Terra Solutions to make site observations and confirm site history information.

3.2 Historical Aerial Photography

Historical aerial photographs were reviewed to ascertain the development history and land use practices that may have resulted in site contamination and are represented in Appendix A. Site features and surrounding site conditions from the period of 1941 to 2025 are summarised in Table 4.

Table 4: Summary of Historical Aerial Imagery

Aerial Imagery Date	Comments
Aerial Imagery 1941 Black and White	Onsite: The site forms part of the Townsville City rural area, consisting of predominantly grassland alluvial plains associated with Stuart Creek with sparse vegetation, with evidence of a minor drainage line flowing from southeast to northwest. Offsite: The area surrounding the site consists of predominantly grassland alluvial plains associated with Stuart Creek with sparse vegetation and evidence of sand flats associated with tidal wetlands. The minor drainage line continues to Stuart Creek.
Aerial Imagery 1958 Black and White	Onsite: The site remains largely unchanged. Only remaining vegetation is associated with the minor drainage line. Evidence of cattle grazing with tracks running through the site along the minor drainage line. Offsite: The area appears to have been cleared for cattle grazing. Visible livestock tracks run through the minor drainage line to Stuart Creek.
Aerial Imagery 1965 Black and White	Onsite: A fence line or vehicle track is present, intersecting the site on the western boundary and continuing in a north-westerly direction. The minor drainage has become more difficult to define with a considerable reduction of vegetation. Offsite: A fence line or vehicle track is present from the southeast to the northwest terminating at the drainage line to the northwest of the site. A vehicle track is present from the southwest continuing northwards toward a sandy creek crossing at Stuart Creek. Moderate vegetation is present to the south of the site.
Aerial Imagery 1977 Black and White	Onsite: The rural landscape is consistent and unchanged. Offsite: The rural landscape is consistent and largely unchanged. Sparse vegetation is present surrounding the site. Vehicle tracks are no longer evident amongst the sparse vegetation.
Aerial Imagery 1986 Black and White	Onsite: Evidence of clearing on site. Few trees remain in the drainage line. No evidence of new infrastructure or disturbance. Offsite: Vehicle tracks and fence lines are present along the edge of Stuart Creek and the sand flat to the east of the site. The vehicle track crossing Stuart Creek is present.
Aerial Imagery 1999 Colour	Onsite: Evidence of hay cropping on site. Drainage line has become more evident, likely as a result of irrigation. Offsite: Much of the area has been converted to hay cropping within the boundaries of the fence lines and vehicle tracks that were present in the 1986.

Aerial Imagery Date	Comments
Aerial Imagery 2005 Colour	Onsite: The site remains unchanged. Ongoing hay cropping on site. Offsite: The area surrounding the site remains unchanged. Ongoing hay cropping. Stuart Creek crossing is dry. Potential herd of livestock northeast of the site.
Aerial Imagery 2015 Colour	Onsite: Trenching along the eastern boundary of the site associated with the installation of the Townsville City Council (TCC) stormwater line, is present. Hay cropping appears to have ceased. Offsite: Ron McLean Drive constructed to the east of the site including Queensland Transport and Main Roads (TMR) roadside inspection facility and weighbridge and road train decoupling pads. Small herd of livestock present to the west of the site. Vehicle track present traversing the site from southwest to northeast, intersecting trenching associated with TCC stormwater line.
Aerial Imagery 2015 Colour	Onsite: The site has been cleared of all vegetation and covered with a grey gravel fill. Offsite: Penelope Road constructed to the west of the site. Evidence of further development to the west of Penelope Road. Industrial logistics sites constructed approximately 200 m to the south southwest of the site.

3.3 Contaminated Land Data Base

A search of the contaminated land database indicates no contaminated lands are registered at the site. Search certificates from DETSI's EMR and CLR registers are provided in Appendix A. The search indicates sites that are being investigated by the Department of Defence for PFAS contamination are located within 2 km of the western boundary of the site.

The search indicates no potentially Unexploded Ordinance (UXO) are registered at the site.

3.4 Environmental Authority and Prescribed Resource Activities

A search of the Environmental Authority register indicates no environmentally relevant activities are registered at the site. Environmental Authorities within 1 km of the site include the following:

- EPPR00767413 – Lot 105 on SP253485 ERA 25 Meat Processing (2b) 5000t - 50,000 t per year, ERA 63 Sewage Treatment daily peak design capacity 100-1500 EP.
- A former Environmental Authority was registered within 1 km of the site include the following:
- EA0000964 (Expired) – Lot 13 on SP277531 ERA 50 Mineral and Bulk Material Handling loading or unloading 100 t or more of minerals in a day, other than loading or unloading or storing 50,000 t or more of minerals.

A former prescribed resource activity was registered on site pertaining to mineral exploration across the general area as stated below.

- EPSX00164713 (Surrendered)– Exploration – Coal (Mineral and Coal Investments Pty Ltd) related to premise EPC1492.

A former prescribed resource activity was registered at the site for Non-Scheduled petroleum activity – petroleum survey licence (PSL) as described below:

- EA0002690 (Surrendered) –Non-Scheduled Petroleum Activity, Petroleum Survey Licence (Origin Energy Future Fuels Pty Ltd) related to premise PSL2052.

3.5 Previous Investigations

Previous investigations were not available for the site.

3.6 Site Interview

A meeting was conducted with the previous owner of the site (Ross Kiernen) on 17 June 2025 to gain further information pertaining to the site history. A summary of key points is provided below:

- No infrastructure other than fencing and vehicle tracks have been installed at the site.
- Ross Kiernen had retained sole management of the property in recent history for the purposes of grazing and irrigated hay production.
- No subsurface irrigation is known to be present and no cattle yards and gates, water troughs etc. have been placed at the site.
- Surface flows from adjacent areas may have flowed across the site during times of heavy rainfall prior to development.
- No waste disposal (water and or sediment) has occurred on the site over the life of Ross' tenure managing the site.

3.7 Site Observations

A site inspection was conducted by suitably qualified environmental scientist Keeleigh Parison on 20th June 2025. The objectives of the site inspection were to confirm sample locations and identify potential areas of contamination. Observations at the time of the inspection are detailed below:

- The site is unsealed and cleared of all vegetation.
- Uncleared grass fields are located to the north and the south of the site.
- Ron McLean Drive runs north to south adjacent to the eastern boundary of the site including a TMR roadside inspection facility and weighbridge and road train decoupling pads.
- Penelope Road runs north to south adjacent to the western boundary of the site.
- The site is characterised by low relief with surface flow during heavy rainfall overland and generally to the west.
- Activities adjacent to the lot boundary of the site include additional sites being developed on Penelope Road.



Plate 1 Bore hole highlighting the extent of the gravel fill



Plate 2: Typical soil profile to 1.2 m BGL, Gravel fill, with brown clay fill and underlying black Clays.

4 Potential Areas of Concern

4.1 Potential Sources of Contamination

Based on the site history and observations made during the site inspection contamination of the site is considered unlikely however the following activities provide potential sources of contamination at the project area:

- Imported fill that was used to cap the site.
- Historical flooding of the site carrying potential contaminants

Ron McLean Drive to the west of the site may present a low potential soil contamination to the site sourced from dust potentially from industrial sources generated from decoupling road trains, and spills from broken down vehicles.

4.2 Areas of Environmental Concern and Contaminants of Concern

One potential area of environmental concern (AEC) was identified at the site, in association with Ron McLean Drive. A summary of the AEC and associated contaminants of concern (COCs) are summarised within Table 5. A preliminary assessment of the likelihood for contamination to be present within the AEC was based on desktop information, site observations and experience on similar sites.

Table 5: Summary of Identified AECs

Potential AEC	Potentially Contaminating Activity	COCs	Likelihood of Potential Contamination* (Low, Moderate, High)
Dust from potential industrial sources e.g., resulting from road train decoupling pad on Ron Mclean Drive	Migration to surrounding soil, surface and ground water	Heavy metals, OCP/OPP, petroleum hydrocarbons (TRH, BTEXN, PAHs, Phenols).	Low
*This is a qualitative assessment of the potential for contamination to be present within the AEC, not the impact (financial or other) associated with the contamination.			

5 Conceptual Site Model

A preliminary Conceptual Site Model (CSM) has been prepared which presents potential source(s), pathway(s) and ecological/human receptor(s) linkages. The preliminary CSM forms the basis for decisions regarding the scope of works for further assessment and the ongoing contamination management and remediation options.

The potential contamination sources, migration and exposure pathways and sensitive receptors are summarised below in Table 6.

Table 6: Preliminary Conceptual Site Model

Source	Potential Contaminants of Concern	Impacted Medium	Migration/Exposure Pathway	Potential receptors	Receptor Exposure Route
Dust deposition from nearby industrial activity (Ron McLean Drive – road train decoupling pad, weighbridge, inspection area)	Heavy metals (e.g., lead, zinc), petroleum hydrocarbons (TRH, BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine organophosphate pesticides (OCP/OPP)	Soil (surface, shallow subsurface and native surface) Potentially groundwater	Deposition of particulates Stormwater runoff Percolation through unsealed soil layers	On-site workers Off-site ecological receptors (e.g. Stuart Creek, wetland areas) Off-site workers	Inhalation of fugitive dust Dermal contact during soil disturbance Ingestion (indirect via contaminated dust or water) Uptake by biota
Imported fill materials (unknown provenance) used for site levelling	Trace metals, residual hydrocarbons, PFAS	Soil (fill layer) Potentially groundwater	Contaminant leaching during rainfall Soil disturbance during site works	On-site workers Ecological receptors	Dermal contact Inhalation of volatile organics
Localised site flooding from excessive stormwater flow from adjoining developed areas	Hydrocarbon residues, sediment-bound metals, suspended solids	Surface soil Shallow infiltration zone	Flow from Ron McLean Drive Drainage through on-site stormwater	Receiving waters	Runoff and deposition Biota uptake
Historical land use including livestock grazing and hay cropping	Residual agricultural chemicals	Native surface soils	Legacy accumulation of fertiliser inputs	Soil organisms	Soil contact by fauna
Accidental spills or equipment leaks from adjacent roads or commercial properties	Heavy metals (e.g., lead, zinc), petroleum hydrocarbons (TRH, BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine/organophosphate pesticides (OCP/OPP)	Surface soil Potentially groundwater	Infiltration at spill location Surface runoff to site Subsurface migration (minor, due to clay barriers)	On-site workers Ecological receptors	Dermal contact or inhalation Biota uptake

6 Assessment Criteria

To evaluate the significance of contaminants detected in soil samples, appropriate human health and ecological screening levels must be applied. These generic screening criteria represent threshold concentrations above which contaminants may pose a risk to human health or the environment, potentially warranting further investigation, site-specific risk assessment, management, or remediation.

Although the site was previously classified as greenfield with no recorded industrial or commercial use, the soil analytical results have been conservatively compared against criteria relevant to potential receptors, including maintenance and construction workers within a commercial/industrial setting. The site and surrounding land are zoned Special Purpose under the Townsville City Planning Scheme (2024), which supports this approach.

Based on these considerations, the following assessment criteria from the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013) – Schedule B1 have been applied:

Health Investigation / Screening Levels

- Soil analytical results have been assessed against the Health Investigation Levels (HILs) provided in NEPM (2013) Schedule B1: Guidelines on Investigation Levels for Soil and Groundwater.
- For selected petroleum hydrocarbons, Health Screening Levels (HSLs) developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) have been adopted. These are referenced in NEPM (2013) and informed by Friebe and Nadebaum (2011).
- Assessment of petroleum hydrocarbons is primarily driven by human health risks from volatile fractions (e.g., TRH C6–C10, >C10–C16, benzene), which may pose risks via vapour intrusion.
- HSLs vary depending on land use, soil type, and depth. For this investigation, criteria applicable to clay-dominated soils at shallow depth (0–1 m) have been used to screen the laboratory results.

6.1 Ecological Investigation / Screening Levels

To investigate potential ecological risks, soil analytical results were compared against the ecological investigation levels (EILs) and ecological screening levels (ESLs) appropriate for the commercial/industrial land-use as detailed in NEPM (2013), Schedule B (1) – Guidelines on Investigation Levels for Soil and Groundwater (NEPM 2013).

EILs are derived for common contaminants in soil including arsenic, copper, chromium III, DDT, naphthalene, nickel, lead and zinc. EILs consider physicochemical properties of soil (i.e., cation exchange capacity, pH and clay content) and the capacity of the local ecosystem to accommodate an increase in contaminant levels (added contaminant level or ACL) above ambient background. EILs also generally apply to the top 2m of soil which corresponds to the root zone and habitat zone of many species.

Different EILs apply to 'fresh' contamination (i.e., current activity and chemical spills) and 'aged' contamination (i.e., a contaminant that has been incorporated into a soil for more than two years). For this assessment, 'fresh' and 'aged' EILs have been adopted because any contamination present at the site in the imported fill is likely to have been introduced recently while any contamination present in the deeper native clays are likely to have been present for greater than two years.

Nil ambient background concentrations have been applied to calculate EILs for copper, nickel, chromium and zinc.

ESLs have been developed for selected petroleum hydrocarbon compounds, including TRH (F1 (C6-C10) being obtained after subtraction of BTEX) and benzo(a)pyrene, and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse and fine-grained soils and consider various scenarios (i.e., apply to top 2m of soil and for 'fresh' and 'aged' contamination). For this report, fine-grained soil, 'fresh' and 'aged' ESLs were adopted.

The following guidelines have been referenced in relation to the soil assessment:

- ESL D – for Commercial and industrial sites (fine grained soil texture – clay) for TRH and BTEX.
- NEPM 2013 HIL-D – Commercial Industrial.
- NEPM 2013 HIL-A – Residential A (surrogate for 'clean earth').
- NEPM Conservation EILs for Commercial/industrial – fresh and aged.
- NEPM Management Limits for total petroleum hydrocarbon (TPH), and
- CRC Care 2011 Soil Direct Contact Intrusive Works (Friebel and Nadebaum, 2011).
- PFAS NEMP 2020 Industrial/ commercial (HIL D)

7 Sample Analysis and Quality Plan (SAQP)

7.1 Data Quality Objectives

The data quality objectives (DQO) in Table 7 were developed for this project and are based on the requirements detailed in ASC NEPM (2013 as amended). The sampling and analysis schedule completed for this project is described in Table 7. Data Quality Indicators (DQIs) are included in Section 9.

Table 7: Data Quality Objectives

Step	Data Quality Objectives	Approach
1	State the problem – Define the problem that necessitates the study; identify the planning team, examine budget, schedule.	The primary objectives of the assessment programs were to: - Assess the potential for soil contamination to be present at the nominated site. - Provide recommendations on the need for further investigations and/or management. The main problems are: - How many samples should be collected? - What media should be sampled? - What sample layout should be used to achieve the above objectives? - What analytes should be tested?
2	Identify the goal of the study – State how environmental data will be used in meeting objectives and solving the problem, identify study questions, define alternative outcomes.	The study goal identification component of the DQO process represents the key steps/issues that need to be reviewed/considered in order to resolve the problem identified in Step 1. The decision statement is as follows: - What is the extent and concentrations of contaminants of potential concern (CoPC) present in the fill material? - What is the potential health and ecological risk associated with site? The key issues to be addressed are as follows: - Are the analytical data valid? - Have sufficient data been collected to characterise the variations in concentrations of contaminants in fill material within the boundaries of the site? - What are the concentrations of CoPC from within the boundaries of the site? - Are the concentrations of CoPC from within the project area likely to present an unacceptable risk to human health?
3	Identify information inputs – Identify data and information needed to answer study questions.	To allow assessment of the data against the study goal listed above, the following inputs will be considered: - The analytes selected and standard laboratory detection limits are summarised in Table 1. - The medium to be sampled is fill material within the project area. - Interview relevant people with regards to potentially contaminating activities undertaken on the site.
4	Define the boundaries of the study – Specify the target population and characteristics of interest, define spatial and temporal limits, scale inference.	The spatial boundaries of this site area those defined by Figure 1. The samples will be collected from within the boundaries of the project area as defined Figure 1.

Step	Data Quality Objectives	Approach
		All sampling is planned for 30 – 31 August 2023.
5	Develop the analytic approach – Define the parameter of interest, specify the type of inference and develop the logic for drawing conclusions from findings.	The laboratory will analyse the soil samples for a suite of CoPC as defined in Section 7.2. The decision rule is to evaluate the concentrations of the CoPC in soil samples based on the following: • If the laboratory quality assurance/quality control data are within the acceptable ranges (Section 7.5.1), the data will be considered suitable for use. • If the CoPC are reported above the laboratory LOR in one or more of the samples, then the data will be further evaluated in the revised conceptual site model. • If the CoPC are below the laboratory LOR in all soil samples, then it will be considered that there is no risk to human health. • The primary laboratory that will be used is SGS, with the secondary laboratory proposed as ALS.
6	Specify performance or acceptance criteria – Develop performance criteria for new data. being collected or acceptable criteria for existing data being considered for use.	A decision error may occur when the sampling program does not adequately detect the variability of a contaminant spatially across the site. The objective is to provide a due diligence assessment of CoPC and not to adequately characterise the site as defined by the AS4482.1. Measurement errors can occur during sample collection, handling, preparation, analysis and data reduction. To address this the following measures are proposed: • Collection of sufficient sample mass to facilitate analysis reported to standard laboratory detections limits. Collection of insufficient sample mass may result in raised detection limits. • Field staff to follow a standard procedure when collecting samples as presented in Section 7.2.4. • Laboratories to follow standard procedure when preparing samples for analysis and undertaking analysis. • Laboratories to report quality assurance/ quality control data for comparison with the data quality indicators established for the project. • Laboratories will be requested to report the measurement uncertainty for each analytical result as per ISO17025 and NATA requirements.
7	Develop the plan for obtaining data – Select the resource-effective sampling and analysis plan that meets the performance criteria.	The methodology presented in the SAQP is designed to meet the objectives described in Section 1.2 and to achieve the nominated DQOs.

7.2 Field Investigations

7.2.1 Sampling Program

A judgemental sampling program was used to characterise the site and assess potential soil contamination across the approximately 1-hectare area. This approach is suitable given the greenfield context and absence of known contaminant sources.

While AS 4482.1 – 2005 recommends 21 sampling points for a 1-hectare site under a systematic grid, this applies to sites with known or likely contamination. For greenfield sites, a reduced density is supported by the NEPM (1999) Schedule B2, Section 6.4 and the NSW EPA (2011) Guidelines, which recommend a minimum of five sampling locations for such conditions.

Judgmental sampling enables efficient targeting of areas based on site history and visual indicators, ensuring compliance with risk-based NEPM principles while avoiding unnecessary oversampling.

The sampling program was undertaken by a suitably qualified scientist and comprises the following:

- Progressing 5 test pit excavations across the site.
- The collection of soil samples from each test pit for selective analysis, and
- Appropriate quality control and quality assurance (QA/QC) samples were also collected in accordance with applicable site assessment guidelines.

7.2.2 Sampling Locations

Figure 1 presents the sampling locations on the site.

7.2.3 Test Pit Operations and Logging

A total of 5 test pits were progressed across the site to a maximum depth 1.5 mBGL, sample locations are provided in Figure 1.

Sample density was in line with the judgemental sampling program described in section 7.2.1 above.

Prior to commencement of test pit investigation, the results of a Dial Before you Dig (DBTD) search were reviewed, and spotter in place at the excavator.

The test pits were positioned in accordance with a judgemental sampling pattern to provide broadly even coverage across the site. The test pits were located using a handheld Global Positioning System (GPS).

Test pits were progressed using an excavator bucket to provide discrete level assessment of the soil profile through the fill and natural material before terminating at approximately 1.5 mBGL. No perched groundwater was encountered at the site.

During the test pit investigation, the encountered fill was geologically logged, taking care to describe the presence and depth of fill material, moisture, seeps or water bearing zones, and adverse aesthetics such as discoloration, odours or obvious evidence of contamination.

The subsurface conditions and total depth were recorded for each test pit provided in Appendix B.

7.2.4 Sampling Procedures

In accordance with the NEPM (2013) Schedule B (2) Guideline on Site Characterisation, samples were collected from test pit location immediately beneath the surface. An additional three (3) samples were collected from each borehole, including 0.5m, 1.0m and 1.5 m or at changes in fill or soil type, or at depths where the presence of contamination was indicated (e.g., colour, odour, unusual substances and liquids). Sample depths were validated and varied depending on strata and visual or olfactory indicators of contamination.

Samples were collected directly from the excavator bucket, using new nitrile gloves and immediately placed in laboratory supplied, acid washed glass jars and sediment bags. Care was taken to ensure that a representative sample was collected from the depth required and the sample integrity is maintained, particularly when sampling for volatile and semi-volatile contaminants.

When collecting duplicates, samples to be analysed for volatiles were not mixed, rather they were split and placed directly into separate jars.

The samples were labelled with a discrete sample identification number, in addition to the date of collection and project number.

7.3 Analytical Program

Samples were analysed for soil characteristics and contaminants. Soil analysis parameters are presented in Table 8. Two samples from each test pit were analysed for this broad suite of parameters. The remaining two samples were held in the laboratory with analysis dependant on results from the two analysed samples.

Background samples of native soils was also tested for pH, electrical conductivity (EC), cation exchange capacity (CEC), exchangeable cations, to support derivation of localised environmental investigation levels (EILs) and environmental screening levels (ESLs) in addition to the potential contaminants of concern.

Table 8: Soil Analysis Parameters

Soil Analysis Parameters		Units	Samples analysed
NEPM Soil characteristics	Total Iron	mg/kg	BG (0.7-0.9) BG (0.9-1.1)
	Cation Exchange Capacity (CEC)	meq/100g	
	pH	pH units	
	Calcium chloride (CaCl ₂)	mg/kg	
	Total Organic Carbon (TOC)	mg/kg	
	Clay content	%	
Conductivity		µS/cm	MSC1 (0.1-0.3) MSC1 (0.9-1.1) MSC2 (0.7-0.9) MSC2 (1.2-1.3) MSC3 (0.1-0.3) MSC3 (1.2-1.3) MSC4 (0.1-0.3) MSC4 (1.2-1.3) MSC5 (0.7-0.9) MSC5 (0.9-1.1).
Total Recoverable Hydrocarbons (TRH)		mg/kg	
BTEXN	Benzene	mg/kg	
	Toluene	mg/kg	
	Ethylbenzene	mg/kg	
	Xylenes	mg/kg	
	Naphthalene	mg/kg	
Polycyclic Aromatic Hydrocarbons (PAH)		mg/kg	
Speciated Phenols		mg/kg	
Heavy Metals	Arsenic	mg/kg	
	Barium	mg/kg	
	Beryllium	mg/kg	
	Cadmium	mg/kg	
	Chromium	mg/kg	
	Cobalt	mg/kg	
	Copper	mg/kg	
	Manganese	mg/kg	
	Nickel	mg/kg	
	Lead	mg/kg	
	Vanadium	mg/kg	
	Zinc	mg/kg	
	Mercury	mg/kg	
Organochlorine and organophosphate pesticides (OCP/OPP)		mg/kg	MSC1 (0.9-1.1) MSC2 (0.7-0.9) MSC3 (0.1-0.3) MSC (0.1-0.3) MSC5 (0.9-1.1)
Polychlorinated biphenyls (PCB)		mg/kg	
Perfluorinated surfactants (PFAS)		mg/kg	

7.4 Analytical Laboratories

The primary and duplicate soil samples were analysed by SGS Laboratories Pty Ltd (SGS), and secondary samples (split duplicates) were sent to Eurofins Environment Testing Australia Pty Ltd (Eurofins). Both laboratories are National Association of Testing Authorities (NATA) accredited for the analysis undertaken.

7.5 Quality Assurance and Quality Control

Data Quality Indicators for the project were based on the field and laboratory considerations in NEPM Schedule B2 (NEPC 2013) (refer Section 9.1) which include:

- Completeness – a measure of the amount of useable data (expressed as %) from a data collection activity.
- Comparability – the confidence (expressed qualitatively) that data may be equivalent for each sampling and analytical event.
- Representativeness – the confidence (expressed qualitatively) that data are representative of each media present on the site.
- Precision – A quantitative measure of the variability (or reproducibility) of data, and
- Accuracy – a quantitative measure of the closeness of reported data to the true value.

Results of quality control testing are presented Section 9.

7.5.1 Field Quality Assurance and Quality Control

7.5.1.1 Field Sampling

Field QA/QC sampling included the collection and analysis of the following types of samples provided in Table 9.

Table 9: Field Quality Assurance and Quality Control Sample Details

Field QA/QC Sample Type	Description
Intra-laboratory (blind) and Inter-laboratory (split)	Comprises a single sample that is divided into three separate sampling containers. Samples collected at the same time and from the same sampling point as the corresponding primary sample, and the intra laboratory sample is analysed at the same laboratory and the inter-laboratory sample is analysed at separate laboratory. Replicates are collected, preserved, stored, transported and analysed in the same manner as the primary sample, with the laboratory having no knowledge of the source of the replicate sample. The intra-laboratory sample is used to evaluate total sampling and analysis precision and, in the case of soil samples, sample variability. The inter-laboratory sample is used to provide a check on the analytical proficiency of the laboratories and hence precision and comparability.

The data quality criteria for field QA/QC samples are provided in Table 10.

Table 10: Data Quality Criteria for Field Quality Assurance and Quality Control Samples

Data Type	Collection/Analysis	Data Quality Limit
Intra-laboratory duplicates (blind)	1 for every 10 samples collected and analysed	30%-50% of mean concentration of analyte. Variation can be expected to be higher for organic analyses than for inorganics, and for low concentrations of analytes.
Inter-laboratory duplicates (split)	1 for every 10 samples collected and analysed	

The reproducibility of the duplicate (QA) sample was assessed using replicate sample sets in accordance with AS4482.1 – 2005: Guide to Sampling and Investigation of Potentially Contaminated Soil (Part 1: Nonvolatile and

Volatile Compounds). Relative percent deviation (RPD) was calculated between primary and duplicate sample results using the following formula (where results are above laboratory limits of reporting):

$$RPD = \frac{(x_1 - y_1)}{(x_1 + y_1/2)} \times 100$$

1. Where: x_1 is the primary sample analyte concentration; and y_1 , is the duplicate sample analyte concentration, and
2. RPDs are to be less than 30% of inorganic analyses.

7.5.1.2 Sampling and Handling and Preservation

Samples were collected directly from the excavator bucket, using single-use nitrile gloves and were immediately placed in laboratory supplied, acid-washed glass sample jars and sediment bags. Care was taken to ensure that a representative sample was collected from the depths required and the sample integrity was maintained, particularly when sampling for volatile and semi-volatile contaminants.

All samples were sent to and received at the laboratory in appropriately preserved containers, with preservation including packing samples with ice bottles in eskies.

7.5.1.3 Chain of Custody

All samples were logged and transferred under completed chain of custody forms.

7.5.1.4 Holding Times

Laboratories define recommended holding times for samples and provide the date and time the sample was extracted and tested for comparison to recommended holding times.

7.5.1.5 Decontamination Procedures

Only dedicated sampling equipment was employed for the investigation. Equipment that was reused on site including (e.g., stainless bowl for composite sample collection) was decontaminated between sampling locations by being scrubbed clean with phosphate detergent solution (e.g., Decon 90) and rinsed with deionised water.

7.5.2 Laboratory Quality Assurance and Quality Control

The data validation process and overall QA/QC procedures used to assess the effectiveness of the overall analytical process and to assess the use of data are outlined in Table 11.

Table 11: Laboratory QA/QC

Laboratory QA/QC Sample	Details
Laboratory (Method) Blank	Usually, an organic or aqueous solution that is as free as possible of analytes of interest to which is added all the reagents, in the same volume, as used in the preparation and subsequent analysis of the samples. The reagent blank is carried through the complete sample preparation procedure and contains the same reagent concentrations as the final solution as in the sample solution used for analysis. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample.
Laboratory Control Sample	A reference sample standard of known concentration is analysed along with a batch of samples. The laboratory control sample provides an indication of the analytical accuracy and the precision of the test method and is used for inorganic analyses.
Laboratory Spike	An authentic field sample is 'spiked' by adding an aliquot of known concentration of the target analyte(s) prior to sample extraction and analysis. A spike documents the effect of the sample matrix on the extraction and analytical techniques. Spiked samples were analysed for each batch where samples are analysed for organic chemicals of concern.

Laboratory QA/QC Sample	Details
Surrogate Samples	These are organic compounds which are similar to the analyte of interest in terms of chemical composition, extractability, and chromatographic conditions (retention time), but which are not normally found in environmental samples. These surrogate compounds are 'spiked' into blanks, standards and samples submitted for organic analyses by gas-chromatographic techniques prior to sample extraction. Surrogate standards/spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss.
Laboratory Duplicates	The analytical laboratory collects duplicate sub samples from one sample submitted for analytical testing at a rate equivalent to one in twenty samples per analytical batch, or one sample per batch if less than twenty samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the test result. The precision of analysis performed by the laboratory is determined by the calculation of the relative percent difference (RPD). The RPD is calculated based on comparison of an intra-laboratory split of the sample materials with results representing the percent difference between the two sample concentrations for a specific contaminant.

8 Results

8.1 Field Observations

A site inspection and site sampling were undertaken on 20 June 2025, with key observations detailed in Section 3.7. There were no visual or olfactory indicators of contamination identified during the test pit field investigation.

8.2 Soil Lithology

The soil lithology across the site was generally uniform, comprising an upper layer of grey gravel fill ranging from 0.1 to 0.3 m in thickness, underlain by a yellow brown to brown clay fill layer between 0.5 and 0.8 m thick.

Natural clays were encountered at approximately 0.7 to 0.9 m below surface level, initially presenting as a 0.1 to 0.2 m thick layer of moist black or brown-black clay, which transitioned to brown clay at depths of approximately 1.0 to 1.3 m below surface level.

Moisture content increased slightly with depth, and no significant stratigraphic variation or signs of anthropogenic disturbance were observed below the fill horizon.

Soil bore logs are presented in Appendix B.

8.3 Soil Analysis

The results of the analysis are presented in Appendix C and laboratory certificates are present in Appendix D.

The results are summarised as follows.

- No exceedances of the soil assessment criteria for human health and the environment for COCs analysed were reported.

8.3.1 Heavy Metals

- Metals arsenic, barium, beryllium, Chromium (III+VI), cobalt, copper, lead, manganese, nickel, vanadium and zinc were above detectable limits, however, did not exceed ecological or human health criteria.
- Total concentrations of cadmium and mercury (mg/kg) were below the laboratory Limit of Reporting (LOR) at all five sites and at all depths tested.

8.3.2 Total Recoverable Hydrocarbons

- All TRH fractions (i.e. C6-C9; C10-C14; C15-C28; C29-C36; C37-C40) were below LOR for the tested samples and did not exceed assessment criteria for ecological investigation levels, ecological screening levels or health investigation level.

8.3.3 BTEX, PAH, Phenols, PCBs

- BTEX, PAH, phenols, PCBs were reported below the LOR for the samples analysed and did not exceed assessment criteria for ecological investigation levels, ecological screening levels or health investigation level.

8.3.4 Pesticides

- Organophosphorus pesticides and organochlorine pesticides were all below LOR for the tested samples and did not exceed assessment criteria for ecological investigation levels, ecological screening levels or health investigation level.

8.3.5 Per- and Perfluoroalkyl Substances

- Per- and Perfluoroalkyl substances were below LOR for all analysed samples and did not exceed assessment criteria under NEMP.

Table 12 Heavy metal concentration

SITE	METALS													
	Arsenic	Barium	Beryllium	Cadmium	Chromium (III+VI)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	Zinc
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind	160													
NEPM 2013 Table 1A(1) HILs Res A Soil	100		60	20		100	6000		300	3800	40	400		7400
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	3000		500	900		4000	240000		1500	60000	730	6000		400000
BG-0.7-0.9	-	-	-	-	-	-	-	12,000	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	12,000	-	-	-	-	-	-
MSC1-0.1-0.3	3.1	16	0.49	0.1	4.4	5.0	14	-	12	360	<0.01	2.5	19	50
MSC1-0.9-1.1	2.1	210	0.95	<0.1	17	15	17	-	15	550	<0.01	12	54	32
MSC2-0.7-0.9	1.9	230	0.94	<0.1	17	17	15	-	16	780	<0.01	12	50	34
MSC2-1.2-1.3	2.0	150	0.94	<0.1	19	16	17	-	14	840	<0.01	13	59	38
MSC3-0.1-0.3	2.9	15	0.45	<0.1	4.5	6.5	13	-	9.4	430	<0.01	3.1	24	60
MSC3-1.2-1.3	2.4	220	0.96	<0.1	17	17	14	-	17	700	<0.01	11	54	29
MSC4-0.1-0.3	3.1	17	0.38	0.1	4.9	7.4	21	-	12	440	<0.01	2.9	25	64
MSC4-1.2-1.3	1.8	180	0.95	<0.1	17	17	16	-	16	690	<0.01	11	56	33
MSC5-0.7-0.9	2.1	230	0.83	<0.1	17	21	15	-	19	1,200	<0.01	14	52	29
MSC5-0.9-1.1	2.0	170	0.93	<0.1	19	14	17	-	14	1,000	<0.01	12	58	38

9 Quality Assurance / Quality Control

9.1 Laboratory Data Quality Indicators

The laboratory data quality indicators are presented in Table 13.

Table 13: Laboratory Data Quality Indicators

Data Quality Indicators	Item	Conformance
Precision	Analysis of laboratory duplicates	Yes, 91.67% of RPD calculations for duplicate soils samples were within the RPD target range. Refer to laboratory certificates in Appendix D.
	Accuracy of field duplicate and triplicate	Yes 90.9% of RPD calculations for duplicate samples and 88.8% of RPD calculations for field triplicate were within the RPD target range. Field duplicate sample breaches of RPD targets are usually due to small concentrations or heterogeneity of the sample. Refer to laboratory certificates in Appendix D.
Accuracy (Bias)	Analysis of rinsate blanks	N/A – Samples were collected directly from the excavator bucket. Dedicated sampling equipment only, no rinsate sample required. Appendix D.
	Analysis of method blanks	Yes – Refer to laboratory certificates in Appendix D.
	Analysis of reference materials / control samples	Yes – Laboratory samples were recorded within their acceptable recovery limits. Refer to laboratory certificates in Appendix D.
Representativeness	All relevant samples analysed	Yes
Completeness	All critical locations sampled	Yes
	All contaminants of concern analysed	Yes
	Appropriate methods and quantitation limits	Yes
	Sample documentation complete	Yes
	Sample holding times complied with	Yes - Refer to laboratory certificates in Appendix D.
Comparability	Sample analytical method used	Yes
	Sample PQL (justify or quantify if different)	NA
	Same laboratories	NA

Data Quality Indicators	Item	Conformance
	Same units	Yes

9.2 Field QA/QC Results

Analytical QA/QC data for laboratory analysis is provided in Appendix E.

9.2.1 Sample Handling and Transport

Chain of custody documentation was provided for all samples. Samples were received in good order, within the acceptable holding times and under correct preservation.

9.2.2 Field Duplicate Sample Analysis

An evaluation of the field duplicate sample data is provided in Table 14. 90.9% of RPD calculations for soil samples undertaken were within the RPD target range. The anomaly was related to barium with RPD of 35.9%. This discrepancy may reflect heterogeneity in the sample.

Table 14: Summary of Field Blind Sample Analysis

Source	Analyte	Number of RPD calculated	RPD Range	RPD Target	Number of RPD within Target Range
Soil	Metals	11	0 - 35.9%	0 to 30%	10

9.2.3 Field Spilt Sample Analysis

An evaluation of the spilt duplicate sample data is provided in Table 15. 88.8% of RPD calculations for soil samples undertaken were within the RPD target range. Anomalies were related to barium with RPD of 78.8%. This discrepancy may reflect heterogeneity in the sample.

Table 15: Summary of Field Spilt Sample Analysis

Source	Analyte	Number of RPD calculated	RPD Range	RPD Target	Number of RPD within Target Range
Soil	Metals	9	0 to 78.8%	0 to 30%	8

9.3 Summary of QA/QC

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during the investigation were consistent with the methodology. Considering the before mentioned, the data collected is deemed valid to confirm the soil conditions at the site.

10 Conclusion and recommendations

Terra Solutions was engaged by McDonald Construction to undertake a PSI of Lot 12 on SP338024 on the 20th of June 2025. The assessment included a comprehensive desktop review, targeted site investigation, and soil sampling and analysis to assess potential contamination linked to historical and current land uses. The key findings of PSI were:

- The site has historically been used for livestock grazing and hay cropping. There is no indication of prior industrial or waste-handling activities. The nearest potentially contaminating activity is road train operations and weighbridge use along Ron McLean Drive to the west.
- The site is generally flat with sparse grass cover and gravel-hardstand areas. Subsurface conditions consist of imported fill overlying native clays. No visible staining, odours, waste dumping, or evidence of spills were noted.
- All analytical results for soil samples were below applicable guideline values, including Health Investigation Levels (HILs), Health Screening Levels (HSLs), Ecological Investigation Levels (EILs), and screening criteria for PFAS. No exceedances were identified for any contaminants of potential concern and all contaminants besides heavy metals were below the laboratory limits of reporting.
- A CSM was developed with all low to negligible risks for the identified potential source–pathway–receptor linkages, key elements are:
 - Dust deposition from nearby transport infrastructure and overland stormwater flow were identified as potential offsite sources.
 - All identified exposure routes (e.g. inhalation, dermal contact, ingestion) for on-site workers and off-site ecological receptors were assessed as low risk due to the absence of CoPC exceedances.
 - There was no evidence of on-site sources contributing to off-site impacts or onward contaminant migration.
- Based on the data collected and current site conditions there is no evidence of contamination in hardstand gravels, fill material or native soils and the site is suitable for the proposed industrial use from a contamination risk perspective.

10.1 Recommendations

Terra Solutions provide the following recommendations based on the preliminary site investigation.

- No further environmental investigation is recommended. The site presents no evidence of contamination that would preclude development for industrial or commercial use.
- Development may proceed in accordance with required approvals and in accordance with general duty of care obligations including:
 - Segregation and appropriate management of imported fill and native soils.
 - Monitoring for unexpected finds such as:
 - Unusual odours
 - Discoloured or stained soils
 - Unidentified solid waste
 - Suspected asbestos containing materials (ACM).
 - If any unexpected finds are encountered:
 - Cease works immediately in the affected area
 - Secure the location to prevent further disturbance
 - Notify the site supervisor and engage a suitably qualified person (SQP) to investigate and assess the nature and extent of the material.
 - Resume work only after the area has been assessed, and if required managed in accordance with environmental and work health and safety requirements.
- Retain all environmental records, including this PSI report as part of the sites development to demonstrate due diligence and inform future audits or Development Applications.
- As no contamination has been identified, no remediation or ongoing environmental monitoring (soil, groundwater, or air) outside of those required under relevant approval conditions is required.

11 References

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

Appendix A

Lot search assessment



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 10 Jun 2025 14:01:44

Reference: LS084459 EP

Address: 110 Penelope Road, Stuart, QLD 4811

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.

You should obtain independent advice before you make any decision based on the information within the report.

The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

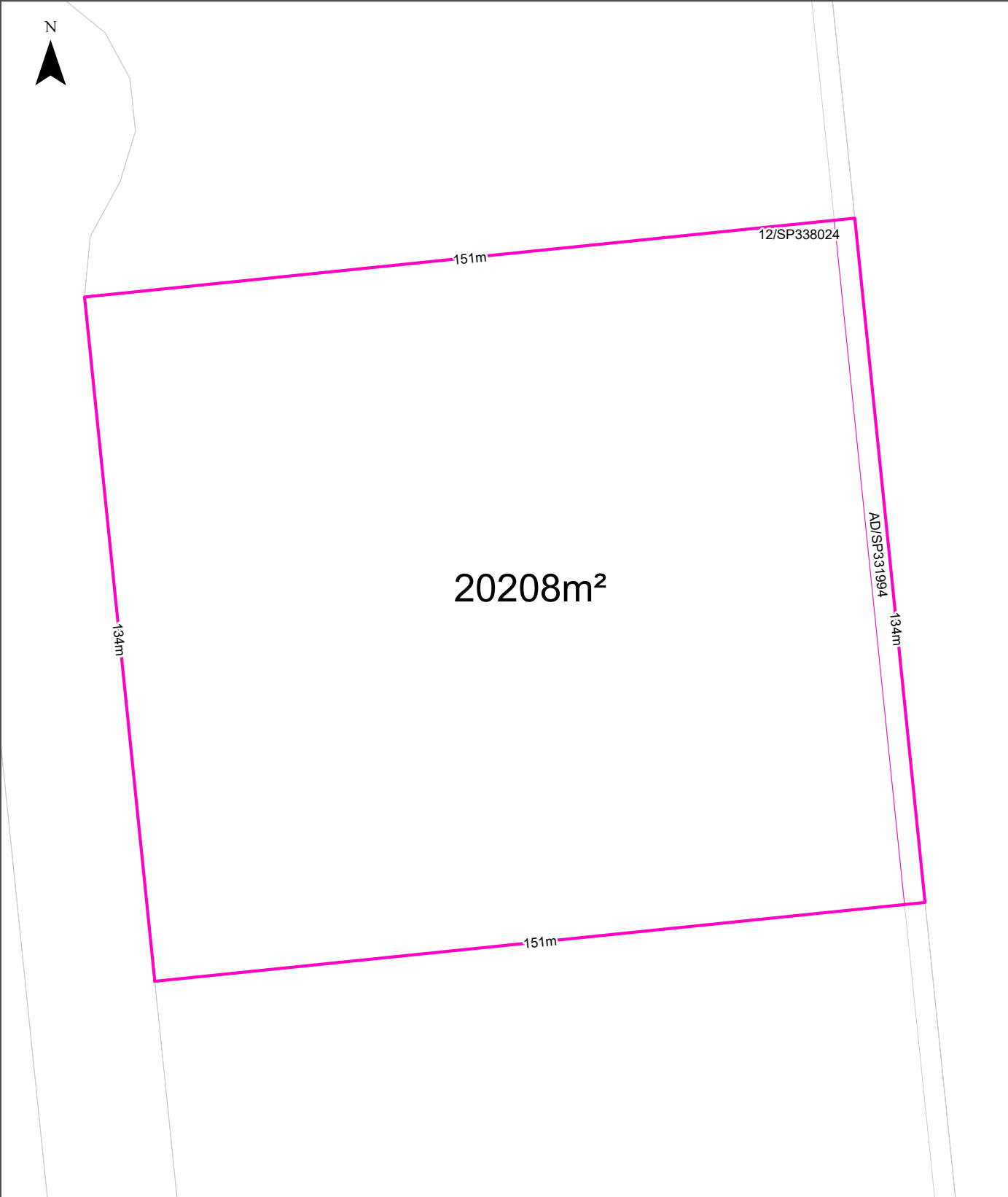
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	QLD Department of Resources	02/06/2025	02/06/2025	Monthly	0	0	0	0
Temporary Emissions Licenses	QLD Department of Environment, Tourism, Science and Innovation	06/06/2025	06/06/2025	Monthly	1000	0	0	0
Enforcement Actions	QLD Department of Environment, Tourism, Science and Innovation	05/05/2025	05/05/2025	Monthly	1000	0	0	4
Progressive Rehabilitation & Closure Plans - Mining	QLD Department of Environment, Tourism, Science and Innovation	12/05/2025	12/05/2025	Monthly	1000	0	0	0
Environmental Authorities Register Current Prescribed Environmentally Relevant Activities	QLD Department of Environment, Tourism, Science and Innovation	29/05/2025	29/05/2025	Monthly	1000	0	0	2
Environmental Authorities Register Current Resource Activities	QLD Department of Environment, Tourism, Science and Innovation	29/05/2025	29/05/2025	Monthly	1000	0	0	0
Environmental Authorities Register Former Prescribed Environmentally Relevant Activities	QLD Department of Environment, Tourism, Science and Innovation	29/05/2025	29/05/2025	Monthly	1000	0	0	0
Environmental Authorities Register Former Resource Activities	QLD Department of Environment, Tourism, Science and Innovation	29/05/2025	29/05/2025	Monthly	1000	2	2	2
Defence PFAS Investigation & Management Program - Investigation Sites	Australian Government Department of Defence	07/04/2025	28/10/2024	Monthly	2000	0	0	1
Defence PFAS Investigation & Management Program - Management Sites	Australian Government Department of Defence	07/04/2025	28/10/2024	Monthly	2000	0	0	1
Airservices Australia National PFAS Management Program	Airservices Australia	07/04/2025	07/04/2025	Monthly	2000	0	0	0
Queensland Fire and Emergency Services PFAS Investigation Sites	Queensland Fire and Emergency Services	03/06/2025	21/08/2024	Monthly	2000	0	0	0
Queensland Government PFAS Site Investigations	Queensland Government	20/05/2025	28/02/2025	Monthly	2000	0	0	0
Defence Controlled Areas	Australian Government Department of Defence	10/04/2025	10/04/2025	Quarterly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Australian Government Department of Defence	18/02/2025	02/09/2022	Quarterly	2000	0	0	0
National Unexploded Ordnance (UXO)	Australian Government Department of Defence	10/04/2025	10/04/2025	Quarterly	2000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	30/05/2025	19/01/2023	Annually	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	16/10/2024	19/01/2023	Annually	1000	0	0	0
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	0
Hydrogeology Map of Australia	Geoscience Australia	22/04/2025	19/08/2019	Annually	1000	1	1	1

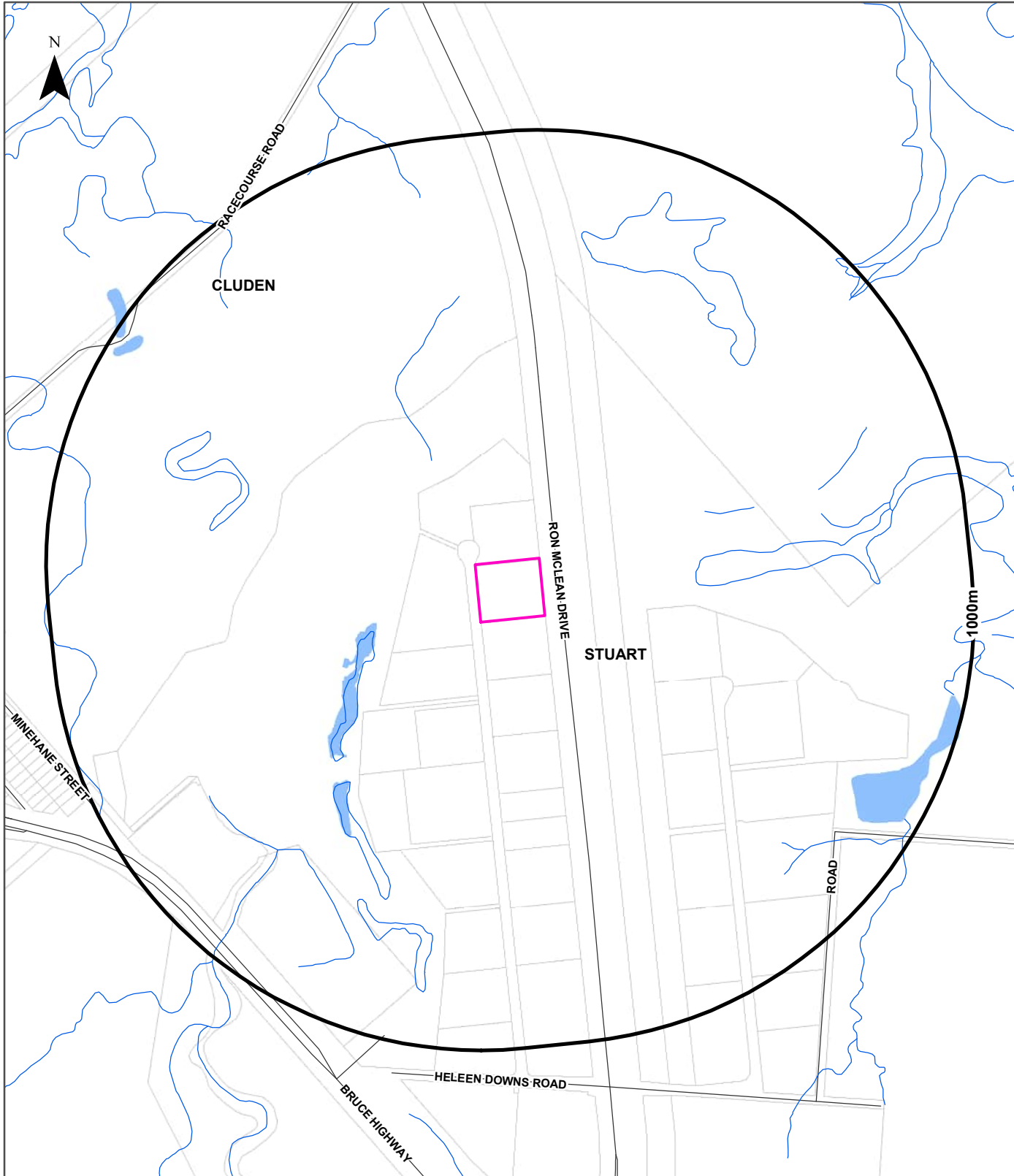
Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Groundwater Boreholes	QLD Department of Resources	26/05/2025	26/05/2025	Quarterly	2000	0	0	7
Detailed Surface Geological Units	QLD Department of Resources	12/06/2024	29/09/2023	Annually	1000	1	2	5
Detailed Surface Geological Structures	QLD Department of Resources	12/06/2024	29/09/2023	Annually	1000	0	0	2
Atlas of Australian Soils	Australian Bureau of Agricultural and Resource Economics and Sciences	15/01/2025	17/02/2011	Annually	1000	1	1	2
Atlas of Australian Acid Sulfate Soils	CSIRO	15/01/2025	21/02/2013	Annually	1000	1	1	7
Commonwealth Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000	0	0	0
National Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000	0	0	0
Heritage Register Boundaries	QLD Department of Environment, Tourism, Science and Innovation	20/05/2025	20/05/2025	Quarterly	1000	0	0	0
Statewide Bushfire Prone Areas	QLD Department of Resources	07/05/2025	15/07/2015	Annually	1000	0	0	3
Queensland Floodplain Assessment Overlay	QLD Department of Resources	30/05/2025	30/05/2025	Annually	1000	1	1	1
Regulated Vegetation Management Map	QLD Department of Resources	02/06/2025	02/06/2025	Monthly	1000	1	1	4
Wetland Environmental Values	QLD Department of Environment, Tourism, Science and Innovation	16/10/2024	06/07/2022	Annually	1000	0	0	2
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Terrestrial	Australian Department of Climate Change, Energy, the Environment and Water	20/03/2025	19/06/2024	Annually	1000	0	0	1
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Marine	Australian Department of Climate Change, Energy, the Environment and Water	20/03/2025	30/06/2022	Annually	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	30/05/2025	07/05/2020	Annually	1000	0	0	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	30/05/2025	07/05/2020	Annually	1000	0	0	5

Site Diagram

110 Penelope Road, Stuart, QLD 4811

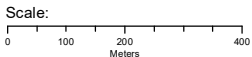


Legend Site Boundary Internal Parcel Boundaries	Total Area: 20208m ² Total Perimeter: 570m		Scale: 0 25 50 Meters	
	Disclaimers: Measurements are approximate only and may have been simplified or smaller lengths removed for readability. Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.		Data Sources: Property Boundaries & Topographic Data: © State of Queensland (Department of Resources) 2025	
			Coordinate System: GDA 1994 MGA Zone 56	Date: 10 June 2025



Legend

Site Boundary	Water Area	Community Facilities
Buffer 1000m	Roads	
Property Boundaries	Drainage Line	
	Rail	



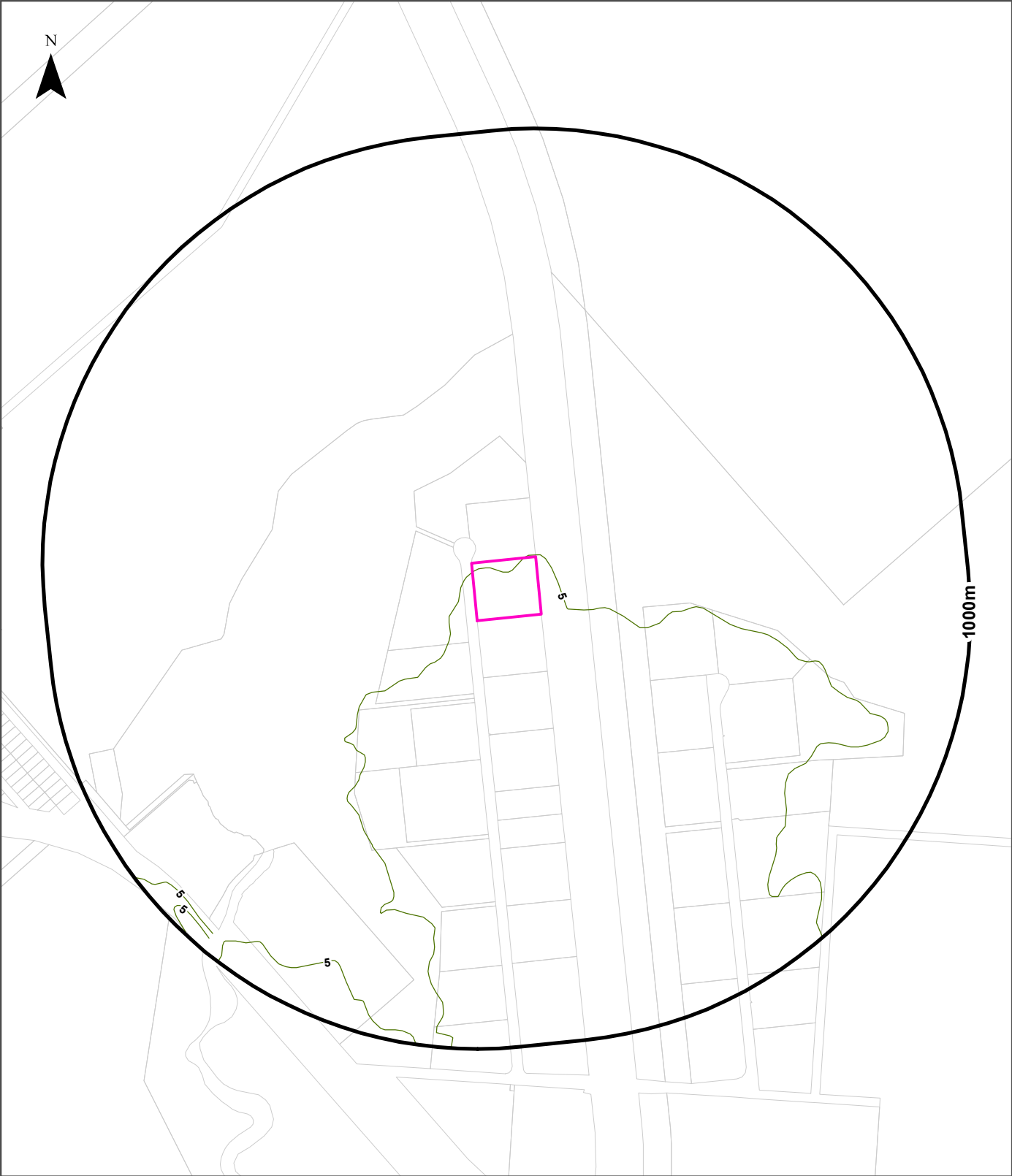
Data Sources: Property Boundaries & Topographic Data:
© State of Queensland (Department of Resources) 2025

Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 Jun 2025

Elevation Contours (m AHD)

110 Penelope Road, Stuart, QLD 4811



Legend

-  Site Boundary
-  Elevation Contour (m AHD)
-  Buffer 1000m
-  Property Boundaries

Scale:
0 100 200 400
Meters

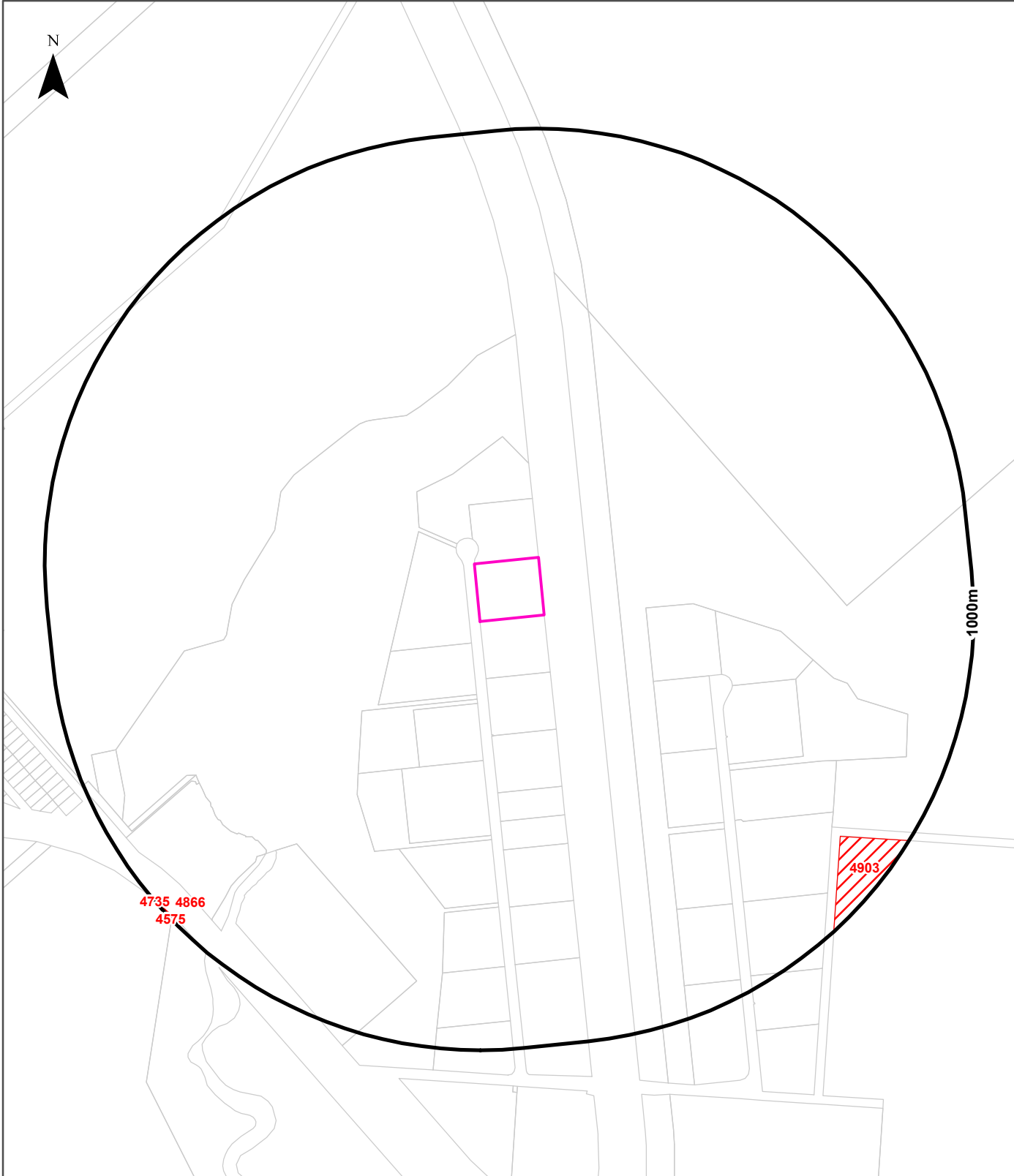
Data Sources: Property Boundaries & Topographic Data:
© State of Queensland (Department of Resources) 2025

Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Emission Licences, Enforcement Actions and PRC Plans

110 Penelope Road, Stuart, QLD 4811



Legend

Site Boundary	DES Temporary Emissions Licences
Buffer 1000m	DES Enforcement Actions
Property Boundaries	DES Progressive Rehabilitation and Closure Plans

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
© State of Queensland (Department of Resources) 2025

Coordinate System:
GDA 1994 MGA Zone 56

Date: 11 June 2025

Emission Licences, Enforcement Actions and PRC Plans

110 Penelope Road, Stuart, QLD 4811

Temporary Emissions Licences

Sites that have a Temporary Emissions Licence within the dataset buffer:

Licence Number	Map ID	Primary Holder	Location	Activity	Status	Loc Conf	Dist	Dir
N/A	No records in buffer							

Temporary Emissions Licences Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

Emission Licences, Enforcement Actions and PRC Plans

110 Penelope Road, Stuart, QLD 4811

Enforcement Actions

Sites that have been issued a statutory enforcement action within the dataset buffer:

Map ID	Enforcement No	Enforcement Type	Name	Premise	Status	Date Issued	Loc Conf	Dist	Dir
4903	stat1153	Environmental Evaluation (Investigation Notice)	JBS Australia Pty Ltd	37644 BRUCE HWY, STUART	Finalised	19/04/2018	Premise Match	861m	South East
4866	man19440	Transitional Environmental Program (TEP)	Aurizon Operations Limited	1 BROOKHOUSE ST, STUART	Finalised	27/06/2019	Premise Match	993m	South West
4735	MAN-E-100068083	Transitional Environmental Program (TEP)	Aurizon Operations Limited	1 BROOKHOUSE ST, STUART	Finalised	27/06/2019	Premise Match	993m	South West
4575	man19940	Transitional Environmental Program (TEP)	Aurizon Operations Limited	1 BROOKHOUSE ST, STUART	Finalised	27/06/2019	Premise Match	993m	South West

Enforcement Actions Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

Progressive Rehabilitation and Closure Plans

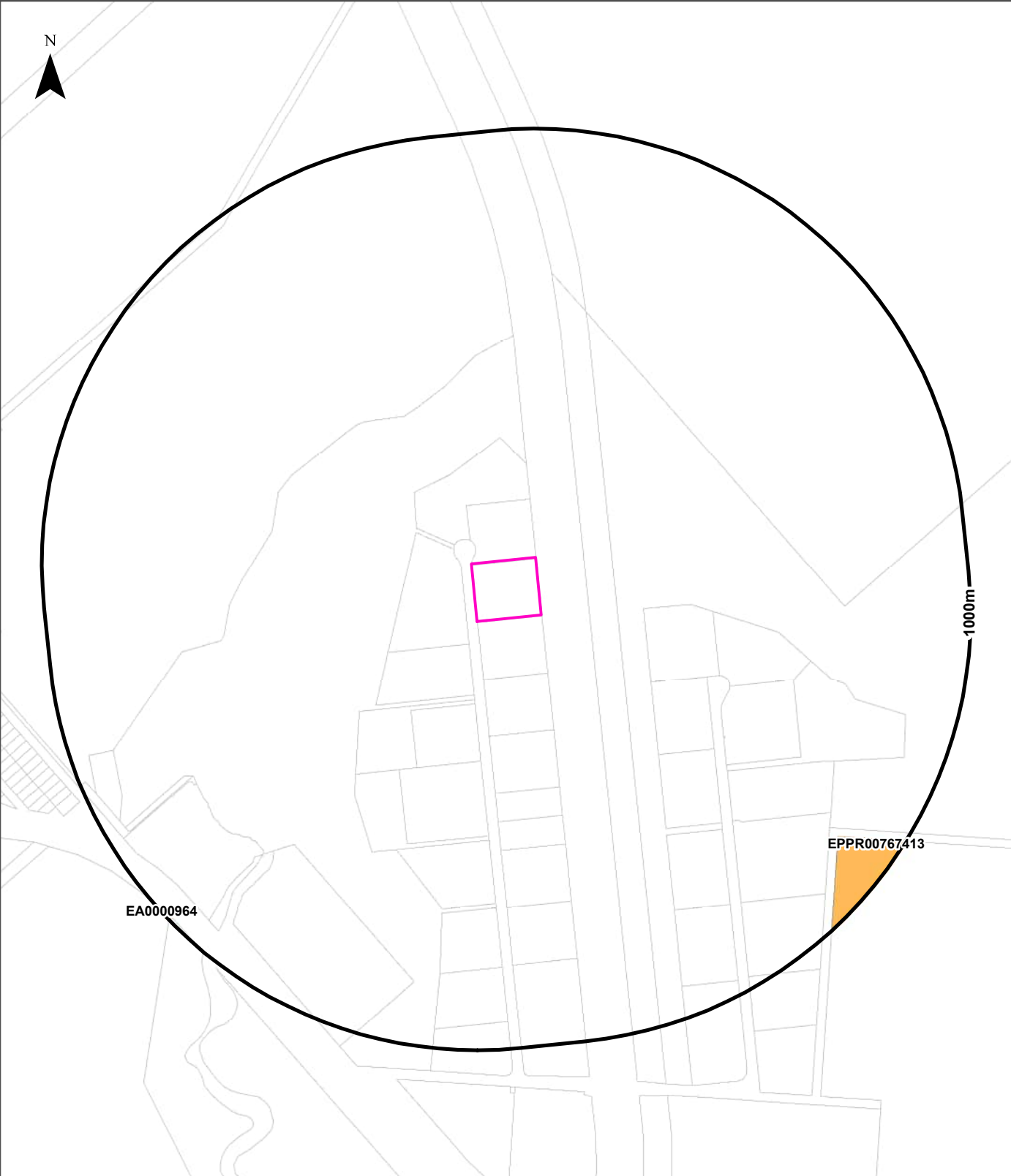
Sites that have a proposed or approved PRC Plan within the dataset buffer:

Map ID	PRC reference	Permit Type	Permit Holder	Premise	Status	Date Effective	Loc Conf	Dist	Dir
No records in buffer	N/A								

Progressive Rehabilitation and Closure Plans Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

Current Prescribed ERA and Resource Activities

110 Penelope Road, Stuart, QLD 4811



Legend

- Site Boundary
- Current Prescribed Resource Activity
- Buffer 1000m
- Current Prescribed Environmentally Relevant Activities
- Property Boundaries

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
© State of Queensland (Department of Resources) 2025

Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Environmental Authorities Register

110 Penelope Road, Stuart, QLD 4811

Current Prescribed ERA Activities

Current prescribed Environmentally Relevant Activities (ERA) within the dataset buffer:

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist	Dir
EPPR00767413	Granted	11/08/2011	JBS Australia Pty Limited	105/SP253485 37644 BRUCE HWY, STUART, TOWNSVILLE CITY, 4811	ERA 25 - Meat Processing, 2(b) - Processing, including rendering, in a year, the following quantity of meat or meat products - more than 5000t but not more than 50,000t ERA 63 - Sewage Treatment, 1(b-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise Match	861m	South East
EA0000964	Expired	08/08/2018	Aurizon Operations Limited	13/SP277531	ERA 50 - Mineral and bulk material handling, 1: Loading or unloading 100t or more of minerals in a day, other than loading or unloading mentioned in item 3, or storing 50,000t or more of minerals, (a) within 5km of the highest astronomical tide or 1km of a watercourse	Premise Match	993m	South West

Current Prescribed ERA Activities Data Source: QLD Department of Environment and Science

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Current Prescribed Resource Activities

Current prescribed resource activities within the dataset buffer:

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

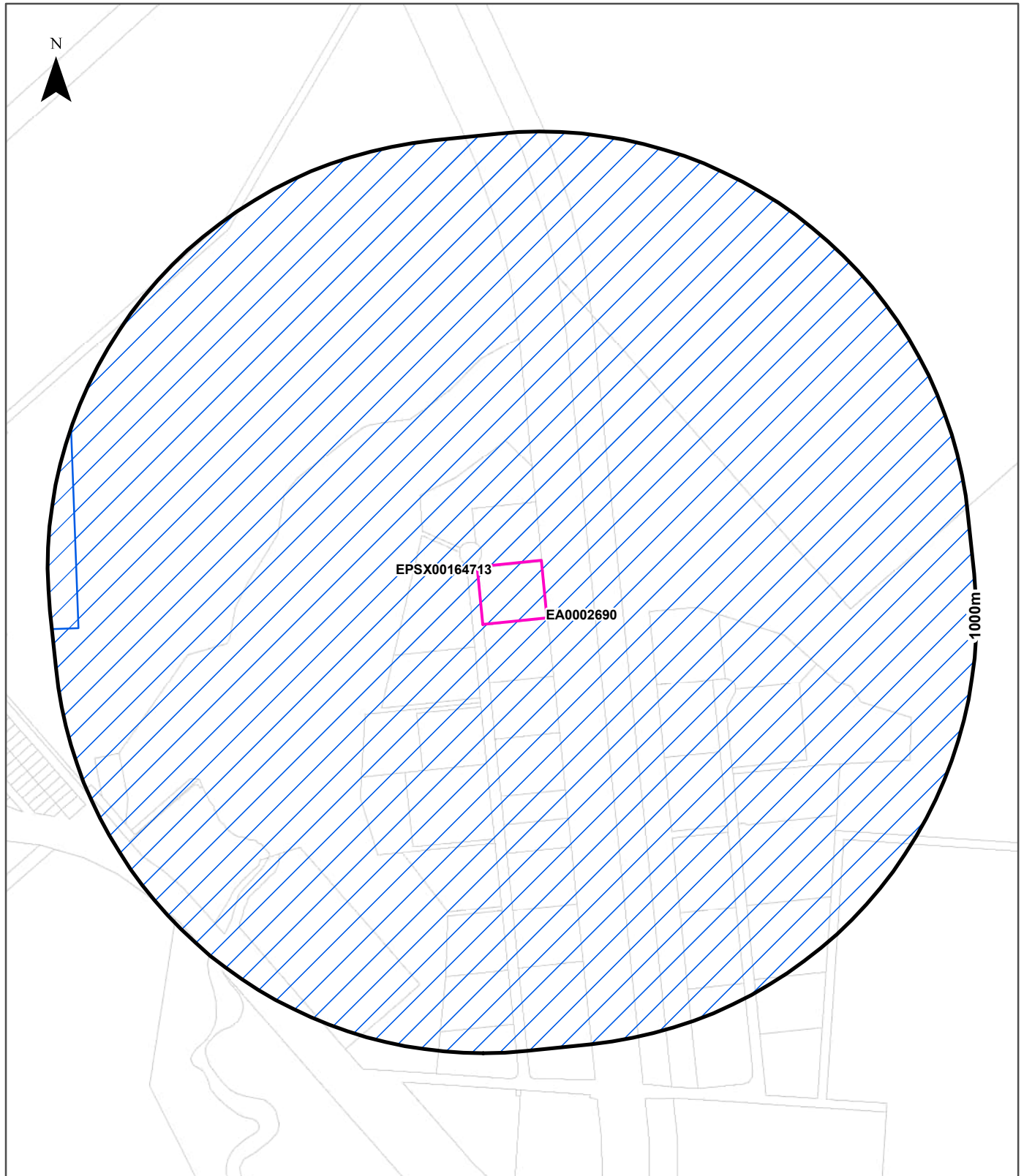
Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist	Dir
N/A	No records in buffer							

Current Prescribed Resource Activities Data Source: QLD Department of Environment and Science

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Former Prescribed ERA and Resource Activities

110 Penelope Road, Stuart, QLD 4811



Legend

- Site Boundary
- Former Prescribed Resource Activity
- Buffer 1000m
- Former Prescribed Environmentally Relevant Activities
- Property Boundaries

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
© State of Queensland (Department of Resources) 2025

Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Environmental Authorities Register

110 Penelope Road, Stuart, QLD 4811

Former Prescribed ERA Activities

Former prescribed Environmentally Relevant Activities (ERA) within the dataset buffer:

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist	Dir
N/A	No records in buffer							

Former Prescribed ERA Activities Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

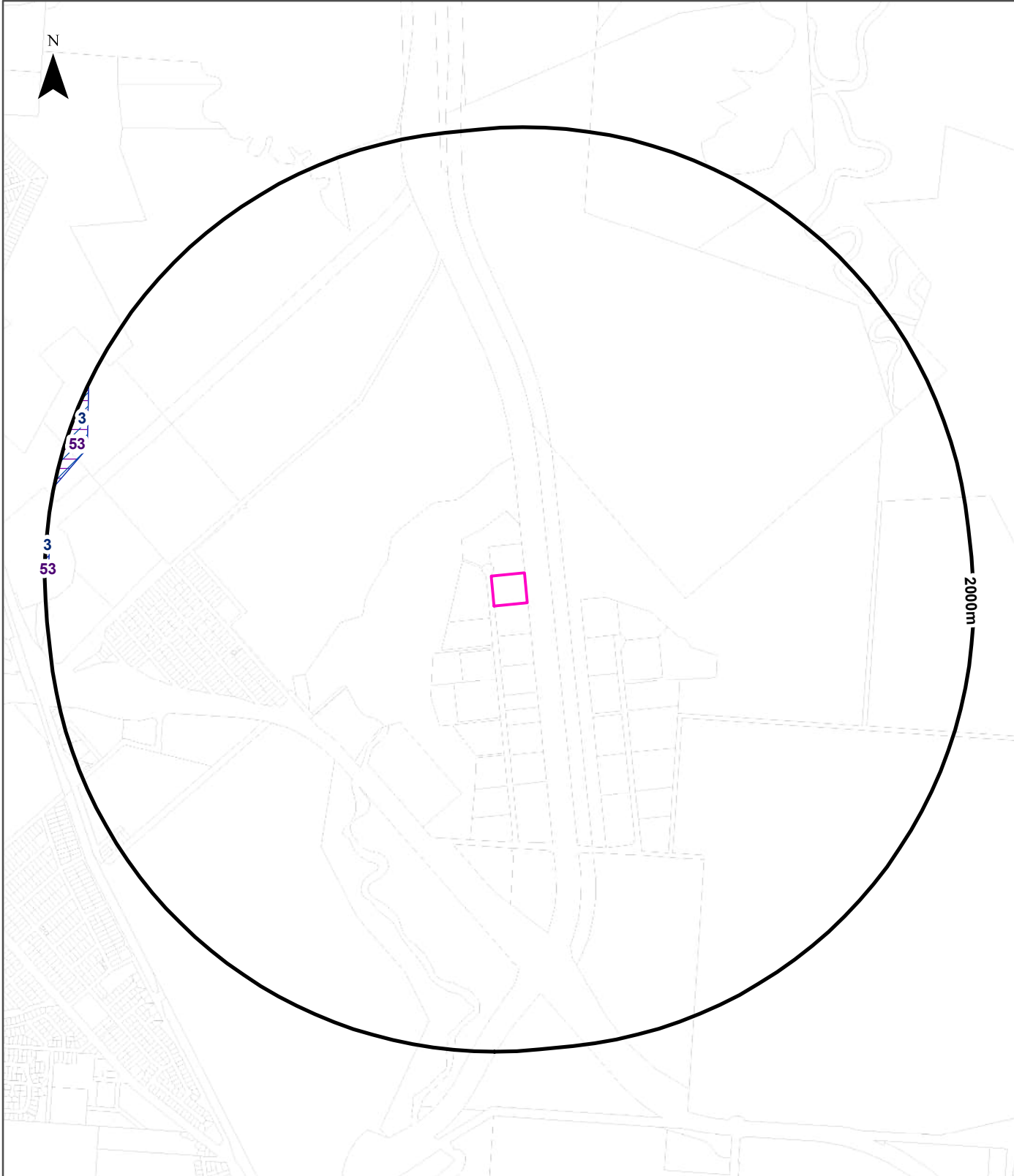
Former Prescribed Resource Activities

Former prescribed resource activities within the dataset buffer:

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist	Dir
EA0002690	Surrendered	03/02/2021	ORIGIN ENERGY FUTURE FUELS PTY LTD	PSL2052	Non-Scheduled, Petroleum Activity - Petroleum Survey Licence (PSL)	Area Match	0m	On-site
EPSX00164713	Surrendered	30/07/2015	Mineral & Coal Investments Pty Ltd	EPC1492	Exploration - Coal	Area Match	0m	On-site

Former Prescribed Resource Activities Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>



Legend

Site Boundary	Defence PFAS Investigation Site	Queensland Fire and Emergency Services PFAS Investigation Site
Buffer 2000m	Defence PFAS Management Site	Queensland Government PFAS Site Investigations
Property Boundaries	Airservices Australia National PFAS Management Program	

Scale:
0 100 200 400 600 800 1,000 1,200
Meters

Data Sources: Property Boundaries & Topographic Data:
© State of Queensland (Department of Resources) 2025

Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

PFAS Investigation Sites

110 Penelope Road, Stuart, QLD 4811

Defence PFAS Investigation and Management Program Investigation Sites

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
3	Lavarack Barracks	Murray, Queensland	Premise Match	1898m	West

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Investigation and Management Program Management Sites

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
53	Lavarack Barracks	Murray, Queensland	Premise Match	1898m	West

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

PFAS Investigation Sites

110 Penelope Road, Stuart, QLD 4811

Queensland Fire and Emergency Services PFAS Investigation Sites

Sites being investigated by Queensland Fire and Emergency Services for PFAS contamination within the dataset buffer:

Map ID	Fire Station Name	DSI Report	Site Audit	PFOA (µg/L)	PFOS ($\sum$ (PFOS + PFHxS) (µg/L)	Status	Loc Conf	Dist	Dir
N/A	No records in buffer								

Source: Queensland Fire and Emergency Services PFAS Investigation Sites
Creative Commons 4.0 © Queensland Government 2024

Queensland Government PFAS Site Investigations

Additional PFAS investigation sites listed by the Queensland Government within the dataset buffer:

Map ID	Site Name	Site Details	Organisation	Status	DocURL	Loc Conf	Dist	Dir
N/A	No records in buffer							

Source: Queensland Government PFAS Site Investigations
Creative Commons 4.0 © Queensland Government 2024

Defence Sites and Unexploded Ordnance

110 Penelope Road, Stuart, QLD 4811

Defence Controlled Areas (DCA)

Defence Controlled Areas provided by the Department of Defence within the dataset buffer:

Site ID	Location Name	Loc Conf	Dist	Dir
N/A	No records in buffer			

Defence Controlled Areas, Data Custodian: Department of Defence, Australian Government

Defence 3 Year Regional Contamination Investigation Program (RCIP)

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

National Unexploded Ordnance (UXO)

Sites which have been assessed by the Department of Defence for the potential presence of unexploded ordnance within the dataset buffer:

Site ID	Location Name	Category	Area Description	Additional Information	Commonwealth	Loc Conf	Dist	Dir
N/A	No records in buffer							

National Unexploded Ordnance (UXO), Data Custodian: Department of Defence, Australian Government

Waste Management and Liquid Fuel Facilities

110 Penelope Road, Stuart, QLD 4811

National Waste Management Facilities Database

Sites on the National Waste Management Facilities Database within the dataset buffer:

Map ID	Owner	Name	Address	Management Type	Facility Type	Status	Loc Conf	Dist	Dir
N/A	No records in buffer								

Source: Waste Management Facilities Database

Creative Commons 4.0 © Commonwealth of Australia (Geoscience Australia) 2022

National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map ID	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Dir
N/A	No records in buffer										

National Liquid Fuel Facilities Data Source: Geoscience Australia

Creative Commons 4.0 © Commonwealth of Australia

Historical Business Directories

110 Penelope Road, Stuart, QLD 4811

Business Directory Records 1941-1968-70 Premise or Road Intersection Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1968-70, 1961, 1950 & 1941, mapped to a premise or road intersection within the dataset buffer:

Map ID	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Business Directory Records 1941-1968-70 Road or Area Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1968-70, 1961, 1950 & 1941, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map ID	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

110 Penelope Road, Stuart, QLD 4811

Dry Cleaners, Motor Garages & Service Stations 1941-1968-70 Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, from years 1968-70, 1961, 1950 & 1941, mapped to a premise or road intersection, within the dataset buffer.

Map ID	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

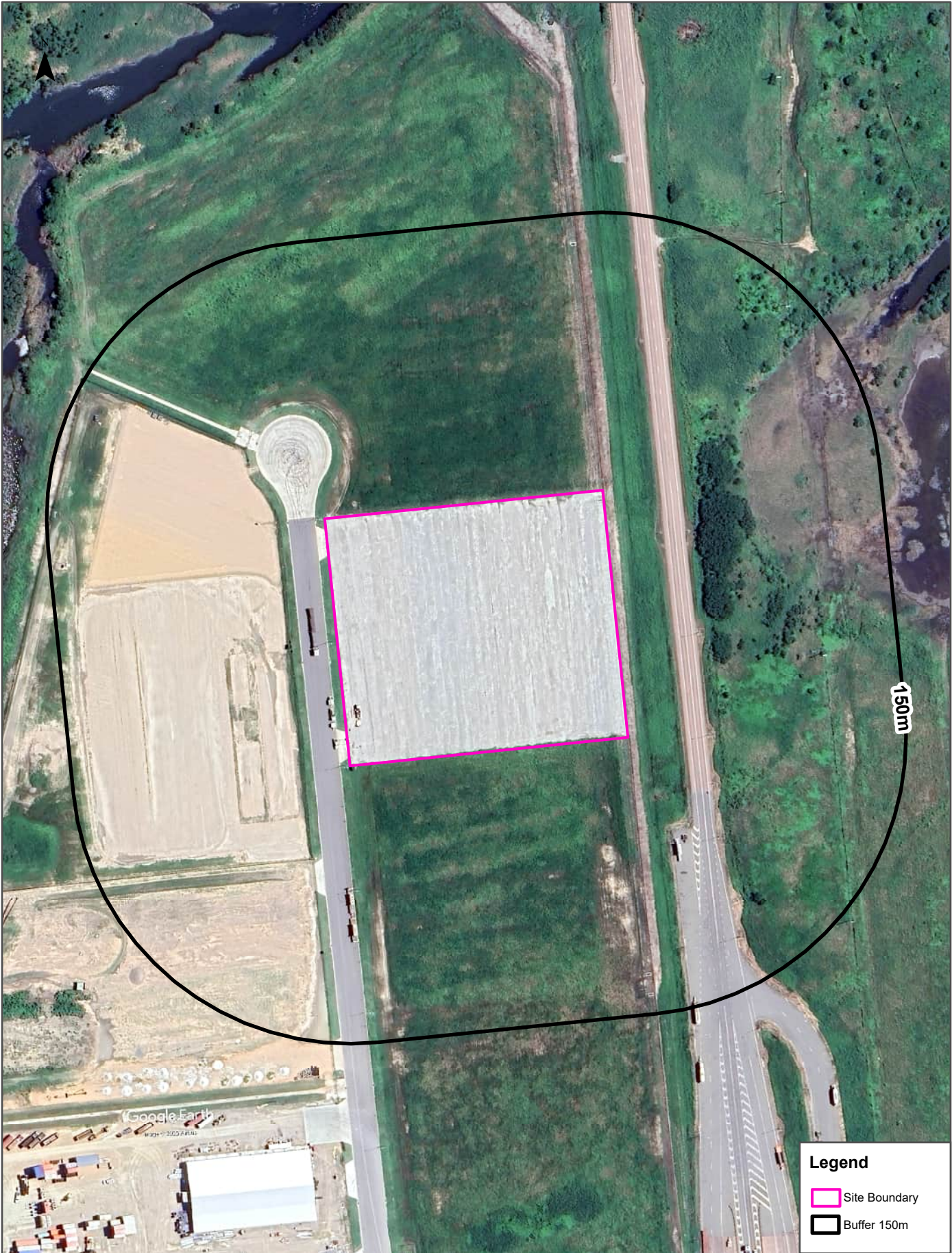
Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Dry Cleaners, Motor Garages & Service Stations 1941-1968-70 Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, from years 1968-70, 1961, 1950 & 1941, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map ID	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

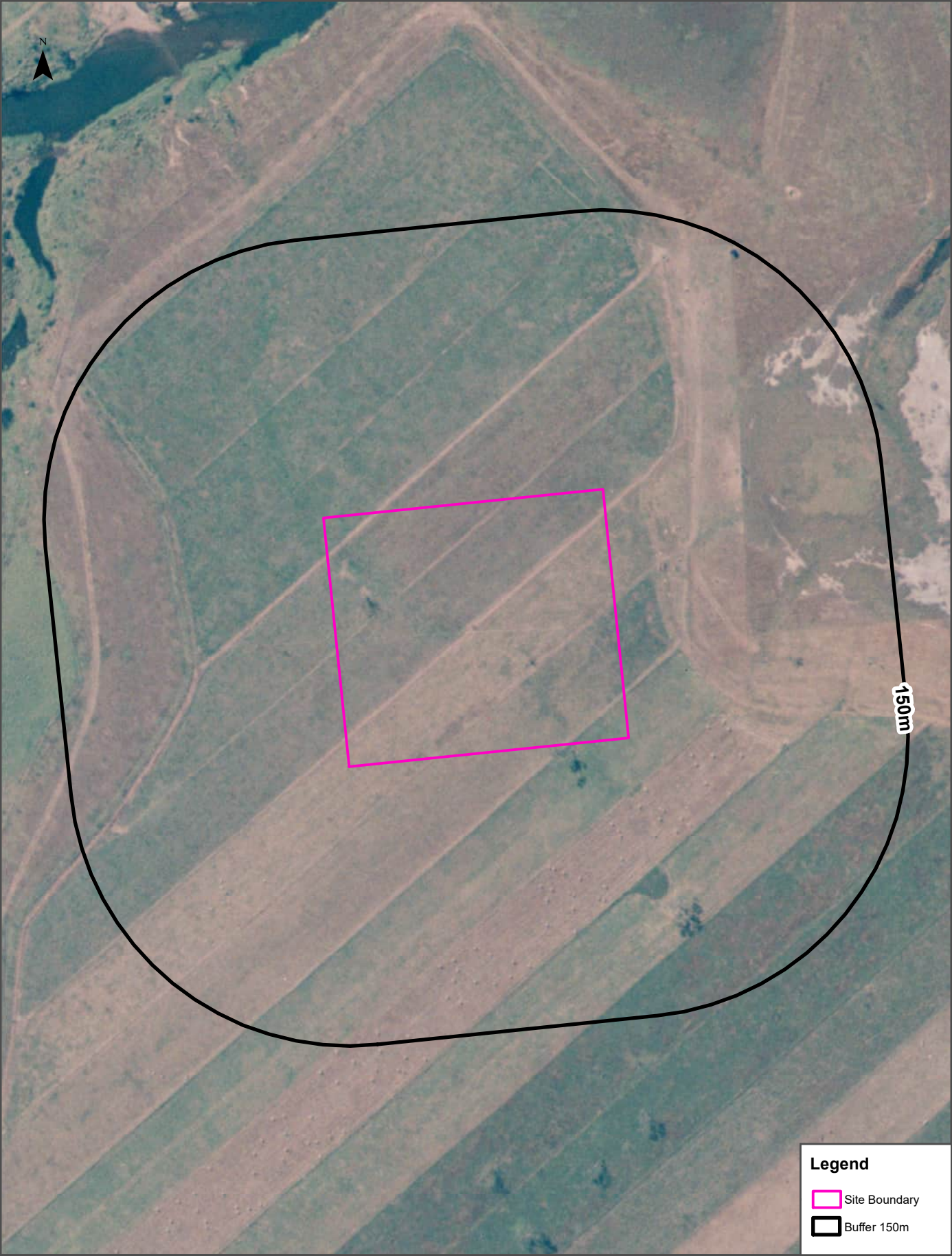
Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant



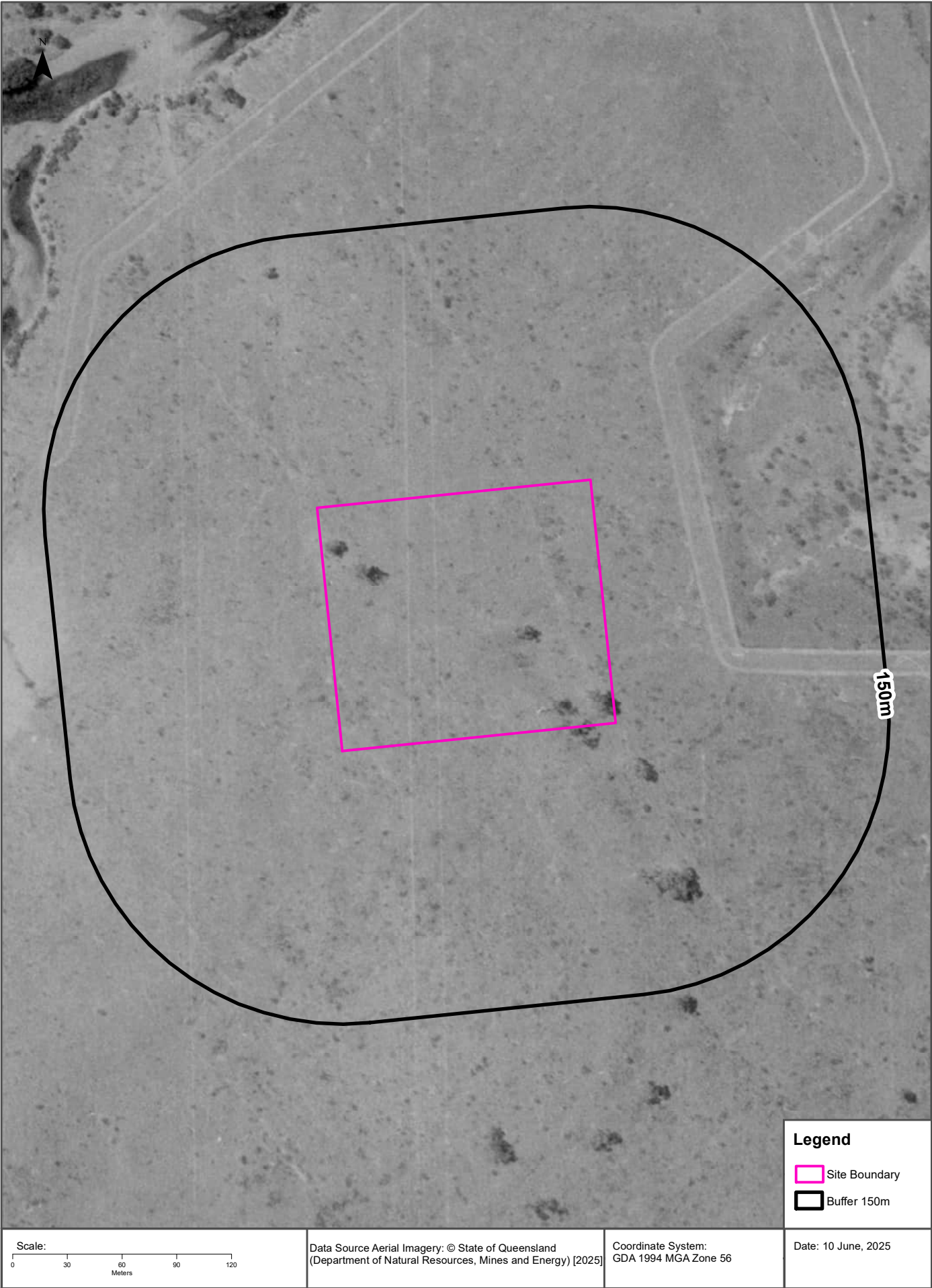
Scale: 0 30 60 90 120 Meters	Data Source Aerial Imagery: © 2025 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 10 June 2025

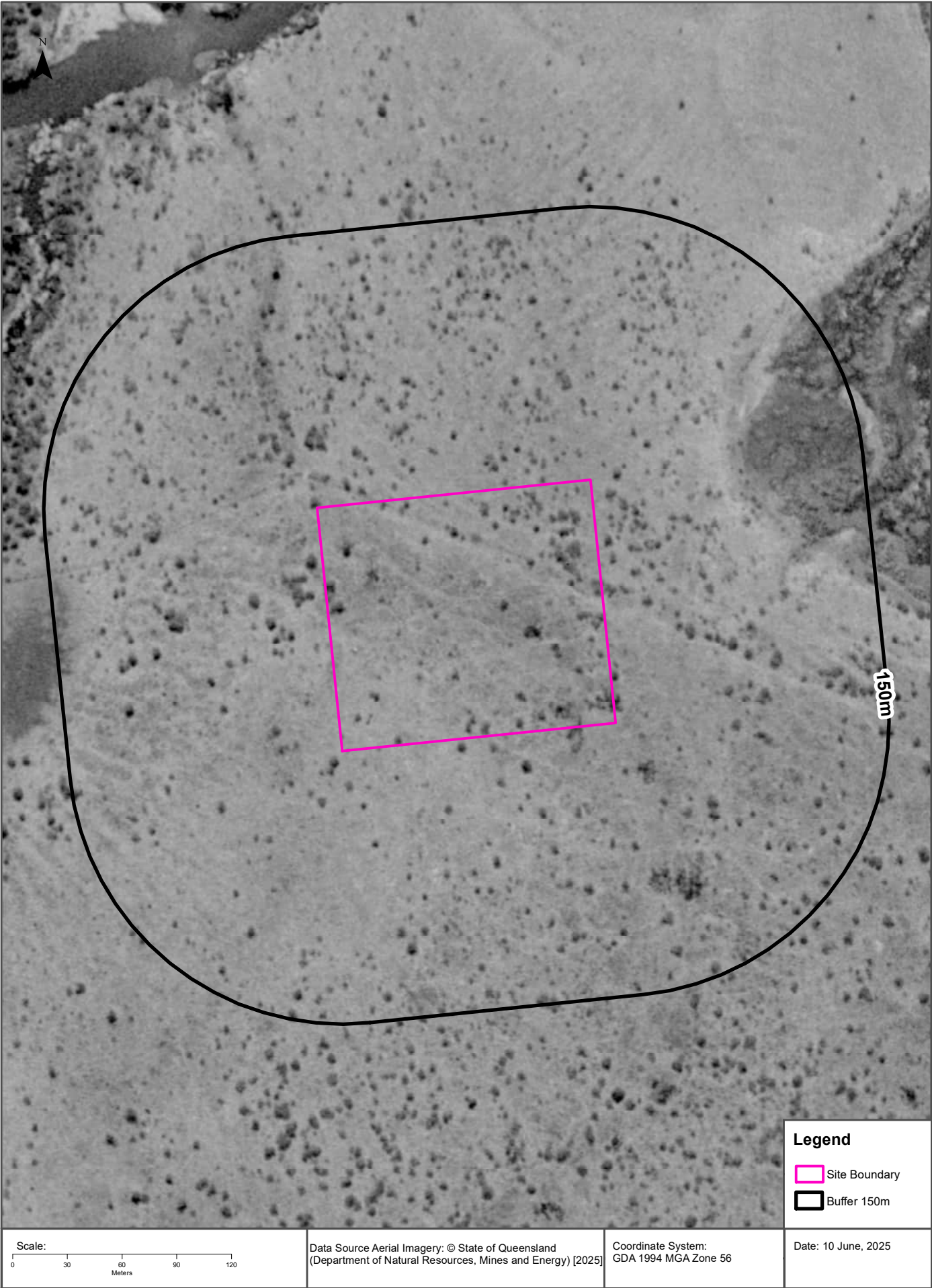


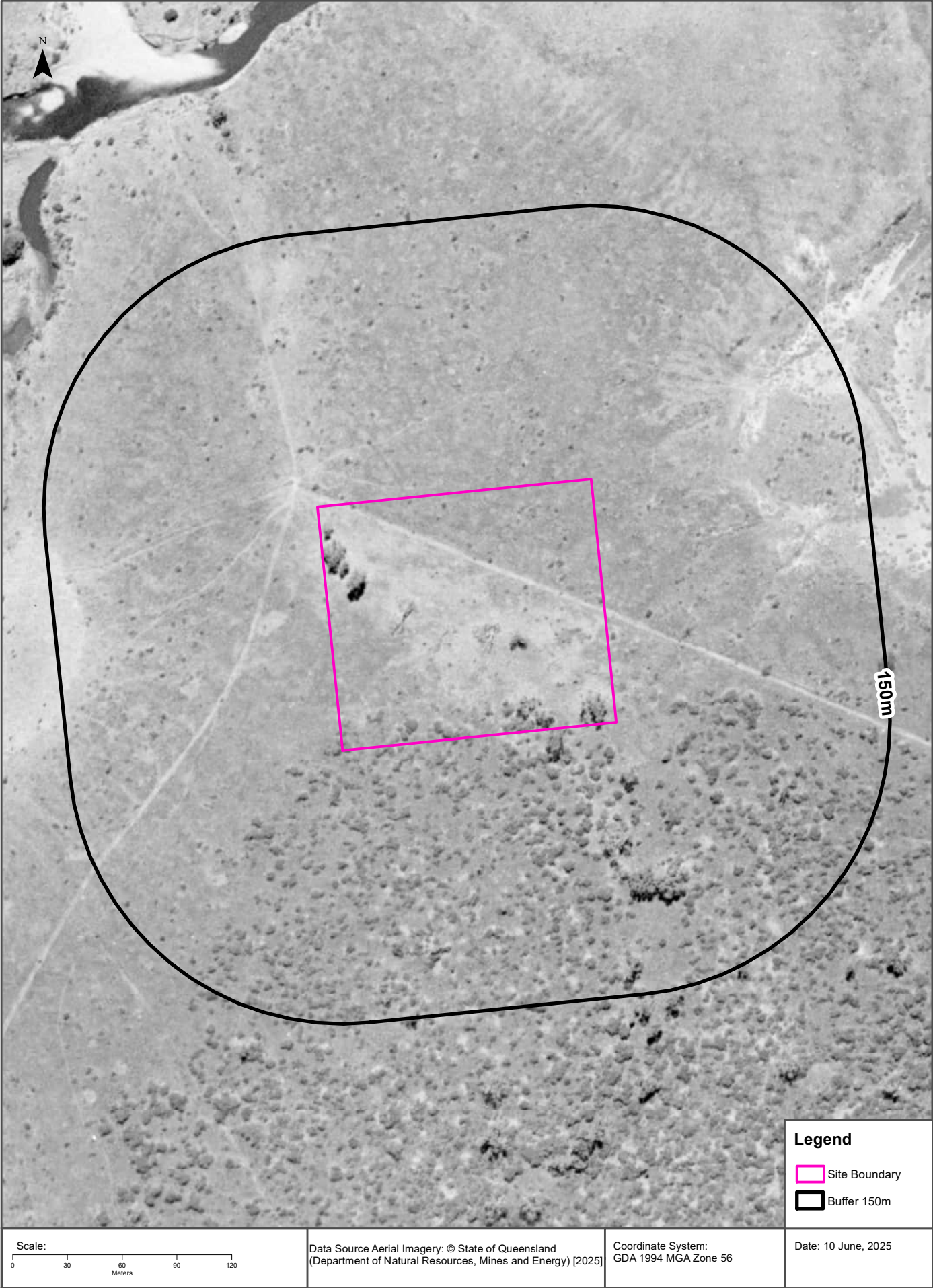


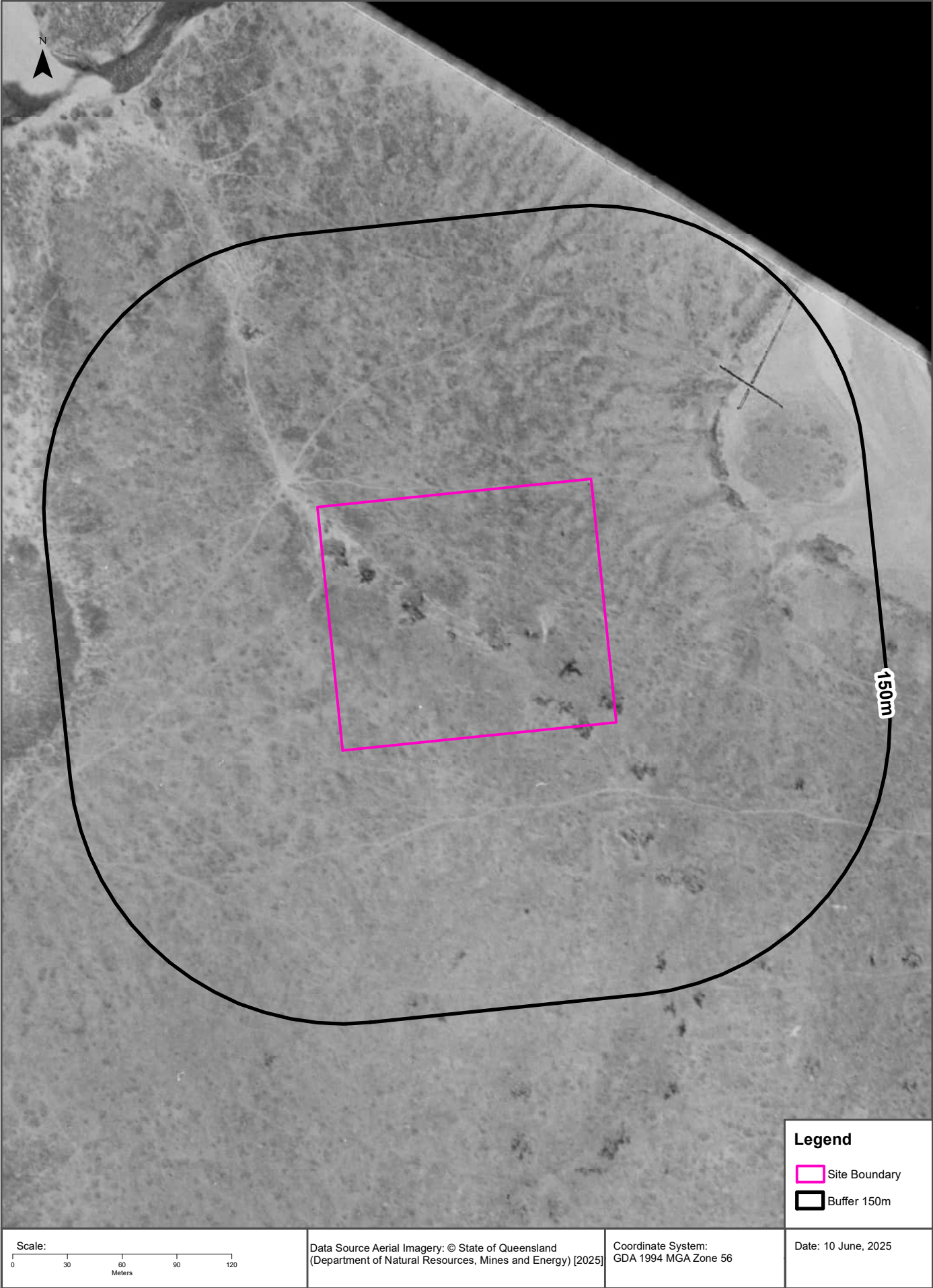


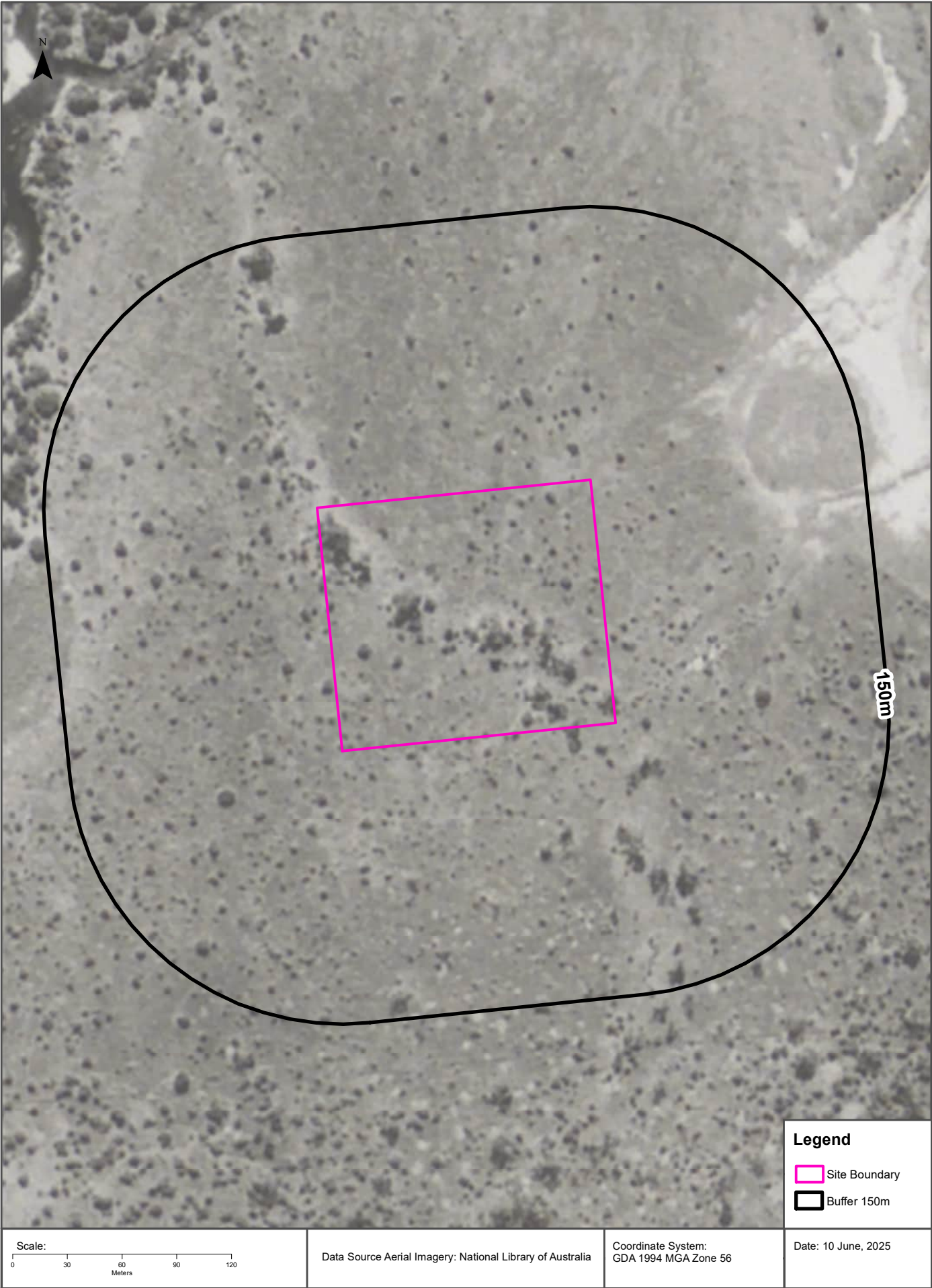
Scale: 0 30 60 90 120 Meters	Data Source Aerial Imagery: © State of Queensland (Department of Natural Resources, Mines and Energy) [2025]	Coordinate System: GDA 1994 MGA Zone 56	Date: 10 June, 2025





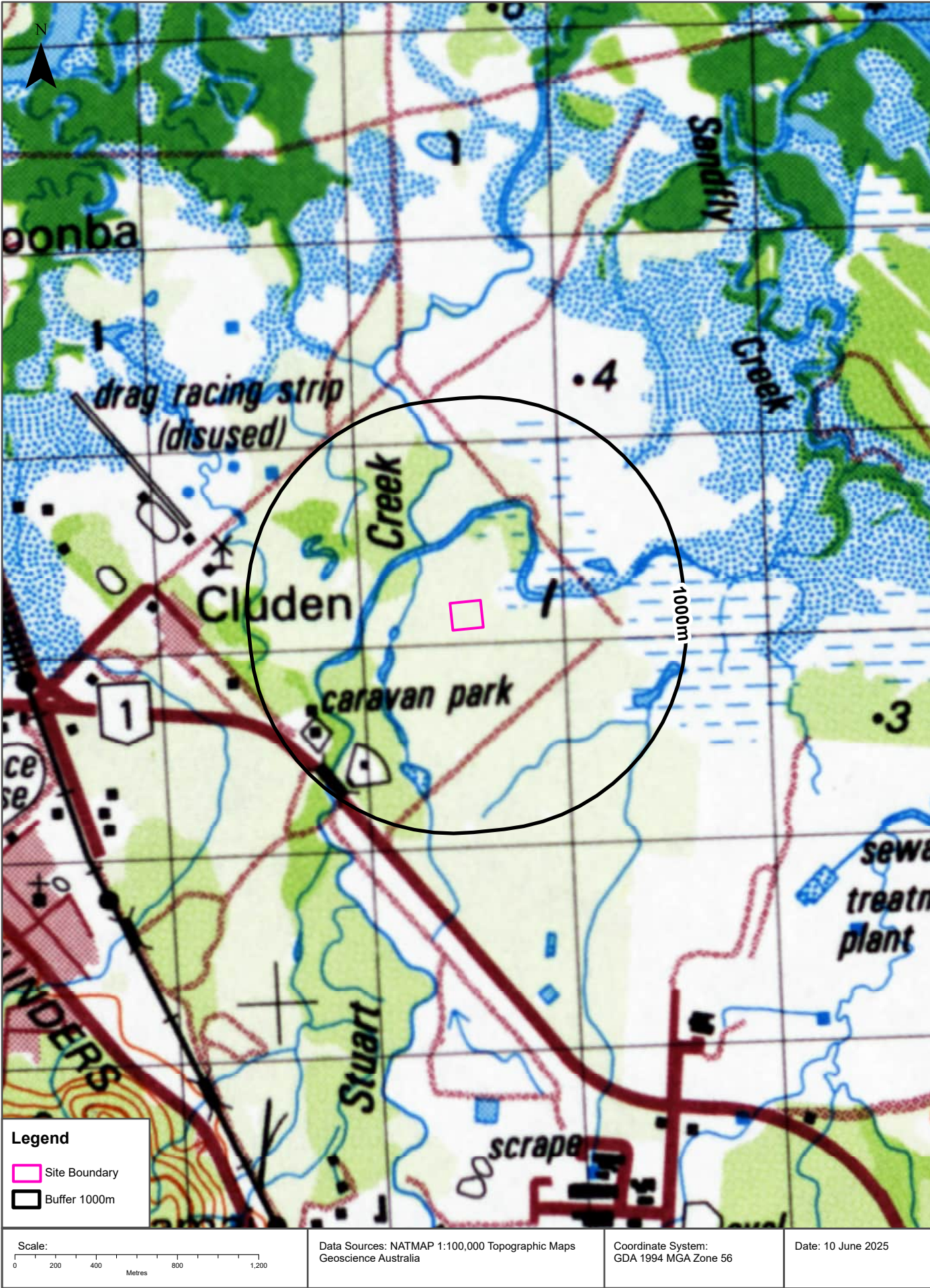




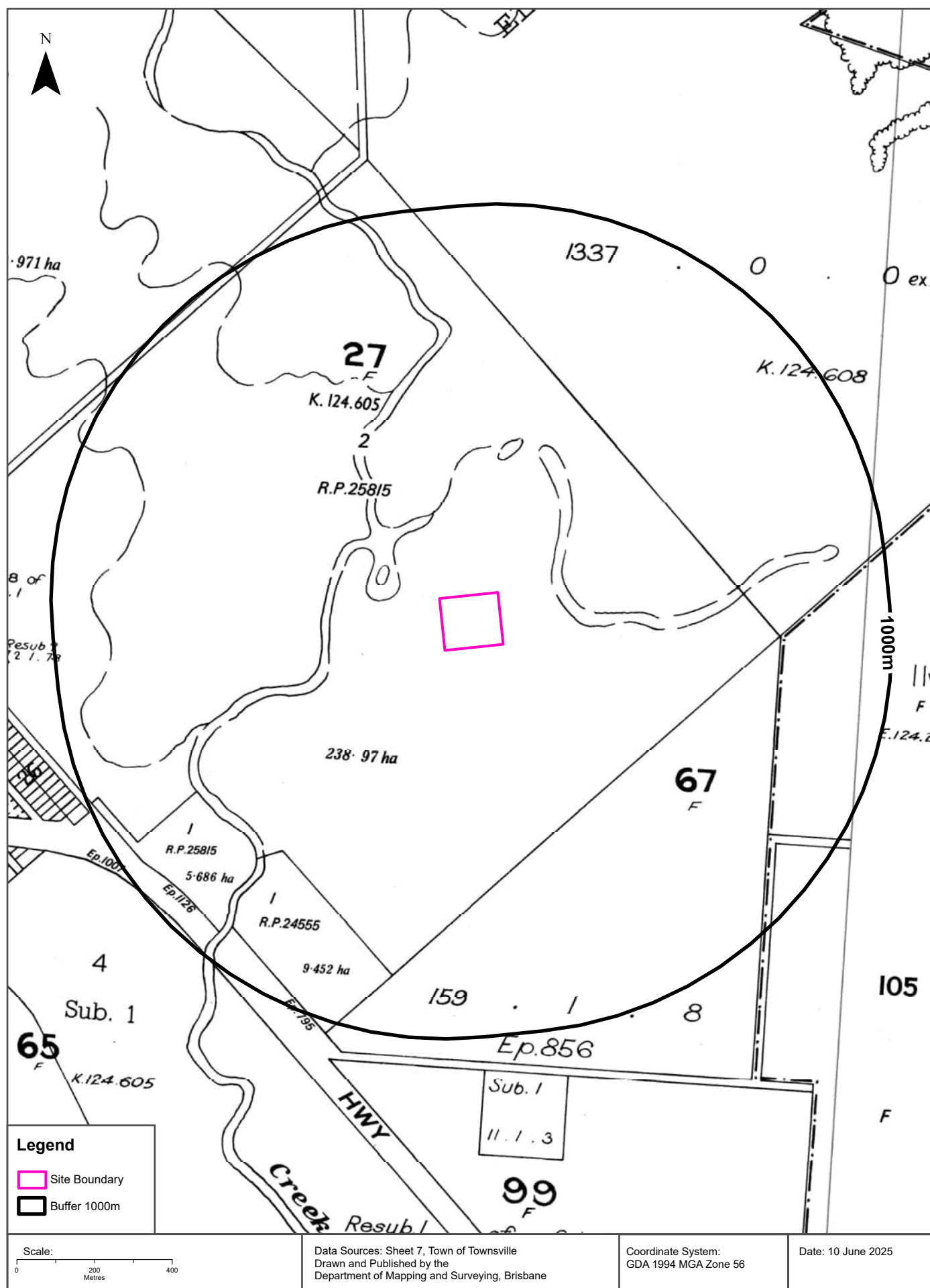


Historical Map 1985

110 Penelope Road, Stuart, QLD 4811

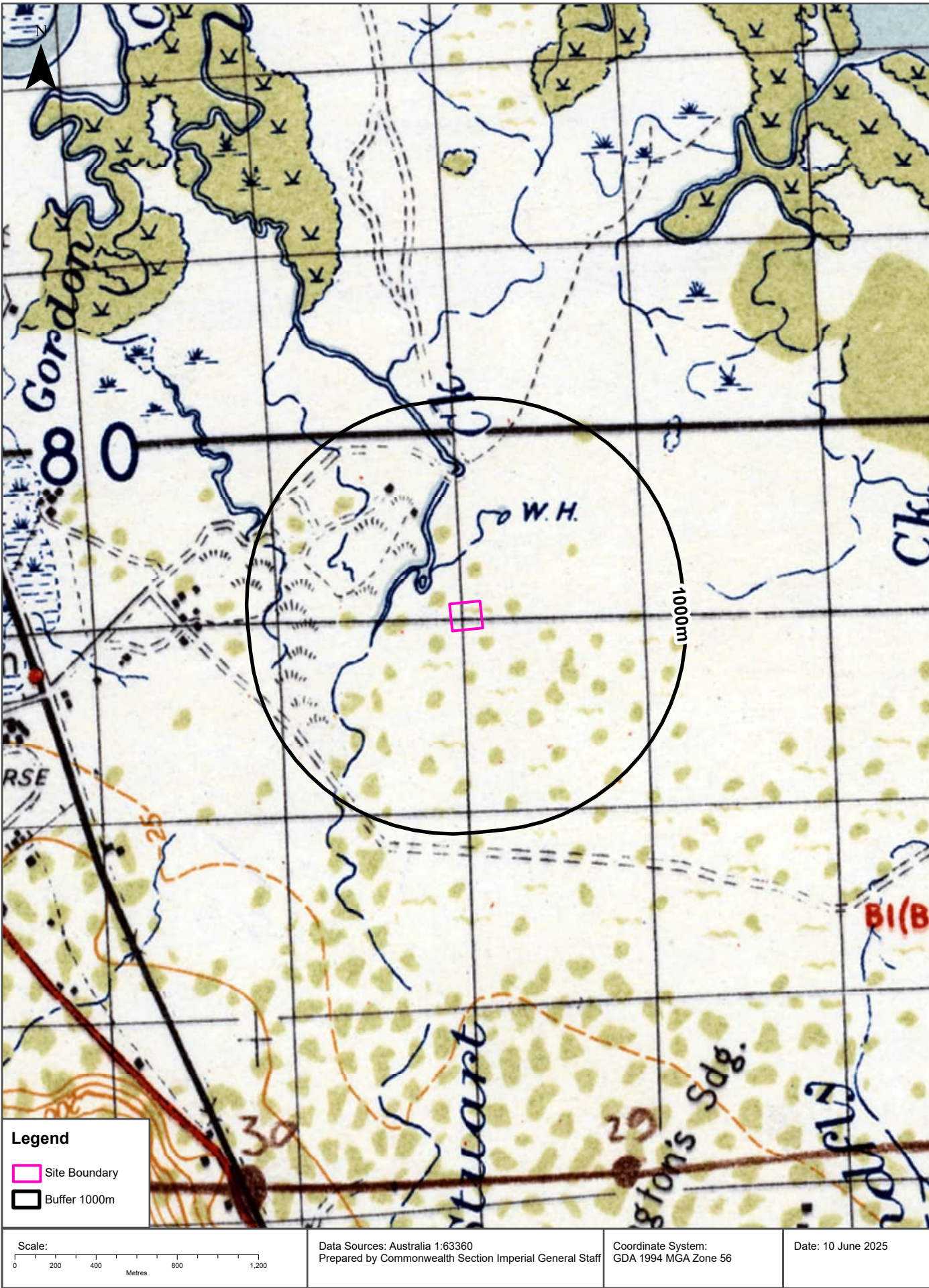


110 Penelope Road, Stuart, QLD 4811



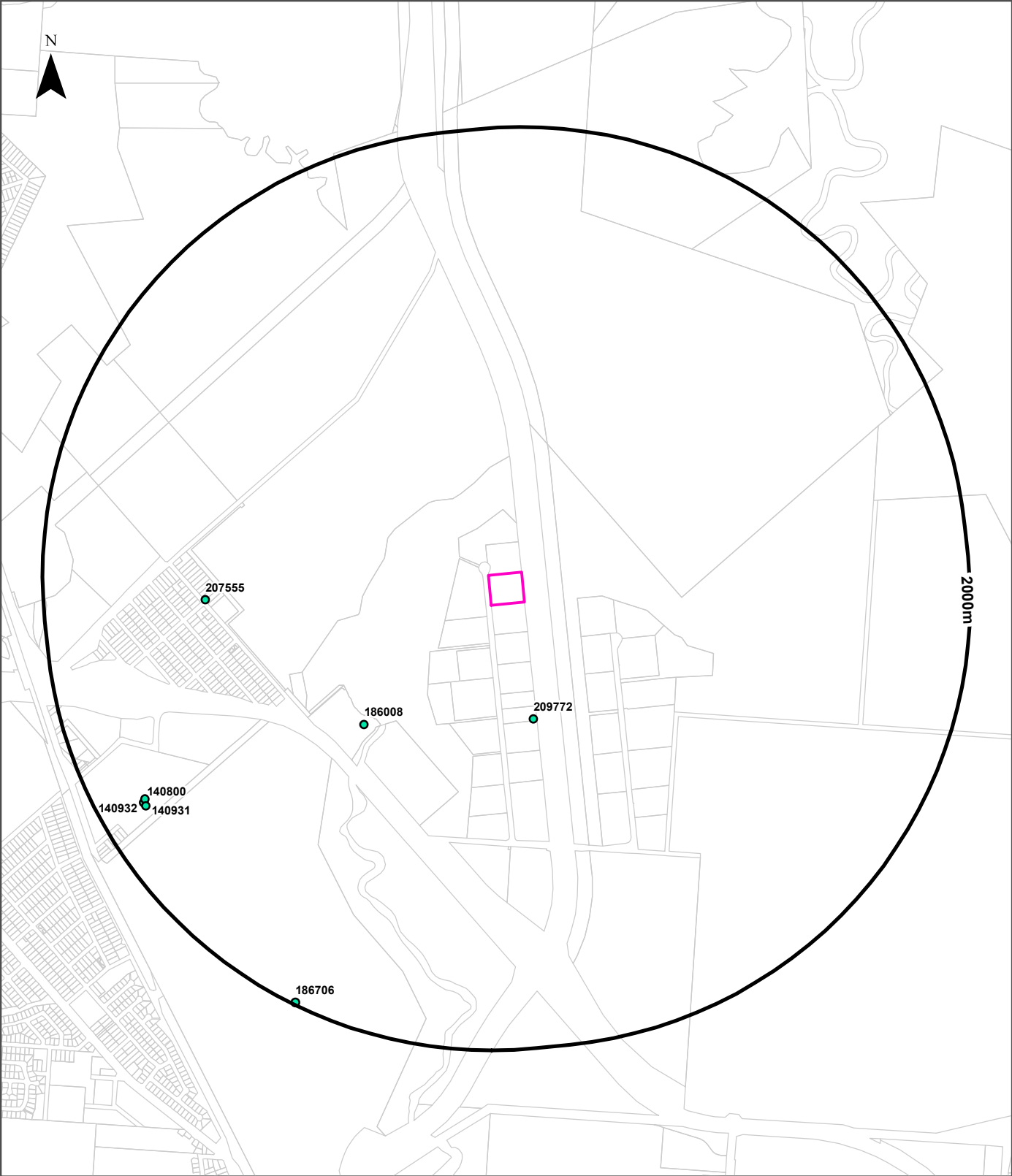
Historical Map c.1942

110 Penelope Road, Stuart, QLD 4811



Groundwater Boreholes

110 Penelope Road, Stuart, QLD 4811



Legend

- Site Boundary
- Borehole
- Buffer 2000m
- Property Boundaries

Scale:	Data Sources: Property Boundaries & Topographic Data: © State of Queensland (Department of Resources) 2025	Coordinate System: GDA 1994 MGA Zone 56	Date: 10 June 2025

Hydrogeology & Groundwater

110 Penelope Road, Stuart, QLD 4811

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Fractured or fissured, extensive aquifers of low to moderate productivity	0m	On-site

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 4.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/4.0>

Groundwater Boreholes

Boreholes within the dataset buffer:

Bore No	Facility Type	Facility Role	Status	Drillers Log	Aquifer	Drill Date	Dist	Dir
209772	Sub-artesian Facility	Sub-Artesian Monitoring	Existing	0.00m-4.00m DARK BROWN CLAY 4.00m-5.30m BROWN SANDY CLAY 5.30m-6.20m BROWN SILTY CLAY 6.20m-8.00m LIGHT BROWN SILTY CLAY WITH SAND		08/01/2025	529m	South
186008	Sub-artesian Facility	Water Supply	Existing	0.00m-5.00m BROWN CLAY 5.00m-6.00m SANDY CLAY 6.00m-11.00m COARSE SAND - WATER @ 6 METRES 11.00m-12.00m COARSE SAND AND STONES	Aquifer Top-Bottom: 6.00m-11.00m. Formation is contributing water to the bore. Formation does not flow. Quality: BRACKISH Yield: 2.00 SWL: -5.00	16/05/2018	783m	South West
207555	Sub-artesian Facility		Existing	0.00m-2.00m FINE SAND BROWN 2.00m-6.00m MEDIUM/COARSE SAND - WATER @ 2 METRES 6.00m-7.00m BROWN CLAY	Aquifer Top-Bottom: 2.00m-6.00m. Formation is contributing water to the bore. Formation does not flow. Quality: POTABLE Yield: 1.00 SWL: -2.00	17/04/2024	1272m	West
140931	Sub-artesian Facility	Stratigraphic Investigation	Abandoned and Destroyed	0.00m-1.00m TOP SOIL 1.00m-16.00m CLAY BROWN 16.00m-22.00m W/GRANITE WITH CLAY BROWN 22.00m-34.00m WEATHERED GRANITE 34.00m-64.00m GRANITE		26/11/2009	1780m	South West
140932	Sub-artesian Facility	Stratigraphic Investigation	Abandoned and Destroyed	0.00m-1.00m TOP SOIL 1.00m-16.00m CLAY BROWN 16.00m-22.00m W/GRANITE WITH CLAY BANDS 22.00m-37.00m WEATHERED GRANITE 37.00m-64.00m GRANITE		26/11/2009	1793m	South West
140800	Sub-artesian Facility	Water Supply	Existing	0.00m-0.10m TOP SOIL 0.10m-2.00m DARK BROWN SANDY CLAY 2.00m-9.00m BROWN SANDY CLAY AND SMALL STONE 9.00m-10.00m DARK SILTY CLAY 10.00m-13.00m COARSE SAND AND STONE* 13.00m-16.00m BROWN SANDY CLAY AND SMALL STONE 16.00m-17.50m BROWN GRANITE	Aquifer Top-Bottom: 10.00m-13.00m. Unconsolidated Condition. Formation is contributing water to the bore. Formation does not flow. Quality: BRACKISH Yield: 1.25 SWL: -4.50	04/08/2009	1795m	South West

Bore No	Facility Type	Facility Role	Status	Drillers Log	Aquifer	Drill Date	Dist	Dir
186706	Sub-artesian Facility	Sub-Artesian Monitoring	Abandoned but still useable	0.00m-8.00m BROWN CLAY 8.00m-10.00m LIGHT BROWN SANDY CLAY		13/05/2021	1990m	South West

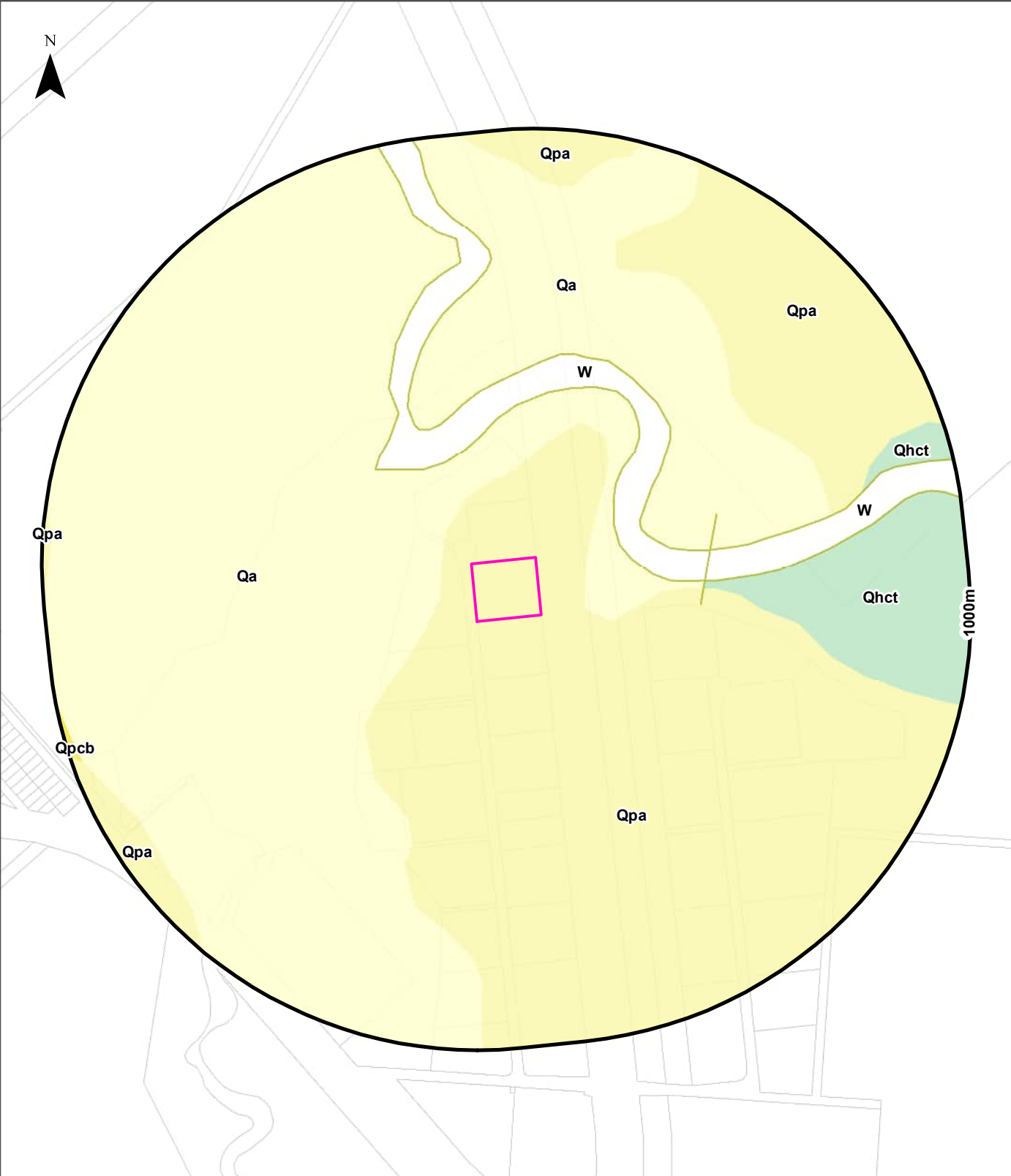
Groundwater Borehole Data: © State of Queensland (Department of Natural Resources and Mines) [2016]
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Groundwater Borehole Metadata: https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0015/31317/bore-baseline-assessment-dictionary.pdf

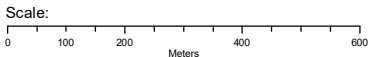
Detailed Surface Geology

110 Penelope Road, Stuart, QLD 4811



Legend

 Site Boundary	 Fault	 Layering
 Buffer 1000m	 Fracture	 LinearRockUnit
 Property Boundaries	 Fold	 MiscGeophysFeature
		 MiscLineFeature



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Geology

110 Penelope Road, Stuart, QLD 4811

Detailed Surface Geological Units

Geological Units within the dataset buffer:

Symbol	Lithology Summary	Unit Name	Dominant Rock	Rock Type	Age	Dist
Qpa	Clay, silt, sand and gravel; flood-plain alluvium on high terraces	Qpa-QLD	ALLUVIUM	STRATIFIED UNIT (INCLUDING VOLCANIC AND METAMORPHIC)	PLEISTOCENE	0m
Qa	Clay, silt, sand and gravel; flood-plain alluvium	Qa-QLD	ALLUVIUM	STRATIFIED UNIT (INCLUDING VOLCANIC AND METAMORPHIC)	QUATERNARY	70m
W	Water body, unspecified	Water body (unspecified)	WATER BODIES	BODIES OF WATER (DAMS, LAKES, WATERHOLES ETC)	WATER BODY	196m
Qhct	Silt, mud, sand and minor salt; coastal tidal flats, mangrove flats, supratidal flats, salt pans and grasslands	Qhct-QLD	MISCELLANEOUS UNCONSOLIDATED SEDIMENTS	STRATIFIED UNIT (INCLUDING VOLCANIC AND METAMORPHIC)	HOLOCENE	381m
Qpcb	Sand and minor gravel; some carbonate nodules: older beach ridges	Qpcb-SE55	SAND	STRATIFIED UNIT (INCLUDING VOLCANIC AND METAMORPHIC)	PLEISTOCENE	975m

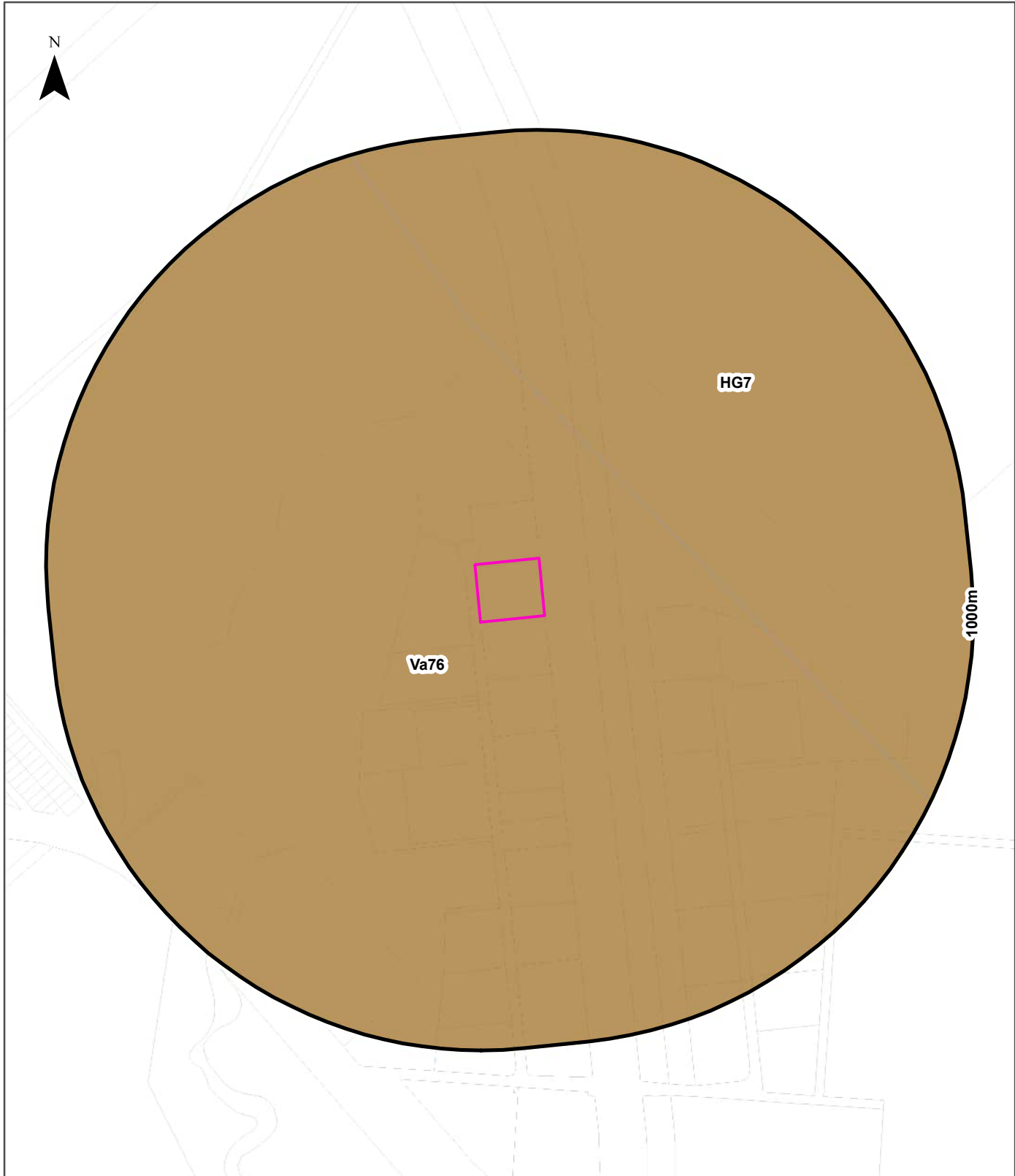
Detailed Geological Structures

Geological Structures within the dataset buffer:

Feature	Name	Description	Source	Scale	Dist
MiscLineFeature		Lake, lagoon or waterhole	Map Sheet 8259 (TOWNSVILLE)	40000	196m
MiscLineFeature		Dam wall	Map Sheet 8259 (TOWNSVILLE)	40000	371m

Geological Data Source : Detailed Surface Geology & Detailed Geological Structures

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Legend

Site Boundary

Buffer 1000m

Property Boundaries

Australian Soil Classification Orders

Anthroposol	Dermosol	Kandosol	Podosol	Tenosol	No Data
Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol	
Chromosol	Hydrosol	Organosol	Sodosol	Lake	

Scale:

0 100 200 300 400 500 Meters

Data Sources: Property Boundaries & Topographic Data:
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Date: 10 June 2025

Soils

110 Penelope Road, Stuart, QLD 4811

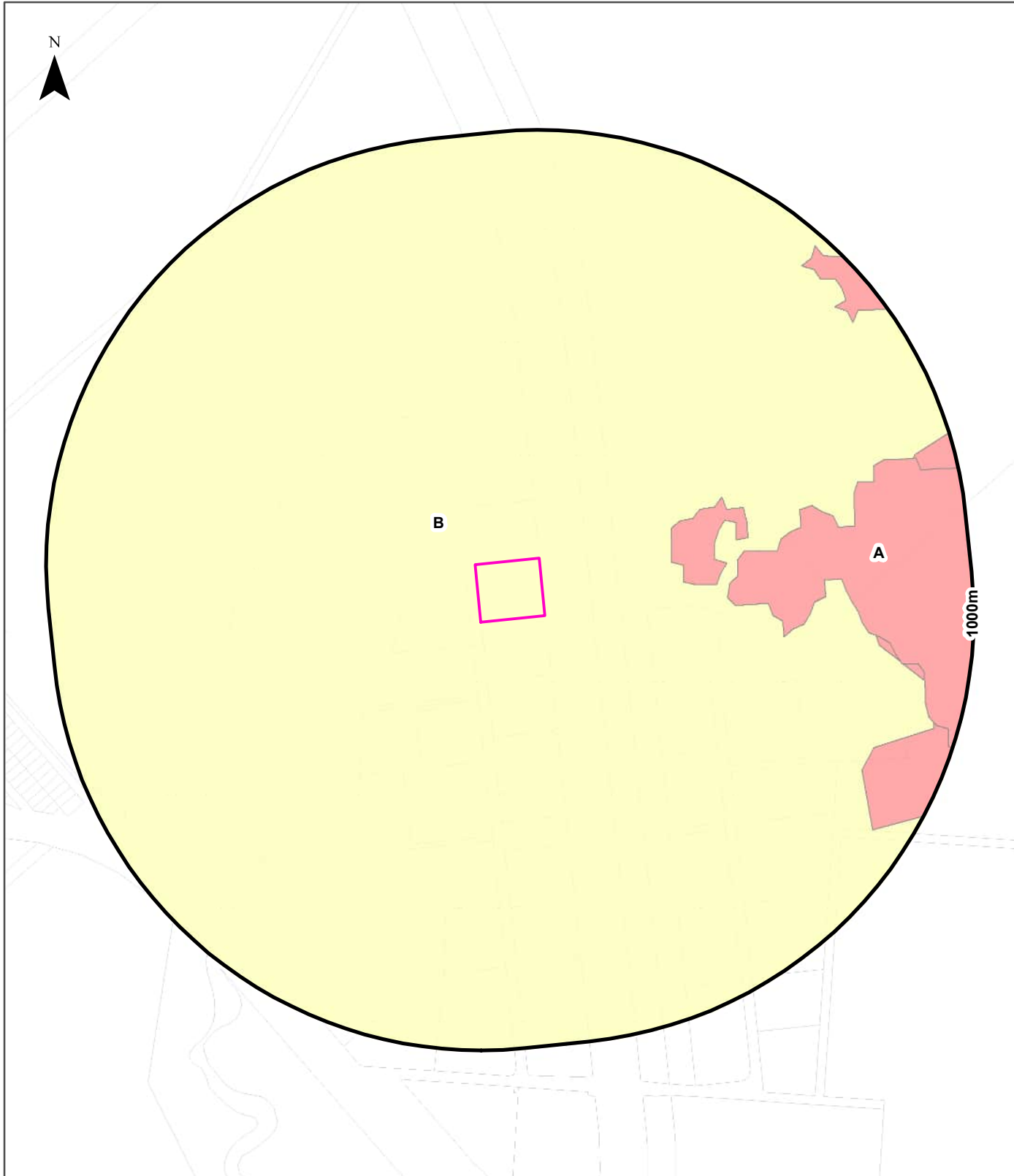
Atlas of Australian Soils

Australian soil types within the dataset buffer:

Symbol	Soil Order	Map Unit Description	Distance
Va76	Sodosol	Alluvial plains with some low stream levees and relic infilled stream channels: dominant are loamy or occasionally sandy duplex soils (Dy3.43). Other duplex soils, chiefly (Dy2.43), (Dy3.33), (Dy2.33), (Dd1.33), and (Db1.33), are closely associated. The range of soils occurring on the low stream levees and channel infills is similar to that described in unit Va78. Also included are some weakly gilgaied areas of unit SiO.	0m
HG7	Sodosol	Level alluvial plains which merge seaward into tidal flats, mangrove swamps, and salt pans; the area may be inundated for short periods by a combination of floodwaters and very high tides; the area is often dissected by minor stream channels: dominant are silty- or loamy-surfaced duplex soils (Dd1.33) and (Dd1.13). At lower levels the B horizon dark grey clays are strongly mottled (gleyed) (Dd2) soils. Closely associated in lower depressions and swampy areas are cracking clays (Ug5.24) and (Ug5.16) with, less commonly, (Ug5.5) and (Ug5.4). Adjacent to the salt pans saline clays (Uf6.61) may occur; and included in the unit as mapped are small areas of grey loamy duplex soils (Dy3.43).	265m

Atlas of Australian Soils: CSIRO

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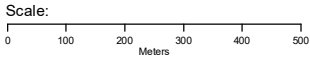


Legend

- Site Boundary
- Buffer 1000m
- Property Boundaries

Probability of occurrence of Acid Sulfate Soils

- A. High (>70%)
- B. Low (6-70%)
- C. Extremely Low (1-5%)
- D. No Chance (0%)



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Acid Sulfate Soils

110 Penelope Road, Stuart, QLD 4811

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

PROBCLASS	Description	Dist	Dir
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m	On-site
A	High Probability of occurrence. >70% chance of occurrence.	305m	East

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Heritage

110 Penelope Road, Stuart, QLD 4811

Commonwealth Heritage List

Commonwealth Heritage List Items located within the dataset buffer:

Place ID	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

National Heritage List Items located within the dataset buffer:

Note. Please click on Place Id to activate a hyperlink to online website.

Place ID	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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Heritage Register Boundaries

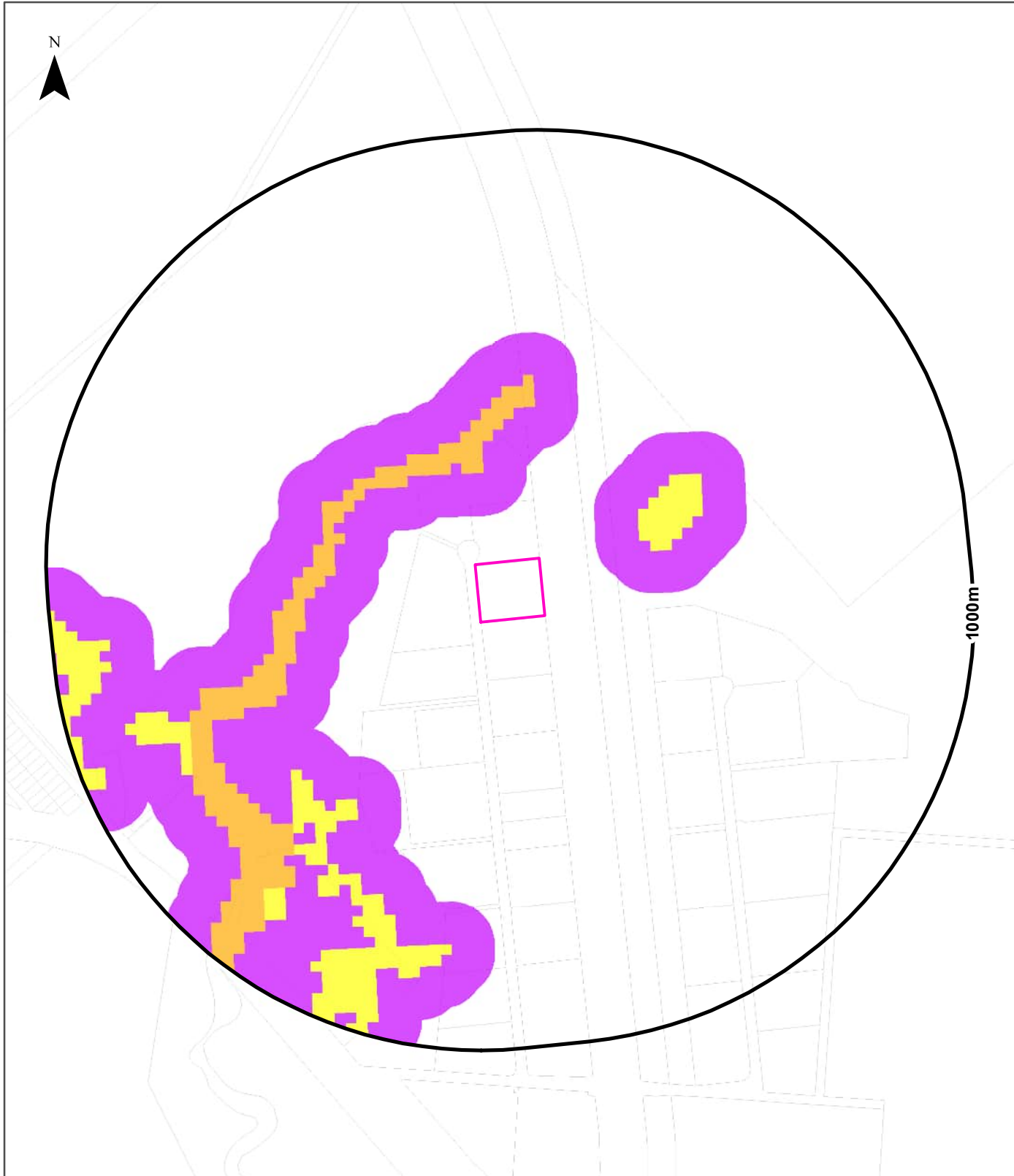
Heritage Register Boundaries within the dataset buffer:

Place ID	Name	Entry Date	Distance	Direction
N/A	No records in buffer			

Heritage Register Boundaries Data: © State of Queensland (Department of Environment and Heritage Protection)
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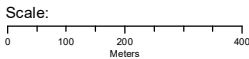
Natural Hazards - Bushfire Prone Areas

110 Penelope Road, Stuart, QLD 4811



Legend

- Site Boundary
- Buffer 1000m
- Property Boundaries
- Potential Impact Buffer
- Very High Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Medium Potential Bushfire Intensity



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
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Date: 10 June 2025

Natural Hazards

110 Penelope Road, Stuart, QLD 4811

Statewide Bushfire Prone Areas

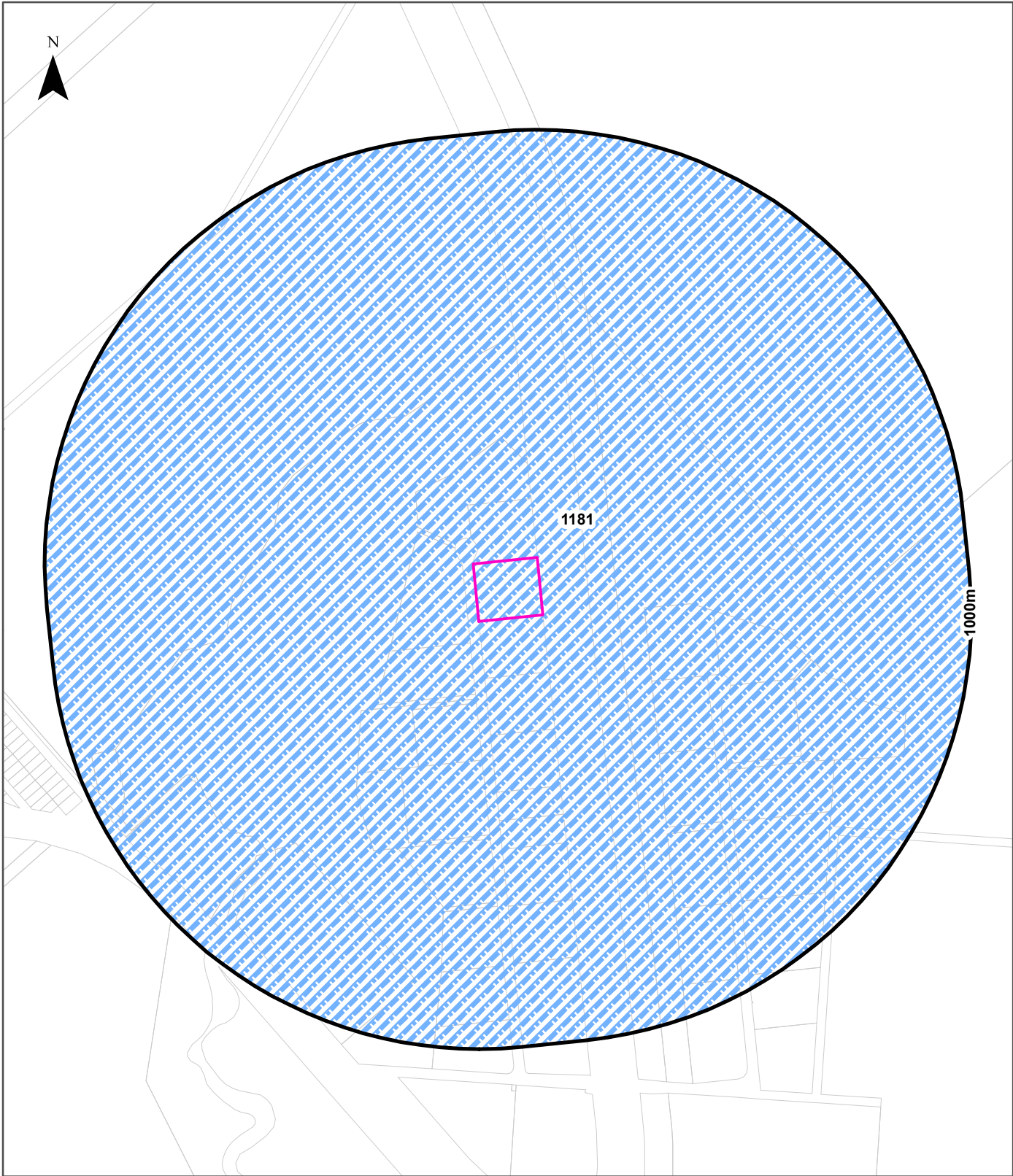
Bushfire Prone Areas within the dataset buffer:

Bushfire Prone Area Class	Version	Region	Distance	Direction
Potential Impact Buffer	July 2014	North Queensland	113m	South West
High Potential Bushfire Intensity	July 2014	North Queensland	213m	South West
Medium Potential Bushfire Intensity	July 2014	North Queensland	236m	North East

Bushfire Prone Areas Data: © State of Queensland (Department of Natural Resources and Mines)
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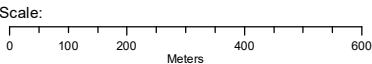
Natural Hazards - Queensland Floodplain Assessment Overlay

110 Penelope Road, Stuart, QLD 4811



Legend

- Site Boundary
- Buffer 1000m
- Property Boundaries
- Floodplain



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
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Date: 10 June 2025

Natural Hazards

110 Penelope Road, Stuart, QLD 4811

Queensland Floodplain Assessment Overlay

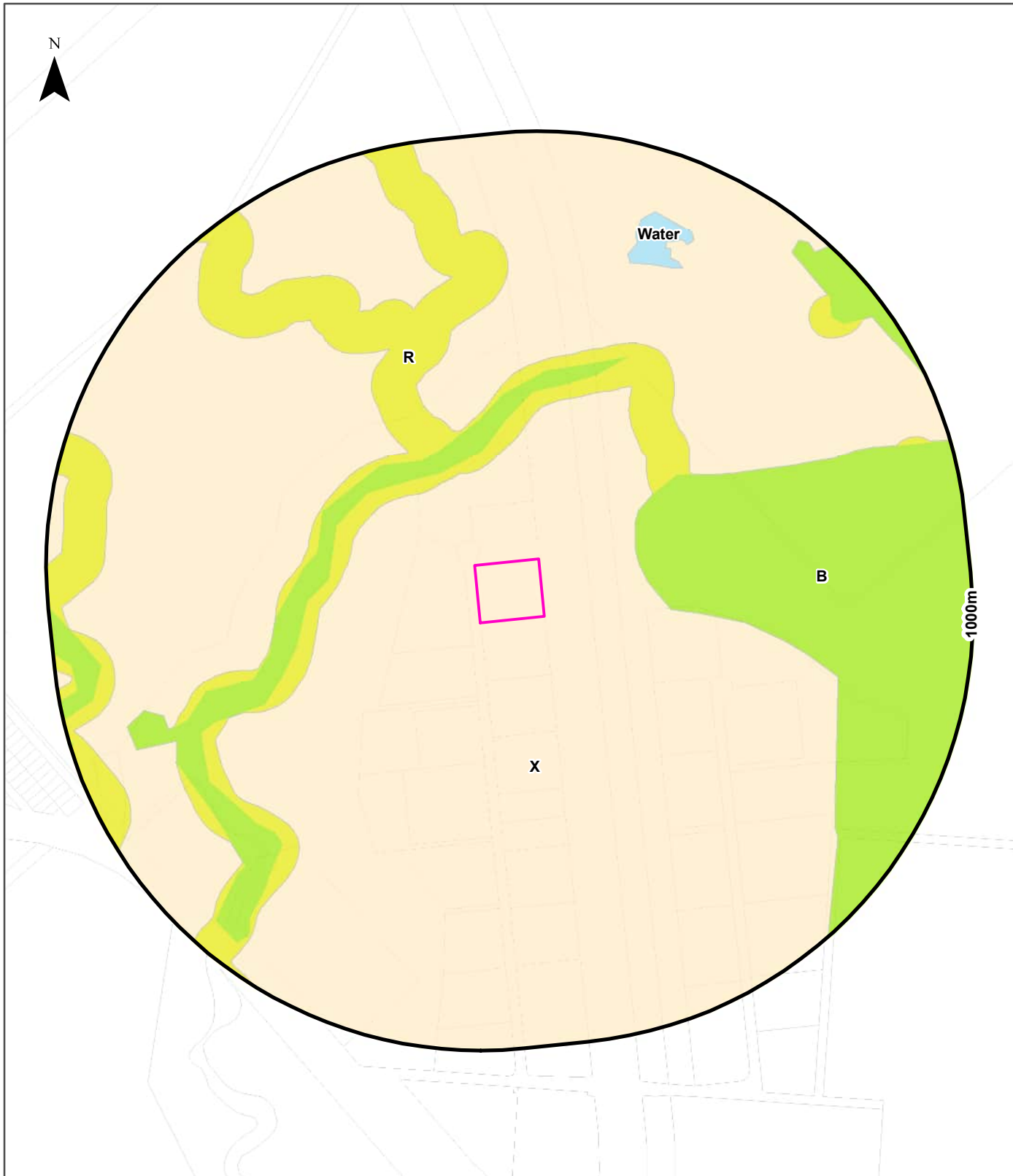
QFAO within the dataset buffer:

Number	Name	Distance	Direction
1181	Ross River	0m	On-site

Queensland Floodplain Assessment Overlay Data: © State of Queensland (Department of Natural Resources and Mines)
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Ecological Constraints - Regulated Vegetation

110 Penelope Road, Stuart, QLD 4811



Legend

 Site Boundary	 Category A	 Category R	 Unknown
 Buffer 1000m	 Category B	 Category X	
 Property Boundaries	 Category C	 Water	

Scale:
0 100 200 400 600
Metres

Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
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Date: 10 June 2025

Ecological Constraints

110 Penelope Road, Stuart, QLD 4811

Regulated Vegetation

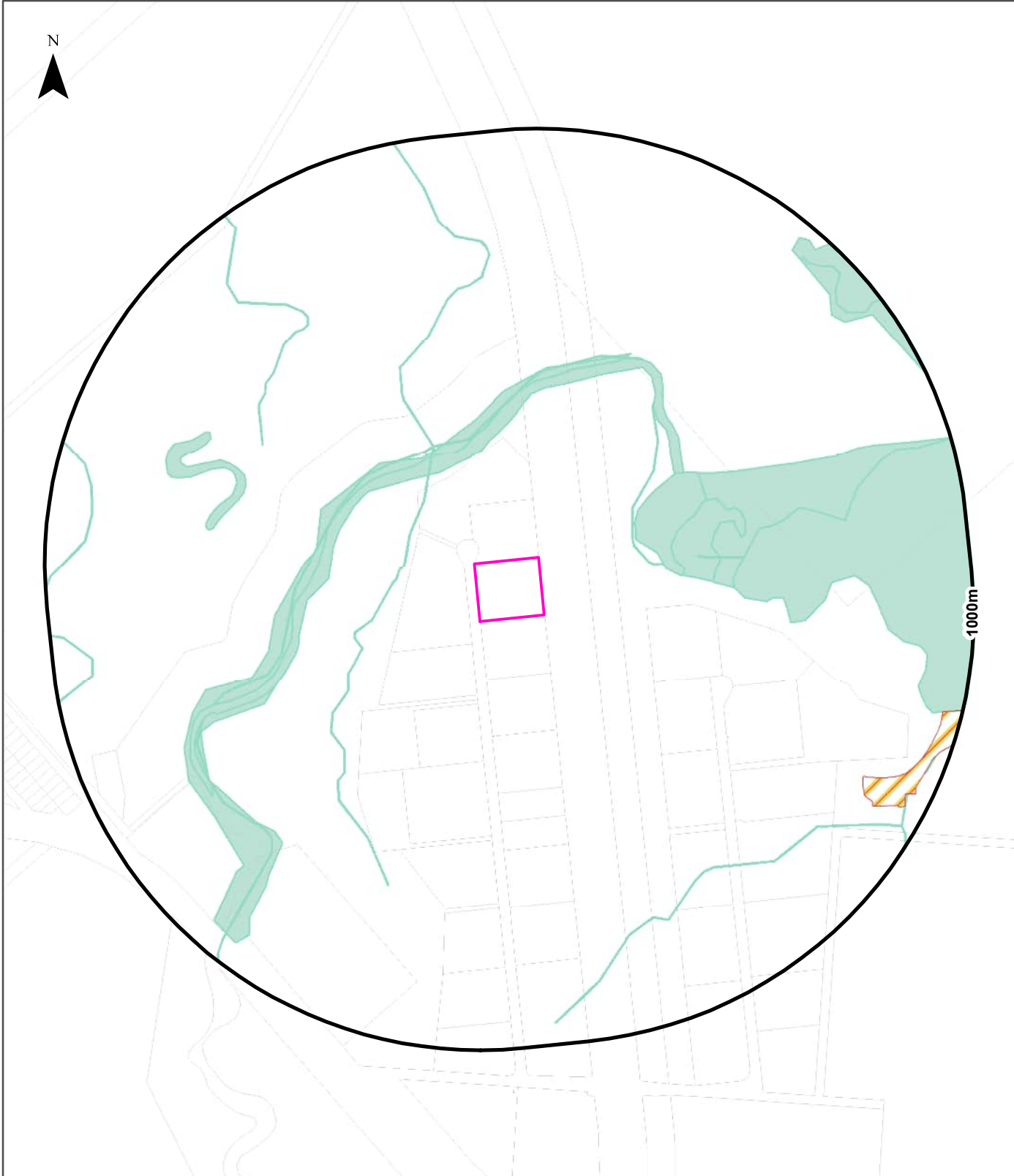
Regulated Vegetation Areas within the dataset buffer:

Regulated Vegetation Category	Category Description	Distance	Direction
Category X	Category X areas are all other areas that are not designated as a Category A, B, C or R areas.	0m	On-site
Category R	Category R areas are designated a regrowth watercourse and a drainage feature area.	206m	North
Category B	Category B areas contain remnant native vegetation, or may contain an endangered regional ecosystem; an of concern regional ecosystem; or a least concern regional ecosystem if not covered by Category C.	226m	East
Water		725m	North East

Regulated Vegetation Management Map Data Source: Queensland Government - Department of Resources
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Ecological Constraints - Wetland Environmental Values

110 Penelope Road, Stuart, QLD 4811



Legend

Site Boundary	Great Barrier Reef High Ecological Significance Wetland	General Ecological Significance Wetland
Buffer 1000m	High Ecological Significance Wetland	
Property Boundaries		

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
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Date: 10 June 2025

Ecological Constraints

110 Penelope Road, Stuart, QLD 4811

Wetland Environmental Values

Wetland Environmental Value areas within the dataset buffer:

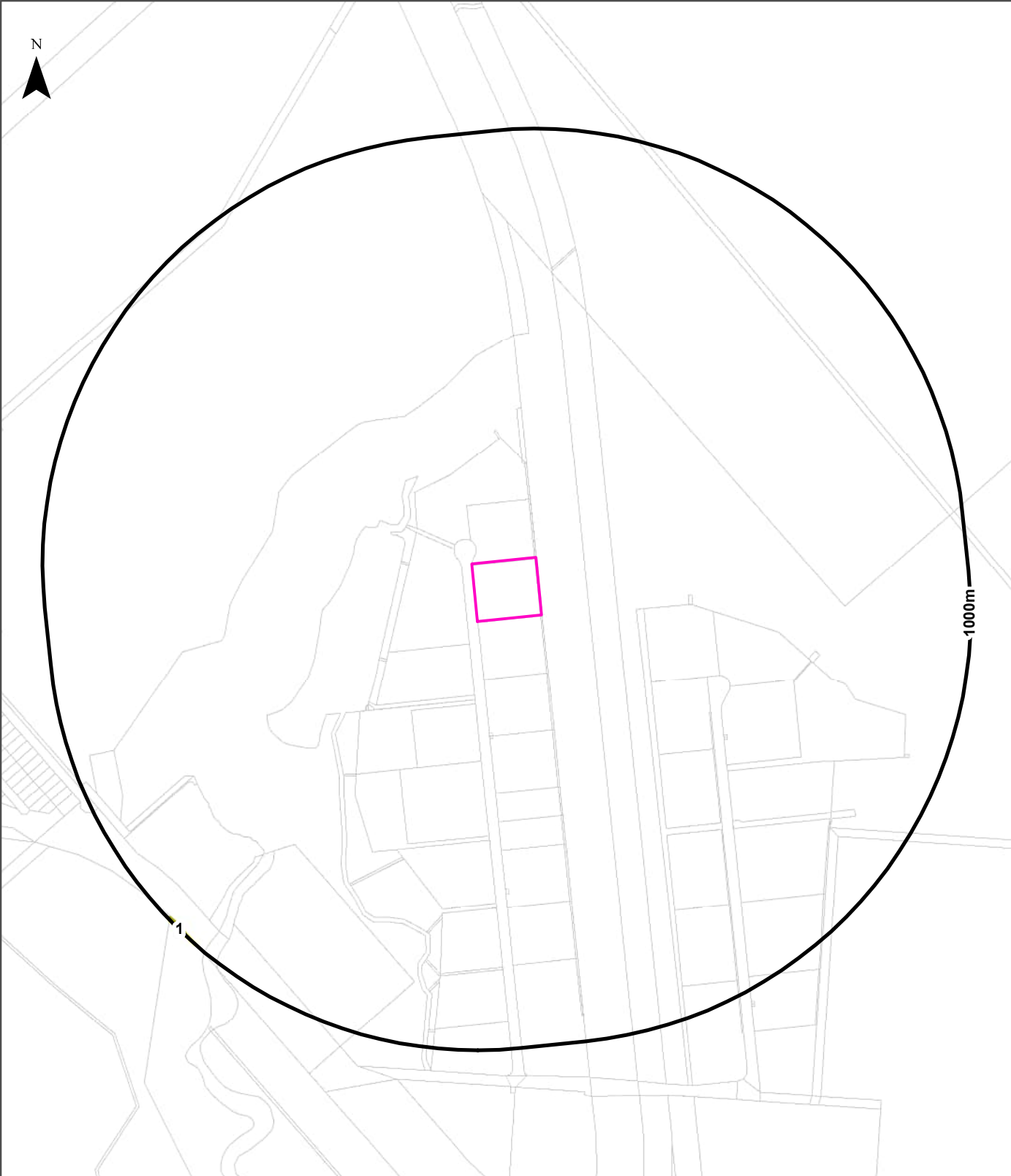
Note: Sites in the vicinity of a Great Barrier Reef (GBR) High Ecological Significance wetland may be subject to assessment under State Code 9 – GBR Wetland Protection Areas in the State Development Assessment Provisions.

Ecological Significance	Aqua Score	Distance	Direction
General ecological significance wetland		160m	South West
Great Barrier Reef high ecological significance wetland	High	831m	South East

Wetland Environmental Values Data Source: Queensland Government– Department of Environment and Science
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Ecological Constraints - Protected Areas

110 Penelope Road, Stuart, QLD 4811



Legend

- Site Boundary
- Buffer 1000m
- Property Boundaries

IUCN category

- Strict Nature Reserve
- Wilderness Area
- National Park

- Natural Monument or Feature
- Habitat/Species Management Area
- Protected Landscape/Seascape

- Protected area sustainable use of natural resources
- Uncategorised Protected Area

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Ecological Constraints

110 Penelope Road, Stuart, QLD 4811

Collaborative Australian Protected Areas Database - Terrestrial

Protected areas in terrestrial environments identified by the CAPAD within the dataset buffer:

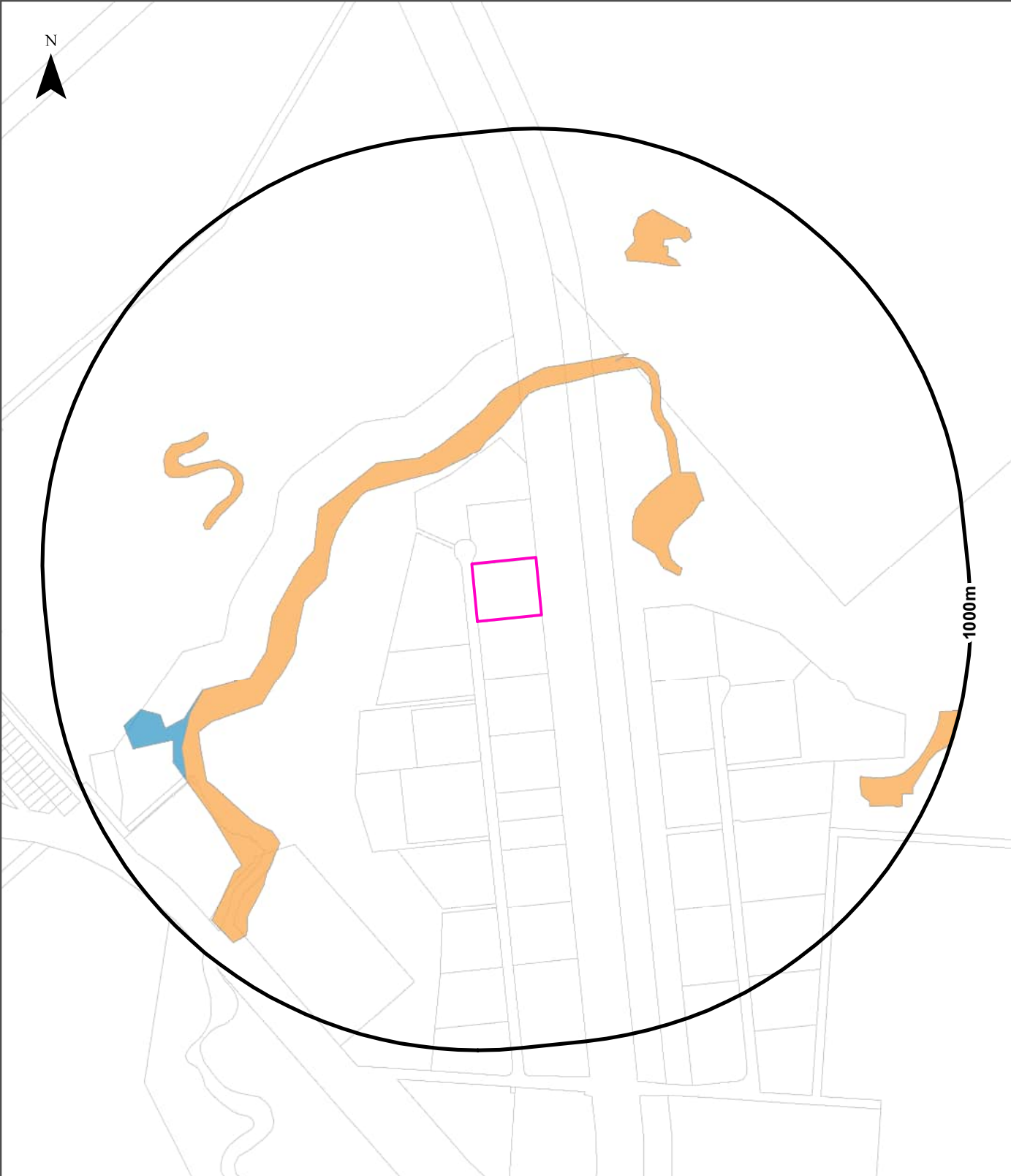
Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
1	Stuart Creek	Nature Refuge	Protected area with sustainable use of natural resources	Queensland Department of Environment and Science	Private	993m	South West

Collaborative Australian Protected Areas Database - Marine

Protected areas in marine environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Source: Collaborative Australian Protected Areas Database (CAPAD) 2022
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Legend

Site Boundary	High potential GDE - from national assessment	Low potential GDE - from national assessment
Buffer 1000m	High potential GDE - from regional studies	Low potential GDE - from regional studies
Property Boundaries	Moderate potential GDE - from national assessment	Known GDE - from regional studies
	Moderate potential GDE - from regional studies	Unclassified potential GDE - from national assessment
		Unclassified potential GDE - from regional studies

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 10 June 2025

Ecological Constraints

110 Penelope Road, Stuart, QLD 4811

Groundwater Dependent Ecosystems Atlas

GDEs within the dataset buffer:

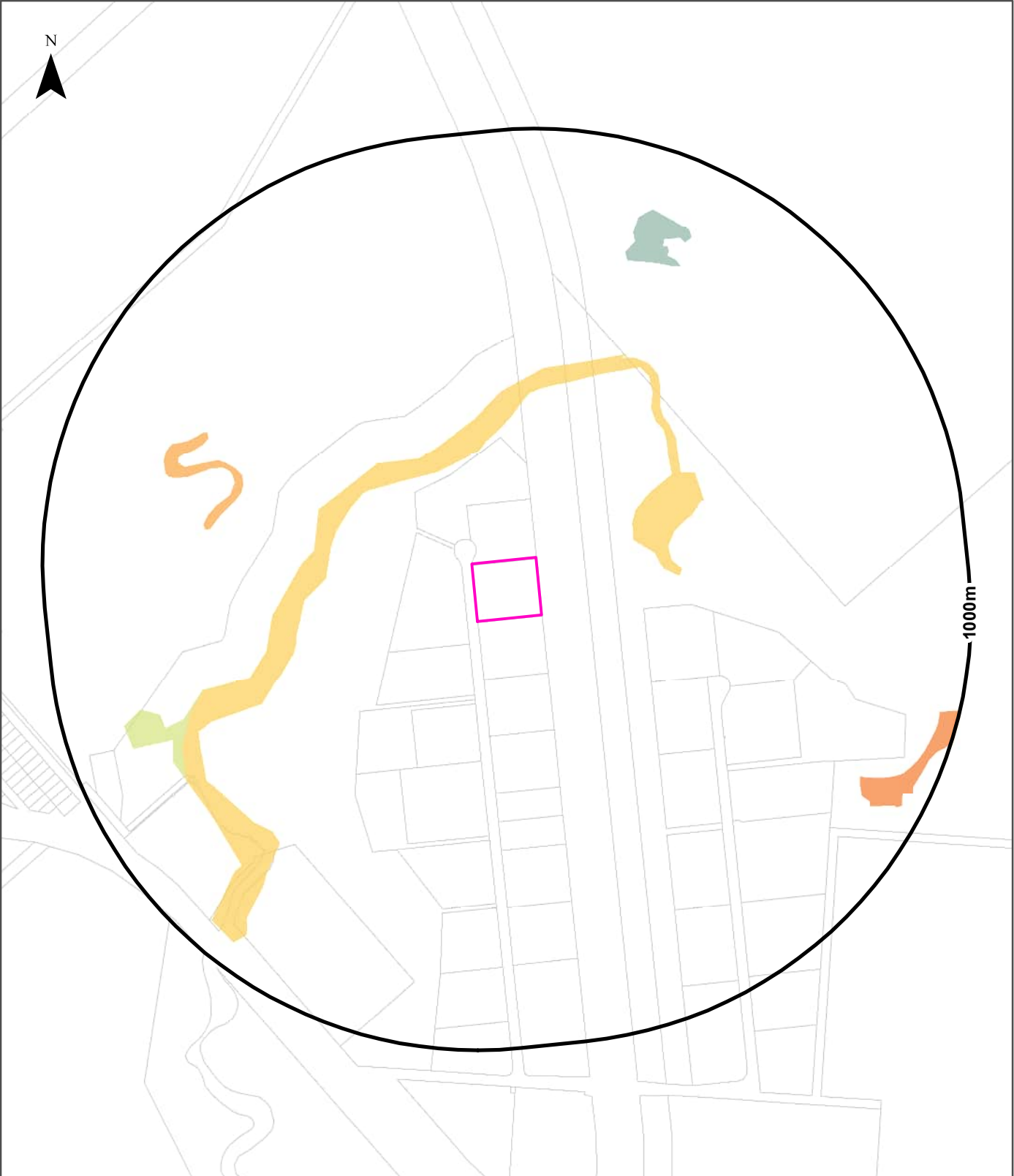
Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Dist	Dir
Aquatic	Moderate potential GDE - from national assessment	Alluvial and deltaic plains with scattered high hills.	Wetland		229m	West
Terrestrial	Low potential GDE - from national assessment	Alluvial and deltaic plains with scattered high hills.	Vegetation		658m	West

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology

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Ecological Constraints - Inflow Dependent Ecosystems Likelihood

110 Penelope Road, Stuart, QLD 4811



Legend

 Site Boundary	 0	 4	 8
 Buffer 1000m	 1 (Low)	 5	 9
 Property Boundaries	 2	 6	 10 (High)
	 3	 7	 Unknown

Scale:
0 100 200 400 600
Meters

Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
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Ecological Constraints

110 Penelope Road, Stuart, QLD 4811

Inflow Dependent Ecosystems Likelihood

IDEs within the dataset buffer:

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Dist	Dir
Aquatic	4	Alluvial and deltaic plains with scattered high hills.	Wetland		229m	West
Aquatic	3	Alluvial and deltaic plains with scattered high hills.	Wetland		563m	West
Terrestrial	6	Alluvial and deltaic plains with scattered high hills.	Vegetation		658m	West
Aquatic	8	Alluvial and deltaic plains with scattered high hills.	Wetland		725m	North East
Aquatic	2	Alluvial and deltaic plains with scattered high hills.	Wetland		831m	South East

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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LC Code	Location Confidence
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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 irrespective of how that liability arises including in contract or tort, liability under indemnity or for any other common law, equitable or statutory cause of action or otherwise.
 12. These Terms are subject to New South Wales law.

Appendix B

Soil Bore Logs

Borehole details

Borehole ID: MCS1	Time:	Drill method: Excavator	Termination depth (m): 1.3
Project ID: 202519_McDonald	Date: 20/06/2025	Driller: K.Parison	GW depth:
Logger name: K. Parison	Elevation:	GPS used: Phone	Collection method: Jar/Glove

Soil details

Sample details

Depth	Colour	Texture	Structure	Moist / Wet	Odour	Fill / Natural	Sample ID	Sample Depth	PID	Duplicate / Triplicate	PFAS
0 - 0.3	Gray	Well sorted gravel	-	Dry	N	Fill	MCS1 - 0.1-0.3			N	Y
0.3 - 0.8	Yellow-brown	Clay	-	Moist	N	Fill	MCS1 - 0.7-0.9			N	Y
0.8 - 1.1	Brown-black	Clay	-	Moist	N	Natural	MCS1 - 0.9-1.1			N	Y
1.1 - 1.3	Black	Clay	-	Wet	N	Natural	MCS1 - 1.2-1.3			N	Y

Comments

Borehole details

Borehole ID: MCS2	Time:	Drill method: Excavator	Termination depth (m): 1.2
Project ID: 202519_McDonald	Date: 20/06/2025	Driller: K.Parison	GW depth:
Logger name: K. Parison	Elevation:	GPS used: Phone	Collection method: Jar/Glove

Soil details

Sample details

Depth	Colour	Texture	Structure	Moist / Wet	Odour	Fill / Natural	Sample ID	Sample Depth	PID	Duplicate / Triplicate	PFAS
0 - 0.1	Gray	Gravel	-	Dry	N	Fill	MCS2 - 0.1-0.3			N	Y
0.1 - 0.7	Yellow-brown	Clay	-	Moist	N	Fill	MCS2 - 0.7-0.9		Background BG - 0.7-0.9	Duplicate / Triplicate	Y
0.7 - 0.9	Black	Clay	-	Moist	N	Natural	MCS2 - 0.9-1.1		Background BG - 0.9-1.1	N	Y
0.9 - 1.2	Brown - black	Clay	-	Moist	N	Natural	MCS2 - 1.2-1.3			N	Y

Comments

Borehole details

Borehole ID: MCS3	Time:	Drill method: Excavator	Termination depth (m): 1.2
Project ID: 202519_McDonald	Date: 20/06/2025	Driller: K.Parison	GW depth:
Logger name: K. Parison	Elevation:	GPS used: Phone	Collection method: Jar/Glove

Soil details

Sample details

Depth	Colour	Texture	Structure	Moist / Wet	Odour	Fill / Natural	Sample ID	Sample Depth	PID	Duplicate / Triplicate	PFAS
0 - 0.2	Gray	Gravel	-	Dry	N	Fill	MCS3 - 0.1-0.3			N	Y
0.2 - 0.8	Yellow-brown	Clay	-	Moist	N	Fill	MCS3 - 0.7-0.9			N	Y
0.8 - 0.9	Black	Clay	-	Moist	N	Natural	MCS3 - 0.9-1.1			N	Y
0.9 - 1.2	Brown - black	Clay	-	Moist	N	Natural	MCS3 - 1.2-1.3			N	Y

Comments

Borehole details

Borehole ID: MCS4	Time:	Drill method: Excavator	Termination depth (m): 1.3
Project ID: 202519_McDonald	Date: 20/06/2025	Driller: K.Parison	GW depth:
Logger name: K. Parison	Elevation:	GPS used: Phone	Collection method: Jar/Glove

Soil details

Sample details

Depth	Colour	Texture	Structure	Moist / Wet	Odour	Fill / Natural	Sample ID	Sample Depth	PID	Duplicate / Triplicate	PFAS
0 - 0.1	Grey	Gravel	-	Dry	N	Fill	MCS4 - 0.1-0.3			N	Y
0.1 - 0.9	Brown	Clay	-	Moist	N	Fill	MCS4 - 0.7-0.9			N	Y
0.9 - 1.1	Black	Clay	-	Moist	N	Natural	MCS4 - 0.9-1.1			N	Y
1.1 - 1.3	Brown	Clay	-	Moist	N	Natural	MCS4 - 1.2-1.3			N	Y

Comments

Borehole details

Borehole ID: MCS5	Time:	Drill method: Excavator	Termination depth (m): 1.2
Project ID: 202519_McDonald	Date: 20/06/2025	Driller: K.Parison	GW depth:
Logger name: K. Parison	Elevation:	GPS used: Phone	Collection method: Jar/Glove

Soil details

Sample details

Depth	Colour	Texture	Structure	Moist / Wet	Odour	Fill / Natural	Sample ID	Sample Depth	PID	Duplicate / Triplicate	PFAS
0 - 0.1	Grey	Gravel	-	Dry	N	Fill	MCS5 - 0.1-0.3			N	Y
0.1 - 0.8	Yellow-brown	Clay	-	Moist	N	Fill	MCS5 - 0.7-0.9			N	Y
0.8 - 1.0	Black	Clay	-	Moist	N	Natural	MCS5 - 0.9-1.1			N	Y
1.0 - 1.2	Brown	Clay	-	Moist	N	Natural	MCS5 - 1.2-1.3			N	Y

Comments

Appendix C

Summary of Laboratory Results

SITE	PFAS									SULPHATE SOILS	NA	PARTICLE SIZE			BTEX	
	6:2 Fluorotelomer Sulfonate (6:2 FTS)	Perfluorobutanesulfonate	Perfluorononanesulfonic acid (PFNS)	Perfluorohexadecanoic acid (PFHxDA)	Sum of PFHxS and PFOS	Sum of PFAS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	Sum of PFAS (PFOS + PFOA)	Perfluoro-1-dodecanesulfonate	pH (CaCl2)	Benzene (F0)	+75µm	Clay in soils <2µm	Passing 75µm	Naphthalene (VOC)	Benzene
Units	µg/kg	mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm					20											
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind															370	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																95
NEPM 2013 Table 1A(1) HILs Res A Soil																
NEPM 2013 Table 1A(1) HILs Comm/Ind Soil																
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	2	11	2	2	2	11	11
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	2	0	2	2	2	0	0
MSC1-0.1-0.3	-	-	-	-	-	-	-	-	-	7.8	<0.1	8	32	86	<0.1	<0.1
MSC1-0.9-1.1	<1.6	<0.0016	<1.6	<0.0032	<0.0016	<0.08	<0.0016	<0.0016	<0.0016	7.8	ND	8	32	86	ND	ND
MSC2-0.7-0.9	<1.6	<0.0016	<1.6	<0.0032	<0.0016	<0.08	<0.0016	<0.0016	<0.0016	8.2	<0.1	14	36	92	<0.1	<0.1
MSC2-1.2-1.3	-	-	-	-	-	-	-	-	-	8.2	ND	14	36	92	ND	ND
MSC3-0.1-0.3	<1.6	<0.0016	<1.6	<0.0032	<0.0016	<0.08	<0.0016	<0.0016	<0.0016	8	0.05	11	34	89	0.05	0.05

MSC3-1.2-1.3	-	-	-	-	-	-	-	-	-	8	0.05	11	34	89	0.05	0.05
MSC4-0.1-0.3	<1.6	<0.0016	<1.6	<0.0032	<0.0016	<0.08	<0.0016	<0.0016	<0.0016	0.28	0	4.2	2.8	4.2	0	0
MSC4-1.2-1.3	-	-	-	-	-	-	-	-	-	9.263	0.05	29.94	46.63	107.9	0.05	0.05
MSC5-0.7-0.9	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0
MSC5-0.9-1.1	<1.6	<0.0016	<1.6	<0.0032	<0.0016	<0.08	<0.0016	<0.0016	<0.0016	0	0	0	0	0	0	0

References																		
SITE	BTEX						TRH							PHENOLS				
	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10 Fraction (F1)	C6-C10	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	3&4-Methylphenol (m&p-cresol)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm																		
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																		
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil	135	185			95			215	170	170	2500	6600						
NEPM 2013 Table 1A(1) HILs Res A Soil																		
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																		
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC1-0.9-1.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC2-0.7-0.9	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC2-1.2-1.3	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC3-0.1-0.3	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC3-1.2-1.3	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC4-0.1-0.3	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC4-1.2-1.3	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5
MSC5-0.7-0.9	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5

References

MSC5-0.9-1.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<25	<90	<120	<210	<1	<0.5	<0.5	<0.5	<0.5

References

SITE	PHENOLS										HALOGENATED BENZENES	PERFLUOROALKANE CARBOXYLIC ACIDS			
	2,4-Dinitrophenol	2,6-Dichlorophenol	2,3,4,6 & 2,3,5,6-Tetrachlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4-Nitrophenol	Cresol Total	Pentachlorophenol	Phenol	Hexachlorobenzene	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil															
NEPM 2013 Table 1A(1) HILs Res A Soil								400	100	3000	10				
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								25000	660	24000	80				
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	-	-	-	-
MSC1-0.9-1.1	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	<0.0016	<0.0016	<0.0016	<0.0016
MSC2-0.7-0.9	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	<0.0016	<0.0016	<0.0016	<0.0016
MSC2-1.2-1.3	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	-	-	-	-
MSC3-0.1-0.3	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	<0.0016	<0.0016	<0.0016	<0.0016
MSC3-1.2-1.3	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	-	-	-	-
MSC4-0.1-0.3	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	<0.0016	<0.0016	<0.0016	<0.0016
MSC4-1.2-1.3	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	-	-	-	-

References

MSC5-0.7-0.9	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	-	-	-	-
MSC5-0.9-1.1	<2	<0.5	<1	<0.5	<0.5	<0.5	<1	<1.5	<0.5	<0.5	<0.1	<0.0016	<0.0016	<0.0016	<0.0016

SITE	PERFLUOROALKANE CARBOXYLIC ACIDS							(N:2) FLUOROTELOMER SULFONIC ACIDS			PERFLUOROALKANE SULFONIC ACIDS		
	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTriDA)	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm	50											20	
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil													
NEPM 2013 Table 1A(1) HILs Res A Soil													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil													
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.9-1.1	<0.0008	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
MSC2-0.7-0.9	<0.0008	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
MSC2-1.2-1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC3-0.1-0.3	<0.0008	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016

References

MSC3-1.2-1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC4-0.1-0.3	<0.0008	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
MSC4-1.2-1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC5-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC5-0.9-1.1	<0.0008	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016

SITE	PERFLUOROALKANE SULFONIC ACIDS		PERFLUOROALKYL SULFONAMIDES							INORGANICS			
	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Conductivity (1:5 aqueous extract)	Exchangeable Calcium Percent (filtered)	Exchangeable Magnesium Percent (filtered)	Exchangeable Potassium Percent (filtered)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µS/cm	%	%	%
PFAS NEMP 2025 HIL D Ind/comm	20												
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil													
NEPM 2013 Table 1A(1) HILs Res A Soil													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil													
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	46.6	27.9	1.3
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	50.4	26.2	0.9
MSC1-0.1-0.3	-	-	-	-	-	-	-	-	-	140	-	-	-
MSC1-0.9-1.1	<0.0016	<0.0016	<0.0016	<0.008	<0.008	<0.016	<0.008	<0.008	<0.016	1,400	-	-	-
MSC2-0.7-0.9	<0.0016	<0.0016	<0.0016	<0.008	<0.008	<0.016	<0.008	<0.008	<0.016	1,000	-	-	-
MSC2-1.2-1.3	-	-	-	-	-	-	-	-	-	900	-	-	-
MSC3-0.1-0.3	<0.0016	<0.0016	<0.0016	<0.008	<0.008	<0.016	<0.008	<0.008	<0.016	300	-	-	-

MSC3-1.2-1.3	-	-	-	-	-	-	-	-	-	1,400	-	-	-
MSC4-0.1-0.3	<0.0016	<0.0016	<0.0016	<0.008	<0.008	<0.016	<0.008	<0.008	<0.016	450	-	-	-
MSC4-1.2-1.3	-	-	-	-	-	-	-	-	-	1,300	-	-	-
MSC5-0.7-0.9	-	-	-	-	-	-	-	-	-	1,200	-	-	-
MSC5-0.9-1.1	<0.0016	<0.0016	<0.0016	<0.008	<0.008	<0.016	<0.008	<0.008	<0.016	1,200	-	-	-

References

SITE	INORGANICS								METALS						
	Exchangeable Sodium Percent (filtered)	% Moisture	Exchangeable Calcium (filtered)	Exchangeable Magnesium (filtered)	Exchangeable Potassium (filtered)	Exchangeable Sodium (filtered)	Cation Exchange Capacity (filtered)	pH (Lab)	Arsenic	Barium	Beryllium	Cadmium	Chromium (III+VI)	Cobalt	Copper
Units	%	%	cmol (+)/k	cmol (+)/k	cmol (+)/k	cmol (+)/k	cmol (+)/k	-	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind									160						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil															
NEPM 2013 Table 1A(1) HILs Res A Soil									100		60	20		100	6000
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil									3000		500	900		4000	240000
BG-0.7-0.9	24.2	17.8	22	13	0.63	11	47	8.9	-	-	-	-	-	-	-
BG-0.9-1.1	22.6	14.7	19	9.7	0.34	8.4	37	8.4	-	-	-	-	-	-	-
MSC1-0.1-0.3	-	-	-	-	-	-	-	-	3.1	16	0.49	0.1	4.4	5.0	14
MSC1-0.9-1.1	-	16.8	-	-	-	-	-	-	2.1	210	0.95	<0.1	17	15	17
MSC2-0.7-0.9	-	19.5	-	-	-	-	-	-	1.9	230	0.94	<0.1	17	17	15
MSC2-1.2-1.3	-	-	-	-	-	-	-	-	2.0	150	0.94	<0.1	19	16	17
MSC3-0.1-0.3	-	5.0	-	-	-	-	-	-	2.9	15	0.45	<0.1	4.5	6.5	13
MSC3-1.2-1.3	-	-	-	-	-	-	-	-	2.4	220	0.96	<0.1	17	17	14

References

MSC4-0.1-0.3	-	4.5	-	-	-	-	-	-	3.1	17	0.38	0.1	4.9	7.4	21
MSC4-1.2-1.3	-	-	-	-	-	-	-	-	1.8	180	0.95	<0.1	17	17	16
MSC5-0.7-0.9	-	-	-	-	-	-	-	-	2.1	230	0.83	<0.1	17	21	15
MSC5-0.9-1.1	-	18.1	-	-	-	-	-	-	2.0	170	0.93	<0.1	19	14	17

References

SITE	METALS							ORGANIC	ORGANOPHOSPHOROUS PESTICIDES						
	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	Zinc	Total Organic Carbon	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Diazinon	Dichlorvos	Dimethoate	Ethion
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil															
NEPM 2013 Table 1A(1) HILs Res A Soil		300	3800	40	400		7400				160				
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil		1500	60000	730	6000		400000				2000				
BG-0.7-0.9	12,000	-	-	-	-	-	-	1,600	-	-	-	-	-	-	-
BG-0.9-1.1	12,000	-	-	-	-	-	-	8,500	-	-	-	-	-	-	-
MSC1-0.1-0.3	-	12	360	<0.01	2.5	19	50	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC1-0.9-1.1	-	15	550	<0.01	12	54	32	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC2-0.7-0.9	-	16	780	<0.01	12	50	34	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC2-1.2-1.3	-	14	840	<0.01	13	59	38	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC3-0.1-0.3	-	9.4	430	<0.01	3.1	24	60	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2

References

MSC3-1.2-1.3	-	17	700	<0.01	11	54	29	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC4-0.1-0.3	-	12	440	<0.01	2.9	25	64	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC4-1.2-1.3	-	16	690	<0.01	11	56	33	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC5-0.7-0.9	-	19	1,200	<0.01	14	52	29	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2
MSC5-0.9-1.1	-	14	1,000	<0.01	12	58	38	-	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.2

References

SITE	ORGANOPHOSPHOROUS PESTICIDES			ORGANOCHLORINE PESTICIDES											
	Fenitrothion	Malathion	Methidathion	Organochlorine pesticides EPA/Vic	Other organochlorine pesticides EPA/Vic	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (technical)	d-BHC	DDD	DDT
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind															640
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil															
NEPM 2013 Table 1A(1) HILs Res A Soil										50					
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										530					
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC1-0.9-1.1	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC2-0.7-0.9	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC2-1.2-1.3	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

References

MSC3-0.1-0.3	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC3-1.2-1.3	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC4-0.1-0.3	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC4-1.2-1.3	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC5-0.7-0.9	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC5-0.9-1.1	<0.2	<0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

References

SITE	ORGANOCHLORINE PESTICIDES											PAH			
	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	1-Methylnaphthalene	2-methylnaphthalene	Acenaphthene	Acenaphthylene
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil					10										
NEPM 2013 Table 1A(1) HILs Res A Soil									6		300				
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil					100				50		2500				
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC1-0.9-1.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC2-0.7-0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC2-1.2-1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

References

MSC3-0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC3-1.2-1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC4-0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC4-1.2-1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC5-0.7-0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MSC5-0.9-1.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

SITE	PAH														
	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(b+)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind												370			
NEPM 2013 Table 1B(6) ESLs for Comm/ Ind, Fine Soil			1.4												
NEPM 2013 Table 1A(1) HILs Res A Soil															3
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil															40
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC1-0.9-1.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC2-0.7-0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC2-1.2-1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2

References

MSC3-0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC3-1.2-1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC4-0.1-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC4-1.2-1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC5-0.7-0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
MSC5-0.9-1.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2

References

SITE	PAH				PESTICIDES		PCBS								TPH
	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	Mirex	Parathion	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	C37-C40 Fraction
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil															
NEPM 2013 Table 1A(1) HILs Res A Soil	3	3	300		10										1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	40	40	4000		100										7
BG-0.7-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSC1-0.1-0.3	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC1-0.9-1.1	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC2-0.7-0.9	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC2-1.2-1.3	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC3-0.1-0.3	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000

References

MSC3-1.2-1.3	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC4-0.1-0.3	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC4-1.2-1.3	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC5-0.7-0.9	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000
MSC5-0.9-1.1	<0.3	<0.2	<0.8	<0.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<100,000

SITE	TPH				
	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2025 HIL D Ind/comm					
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind					
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil					
NEPM 2013 Table 1A(1) HILs Res A Soil					
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil					
BG-0.7-0.9	-	-	-	-	-
BG-0.9-1.1	-	-	-	-	-
MSC1-0.1-0.3	<20	<20	<45	<45	<110
MSC1-0.9-1.1	<20	<20	<45	<45	<110
MSC2-0.7-0.9	<20	<20	<45	<45	<110
MSC2-1.2-1.3	<20	<20	<45	<45	<110
MSC3-0.1-0.3	<20	<20	<45	<45	<110

References

MSC3-1.2-1.3	<20	<20	<45	<45	<110
MSC4-0.1-0.3	<20	<20	<45	<45	<110
MSC4-1.2-1.3	<20	<20	<45	<45	<110
MSC5-0.7-0.9	<20	<20	<45	<45	<110
MSC5-0.9-1.1	<20	<20	<45	<45	<110

Appendix D

Laboratory Certificates

CLIENT DETAILS

Contact Laboratory Results
Client TERRA SOLUTIONS
Address UNIT 2 / 106 DALRYMPLE ROAD
CURRAJONG QLD 4812

Telephone (Not specified)
Facsimile (Not specified)
Email lab@terrasolutions.com.au

Project **202519-1 McDonald**
Order Number (Not specified)
Samples 23

LABORATORY DETAILS

Manager Jon Dicker
Laboratory SGS Cairns Environmental
Address Unit 2, 58 Comport St
Portsmouth QLD 4870

Telephone +61 07 4035 5111
Facsimile +61 07 4035 5122
Email AU.Environmental.Cairns@sgs.com

SGS Reference **CE182748 R0**
Date Received 24 Jun 2025
Date Reported 06 Jul 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146)

PFAS subcontracted to SGS Melbourne, 10/585 Blackburn Road, Notting Hill, VIC, NATA Accreditation Number 2562/14420, Report Number: ME373262.

TRH/BTEX/PAH/Phenols/OC/OP/PCBs subcontracted to SGS Sydney, Unit 16 33 Maddox St Alexandria NSW 2015, NATA Accreditation Number: 2562, Site Number: 4354, Report Number: SE285225.

SIGNATORIES



Alyson BERGAMO
Senior Laboratory Technician



Jodie ZANETICH
Client Services Manager



Jon Dicker
Manager Northern QLD



Mitsuko BALDWIN
Metals Team Leader

Parameter	Units	LOR	Sample Number	CE182748.001	CE182748.002	CE182748.003	CE182748.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC1-0.1-0.3	MSC1-0.9-1.1	MSC2-0.7-0.9	MSC2-1.2-1.3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 30/6/2025

Arsenic, As	mg/kg	0.5	3.1	2.1	1.9	2.0
Barium, Ba	mg/kg	0.5	16	210	230	150
Beryllium, Be	mg/kg	0.05	0.49	0.95	0.94	0.94
Cadmium, Cd	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Cobalt, Co	mg/kg	0.5	5.0	15	17	16
Chromium, Cr	mg/kg	0.5	4.4	17	17	19
Copper, Cu	mg/kg	0.5	14	17	15	17
Iron, Fe	mg/kg	50	-	-	-	-
Manganese, Mn	mg/kg	2	360	550	780	840
Nickel, Ni	mg/kg	0.5	2.5	12	12	13
Lead, Pb	mg/kg	0.5	12	15	16	14
Vanadium, V	mg/kg	0.5	19	54	50	59
Zinc, Zn	mg/kg	0.5	50	32	34	38

Mercury in Soil Method: AN312 Tested: 27/6/2025

Mercury	mg/kg	0.01	<0.01	<0.01	<0.01	<0.01

VOC's in Soil Method: AN433 Tested: 5/7/2025

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	100	94	80	95
d8-toluene (Surrogate)	%	-	103	102	83	99
Bromofluorobenzene (Surrogate)	%	-	102	92	86	109

Totals

Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3

Parameter	Units	LOR	Sample Number	CE182748.001	CE182748.002	CE182748.003	CE182748.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC1-0.1-0.3	MSC1-0.9-1.1	MSC2-0.7-0.9	MSC2-1.2-1.3

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/7/2025

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	100	94	80	95
d8-toluene (Surrogate)	%	-	103	102	83	99
Bromofluorobenzene (Surrogate)	%	-	102	92	86	109

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 6/7/2025

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE182748.001 Soil 20 Jun 2025 MSC1-0.1-0.3	CE182748.002 Soil 20 Jun 2025 MSC1-0.9-1.1	CE182748.003 Soil 20 Jun 2025 MSC2-0.7-0.9	CE182748.004 Soil 20 Jun 2025 MSC2-1.2-1.3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025 (continued)

Surrogates

d5-nitrobenzene (Surrogate)	%	-	89	85	84	85
2-fluorobiphenyl (Surrogate)	%	-	100	92	96	95
d14-p-terphenyl (Surrogate)	%	-	88	76	83	89

Speciated Phenols in Soil Method: AN420 Tested: 6/7/2025

Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	86	96	90	82
d5-phenol (Surrogate)	%	-	97	99	80	86

OC Pesticides in Soil Method: AN420 Tested: 6/7/2025

Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	96	91	94	95

Parameter	Units	LOR	Sample Number	CE182748.001	CE182748.002	CE182748.003	CE182748.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC1-0.1-0.3	MSC1-0.9-1.1	MSC2-0.7-0.9	MSC2-1.2-1.3

OP Pesticides in Soil Method: AN420 Tested: 6/7/2025

Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	100	92	96	95
d14-p-terphenyl (Surrogate)	%	-	88	76	83	89

PCBs in Soil Method: AN420 Tested: 6/7/2025

Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

TCMX (Surrogate)	%	-	96	91	94	95

Moisture Content Method: AN002 Tested: 3/7/2025

% Moisture	%w/w	1	-	16.8	19.5	-

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025

Perfluorobutanoic acid (PFBA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0008	-	<0.0008	<0.0008	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0032	-	<0.0032	<0.0032	-
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Sum PFOS and PFHXS	mg/kg	0.0016	-	<0.0016	<0.0016	-
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorononane sulfonate (PFNS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.0016	-	<0.0016	<0.0016	-

Parameter	Units	LOR	Sample Number	CE182748.001	CE182748.002	CE182748.003	CE182748.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC1-0.1-0.3	MSC1-0.9-1.1	MSC2-0.7-0.9	MSC2-1.2-1.3

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025 (continued)

1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.0016	-	<0.0016	<0.0016	-
1H,1H,2H,2H-Perfluorododecane sulfonate (10:2)(10:2)	mg/kg	0.0016	-	<0.0016	<0.0016	-
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.0016	-	<0.0016	<0.0016	-
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.008	-	<0.008	<0.008	-
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.008	-	<0.008	<0.008	-
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	<0.016	<0.016	-
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	<0.016	<0.016	-
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.008	-	<0.008	<0.008	-
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.008	-	<0.008	<0.008	-
Total of PFAS (n=30)	mg/kg	0.08	-	<0.08	<0.08	-
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	-	99	98	-
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	-	94	93	-
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	-	97	95	-
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	-	99	98	-
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	-	91	94	-
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	-	109	101	-
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	-	121	121	-
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	-	94	87	-
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	-	90	83	-
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	-	62	77	-
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	-	38	126	-
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	-	94	88	-
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	-	79	95	-
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	-	105	99	-
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	86	116	-
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	88	108	-
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	65	96	-
(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-	-	85	94	-
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	-	109	120	-
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	-	90	121	-
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	-	97	100	-
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	-	92	99	-
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	-	71	89	-
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	-	67	76	-

Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 1/7/2025

Conductivity of Extract (1:5 as received)	µS/cm	2	140	1400	1000	900

pH in soil (1:5) Method: AN101 Tested: 2/7/2025

pH	pH Units	0.1	-	-	-	-
pH (CaCl2)*	pH Units	0.1	-	-	-	-

Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 3/7/2025

Total Organic Carbon	%w/w	0.05	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.001	CE182748.002	CE182748.003	CE182748.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC1-0.1-0.3	MSC1-0.9-1.1	MSC2-0.7-0.9	MSC2-1.2-1.3

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122 Tested: 27/6/2025

Exchangeable Sodium, Na	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	cmol (+)/kg	0.02	-	-	-	-

Particle sizing of soils by sieving Method: AN005 Tested: 30/6/2025

Passing 75µm	%w/w	1	-	-	-	-
Retained 75µm	%w/w	1	-	-	-	-

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 30/6/2025

Clay (<0.002mm)	%w/w	0.1	-	-	-	-

Physical Tests - Compost Method: AS 4454-2003 Tested: 3/7/2025

Impurities - Glass, Metal and Rigid Plastics > 2mm*	%	0.1	-	-	-	-
Impurities - Plastics- Light, Flexible or Film > 5mm*	%	0.1	-	-	-	-
Impurities - Stones and Lumps of Clay > 5mm*	%	0.1	-	-	-	-
Impurities - Ferrous and Metals >8mm*	%	0.1	-	-	-	-
Impurities - Light and Hard Plastics >8mm*	%	0.1	-	-	-	-
Impurities - Glass >8mm*	%	0.1	-	-	-	-
Impurities - Paper and Cardboard >8mm*	%	0.1	-	-	-	-
Impurities - Other >8mm*	%	0.1	-	-	-	-

Sample on Hold Method: Tested: 5/7/2025

Sample on Hold*	No unit	-	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.005	CE182748.006	CE182748.007	CE182748.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC3-0.1-0.3	MSC3-1.2-1.3	MSC4-0.1-0.3	MSC4-1.2-1.3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 30/6/2025

Arsenic, As	mg/kg	0.5	2.9	2.4	3.1	1.8
Barium, Ba	mg/kg	0.5	15	220	17	180
Beryllium, Be	mg/kg	0.05	0.45	0.96	0.38	0.95
Cadmium, Cd	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Cobalt, Co	mg/kg	0.5	6.5	17	7.4	17
Chromium, Cr	mg/kg	0.5	4.5	17	4.9	17
Copper, Cu	mg/kg	0.5	13	14	21	16
Iron, Fe	mg/kg	50	-	-	-	-
Manganese, Mn	mg/kg	2	430	700	440	690
Nickel, Ni	mg/kg	0.5	3.1	11	2.9	11
Lead, Pb	mg/kg	0.5	9.4	17	12	16
Vanadium, V	mg/kg	0.5	24	54	25	56
Zinc, Zn	mg/kg	0.5	60	29	64	33

Mercury in Soil Method: AN312 Tested: 27/6/2025

Mercury	mg/kg	0.01	<0.01	<0.01	<0.01	<0.01

VOC's in Soil Method: AN433 Tested: 5/7/2025

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	99	85	97	93
d8-toluene (Surrogate)	%	-	104	86	99	93
Bromofluorobenzene (Surrogate)	%	-	103	94	102	107

Totals

Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3

Parameter	Units	LOR	Sample Number	CE182748.005	CE182748.006	CE182748.007	CE182748.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC3-0.1-0.3	MSC3-1.2-1.3	MSC4-0.1-0.3	MSC4-1.2-1.3

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/7/2025

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	99	85	97	93
d8-toluene (Surrogate)	%	-	104	86	99	93
Bromofluorobenzene (Surrogate)	%	-	103	94	102	107

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 6/7/2025

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE182748.005 Soil 20 Jun 2025 MSC3-0.1-0.3	CE182748.006 Soil 20 Jun 2025 MSC3-1.2-1.3	CE182748.007 Soil 20 Jun 2025 MSC4-0.1-0.3	CE182748.008 Soil 20 Jun 2025 MSC4-1.2-1.3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025 (continued)

Surrogates

d5-nitrobenzene (Surrogate)	%	-	89	80	89	82
2-fluorobiphenyl (Surrogate)	%	-	98	101	99	95
d14-p-terphenyl (Surrogate)	%	-	89	91	90	87

Speciated Phenols in Soil Method: AN420 Tested: 6/7/2025

Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	87	87	72	81
d5-phenol (Surrogate)	%	-	98	83	96	75

OC Pesticides in Soil Method: AN420 Tested: 6/7/2025

Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93	95	95	92

Parameter	Units	LOR	Sample Number	CE182748.005	CE182748.006	CE182748.007	CE182748.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC3-0.1-0.3	MSC3-1.2-1.3	MSC4-0.1-0.3	MSC4-1.2-1.3

OP Pesticides in Soil Method: AN420 Tested: 6/7/2025

Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	98	101	99	95
d14-p-terphenyl (Surrogate)	%	-	89	91	90	87

PCBs in Soil Method: AN420 Tested: 6/7/2025

Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

TCMX (Surrogate)	%	-	93	95	95	92

Moisture Content Method: AN002 Tested: 3/7/2025

% Moisture	%w/w	1	5.0	-	4.5	-

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025

Perfluorobutanoic acid (PFBA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0008	<0.0008	-	<0.0008	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0032	<0.0032	-	<0.0032	-
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Sum PFOS and PFHXS	mg/kg	0.0016	<0.0016	-	<0.0016	-
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorononane sulfonate (PFNS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.0016	<0.0016	-	<0.0016	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE182748.005 Soil 20 Jun 2025 MSC3-0.1-0.3	CE182748.006 Soil 20 Jun 2025 MSC3-1.2-1.3	CE182748.007 Soil 20 Jun 2025 MSC4-0.1-0.3	CE182748.008 Soil 20 Jun 2025 MSC4-1.2-1.3

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025 (continued)

1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.0016	<0.0016	-	<0.0016	-
1H,1H,2H,2H-Perfluorododecane sulfonate (10:2)(10:2)	mg/kg	0.0016	<0.0016	-	<0.0016	-
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.0016	<0.0016	-	<0.0016	-
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.008	<0.008	-	<0.008	-
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.008	<0.008	-	<0.008	-
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	<0.016	-	<0.016	-
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	<0.016	-	<0.016	-
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.008	<0.008	-	<0.008	-
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.008	<0.008	-	<0.008	-
Total of PFAS (n=30)	mg/kg	0.08	<0.08	-	<0.08	-
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	101	-	100	-
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	96	-	97	-
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	99	-	92	-
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	98	-	93	-
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	92	-	94	-
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	109	-	98	-
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	88	-	93	-
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	91	-	99	-
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	95	-	98	-
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	104	-	85	-
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	115	-	83	-
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	96	-	96	-
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	82	-	108	-
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	123	-	98	-
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	111	-	106	-
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	102	-	107	-
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	95	-	115	-
(13C8-PFOA) Isotopically Labelled Internal Recovery	%	-	130	-	88	-
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	150	-	85	-
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	138	-	79	-
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	147	-	99	-
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	141	-	97	-
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	98	-	87	-
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	106	-	70	-

Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 1/7/2025

Conductivity of Extract (1:5 as received)	µS/cm	2	300	1400	450	1300

pH in soil (1:5) Method: AN101 Tested: 2/7/2025

pH	pH Units	0.1	-	-	-	-
pH (CaCl2)*	pH Units	0.1	-	-	-	-

Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 3/7/2025

Total Organic Carbon	%w/w	0.05	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.005	CE182748.006	CE182748.007	CE182748.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC3-0.1-0.3	MSC3-1.2-1.3	MSC4-0.1-0.3	MSC4-1.2-1.3

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122 Tested: 27/6/2025

Exchangeable Sodium, Na	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	cmol (+)/kg	0.02	-	-	-	-

Particle sizing of soils by sieving Method: AN005 Tested: 30/6/2025

Passing 75µm	%w/w	1	-	-	-	-
Retained 75µm	%w/w	1	-	-	-	-

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 30/6/2025

Clay (<0.002mm)	%w/w	0.1	-	-	-	-

Physical Tests - Compost Method: AS 4454-2003 Tested: 3/7/2025

Impurities - Glass, Metal and Rigid Plastics > 2mm*	%	0.1	-	-	-	-
Impurities - Plastics- Light, Flexible or Film > 5mm*	%	0.1	-	-	-	-
Impurities - Stones and Lumps of Clay > 5mm*	%	0.1	-	-	-	-
Impurities - Ferrous and Metals >8mm*	%	0.1	-	-	-	-
Impurities - Light and Hard Plastics >8mm*	%	0.1	-	-	-	-
Impurities - Glass >8mm*	%	0.1	-	-	-	-
Impurities - Paper and Cardboard >8mm*	%	0.1	-	-	-	-
Impurities - Other >8mm*	%	0.1	-	-	-	-

Sample on Hold Method: Tested: 5/7/2025

Sample on Hold*	No unit	-	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.009	CE182748.010	CE182748.011	CE182748.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC5-0.7-0.9	MSC5-0.9-1.1	MSC1-0.7-0.9	MSC1-1.2-1.3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 30/6/2025

Arsenic, As	mg/kg	0.5	2.1	2.0	-	-
Barium, Ba	mg/kg	0.5	230	170	-	-
Beryllium, Be	mg/kg	0.05	0.83	0.93	-	-
Cadmium, Cd	mg/kg	0.1	<0.1	<0.1	-	-
Cobalt, Co	mg/kg	0.5	21	14	-	-
Chromium, Cr	mg/kg	0.5	17	19	-	-
Copper, Cu	mg/kg	0.5	15	17	-	-
Iron, Fe	mg/kg	50	-	-	-	-
Manganese, Mn	mg/kg	2	1200	1000	-	-
Nickel, Ni	mg/kg	0.5	14	12	-	-
Lead, Pb	mg/kg	0.5	19	14	-	-
Vanadium, V	mg/kg	0.5	52	58	-	-
Zinc, Zn	mg/kg	0.5	29	38	-	-

Mercury in Soil Method: AN312 Tested: 27/6/2025

Mercury	mg/kg	0.01	<0.01	<0.01	-	-

VOC's in Soil Method: AN433 Tested: 5/7/2025

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	-	-
Toluene	mg/kg	0.1	<0.1	<0.1	-	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	-	-
o-xylene	mg/kg	0.1	<0.1	<0.1	-	-

Polycyclic VOCs

Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	102	93	-	-
d8-toluene (Surrogate)	%	-	105	96	-	-
Bromofluorobenzene (Surrogate)	%	-	103	97	-	-

Totals

Total BTEX*	mg/kg	0.6	<0.6	<0.6	-	-
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-	-

Parameter	Units	LOR	Sample Number	CE182748.009	CE182748.010	CE182748.011	CE182748.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC5-0.7-0.9	MSC5-0.9-1.1	MSC1-0.7-0.9	MSC1-1.2-1.3

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/7/2025

TRH C6-C10	mg/kg	25	<25	<25	-	-
TRH C6-C9	mg/kg	20	<20	<20	-	-

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	102	93	-	-
d8-toluene (Surrogate)	%	-	105	96	-	-
Bromofluorobenzene (Surrogate)	%	-	103	97	-	-

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	-	-

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 6/7/2025

TRH C10-C14	mg/kg	20	<20	<20	-	-
TRH C15-C28	mg/kg	45	<45	<45	-	-
TRH C29-C36	mg/kg	45	<45	<45	-	-
TRH C37-C40	mg/kg	100	<100	<100	-	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	-	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025

Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-	-
Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
Phenanthrene	mg/kg	0.1	<0.1	<0.1	-	-
Anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
Pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	-	-
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	-	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE182748.009 Soil 20 Jun 2025 MSC5-0.7-0.9	CE182748.010 Soil 20 Jun 2025 MSC5-0.9-1.1	CE182748.011 Soil 20 Jun 2025 MSC1-0.7-0.9	CE182748.012 Soil 20 Jun 2025 MSC1-1.2-1.3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025 (continued)
Surrogates

d5-nitrobenzene (Surrogate)	%	-	87	85	-	-
2-fluorobiphenyl (Surrogate)	%	-	96	97	-	-
d14-p-terphenyl (Surrogate)	%	-	88	85	-	-

Speciated Phenols in Soil Method: AN420 Tested: 6/7/2025

Phenol	mg/kg	0.5	<0.5	<0.5	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	-	-
Total Cresol	mg/kg	1.5	<1.5	<1.5	-	-
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	-	-
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	-	-
4-nitrophenol	mg/kg	1	<1	<1	-	-
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	-	-
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	-	-
2,4-dinitrophenol	mg/kg	2	<2	<2	-	-

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	72	91	-	-
d5-phenol (Surrogate)	%	-	28	95	-	-

OC Pesticides in Soil Method: AN420 Tested: 6/7/2025

Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
Delta BHC	mg/kg	0.1	<0.1	<0.1	-	-
Heptachlor	mg/kg	0.1	<0.1	<0.1	-	-
Aldrin	mg/kg	0.1	<0.1	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	-	-
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
Dieldrin	mg/kg	0.1	<0.1	<0.1	-	-
Endrin	mg/kg	0.1	<0.1	<0.1	-	-
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
Mirex	mg/kg	0.1	<0.1	<0.1	-	-
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	-	-
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	-	-
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100	94	-	-

Parameter	Units	LOR	Sample Number	CE182748.009	CE182748.010	CE182748.011	CE182748.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC5-0.7-0.9	MSC5-0.9-1.1	MSC1-0.7-0.9	MSC1-1.2-1.3

OP Pesticides in Soil Method: AN420 Tested: 6/7/2025

Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	-	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	-	-
Dichlorvos	mg/kg	0.5	<0.5	<0.5	-	-
Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
Ethion	mg/kg	0.2	<0.2	<0.2	-	-
Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
Malathion	mg/kg	0.2	<0.2	<0.2	-	-
Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	-	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	96	97	-	-
d14-p-terphenyl (Surrogate)	%	-	88	85	-	-

PCBs in Soil Method: AN420 Tested: 6/7/2025

Arochlor 1016	mg/kg	0.1	<0.1	<0.1	-	-
Arochlor 1221	mg/kg	0.1	<0.1	<0.1	-	-
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	-	-
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	-	-
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	-	-
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	-	-
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	-	-
Total PCBs	mg/kg	0.1	<0.1	<0.1	-	-

Surrogates

TCMX (Surrogate)	%	-	100	94	-	-

Moisture Content Method: AN002 Tested: 3/7/2025

% Moisture	%w/w	1	-	18.1	-	-

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025

Perfluorobutanoic acid (PFBA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0008	-	<0.0008	-	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0032	-	<0.0032	-	-
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0016	-	<0.0016	-	-
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0016	-	<0.0016	-	-
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0016	-	<0.0016	-	-
Sum PFOS and PFHXS	mg/kg	0.0016	-	<0.0016	-	-
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0016	-	<0.0016	-	-
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorononane sulfonate (PFNS)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0016	-	<0.0016	-	-
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.0016	-	<0.0016	-	-

Parameter	Units	LOR	Sample Number	CE182748.009	CE182748.010	CE182748.011	CE182748.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC5-0.7-0.9	MSC5-0.9-1.1	MSC1-0.7-0.9	MSC1-1.2-1.3

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025 (continued)

1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.0016	-	<0.0016	-	-
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.0016	-	<0.0016	-	-
1H,1H,2H,2H-Perfluorododecane sulfonate (10:2)(10:2)	mg/kg	0.0016	-	<0.0016	-	-
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.0016	-	<0.0016	-	-
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.008	-	<0.008	-	-
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.008	-	<0.008	-	-
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	<0.016	-	-
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	<0.016	-	-
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.008	-	<0.008	-	-
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.008	-	<0.008	-	-
Total of PFAS (n=30)	mg/kg	0.08	-	<0.08	-	-
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	-	99	-	-
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	-	96	-	-
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	-	107	-	-
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	-	107	-	-
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	-	93	-	-
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	-	100	-	-
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	-	101	-	-
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	-	79	-	-
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	-	78	-	-
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	-	73	-	-
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	-	50	-	-
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	-	101	-	-
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	-	104	-	-
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	-	97	-	-
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	92	-	-
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	87	-	-
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	71	-	-
(13C8-PFOA) Isotopically Labelled Internal Recovery	%	-	-	68	-	-
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	-	58	-	-
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	-	41	-	-
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	-	68	-	-
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	-	62	-	-
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	-	56	-	-
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	-	60	-	-

Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 1/7/2025

Conductivity of Extract (1:5 as received)	µS/cm	2	1200	1200	-	-

pH in soil (1:5) Method: AN101 Tested: 2/7/2025

pH	pH Units	0.1	-	-	-	-
pH (CaCl2)*	pH Units	0.1	-	-	-	-

Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 3/7/2025

Total Organic Carbon	%w/w	0.05	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.009	CE182748.010	CE182748.011	CE182748.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC5-0.7-0.9	MSC5-0.9-1.1	MSC1-0.7-0.9	MSC1-1.2-1.3

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122 Tested: 27/6/2025

Exchangeable Sodium, Na	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	cmol (+)/kg	0.02	-	-	-	-

Particle sizing of soils by sieving Method: AN005 Tested: 30/6/2025

Passing 75µm	%w/w	1	-	-	-	-
Retained 75µm	%w/w	1	-	-	-	-

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 30/6/2025

Clay (<0.002mm)	%w/w	0.1	-	-	-	-

Physical Tests - Compost Method: AS 4454-2003 Tested: 3/7/2025

Impurities - Glass, Metal and Rigid Plastics > 2mm*	%	0.1	-	-	-	-
Impurities - Plastics- Light, Flexible or Film > 5mm*	%	0.1	-	-	-	-
Impurities - Stones and Lumps of Clay > 5mm*	%	0.1	-	-	-	-
Impurities - Ferrous and Metals >8mm*	%	0.1	-	-	-	-
Impurities - Light and Hard Plastics >8mm*	%	0.1	-	-	-	-
Impurities - Glass >8mm*	%	0.1	-	-	-	-
Impurities - Paper and Cardboard >8mm*	%	0.1	-	-	-	-
Impurities - Other >8mm*	%	0.1	-	-	-	-

Sample on Hold Method: Tested: 5/7/2025

Sample on Hold*	No unit	-	-	-	ON HOLD	ON HOLD



ANALYTICAL REPORT

CE182748 R0

Parameter	Units	LOR	Sample Number	CE182748.013	CE182748.014	CE182748.015	CE182748.016
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC2-0.1-0.3	MSC2-0.9-1.1	MSC3-0.7-0.9	MSC3-0.9-1.1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 4/7/2025

Arsenic, As	mg/kg	0.5	-	-	-	-
Barium, Ba	mg/kg	0.5	-	-	-	-
Beryllium, Be	mg/kg	0.05	-	-	-	-
Cadmium, Cd	mg/kg	0.1	-	-	-	-
Cobalt, Co	mg/kg	0.5	-	-	-	-
Chromium, Cr	mg/kg	0.5	-	-	-	-
Copper, Cu	mg/kg	0.5	-	-	-	-
Iron, Fe	mg/kg	50	-	-	-	-
Manganese, Mn	mg/kg	2	-	-	-	-
Nickel, Ni	mg/kg	0.5	-	-	-	-
Lead, Pb	mg/kg	0.5	-	-	-	-
Vanadium, V	mg/kg	0.5	-	-	-	-
Zinc, Zn	mg/kg	0.5	-	-	-	-

Mercury in Soil Method: AN312 Tested: 2/7/2025

Mercury	mg/kg	0.01	-	-	-	-

VOC's in Soil Method: AN433 Tested: 5/7/2025

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	-	-	-	-
Toluene	mg/kg	0.1	-	-	-	-
Ethylbenzene	mg/kg	0.1	-	-	-	-
m/p-xylene	mg/kg	0.2	-	-	-	-
o-xylene	mg/kg	0.1	-	-	-	-

Polycyclic VOCs

Naphthalene (VOC)*	mg/kg	0.1	-	-	-	-

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-

Totals

Total BTEX*	mg/kg	0.6	-	-	-	-
Total Xylenes*	mg/kg	0.3	-	-	-	-

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Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/7/2025

TRH C6-C10	mg/kg	25	-	-	-	-
TRH C6-C9	mg/kg	20	-	-	-	-

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-

VPH F Bands

Benzene (F0)	mg/kg	0.1	-	-	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	-	-	-	-

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 6/7/2025

TRH C10-C14	mg/kg	20	-	-	-	-
TRH C15-C28	mg/kg	45	-	-	-	-
TRH C29-C36	mg/kg	45	-	-	-	-
TRH C37-C40	mg/kg	100	-	-	-	-
TRH C10-C36 Total	mg/kg	110	-	-	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-	-	-

TRH F Bands

TRH >C10-C16	mg/kg	25	-	-	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	-	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	-	-	-	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025

Naphthalene	mg/kg	0.1	-	-	-	-
2-methylnaphthalene	mg/kg	0.1	-	-	-	-
1-methylnaphthalene	mg/kg	0.1	-	-	-	-
Acenaphthylene	mg/kg	0.1	-	-	-	-
Acenaphthene	mg/kg	0.1	-	-	-	-
Fluorene	mg/kg	0.1	-	-	-	-
Phenanthrene	mg/kg	0.1	-	-	-	-
Anthracene	mg/kg	0.1	-	-	-	-
Fluoranthene	mg/kg	0.1	-	-	-	-
Pyrene	mg/kg	0.1	-	-	-	-
Benzo(a)anthracene	mg/kg	0.1	-	-	-	-
Chrysene	mg/kg	0.1	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	-	-	-	-
Benzo(a)pyrene	mg/kg	0.1	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	-	-	-	-
Total PAH (18)	mg/kg	0.8	-	-	-	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE182748.013 Soil 20 Jun 2025 MSC2-0.1-0.3	CE182748.014 Soil 20 Jun 2025 MSC2-0.9-1.1	CE182748.015 Soil 20 Jun 2025 MSC3-0.7-0.9	CE182748.016 Soil 20 Jun 2025 MSC3-0.9-1.1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025 (continued)

Surrogates

d5-nitrobenzene (Surrogate)	%	-	-	-	-	-
2-fluorobiphenyl (Surrogate)	%	-	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-	-	-

Speciated Phenols in Soil Method: AN420 Tested: 6/7/2025

Phenol	mg/kg	0.5	-	-	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	-	-	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	-	-	-	-
Total Cresol	mg/kg	1.5	-	-	-	-
2-chlorophenol	mg/kg	0.5	-	-	-	-
2,4-dimethylphenol	mg/kg	0.5	-	-	-	-
2,6-dichlorophenol	mg/kg	0.5	-	-	-	-
2,4-dichlorophenol	mg/kg	0.5	-	-	-	-
2,4,6-trichlorophenol	mg/kg	0.5	-	-	-	-
2-nitrophenol	mg/kg	0.5	-	-	-	-
4-nitrophenol	mg/kg	1	-	-	-	-
2,4,5-trichlorophenol	mg/kg	0.5	-	-	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	-	-	-	-
Pentachlorophenol	mg/kg	0.5	-	-	-	-
2,4-dinitrophenol	mg/kg	2	-	-	-	-

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	-	-	-	-
d5-phenol (Surrogate)	%	-	-	-	-	-

OC Pesticides in Soil Method: AN420 Tested: 6/7/2025

Alpha BHC	mg/kg	0.1	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Lindane (gamma BHC)	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.1	-	-	-	-
Endrin	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.1	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
Endrin aldehyde	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endrin ketone	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-
Total OC Pesticides	mg/kg	0.1	-	-	-	-
Total OC VIC EPA IWRG621	mg/kg	0.1	-	-	-	-
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-

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			Sample Name	MSC2-0.1-0.3	MSC2-0.9-1.1	MSC3-0.7-0.9	MSC3-0.9-1.1

OP Pesticides in Soil **Method: AN420** **Tested: 6/7/2025**

Azinphos-methyl (Guthion)	mg/kg	0.2	-	-	-	-
Bromophos Ethyl	mg/kg	0.2	-	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	-	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	-	-	-	-
Dichlorvos	mg/kg	0.5	-	-	-	-
Dimethoate	mg/kg	0.5	-	-	-	-
Ethion	mg/kg	0.2	-	-	-	-
Fenitrothion	mg/kg	0.2	-	-	-	-
Malathion	mg/kg	0.2	-	-	-	-
Methidathion	mg/kg	0.5	-	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	-	-	-	-
Total OP Pesticides*	mg/kg	1.7	-	-	-	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-	-	-

PCBs in Soil **Method: AN420** **Tested: 6/7/2025**

Arochlor 1016	mg/kg	0.1	-	-	-	-
Arochlor 1221	mg/kg	0.1	-	-	-	-
Arochlor 1232	mg/kg	0.1	-	-	-	-
Arochlor 1242	mg/kg	0.1	-	-	-	-
Arochlor 1248	mg/kg	0.1	-	-	-	-
Arochlor 1254	mg/kg	0.1	-	-	-	-
Arochlor 1260	mg/kg	0.1	-	-	-	-
Total PCBs	mg/kg	0.1	-	-	-	-

Surrogates

TCMX (Surrogate)	%	-	-	-	-	-

Moisture Content **Method: AN002** **Tested: 3/7/2025**

% Moisture	%w/w	1	-	-	-	-

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples **Method: MA-1523** **Tested: 3/7/2025**

Perfluorobutanoic acid (PFBA)	mg/kg	0.0016	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0016	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0016	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0016	-	-	-	-
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0008	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0016	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0016	-	-	-	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0016	-	-	-	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0016	-	-	-	-
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0016	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0016	-	-	-	-
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0032	-	-	-	-
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0016	-	-	-	-
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0016	-	-	-	-
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0016	-	-	-	-
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0016	-	-	-	-
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0016	-	-	-	-
Sum PFOS and PFHXS	mg/kg	0.0016	-	-	-	-
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0016	-	-	-	-
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0016	-	-	-	-
Perfluorononane sulfonate (PFNS)	mg/kg	0.0016	-	-	-	-
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0016	-	-	-	-
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0016	-	-	-	-
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.0016	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.013	CE182748.014	CE182748.015	CE182748.016
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC2-0.1-0.3	MSC2-0.9-1.1	MSC3-0.7-0.9	MSC3-0.9-1.1

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025 (continued)

1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.0016	-	-	-	-
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.0016	-	-	-	-
1H,1H,2H,2H-Perfluorododecane sulfonate (10:2)(10:2)	mg/kg	0.0016	-	-	-	-
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.0016	-	-	-	-
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.008	-	-	-	-
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.008	-	-	-	-
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	-	-	-
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	-	-	-
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.008	-	-	-	-
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.008	-	-	-	-
Total of PFAS (n=30)	mg/kg	0.08	-	-	-	-
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C8-PFOA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-

Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 2/7/2025

Conductivity of Extract (1:5 as received)	µS/cm	2	-	-	-	-

pH in soil (1:5) Method: AN101 Tested: 2/7/2025

pH	pH Units	0.1	-	-	-	-
pH (CaCl2)*	pH Units	0.1	-	-	-	-

Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 3/7/2025

Total Organic Carbon	%w/w	0.05	-	-	-	-

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			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC2-0.1-0.3	MSC2-0.9-1.1	MSC3-0.7-0.9	MSC3-0.9-1.1

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122 Tested: 27/6/2025

Exchangeable Sodium, Na	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	cmol (+)/kg	0.02	-	-	-	-

Particle sizing of soils by sieving Method: AN005 Tested: 30/6/2025

Passing 75µm	%w/w	1	-	-	-	-
Retained 75µm	%w/w	1	-	-	-	-

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 30/6/2025

Clay (<0.002mm)	%w/w	0.1	-	-	-	-

Physical Tests - Compost Method: AS 4454-2003 Tested: 3/7/2025

Impurities - Glass, Metal and Rigid Plastics > 2mm*	%	0.1	-	-	-	-
Impurities - Plastics- Light, Flexible or Film > 5mm*	%	0.1	-	-	-	-
Impurities - Stones and Lumps of Clay > 5mm*	%	0.1	-	-	-	-
Impurities - Ferrous and Metals >8mm*	%	0.1	-	-	-	-
Impurities - Light and Hard Plastics >8mm*	%	0.1	-	-	-	-
Impurities - Glass >8mm*	%	0.1	-	-	-	-
Impurities - Paper and Cardboard >8mm*	%	0.1	-	-	-	-
Impurities - Other >8mm*	%	0.1	-	-	-	-

Sample on Hold Method: Tested: 5/7/2025

Sample on Hold*	No unit	-	ON HOLD	ON HOLD	ON HOLD	ON HOLD

Parameter	Units	LOR	Sample Number	CE182748.017	CE182748.018	CE182748.019	CE182748.020
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC4-0.7-0.9	MSC4-0.9-1.1	MSC5-0.1-0.3	MSC5-1.2-1.3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 4/7/2025

Arsenic, As	mg/kg	0.5	-	-	-	-
Barium, Ba	mg/kg	0.5	-	-	-	-
Beryllium, Be	mg/kg	0.05	-	-	-	-
Cadmium, Cd	mg/kg	0.1	-	-	-	-
Cobalt, Co	mg/kg	0.5	-	-	-	-
Chromium, Cr	mg/kg	0.5	-	-	-	-
Copper, Cu	mg/kg	0.5	-	-	-	-
Iron, Fe	mg/kg	50	-	-	-	-
Manganese, Mn	mg/kg	2	-	-	-	-
Nickel, Ni	mg/kg	0.5	-	-	-	-
Lead, Pb	mg/kg	0.5	-	-	-	-
Vanadium, V	mg/kg	0.5	-	-	-	-
Zinc, Zn	mg/kg	0.5	-	-	-	-

Mercury in Soil Method: AN312 Tested: 2/7/2025

Mercury	mg/kg	0.01	-	-	-	-

VOC's in Soil Method: AN433 Tested: 5/7/2025

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	-	-	-	-
Toluene	mg/kg	0.1	-	-	-	-
Ethylbenzene	mg/kg	0.1	-	-	-	-
m/p-xylene	mg/kg	0.2	-	-	-	-
o-xylene	mg/kg	0.1	-	-	-	-

Polycyclic VOCs

Naphthalene (VOC)*	mg/kg	0.1	-	-	-	-

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-

Totals

Total BTEX*	mg/kg	0.6	-	-	-	-
Total Xylenes*	mg/kg	0.3	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.017	CE182748.018	CE182748.019	CE182748.020
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC4-0.7-0.9	MSC4-0.9-1.1	MSC5-0.1-0.3	MSC5-1.2-1.3

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/7/2025							
TRH C6-C10	mg/kg	25	-	-	-	-	-
TRH C6-C9	mg/kg	20	-	-	-	-	-

Surrogates							
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-	-

VPH F Bands							
Benzene (F0)	mg/kg	0.1	-	-	-	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	-	-	-	-	-

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 6/7/2025							
TRH C10-C14	mg/kg	20	-	-	-	-	-
TRH C15-C28	mg/kg	45	-	-	-	-	-
TRH C29-C36	mg/kg	45	-	-	-	-	-
TRH C37-C40	mg/kg	100	-	-	-	-	-
TRH C10-C36 Total	mg/kg	110	-	-	-	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-	-	-	-

TRH F Bands							
TRH >C10-C16	mg/kg	25	-	-	-	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	-	-	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	-	-	-	-	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025							
Naphthalene	mg/kg	0.1	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.1	-	-	-	-	-
1-methylnaphthalene	mg/kg	0.1	-	-	-	-	-
Acenaphthylene	mg/kg	0.1	-	-	-	-	-
Acenaphthene	mg/kg	0.1	-	-	-	-	-
Fluorene	mg/kg	0.1	-	-	-	-	-
Phenanthrene	mg/kg	0.1	-	-	-	-	-
Anthracene	mg/kg	0.1	-	-	-	-	-
Fluoranthene	mg/kg	0.1	-	-	-	-	-
Pyrene	mg/kg	0.1	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.1	-	-	-	-	-
Chrysene	mg/kg	0.1	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.1	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-	-	-	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	-	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	-	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	-	-	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	-	-	-	-	-
Total PAH (18)	mg/kg	0.8	-	-	-	-	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	-	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE182748.017 Soil 20 Jun 2025 MSC4-0.7-0.9	CE182748.018 Soil 20 Jun 2025 MSC4-0.9-1.1	CE182748.019 Soil 20 Jun 2025 MSC5-0.1-0.3	CE182748.020 Soil 20 Jun 2025 MSC5-1.2-1.3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025 (continued)

Surrogates

d5-nitrobenzene (Surrogate)	%	-	-	-	-	-
2-fluorobiphenyl (Surrogate)	%	-	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-	-	-

Speciated Phenols in Soil Method: AN420 Tested: 6/7/2025

Phenol	mg/kg	0.5	-	-	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	-	-	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	-	-	-	-
Total Cresol	mg/kg	1.5	-	-	-	-
2-chlorophenol	mg/kg	0.5	-	-	-	-
2,4-dimethylphenol	mg/kg	0.5	-	-	-	-
2,6-dichlorophenol	mg/kg	0.5	-	-	-	-
2,4-dichlorophenol	mg/kg	0.5	-	-	-	-
2,4,6-trichlorophenol	mg/kg	0.5	-	-	-	-
2-nitrophenol	mg/kg	0.5	-	-	-	-
4-nitrophenol	mg/kg	1	-	-	-	-
2,4,5-trichlorophenol	mg/kg	0.5	-	-	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	-	-	-	-
Pentachlorophenol	mg/kg	0.5	-	-	-	-
2,4-dinitrophenol	mg/kg	2	-	-	-	-

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	-	-	-	-
d5-phenol (Surrogate)	%	-	-	-	-	-

OC Pesticides in Soil Method: AN420 Tested: 6/7/2025

Alpha BHC	mg/kg	0.1	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Lindane (gamma BHC)	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.1	-	-	-	-
Endrin	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.1	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
Endrin aldehyde	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endrin ketone	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-
Total OC Pesticides	mg/kg	0.1	-	-	-	-
Total OC VIC EPA IWRG621	mg/kg	0.1	-	-	-	-
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	-	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.017	CE182748.018	CE182748.019	CE182748.020
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC4-0.7-0.9	MSC4-0.9-1.1	MSC5-0.1-0.3	MSC5-1.2-1.3

OP Pesticides in Soil **Method: AN420** **Tested: 6/7/2025**

Azinphos-methyl (Guthion)	mg/kg	0.2	-	-	-	-
Bromophos Ethyl	mg/kg	0.2	-	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	-	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	-	-	-	-
Dichlorvos	mg/kg	0.5	-	-	-	-
Dimethoate	mg/kg	0.5	-	-	-	-
Ethion	mg/kg	0.2	-	-	-	-
Fenitrothion	mg/kg	0.2	-	-	-	-
Malathion	mg/kg	0.2	-	-	-	-
Methidathion	mg/kg	0.5	-	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	-	-	-	-
Total OP Pesticides*	mg/kg	1.7	-	-	-	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-	-	-

PCBs in Soil **Method: AN420** **Tested: 6/7/2025**

Arochlor 1016	mg/kg	0.1	-	-	-	-
Arochlor 1221	mg/kg	0.1	-	-	-	-
Arochlor 1232	mg/kg	0.1	-	-	-	-
Arochlor 1242	mg/kg	0.1	-	-	-	-
Arochlor 1248	mg/kg	0.1	-	-	-	-
Arochlor 1254	mg/kg	0.1	-	-	-	-
Arochlor 1260	mg/kg	0.1	-	-	-	-
Total PCBs	mg/kg	0.1	-	-	-	-

Surrogates

TCMX (Surrogate)	%	-	-	-	-	-

Moisture Content **Method: AN002** **Tested: 3/7/2025**

% Moisture	%w/w	1	-	-	-	-

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples **Method: MA-1523** **Tested: 3/7/2025**

Perfluorobutanoic acid (PFBA)	mg/kg	0.0016	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0016	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0016	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0016	-	-	-	-
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0008	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0016	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0016	-	-	-	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0016	-	-	-	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0016	-	-	-	-
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0016	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0016	-	-	-	-
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0032	-	-	-	-
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0016	-	-	-	-
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0016	-	-	-	-
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0016	-	-	-	-
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0016	-	-	-	-
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0016	-	-	-	-
Sum PFOS and PFHXS	mg/kg	0.0016	-	-	-	-
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0016	-	-	-	-
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0016	-	-	-	-
Perfluorononane sulfonate (PFNS)	mg/kg	0.0016	-	-	-	-
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0016	-	-	-	-
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0016	-	-	-	-
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.0016	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.017	CE182748.018	CE182748.019	CE182748.020
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC4-0.7-0.9	MSC4-0.9-1.1	MSC5-0.1-0.3	MSC5-1.2-1.3

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025 (continued)

1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.0016	-	-	-	-
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.0016	-	-	-	-
1H,1H,2H,2H-Perfluorododecane sulfonate (10:2)(10:2)	mg/kg	0.0016	-	-	-	-
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.0016	-	-	-	-
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.008	-	-	-	-
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.008	-	-	-	-
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	-	-	-
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	-	-	-
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.008	-	-	-	-
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.008	-	-	-	-
Total of PFAS (n=30)	mg/kg	0.08	-	-	-	-
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(13C8-PFOA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	-	-	-	-

Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 2/7/2025

Conductivity of Extract (1:5 as received)	µS/cm	2	-	-	-	-

pH in soil (1:5) Method: AN101 Tested: 2/7/2025

pH	pH Units	0.1	-	-	-	-
pH (CaCl2)*	pH Units	0.1	-	-	-	-

Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 3/7/2025

Total Organic Carbon	%w/w	0.05	-	-	-	-

Parameter	Units	LOR	Sample Number	CE182748.017	CE182748.018	CE182748.019	CE182748.020
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	MSC4-0.7-0.9	MSC4-0.9-1.1	MSC5-0.1-0.3	MSC5-1.2-1.3

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122 Tested: 27/6/2025

Exchangeable Sodium, Na	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Sodium Percentage*	%	0.1	-	-	-	-
Exchangeable Potassium, K	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Potassium Percentage*	%	0.1	-	-	-	-
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	-	-	-	-
Exchangeable Calcium Percentage*	%	0.1	-	-	-	-
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	-	-	-	-
Exchangeable Magnesium Percentage*	%	0.1	-	-	-	-
Cation Exchange Capacity	cmol (+)/kg	0.02	-	-	-	-

Particle sizing of soils by sieving Method: AN005 Tested: 30/6/2025

Passing 75µm	%w/w	1	-	-	-	-
Retained 75µm	%w/w	1	-	-	-	-

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 30/6/2025

Clay (<0.002mm)	%w/w	0.1	-	-	-	-

Physical Tests - Compost Method: AS 4454-2003 Tested: 3/7/2025

Impurities - Glass, Metal and Rigid Plastics > 2mm*	%	0.1	-	-	-	-
Impurities - Plastics- Light, Flexible or Film > 5mm*	%	0.1	-	-	-	-
Impurities - Stones and Lumps of Clay > 5mm*	%	0.1	-	-	-	-
Impurities - Ferrous and Metals >8mm*	%	0.1	-	-	-	-
Impurities - Light and Hard Plastics >8mm*	%	0.1	-	-	-	-
Impurities - Glass >8mm*	%	0.1	-	-	-	-
Impurities - Paper and Cardboard >8mm*	%	0.1	-	-	-	-
Impurities - Other >8mm*	%	0.1	-	-	-	-

Sample on Hold Method: Tested: 5/7/2025

Sample on Hold*	No unit	-	ON HOLD	ON HOLD	ON HOLD	ON HOLD

Parameter	Units	LOR	Sample Number	CE182748.021	CE182748.022	CE182748.023
			Sample Matrix	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	BG-0.7-0.9	BG-0.9-1.1	QAQC1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 30/6/2025

Arsenic, As	mg/kg	0.5	-	-	2.3
Barium, Ba	mg/kg	0.5	-	-	160
Beryllium, Be	mg/kg	0.05	-	-	0.81
Cadmium, Cd	mg/kg	0.1	-	-	<0.1
Cobalt, Co	mg/kg	0.5	-	-	14
Chromium, Cr	mg/kg	0.5	-	-	15
Copper, Cu	mg/kg	0.5	-	-	14
Iron, Fe	mg/kg	50	12000	12000	-
Manganese, Mn	mg/kg	2	-	-	910
Nickel, Ni	mg/kg	0.5	-	-	11
Lead, Pb	mg/kg	0.5	-	-	14
Vanadium, V	mg/kg	0.5	-	-	50
Zinc, Zn	mg/kg	0.5	-	-	37

Mercury in Soil Method: AN312 Tested: 2/7/2025

Mercury	mg/kg	0.01	-	-	<0.01

VOC's in Soil Method: AN433 Tested: 5/7/2025

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	-	-	<0.1
Toluene	mg/kg	0.1	-	-	<0.1
Ethylbenzene	mg/kg	0.1	-	-	<0.1
m/p-xylene	mg/kg	0.2	-	-	<0.2
o-xylene	mg/kg	0.1	-	-	<0.1

Polycyclic VOCs

Naphthalene (VOC)*	mg/kg	0.1	-	-	<0.1

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	-	-	98
d8-toluene (Surrogate)	%	-	-	-	108
Bromofluorobenzene (Surrogate)	%	-	-	-	100

Totals

Total BTEX*	mg/kg	0.6	-	-	<0.6
Total Xylenes*	mg/kg	0.3	-	-	<0.3

Parameter	Units	LOR	Sample Number	CE182748.021	CE182748.022	CE182748.023
			Sample Matrix	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	BG-0.7-0.9	BG-0.9-1.1	QAQC1

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/7/2025

TRH C6-C10	mg/kg	25	-	-	<25
TRH C6-C9	mg/kg	20	-	-	<20

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	-	-	98
d8-toluene (Surrogate)	%	-	-	-	108
Bromofluorobenzene (Surrogate)	%	-	-	-	100

VPH F Bands

Benzene (F0)	mg/kg	0.1	-	-	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	-	-	<25

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 6/7/2025

TRH C10-C14	mg/kg	20	-	-	<20
TRH C15-C28	mg/kg	45	-	-	<45
TRH C29-C36	mg/kg	45	-	-	<45
TRH C37-C40	mg/kg	100	-	-	<100
TRH C10-C36 Total	mg/kg	110	-	-	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	-	-	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-	<25
TRH >C16-C34 (F3)	mg/kg	90	-	-	<90
TRH >C34-C40 (F4)	mg/kg	120	-	-	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025

Naphthalene	mg/kg	0.1	-	-	<0.1
2-methylnaphthalene	mg/kg	0.1	-	-	<0.1
1-methylnaphthalene	mg/kg	0.1	-	-	<0.1
Acenaphthylene	mg/kg	0.1	-	-	<0.1
Acenaphthene	mg/kg	0.1	-	-	<0.1
Fluorene	mg/kg	0.1	-	-	<0.1
Phenanthrene	mg/kg	0.1	-	-	<0.1
Anthracene	mg/kg	0.1	-	-	<0.1
Fluoranthene	mg/kg	0.1	-	-	<0.1
Pyrene	mg/kg	0.1	-	-	<0.1
Benzo(a)anthracene	mg/kg	0.1	-	-	<0.1
Chrysene	mg/kg	0.1	-	-	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	-	-	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	-	-	<0.1
Benzo(a)pyrene	mg/kg	0.1	-	-	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-	-	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	-	-	<0.1
Benzo(ghi)perylene	mg/kg	0.1	-	-	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	-	-	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	-	-	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	-	-	<0.3
Total PAH (18)	mg/kg	0.8	-	-	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	-	-	<0.8

Parameter	Units	LOR	Sample Number	CE182748.021	CE182748.022	CE182748.023
			Sample Matrix	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	BG-0.7-0.9	BG-0.9-1.1	QAQC1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 6/7/2025 (continued)

Surrogates

d5-nitrobenzene (Surrogate)	%	-	-	-	86
2-fluorobiphenyl (Surrogate)	%	-	-	-	95
d14-p-terphenyl (Surrogate)	%	-	-	-	92

Speciated Phenols in Soil Method: AN420 Tested: 6/7/2025

Phenol	mg/kg	0.5	-	-	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	-	-	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	-	-	<1
Total Cresol	mg/kg	1.5	-	-	<1.5
2-chlorophenol	mg/kg	0.5	-	-	<0.5
2,4-dimethylphenol	mg/kg	0.5	-	-	<0.5
2,6-dichlorophenol	mg/kg	0.5	-	-	<0.5
2,4-dichlorophenol	mg/kg	0.5	-	-	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	-	-	<0.5
2-nitrophenol	mg/kg	0.5	-	-	<0.5
4-nitrophenol	mg/kg	1	-	-	<1
2,4,5-trichlorophenol	mg/kg	0.5	-	-	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	-	-	<1
Pentachlorophenol	mg/kg	0.5	-	-	<0.5
2,4-dinitrophenol	mg/kg	2	-	-	<2

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	-	-	87
d5-phenol (Surrogate)	%	-	-	-	91

OC Pesticides in Soil Method: AN420 Tested: 6/7/2025

Alpha BHC	mg/kg	0.1	-	-	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1
Beta BHC	mg/kg	0.1	-	-	<0.1
Lindane (gamma BHC)	mg/kg	0.1	-	-	<0.1
Delta BHC	mg/kg	0.1	-	-	<0.1
Heptachlor	mg/kg	0.1	-	-	<0.1
Aldrin	mg/kg	0.1	-	-	<0.1
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1
Gamma Chlordane	mg/kg	0.1	-	-	<0.1
Alpha Chlordane	mg/kg	0.1	-	-	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	-	-	<0.1
Alpha Endosulfan	mg/kg	0.1	-	-	<0.1
p,p'-DDE	mg/kg	0.1	-	-	<0.1
Dieldrin	mg/kg	0.1	-	-	<0.1
Endrin	mg/kg	0.1	-	-	<0.1
Beta Endosulfan	mg/kg	0.1	-	-	<0.1
p,p'-DDD	mg/kg	0.1	-	-	<0.1
Endrin aldehyde	mg/kg	0.1	-	-	<0.1
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1
p,p'-DDT	mg/kg	0.1	-	-	<0.1
Endrin ketone	mg/kg	0.1	-	-	<0.1
Methoxychlor	mg/kg	0.1	-	-	<0.1
Mirex	mg/kg	0.1	-	-	<0.1
Total OC Pesticides	mg/kg	0.1	-	-	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	-	-	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	-	-	<0.1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	97

Parameter	Units	LOR	Sample Number	CE182748.021	CE182748.022	CE182748.023
			Sample Matrix	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	BG-0.7-0.9	BG-0.9-1.1	QAQC1

OP Pesticides in Soil Method: AN420 Tested: 6/7/2025

Azinphos-methyl (Guthion)	mg/kg	0.2	-	-	<0.2
Bromophos Ethyl	mg/kg	0.2	-	-	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	-	-	<0.2
Diazinon (Dimpylate)	mg/kg	0.5	-	-	<0.5
Dichlorvos	mg/kg	0.5	-	-	<0.5
Dimethoate	mg/kg	0.5	-	-	<0.5
Ethion	mg/kg	0.2	-	-	<0.2
Fenitrothion	mg/kg	0.2	-	-	<0.2
Malathion	mg/kg	0.2	-	-	<0.2
Methidathion	mg/kg	0.5	-	-	<0.5
Parathion-ethyl (Parathion)	mg/kg	0.2	-	-	<0.2
Total OP Pesticides*	mg/kg	1.7	-	-	<1.7

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	-	-	95
d14-p-terphenyl (Surrogate)	%	-	-	-	92

PCBs in Soil Method: AN420 Tested: 6/7/2025

Arochlor 1016	mg/kg	0.1	-	-	<0.1
Arochlor 1221	mg/kg	0.1	-	-	<0.1
Arochlor 1232	mg/kg	0.1	-	-	<0.1
Arochlor 1242	mg/kg	0.1	-	-	<0.1
Arochlor 1248	mg/kg	0.1	-	-	<0.1
Arochlor 1254	mg/kg	0.1	-	-	<0.1
Arochlor 1260	mg/kg	0.1	-	-	<0.1
Total PCBs	mg/kg	0.1	-	-	<0.1

Surrogates

TCMX (Surrogate)	%	-	-	-	97

Moisture Content Method: AN002 Tested: 3/7/2025

% Moisture	%w/w	1	17.8	14.7	16.8

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025

Perfluorobutanoic acid (PFBA)	mg/kg	0.0016	-	-	<0.0016
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0016	-	-	<0.0016
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0016	-	-	<0.0016
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0016	-	-	<0.0016
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0008	-	-	<0.0008
Perfluorononanoic acid (PFNA)	mg/kg	0.0016	-	-	<0.0016
Perfluorodecanoic acid (PFDA)	mg/kg	0.0016	-	-	<0.0016
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0016	-	-	<0.0016
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0016	-	-	<0.0016
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0016	-	-	<0.0016
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0016	-	-	<0.0016
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0032	-	-	<0.0032
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0016	-	-	<0.0016
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0016	-	-	<0.0016
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0016	-	-	<0.0016
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0016	-	-	<0.0016
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0016	-	-	<0.0016
Sum PFOS and PFHXS	mg/kg	0.0016	-	-	<0.0016
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0016	-	-	<0.0016
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0016	-	-	<0.0016
Perfluorononane sulfonate (PFNS)	mg/kg	0.0016	-	-	<0.0016
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0016	-	-	<0.0016
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0016	-	-	<0.0016
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.0016	-	-	<0.0016

Parameter	Units	LOR	Sample Number	CE182748.021	CE182748.022	CE182748.023
			Sample Matrix	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	BG-0.7-0.9	BG-0.9-1.1	QAQC1

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples Method: MA-1523 Tested: 3/7/2025 (continued)

1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.0016	-	-	<0.0016
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.0016	-	-	<0.0016
1H,1H,2H,2H-Perfluorododecane sulfonate (10:2)(10:2)	mg/kg	0.0016	-	-	<0.0016
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.0016	-	-	<0.0016
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.008	-	-	<0.008
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.008	-	-	<0.008
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	-	<0.016
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.016	-	-	<0.016
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.008	-	-	<0.008
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.008	-	-	<0.008
Total of PFAS (n=30)	mg/kg	0.08	-	-	<0.08
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	-	-	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	-	-	95
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	-	-	98
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	-	-	98
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	-	-	84
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	-	-	102
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	-	-	108
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	-	-	80
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	-	-	74
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	-	-	47
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	-	-	23
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	-	-	92
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	-	-	94
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	-	-	82
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	90
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	86
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	-	65
(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	78
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	32
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	-	-	50
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	-	-	95
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	-	-	72
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	-	-	56
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	-	-	54

Conductivity and TDS by Calculation - Soil Method: AN106 Tested: 2/7/2025

Conductivity of Extract (1:5 as received)	µS/cm	2	-	-	-

pH in soil (1:5) Method: AN101 Tested: 1/7/2025

pH	pH Units	0.1	8.9	8.4	-
pH (CaCl2)*	pH Units	0.1	8.2	7.8	-

Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 2/7/2025

Total Organic Carbon	%w/w	0.05	0.16	0.85	-

Parameter	Units	LOR	Sample Number	CE182748.021	CE182748.022	CE182748.023
			Sample Matrix	Soil	Soil	Soil
			Sample Date	20 Jun 2025	20 Jun 2025	20 Jun 2025
			Sample Name	BG-0.7-0.9	BG-0.9-1.1	QAQC1

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: AN122 Tested: 27/6/2025

Exchangeable Sodium, Na	cmol (+)/kg	0.01	11	8.4	-
Exchangeable Sodium Percentage*	%	0.1	24.2	22.6	-
Exchangeable Potassium, K	cmol (+)/kg	0.01	0.63	0.34	-
Exchangeable Potassium Percentage*	%	0.1	1.3	0.9	-
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	22	19	-
Exchangeable Calcium Percentage*	%	0.1	46.6	50.4	-
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	13	9.7	-
Exchangeable Magnesium Percentage*	%	0.1	27.9	26.2	-
Cation Exchange Capacity	cmol (+)/kg	0.02	47	37	-

Particle sizing of soils by sieving Method: AN005 Tested: 30/6/2025

Passing 75µm	%w/w	1	92	86	-
Retained 75µm	%w/w	1	8	14	-

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 30/6/2025

Clay (<0.002mm)	%w/w	0.1	36	32	-

Physical Tests - Compost Method: AS 4454-2003 Tested: 25/6/2025

Impurities - Glass, Metal and Rigid Plastics > 2mm*	%	0.1	<0.1	<0.1	-
Impurities - Plastics- Light, Flexible or Film > 5mm*	%	0.1	<0.1	<0.1	-
Impurities - Stones and Lumps of Clay > 5mm*	%	0.1	0.7	<0.1	-
Impurities - Ferrous and Metals >8mm*	%	0.1	<0.1	<0.1	-
Impurities - Light and Hard Plastics >8mm*	%	0.1	<0.1	<0.1	-
Impurities - Glass >8mm*	%	0.1	<0.1	<0.1	-
Impurities - Paper and Cardboard >8mm*	%	0.1	<0.1	<0.1	-
Impurities - Other >8mm*	%	0.1	<0.1	<0.1	-

Sample on Hold Method: Tested: 5/7/2025

Sample on Hold*	No unit	-	-	-	-

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Conductivity and TDS by Calculation - Soil Method: ME-(AU)-[ENV]AN106

Parameter	QC Reference	Units	LOR	LCS %Recovery
Conductivity of Extract (1:5 as received)	LB142078	µS/cm	2	101%

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) Method: ME-(AU)-[ENV]AN122

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Exchangeable Sodium, Na	LB141967	cmol (+)/kg	0.01	<0.01	NA
Exchangeable Sodium Percentage*	LB141967	%	0.1		NA
Exchangeable Potassium, K	LB141967	cmol (+)/kg	0.01	<0.01	NA
Exchangeable Potassium Percentage*	LB141967	%	0.1		NA
Exchangeable Calcium, Ca	LB141967	cmol (+)/kg	0.01	<0.01	NA
Exchangeable Calcium Percentage*	LB141967	%	0.1		NA
Exchangeable Magnesium, Mg	LB141967	cmol (+)/kg	0.02	<0.02	NA
Exchangeable Magnesium Percentage*	LB141967	%	0.1		NA
Cation Exchange Capacity	LB141967	cmol (+)/kg	0.02	<0.02	NA

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB141969	mg/kg	0.01	<0.01	0%	105%	105%

pH in soil (1:5) Method: ME-(AU)-[ENV]AN101

Parameter	QC Reference	Units	LOR	LCS %Recovery
pH	LB142077	pH Units	0.1	100%

Total Organic Carbon by Heanes Oxidation Method: ME-(AU)-[ENV]AN273

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Organic Carbon	LB142143	%w/w	0.05	<0.05	6%	93%	94%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arsenic, As	LB142025	mg/kg	0.5	<0.5	8%	100%
Barium, Ba	LB142025	mg/kg	0.5	<0.5	2%	101%
Beryllium, Be	LB142025	mg/kg	0.05	<0.05	2%	98%
Cadmium, Cd	LB142025	mg/kg	0.1	<0.1	0%	101%
Cobalt, Co	LB142025	mg/kg	0.5	<0.5	2%	100%
Chromium, Cr	LB142025	mg/kg	0.5	<0.5	1%	102%
Copper, Cu	LB142025	mg/kg	0.5	<0.5	1%	103%
Iron, Fe	LB142025	mg/kg	50	<50		104%
Manganese, Mn	LB142025	mg/kg	2	<2	2%	104%
Nickel, Ni	LB142025	mg/kg	0.5	<0.5	1%	100%
Lead, Pb	LB142025	mg/kg	0.5	<0.5	1%	99%
Vanadium, V	LB142025	mg/kg	0.5	<0.5	0%	101%
Zinc, Zn	LB142025	mg/kg	0.5	<0.5	1%	102%

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.						
AN005	The particle size distribution of a soil is determined by wet sieving, using a maximum of 900 mL of deionised water to sieve all fractions down to 75 µm. Referenced to AS1289.3.6.1 and AS1141.11.						
AN005	Following wet sieving of the sample,(particles smaller than 75 µm) a dispersing solution is added and a hydrometer is used to measure sedimentation. Soil density is determined and the percentage of each size fraction calculated. Referenced to AS1289.3.6.3.						
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.						
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl ₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.						
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.						
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.						
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below : <table> <tr> <td>ESP < 6%</td> <td>non-sodic</td> </tr> <tr> <td>ESP 6-15%</td> <td>sodic</td> </tr> <tr> <td>ESP >15%</td> <td>strongly sodic</td> </tr> </table> Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1.-	ESP < 6%	non-sodic	ESP 6-15%	sodic	ESP >15%	strongly sodic
ESP < 6%	non-sodic						
ESP 6-15%	sodic						
ESP >15%	strongly sodic						
AN273	The sample is digested in Dichromate / Sulfuric Acid to oxidise the organic carbon. The determination is completed colourimetrically by Discrete Analyser at 600 nm. Based on Rayment & Higginson 6B1.						
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500						

METHOD

METHODOLOGY SUMMARY

AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AS 4450-2003	Physical tests on compost and similar products as per AS4450-2003.
MA-1523	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts, determined as the total of linear and branched isomers. After spiking with isotopically labelled quantification surrogates and clean-up via SPE cartridges sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
***	Indicates that both * and ** apply.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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Terra Solutions Pty Ltd
2/28 French Street
Pimlico
QLD 4812



NATA Accredited
Accreditation Number 1261
Site Number 20794 & 2780

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: **Lab Results**

Report **1235522-S**
Project name **202519-1 MCDONALD**
Project ID **202519-1**
Received Date **Jun 23, 2025**

Client Sample ID			QAQC2
Sample Matrix			Soil
Eurofins Sample No.			TW25- Jn0060717
Date Sampled			Jun 20, 2025
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	110
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2)* ^{N01}	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5

Client Sample ID			QAQC2
Sample Matrix			Soil
Eurofins Sample No.			TW25-Jn0060717
Date Sampled			Jun 20, 2025
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	105
p-Terphenyl-d14 (surr.)	1	%	132
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchloroendate (surr.)	1	%	INT
Tetrachloro-m-xylene (surr.)	1	%	101
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2

Client Sample ID			QAQC2
Sample Matrix			Soil
Eurofins Sample No.			TW25-Jn0060717
Date Sampled			Jun 20, 2025
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	INT
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	INT
Tetrachloro-m-xylene (surr.)	1	%	101
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1
Pentachlorophenol	1	mg/kg	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5
2-Nitrophenol	1.0	mg/kg	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4

Client Sample ID			QAQC2
Sample Matrix			Soil
Eurofins Sample No.			TW25-Jn0060717
Date Sampled			Jun 20, 2025
Test/Reference	LOR	Unit	
Phenols (non-Halogenated)			
Total cresols*	0.5	mg/kg	< 0.5
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Phenol-d6 (surr.)	1	%	90
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Heavy Metals			
Barium	5	mg/kg	100
Beryllium	2	mg/kg	< 2
Cobalt	5	mg/kg	13
Manganese	5	mg/kg	690
Vanadium	10	mg/kg	48
Metals M8			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	19
Copper	5	mg/kg	16
Lead	5	mg/kg	13
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	13
Zinc	5	mg/kg	34
Sample Properties			
% Moisture	1	%	18
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5
Perfluorotridecanoic acid (PFTriDA) ^{N15}	5	ug/kg	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5
13C4-PFBA (surr.)	1	%	102
13C5-PFPeA (surr.)	1	%	116
13C5-PFHxA (surr.)	1	%	103
13C4-PFHpA (surr.)	1	%	98
13C8-PFOA (surr.)	1	%	94
13C5-PFNA (surr.)	1	%	95
13C6-PFDA (surr.)	1	%	93
13C2-PFUnDA (surr.)	1	%	111

Client Sample ID			QAQC2
Sample Matrix			Soil
Eurofins Sample No.			TW25- Jn0060717
Date Sampled			Jun 20, 2025
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
13C2-PFDoDA (surr.)	1	%	90
13C2-PFTeDA (surr.)	1	%	97
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10
13C8-FOSA (surr.)	1	%	118
D3-N-MeFOSA (surr.)	1	%	105
D5-N-EtFOSA (surr.)	1	%	103
D7-N-MeFOSE (surr.)	1	%	102
D9-N-EtFOSE (surr.)	1	%	102
D5-N-EtFOSAA (surr.)	1	%	74
D3-N-MeFOSAA (surr.)	1	%	86
Perfluoroalkyl sulfonic acids (PFSA's)			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	123
18O2-PFHxS (surr.)	1	%	118
13C8-PFOS (surr.)	1	%	108
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5
13C2-4:2 FTSA (surr.)	1	%	59
13C2-6:2 FTSA (surr.)	1	%	66
13C2-8:2 FTSA (surr.)	1	%	116
13C2-10:2 FTSA (surr.)	1	%	^J -48

Client Sample ID			QAQC2
Sample Matrix			Soil
Eurofins Sample No.			TW25- Jn0060717
Date Sampled			Jun 20, 2025
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Suite B10C: M8/BTEX/TRH/PAH/Phenol/OCP/OPP/PCB			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Jun 26, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Brisbane	Jun 24, 2025	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Jun 24, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Brisbane	Jun 26, 2025	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Brisbane	Jun 26, 2025	14 Days
- Method: LTM-ORG-2220 OCP and PCB in Soil and Water			
Organophosphorus Pesticides	Brisbane	Jun 26, 2025	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			
Polychlorinated Biphenyls	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Phenols (Halogenated)	Brisbane	Jun 26, 2025	14 Days
- Method: USEPA M 8270 (LTM-ORG-2130 PAH & Phenols in Soil & Water by GC-MS)			
Phenols (non-Halogenated)	Brisbane	Jun 26, 2025	14 Days
- Method: USEPA M 8270 (LTM-ORG-2130 PAH & Phenols in Soil & Water by GC-MS)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Jun 26, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Brisbane	Jun 23, 2025	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAAs)	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Jun 24, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			



web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554	Auckland 35 O'Rorke Road Penrose Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise Mount Wellington Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road Gate Pa Tauranga 3112 +64 9 525 0568 IANZ# 1402

Company Name: Terra Solutions Pty Ltd

Address: 2/28 French Street
Pimlico
QLD 4812

Project Name: 202519-1 MCDONALD

Project ID: 202519-1

Order No.:

Report #: 1235522

Phone: 0407 623 528

Fax:

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Priority: 5 Day

Contact Name: Lab Results

Eurofins Analytical Services Manager : Ryan Gilbert

Sample Detail						Barium	Beryllium	Cobalt	Manganese	Vanadium	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Suite B10C: M&B/TEXT/RH/PAH/Phenol/OCp/OPP/PCB
Brisbane Laboratory - NATA # 1261 Site # 20794 & 2780						X	X	X	X	X	X	X	X
External Laboratory													
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
1	QAQC2	Jun 20, 2025		Soil	TW25-Jn0060717	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1			1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1			1	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4,6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Metals M8							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	91			70-130	Pass	
TRH C10-C14	%	79			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	111			70-130	Pass	
Toluene	%	113			70-130	Pass	
Ethylbenzene	%	115			70-130	Pass	
m&p-Xylenes	%	113			70-130	Pass	
Xylenes - Total*	%	113			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	89			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	101			70-130	Pass	
Acenaphthylene	%	101			70-130	Pass	
Anthracene	%	128			70-130	Pass	
Benz(a)anthracene	%	108			70-130	Pass	
Benzo(a)pyrene	%	86			70-130	Pass	
Benzo(k)fluoranthene	%	122			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	100			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	74			70-130	Pass	
Naphthalene	%	106			70-130	Pass	
Phenanthrene	%	112			70-130	Pass	
Pyrene	%	106			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	88			70-130	Pass	
4.4'-DDD	%	91			70-130	Pass	
4.4'-DDE	%	81			70-130	Pass	
a-HCH	%	97			70-130	Pass	
Aldrin	%	87			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
b-HCH	%	104			70-130	Pass	
d-HCH	%	96			70-130	Pass	
Dieldrin	%	78			70-130	Pass	
Endosulfan I	%	89			70-130	Pass	
Endosulfan II	%	92			70-130	Pass	
Endosulfan sulphate	%	83			70-130	Pass	
Endrin	%	110			70-130	Pass	
Endrin aldehyde	%	79			70-130	Pass	
Endrin ketone	%	96			70-130	Pass	
g-HCH (Lindane)	%	104			70-130	Pass	
Heptachlor	%	114			70-130	Pass	
Heptachlor epoxide	%	80			70-130	Pass	
Hexachlorobenzene	%	88			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Azinphos-methyl	%	85			70-130	Pass	
Bolstar	%	88			70-130	Pass	
Chlorpyrifos	%	94			70-130	Pass	
Chlorpyrifos-methyl	%	72			70-130	Pass	
Coumaphos	%	91			70-130	Pass	
Demeton-S	%	72			70-130	Pass	
Demeton-O	%	115			70-130	Pass	
Diazinon	%	88			70-130	Pass	
Dichlorvos	%	90			70-130	Pass	
Dimethoate	%	70			70-130	Pass	
Disulfoton	%	105			70-130	Pass	
EPN	%	113			70-130	Pass	
Ethion	%	88			70-130	Pass	
Ethoprop	%	75			70-130	Pass	
Ethyl parathion	%	128			70-130	Pass	
Fenitrothion	%	113			70-130	Pass	
Fensulfothion	%	108			70-130	Pass	
Fenthion	%	78			70-130	Pass	
Malathion	%	83			70-130	Pass	
Methyl parathion	%	115			75-125	Pass	
Mevinphos	%	74			70-130	Pass	
Monocrotophos	%	114			70-130	Pass	
Naled	%	97			70-130	Pass	
Omethoate	%	78			70-130	Pass	
Phorate	%	82			70-130	Pass	
Pirimiphos-methyl	%	78			70-130	Pass	
Ronnel	%	84			70-130	Pass	
Terbufos	%	105			70-130	Pass	
Tetrachlorvinphos	%	71			70-130	Pass	
Tokuthion	%	85			70-130	Pass	
Trichloronate	%	84			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	80			70-130	Pass	
Aroclor-1260	%	71			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	107			25-140	Pass	
2,4-Dichlorophenol	%	90			25-140	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2,4,5-Trichlorophenol	%	79			25-140	Pass	
4-Chloro-3-methylphenol	%	95			25-140	Pass	
Pentachlorophenol	%	85			25-140	Pass	
Tetrachlorophenols - Total	%	82			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	%	78			25-140	Pass	
2-Nitrophenol	%	110			25-140	Pass	
2,4-Dimethylphenol	%	110			25-140	Pass	
2-Methylphenol (o-Cresol)	%	102			25-140	Pass	
4-Nitrophenol	%	99			25-140	Pass	
Phenol	%	110			25-140	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	78			70-130	Pass	
LCS - % Recovery							
Metals M8							
Arsenic	%	92			80-120	Pass	
Cadmium	%	92			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	110			80-120	Pass	
Lead	%	103			80-120	Pass	
Mercury	%	108			80-120	Pass	
Nickel	%	108			80-120	Pass	
Zinc	%	113			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	99			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	92			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	125			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	102			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	109			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	119			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	109			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	104			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	137			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	111			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	106			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	82			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	123			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	103			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	105			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	106			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	113			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	92			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	106			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	96			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	96			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)			%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	102			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	78			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	99			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	105			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	105			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	85			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B25-Jn0060921	NCP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B25-Jn0060921	NCP	%	89			70-130	Pass	
Toluene	B25-Jn0060921	NCP	%	96			70-130	Pass	
Ethylbenzene	B25-Jn0060921	NCP	%	97			70-130	Pass	
m&p-Xylenes	B25-Jn0060921	NCP	%	97			70-130	Pass	
o-Xylene	B25-Jn0060921	NCP	%	97			70-130	Pass	
Xylenes - Total*	B25-Jn0060921	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B25-Jn0060921	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	B25-Jn0063649	NCP	%	79			70-130	Pass	
4,4'-DDD	B25-Jn0063649	NCP	%	73			70-130	Pass	
4,4'-DDE	B25-Jn0063649	NCP	%	76			70-130	Pass	
4,4'-DDT	B25-Jn0050755	NCP	%	127			70-130	Pass	
a-HCH	B25-Jn0063649	NCP	%	89			70-130	Pass	
Aldrin	B25-Jn0063649	NCP	%	82			70-130	Pass	
b-HCH	B25-Jn0063649	NCP	%	76			70-130	Pass	
d-HCH	B25-Jn0063649	NCP	%	88			70-130	Pass	
Dieldrin	B25-Jn0063649	NCP	%	87			70-130	Pass	
Endosulfan I	B25-Jn0063649	NCP	%	92			70-130	Pass	
Endosulfan II	B25-Jn0063649	NCP	%	78			70-130	Pass	
Endosulfan sulphate	B25-Jn0063649	NCP	%	72			70-130	Pass	
Endrin	B25-Jn0077046	NCP	%	118			70-130	Pass	
Endrin aldehyde	B25-Jn0063649	NCP	%	77			70-130	Pass	
Endrin ketone	B25-Jn0063649	NCP	%	84			70-130	Pass	
g-HCH (Lindane)	B25-Jn0063649	NCP	%	100			70-130	Pass	
Heptachlor	B25-Jn0063649	NCP	%	95			70-130	Pass	
Heptachlor epoxide	B25-Jn0063649	NCP	%	72			70-130	Pass	
Hexachlorobenzene	B25-Jn0063649	NCP	%	80			70-130	Pass	
Methoxychlor	B25-Jn0056366	NCP	%	121			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Azinphos-methyl	B25-Jn0052616	NCP	%	110			70-130	Pass	
Bolstar	B25-Jn0052616	NCP	%	99			70-130	Pass	
Chlorfenvinphos	B25-Jn0029857	NCP	%	74			70-130	Pass	
Chlorpyrifos	B25-Jn0063649	NCP	%	88			70-130	Pass	
Chlorpyrifos-methyl	B25-Jn0052616	NCP	%	82			70-130	Pass	
Coumaphos	B25-Jn0056366	NCP	%	112			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Demeton-S	B25-Jn0056366	NCP	%	70			70-130	Pass	
Demeton-O	B25-Jn0050757	NCP	%	128			70-130	Pass	
Diazinon	B25-Jn0063649	NCP	%	70			70-130	Pass	
Dichlorvos	B25-Jn0063649	NCP	%	109			70-130	Pass	
Dimethoate	B25-Jn0052616	NCP	%	71			70-130	Pass	
Disulfoton	B25-Jn0063649	NCP	%	82			70-130	Pass	
EPN	B25-Jn0063649	NCP	%	70			70-130	Pass	
Ethion	B25-Jn0029857	NCP	%	101			70-130	Pass	
Ethoprop	B25-Jn0052616	NCP	%	91			70-130	Pass	
Ethyl parathion	B25-Jn0063649	NCP	%	95			70-130	Pass	
Fenitrothion	B25-Jn0050757	NCP	%	113			70-130	Pass	
Fensulfothion	B25-Jn0063649	NCP	%	129			70-130	Pass	
Fenthion	B25-Jn0052616	NCP	%	89			70-130	Pass	
Malathion	B25-Jn0052616	NCP	%	91			70-130	Pass	
Methyl parathion	B25-Jn0050757	NCP	%	116			70-130	Pass	
Mevinphos	B25-Jn0052616	NCP	%	79			70-130	Pass	
Monocrotophos	B25-Jn0063649	NCP	%	74			70-130	Pass	
Naled	B25-Jn0052616	NCP	%	128			70-130	Pass	
Omethoate	B25-Jn0063649	NCP	%	113			70-130	Pass	
Phorate	B25-Jn0052616	NCP	%	87			70-130	Pass	
Pirimiphos-methyl	B25-Jn0052616	NCP	%	84			70-130	Pass	
Pyrazophos	B25-Jn0029857	NCP	%	82			70-130	Pass	
Ronnel	B25-Jn0052616	NCP	%	95			70-130	Pass	
Terbufos	B25-Jn0029857	NCP	%	106			70-130	Pass	
Tetrachlorvinphos	B25-Jn0052616	NCP	%	77			70-130	Pass	
Tokuthion	B25-Jn0052616	NCP	%	90			70-130	Pass	
Trichloronate	B25-Jn0063649	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	B25-Jn0057796	NCP	%	74			70-130	Pass	
Aroclor-1260	B25-Jn0057796	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B25-Jn0063649	NCP	%	59			70-130	Fail	Q08
Spike - % Recovery									
Heavy Metals				Result 1					
Barium	TW25-Jn0060717	CP	%	109			75-125	Pass	
Beryllium	TW25-Jn0060717	CP	%	96			75-125	Pass	
Cobalt	TW25-Jn0060717	CP	%	103			75-125	Pass	
Vanadium	TW25-Jn0060717	CP	%	91			75-125	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	TW25-Jn0060717	CP	%	87			75-125	Pass	
Cadmium	TW25-Jn0060717	CP	%	85			75-125	Pass	
Chromium	TW25-Jn0060717	CP	%	97			75-125	Pass	
Copper	TW25-Jn0060717	CP	%	102			75-125	Pass	
Lead	TW25-Jn0060717	CP	%	96			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	TW25-Jn0060717	CP	%	105			75-125	Pass	
Nickel	TW25-Jn0060717	CP	%	103			75-125	Pass	
Zinc	TW25-Jn0060717	CP	%	102			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorononanesulfonic acid (PFNS)	B25-Jn0063646	NCP	%	80			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B25-Jn0060922	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B25-Jn0060922	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	B25-Jn0060922	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	B25-Jn0060922	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	B25-Jn0060922	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	B25-Jn0060922	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	B25-Jn0060922	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B25-Jn0060922	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	B25-Jn0060922	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4,4'-DDD	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4,4'-DDE	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4,4'-DDT	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
a-HCH	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aldrin	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
b-HCH	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
d-HCH	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dieldrin	B25-Jn0063649	NCP	mg/kg	< 0.5	0.57	6.0	30%	Pass	
Endosulfan I	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan II	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan sulphate	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin aldehyde	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin ketone	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
g-HCH (Lindane)	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor epoxide	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobenzene	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methoxychlor	B25-Jn0063649	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Bolstar	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Chlorfenvinphos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Chlorpyrifos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Chlorpyrifos-methyl	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass	

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Coumaphos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-O	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Diazinon	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Dichlorvos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Dimethoate	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Disulfoton	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
EPN	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Ethion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Ethoprop	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Ethyl parathion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Fenitrothion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Fensulfothion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Fenthion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Malathion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Merphos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Methyl parathion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Mevinphos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Monocrotophos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Omethoate	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Pirimiphos-methyl	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Pyrazophos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Ronnel	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Terbufos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Tetrachlorvinphos	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Tokuthion	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Trichloronate	B25-Jn0063649	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	B25-Jn0063649	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B25-Jn0063649	NCP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	B25-Jn0063649	NCP	mg/kg	200	170	20	30%	Pass
Duplicate								
Metals M8				Result 1	Result 2	RPD		
Arsenic	B25-Jn0060910	NCP	mg/kg	11	9.5	10	30%	Pass
Cadmium	B25-Jn0060910	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	B25-Jn0060910	NCP	mg/kg	48	46	4.0	30%	Pass
Copper	B25-Jn0060910	NCP	mg/kg	58	58	1.0	30%	Pass
Lead	B25-Jn0060910	NCP	mg/kg	80	83	4.0	30%	Pass
Mercury	B25-Jn0060910	NCP	mg/kg	0.1	0.1	22	30%	Pass
Nickel	B25-Jn0060910	NCP	mg/kg	22	19	14	30%	Pass
Zinc	B25-Jn0060910	NCP	mg/kg	220	190	17	30%	Pass

Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	R25-Jn0060024	NCP	%	10	9.2	10	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	TW25-Jn0060717	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	TW25-Jn0060717	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B25-Jn0068787	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	TW25-Jn0060717	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	TW25-Jn0060717	CP	ug/kg	< 5	< 5	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
J-	If the percent recoveries were less than the lower control limit, qualify detects for the analyte in associated samples as estimated with a negative bias J-.
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.

Authorised by:

Lauren Kennedy	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Sample Properties
Jonathon Angell	Senior Analyst-Volatile



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Appendix E

QA/QC Analysis

Table 16: RPD Analysis of Duplicate and Triplicate to Primary Sample

PARAMETER	UNITS	LOR	PRIMARY SAMPLE	DUPLICATE	RPD%	BLIND SPLIT	RPD%
			MCS2-0.7-0.9	QAQC1		QAQC2	
Arsenic	mg/kg	0.5	1.9	2.3	-19.0	<2	-
Barium	mg/kg	0.5	230	160	35.9	100	78.8
Beryllium	mg/kg	0.05	0.94	0.81	14.9	<2	-
Chromium (III+VI)	mg/kg	0.5	17	15	12.5	19	-11.1
Cobalt	mg/kg	0.5	17	14	19.4	13	26.7
Copper	mg/kg	0.5	15	14	6.9	16	-6.5
Lead	mg/kg	0.5	16	14	13.3	13	20.7
Manganese	mg/kg	2	780	910	-15.4	690	12.2
Nickel	mg/kg	0.5	12	11	8.7	13	-8.0
Vanadium	mg/kg	0.5	50	50	0	48	4.1
Zinc	mg/kg	0.5	34	37	-8.5	34	0



Attachment 9



PGI NORTH QLD
GROUND ENGINEERING SERVICES
2/70 BOWEN ROAD, ROSSLEA
QUEENSLAND 4812
TEL: (07) 4779 3754
MOB: 0438985494
WEB: WWW.NQPHIGI.COM.AU

PGC1822188
110 Penelope Road, CBIP
McDonald Constructions
Report on Geotechnical Investigation



Document Status and Review

Project No	PGC1822188
Site Location	110 Penelope Road, CBIP
Client	McDonald Constructions

Revision No	Status	Issue Date
1.0	Draft	30/06/2025
1.1	Final	22/07/2025

Prepared By	A. Spragg

Reviewed	A. W. Horspool

Approved	A. G. Doyle	RPEQ



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1. Introduction

This report by Phi Ground Innovations (PGI) summarises the results of a geotechnical investigation for the proposed industrial development at lot 12 on plan SP338024, 110 Penelope Road, CBIP. The work commissioned by McDonald Constructions was undertaken to provide information on the following;

- recommendations and design parameters for foundations and earth retaining structures;
- Site Classification;
- Provide earthworks, trafficability and excavatability recommendations; and
- Provide construction and site management recommendations.

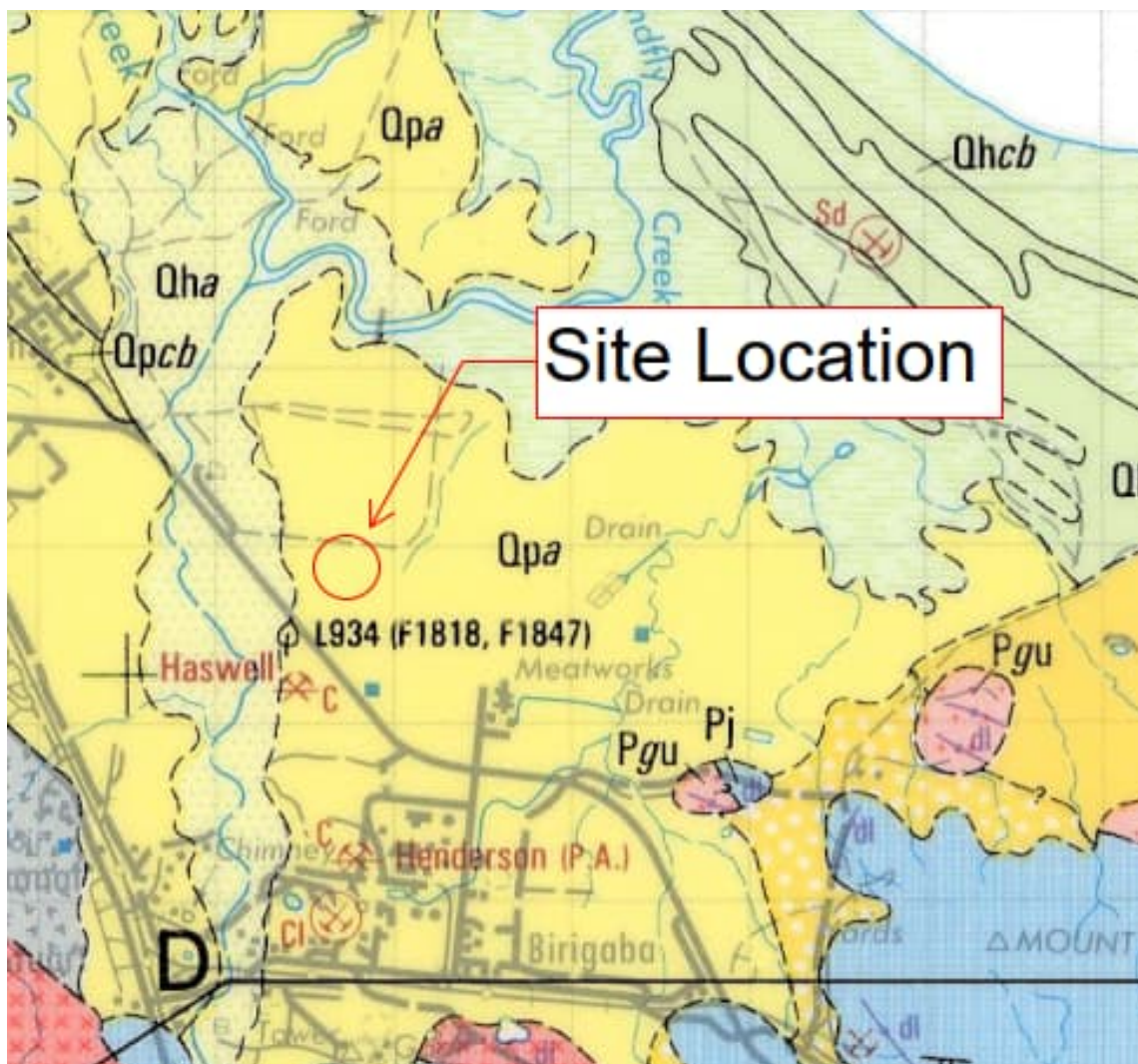
2. Site Description

The site comprises a previously undeveloped lot, lot 12 on plan SP338024, stripped of vegetation in preparation for construction. The location and the general appearance of the site are illustrated in the ground investigation plan.

3. Regional Geology

Published geological information derived from the 1: 100,000 Geological Series, Townsville Sheet 8259 indicates the site to be underlain by Quaternary alluvial clays, silts sands and gravel.

Figure 1. Geological Map Extract.





4. Scope of Investigation

The following scope of investigation was undertaken to allow the development of a ground model for the proposed industrial development;

- 10No. continuous flight auger boreholes, with associated sampling
- Dynamic cone penetrometer (DCP) testing;

The intrusive investigation, and associated sampling and testing were undertaken in general accordance with AS1726, Geotechnical Site Investigations and AS1289, Methods of Testing Soils for Engineering Purposes.

Results of the intrusive investigation are presented in full in Appendices B and C respectively.

5. Natural hazards

5.1. Landslides

A web-based landslides query centred on the site returned no data from an interrogation of its landslide database for this area.

5.2. Earthquakes

Seismicity is generally associated with the boundaries of the Earth's tectonic plates. However not all earthquakes occur at plate boundaries, these are termed intraplate earthquakes and generally occur as a result of the release of pressure that has built-up over time as the Earth's crust deforms. In which case, the presence of faults would not be indicative of an increased risk of seismic activity. The sites lie some distance from the boundaries of the Indo-Australian tectonic plate, but this does not preclude it from being subject to seismic events. However, there remains potential for the area to be affected by seismic activity, in which case it is recommended that all infrastructure should be designed based on a hazard factor (z) of 0.09 and in accordance with Figure 3.2(D) of AS1170.4.

5.3. Acid sulphate soils

Acid sulphate soils commonly form in low-energy intertidal settings or areas that are subject to periodic tidal flooding. Reducing environments of this nature may contain sufficient organic matter to promote the formation of iron sulphide through sulphate reduction. Most acid sulphate soils occur in coastal areas below 5 metres above sea level.

Acid sulphate soils (ASS) are generally formed where sea levels rose and inundated the land, the sulphate in the seawater mixed with land sediments containing iron oxides and organic matter. The resulting chemical reaction produced large quantities of iron sulphides in waterlogged environments.

The following criteria are likely to determine whether ASS is likely to be present:

- land with an elevation less than 5m Australian Height Datum (m AHD)
- soil and sediment of recent geological age (Holocene)
- marine or estuarine sediments and tidal lakes, low-lying coastal wetlands or back swamp areas, waterlogged, or scalded areas, stranded beach ridges and adjacent swales or coastal sand dunes, coastal alluvial valleys
- areas where the dominant vegetation is tolerant of salt, acid and/or waterlogging conditions, e.g. mangroves, saltcouch, swamp-tolerant reeds, rushes, paperbarks and swamp oak
- areas identified in geological descriptions or in maps as bearing sulphide minerals, coal deposits or marine shales/sediments deep older estuarine sediments below ground surface of either Holocene or pre-Holocene age

The Australian Soil Resource Information System (ASRIS) website indicates the the proposed development area is underlain by soils with an extremely low probability of the occurrence of acid sulphate conditions.

Physical testing was not undertaken as part of this investigation.



6. Geotechnical Assessment

6.1. Ground Conditions

Results of the ground investigation are presented in Appendix B. Boreholes encountered broadly similar conditions comprising of an irregularly interbedded succession of clayey, silty fine SAND / sandy, silty CLAY to a depth of approximately 1.80m. Below 1.80m consisted of uniformly bedded sandy to silty CLAY.

6.2. Laboratory Testing

Index and CBR testing was undertaken on selected samples, the results of which are summarised in the following tables.

Table 1: Summary of Index Testing

Exploratory Hole	Depth	Fine Soil	Coarse Soil	MC(%)	LL(%)	PL(%)	PI(%)	LS(%)
BH07	1.00	53	47	25.8	59.3	14.3	45.0	18.3
BH09	1.25	44	56	22.9	56.2	13.3	42.9	16.7

Table 2: Summary of CBR Testing

Exploratory Hole	Depth	SMDD (t/m3)	OMC (%)	CBR (%)
BH01	0.00 – 1.00	1.66	17.0	2.5
BH02	0.00 – 1.00	1.64	16.5	2.5
BH03	0.00 – 1.00	1.65	16.0	2.5
BH04	0.00 – 1.00	1.66	16.5	2.5
BH05	0.00 – 1.00	1.67	17.0	2.5
BH06	0.00 – 1.00	1.67	16.5	2.5

6.3. Earthworks

At the time of writing the proposed scope of earthworks had not been established. It is recommended that future earthworks on the site be restricted to cut height not exceeding 2.50m with appropriately engineered retention applied to existing cuts.

It is recommended that all proposed earthworks are undertaken in accordance with AS.3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments".

- Clearing, stripping and grubbing should be carried out in areas subject to earthworks, with the removal of unsuitable soil containing organic matter.
- Areas required to be filled for structural loads will require stripping and replacement of material adversely affected by water or stripping activities
- Replacement of materials to be undertaken with compacted select material.
- Minimum of 95% Maximum Dry Density (Standard Compaction) for placed fill with confirmatory field density testing undertaken at the specified frequency.

6.4. Trafficability and Excavation

At the time of the field investigation, trafficking problems were not encountered due to the predominantly dry conditions on the site. Removal of the fill layer and consequent exposure of the underlying clay it is conceivable that problems may arise with trafficability of these areas particularly following rainfall.

It is considered likely that materials encountered in the investigation, could be excavated by a small dozer in bulk excavations, and a small excavator (5 ton or larger) would be capable of trenching excavations.



6.5. Site Classification and Footings

Site classification in accordance with AS2870 is summarised in the following table.

Table3: Summary of Site Classification

Proposed Development	industrial development
Soil Properties	Class M
Predicted Surface Movement (y_s)	between 20mm and 40mm
Characteristic Surface Movement (y_s)	25.6 – 25.9mm
Allowable Bearing Capacity (kPa)	>100kPa
Site Classification (AS2870)	Class M

Results of laboratory testing suggest a characteristic surface movement of the existing soil profile due to seasonal variations in moisture content, classified as Class M, between 20mm and 40mm in accordance with AS2870-2011 'Residential Slabs and Footings'

The DCP test results indicate that the allowable bearing capacity of natural strata of at least 100 kPa, would be achieved by near surface strata at the site.

Foundation loadings for the proposed development were not communicated. An assessment of allowable bearing pressures for soils encountered in the excavations are summarised in Table 4.

Table 4 – Summary of Allowable Bearing Pressures

Material	Allowable Bearing Pressure (kPa)
Medium dense SAND	100
Stiff CLAY	110

Where a deep level footing solution is adopted, AS2159-2009 'Piling – Design and Installation', recommends the design of a bored pile foundation solution based on the following formulae:

A summary of pile footing design parameters are presented in Table 5, where a bored pile solution is adopted it is recommended that inspection of bores and pile bases is undertaken to establish appropriate conditions have been achieved.

Table 5 – Summary of Pile Design Parameters

Material Description	Design Equivalent Skin Friction (kPa)	Ultimate Skin Friction (kPa)	Design Equivalent Base Bearing (kPa)	Ultimate Base Bearing (kPa)
Medium dense SAND	5	12.5	150	375
Stiff CLAY	9	22.5	180	450

Ref: Table 21.16, Look B, Handbook of Geotechnical Investigation and Design Tables.

In consideration of the values presented in the summary table the following should be taken into consideration;

- The surface area of any pile, to a depth of 1.5 x pile diameter should be assumed to be ineffective
- Geotechnical strength reduction factor (ϕ_g) of 0.4 has been applied to the ultimate parameters in the calculation of the above design equivalent capacities.

6.6. Excavated Slopes and Trenches

Temporary cut slopes to a maximum depth of 1.5m should not be steeper than 1V:1.5H in the fill material and soils derived from the in situ weathering of rock provided that:

- they are barricaded when not in use;
- they are not left open for more than 24 hours;
- no surcharge loading is applied within 2.5m of the edge of the excavation; and
- no groundwater inflows are encountered.

Where access for a worker or deeper excavations are required, temporary excavation batters should be regraded to no steeper than 1.5H:1V, or supported by properly designed shoring.



The following long term safe batters are recommended for excavated slopes in the various material types encountered during the investigation.

Table 6: Summary of Batter Angles

Material	Long Term Batter Angle
Stiff CLAY	1V:1.5H

7. Foundation Maintenance

The soil moisture around the buildings should be maintained and extremes of wetting and drying should be avoided. The following general measures are recommended to reduce the potential for footing and building damage caused by abnormal moisture variations within the site:

- Tree planting adjacent to the buildings should be restricted.
- Irregular or excessive watering of the gardens adjacent to the house should be avoided.
- Any leaking or damaged underground services should be repaired promptly.
- Provide paving (graded away from the building) to the edge of the building.

The site classification presented in Section 5 of the report is provided on the basis that the performance expectations set out in Appendix B of AS2870-2011 are acceptable and that site maintenance complies with the provisions of CSIRO Information Sheet BTF 18, 'Foundation Maintenance and Footing Performance: A Homeowner's Guide', available from the CSIRO website.

8. Pavement Design Criteria

CBR testing was undertaken at specified locations within the proposed pavement footprint.

Results of the testing are summarised in Table 2 and presented in Appendix C.

To allow for natural variations in conditions it is recommended that a design CBR value of 2.5% is adopted for conservative design. Reference to the Cement and Concrete Association guidelines for Industrial Floors and Pavements indicate that a modulus of subgrade reaction of 25kPa/mm is applicable for a CBR of 2.5%.

9. Limitations

This report has been prepared for the proposed development at lot 12 on plan SP338024, 110 Penelope Road, CBIP for the sole use of McDonald Constructions. The report has been produced for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party. In preparing this report PGI has necessarily relied upon information provided by the client and/or their agents.

It should be noted that the materials encountered at the test locations represent the ground conditions at those locations only. The nature and continuity of the materials away from the test locations are inferred. Variations to the ground conditions are likely. The findings contained within this report are the result of limited investigations conducted in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.



APPENDIX A

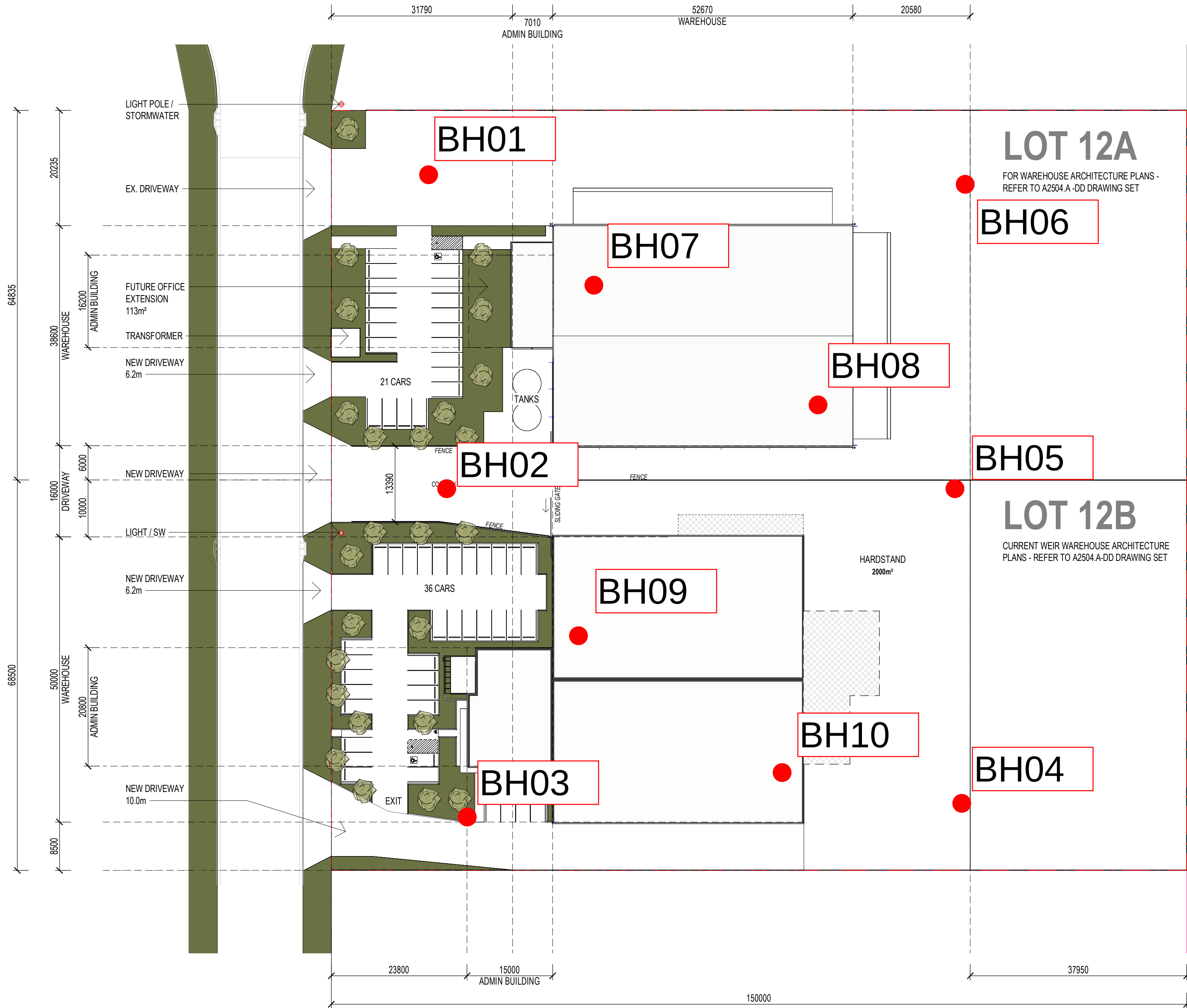
GROUND INVESTIGATION PLAN

INDICATIVE ONLY - CONTRACTOR/ CONSULTANT TO VERIFY SITE CONDITIONS SHOWN ON THIS DRAWING WITH CONTOUR AND DETAIL SURVEY AND ACTUAL SITE CONDITIONS.

REAL PROPERTY DESCRIPTION
ADDRESS: 110 PENELOPE ROAD
LOT No: 12
RP/SP: SP315832
AREA: 2.24ha

NOTES:
Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS



PRELIMINARY



18.05.2025	8	PRELIMINARY	BC
02.05.2025	A	PRELIMINARY	BC
date	no	revision history	chgd



project/client
NEW WAREHOUSE

LOT 12/ 110 PENELOPE RD
FOR
MCDONALD CONSTRUCTIONS

seriestwo
architects
Level 1 / 212 Constance St.
Fortitude Valley QLD 4006
Telephone (07) 3113 4082
hello@seriestwo.com.au
Series Two Architects Pty Ltd

drawing title SITE PLAN			
project no:	A2504	scale:	1 : 500 @A1
discipline	stage	dwg no	rev no
A		0101	B

F:\4000\2504_VER Lot 11 Cleveland Industrial Park\CAD\Model\A2504 B.DWG.rvt 6/05/2025 9:43:12 AM



APPENDIX B

EXPLORATORY HOLE RECORDS

PROJECT:110 Penelope Road, CBIP

CLIENT:McDonald Constructions

PROJECT NO:PGC1823581

HOLE NO:BH01

START DATE:03/06/2025

END DATE:03/06/2025

DRILLER:AS

LOGGED BY:AS

CHECKED BY:AWH

Exploratory Hole Details

CO-ORD SYSTEM

EASTING:

NORTHING:

GROUND LEVEL:mAHD

TERMINATION DEPTH:m

Page 1 of 1

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details Groundwater Level		
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, , (FILL)					
			0.10		CL, CI: CLAY, high plasticity, stiff, dry, orangeish brown					
			0.20							
			0.30							
			0.40							
			0.50							
			0.60							
			0.70							
			0.80							
			0.90		SW: Clayey fine SAND, medium dense, dry, brown dark					
			1.00							
			1.10							
			1.20		CL, CI: Sandy CLAY, medium plasticity, fine sand, very stiff, dry, brown dark					
			1.30							
			1.40							
			1.50							
			1.60							



PGI

Ground Engineering Services

2/70 Bowen Road, Rosslea

Queensland 4812

Tel: (07) 4779 3754

MOB: 0438985494

WEB: www.nqphigi.com.au

Remarks

Completed at scheduled depth of 1.70m

Atterberg Limits

Liquid Limit (%)	
Plastic Limit (%)	
Plasticity Index (%)	
Linear Shrinkage (%)	

PROJECT:110 Penelope Road, CBIP

CLIENT:McDonald Constructions

PROJECT NO:PGC1823581

HOLE NO:BH02

START DATE:03/06/2025

END DATE:03/06/2025

DRILLER:AS

LOGGED BY:AS

CHECKED BY:AWH

Exploratory Hole Details

CO-ORD SYSTEM

EASTING:

NORTHING:

GROUND LEVEL:mAHD

TERMINATION DEPTH:m

Page 1 of 1

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details	Groundwater Level
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)				
			0.10		CL, CI: Sandy CLAY, high plasticity, fine sand, stiff, dry, orangeish brown				
			0.20						
			0.30						
			0.40						
			0.50						
			0.60						
			0.70						
			0.80		CL, CI: CLAY, high plasticity, very stiff, dry, brown				
			0.90						
			1.00						
			1.10						
			1.20						
			1.30						
			1.40						
			1.50						
			1.60						



PGI

Ground Engineering Services

2/70 Bowen Road, Rosslea

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Tel: (07) 4779 3754

MOB: 0438985494

WEB: www.nqphigi.com.au

Remarks

Completed at scheduled depth of 1.70m

Atterberg Limits

Liquid Limit (%)	
Plastic Limit (%)	
Plasticity Index (%)	
Linear Shrinkage (%)	

PROJECT:110 Penelope Road, CBIP

CLIENT:McDonald Constructions

PROJECT NO:PGC1823581

HOLE NO:BH03

START DATE:03/06/2025

END DATE:03/06/2025

DRILLER:AS

LOGGED BY:AS

CHECKED BY:AWH

Exploratory Hole Details

CO-ORD SYSTEM

EASTING:

NORTHING:

GROUND LEVEL:mAHD

TERMINATION DEPTH:m

Page 1 of 1

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details	Groundwater Level
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)				
			0.10		CL, CI: Sandy CLAY, high plasticity, fine sand, stiff, dry, orangeish brown				
			0.20						
			0.30						
			0.40						
			0.50						
			0.60						
			0.70						
			0.80						
			0.90		CL, CI: CLAY, high plasticity, very stiff, dry, brown				
			1.00						
			1.10						
			1.20						
			1.30						
			1.40						
			1.50						
			1.60						



PGI

Ground Engineering Services

2/70 Bowen Road, Rosslea

Queensland 4812

Tel: (07) 4779 3754

MOB: 0438985494

WEB: www.nqphigi.com.au

Remarks

Completed at scheduled depth of 1.70m

Atterberg Limits

Liquid Limit (%)	
Plastic Limit (%)	
Plasticity Index (%)	
Linear Shrinkage (%)	

PROJECT:110 Penelope Road, CBIP

CLIENT:McDonald Constructions

PROJECT NO:PGC1823581

HOLE NO: BH04

START DATE:23/06/2025

END DATE:23/06/2025

DRILLER:AS

LOGGED BY:AS

CHECKED BY:AWH

Exploratory Hole Details

CO-ORD SYSTEM

EASTING:

NORTHING:

GROUND LEVEL:mAHD

TERMINATION DEPTH:m

Page 1 of 1

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details Groundwater Level		
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)					
			0.10		CL, CI: Sandy CLAY, high plasticity, fine sand, stiff, dry, brown					
			0.20							
			0.30							
			0.40							
			0.50							
			0.60							
			0.70							
			0.80		CL, CI: CLAY, high plasticity, very stiff, dry, brown dark					
			0.90							
			1.00							
			1.10							
			1.20							
			1.30							
			1.40							
			1.50							
			1.60							



PGI

Ground Engineering Services

2/70 Bowen Road, Rosslea

Queensland 4812

Tel: (07) 4779 3754

MOB: 0438985494

WEB: www.nqphigi.com.au

Remarks

Completed at scheduled depth of 1.70m

Atterberg Limits

Liquid Limit (%)	
Plastic Limit (%)	
Plasticity Index (%)	
Linear Shrinkage (%)	

PROJECT:	110 Penelope Road, CBIP	HOLE NO:	BH05	Exploratory Hole Details	
CLIENT:	McDonald Constructions	START DATE:	23/06/2025	CO-ORD SYSTEM	
		END DATE:	23/06/2025	EASTING:	
		DRILLER:	AS	NORTHING:	
		LOGGED BY:	AS	GROUND LEVEL: mAH	
PROJECT NO:	PGC1823581	CHECKED BY:	AWH	TERMINATION DEPTH:	m

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details Groundwater Level		
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)	<				

	PGI Ground Engineering Services 2/70 Bowen Road, Rosslea Queensland 4812 Tel: (07) 4779 3754 MOB: 0438985494 WEB: www.nqphigi.com.au	Remarks Completed at scheduled depth of 1.70m	Atterberg Limits	
			Liquid Limit (%)	
			Plastic Limit (%)	
			Plasticity Index (%)	
			Linear Shrinkage (%)	

PROJECT:110 Penelope Road, CBIP

CLIENT:McDonald Constructions

PROJECT NO:PGC1823581

HOLE NO:BH06

START DATE:23/06/2025

END DATE:23/06/2025

DRILLER:AS

LOGGED BY:AS

CHECKED BY:AWH

Exploratory Hole Details

CO-ORD SYSTEM

EASTING:

NORTHING:

GROUND LEVEL:mAHD

TERMINATION DEPTH:m

Page 1 of 1

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details	Groundwater Level
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)				
			0.10		CL, CI: Sandy CLAY, high plasticity, fine sand, firm, dry, brown				
			0.20						
			0.30						
			0.40						
			0.50						
			0.60						
			0.70						
			0.80						
			0.90						
			1.00		CL, CI: CLAY, high plasticity, very stiff, dry, brown dark				
			1.10						
			1.20						
			1.30						
			1.40						
			1.50						
			1.60						



PGI

Ground Engineering Services

2/70 Bowen Road, Rosslea

Queensland 4812

Tel: (07) 4779 3754

MOB: 0438985494

WEB: www.nqphigi.com.au

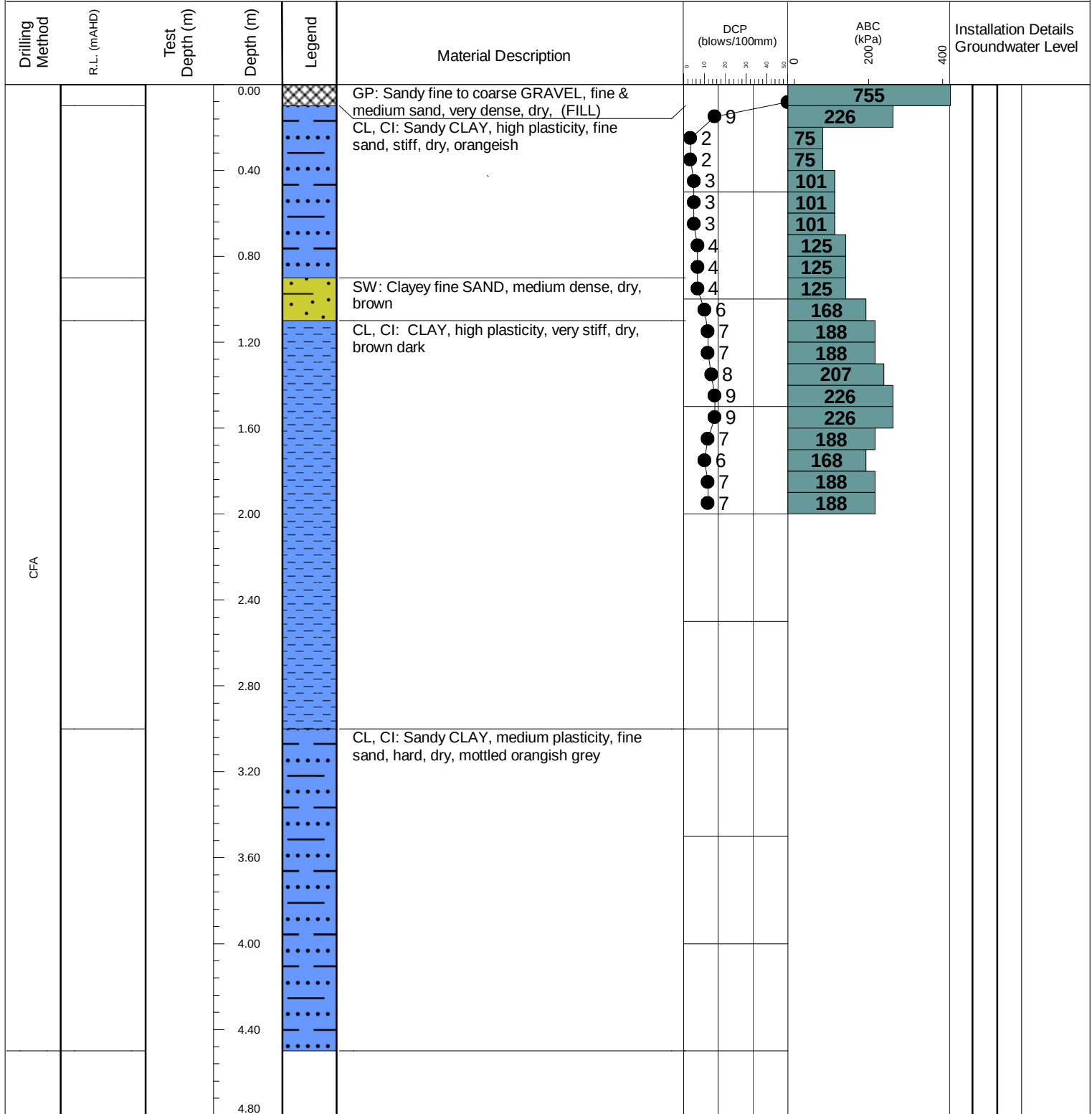
Remarks

Completed at scheduled depth of 1.70m

Atterberg Limits

Liquid Limit (%)	
Plastic Limit (%)	
Plasticity Index (%)	
Linear Shrinkage (%)	

PROJECT:	110 Penelope Road, CBIP	HOLE NO:	BH07	Exploratory Hole Details	
CLIENT:	McDonald Constructions	START DATE:	23/06/2025	CO-ORD SYSTEM	
		END DATE:	23/06/2025	EASTING:	
		DRILLER:	AS	NORTHING:	
		LOGGED BY:	AS	GROUND LEVEL: mAHD	
PROJECT NO:	PGC1823581	CHECKED BY:	AWH	TERMINATION DEPTH:	m



 PGI Ground Engineering Services 2/70 Bowen Road, Rosslea Queensland 4812 Tel: (07) 4779 3754 MOB: 0438985494 WEB: www.nqphigi.com.au	Remarks Completed at scheduled depth of 4.50m	Atterberg Limits	
		Liquid Limit (%)	
		Plastic Limit (%)	
		Plasticity Index (%)	
		Linear Shrinkage (%)	

PROJECT:110 Penelope Road, CBIP

CLIENT:McDonald Constructions

PROJECT NO:PGC1823581

HOLE NO: BH08

START DATE:23/06/2025

END DATE:23/06/2025

DRILLER:AS

LOGGED BY:AS

CHECKED BY:AWH

Exploratory Hole Details

CO-ORD SYSTEM

EASTING:

NORTHING:

GROUND LEVEL:mAHD

TERMINATION DEPTH:m

Page 1 of 1

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details Groundwater Level		
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)					
			0.40		CL, CI: Sandy CLAY, high plasticity, fine sand, stiff, dry, brown					
			0.80							
			1.20		CL, CI: CLAY, high plasticity, very stiff, dry, brown dark					
			1.60							
			2.00							
			2.40							
			2.80							
			3.20		CL, CI: Sandy CLAY, medium plasticity, fine & medium sand, hard, dry, mottled grey orange					
			3.60							
			4.00							
			4.40							
			4.80							



PGI

Ground Engineering Services

2/70 Bowen Road, Rosslea

Queensland 4812

Tel: (07) 4779 3754

MOB: 0438985494

WEB: www.nqphigi.com.au

Remarks

Completed at scheduled depth of 4.50m

Atterberg Limits

Liquid Limit (%)	
Plastic Limit (%)	
Plasticity Index (%)	
Linear Shrinkage (%)	

PROJECT:	110 Penelope Road, CBIP	HOLE NO:	BH09	Exploratory Hole Details	
CLIENT:	McDonald Constructions	START DATE:	23/06/2025	CO-ORD SYSTEM	
		END DATE:	23/06/2025	EASTING:	
		DRILLER:	AS	NORTHING:	
		LOGGED BY:	AS	GROUND LEVEL: mAHD	
PROJECT NO:	PGC1823581	CHECKED BY:	AWH	TERMINATION DEPTH:	m

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details Groundwater Level		
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)		755			
					CL, CI: Silty CLAY, high plasticity, very stiff, dry, orangeish brown	5	147			
						2	75			
						2	75			
			0.40			3	101			
						4	125			
						4	125			
						4	125			
			0.80			5	147			
						7	188			
						7	188			
			1.20		SW: Clayey fine SAND, medium dense, dry, orangeish brown	4	125			
					CL, CI: CLAY, high plasticity, very stiff, dry, brown dark	5	147			
						5	147			
						7	188			
			1.60			6	168			
						7	188			
						9	226			
						9	226			
			2.00			9	226			
			2.40							
			2.80							
			3.20		CL, CI: Sandy CLAY, medium plasticity, fine & medium sand, hard, dry, mottled brown orangish grey					
			3.60							
			4.00							
			4.40							
			4.80							

 PGI Ground Engineering Services 2/70 Bowen Road, Rosslea Queensland 4812 Tel: (07) 4779 3754 MOB: 0438985494 WEB: www.nqphigi.com.au	Remarks Completed at scheduled depth of 4.50m	Atterberg Limits	
		Liquid Limit (%)	
		Plastic Limit (%)	
		Plasticity Index (%)	
		Linear Shrinkage (%)	

PROJECT:	110 Penelope Road, CBIP	HOLE NO:	BH10	Exploratory Hole Details	
CLIENT:	McDonald Constructions	START DATE:	23/06/2025	CO-ORD SYSTEM	
		END DATE:	23/06/2025	EASTING:	
		DRILLER:	AS	NORTHING:	
		LOGGED BY:	AS	GROUND LEVEL:	mAHD
PROJECT NO:	PGC1823581	CHECKED BY:	AWH	TERMINATION DEPTH:	m

Drilling Method	R.L. (mAHD)	Test Depth (m)	Depth (m)	Legend	Material Description	DCP (blows/100mm)	ABC (kPa)	Installation Details Groundwater Level		
CFA			0.00		GP: Sandy fine to coarse GRAVEL, fine & medium sand, very dense, dry, (FILL)					
			0.40		CL, CI: Silty CLAY, high plasticity, very stiff, dry, orangeish brown					
			0.80		CL, CI: CLAY, high plasticity, very stiff, dry, brown dark					
			1.20							
			1.60							
			2.00							
			2.40							
			2.80							
			3.20		CL, CI: Sandy CLAY, medium plasticity, medium sand, hard, dry, mottled grey orange					
			3.60							
			4.00							
			4.40							
			4.80							

 PGI Ground Engineering Services 2/70 Bowen Road, Rosslea Queensland 4812 Tel: (07) 4779 3754 MOB: 0438985494 WEB: www.nqphigi.com.au	Remarks Completed at scheduled depth of 4.50m	Atterberg Limits	
		Liquid Limit (%)	
		Plastic Limit (%)	
		Plasticity Index (%)	
		Linear Shrinkage (%)	



APPENDIX C

RESULTS OF LABORATORY TESTING



PGI NORTH QLD
GROUND ENGINEERING SERVICES
2/70 BOWEN ROAD, ROSSLEA
QUEENSLAND 4812
TEL: (07) 4779 3754
MOB: 0438985494
WEB: WWW.NQPHIGI.COM.AU

Material Test Report			
Report Number PGC1823581			
Date 30/06/2025			
Project 110 Penelope Road, CBIP			
Sample Date 23/06/2025			
Sample Reference			
BH07		BH09	
Moisture Content (AS1289.2.1.1)			
Moisture Content (%)			
Atterberg Limit (AS1289 3.1.2, 3.2.1 & 3.3.1)			
Sample History	Air Dried	Air Dried	
Preparation Method	Wet Sieve	Wet Sieve	
Liquid Limit (%)	59.3	56.2	
Plastic Limit (%)	14.3	13.3	
Plasticity Index (%)	45	42.9	
Linear Shrinkage (AS1289 3.4.1)			
Linear Shrinkage (%)	18.3	16.7	
Sample Condition	Cracking	Cracking	

Approved By

A. W. Horspool
Site Classifier

Site Classifier
QBCC 15020091

Material Test Report

Report Number: P25048-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Client Number Correction
Date Issued: 22/07/2025
Client: PGI North Queensland

Project Number: P25048
Project Name: PGI Testing
Client Reference: PGC1823258 - PGC1823581
Work Request: 260
Sample Number: SL260A
Date Sampled: 10/07/2025
Dates Tested: 10/07/2025 - 14/07/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Sample Location: BH01



**Geotechnical
Field Services**

Geotechnical Field Services Pty Ltd
Sarina Laboratory
42 Webb Road Sarina QLD 4737
Phone: 0457 053 604

Email: nick@geotechnicalfieldservices.com

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Nicholas Wiperi

Laboratory Manager

NATA Accredited Laboratory Number: 21235

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS		
Maximum Dry Density (t/m ³)	1.66		
Optimum Moisture Content (%)	17.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	99.5		
Moisture Content at Placement (%)	17.0		
Moisture Content Top 30mm (%)	22.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	120.2		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Material Test Report



Report Number: P25048-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Client Number Correction
Date Issued: 22/07/2025
Client: PGI North Queensland

Geotechnical Field Services Pty Ltd
Sarina Laboratory
42 Webb Road Sarina QLD 4737
Phone: 0457 053 604

Email: nick@geotechnicalfieldservices.com

Accredited for compliance with ISO/IEC 17025 - Testing



A handwritten signature in black ink, appearing to read "N. Wiperi", is placed over the NATA logo.

Approved Signatory: Nicholas Wiperi

Laboratory Manager

NATA Accredited Laboratory Number: 21235

Project Number: P25048
Project Name: PGI Testing
Client Reference: PGC1823258 - PGC1823581
Work Request: 260
Sample Number: SL260B
Date Sampled: 10/07/2025
Dates Tested: 01/07/2025 - 01/07/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Sample Location: BH02

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS		
Maximum Dry Density (t/m^3)	1.64		
Optimum Moisture Content (%)	16.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.0		
Moisture Content at Placement (%)	16.5		
Moisture Content Top 30mm (%)	21.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	144		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Material Test Report



Report Number: P25048-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Client Number Correction
Date Issued: 22/07/2025
Client: PGI North Queensland

Geotechnical Field Services Pty Ltd
Sarina Laboratory
42 Webb Road Sarina QLD 4737
Phone: 0457 053 604

Email: nick@geotechnicalfieldservices.com

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Nicholas Wiperi

Laboratory Manager

NATA Accredited Laboratory Number: 21235

Project Number: P25048
Project Name: PGI Testing
Client Reference: PGC1823258 - PGC1823581
Work Request: 260
Sample Number: SL260C
Date Sampled: 10/07/2025
Dates Tested: 01/07/2025 - 14/07/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Sample Location: BH03

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS		
Maximum Dry Density (t/m ³)	1.65		
Optimum Moisture Content (%)	16.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	98.5		
Moisture Content at Placement (%)	16.0		
Moisture Content Top 30mm (%)	21.8		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	96		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
9.5 mm	99		1	
4.75 mm	98		2	
2.36 mm	96		1	
1.18 mm	90		6	
0.425 mm	80		10	

Material Test Report

Report Number: P25048-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Client Number Correction
Date Issued: 22/07/2025
Client: PGI North Queensland

Project Number: P25048
Project Name: PGI Testing
Client Reference: PGC1823258 - PGC1823581
Work Request: 260
Sample Number: SL260D
Date Sampled: 10/07/2025
Dates Tested: 01/07/2025 - 01/07/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Sample Location: BH04



**Geotechnical
Field Services**

Geotechnical Field Services Pty Ltd
Sarina Laboratory
42 Webb Road Sarina QLD 4737
Phone: 0457 053 604

Email: nick@geotechnicalfieldservices.com

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Nicholas Wiperi

Laboratory Manager

NATA Accredited Laboratory Number: 21235

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS		
Maximum Dry Density (t/m ³)	1.66		
Optimum Moisture Content (%)	16.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.5		
Moisture Content at Placement (%)	16.5		
Moisture Content Top 30mm (%)	20.6		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	96		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Material Test Report



Report Number: P25048-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Client Number Correction
Date Issued: 22/07/2025
Client: PGI North Queensland

Geotechnical Field Services Pty Ltd
Sarina Laboratory
42 Webb Road Sarina QLD 4737
Phone: 0457 053 604

Email: nick@geotechnicalfieldservices.com

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Nicholas Wiperi

Laboratory Manager

NATA Accredited Laboratory Number: 21235

Project Number: P25048
Project Name: PGI Testing
Client Reference: PGC1823258 - PGC1823581
Work Request: 260
Sample Number: SL260E
Date Sampled: 10/07/2025
Dates Tested: 10/07/2025 - 14/07/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Sample Location: BH05

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	3.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS		
Maximum Dry Density (t/m ³)	1.67		
Optimum Moisture Content (%)	17.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.0		
Moisture Content at Placement (%)	17.0		
Moisture Content Top 30mm (%)	25.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	120.2		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
13.2 mm	100		0	
9.5 mm	99		1	
4.75 mm	98		1	
2.36 mm	97		1	
1.18 mm	90		7	
0.425 mm	76		13	

Material Test Report

Report Number: P25048-1
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: Client Number Correction
Date Issued: 22/07/2025
Client: PGI North Queensland

Project Number: P25048
Project Name: PGI Testing
Client Reference: PGC1823258 - PGC1823581
Work Request: 260
Sample Number: SL260F
Date Sampled: 10/07/2025
Dates Tested: 01/07/2025 - 01/07/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Sample Location: BH06



**Geotechnical
Field Services**

Geotechnical Field Services Pty Ltd
Sarina Laboratory
42 Webb Road Sarina QLD 4737
Phone: 0457 053 604

Email: nick@geotechnicalfieldservices.com

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Nicholas Wiperi

Laboratory Manager

NATA Accredited Laboratory Number: 21235

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	AS		
Maximum Dry Density (t/m ³)	1.67		
Optimum Moisture Content (%)	16.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.5		
Moisture Content at Placement (%)	16.5		
Moisture Content Top 30mm (%)	21.2		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours (h)	96		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			



Attachment 10



Anderson Energy Efficiency

A.B.N. 51 076 521 947

PO Box 12, COORPAROO QLD 4151

Phone: (07) 3420 5083

STAND SURE

info@andersonenergy.com.au

www.andersonenergy.com.au

Energy Efficiency Report

Proposed Warehouse Office: Building B

Project Address: 110 Penelope Road, Stuart, QLD

Prepared for: Litsa Sarinas

Prepared by: M Mahmudul Hasan CPEng, NER, RPEQ

Issue Date: **15 August 2025**

Reference Drawings: Project No. A2504.B.; Drawing (Rev): A DD 0000 (C) Date 10.07.2025, A DD 0001 (B) Date 18.06.2025, A DD 0101 (L), A DD 0102 (C), A DD 0110 (D), A DD 1201 (F), A DD 1301 (H) Date 10.07.2025, A DD 2001 (D) Date 18.06.2025, A DD 3001 (D) Date 18.06.2025, A DD 4001 (E) Date 10.07.2025, A DD 4101 (E), A DD 4102 (E) Date 18.06.2025, A DD 4201 (F), A DD 4202 (F) Date 19.06.2025, A DD 5101 (B) Date 18.06.2025, A DD 6001 (F), A DD 6002 (E) Date 19.06.2025, A DD 6101 (A) Date 03.07.2025, A DD 7001 (A), A DD 7002 (A) Date: 18.06.2025, A DD 8101 (B) Date 10.07.2025.



Introduction

This document is a Performance Solution report, which addresses the National Construction Code (BCA Volume 1 2022) Performance Requirement J1P1:

J1P1 Energy use

[2019: JP1]

A building, other than a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building, including its *services*, must have features that facilitate the efficient use of energy appropriate to—

- (a) the function and use of the building; and
- (b) the level of human comfort required for the building use; and
- (c) solar radiation being—
 - (i) utilised for heating; and
 - (ii) controlled to minimise energy for cooling; and
- (d) the energy source of the *services*; and
- (e) the sealing of the building *envelope* against air leakage; and
- (f) for a *conditioned space*, achieving an hourly *regulated energy* consumption, averaged over the annual *hours of operation*, of not more than—
 - (i) for a Class 6 building, 80 kJ/m².hr; and
 - (ii) for a Class 5, 7b, 8 or 9a building other than a *ward area*, or a Class 9b *school*, 43 kJ/m².hr; and
 - (iii) for all other building classifications, 15 kJ/m².hr.

The Performance Solution demonstrates compliance to the Performance Requirement J1P1 through Assessment Method NCC 2022 Volume 1 Part A2G2(2)(b)(i) – using Verification Method J1V3.

Assessment

This building design COMPLIES with NCC2022Performance Requirement J1P1 (details below).

The DesignBuilder™ Version 7 thermal simulation was performed on plans as provided and for a Reference Building in strict accordance with National Construction Code Verification Method J1V3. DesignBuilder™ meets the requirements of the ABCB Protocol for Building Energy Analysis Software as it uses EnergyPlus™ Version 9.4 for the Calculation Engine.

For the thermal simulation the building was separated into 20 Zones, including all conditioned spaces and non-conditioned spaces. The building was modelled as “Class 5 Office” with special occupancy and operation schedules for lighting, equipment and air-conditioning plant. The project is located in climate zone 1.

Building Description	Single Storey Warehouse Office

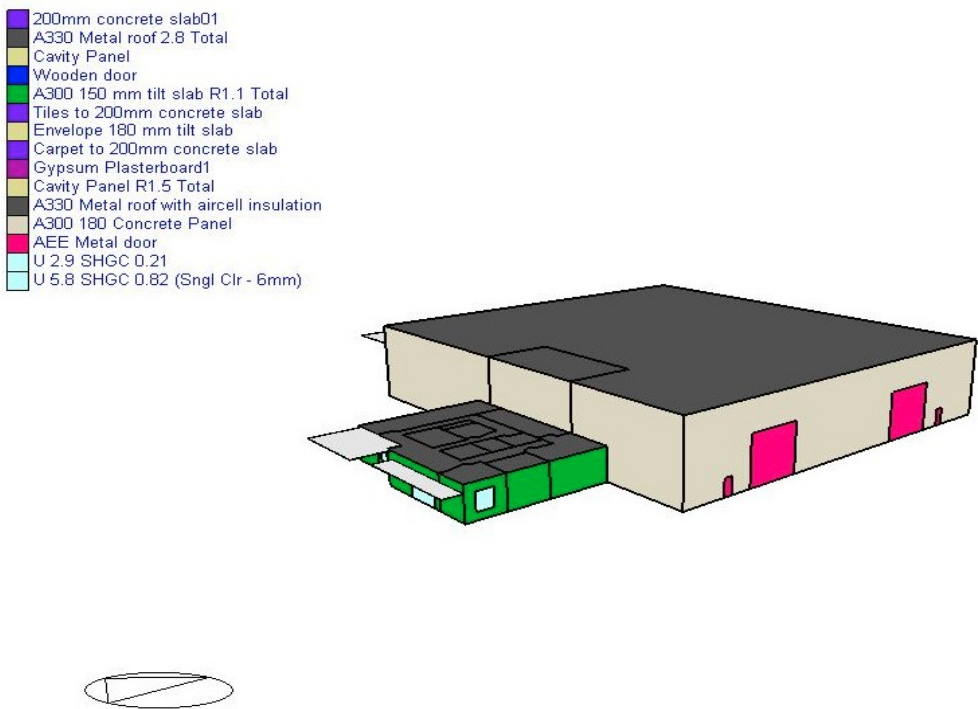


Image from DesignBuilder Software

Please note: the colours in the model do not reflect the actual building and are used to define different material properties only. R-values in the model may differ from the ones in the Building details table to account for insulation compression, thermal bridging, air cavities, indoor and outdoor air-films.

Building Details

This report is valid if the constructed building aligns with the specifications in the list below. Elements that have been modified from provided drawings are in *italics*, **non-DTS elements are in Bold**.

Building Elements	Element construction	Technical Specifications	DTS Requirement Conditioned Envelope
Roof	Metal sheet, with aircell insulation. Light colour.	Insulation: aircell insulation to both sides External surface colour: Light, $\alpha = 0.33$	R3.7 total roof+ceiling $\alpha = 0.45\text{Max}$
Ceiling	Office: Ceiling tiles, added insulation	Insulation: added R1.3 insulation	
External walls	- Office: Concrete tilt panel walls, insulation, lined with plasterboard. light colour - Warehouse: Concrete tilt panel walls, no added insulation. light colour	Insulation: R1.5 insulation External surface colour: Light, $\alpha = 0.3$ Insulation: No insulation External surface colour: Light, $\alpha = 0.3$	R1.4 & R1.0 $\alpha = 0.6$
Glazing	Double glazing, aluminium frames, frame sizes as per drawings, shade as specified.	Glass only values: $U_g=2.9$, $SHGC_g=0.21$ (Estimated Window values: $U_w=3.86$, $SHGC=0.17$)	DTS-compliant U-value and SHGC
Internal walls	Between Offices, Operations Office and Warehouse: Plasterboard in both sides with insulation Wall between warehouse and office: Concrete tilt panels Other Internal walls: Timber stud frame, plasterboard both sides, no added insulation.	Insulation: R1.5 insulation Insulation: No insulation Insulation: No insulation	R1.4
Floor	Slab on ground, no added insulation.	Floor Coverings: Carpet to Office; Tiles to wet areas, Bare concrete to Warehouse Insulation: No insulation	R2.0 total

Mechanical and Electrical	Applicable zones	Technical Specifications	DTS Requirement
Air Conditioning	Conditioned zones	Packaged Terminal Heat Pump, no outdoor air economy cycle, standard fan operation, 21°-24° temperature control per zone, average heating EER = 2.25, average cooling EER = 2.9, Heating (DF=1) 9.4kW, Cooling (DF=1) 19.2kW	DTS-Compliant
Infiltration	Conditioned zones	0.7 air changes per hour, fresh air rate min. 10 L/s per person, no additional natural ventilation.	
Lighting	All Internal areas	No Lighting Layout Provided Lighting Allowance: 6.8kW. As determined by NCC Part J7, e.g. 3W/m ² for Toilet.	≤ Calculated allowance

Note:

Air spaces no less than 25mm unless otherwise specified
 Solar absorbance = α , no more than stated value
 R-values must be within 10% of stated values
 U values must be equal-to or less than stated values

SHGC values must be within 10% of stated values
 Materials can be substituted for athermally comparable product
 DTS requirements are element total R-values

If installed materials are outside of these tolerances, this Report is no longer valid and the thermal calculation must be repeated.

Thermal Comfort PMV Table

Showing Compliance (= Pass) with thermal comfort level requirement of J1V3(1)(b)

Section J PMV Thermal Comfort Check. Target PMV range: -1.0 to +1.0

More than 95% (100.0%) of floor area passes PMV check - Building : PASS

Block	Zone	Floor Area (m ²)	Fraction Total Floor Area	Building Class	Operation Hours	Operation Hours PMV below -1	Operation Hours PMV between -1 and 1	Operation Hours PMV above 1	Fraction Operation Hours PMV between -1 and 1	Zone PMV meets Section J target (greater than 98 % Operation Hours between -1 and 1)
GF: Office	Office 2	9.5	0.05	Class 5	2610	0	2610	0	1	PASS
GF: Office	Pod 1-2	29.7	0.15	Class 5	2610	0	2610	0	1	PASS
GF: Office	Pod 3	15.0	0.08	Class 5	2610	0	2610	0	1	PASS
GF: Office	Quiet 1-2	13.8	0.07	Class 5	2610	0	2610	0	1	PASS
GF: Office	Office 1	11.2	0.06	Class 5	2610	0	2610	0	1	PASS
GF: Office	Quiet 3	8.5	0.04	Class 5	2610	0	2610	0	1	PASS
GF: Office	Meeting	18.9	0.10	Class 5	2610	0	2610	0	1	PASS
GF: Office	Hot Desk	13.9	0.07	Class 5	2610	0	2610	0	1	PASS
GF: Office	Lunch Room	52.4	0.27	Class 5	2610	0	2610	0	1	PASS
GF: Operations Office	Operations Office	23.7	0.12	Class 5	2610	0	2610	0	1	PASS

Table of Simulation Results

The results of the thermal simulation tabulated below, show various splits of monthly and annual energy load (kWh) for the simulated year: Electricity Breakdown, Energy Pathways (Fabric and Ventilation), Internal Gains, Total CO₂ Emissions, and Total Electricity consumed.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
ELECTRICITY BREAKDOWN													
Room Electricity (kWh)	10,961	9,715	10,481	10,546	10,961	10,066	10,961	10,721	10,306	10,961	10,306	10,721	126,707
Lighting (kWh)	1,769	1,563	1,678	1,700	1,769	1,609	1,769	1,723	1,655	1,769	1,655	1,723	20,382
System Fans (kWh)	79	71	79	76	79	76	79	79	76	79	76	79	928
Heating (Electricity) (kWh)	0	0	0	0	7	22	58	36	5	0	0	0	127
Cooling (Electricity) (kWh)	819	739	647	487	312	128	127	194	334	437	581	695	5,501
FABRIC AND VENTILATION													
Glazing (kWh)	287	249	252	185	88	-22	-40	19	117	151	223	258	1,767
Walls (kWh)	349	304	306	195	71	-73	-110	-32	103	156	269	298	1,836
Ceilings (int) (kWh)	169	152	145	94	31	-29	-36	2	63	97	139	155	982
Ground Floors (kWh)	-2,610	-2,375	-2,461	-1,953	-1,408	-727	-677	-1,039	-1,560	-1,913	-2,278	-2,512	-21,512
Partitions (int) (kWh)	34	25	12	-19	-54	-69	-85	-65	-34	1	29	10	-216
Roofs (kWh)	271	250	202	92	-72	-197	-214	-122	31	126	213	257	836
External Infiltration (kWh)	342	301	272	94	-115	-314	-411	-289	-53	38	214	266	345
INTERNAL GAINS													
General Lighting (kWh)	423	374	402	407	423	385	423	413	396	423	396	413	4,878
Computer + Equip (kWh)	1,150	1,019	1,099	1,106	1,150	1,056	1,150	1,124	1,081	1,150	1,081	1,124	13,288
Occupancy (kWh)	225	197	207	216	225	198	225	216	207	225	207	216	2,565
Solar Gains Interior Windows (kWh)	64	57	67	71	71	63	72	81	75	74	71	71	838
Solar Gains Exterior Windows (kWh)	167	152	181	202	218	202	228	237	204	191	180	186	2,348
Zone Sensible Heating (kWh)	209	198	190	84	57	56	106	82	59	66	139	187	1,433
Zone Sensible Cooling (kWh)	-1,094	-918	-893	-781	-685	-522	-617	-617	-689	-791	-893	-941	-9,440
Sensible Cooling (kWh)	-1,459	-1,207	-1,155	-953	-664	-292	-323	-423	-733	-923	-1,154	-1,203	-10,489
Total Cooling (kWh)	-2,550	-2,356	-2,029	-1,507	-967	-399	-396	-609	-1,027	-1,348	-1,785	-2,196	-17,170
Zone Heating (kWh)	0	0	0	0	16	47	121	74	11	0	0	0	269
TOTAL ENERGY													
Electricity (kWh)	13,628	12,087	12,885	12,809	13,129	11,901	12,994	12,753	12,376	13,247	12,617	13,219	153,646
CO2 Emissions (kg)	12,560	11,140	11,875	11,805	12,100	10,968	11,976	11,753	11,405	12,208	11,628	12,183	141,600

Please note:

The results of the Thermal Simulation do not predict the actual electricity consumption and are used for Regulatory Compliance only. These numbers represent the cumulative energy transfer totals relative to the conditioned spaces (plus is in and minus is out) and indicate the likely relative magnitude of heat transfer to, or energy consumed by the various building components.

Conclusion

The building simulated had a total calculated Annual Energy Consumption of 153,646 kWh, and CO₂ Emissions of 141,600 kg, compared to the Reference Building Annual Energy Consumption of 155,350 kWh, and CO₂ Emissions of 143,170 kg.

The proposed air-conditioning is expected to have weighted average EERs more than the simulated values of 2.25 and 2.9. The proposed artificial lighting is expected to be less than the aggregate Allowances of NCC Part J7(6.8kW including losses in ballasts and controls). The proposed air-conditioning system and lighting are therefore more efficient than the Deemed-To-Satisfy values used in the Reference Building thermal simulation. Given the building Annual Energy Consumption is less than the Reference Building, a range of technical solutions for air-conditioning and lighting will likely retain Code compliance.

Therefore, provided the insulation installation complies with NCC Part J4D3, this building design **complies** with the 2022 National Construction Code Performance Requirement J1P1 according to thermal calculation Verification Method J1V3.

Regards,



M Mahmudul Hasan

Certified Energy Efficiency Assessor, DMN 18/1892 CPEng NER 3436790 RPEQ 17165

Form 15**Compliance certificate for building design or specification**

This form is the approved form that must be used in accordance with section 10 of the Building Act 1975 and sections 73 and 77 of the Building Regulation 2021 (Design-specification certificate) stating that an aspect of building work or specification will, if installed or carried out as stated in this form, comply with the building assessment provisions.

1. Property description

This section need only be completed if details of street address and property description are applicable. E.g. in the case of (standard/generic) pool design/shell manufacture and/or patio and carport systems this section may not be applicable. Where applicable, the description must identify all land the subject of the application. The lot & plan details (e.g.SP/RP) are shown on title documents or a rates notice. If the plan is not registered by title, provide previous lot & plan details.

Street address	110 Penelope Road, Stuart, QLD		
	Suburb/locality	Stuart	
State	QLD	Postcode	4811

Lot and plan details (*attach list if necessary*)

Lot 12 SP338024

Local government area the land is situated in

Townsville City Council

2. Description of aspect/s certified

Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.

Energy Efficiency of Building Design and Services for Building A

Except Air-Conditioning (J6), Artificial Lighting (J7), Pool Plant (J8), and Energy Monitoring (J9)

3. Basis of certification

Detail the basis for giving the certificate & the extent to which tests, specifications, rules, standards, codes of practice & other publications were relied upon.

DesignBuilder™ Thermal Simulation for Energy Efficiency Verification Method J1V3

Using Specific Conditions and Schedules, and spreadsheet calculations for Part J7

for Compliance to NCC 2022 Volume 1 Performance Requirement J1P1

4. Reference documentation

Clearly identify any relevant documentation, e.g. numbered structural engineering plans.

Project No. A2504.B.; Drawing (Rev): A DD 0000 (C) Date 10.07.2025, A DD 0001 (B) Date 18.06.2025, A DD 0101 (L), A DD 0102 (C), A DD 0110 (D), A DD 1201 (F), A DD 1301 (H) Date 10.07.2025, A DD 2001 (D) Date 18.06.2025, A DD 3001 (D) Date 18.06.2025, A DD 4001 (E) Date 10.07.2025, A DD 4101 (E), A DD 4102 (E) Date 18.06.2025, A DD 4201 (F), A DD 4202 (F) Date 19.06.2025, A DD 5101 (B) Date 18.06.2025, A DD 6001 (F), A DD 6002 (E) Date 19.06.2025, A DD 6101 (A) Date 03.07.2025, A DD 7001 (A), A DD 7002 (A) Date: 18.06.2025, A DD 8101 (B) Date 10.07.2025.

Energy Efficiency Check List

Energy Efficiency Report dated 15 August 2025

5. Building certifier reference number and building development approval number

Building certifier reference number	Sarinas 15/08/25	Building development application number (<i>if available</i>)	

6. Appointed competent person details

Under Part 6 of the Building Regulation 2021a person must be assessed as a competent for the type of work (design-specification) by the relevant building certifier.

Name (<i>in full</i>)	M Mahmudul Hasan		
Company name(<i>if applicable</i>)	Anderson Energy Efficiency		
Contact person	Dr Clyde Anderson		
Business phone number	07 3420 5083	Mobile	
Email address	info@andersonenergy.com.au		
Postal address	PO Box 12, COORPAROO QLD	Suburb/locality	COORPAROO
State	QLD	Postcode	4151
Licence class or registration type (<i>if applicable</i>)			
Licence or registration number (<i>if applicable</i>)	DesignBuilder™ Licence No.14072, CPEng NER 3436790 RPEQ 17165		

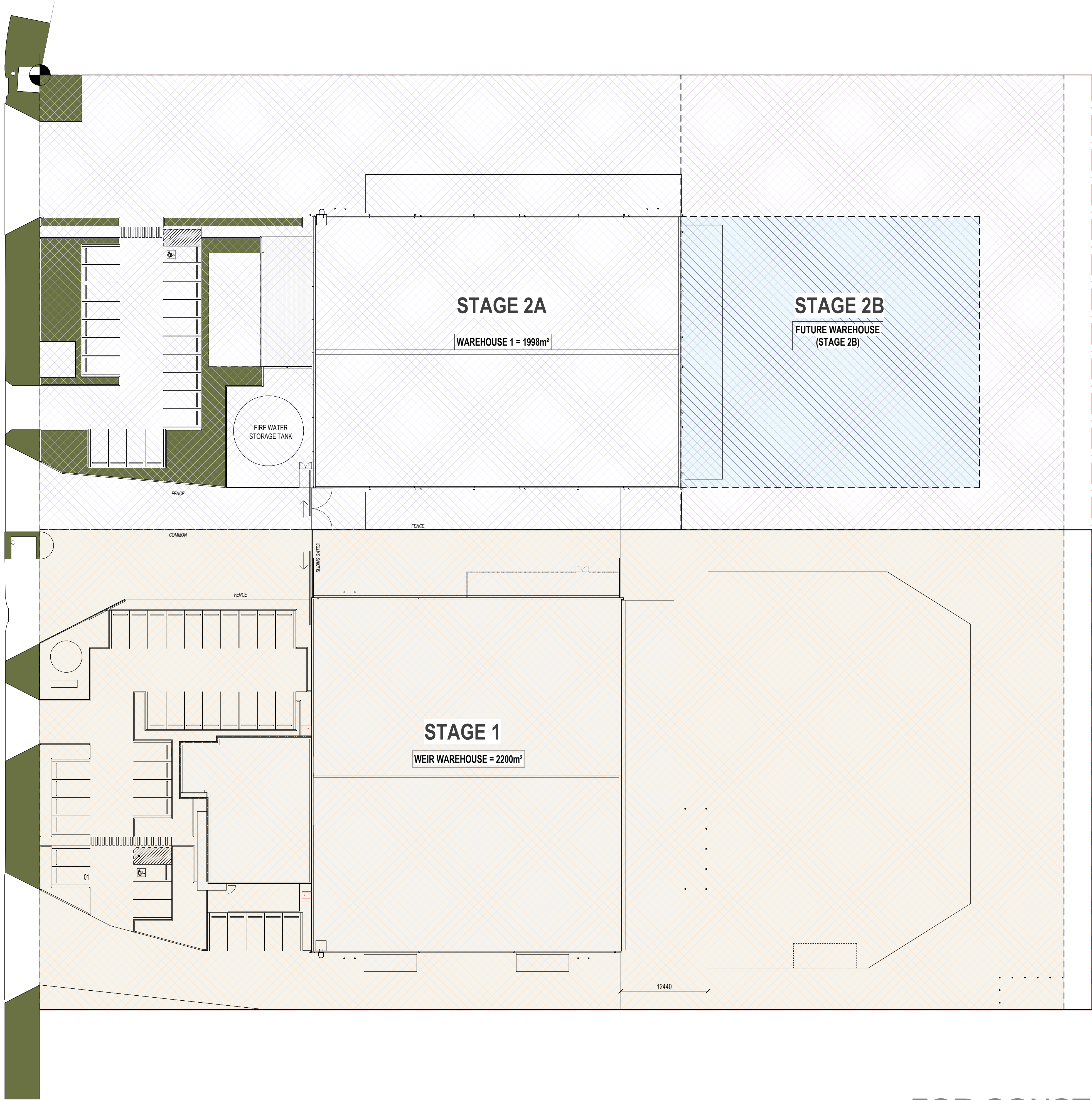
7. Signature of appointed competent person

This certificate must be signed by the individual assessed and appointed by the building certifier as competent to give design-specification help.

Signature		Date	15/08/25

LOCAL GOVERNMENT USE ONLY

Date received		Reference number/s	

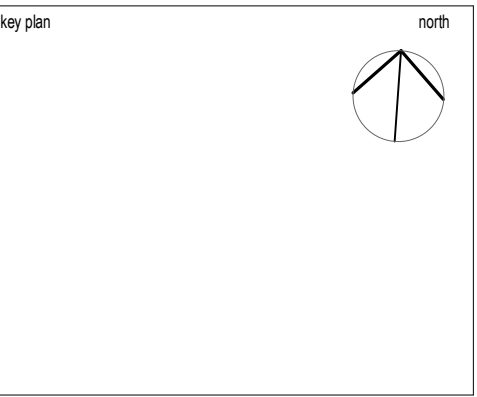


INDICATIVE ONLY - CONTRACTOR/ CONSULTANT
TO VERIFY SITE CONDITIONS SHOWN ON THIS
DRAWING WITH CONTOUR AND DETAIL SURVEY
AND ACTUAL SITE CONDITIONS.

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

10.07.2025	C	FIRE TANK	BC
18.06.2025	B	FOR CONSTRUCTION	PM
21.05.2025	A	PRELIMINARY	PM
date	no	revision history	chld



project/client
BUILDING B

LOT 12/ 110 PENELOPE
RD

FOR
MCDONALD CONSTRUCTIONS

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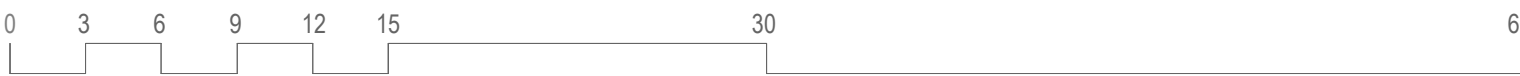
Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

Series Two Architects Pty Ltd

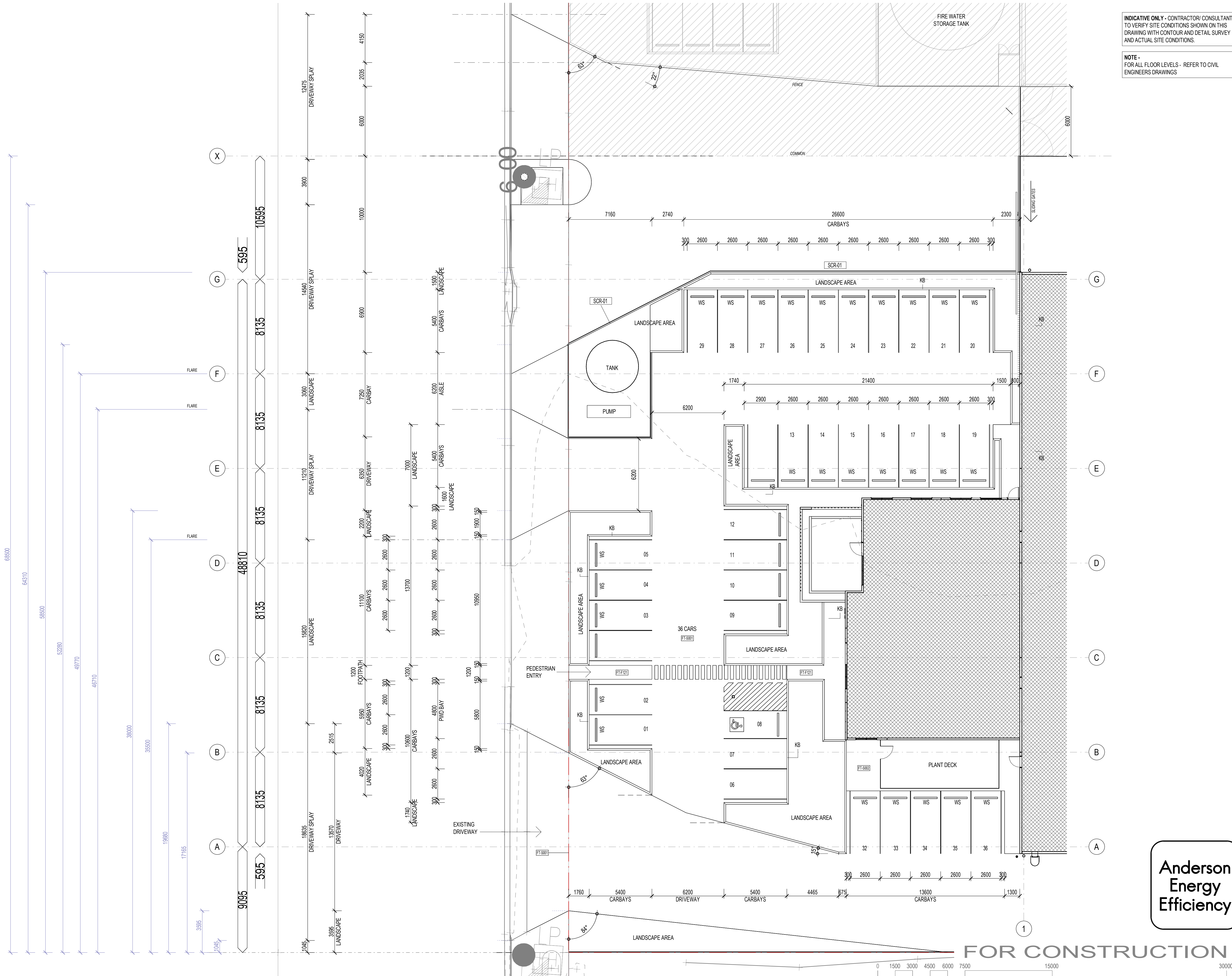
**Anderson
Energy
Efficiency**

FOR CONSTRUCTION



drawing title STAGING PLAN			
project no:	A2504.B	scale:	1 : 300 @A1
discipline	stage	dwg no	rev no
A	DD	0102	C

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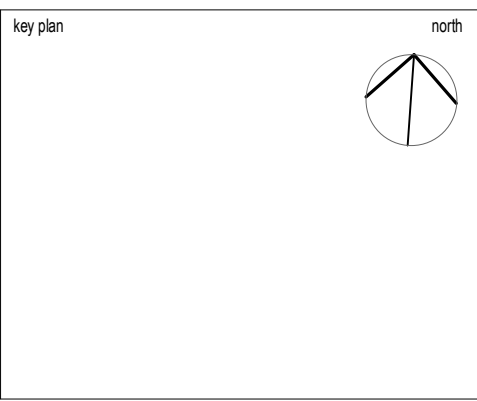
INDICATIVE ONLY - CONTRACTOR/ CONSULTANT TO VERIFY SITE CONDITIONS SHOWN ON THIS DRAWING WITH CONTOUR AND DETAIL SURVEY AND ACTUAL SITE CONDITIONS.

NOTE - FOR ALL FLOOR LEVELS - REFER TO CIVIL ENGINEERS DRAWINGS

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS		
KB	KERB	
SCR-01	SCREEN TYPE 01	
WS	WHEEL STOP	

10.07.2025	D	FIRE TANK	BC
19.08.2025	C	FOR CONSTRUCTION	PM
19.08.2025	B	FOR CONSTRUCTION	PM
02.08.2025	A	FOR CONSTRUCTION	PM
date	no	revision history	chd



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BUILDING B

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drawing title EXTERNAL WORKS PLAN			
project no: A2504.B	scale: 1: 150	@A1	
discipline A	stage DD	dwg no 0110	rev no D

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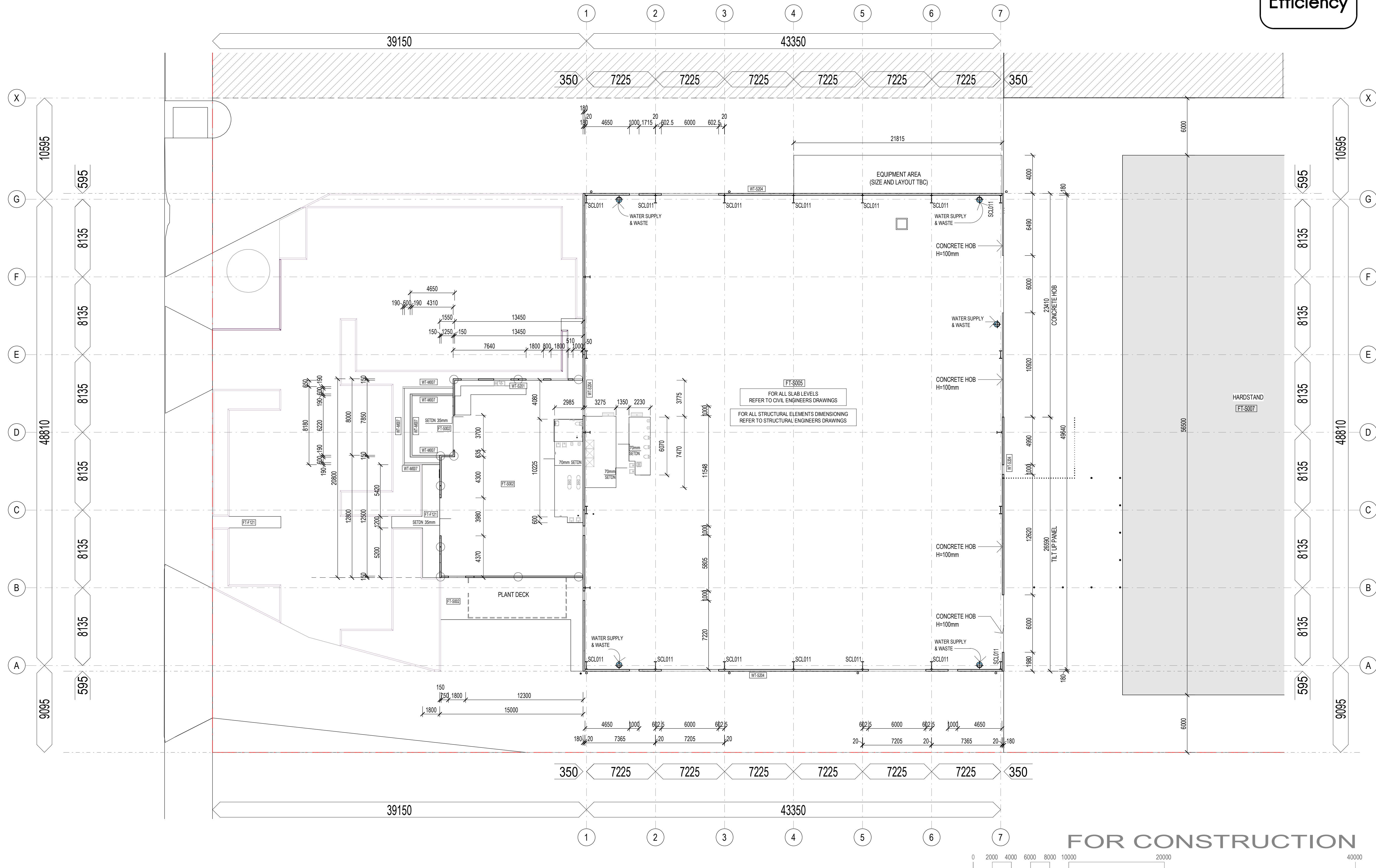
FLOOR TYPES	
FT-F121	EXPOSED AGGREGATE CONCRETE TOPPING
FT-F224	CERAMIC FLOOR TILES - NON SLIP
FT-S001	REINFORCED CONCRETE HARDSTAND/ ROAD - REFER ENGINEER
FT-S002	REINFORCED CONCRETE SLAB - REFER ENGINEERS
FT-S003	REINFORCED CONCRETE SLAB - REFER ENGINEERS
FT-S005	REINFORCE CONCRETE WAREHOUSE SLAB - REFER ENGINEER
FT-S007	REINFORCED CONCRETE HARDSTAND - REFER ENGINEER

WALL TYPES	
WT-M007	190 CONCRETE BLOCK REINFORCED & CORE FILLED
WT-S201	150mm TILT-UP CONCRETE PANEL
WT-S204	180 mm TILT-UP CONCRETE PANEL

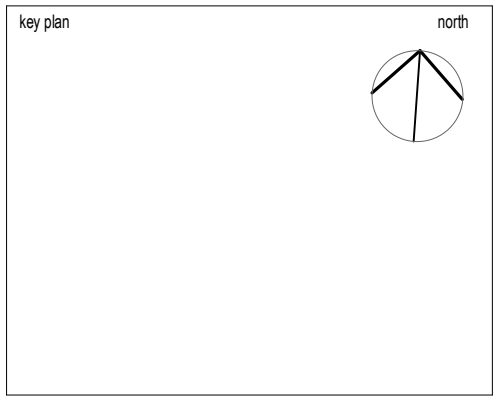
ABBREVIATIONS	
SCL011	STEEL UB COLUMN

NOTES: Only use figured dimensions. Do not scale from drawings.

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10.07.2025	F	FIRE TANK	BC
18.06.2025	E	FOR CONSTRUCTION	PM
02.06.2025	D	FOR CONSTRUCTION	PM
15.05.2025	C	PRELIMINARY	BC
13.05.2025	B	PRELIMINARY	BC
12.05.2025	A	PRELIMINARY	BC
date	no	revision history	chd



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hello@seriestwo.com.au

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drawing title STRUCTURAL SETOUT PLAN			
project no:	A2504.B	scale:	1 : 200 @A1
discipline	stage	dwg no	rev no
A	DD	1201	F

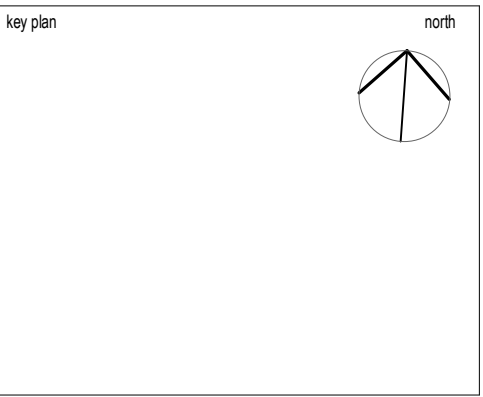
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FLOOR TYPES	
FT-F011	WHITE PAINTED CARPARK GRAPHICS
FT-F112	POLISHED CONCRETE FINISH
FT-F121	EXPOSED AGGREGATE CONCRETE TOPPING
FT-F224	CERAMIC FLOOR TILES - NON SLIP
FT-F421	CARPET TILES
FT-S001	REINFORCED CONCRETE HARDSTAND/ ROAD - REFER ENGINEER
FT-S002	REINFORCED CONCRETE SLAB - REFER ENGINEERS
FT-S003	REINFORCED CONCRETE SLAB - REFER ENGINEERS
FT-S005	REINFORCE CONCRETE WAREHOUSE SLAB - REFER ENGINEER
FT-S007	REINFORCED CONCRETE HARDSTAND - REFER ENGINEER

WALL TYPES	
WT-M007	190 CONCRETE BLOCK REINFORCED & CORE FILLED
WT-P006L	28 FURRING CHANNEL WITH 13 PLASTERBOARD TO ONE SIDE
WT-P009L	28 FURRING CHANNEL WITH 13 WR PLASTERBOARD TO ONE SIDE
WT-P027	18MM LAMINATE
WT-P062B	64 STEEL STUDS WITH 6 FIBRE CEMENT BOTH SIDES
WT-P093E	150 GIRT & 30 CHANNEL W METAL SHEET CLADDING TO ONE SIDE
WT-P094E	150 GIRT W FC 9 BOTH SIDES & ONE SIDE WITH VERTICAL BATTENS
WT-P186B	64 STEEL STUDS WITH 13 PLASTERBOARD TO BOTH SIDES
WT-P219B	64 STEEL STUDS WITH 13 WATER RESISTANT PLASTERBOARD & 13 PLASTERBOARD
WT-P279B	64 STEEL STUDS WITH 13 WATER RESISTANT PLASTERBOARD BOTH SIDES
WT-S201	150mm TILT-UP CONCRETE PANEL
WT-S204	180 mm TILT-UP CONCRETE PANEL

ABBREVIATIONS	
BOL	BOLLARD
CW-G001	GLAZED CURTAIN WALL
RT-DP	DOWNPIPE
SCL011	STEEL UB COLUMN
SCR-01	SCREEN TYPE 01

10.07.2025	H	FIRE TANK	BC
19.08.2025	G	FOR CONSTRUCTION	PM
18.08.2025	F	FOR CONSTRUCTION	PM
26.05.2025	E	PRELIMINARY	BC
15.05.2025	D	PRELIMINARY	BC
13.05.2025	C	PRELIMINARY	BC
12.05.2025	B	PRELIMINARY	BC
08.05.2025	A	PRELIMINARY	BC
date	no	revision history	chd



project/client	BUILDING B
LOT 12/ 110 PENELOPE RD	
FOR	MCDONALD CONSTRUCTIONS

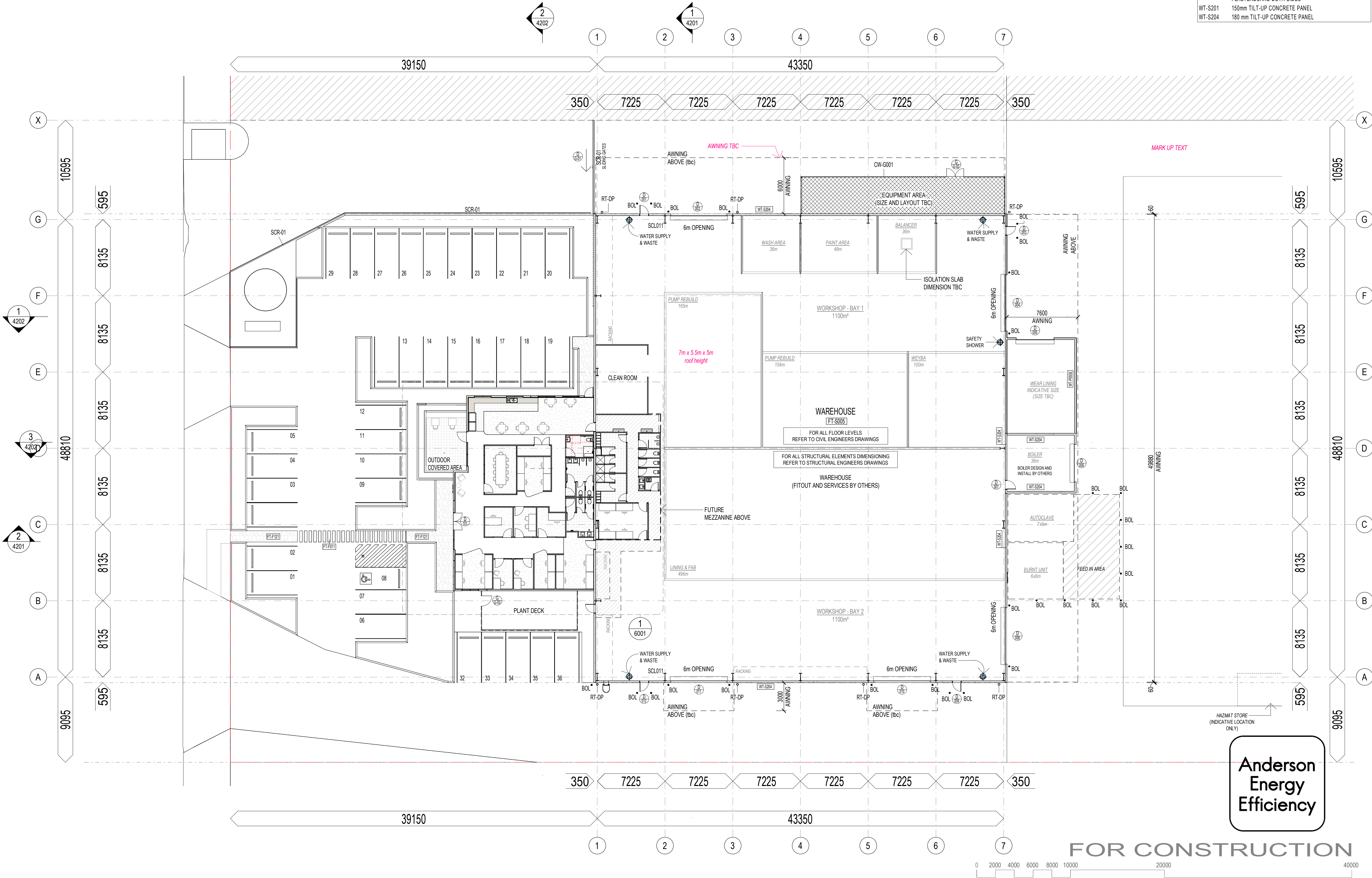
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drawing title			
FLOOR PLAN			
project no:	A2504.B	scale:	1: 200 @A1
discipline	stage	dwg no	rev no
A	DD	1301	H



FOR CONSTRUCTION

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INSTALL PROPRIETARY FALL ARREST ANCHOR SYSTEM TO ROOF, DESIGNED & INSTALLED TO AUSTRALIAN STANDARDS

- NOTE,
- INSTALL PASSIVE ROOF VENTS AND SOFFIT INTAKE VENTS.
 - ROOF IS BASED ON CONTINUOUS JOIN FREE ROOF SHEETS. IF JOIN IS REQUIRED, ENGINEER TO PROVIDE DETAILS.
 - REFER TO HYDRAULIC ENGINEER FOR ALL GUTTER AND DOWN PIPE SIZES AND LOCATIONS.

ROOF TYPES	
RT-L021	TRIMDEK METAL ROOF SHEETING - COLORBOND SURFMIST

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NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS	
RT-ALD	ACCESS LADDER
RT-DP	DOWNPIPE
RT-EG	EAVES GUTTER
RT-EGC	COLORBOND EAVES GUTTER
RT-FLC	COLORBOND FLASHING
RT-PFC	COLORBOND PARAPET FLASHING
RT-RFC	COLORBOND RIDGE FLASHING

18.06.2025	D	FOR CONSTRUCTION	PM
15.05.2025	C	PRELIMINARY	BC
13.05.2025	B	PRELIMINARY	BC
12.05.2025	A	PRELIMINARY	BC
date	no	revision history	chkd



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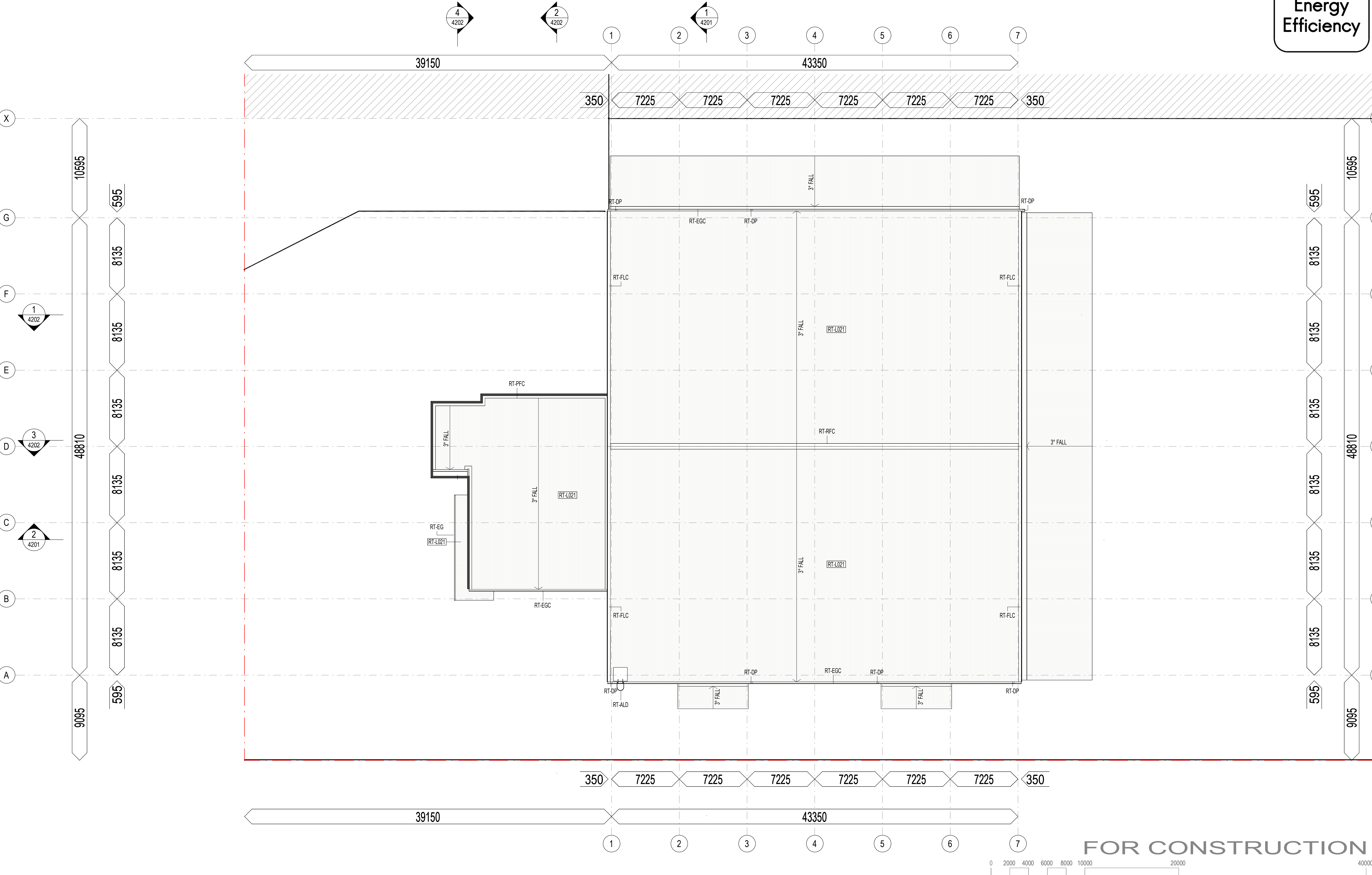
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drawing title			
ROOF PLAN			
project no:	A2504.B	scale:	1 : 200 @A1
discipline	stage	dwg no	rev no
A	DD	2001	D

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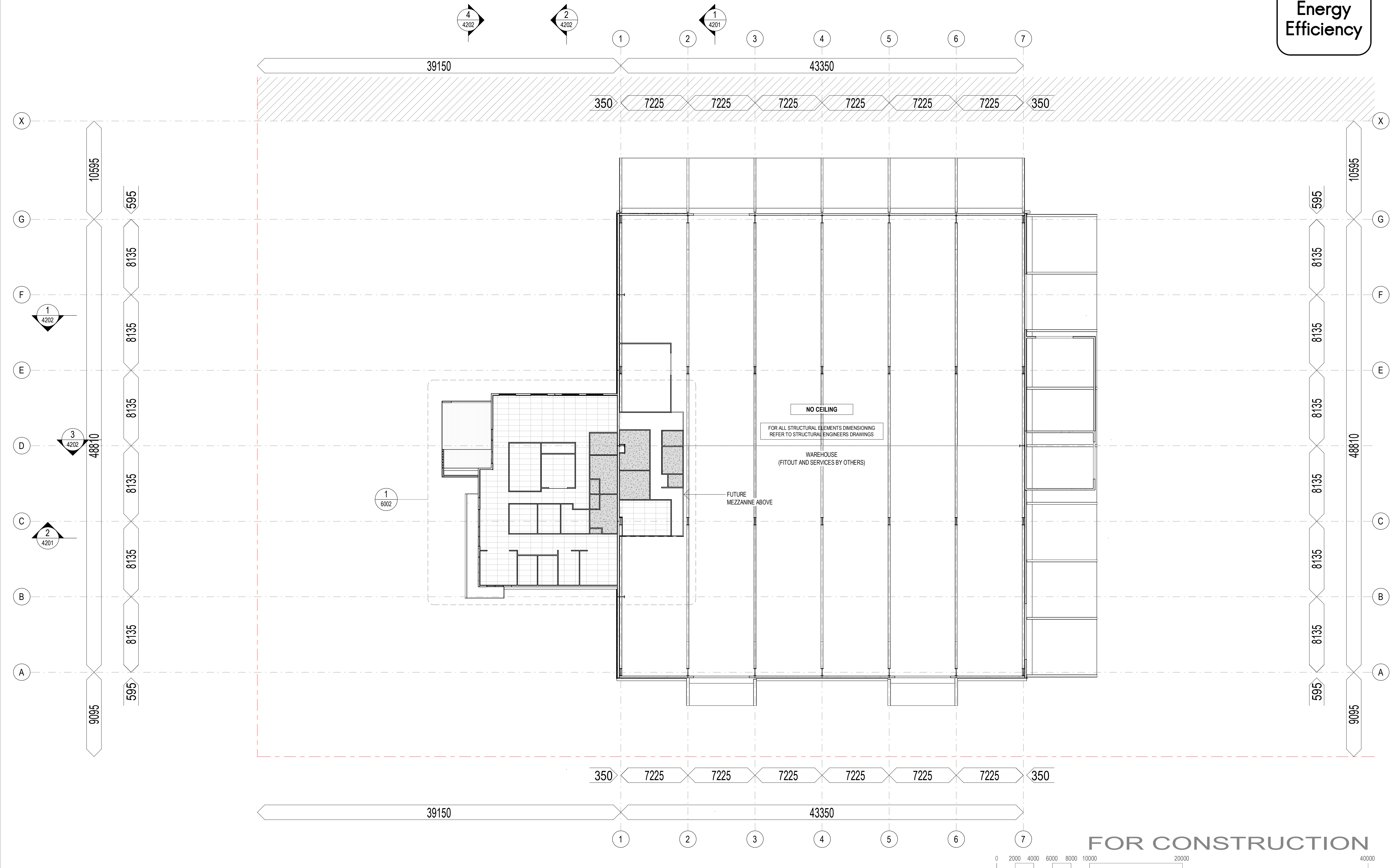
FOR CONSTRUCTION

NOTE, CRITICAL LIGHT LOCATIONS ARE SET OUT ON ARCHITECTURAL PLANS, FOR ALL OTHERS REFER TO ELECTRICAL CONSULTANT

CT-C003L	9 FIBRE CEMENT SOFFIT ON 28 FURRING CHANNELS
CT-C007L	CEILING TILES ON SUSPENDED FRAME
CT-L009K	13 WATER RESISTANT PLASTERBOARD ON SUSPENDED FRAME
CT-L028K	TIMBER LOOK CEILING

ABBREVIATIONS

Anderson
Energy
Efficiency



18.06.2025	D	FOR CONSTRUCTION	PM
15.05.2025	C	PRELIMINARY	BC
13.05.2025	B	PRELIMINARY	BC
12.05.2025	A	PRELIMINARY	BC
date	no	revision history	chld

key plan

north



project/client

BUILDING B

LOT 12/ 110 PENELOPE
RD

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drawing title

**REFLECTED CEILING
PLAN**

project no:		A2504.B		scale:		1 : 200		@A1	
discipline		stage		dwg no		rev no			
A		DD		3001		D			

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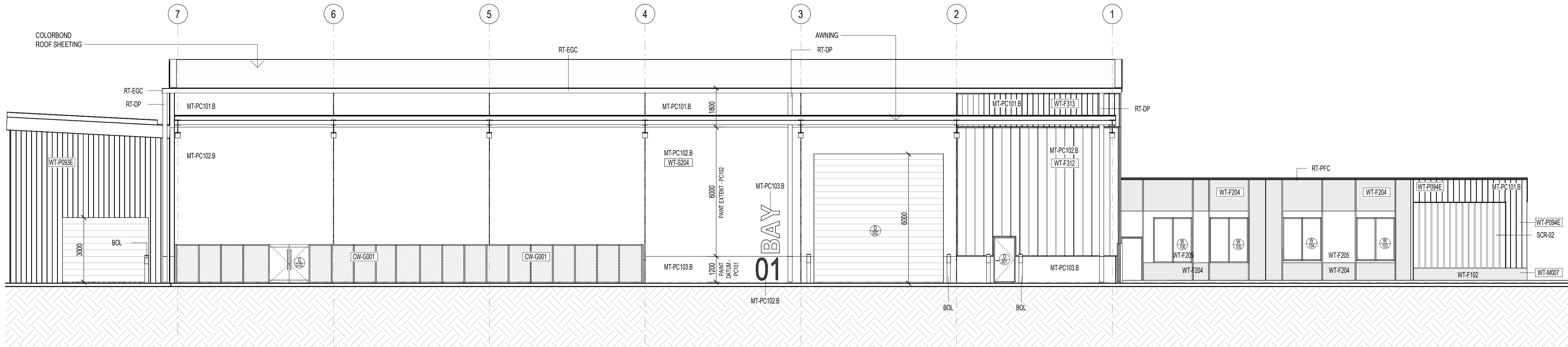
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18.06.2025	D	FOR CONSTRUCTION	PM
15.05.2025	C	PRELIMINARY	BC
13.05.2025	B	PRELIMINARY	BC
12.05.2025	A	PRELIMINARY	BC
date	no	revision history	chkd

FOR
MCDONALD CONSTRUCTIONS

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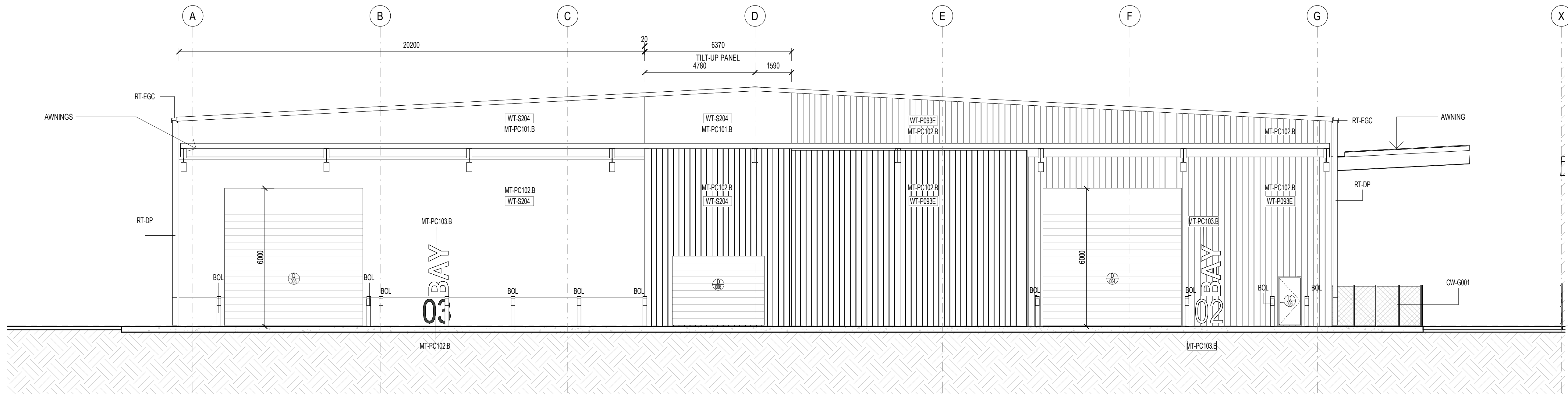
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discipline	stage	dwg no			rev no		
A	DD	4001			E		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466



ABBREVIATIONS	
BOL	BOLLARD
CW-G001	GLAZED CURTAIN WALL
MT-PC101.B	PAINT FINISH 01.B
MT-PC102.B	PAINT FINISH 02.B
MT-PC103.B	PAINT FINISH 03.B
RT-DP	DOWNPIPE
RT-EGC	COLORBOND EAVES GUTTER
RT-PFC	COLORBOND PARAPET FLASHING
SCR-02	SCREEN TYPE 02
WT-F102	RENDER AND PAINT FINISHED
WT-F204	TILT UP CONC PANELS PAINT TYPE 3 AND WITH VERTICAL BATTENS
WT-F205	TILT UP CONC PANELS PAINT TYPE 1 AND WITH VERTICAL BATTENS
WT-F312	METAL CLADDING COLOUR 02
WT-F313	METAL CLADDING COLOUR 03
WT-M007	150 GIRT W METAL CLADDING TO EXTERIOR
WT-P093E	150 GIRT W FC 9 & FC 9 WITH VERTICAL BATTENS
WT-P094E	150 GIRT W FC 9 & FC 9 WITH VERTICAL BATTENS
WT-S204	TILT-UP CONC PANELS

18.06.2025	E	FOR CONSTRUCTION	PM
15.05.2025	D	PRELIMINARY	BC
13.05.2025	C	PRELIMINARY	BC
12.05.2025	B	PRELIMINARY	BC
08.05.2025	A	PRELIMINARY	BC
date	no	revision history	chd



key plan

project/client
BUILDING B
LOT 12/ 110 PENELOPE RD
FOR
MCDONALD CONSTRUCTIONS

seriestwo architects
Level 1 / 212 Constance St. Fortitude Valley QLD 4006
Telephone (07) 3113 4082 hello@seriestwo.com.au
Series Two Architects Pty Ltd

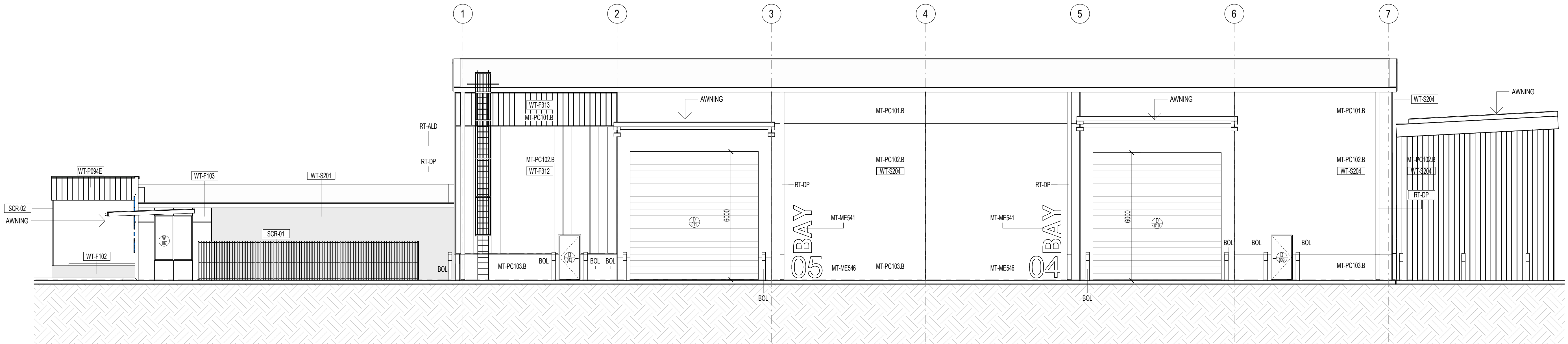
Anderson
Energy
Efficiency

FOR CONSTRUCTION

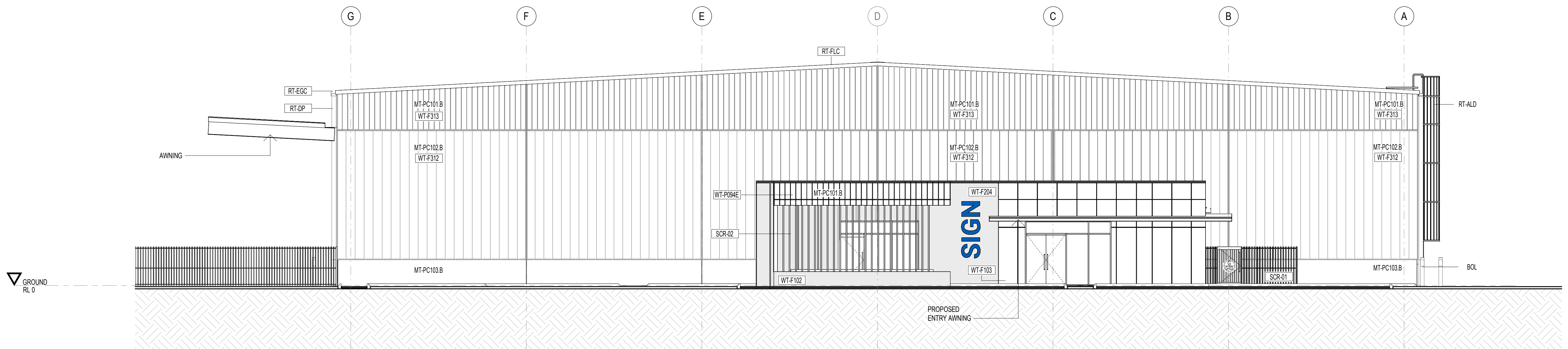
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drawing title
ELEVATIONS
project no:
A2504.B
scale:
1:100
@A1
discipline
stage
dwg no
rev no
A
DD
4101
E

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1 SOUTH ELEV
1 : 100



2 WEST ELEV
1 : 100

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Efficiency

FOR CONSTRUCTION

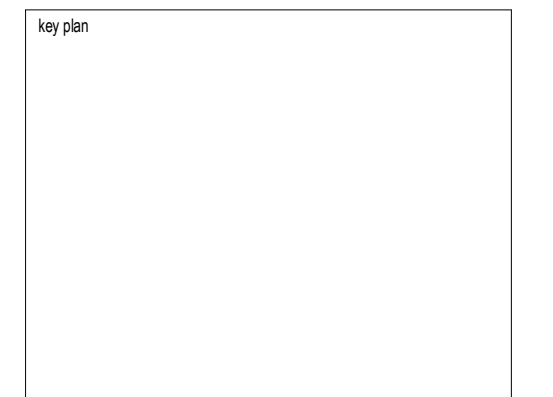
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NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

BOL	BOLLARD
MT-ME541	POWDER COATED WHITE STEEL
MT-ME546	WOODLAND GREY POWDER COATED STEEL
MT-PC101.B	PAINT FINISH 01.B
MT-PC102.B	PAINT FINISH 02.B
MT-PC103.B	PAINT FINISH 03.B
RT-ALD	ACCESS LADDER
RT-DP	DOWNPIPE
RT-EGC	COLORBOND EAVES GUTTER
RT-FLC	COLORBOND FLASHING
SCR-01	SCREEN TYPE 01
SCR-02	SCREEN TYPE 02
WT-F102	RENDER AND PAINT FINISHED
WT-F103	EXPOSED CONCRETE WITH CLEAR SEALER AND NEGATIVE JOINTS
WT-F204	TILT UP CONC PANELS PAINT TYPE 3 AND WITH VERTICAL BATTENS
WT-F312	METAL CLADDING COLOUR 02
WT-F313	METAL CLADDING COLOUR 03
WT-P094E	150 GIRT W FC 9 & FC 9 WITH VERTICAL BATTENS
WT-S204	TILT-UP CONC PANELS

18.06.2025	E	FOR CONSTRUCTION	PM
15.05.2025	D	PRELIMINARY	BC
13.05.2025	C	PRELIMINARY	BC
12.05.2025	B	PRELIMINARY	BC
07.05.2025	A	PRELIMINARY	BC
date	no	revision history	chd



project/client
BUILDING B

LOT 12/ 110 PENELOPE RD
FOR
MCDONALD CONSTRUCTIONS

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architects**

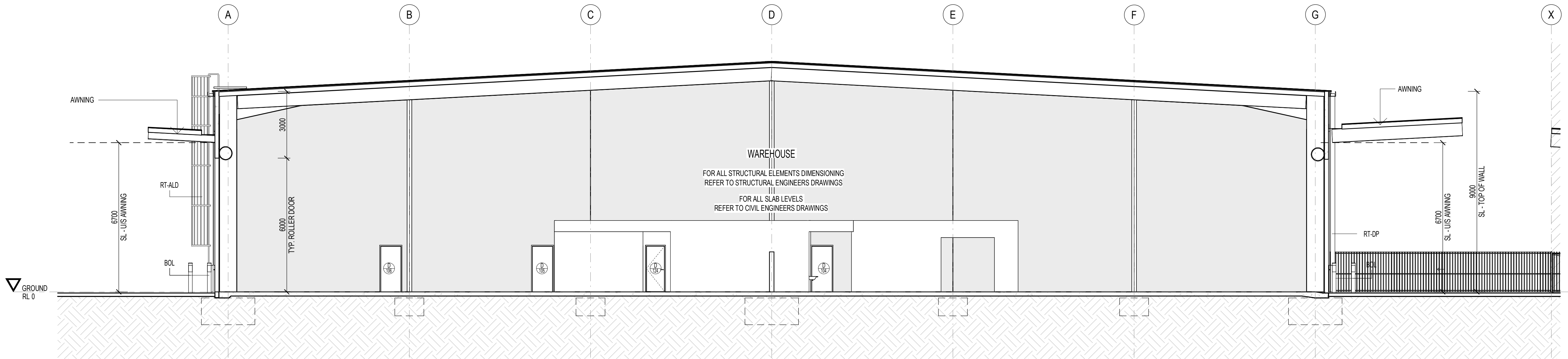
Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

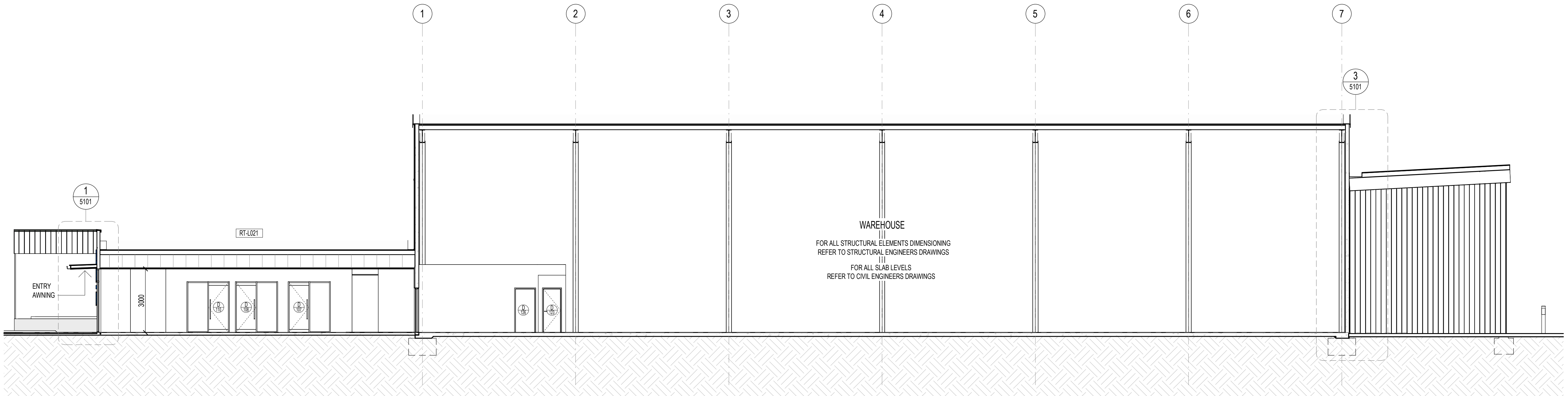
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project no:	A2504.B	scale:	1 : 100 @A1
discipline	stage	dwg no	rev no
A	DD	4102	E

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1 SECTION A
1 : 100



2 SECTION B
1 : 100

Anderson
Energy
Efficiency

FOR CONSTRUCTION

ABBREVIATIONS			
BOL	BOLLARD		
RT-ALD	ACCESS LADDER		
RT-DP	DOWNPIPE		
RT-L021	COLORBOND ROOF SHEETING ON STEEL PURLINS		

19.06.2025	F	FOR CONSTRUCTION	PM
18.06.2025	E	FOR CONSTRUCTION	PM
15.05.2025	D	PRELIMINARY	BC
13.05.2025	C	PRELIMINARY	BC
12.05.2025	B	PRELIMINARY	BC
08.05.2025	A	PRELIMINARY	BC
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key plan

project/client
BUILDING B
LOT 12/ 110 PENELOPE RD
FOR MCDONALD CONSTRUCTIONS

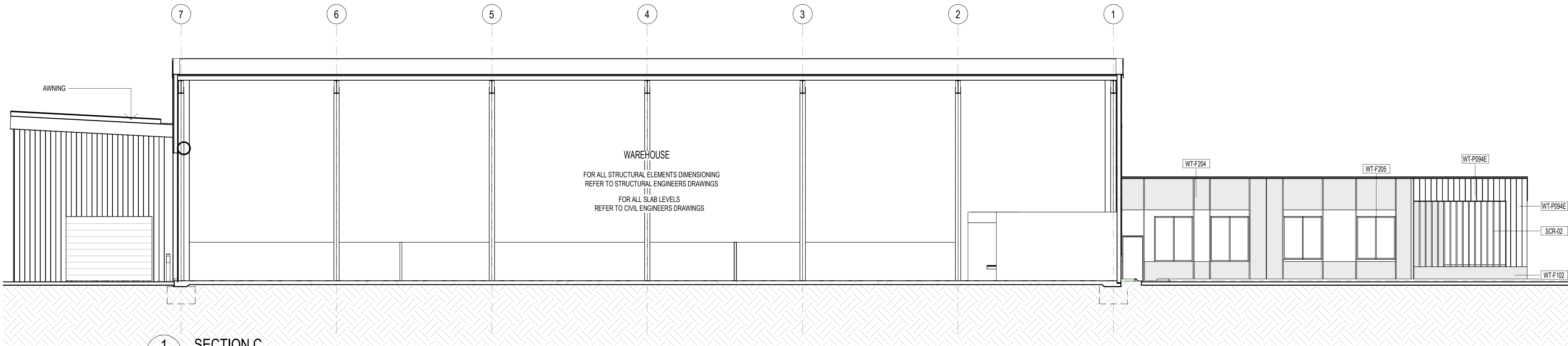
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drawing title

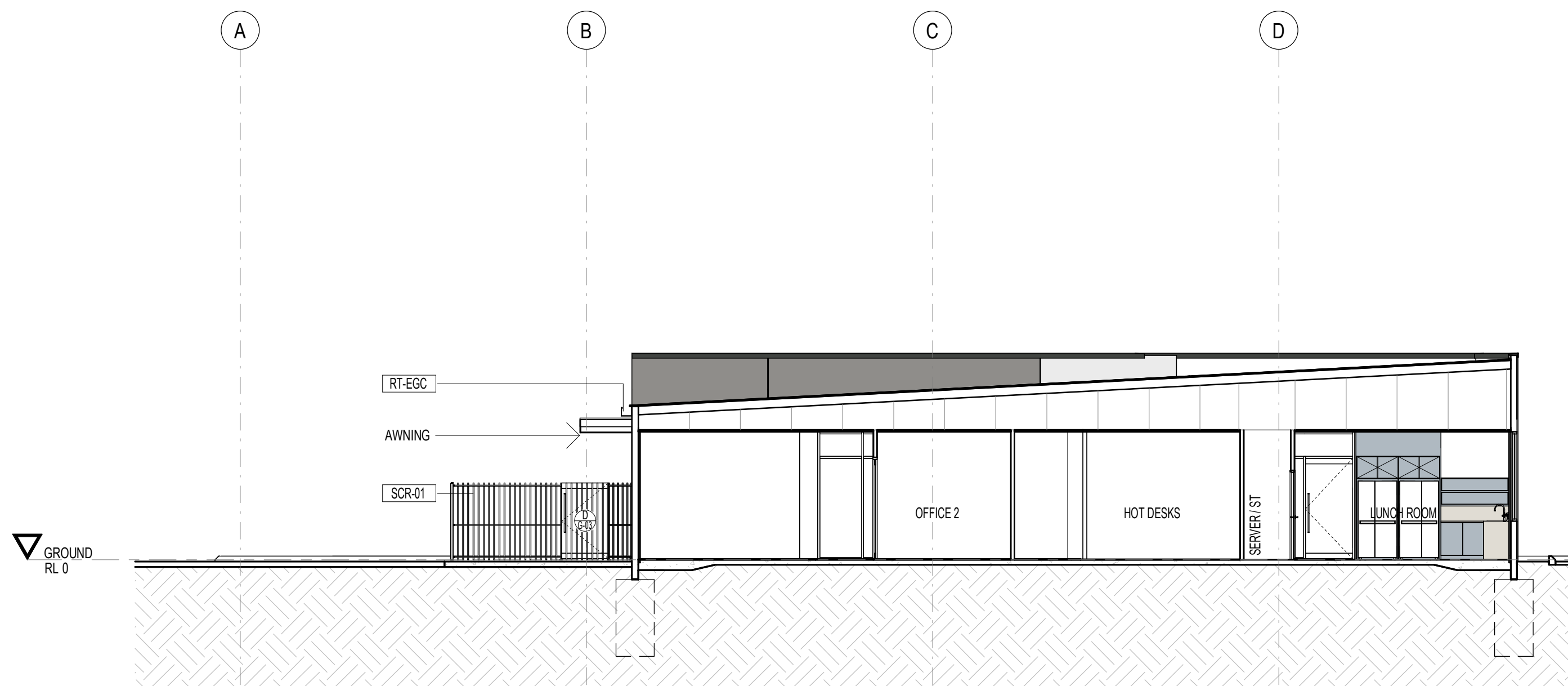
SECTIONS

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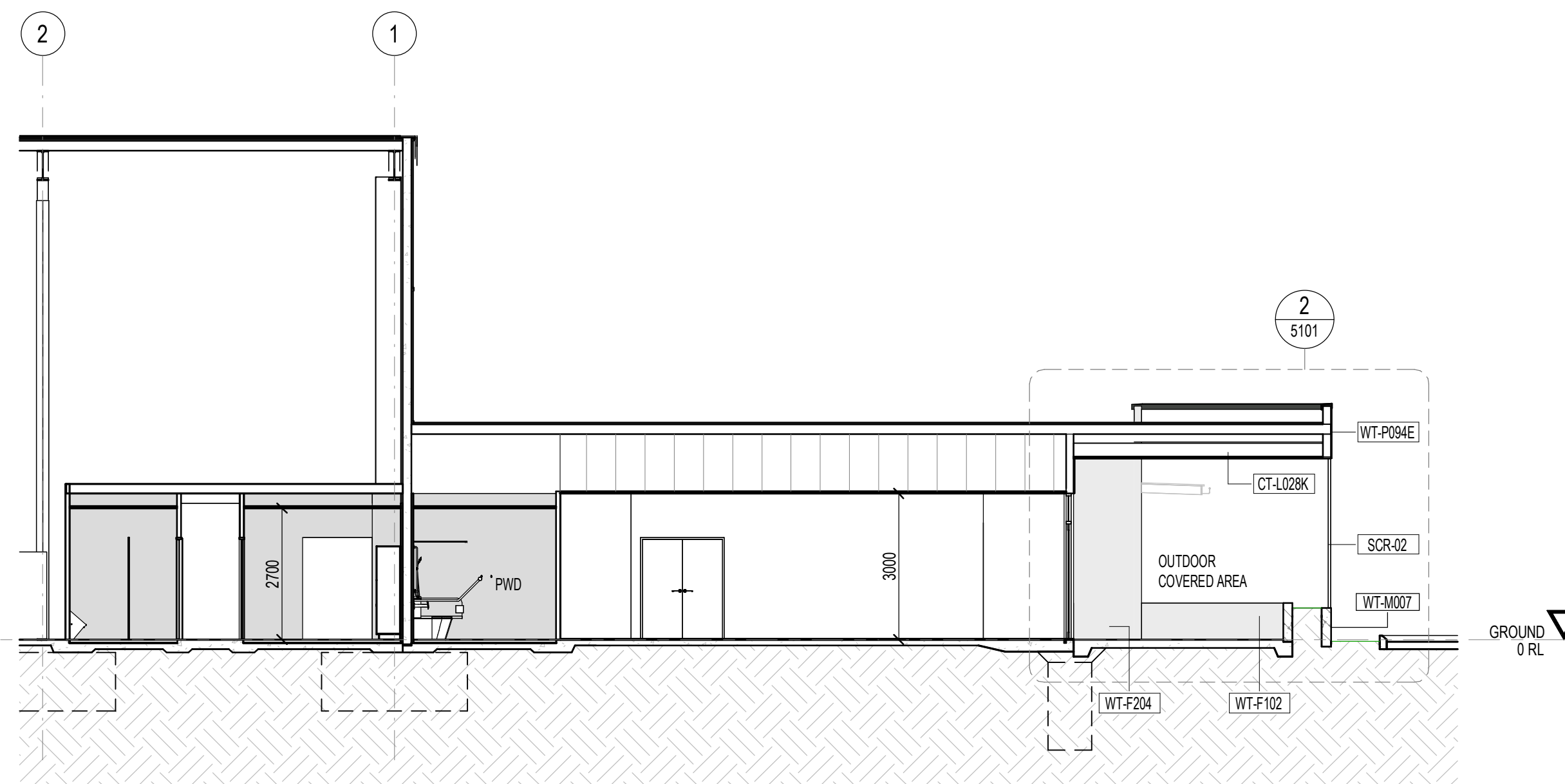
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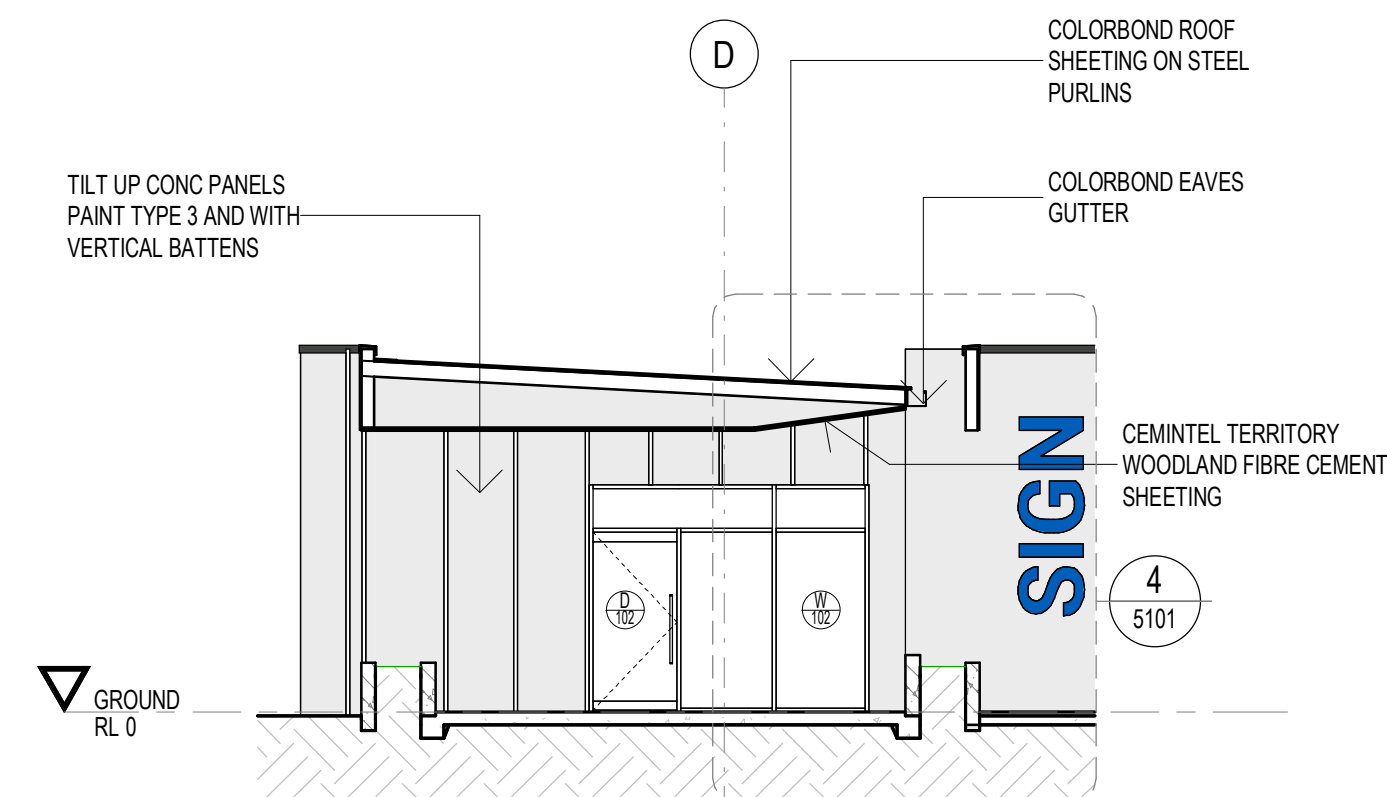
1
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SECTION C
1 : 100



2
-
SECTION D
1 : 100



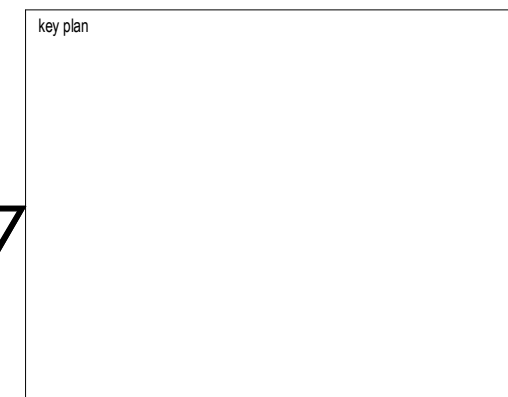
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SECTION E
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NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS	
CT-L028K	TIMBERLOOK ALUMINIUM PANEL SOFFIT
MT-CL038	CEMINTEL TERRITORY WOODLAND FIBRE CEMENT SHEETING
RT-EGC	COLORBOND EAVES GUTTER
RT-L021	COLORBOND ROOF SHEETING ON STEEL PURLINS
SCR-01	SCREEN TYPE 01
SCR-02	SCREEN TYPE 02
WT-F102	RENDER AND PAINT FINISHED
WT-F204	TILT UP CONC PANELS PAINT TYPE 3 AND WITH VERTICAL BATTENS
WT-F205	TILT UP CONC PANELS PAINT TYPE 1 AND WITH VERTICAL BATTENS
WT-P094E	150 GIRT W FC 9 & FC 9 WITH VERTICAL BATTENS

19.06.2025	F	FOR CONSTRUCTION	PM
18.06.2025	E	FOR CONSTRUCTION	PM
15.05.2025	D	PRELIMINARY	BC
13.05.2025	C	PRELIMINARY	BC
12.05.2025	B	PRELIMINARY	BC
07.05.2025	A	PRELIMINARY	BC
date	no	revision history	chkd



project/client
BUILDING B

LOT 12/ 110 PENELOPE RD

FOR
MCDONALD CONSTRUCTIONS

seriestwo architects

Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

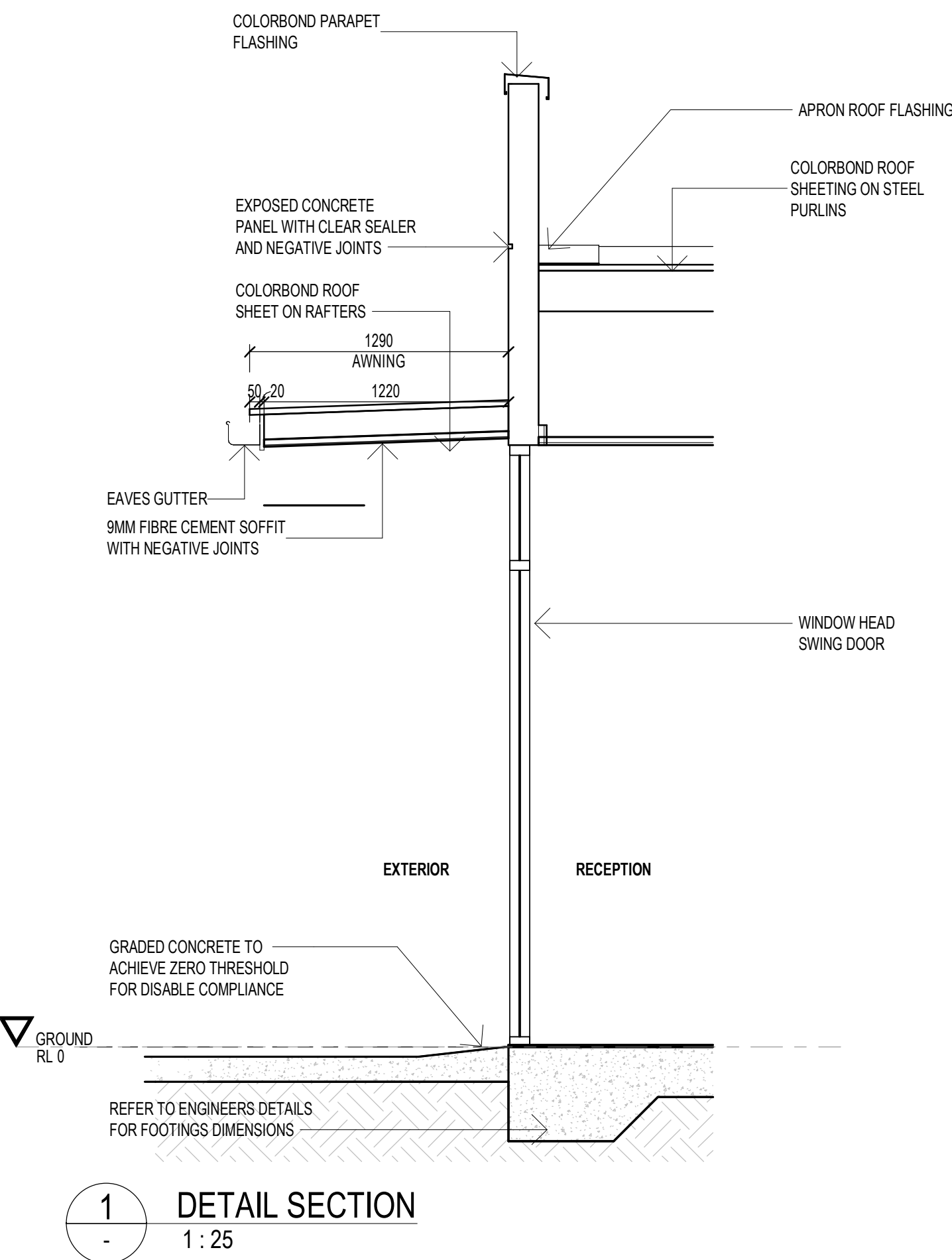
Series Two Architects Pty Ltd

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discipline	stage	dwg no	rev no
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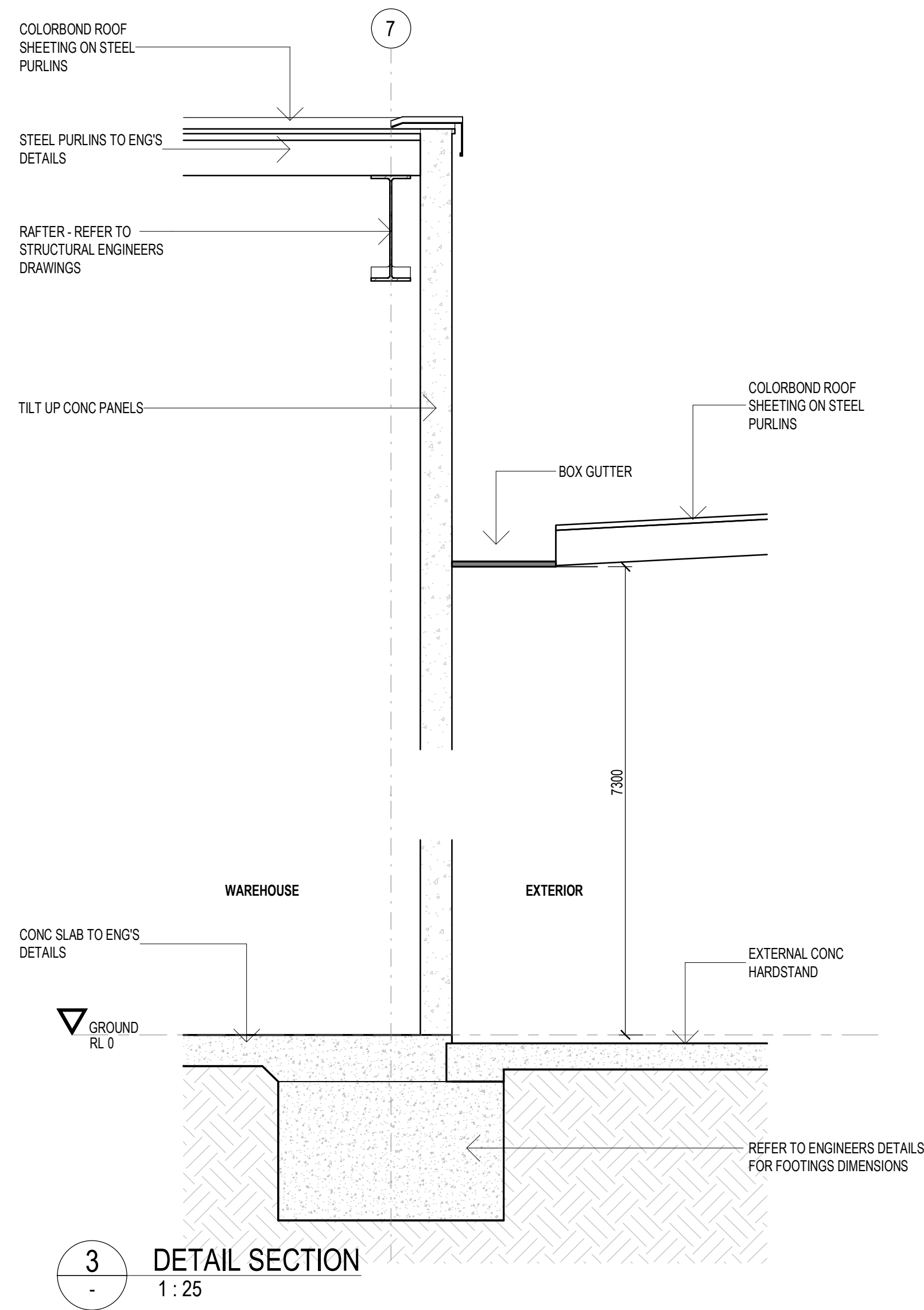
Anderson
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Efficiency

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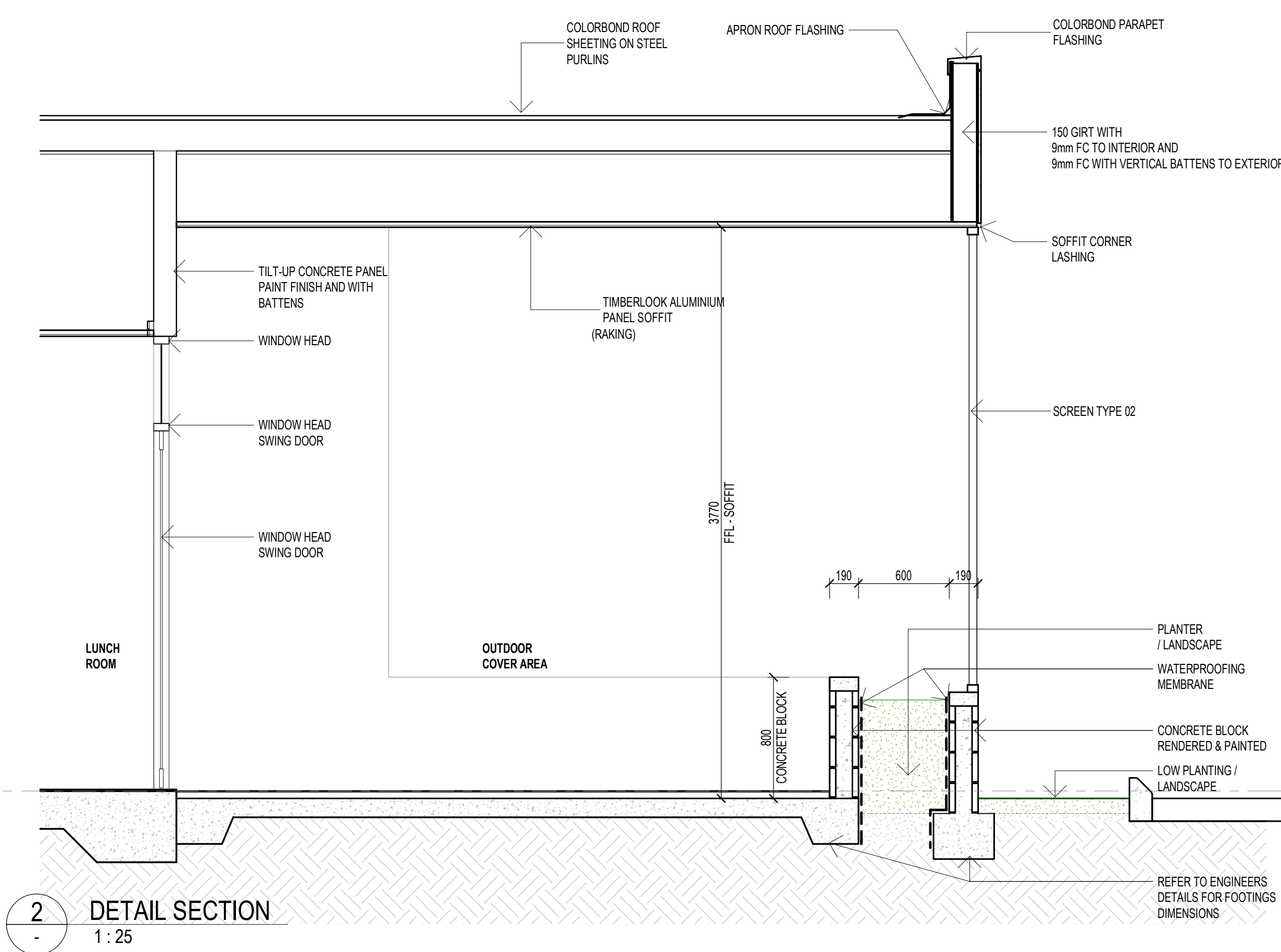
FOR CONSTRUCTION



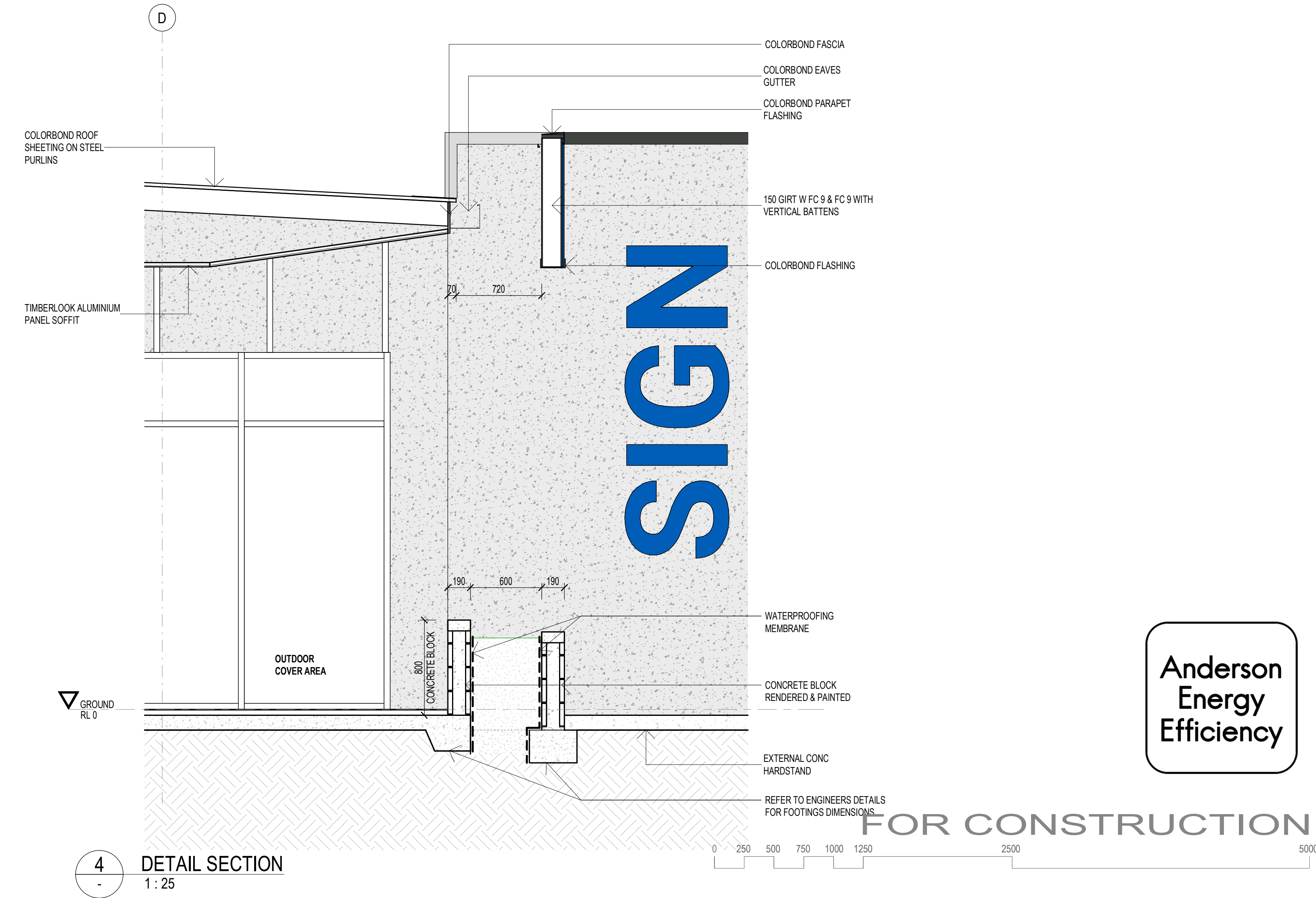
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-
DETAIL SECTION
1 : 25



3
-
DETAIL SECTION
1 : 25



2
-
DETAIL SECTION
1 : 25



4
-
DETAIL SECTION
1 : 25

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

CT-C003	9MM FIBRE CEMENT SOFFIT WITH NEGATIVE JOINTS
CT-L028K	TIMBERLOOK ALUMINIUM PANEL SOFFIT
FT-S001	EXTERNAL CONC HARDSTAND
FT-S005	CONC SLAB TO ENG'S DETAILS
RT-BG	BOX GUTTER
RT-EG	EAVES GUTTER
RT-EGC	COLORBOND EAVES GUTTER
RT-L021	COLORBOND ROOF SHEETING ON STEEL PURLINS
RT-PFC	COLORBOND PARAPET FLASHING
RT-SP	STEEL PURLINS TO ENG'S DETAILS
SCR-02	SCREEN TYPE 02
WT-P094E	150 GIRT W FC 9 & FC 9 WITH VERTICAL BATTENS
WT-S204	TILT UP CONC PANELS

18.06.2025	8	FOR CONSTRUCTION	PM
03.06.2025	A	FOR INFORMATION	PM
date	no	revision history	chd

project/client
BUILDING B

LOT 12/ 110 PENELOPE RD
FOR
MCDONALD CONSTRUCTIONS

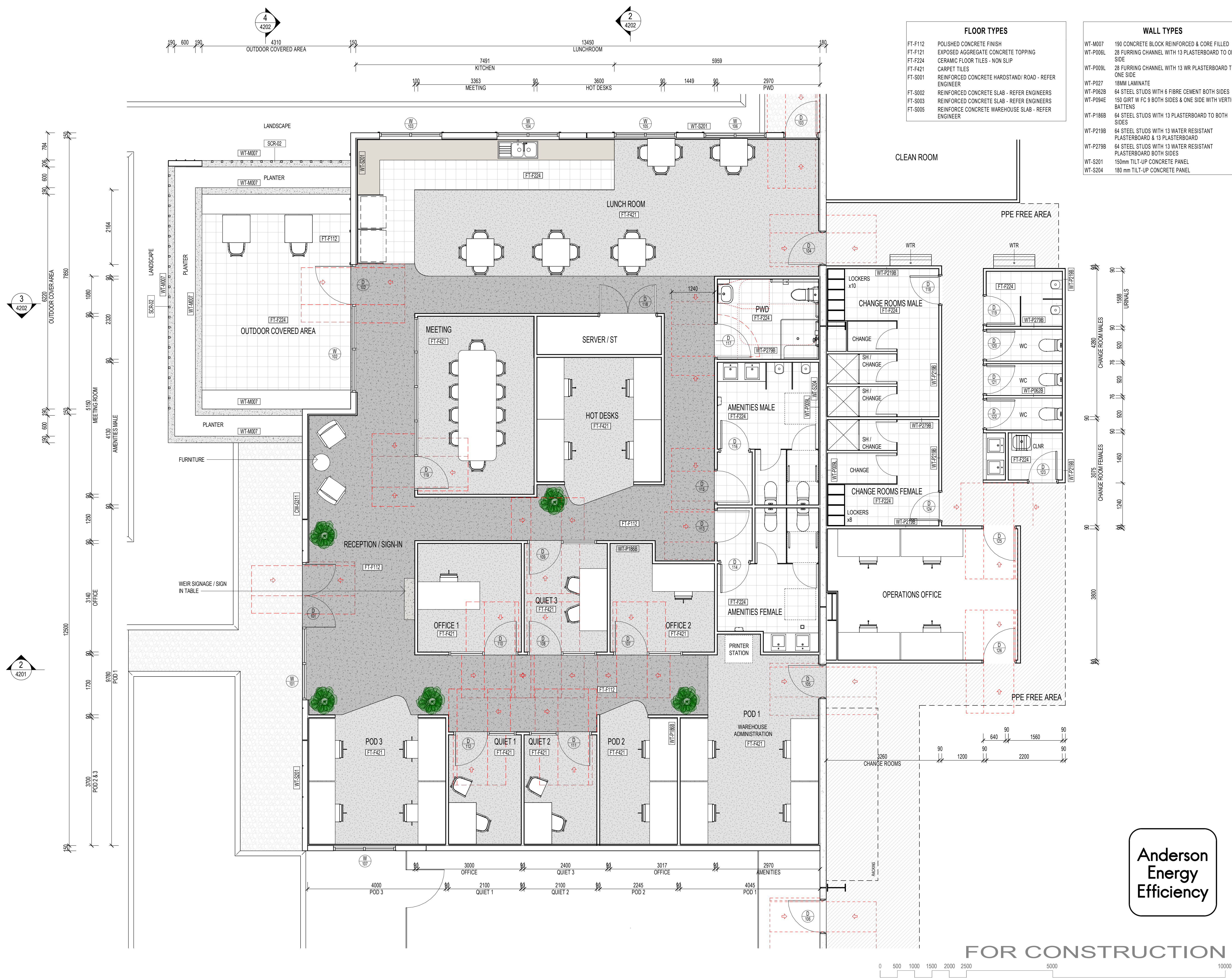
seriestwo architects

Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au
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drawing title DETAIL SECTIONS			
project no:	A2504.B	scale:	1 : 25 @A1
discipline	stage	dwg no	rev no
A	DD	5101	B

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Efficiency**



NOTE, PASSIVE ROOF VENTS AND SOFFIT
INTAKE VENTS

NOTE, CRITICAL LIGHT LOCATIONS ARE SET OUT
ON ARCHITECTURAL PLANS, FOR ALL OTHERS
REFER TO ELECTRICAL CONSULTANT

4
4202

2
4202

CEILING TYPES

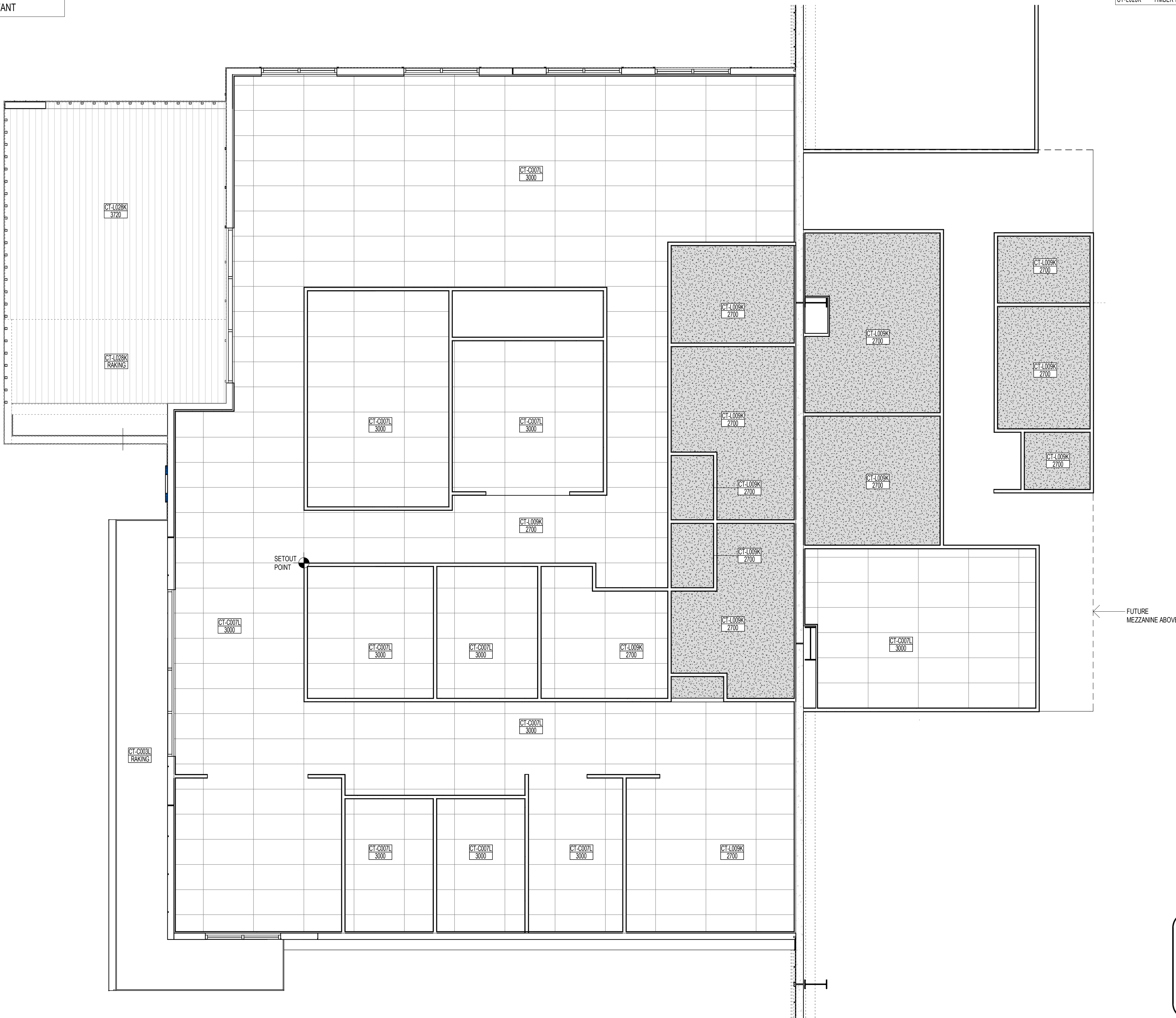
CT-C003L 9 FIBRE CEMENT SOFFIT ON 28 FURRING CHANNELS
CT-C007L CEILING TILES ON SUSPENDED FRAME
CT-L009K 13 WATER RESISTANT PLASTERBOARD ON SUSPENDED
FRAME
CT-L028K TIMBER LOOK CEILING

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

3
4202

2
4201



18.06.2025	E	FOR CONSTRUCTION	PM
18.06.2025	D	FOR CONSTRUCTION	PM
15.05.2025	C	PRELIMINARY	BC
13.05.2025	B	PRELIMINARY	BC
12.05.2025	A	PRELIMINARY	BC
date	no	revision history	chd



project/client

BUILDING B

LOT 12/ 110 PENELOPE
RD

FOR
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seriestwo
architects

Level 1 / 212 Constance St.
Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

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drawing title

RCP - OFFICE

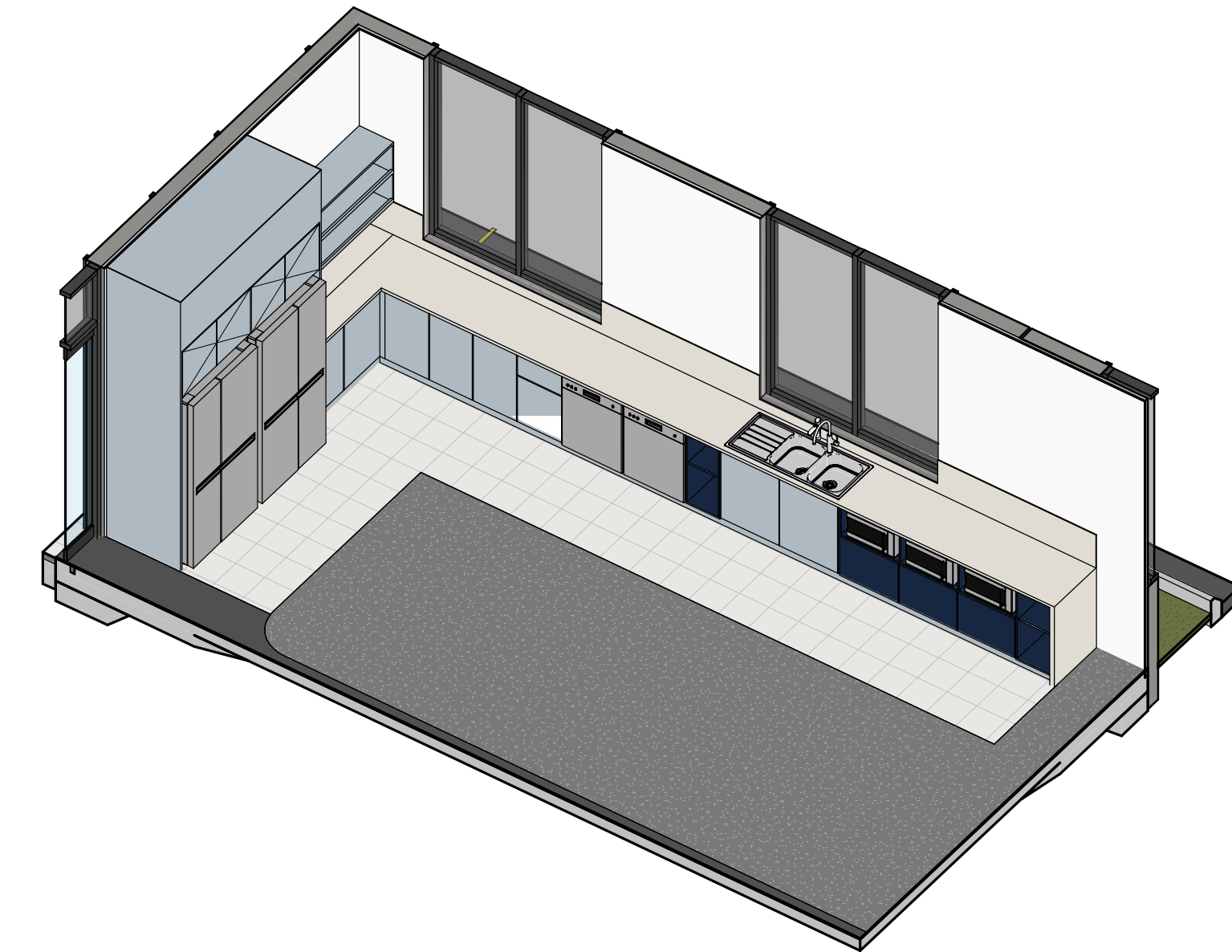
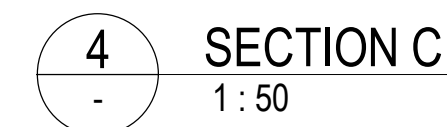
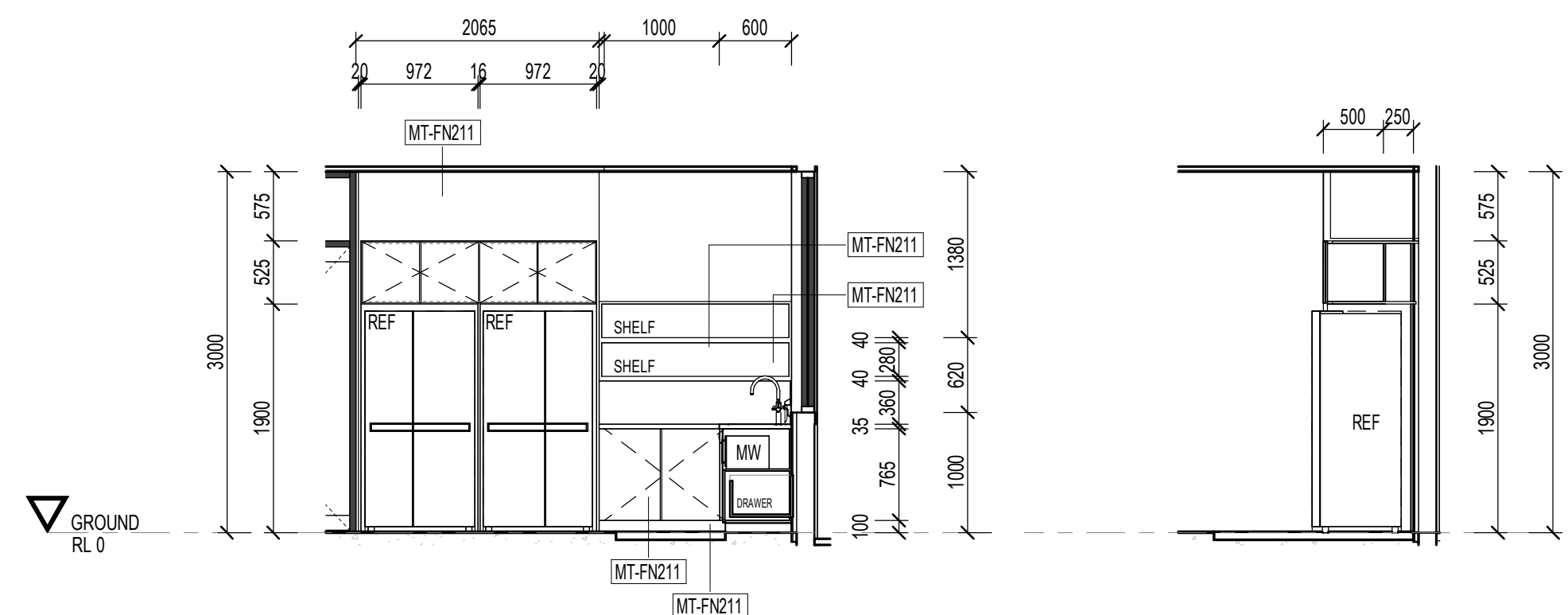
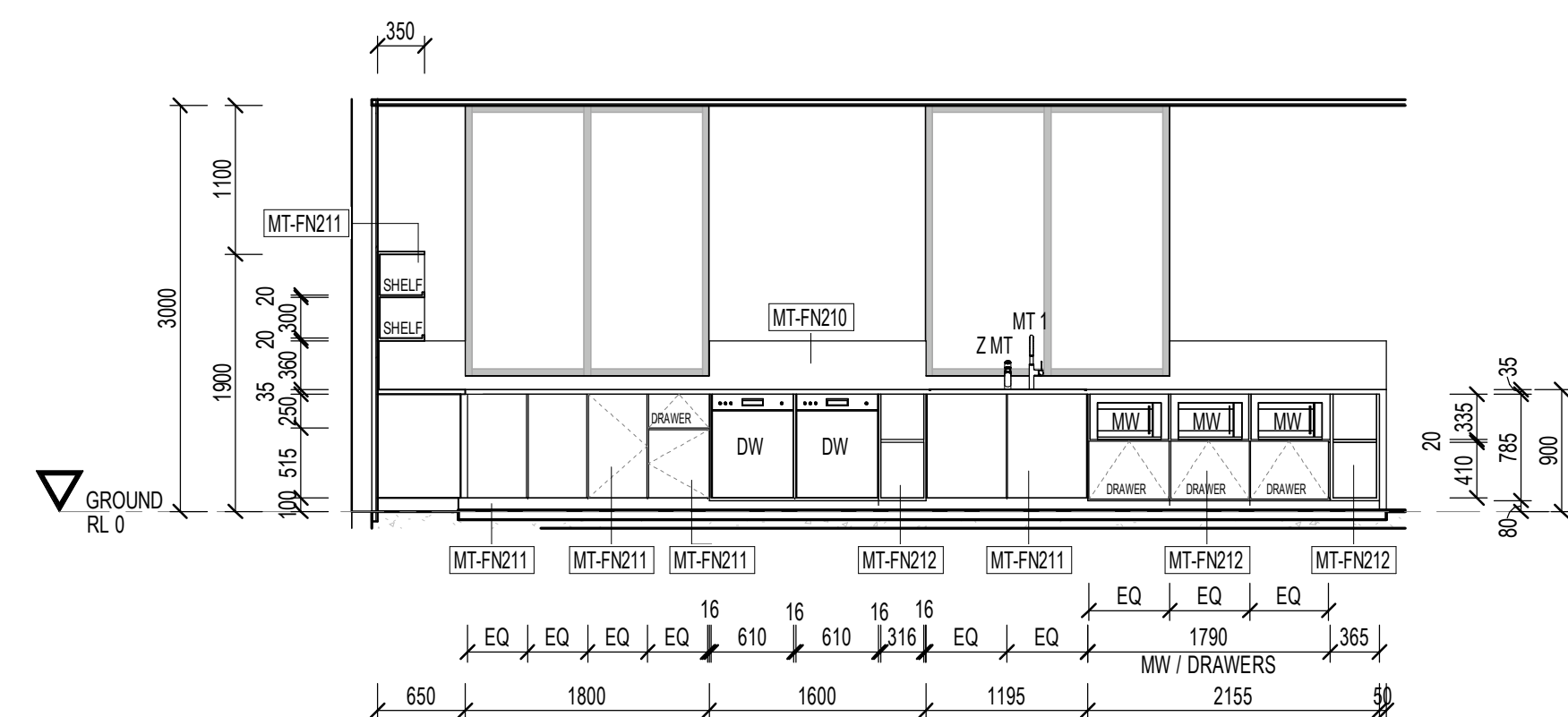
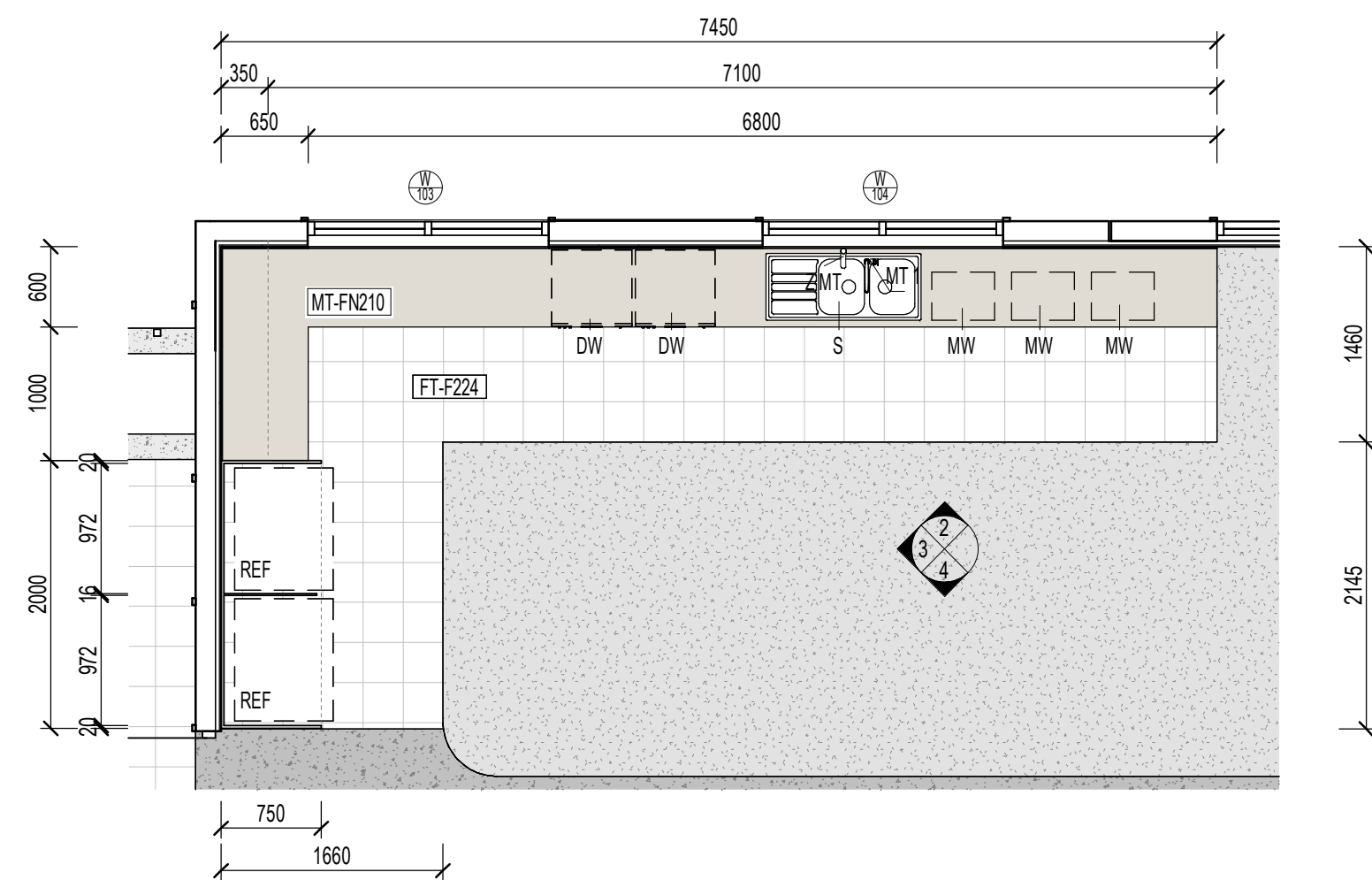
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Efficiency

FOR CONSTRUCTION

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NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

DW	DISH WASHER
MT 1	MIXER TAP
MT-FN210	ENGINEERED STONE BENCHTOP
MT-FN211	LAMINATE 01
MT-FN212	LAMINATE 02
MW	MICROWAVE
REF	REFRIGERATOR
S	SINK
Z MT	ZIP MIXER TAP

03.07.2025	A	PRELIMINARY	PM
date	no	revision history	chld

BUILDING B

LOT 12/ 110 PENELOPE
RD

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Fortitude Valley QLD 4006

Telephone (07) 3113 4082
hello@seriestwo.com.au

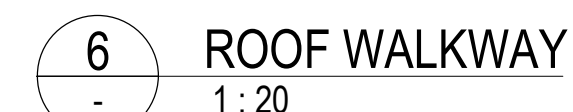
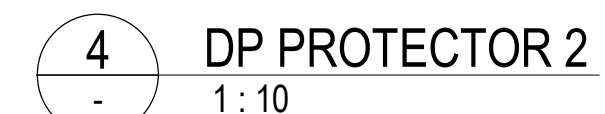
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PRELIMINARY



drawing title			
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discipline	stage	dwg no.	rev no.
A	DD	6101	A



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FOR CONSTRUCTION

NOTES: Only use figured dimensions. Do not scale from drawings.

ABBREVIATIONS

18.06.2025	A	FOR CONSTRUCTION
date	no	revision history

project/client

BUILDING B

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hello@seriestwo.com.au

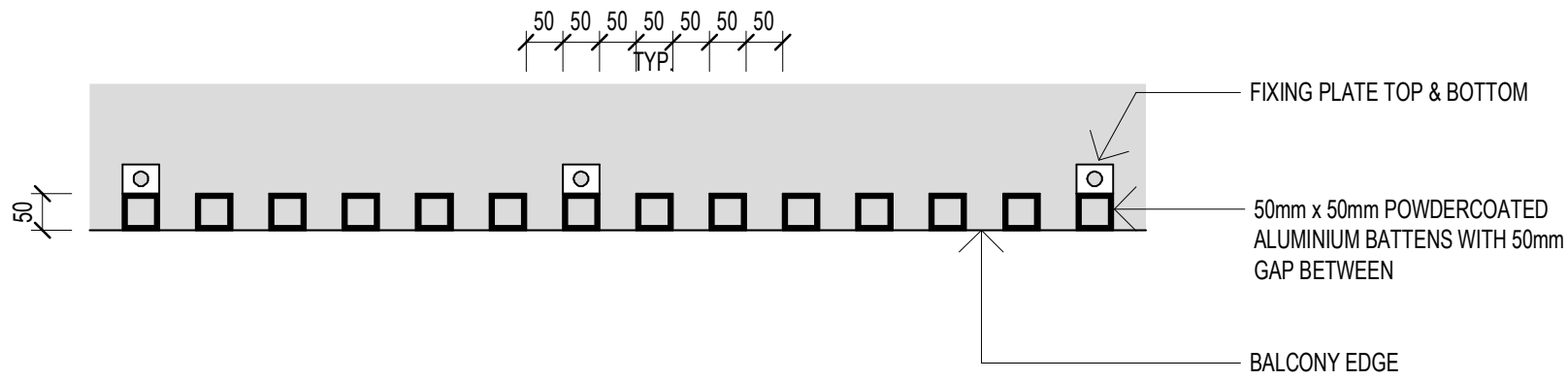
Series Two Architects Pty Ltd

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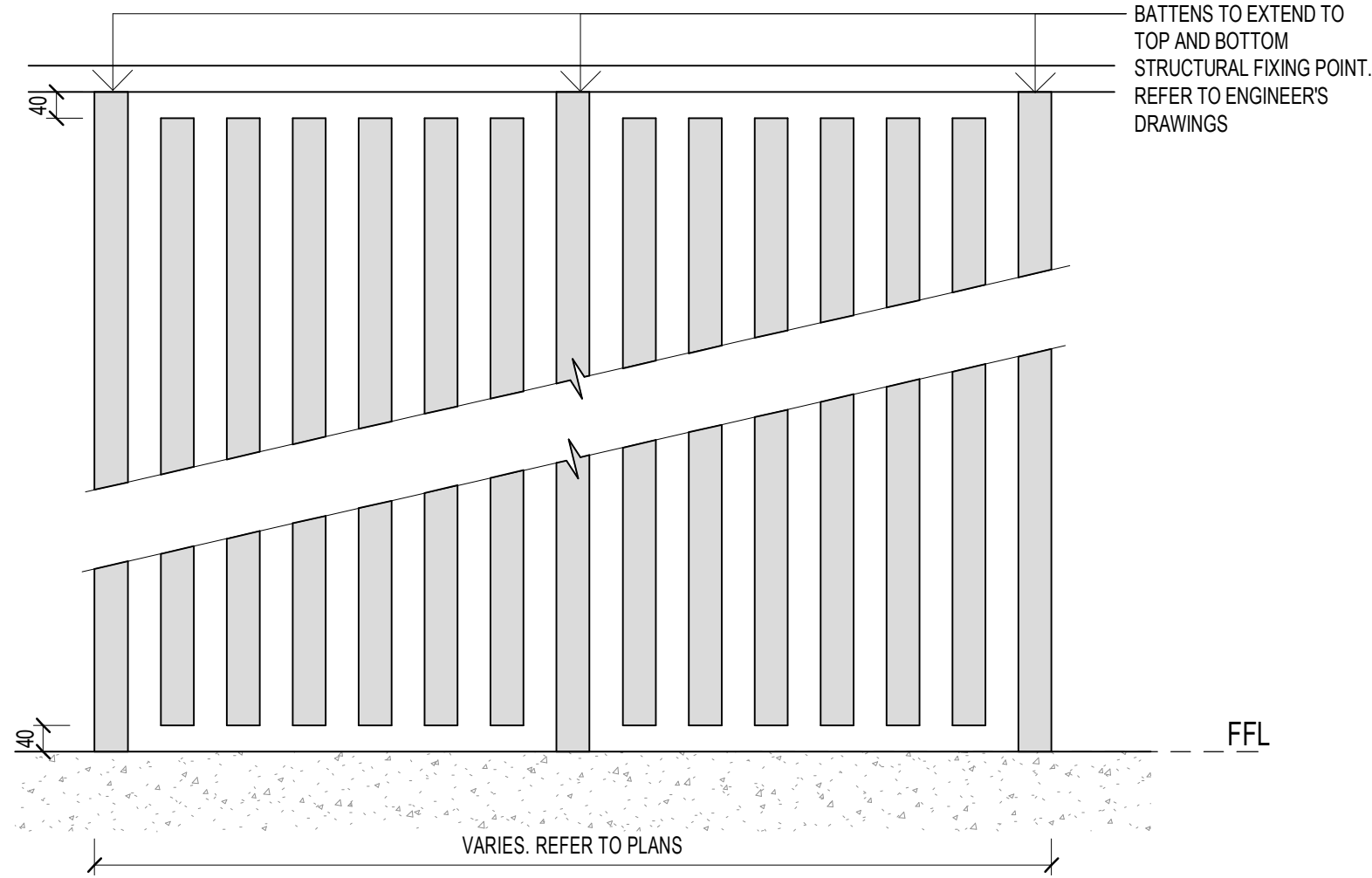
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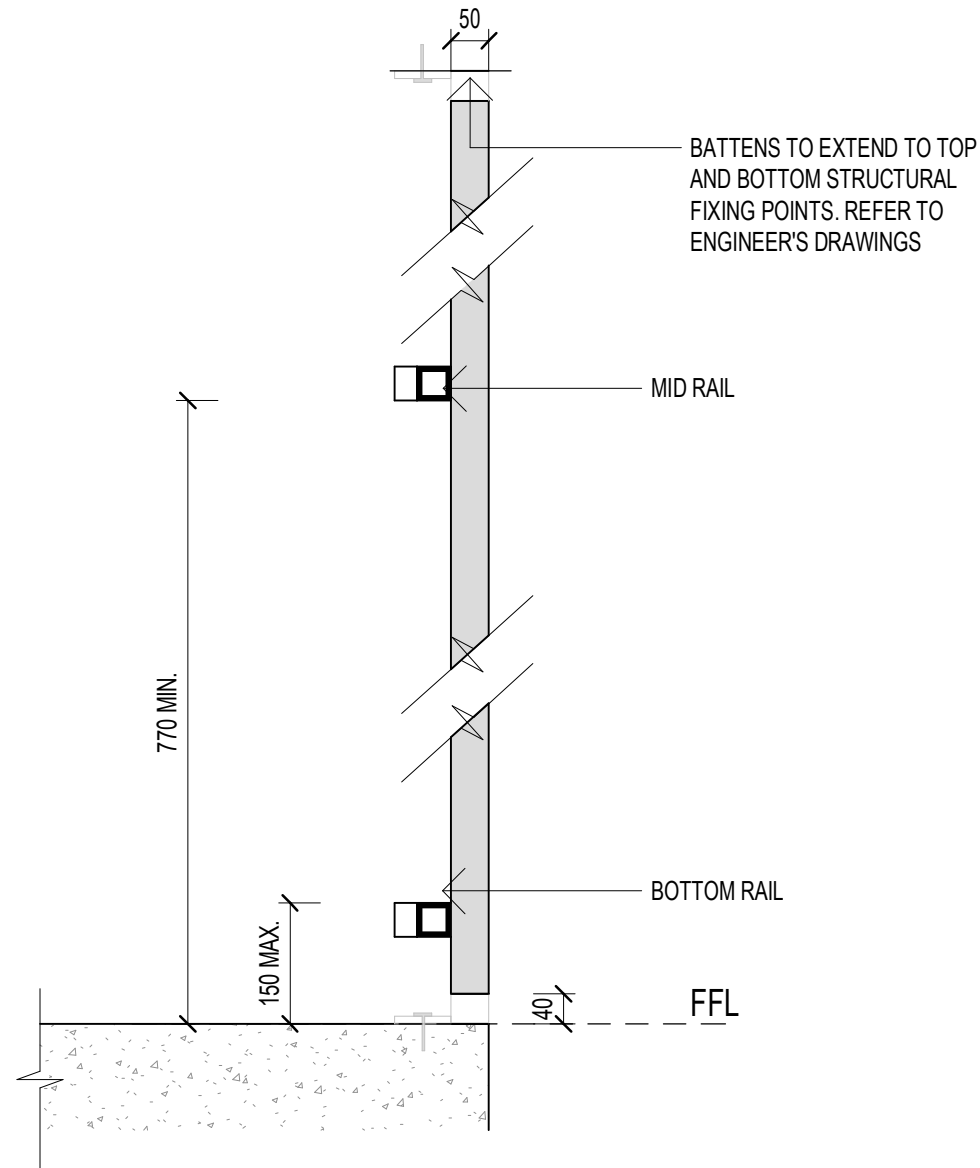
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1 TYPICAL SCREEN DETAIL SCR#01
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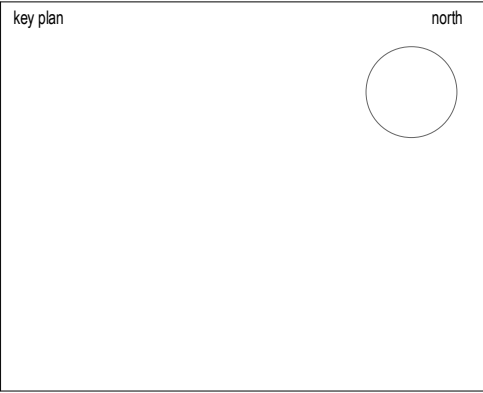
2 TYPICAL SCREEN ELEVATION SCR#01
1 : 10



3 TYPICAL SCREEN SECTION SCR#01
1 : 10

NOTES: Only use figured dimensions. Do not scale from drawings.

18/06/2025	A	FOR CONSTRUCTION	PM
date	no	revision history	chgd



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BUILDING B
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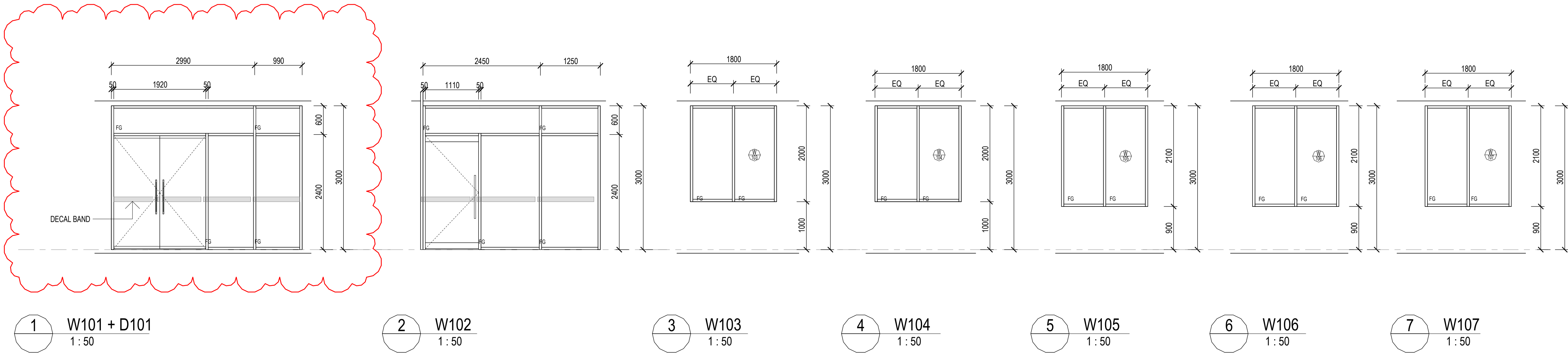
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drawing title			
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project no:	A2504.B	scale:	1 : 10
discipline	stage	dwg no	rev no
A	DD	7002	A

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FOR CONSTRUCTION



NOTES: Only use figured dimensions. Do not scale from drawings.

LEGEND

- TRANSLUCENT FILM
- CLEAR GLASS
- STAINLESS STEEL SECURITY SCREEN
- FG FIXED GLASS

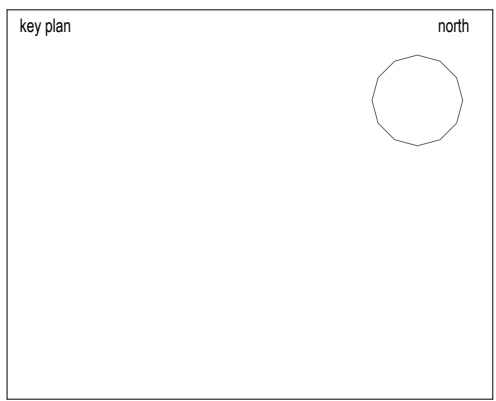
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NOTE: ALL SECURITY SCREENS OVER OBERABLE SLIDING AND SWING DOORS TO BE KEYED

NOTE: REFER TO ACOUSTIC REPORT FOR ALL GLASS AND SEAL REQUIREMENTS

NOTE: OPENING RESTRICTERS TO BE PROVIDED IN ACCORDANCE WITH NCC D2.24

10.07.2025	8	FIRE RANK	BC
18.06.2025	A	FOR CONSTRUCTION	PM
date	no	revision history	chkd



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hello@seriestwo.com.au

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drawing title			
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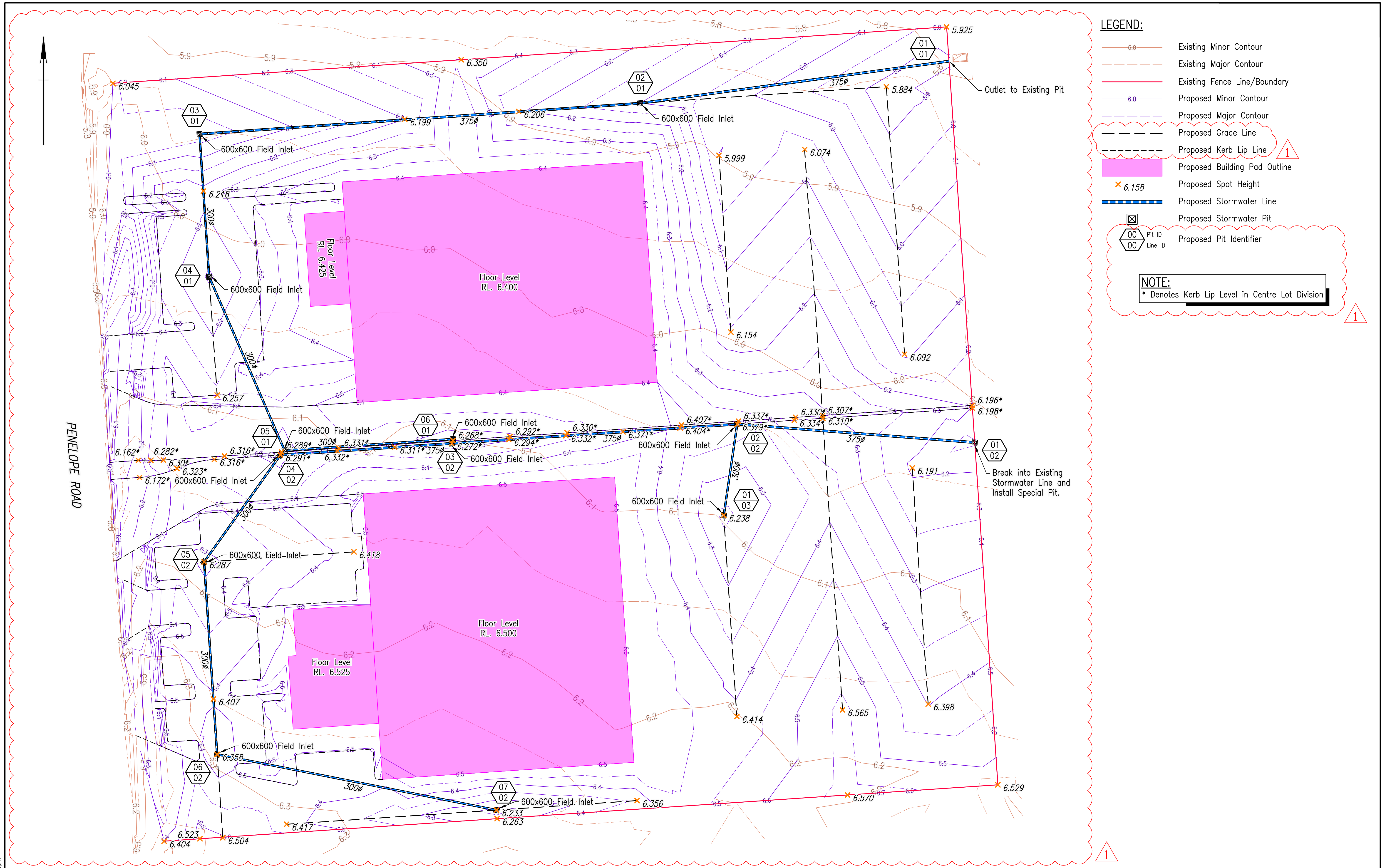
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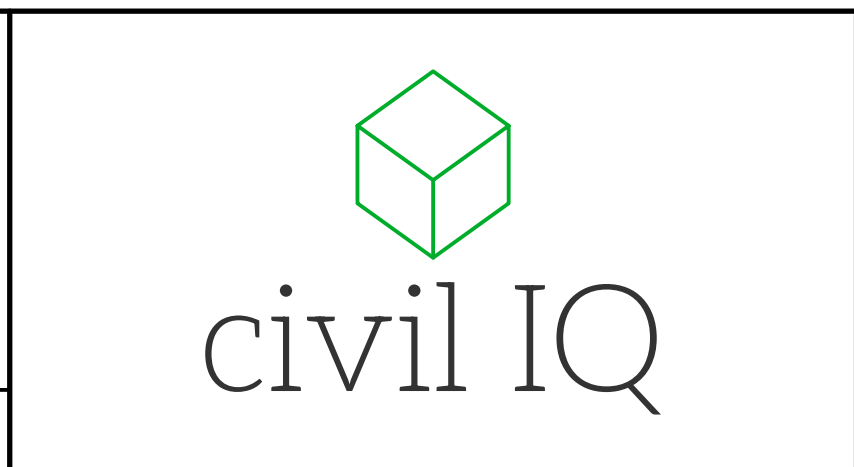
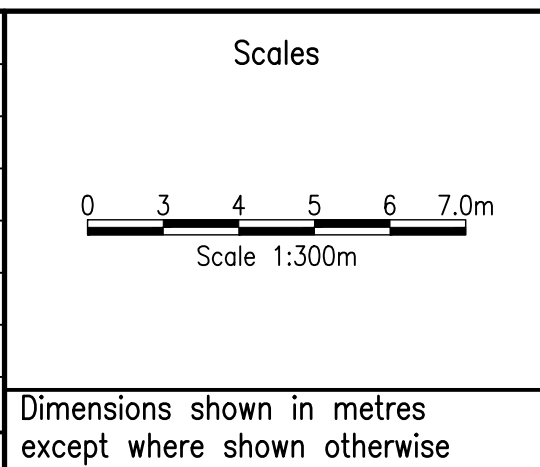


Attachment 11

Last Modified: 1: - Jul 23, 2025 - 3:05pm



Rev	Revision Description	Certification	Date
1	REISSUED FOR CONSTRUCTION FOR SUBDIVISION	M.HAUSFELD	24/07/25
0	ISSUED FOR CONSTRUCTION	M.HAUSFELD	27/06/25



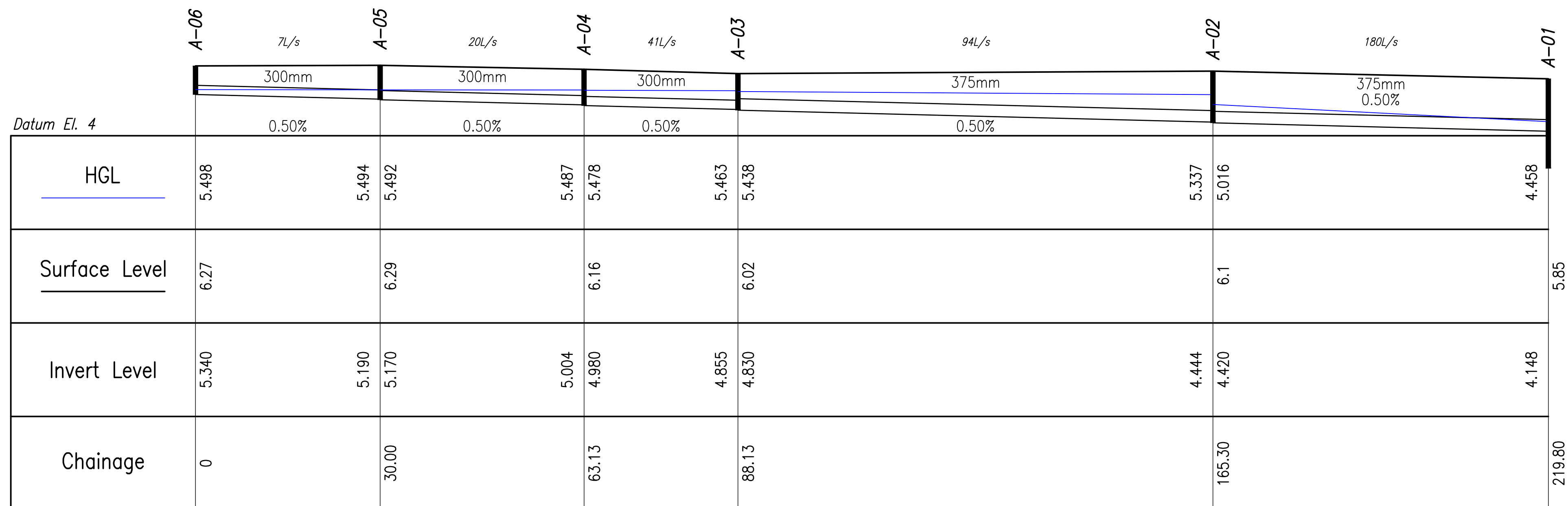
Client

McDONALD
CONSTRUCTIONS

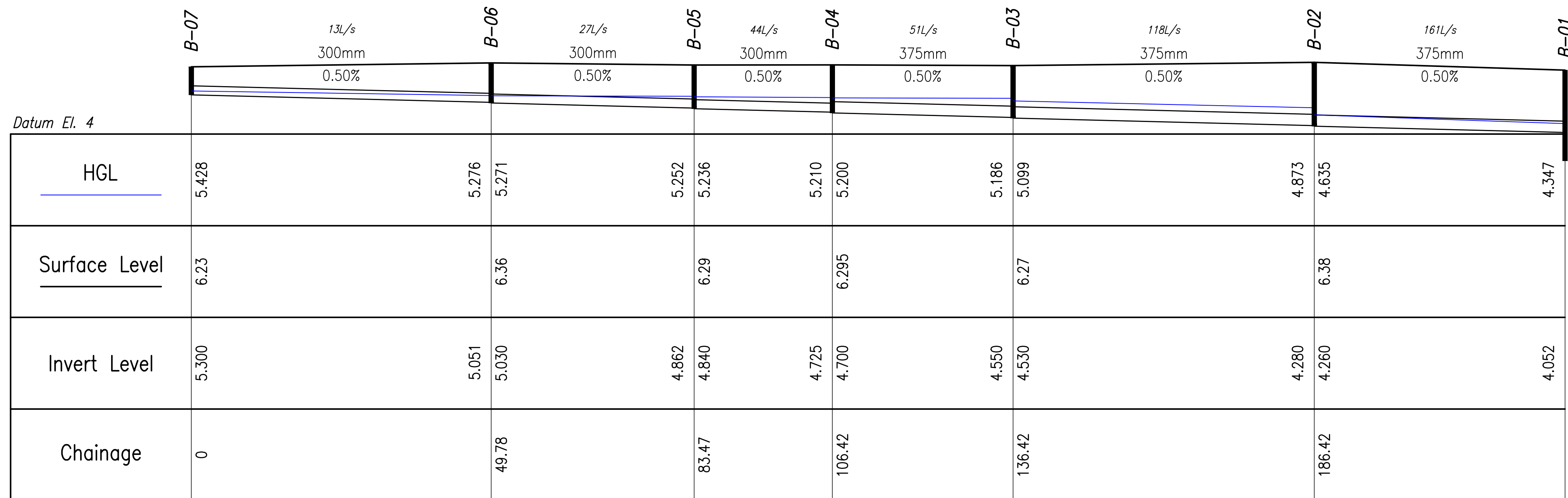
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Title		Engineering Certification (RPEQ)				
LOT 12/110 PENELOPE ROAD						
CONSTRUCTION ISSUE						
SURFACE GRADING AND STORMWATER LAYOUT						
Drawn	M.SMITH	ENG. AREA	NAME	SIGNATURE	NO.	DATE
Designed	M.SMITH	CIVIL	MARK HAUSFELD		12608	23/7/25

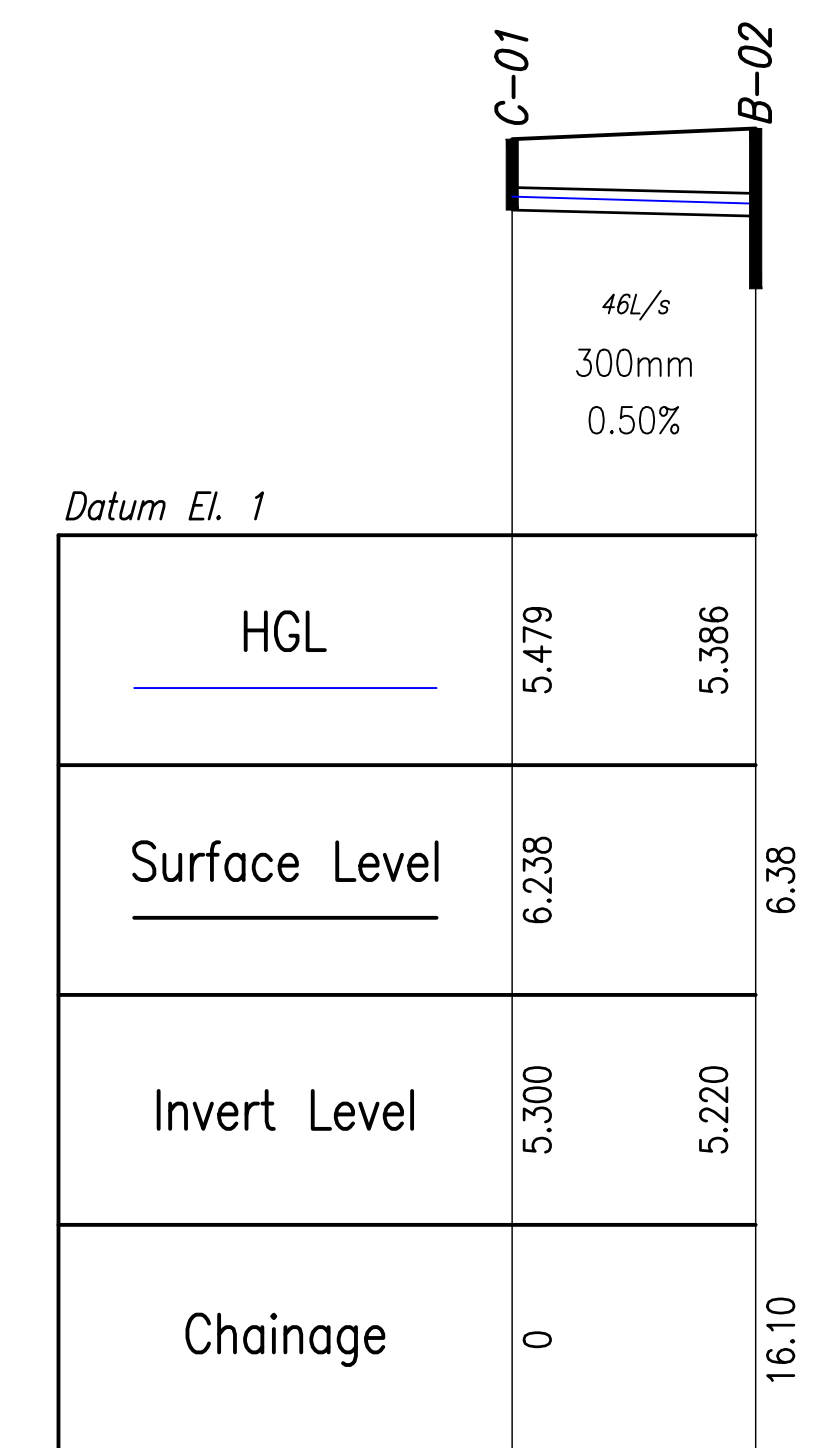
Job No.	MISC-999
Drawing No.	200-GA01
Revision	1
Series Number	1 OF 2



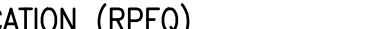
STORMWATER LONGITUDINAL SECTION
LINE 1
Scale 1:500m



STORMWATER LONGITUDINAL SECTION
LINE 2
Scale 1:500m



STORMWATER LONGITUDINAL SECTION
LINE 3
Scale 1:500m

				Scales 0 5 10 15 20 25.0m Scale 1:500m	civil IQ	Client McDONALD CONSTRUCTIONS	Title LOT 12/110 PENELOPE ROAD CONSTRUCTION ISSUE STORMWATER LONGITUDINAL SECTIONS					Job No.	MISC-999
												Drawing No.	210-SW01
2	REISSUED FOR CONSTRUCTION	M.HAUSFELD	07/08/25										
1	REISSUED FOR CONSTRUCTION FOR SUBDIVISION	M.HAUSFELD	24/07/25										
0	ISSUED FOR CONSTRUCTION	M.HAUSFELD	27/06/25										
Rev	Revision Description	Certification	Date	Dimensions shown in metres except where shown otherwise	COPYRIGHT The contents and information contained in this document are the copyright of Civil-IQ Pty Ltd. This drawing may not be used, copied or reproduced in whole or part for any purpose other than the consent by which it is supplied by Civil-IQ Pty Ltd.	Drawn M.SMITH	ENGINEERING CERTIFICATION (RPEQ) ENG. AREA NAME SIGNATURE NO. DATE	Revision	2				
						Designed M.SMITH	CIVIL MARK HAUSFELD  12608 23/7/25	Series Number	2 OF 2				