



APPENDIX G - PRELIMINARY CONTAMINATED LAND INVESTIGATION

Preliminary Contaminated Land Investigation

Isaac Downs Extension Project

Prepared for Stanmore ID Extension Pty Limited | April 2026



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Document history and status

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1.0 Introduction

1.1 Background

SGME Pty Limited (SGME) has been commissioned to prepare a preliminary contamination assessment (the report) to evaluate potential (baseline) contamination at the proposed Isaac Downs Extension (IDE) Project (the Project). This report covers land within and surrounding the Project area located approximately (~) 15 kilometres (km) southeast of Moranbah (Figure 1).

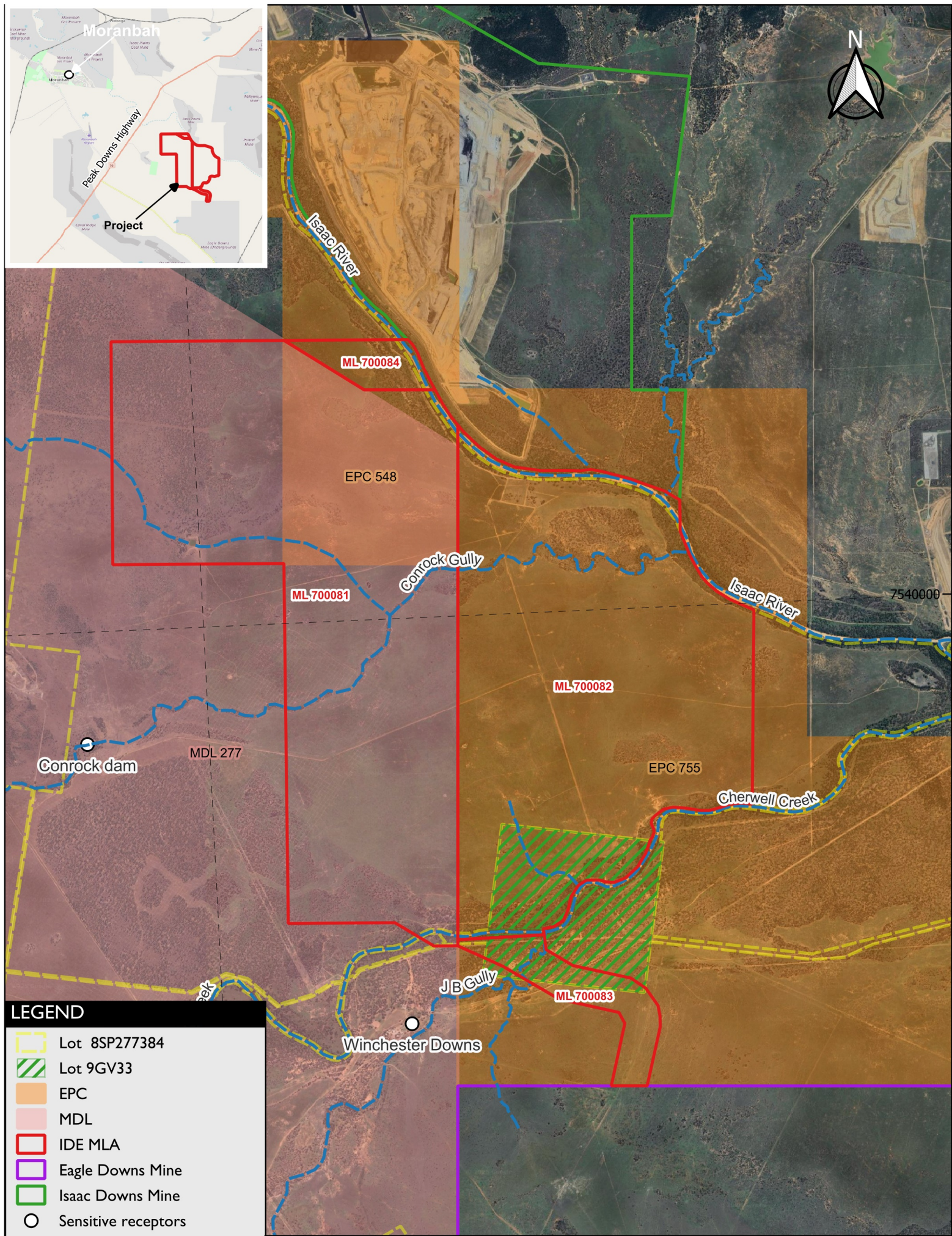
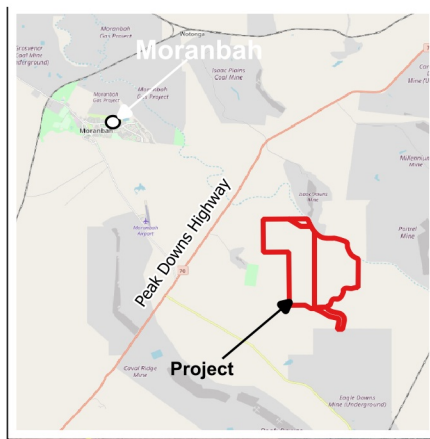
The Project proponent is Stanmore ID Extension Pty Limited (ID Extension), a wholly owned subsidiary of Stanmore Resources Ltd (Stanmore). The Project area comprises applications for four new mining leases (MLs), identified as mining lease application (MLA) 700081, MLA 700082, MLA 700083 and MLA 700084, covering ~ 2,707 hectares (ha) across parts of mineral development licence (MDL) 277 and exploration permit coal (EPC) 755 and EPC 548. The Project will include the following domains/infrastructure:

- an open-cut mining pit;
- out-of-pit overburden dumps;
- run-of-mine (ROM) pad;
- access road and haul roads, including a connection to Isaac Downs Mine (IDM) and a bridge across the Isaac River;
- satellite go-line and crib area;
- levee along the Isaac River and Cherwell Creek;
- diversion of Conrock Gully;
- water management infrastructure, including mine affected water dams, sediment dams, clean water dams and clean water diversion;
- topsoil stockpile areas;
- water supply infrastructure, pipelines, powerline (the linear infrastructure) connections with IDM;
- temporary dragline walk route across the Isaac River from IDM; and
- secondary access road connecting to Eagle Downs project ML 70389, with a crossing of Cherwell Creek.

1.2 Scope of work

The scope of work has been developed in line with the *Contaminated land — Environmental Impact Statement (EIS) information guideline* (ESR/2020/5300 Version 1.02, June 2024), published by the Department of Environment, Science and Innovation (now known as Department of Environment, Tourism, Science and Innovation (DETSI)). This guideline outlines requirements for assessing existing site conditions as part of an EIS. SGME's scope of work includes the following:

- Initial desktop investigation:
 - use sources such as historical aerial imagery, ground photographs, title deeds, local histories, trade directories, and interviews with past and current owners, operators and occupiers to develop a history of the Project's previous land use(s) and activities;
 - check the Environmental Management Register (EMR) and Contaminated Land Register (CLR) to determine if land parcels intersecting the Project area are listed;
 - provide a description of the Project's characteristics, including current land use(s), layout, topography, geology and hydrogeology; and
 - discuss past activities that might have resulted in land contaminated, based on the Project area's history and characteristics, to determine whether the Project area is, or may be contaminated.
- Preliminary site investigation (soil sampling):
 - undertake preliminary soil sampling and laboratory analysis of surface soil samples; and
 - assess the need for further investigation (ie., a detailed site investigation), if deemed necessary.



LEGEND

- Lot 8SP277384
- Lot 9GV33
- EPC
- MDL
- IDE MLA
- Eagle Downs Mine
- Isaac Downs Mine
- Sensitive receptors
- Watercourses

0 1 2 km

 SGME Engineering new environments	Client	Stanmore Resources		Project	Isaac Downs Extension Project	
	Design:	SGME Pty Ltd 28.10.2025		Title	Project location	Figure
	Scale:	1 : 35000				I
	CRS:	GDA94 / MGA zone 54				

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1.3 Applicable legislation, standards and guidelines

1.3.1 *Environmental Protection Act 1994* and subordinate legislation

Contaminated land in Queensland is managed under the *Environmental Protection Act 1994* (EP Act) and subordinate legislation. The Act is administered by the Department of Environment, Tourism, Science and Innovation (DETSI).

The EP Act focuses on managing Queensland's environment in accordance with the principles of ecologically sustainable development. Chapter 7, Part 8 of the *EP Act* specifically addresses the investigation, reporting, and management of contaminated land.

Key elements relating to contaminated land under Chapter 7, Part 8 of the EP Act include:

- **Division 2: Including land in relevant land register**

This Division provides for the recording of land on either the Environmental Management Register (EMR) or Contaminated Land Register (CLR). Land may be placed on the EMR and/or CLR because a notifiable activity has been, or is being, conducted on the site, or if the land has been contaminated by a hazardous contaminant; and

- **Division 3: Contaminated land investigation documents**

This Division provides for:

- the content and submission of contaminated land investigation documents (CLIDs), including:
 - > the roles of a Suitably Qualified Person (SQP) and a Contaminated Land Auditor (CLA); and
 - > The inclusion of a site suitability statement and a draft Site Management Plan (SMP)
- the preparation, consideration and amendment of a draft SMP.

In addition to these provisions, the EP Act imposes general obligations on all individuals and entities in Queensland to prevent environmental harm, nuisances, and contamination. These obligations include three key duties:

- general environmental duty:
 - to avoid carrying out an activity that may cause environmental harm without taking all reasonable and practical measures to prevent or minimise the harm
- duty to notify of environmental harm:
 - to notify the relevant authority and landowners if environmental harm has occurred, or is likely to occur; and
- duty to restore the environment
 - where unlawful environmental harm has occurred, to take appropriate action to rehabilitate or restore the environment to its condition prior to the incident.

1.3.2 Applicable standards and guidelines

The department administering the EP Act publishes detailed technical documents that interpret and implement requirements for contaminated land investigation, effectively operating as regulatory instruments, they are:

- National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM); and
- Queensland Auditor Handbook for Contaminated Land (DES 2018).

1.3.2.1 National Environment Protection (Assessment of Site Contamination) Measure 1999

Contaminated land investigations performed under the EP Act must be conducted in accordance with the national framework of ASC NEPM. It provides the technical and procedural standard for all site investigations across Australia.

The ASC NEPM consists of two schedules:

- *Schedule A* outlines the recommended process for the assessment of site contamination. It presents guiding principles to be applied during preliminary and detailed site investigations; and
- *Schedule B* includes nine general guidelines for the assessment of site contamination. These guidelines provide direction on investigation levels, field activities, and the conduct of health and ecological risk assessments.

A key component of the ASC NEPM relevant to contaminated land investigations is the specification of investigation levels. These levels are used to assess potential risk to human health and the environment from contaminants of concern in groundwater, surface water and sediment.

1.3.2.2 Queensland Auditor Handbook for Contaminated Land

The EP Act governs the management of contaminated land in Queensland. Since 30 September 2015, all contaminated land investigation documents (CLIDs) must be certified by an approved auditor before submission to DETSI.

CLIDs include the following types of reports:

- site investigation report;
- validation report; and
- draft site management plans (SMP) or draft amended SMP.

Auditor certification must confirm that each CLID meets all regulatory content requirements, including a statement of suitable land uses or activities based on site conditions.

Guidance on the required content of a CLID is provided in the *Queensland Auditor Handbook for Contaminated Land. Module 6: Content requirements for contaminated land investigation documents, certifications and audit reports* (DES 2018).

1.4 Investigation works and reporting

The preliminary site investigation (PSI) for the Project was conducted in accordance with the following key guidance documents:

- National Environment Protection Council. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999* (ASC NEPM 2013, as amended May 2013). Australian Government; and
- Heads of EPAs Australia and New Zealand (HEPA). (2020). *PFAS National Environmental Management Plan: Version 2.0*, Australian Government.
- Queensland Department of Environment and Science (DES). (2023). *Queensland auditor handbook for contaminated land: Module 6 – Content requirements for contaminated land investigation documents, certifications and audit reports* (ESR/2018/4224, Version 2.03, effective 18 May 2023), Queensland Government;
- National Environment Protection Measure (Assessment of Site Contamination) [ASC NEPM]. (2013). *Schedule B1 – Guideline on investigation levels for soil and groundwater*. In *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013, Australian Government; and

- National Environment Protection Measure (Assessment of Site Contamination) [ASC NEPM]. (2013). *Schedule B2 – Guideline on site characterisation*. In *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013, Australian Government.

1.5 Project team qualification

Willy Van Vaerenbergh, of WMV Environmental Pty Limited (WMV), assisted in the planning and execution of the investigation and conducted a third-party review of the initial findings, field assessment and final report. Willy is a contaminated land practitioner and hydrogeologist with more than 30 years of experience. He is recognised as a Suitability Qualified Person (SQP) in relation to contaminated land under the EP Act and *Schedule B9* of the ASC NEPM (2013). Willy's detailed curriculum vitae is provided in Appendix A.

The PSI was undertaken by Dr Timothy Rohde (BEnvSc, GDip, PhD) with technical oversight provided by Willy Van Vaerenbergh. Dr Rohde has over 20 years of professional experience and holds the following credentials:

- Chartered Professional Soil Scientist (CPSS — AO1453);
- Registered Professional Engineer of Queensland (RPEQ - No. 15856); and
- Chartered Professional in mined land rehabilitation with the Australian Institute of Mining and Metallurgy (MAusIMM(CP)).

Dr Rohde specialises in soil surveys and management, mine and quarry rehabilitation; final landform design, decommissioning, and closure management plans. A résumé can be provided upon request.

1.6 CLID status of this report

This report does not constitute a CLID as defined under Sections 387 to 390 of the EP Act or in accordance with Queensland *auditor handbook for contaminated land* (DES 2023).

A CLID is required when a determination by the administering authority (ie. DETSI) is necessary in relation to the listing of the land parcel on the Environmental Management Register (EMR) and must address the contamination status of the entire land parcel.

No such determination is required. Furthermore, the preliminary soil sampling program undertaken as part of this PSI does not cover the entire site.

2.0 Initial desktop investigation

The PSI included a desktop study to identify potential areas of land contamination resulting from anthropogenic activities. A risk-based approach was adopted to identify, prioritise, and assess potential areas of contamination. This approach also guided decisions regarding the need for further investigation, based on the likelihood of risk to human health or the environment.

2.1 Project location and description

The Project is located ~ 15 km southeast of Moranbah and 150 km southwest of Mackay. It lies immediately south of IDM ML, with the Project's MLA boundaries abutting IDM ML boundary. The northern boundary of the Project area includes the Isaac River, Conrock Gully traverses the central section of the Project area and the southern section is intersected by Cherwell Creek (Figure 1).

Table 1 lists the land parcels within the Project area shown in Figure 1.

Table 1 Land parcels within the Project area

Identifier	Owner
Lot 8 SP277384 (parts thereof)	Winchester Downs station
Lot 9 GV33 (parts thereof)	State Reserve

2.2 Project setting

2.2.1 Regional and local history

The region was settled and farmed by Europeans as early as 1859 when Mt. Nebo and Mt. Fort Cooper were discovered by William Landsborough. Settlement followed rapidly with Lotus Creek, Kemmis, Bovey, Nebo Creek, and Leichhardt Downs settled by 1863 (Cilento and Lack 1959). However, in the immediate vicinity of the Project, development and disturbance have been more recent. The township of Moranbah located close to the Project was not established until 1969 due to mining interest in the area. The Project area only experienced large-scale clearing after 1966. Between 1966 and 1985, parts of the area had been cleared for livestock grazing. By 2004, most of the Project area had been cleared for grazing land. Areas adjacent to the Isaac River and along a small tributary (Conrock Gully) that crosses the Project area remain vegetated.

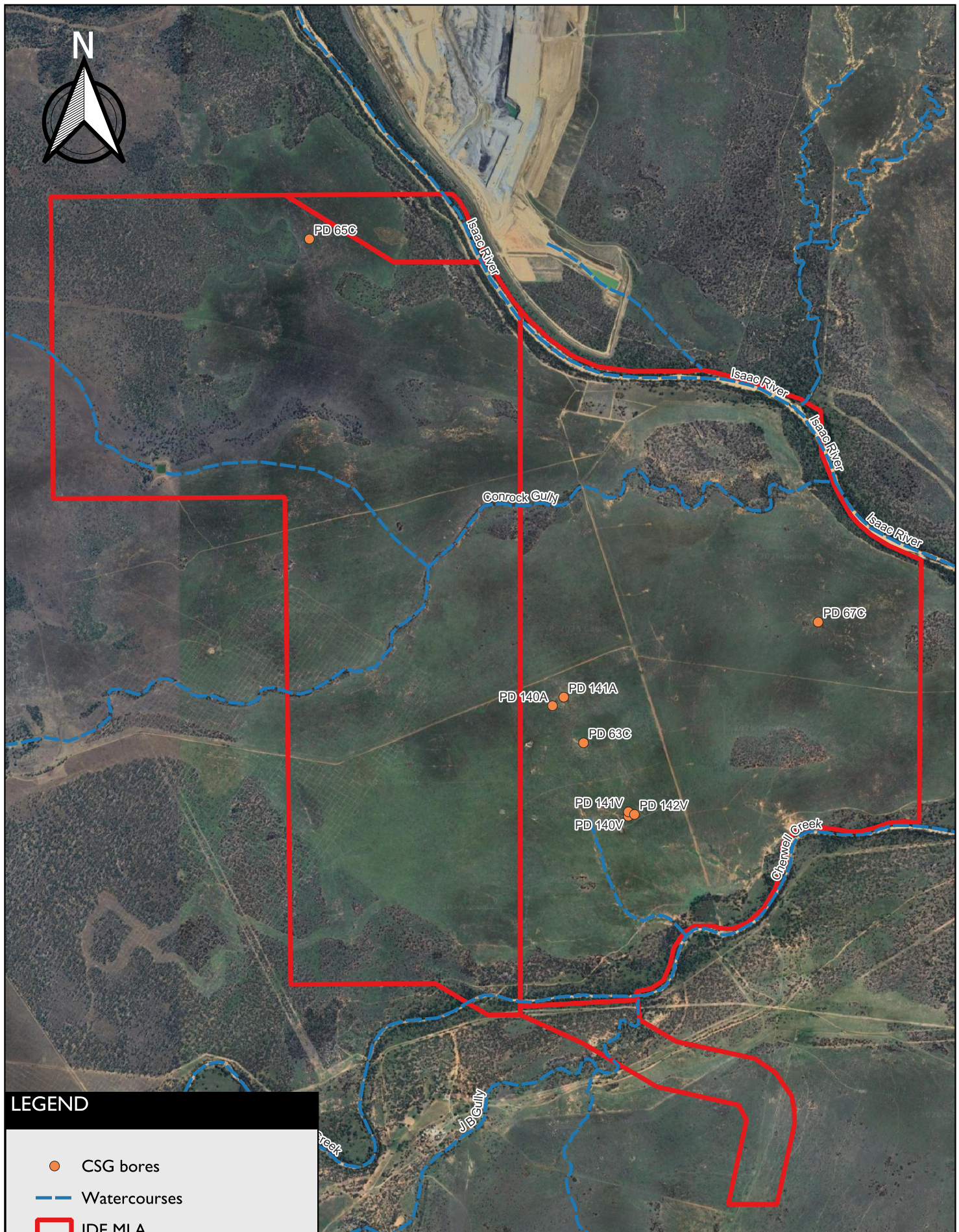
Coolibah Quarry to the east of the Project area began operation at an unknown time prior to 1985. To the north of the Project, IDM was approved for construction and operation in July 2021 and began operating in 2022.

A search for boreholes in GeoResGlobe (a spatial mapping application maintained by the Queensland Government) identified eight coal seam gas (CSG) bores within the Project area. These CSG bores which were owned and operated by a subsidiary of Arrow Energy Pty Limited, were plugged and abandoned between 2011 and 2012 in accordance with the *Petroleum and Gas (Safety and Production) Regulation 2004*. In addition, several coal resource exploration drill holes and groundwater bores are located across the central Project area.

A list of CSG bores identified within the Project area is provided in Table 2 and shown in Figure 2.

Table 2 Coal seam gas bores

Bore name	Latitude	Longitude	Status
PD 63C	-22.0991	148.1888	Plugged and abandoned By Arrow Energy Pty Ltd in accordance with Petroleum and Gas (Safety and Production) Regulation 2004 between 2011-2012
PD 65C	-22.0635	148.1694	
PD 67C	-22.0906	148.2055	
PD 140A	-22.0965	148.1867	
PD 140V	-22.1044	148.1922	
PD 141A	-22.0959	148.1874	
PD 141V	-22.1041	148.1922	
PD 142V	-22.1043	148.1925	



LEGEND

- CSG bores
- Watercourses
- IDE MLA

Scale 1 : 29 000

0 0.75 1.5 km

	Client		Project	
	Stanmore Resources		Isaac Downs Extension Project	
	Design: SGME Pty Limited 30.10.2025 Scale: 1 : 29,000 CRS: GDA94 / MGA zone 55		Title Decomissioned CSG bores	Figure 2

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2.2.2 Zoning

The Project is located within the regional landscape and rural production area land use category as defined in the Mackay, Isaac and Whitsunday Regional Plan 2011-2031 (DLGP 2012). The regional landscape and rural production area includes land with significant biodiversity values, Agricultural Land Classes (ALC), cultural and landscape heritage values, extractive resources of economic significance (eg mining), water catchments, native forests, coastal wetlands, land unsuitable for urban / rural residential purposes and rural towns and associated activities (DLGP 2012).

2.2.3 Current land use

Current land use in the Project area and surrounds is largely low intensity grazing and agricultural activity. Operational coal mines are located to the east, north and south of the Project along with coal seam gas infrastructure. Extensive clearing for grazing and agriculture means that the remnant vegetation is mostly confined to riparian zones, predominantly along drainage lines. The urban area of Moranbah is located ~ 15 km to the north-west of the Project.

2.3 Environmental settings

The following environmental settings describe the general regional and site-specific context of the Project.

2.3.1 Climate

Climate data was obtained from the nearest Bureau of Meteorology (BoM) weather station, Moranbah Airport (Station No. 34045) (BoM, 2025), which has data from 2012 to 2025. A plot of monthly mean rainfall and temperature is presented in Figure 3. As shown in Figure 3, the area experiences season rainfall pattern, with a dry season typically extending April to September, and a wet season wet season generally occurring between October and March.

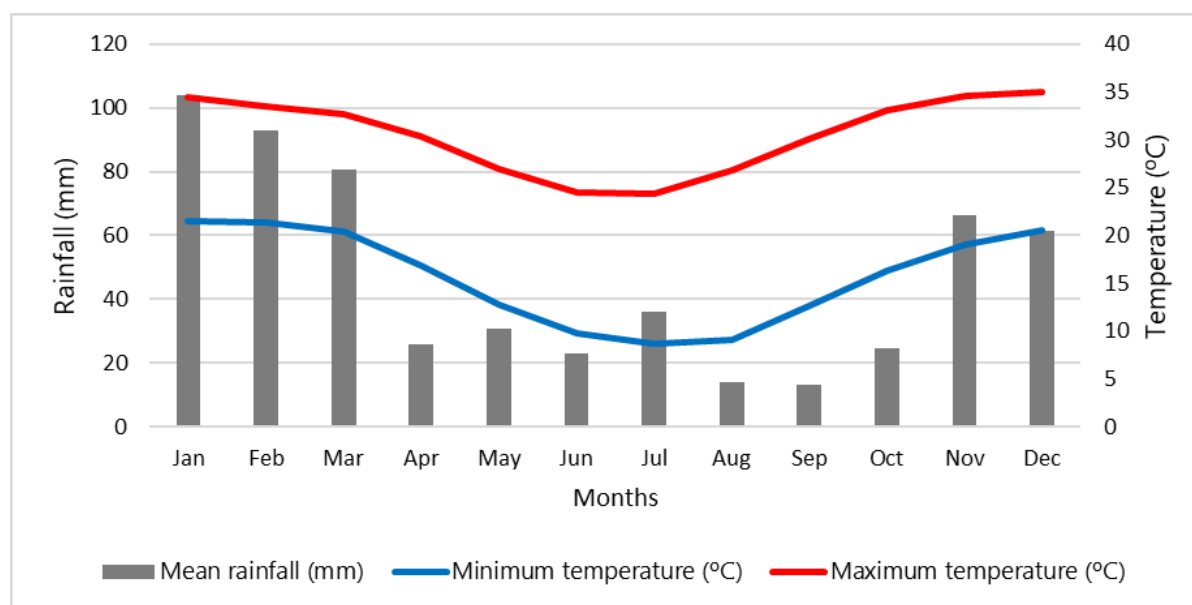


Figure 3 Mean monthly rainfall and temperature

Summer rainfall peaks are associated with prolonged depressions travelling eastward, as well as short-duration, high-intensity rainfall from westward-travelling tropical cyclones. According to Sturman and Tapper (2006), Australian tropical cyclones commonly originate in the Gulf of Carpentaria and the Coral Sea (between 9-19° south latitude).

Winter rainfall is minimal and generally results from weak southerly cold fronts that affect Queensland's southern and eastern coastal regions. These are often linked to large, stable anticyclones over central Australia during winter months, generating dry, cool west to south-westerly airflow across Queensland.

Temperature is relatively consistent with, warm winters and hot summers.

- mean maximum temperatures range from 24-35 °C; and
- mean minimum temperatures ranging from 8-21 °C.

2.3.2 Topography

The Project lies in the middle upper reaches of the Isaac River catchment on gently undulating terrain. Elevation gradually increases from ~ 200 metres (m) Australian height datum (AHD) in the north to 225 m AHD toward the centre of the Project area.

2.3.3 Land systems

The land systems of the Project area (within Isaac-Comet region) were originally mapped by Story in 1967 (Story et al 1967). The following landforms are present within the Project area:

- Monteagle land system – this consists of plains, lowlands and gentle colluvial slopes with texture-contrast soils;
- Blackwater land system – this consists of plains on acid clay with cracking clay soils;
- Connors land system – this consists of alluvial clay plains with cracking clay soils;
- Oxford land system – this consists of lowlands and basalt with cracking clay soils; and
- Racecourse land system – this consists of plains and lowlands on weathered basalt, with cracking clay soils and dark brown and grey-brown soils.

2.3.4 Soils

2.3.4.1 Soil classification

The Isaac Downs Extension: Baseline Soils Assessment report (Landloch 2025) provides an evaluation of soil resources for the study area, including the Project area, mapped at a 1:25,000 scale. This assessment identified nine Soil Mapping Units (SMUs), which were grouped based on similar geomorphological and chemical properties.

The soil resources are dominated by sodic texture contrast soils (Sodosols) and cracking clay soils (Vertosols), interspersed with areas of deep alluvial sands (Tenosols) along watercourses.

A summary of the mapped soil types is in Table 3 and shown in Figure 4.

Table 3 Soil types

SMU	Description	Tuck and Baker (2007) Soil units	Total land area (ha)	Total land area (%)
Taurus (Ta)	Sodic texture contrast soils with moderately thick sandy surfaces. Occurs on gently undulating rises within the southern half of the study area.	Sodosols	1,122	29
Davey (Da)	Deep alluvial sands occurring on the levees along the Isaac River and Cherwell Creek.	Tenosols	692	18

SMU	Description	Tuck and Baker (2007) Soil units	Total land area (ha)	Total land area (%)
Krongie (Kg)	Cracking clay soils with normal gilgai microrelief. Occurring on alluvial floodplains along the Isaac River	Vertosols	515	13
Taurus-Teviot Complex (Ta-Tv)	Complex soil unit consisting of sodic texture contrast soils (Taurus) with sporadically occurring cracking clay soils (Teviot) in gilgai depressions. Occurs on a gently undulating rise within the southern half of the study area.	Sodosols	388	10
Retro (Rt)	Sodic texture contrast soils with thin loamy surfaces. Occurs on gently undulating rises on the northern half of the study area.	Sodosols	343	9
Teviot (Tv)	Cracking clay soils in the depressions of normal gilgai microrelief. Texture contrast soils on the mounds. Occurs on gently undulating rises, central within the study area.	Vertosols	340	9
Arcturus (Ac)	Cracking clay soils derived from basalt with crabhole microrelief. Occurs on gently undulating rises and colluvial depositions on the western boundary.	Vertosols	246	6
Luxor (Lx)	Texture contrast soils with thick sandy surfaces and clay subsoils. Occurring on a prominent rise on the northern half of the study area.	Chromosols	201	5
Pegunny (Pg)	Cracking clay soils in low lying flood plains, subject to prolonged waterlogging. Occurs in a minor area on the southeastern tip of the study area.	Vertosols	16	1

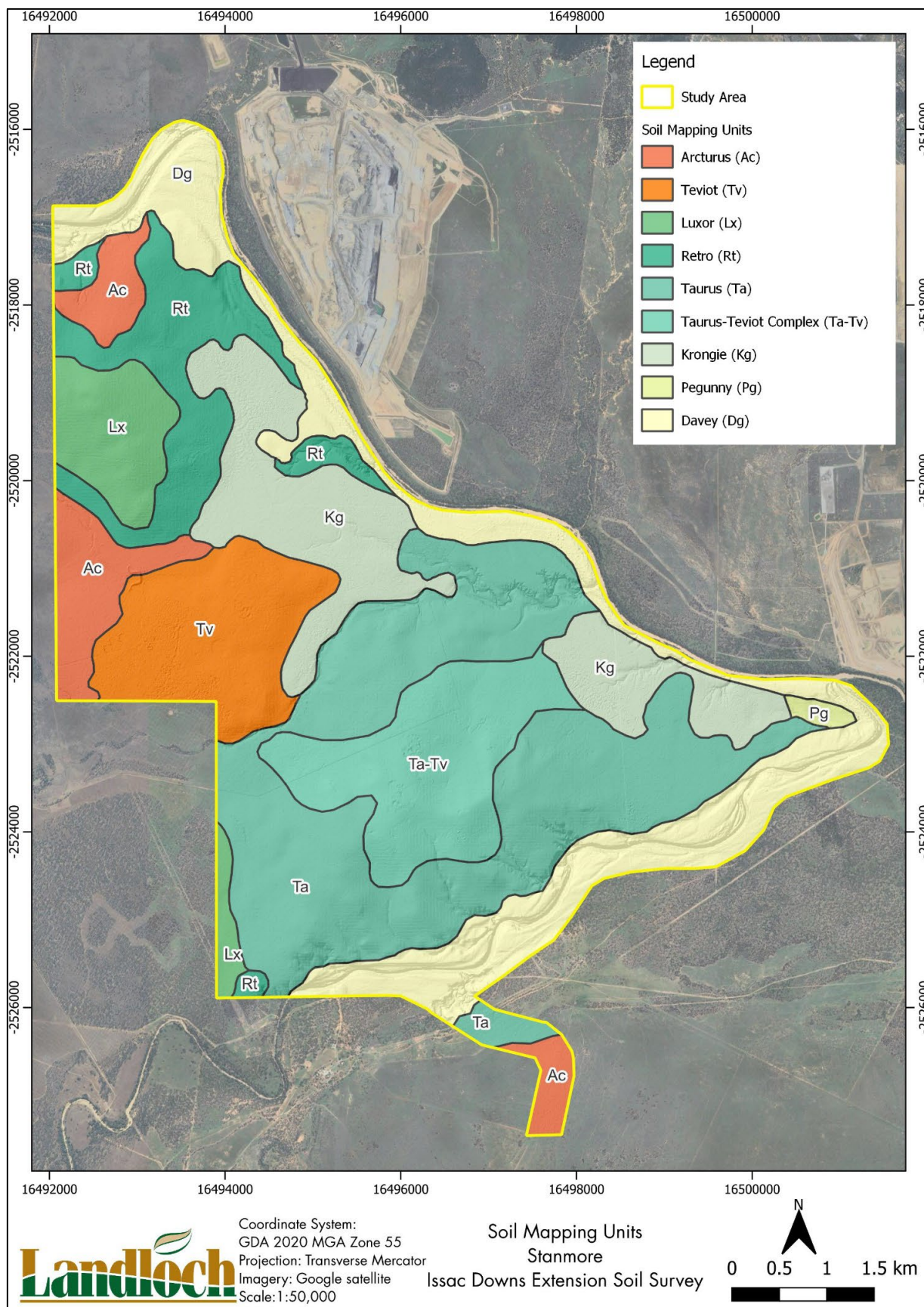


Figure 4 Soil Mapping Units within the study area (Landloch 2025)

2.3.4.2 Acid sulfate soils

~35,000 years ago, elevated sea levels created extensive coastal swamps across Queensland. Since then, the sea levels have receded and the areas were covered by newer sediments from upland erosion. The process resulted in acid sulfate soil (ASS) being buried underneath modern soil layers, particularly in coastal areas below 5 m AHD. Acid sulfate soils are typically found in:

- coastal areas < 5 m AHD; and
- In some areas, buried beneath newer soils at elevations < 20 m AHD.

Although not mapped comprehensively across Queensland, land elevation is a reliable indicator of ASS risk. As the Project is located at an elevation of ~ 200 m AHD, the presence of acid sulfate soils is not considered a risk.

2.3.5 Surface water

2.3.5.1 Drainage basins

The Project area lies within the Fitzroy drainage basin. Relevant drainage basin details are as follows:

- Drainage Division: North East Coast (Division I);
- Drainage Basin: Fitzroy (Basin number 130); and
- Drainage Sub-Basin: Isaac River (sub number 1304).

2.3.5.2 Water plan catchments

Under the *Water Act 2000*, water plans are developed to sustainably manage and allocate water resources in Queensland. A water plan may apply to rivers, lakes and springs; overland flow and/or underground water.

The Project is located within the *Water Plan (Fitzroy Basin) 2011* water plan area. Relevant details include:

- Water Plan Catchment: Fitzroy River Catchment
- Water Plan Subcatchments: Isaac River Sub-Catchment

2.3.5.3 Watercourse, water bodies and wetlands

Tributaries of the Isaac River that flow that intersect the Project area include (Figure 4):

- Cherwell Creek;
- Conrock Gully; and
- JB Gully.

Conrock Gully drains the Isaac River. JB Gully drains into Cherwell Creek, which subsequently flows into the Isaac River. The Project is located ~ 2 km upstream of the confluence of Cherwell Creek and the Isaac River.

Streamflow data is available from Queensland Government streamflow monitoring sites in the Isaac River catchment:

- Isaac River at Goonyella (130414A); and
- Isaac River at Deverill (130410A).

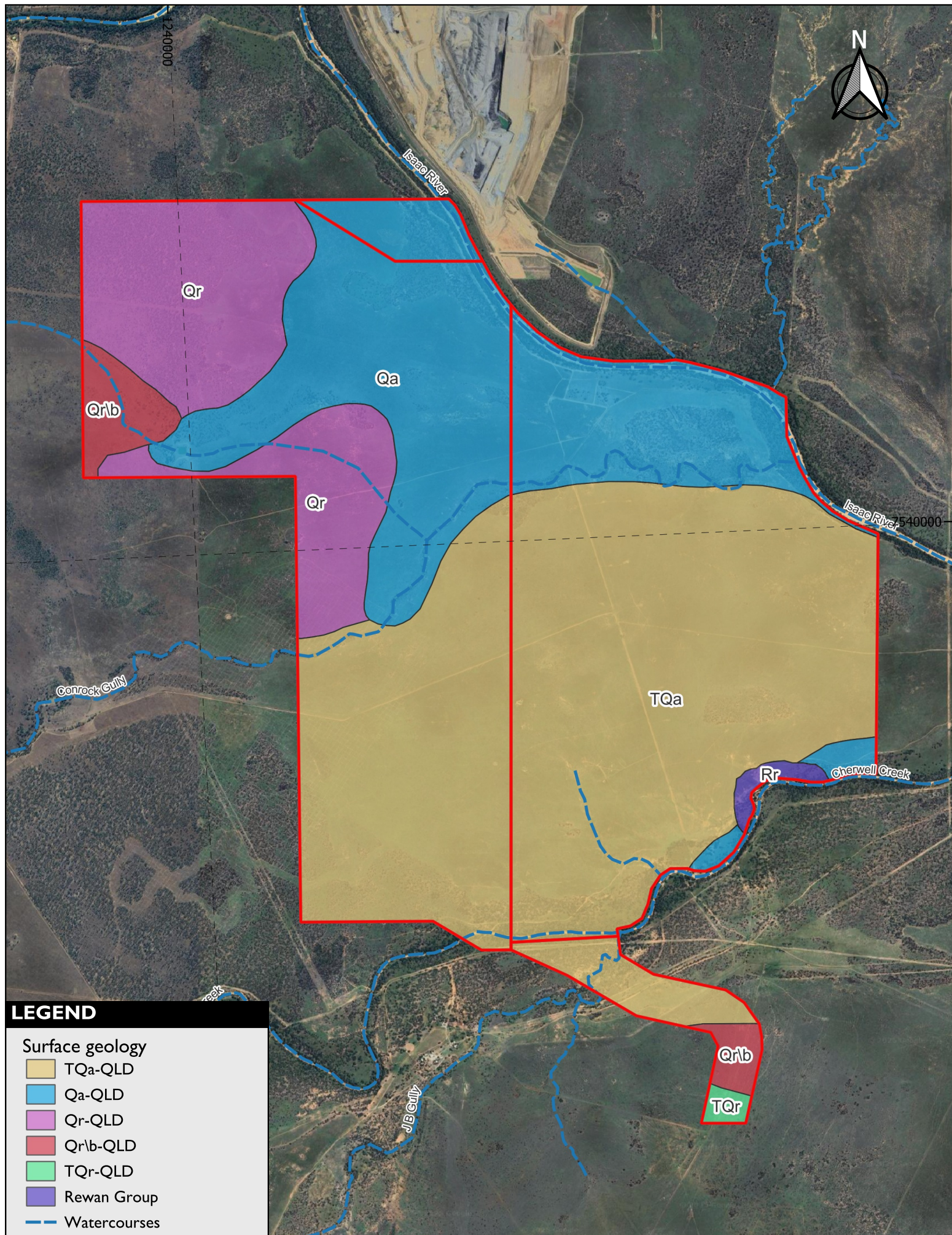
Monitoring records indicates that the Isaac River typically ceases to flow for extended periods between April and November, with episodic high-flow events occurring during the wet season.

2.3.6 Surface geology

The Project is located in the northern part of the Bowen Basin. The Bowen Basin is the northern extension of the Permian age Sydney-Gunnedah Bowen Basin which contains fluvial and shallow marine sediments with extensive coal measures. This region is known for its extensive Permian-age coal deposits, specifically the Rangel Coal Measures, which are renowned for high quality metallurgical coking coal (DNRME 1998). Geological units identified by QGlobe across the Project area are listed in Table 4 and shown in Figure 5, with further details provided in the Project groundwater impact assessment (SLR 2026).

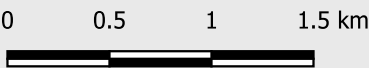
Table 4 Geological units

Map symbol	Mapped location/extent	Unit description
TQa	Covers most of the central and southern areas (orange)	High-level alluvium (Late Tertiary-Quaternary); red-brown, poorly consolidated sand, silt, clay and gravel.
Qa	Northeastern and central floodplain regions (blue)	Floodplain alluvium (Quaternary); clay, silt, sand and gravel.
Qr	North-central and west-central areas (pink)	Colluvial/residual soils (Quaternary); mixed sediments.
Qr/b	Western and southeastern fringes (red)	Black soil colluvium (Quaternary); basalt/limestone-derived.
TQr	Southern corner (green)	Older colluvial deposits (Late Tertiary-Quaternary); mixed soils.
Rr	Small exposure in southeastern edge (purple)	Arenite-mudrock (Triassic) sandstone, mudstone, minor volcanics.



LEGEND

- Surface geology
- TQa-QLD
 - Qa-QLD
 - Qr-QLD
 - Qr\lb-QLD
 - TQr-QLD
 - Rewan Group
 - Watercourses
 - IDE MLA



Client Stanmore Resources		Project Isaac Downs Extension Project	
Design: Scale: CRS:	SGME Pty Ltd 9/10/2025 1 : 30000 GDA94 / MGA zone 54	Title Surface geology	Figure 5

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2.3.7 Hydrogeology

The hydrogeological regime located within and surrounding the Project area is described in SLR (2026) and comprises the following key hydrogeological units:

- Cenozoic sediments:
 - Quaternary alluvium – unconfined aquifer (sporadically water-bearing strata of permeable unconsolidated sand or gravel with interlayered clays and silts) localised to major ephemeral drainage line channels (Isaac River and Cherwell Creek) at the IDE Project and in the Study Area.
 - Quaternary to Tertiary non-alluvial sediments and weathered units (collectively termed 'regolith') – unconfined unit with variable but limited saturation and generally present at the surface within the Project Area.
- Triassic Rewan Group – Considered a regional scale aquitard, however, some saturated more hydraulically conductive horizons exist within, particularly within the upper weathered zone. The Rewan Group subcrops on the eastern side of the Project Area.
- Permian coal measures with:
 - Low permeability interburden and overburden units with aquitard properties.
 - Coal seams that exhibit water bearing properties associated with secondary porosity through cracks and fissures.

The coal seams within the Permian RCM are the main aquifer units in the Project area. The coal seams can be characterised as confined aquifers, with the Leichhardt and Vermont coal seams forming the main aquifer units locally. The RCM overburden and interburden act as aquitards and are typically dry, or very low yielding.

2.3.8 Receptors

There is a single sensitive receptor, Winchester Downs homestead within ~ 5 km, south of the Project's proposed mining activities (Figure 1).

2.4 Contaminated land searches

Searches of the EMR and CLR land registers showed that the properties — Lot 8SP277384 (Winchester Downs) and Lot 9GV33 (State Reserve) (Figure 1) were not listed on either register. Records of the searches are included in Appendix B.

2.5 Review of historical aerial imagery

A review of aerial photography dating from 1966-2023 identified a small number of land disturbances that may have or had contained activities that might have resulted in contamination. Relevant aerial photographs are included in Appendix C.

In 1966, the Project and surrounds remained undisturbed. At an unknown time between 1966 and 1985, a large portion of the Project area was cleared for grazing. Roads/tracks were developed around the region and within the Project area. Coolibah Quarry began operation prior to 1985. By 2000, land clearing for grazing had removed large quantities of vegetation leaving only small remnant patches, and road/track development had continued throughout the Project area.

By 2023, land clearing was primarily restricted to the eastern side of the Project area. A cattle yard/paddock in the north east of the Project area can be observed. Several CSG branching off the central road/track had been constructed. Between 1966-2023, a dead spot can be observed in the patch of remnant vegetation to the east of the cattle yard/paddock. In the west of the Project area, a square water structure (likely man-made) may have been a cattle dip or other livestock-associated infrastructure.

The cattle yard/paddock, square water structure, vegetation dead spot and CSG bores are potential avenues of contamination (Appendix C- Figure B4).

2.6 Interview with land manager

An email questionnaire was sent to the Winchester Downs and Poitrel property manager. Known local history provided by the property manager supported the land use of grazing and confirmed a long association with resource exploration. The nearest industrial activity (exploration camp/workshop etc) was located ~ 2 km east of the Project area near Conrock Dam (Figure 1). At that location, there is an existing cattle yard and a trap yard that may have been used for spraying cattle for ticks. North of Cherwell Creek was previously part of the Poitrel property, however, most of the cattle husbandry and workshop facilities were located on the other side of the Isaac River.

The property manager confirmed that there were no known potential sources of soil or water contamination (including livestock operations, landfill/dumping of hazardous material, spills or leaks) that could have contributed to soil or water contamination. There was potential pesticide use at the trap yard near Conrock Dam. However, this trap yard is located outside the Project area. Potential chemicals could have migrated via Conrock Gully from the exploration camp/workshop at Conrock Dam.

3.0 Preliminary investigation (soil sampling)

As part of the PSI, soil samples were collected from identified areas where potentially contaminating activities may have occurred historically.

3.1 Methodology

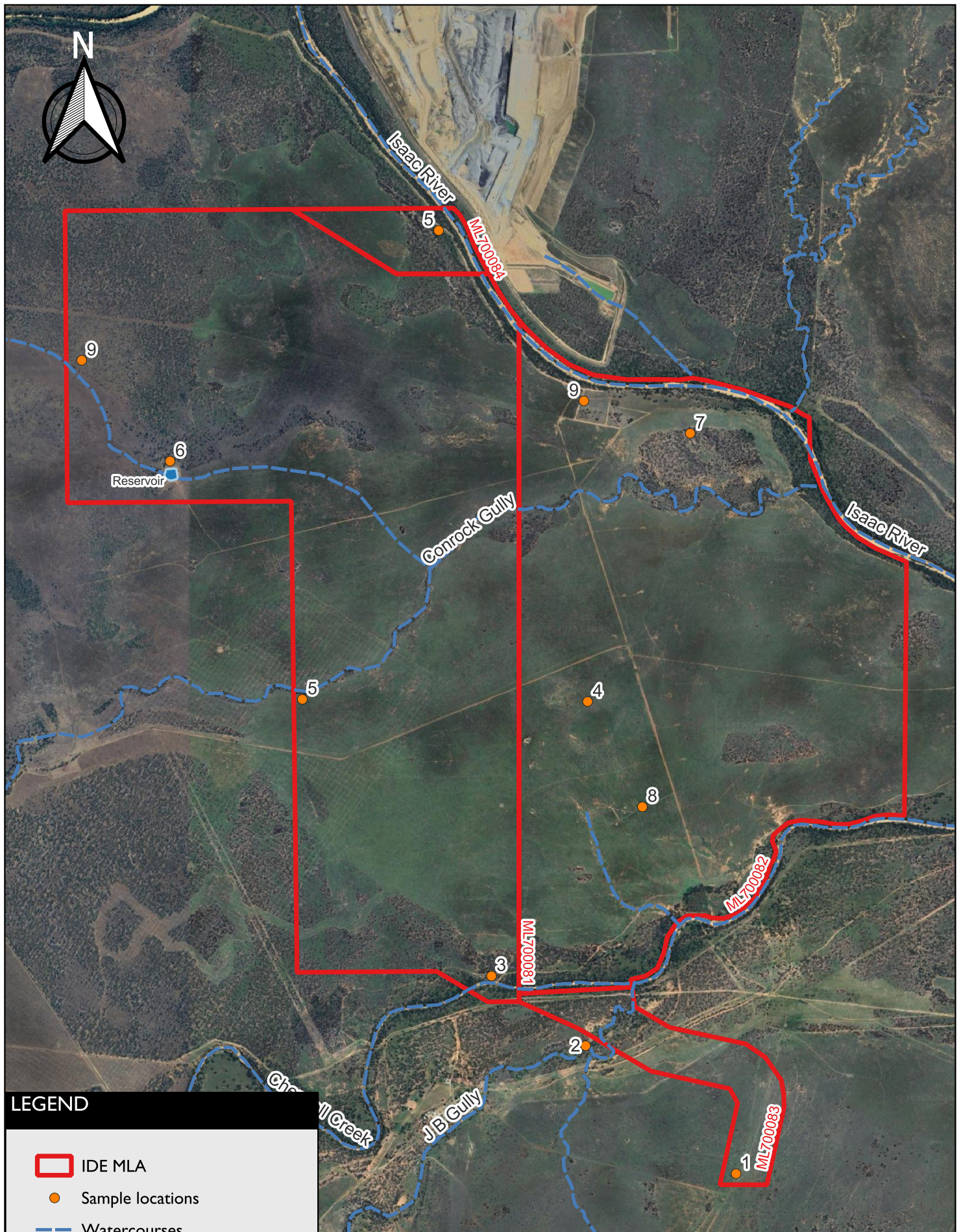
3.1.1 Sample locations

The contamination survey included collecting a limited number of surface (0-10 centimetres (cm)) soil samples (the samples) at locations (the sampling sites) with a contamination risk.

A summary of the sampling site selection criteria, based on the initial investigation in Section 2.0 is listed in Table 5 and mapped in Figure 6.

Table 5 Sampling location description and basis of selection

Sample location	Approximate location	Basis of site selection
1	Southern border of MLA 700083	To capture contamination (if any) on MLA boundary extents
2	Near JB Gully close to MLA 700083 boundary	JB Gully traverses MLA and Winchester Downs residential property backs on to JB Gully.
3	Near Cherwell Creek on MLA 700081	Cherwell Creek traverses MLA
4	Near decommissioned CSG bores on MLA 700082	Location of decommissioned CSG bores
5	Near Conrock Gully on MLA 700081	Conrock Gully traverses MLA. There was potential pesticide use at the trap yard near Conrock Dam.
6	Sample site '6' does not exist, because proposed location was inaccessible	Not applicable
7	Near Isaac River on northern section of MLA 700082	Dead vegetation patch near Isaac River
8	Near decommissioned CSG bores on MLA 700082	Location of decommissioned CSG bores
9	Near unnamed drainage lines on western edge of MLA 700081	Unnamed drainage lines traverses MLA and to capture contamination (if any) on MLA boundary extents.
10	Cattle yard/paddock near northwestern corner of MLA 700082	Cattle yard and disturbance
11	Project area boundary with IDM on northeast section of MLA 700084	Cleared tracks along Isaac River and close proximity to IDM.



LEGEND

- IDE MLA
- Sample locations
- Watercourses

Scale 1 : 30 000

0 0.75 1.5 km

	Client		Project	
	Stanmore Resources		Isaac Downs Extension Project	
	Design: SGME Pty Limited 02.03.2026 Scale: 1 : 30,000 CRS: GDA94 / MGA zone 55		Title	Figure
			Sample Locations	6

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3.1.2 Sample collection

Ten (10) soil samples (the samples) were collected with a shovel from a depth of 0.1 meters below ground level (mbgl). To prevent cross-contamination, the sampling shovel was thoroughly cleaned, rinsed, and dried after each use. A composite sample for each sampling site was created by combining five individual samples taken from within a 10 m diameter area.

The samples were stored separately in the appropriate containers and kept cool until delivery to the laboratory. The samples were submitted under chain-of-custody procedures to a *National Association of Testing Authorities* (NATA) accredited laboratory for analysis.

3.1.3 Quality assurance

Table 6 summarises data quality indicators (DQI) adopted for quality assurance (QA) / quality control (QC) purposes and the procedures used to achieve them. All QA / QC information was evaluated against these DQIs.

Table 6 Data quality indicators

DQI	Method of achievement
Data precision and accuracy	• use of the same trained and qualified field staff member for all sampling. • appropriate sampling methods used, minimising the opportunity for cross-contamination. • use of analytical laboratories experienced in the analyses undertaken, with appropriate NATA certification. • use of appropriate and validated laboratory test methods.
Data representativeness	• sampling numbers comply with the sampling design guidelines. • targeted sampling of potential contaminants, based on site history, site activities and site features. • adequate laboratory internal quality control and quality assurance methods, complying with the ASC NEPM.
Documentation completeness	• preparation of sample location plan and chain of custody records. • laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody. • NATA registered laboratory results certificates provided by laboratory.
Data completeness	• review of acquired documented information pertaining to site history. • analysis for potential contaminants of concern.
Data comparability	• using appropriate techniques for sample recovery. • using experienced sampler. • using appropriate sample storage and transportation methods. • using the same sampling, storage and transportation methods for each day of sampling. • use of NATA registered laboratories. • use of consistent test methods for each sample. • adequate laboratory internal quality control and quality assurance results, generally complying with the ASC NEPM and laboratory internal standards

3.1.4 Sample analysis

Laboratory testing was undertaken by SGS Australia Pty Limited (SGS Laboratories), a NATA accredited laboratory. A total of ten samples were analysed for the following potential contaminants, selected based on the former land use and overall site history:

- 8 metals;
- total petroleum hydrocarbons (TPH);
- total recoverable hydrocarbons (TRH);
- polycyclic aromatic hydrocarbons (PAHs);
- polychlorinated biphenyls (PCBs); and
- benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN).

3.1.5 Assessment criteria

3.1.5.1 Protection of Human Health

Concerning the protection of human health, the health investigation levels (HILs) described in the ASC NEPM (NEPC 1999, amended 2013) are scientifically based, generic assessment criteria designed to be used in the first stage of an assessment of potential risks to human health from chronic exposure to contaminants.

They are intentionally conservative and are based on a reasonable worst-case scenario for four generic land use settings, as summarised in Table 7.

Table 7 Health investigation level (HIL) summary

Health investigation level (HIL)	Land use
HIL A	Residential with garden/accessible soil (home-grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary schools.
HIL B	Residential with minimal opportunities for soil access, includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
HIL C	Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.
HIL D	Commercial/industrial such as shops, offices, factories and industrial sites.

The development of Health Screening Levels (HSLs) for petroleum hydrocarbons in Australia was primarily led by CRC CARE (Cooperative Research Centre for Contamination Assessment and Remediation of the Environment) and documented in their Technical Report No. 10 series (Friebel & Nadebaum 2011). These HSLs were subsequently incorporated into the ASC NEPM.

The HSLs were developed to be protective of human health by determining the reasonable maximum concentration from site sources for a range of situations commonly encountered on contaminated sites. The HSLs apply to the same land use settings as for the HILs. However, the values for residential A and B are combined. They include additional consideration of soil texture and depth to source to determine the appropriate soil, groundwater and soil vapour criteria for the exposure scenario (Table 8). Not all the HSLs from Friebel, E. and Nadebaum, P. are presented within the ASC NEPM.

Table 8 Health screening level (HSL) summary

HSL	Land use	Soil depths	Soil types (all land uses)
HSL A	See Table 7	• 0 m to < 1 m;	

HSL	Land use	Soil depths	Soil types (all land uses)
HSL B		• 1 m to < 2 m;	- Sand — sand, sandy clay, sandy clay loam, sandy loam, loamy sand, loam, sandy silt and silty sand; - Silt — silt, silty clay and silty clay loam; and - Clay — clay, clay loam and silt loam.
HSL C		• 2 m to < 4 m; and	
HSL D		• 4 m+	

These CRC CARE (2011) guidelines, as adopted by NEPM (1999 amended 2013) provide soil quality HSLs based on the soil type (sand, clay or silt) and depth of contamination (i.e. 0 to 1.0 m, 1 to 2 m, 2 to 4 m and 4 m+).

For the purpose of this PSI, soil sample analysis results have been compared against:

- HILs/HSLs A, which is a standard residential garden with access to soil;
- HILs/HSLs C, which is developed open spaces such as parks and playgrounds; and
- HILs/HSLs D, which includes premises such as shops, offices and factories.

Table 9 ASC NEPM assessment guidelines

Chemical	Health investigation level (HILs) / Health screening level (HSLs)		
	Residential A	Residential C	Commercial / Industrial D
Unit	milligrams per kilogram (mg/kg))		
Metals			
Arsenic (As)	100	300	3,000
Cadmium (Cd)	20	90	900
Chromium (Cr)	100	300	3,600
Copper (Cu)	6,000	17,000	240,000
Nickel (Ni)	400	1,200	6,000
Lead (Pb)	300	600	1,500
Zinc (Zn)	7,400	30,000	400,000
Mercury (Hg)	40	80	730
Benzo(a)pyrene (TEQ)	3	3	40
Polycyclic aromatic hydrocarbons (PAHs)			
Benzo(a)pyrene (toxic equivalent quotient (TEQ))	3	3	40
Total PAH	300	300	40,00
Other organics			
PCBs	1	1	7

Chemical	Health investigation level (HILs) / Health screening level (HSLs)		
Petroleum hydrocarbons			
Toluene	160	Not Limiting	Not Limiting
Ethylbenzene	55	Not Limiting	Not Limiting
Xylenes	40	Not Limiting	230
Naphthalene	3	Not Limiting	Not Limiting
Benzene	0.5	Not Limiting	3
Total recoverable hydrocarbons (TRHs)			
C6-C10 minus BTEX (F1)	45	Not Limiting	260
>C10-C16 minus naphthalene (F2)	110	Not Limiting	Not Limiting

3.2 Results

3.2.1 Visual observations

Visual observations were made of potential contamination sources / indicators. No obvious staining, colour changes or odours were encountered.

No groundwater seepage was observed during sampling. Old or discarded machinery, such a windmill was observed to be adding rust (iron oxides), but in small amounts.

3.2.2 Analytical results

Table 10 provides a summary of the analytical results. Laboratory results are in Appendix D. The following summary statements relate to the analytical results:

- The analysis showed no exceedances off the ASC NEPM assessment guidelines;
- No metals and inorganics exceeded the ASC NEPM assessment guidelines, including HILs/HSLs A (the most conservative assessment guideline);
- All BTEXN components were below ASC NEPM assessment guidelines; and
- PAHs and PCBs were below ASC NEPM assessment guidelines.

Table 10 Laboratory analysis results

Analyte	Unit	1	2	3	4	5	7	8	9	10	11
Total metals in soil											
As	mg/kg	7.3	3.7	1.6	3.7	2.3	1.4	5.1	5.6	1.8	3.5
Cd	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cr	mg/kg	31	24	5.1	46	18	18	42	29	21	30
Cu	mg/kg	13	11	1.4	19	6.2	7.1	18	20	2.0	17
Ni	mg/kg	18	21	2.6	15	10	9.7	17	22	4.6	26
Pb	mg/kg	11	10	2.9	17	5.9	4.6	11	17	2.2	11
Zn	mg/kg	27	18	6.6	27	11	37	22	31	5.5	38
Hg	mg/kg	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02
PAHS											
Benzo(a)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PAH	mg/kg	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Other organics											
Total PCBs in soil	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BTEXN											
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Analyte	Unit	1	2	3	4	5	7	8	9	10	11
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Recoverable Hydrocarbons in soil											
C6-C10	mg/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
>C10-C16	mg/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	30
>C16-C34	mg/kg	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90
>C34-C40	mg/kg	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120
Total Recoverable Hydrocarbons in soil (Silica clean-up)											
>C10-C16	mg/kg	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
>C16-C34	mg/kg	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90
>C34-C40	mg/kg	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120

4.0 Conclusion and recommendation

A preliminary site investigation was undertaken to assess the potential for land contamination within the Project area covering ~ 2,707 ha. Considering the large extent of the area, a risk-based approach was employed for selecting sampling locations. This involved a desktop study and interview with the land manager to identify areas indicative of potential contamination.

From the identified targeted locations, a total of ten surface soil samples from the Project area was collected and subjected to laboratory analysis. The samples were tested for parameters in accordance with ASC NEPM guidelines. The analytical results indicate that no contaminants were detected at concentrations exceeding the applicable ASC NEPM assessment guidelines for the parameters tested. Based on these findings, the Project area is considered to be low risk from contamination that would pose a risk to human health or the environment and therefore, no further assessment of contamination is deemed necessary at this time.

However, it is important to acknowledge that due to the very large size of the Project area, there may potentially be isolated areas of contamination that were not identified during the desktop study or captured by the limited number of samples. Should any possible contamination sources be encountered during future earthworks or Project activities, further investigation may be triggered or warranted.

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Appendix A

Curriculum Vitae – Willy Van Vaerenbergh

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Curriculum Vitae

Willy Van Vaerenbergh is a contaminated land practitioner and hydrogeologist with more than 30 years experience, domestically and internationally, across numerous market sectors.

Willy has acted on many projects as a Suitably Qualified Person (SQP) with respect to contaminated land, in accordance with Qld *Environmental Protection Act 1994* and Schedule B9 of the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended in 2013. He has also been a support expert in hydrogeology and groundwater modelling for Contaminated Land Auditors.

Willy has a background in Geosciences, with experience in groundwater assessments and investigations, groundwater modelling, contaminated land investigations and remediation, water quality assessments, etc.

He has also held positions, including leading business units for Tier 1 consulting firms.

QUALIFICATIONS AND MEMBERSHIPS

- BSc (Great Distinction) Geology, State University of Ghent, Belgium, 1987
- MSc (Great Distinction) Hydrology/ Groundwater, Free University of Brussels, Belgium, 1989
- Member, Environment Institute of Australia and New Zealand
- Member, Australian Land and Groundwater Association
- Member, International Association of Hydrogeologists

KEY SKILLS AND EXPERIENCE

- Contaminated land investigations and remediation
- Environmental investigations and monitoring
- Groundwater investigations
- Groundwater flow and contaminant transport modelling
- Environmental impact studies

CAREER

- WMV Environmental, Hydrogeologist/ Contaminated Land Practitioner, July 2014 – present
- AECOM, Timesheet Contractor, 2015 - present
- EMGA Mitchell McLennan, Associate and Contaminated Land Practice Manager, November 2013 – June 2014
- AECOM Australia Pty Ltd, Technical Director Environment, July 2010 – October 2013
- AECOM Australia Pty Ltd, Queensland Environment Group Leader, 2009 – June 2010
- ENSR Pty Ltd, Queensland and Northern Territory Operations Manager, 2008 – 2009
- Earth Tech Pty Ltd, Queensland Regional Manager - Environment, 2008
- URS Australia Pty Ltd, Geosciences Workgroup Manager, 2002 – December 2007
- URS Australia Pty Ltd, Principal Hydrogeologist, 1999 – December 2007
- Dames & Moore, Hydrogeologist, 1997 – 1999
- Ministry of Water Resources (Sultanate of Oman), Senior Data Processing Office/Technical Advisor – National Well Inventory Project, 1991 – 1997
- Mot MacDonald (UK), Hydrogeologist, 1989 – 1991

Curriculum Vitae – Representative Experience

1. GROUNDWATER

Groundwater Investigations and assessments

- Stockman Project Groundwater Environmental Quality Objectives. Development of groundwater environmental quality objectives and trigger levels for assessment of potential impacts on the groundwater environment from planned mining operations. (Round Oak Stockman).
- Barbara Copper Project Groundwater Assessment. Provision of hydrogeological advice for groundwater investigations at a copper mine site in Northern Queensland. (Aeris Resources).
- Boral Wellcamp Quarry Development Application. Groundwater impact assessment for a proposed expansion of an existing quarry near Toowoomba. (Boral).
- Leigh Creek Energy Project. Hydrogeological support for proposed in-situ coal gasification project (pre-commercial demonstration and commercial stages) in South Australia (Leigh Creek Energy).
- Great Australia Mine Groundwater Investigations. Investigations and reporting to support EA amendments relating to GAM operations, including data reviews, installation of additional monitoring wells, development of groundwater trigger levels and control charts, reporting and regulatory liaison. (Exco Resources Ltd)
- Mt Colin Mine Groundwater Characterisation. Investigations and reporting to support EA amendments relating to mining operations, including data reviews, statistical analysis, reporting and regulatory liaison. (Exco Resources Ltd)
- Wallace Groundwater Investigations. Investigations and reporting to support EA submission relating to proposed mining operations, including data reviews, statistical analysis, development of groundwater trigger levels and control charts, reporting and regulatory liaison. (Exco Resources Ltd)
- Groundwater Monitoring Conditions Amendment. Callide Mine. Provision of groundwater technical services to assist with the submission of an amendment of groundwater conditions to a mine site's Environmental Authority. (Anglo Coal)
- Moranbah Groundwater Sampling. Groundwater sampling from CSG production bores and landholder bores, following spurious detection of benzene in CSG bore water. (Arrow Energy)
- CSG Water Quality Sampling. Sampling of CSG production wells and water storage dams in Surat and Bowen Basins to determine water quality values as input into raw water design basis for CSG desalinisation plants. (Arrow Energy)
- Sustainable Yield Assessment for Groundwater Abstraction. Design, implementation and supervision of a sustainable yield assessment of three groundwater abstraction wells used to provide potable water for the Neverfail Springwater facility in Brisbane. (Neverfail Springwater Ltd)
- Grassdale Feedlot Artesian Water Supply. Technical lead for the drilling and installation of a 1,100-metres deep artesian water supply bore for the proposed feedlot, including groundwater modelling for impact assessment; regulatory approvals; and supervision of tendering, drilling, installation and commissioning of water supply bore into the Precipice Sandstone Formation. (Mort & Co)
- Artesian Groundwater Supply, Oakey Abattoir. Provision of hydrogeological, regulatory approvals and tendering services for the drilling and installing an 800-metre deep artesian water supply borehole into the Hutton Formation. (Australian Meat Holdings Pty Ltd)

Curriculum Vitae – Representative Experience

- Airborne Geophysical Survey, Groundwater Supply Assessment. Project director for an airborne geophysical survey to identify possible groundwater resources for potable town water supply. (Miriam Vale Shire Council)
- Cleo Southwest Extension Dewatering Drilling Program. Supervision of drilling of dewatering and monitoring bores at Sunrise Dam Gold Mine, Western Australia. (Acacia Resources Ltd)
- Gag Island Nickel Project, Environmental Due Diligence Review. Review existing reports and groundwater modelling study to identify gaps in information and potential fatal flaws in the water supply scheme for a proposed nickel mine development. (Confidential Client)
- Dewatering System Quantification, Coal Mine Development. Preliminary design, optimisation and cost calculation for a pre-mining and pit dewatering system for an open-cut coal mine in India. (Confidential Client)
- Subsurface Tailings Disposal Assessment. Evaluation and assessment of the impact of historical underground tailings disposal from a gold ore processing facility on the regional groundwater environment. (Confidential Client)
- Toomelah Aboriginal Community Artesian Water Supply Bore. Preparation of Tender Specifications and contract documentation for drilling an artesian water supply bore for the local Aboriginal community. (Toomelah/Boggabilla Local Aboriginal Land Council, Queensland)

Groundwater Flow and Contaminant Transport Modelling

- IPL Pinkenba Fae & Transport Model. Development of a calibrated fate & transport groundwater model to assess potential impacts of historical operations of a site as a fertiliser manufacturing plant on the receiving environment. (Incitec Pivot Limited).
- Tiebaghi Mine Expansion EIS. Development of an integrated groundwater/surface water model to assess the feasibility of groundwater supply and potential impacts on existing groundwater users and aquifers. (Société Le Nickel, New Caledonia)
- Groundwater Impact Assessment, Mine Water Supply, North Stradbroke Island. Modelling the impact of water supply bores for sand extraction operations for regional groundwater resources. (ACI Industrial Minerals)
- Groundwater Modelling of Pesticides and Arsenic Contamination. Modelling of an arsenic, pesticides and toluene groundwater contamination plume at an industrial pesticides manufacturing plant to predict contamination migration and to assess the feasibility of potential groundwater remediation options. (Confidential Client)
- Oyster Cove Acid Sulphate Soil Groundwater Modelling. Development and calibration of a groundwater model to assess shallow aquifer dewatering impacts (due to residential and commercial canal/lake development on an estuarine coastal plain) on acid sulfate soils issues and to determine appropriate engineering options to manage/mitigate the impacts. (Vanwell Pty Ltd)
- Environmental Investigation and Soil Remediation. Modelling of underground fuel storage tank leakage and migration of hydrocarbon plume at an industrial storage facility in Queensland to determine the sources of contamination and assist in environmental risk assessment. (Confidential Client)
- Geochemical Speciation Modelling. Geochemical equilibrium modelling to determine the source and behaviour of elevated metal concentrations in the groundwater on an industrial property. (Department of Defence)

Curriculum Vitae – Representative Experience

- Caltex Boyne River Wastewater Management. Modelling of the impact of small Sewage Treatment Plant on groundwater quality. (Caltex Australia Petroleum)
- Paiton Ash Disposal. Modelling and evaluating potential leachate seepage from a fly-ash disposal site in Indonesia. (TOYO Engineering Corporation)
- Comalco Alumina Project Impact Assessment Study – Seepage Analysis Modelling. Modelling of the impact of leachate from a bauxite residue storage on the groundwater environment and quality and evaluation of potential remediation measures. (Comalco Aluminium Limited)
- Eneabba West Final Void modelling. Modelling the impact of decommissioning a sand dredging operation and the resulting "final void" on groundwater levels and quality. (RGC Mineral Sands, Western Australia)
- Preliminary Dewatering Investigation Cosmos Nickel Deposit. Groundwater modelling to determine the optimal configuration of pit dewatering systems for different mining schedules. (Jubilee Gold Mines)
- Deep Conviction Feasibility Study. Assessment of the mine dewatering requirements for an underground gold mine in Northern Queensland, including developing a groundwater model to predict groundwater inflow and design the dewatering system. (Thalanga Copper Mines Pty Ltd)
- Water Resources Management Model, Fès-Meknès Plain, Morocco. Development and calibration of multi-aquifer and integrated surface water/groundwater to provide urban and agricultural master planning tools for assessment of groundwater extraction impacts on aquifers, springs and rivers. (United Nations Environment Programme, United Nations)
- Water Resources Management Model, Goulmina-Errachidia-Boudenib Plain, Morocco. Development and calibration of multi-aquifer and integrated surface water/groundwater to provide urban and agricultural master planning tools for assessment of groundwater extraction impacts on aquifers and rivers. (United Nations Environment Programme, United Nations)
- Water Resources Management Model, Mitidja Plain, Algeria. Development and calibration of multi-aquifer and integrated surface water/groundwater to provide urban and agricultural master planning tools for assessment of groundwater extraction impacts on aquifers. (A.G.I.D. Ministère de l'Hydraulique, Algeria)
- Groundwater Modelling, Jamuna Bridge Project, Bangladesh. Development and calibration of groundwater to assess the impacts of reduced overland flooding and groundwater recharge on irrigation water supply due to the closure of the northern intake of the Dhaleswari River by the construction of the Jamuna Bridge. (World Bank)

2. ENVIRONMENTAL IMPACT STUDIES

Willy has been the technical lead for groundwater, surface water, soil and contaminated land studies for several significant environmental impact studies (EIS) in Queensland, New South Wales and Northern Territory for various projects in the mining, power and oil and gas industry. His role involved undertaking the technical studies and completing the study reports and EIS or the management and supervision of technical project teams and peer review of studies and reports.

- Technical lead for contamination studies, Jervois Base NT Metal Project EIS. (Nitro Solutions Pty Ltd).
- Technical lead for Hazard and Risk Analysis, Broughton Coal EIS. (U&D Mining Pty Ltd)

Curriculum Vitae – Representative Experience

- Central Queensland Integrated Rail Project EIS. Technical Lead for groundwater, surface water, contaminated land, soils, geology and acid sulphate soils chapters for EIS for a 300-km railway line in central Queensland. (Aurizon)
- Boundary Hill Mine Expansion EIS. Technical Lead for groundwater chapter for EIS for a proposed mine expansion in central Queensland. (AngloCoal)
- Port of Townsville Expansion Project EIS. Technical Lead for groundwater, contaminated land, soils, geology and acid sulphate soils chapters for EIS for the expansion of the Port of Townsville. (Port of Townsville Ltd)
- Surat Basin Rail EIS. Water Supply Options and Groundwater Impact Assessment: Assessment of water supply sources for the construction of major railway infrastructure and groundwater impacts assessment. (Surat Basin Rail Joint Venture)
- Tiebaghi Mine Expansion EIS. Development of integrated groundwater/surface water model to assess the feasibility of groundwater supply and potential impacts on existing groundwater users and aquifers. (Societe Le Nickel, New Caledonia)
- Gladstone Pacific Nickel Project EIS. Technical lead for groundwater impact assessment studies for EIS for proposed nickel refinery. (Gladstone Pacific Nickel Limited)
- QNI Yabulu Refinery EIS. Technical lead for groundwater impact assessment studies for EIS for proposed nickel refinery expansion. (Queensland Nickel)
- Caltex Clean Fuels Project EIS. Technical lead on contaminated land, groundwater and acid sulphate soils studies for EIS for the proposed Lytton Refinery Modifications Project. (Caltex)
- Mount Arthur North Coal Project EIS. Peer review of the hydrogeological investigation, including installation of groundwater monitoring network, groundwater flow modelling, quantification of dewatering requirements, and design of dewatering systems for an EIS for a proposed coal mine in New South Wales. (Mt Arthur Coal Pty Ltd)
- Mount Arthur North Coal Project EIS Mine Water Management System Development: Development of a mine water management system for a proposed coal mine, including the design of a site drainage plan, the development and application of a mine water balance model to identify mine water supply and discharge requirements, and the development of a final void model. (Mt Arthur Coal Pty Ltd)
- Glen Wilga/Sefton Park Coal Mine Development EIS. Design, implementation and supervision of a drilling program to install a groundwater monitoring network for two proposed coal mine developments in Queensland. (Tarong Energy)

3. CONTAMINATED LAND

Willy's contaminated land experience includes design and supervision of contaminated land investigation and remediation projects; remediation feasibility studies; remediation cost estimation, financial modelling and optimisation; regulatory agency liaison and negotiations; preparation, review and sign-off on technical reports and Contaminated Land Investigation Documents; day-to-day project management and cost control.

Willy has worked on and managed major remediation projects, from initial cost modelling and delivery optimisation to designing and implementing investigation and remediation programs that tie in with construction activities, to obtaining site suitability statements for specific land uses or removal from the Environmental Management Register.

Curriculum Vitae – Representative Experience

PFAS-Related Major Project Experience

- Bulimba Creek Village Development. PFAS surface water, sediment and groundwater investigations to assess the extent and level of PFAS-related contamination, identify the potential PFAS sources and complete a human health and ecological risk assessment as part of a residential development project. (PUC).
- RNA Redevelopment Project – PFAS Site Investigations. SQP for site-wide PFAS soil and groundwater investigations to assess the presence and extent of PFAS, determine potential sources and evaluate potential risks to human health and the environment (Lendlease).
- Baratta Street former landfill. SQP for PFAS surface water, groundwater and landfill leachate site investigations (DTMR).
- Aviation Facility Site Investigations. Project director and technical lead for PFAS site investigations at Rockhampton and Brisbane airports, including soil, sediment, surface water and groundwater assessment; aquatic ecology surveys; human health and ecological risk assessments; development of remedial options. (Airservices Australia)

Major Soil and Groundwater Investigation and Remediation Projects

- RNA Redevelopment Project – Brisbane. SQP for several contaminated land and acid sulfate soils (ASS) investigations and remediation works as part of the urban regeneration project of the RNA Showgrounds. The project involved soil, groundwater and ASS investigations, development of Remediation Plans, soil remediation works and sign-off as SQP on reports submitted to the Qld Department of Environment and Science (DES) with the view to remove sites from the Environmental Management Register or develop Site Management Plans. (Lendlease)
- Colmslie Southern Lot Remediation - Brisbane. Further investigations and remediation works of 12 hectares of a former fuel terminal, which included additional site investigations (> 250 soil bores/test pits), shallow groundwater assessment and major soil remediation works (excavation of $\pm 30,000\text{m}^3$ of contaminated soil). The intent is to remediate the site to a level suitable for unrestricted land use and to remove the site from the Environmental Management Register. (Dunhill Properties Pty Ltd)
- Algester Spill Emergency Response. Soil and groundwater remediation following a spill from a crude oil pipeline, whereby $\pm 400,000\text{L}$ of crude oil was released in a residential area in Brisbane. The groundwater remediation system incorporated vacuum extraction and active skimming. (Santos)
- Lytton Spill Emergency Response. Soil remediation following a spill from a crude oil pipeline in an industrial area near the Brisbane River. (Santos)
- Former Gasworks Investigation and Remediation: Soil, sediment, surface water, groundwater and soil vapour investigations, risk assessments and remedial options assessments at six former gasworks sites in Queensland and northern NSW, undertaken as part of the client's liability management strategy. One site was remediated to commercial/industrial land use. Remediation options assessments were undertaken for the other sites, with two progressing to remediation. (Origin Energy)
- Dam Rehabilitation Projects. Site investigations at three major CSG facilities to assess rehabilitation requirements of CSG water storage ponds per Transitional Environmental Program requirements. (Origin APLNG)

Curriculum Vitae – Representative Experience

- Fuel Terminal Remediation. Soil and groundwater remediation of a former Fuel Terminal, including the remediation of $\pm 50,000 \text{ m}^3$ of hydrocarbon-contaminated soil and the installation and remediation of a substantial PSH plume in fractured bedrock. (ExxonMobil)
- Kedron Groundwater Remediation. Groundwater remediation at a former service station in Brisbane), including the remediation of an off-site PSH and dissolved phase hydrocarbon plume, which had migrated underneath adjacent roads and properties. The remediation system incorporated soil vapour extraction wells, multiple phase extraction, air sparging and, due to the area's residential nature, off-gas treatment through cathodic oxidation. (ExxonMobil)
- Caltex Queensland UPSS Program. Technical peer reviewer for site assessments at more than 20 service stations in Queensland. (Caltex)
- Global Remediation Program, 2001-2004. Queensland state coordinator for investigation and remediation program, which included site assessments and/or remediation for divestment purposes at more than 20 sites throughout Queensland and NSW. (Mobil Oil Australia Pty Ltd)
- Global Remediation Program, 2004-2007. National contract manager for national investigation and remediation program, which included site assessments and/or remediation for divestment purposes at more than 200 sites nationwide. (Mobil Oil Australia Pty Ltd)

Site Contamination Assessment and Remediation

Willy has been the Project Manager, Project Director and/or SQP on many site contamination assessments for various clients at chemical, industrial, petroleum and government facilities. In this role, he was responsible for providing overall technical guidance to the project team; liaison with clients and regulatory agencies; reviewing and sign-off on technical reports and documents (such as Environmental Site Assessment reports, Remediation Action Plans, Site Management Plans, Disposal Permits, Remediation Validation Reports); day-to-day project management.

- Caustic bladder investigations and remediation. Site investigations and remediation works following spills and leaks of caustic soda from caustic bladders at aluminium refineries in Gladstone. (Rio tinto Yarwun; Orica).
- Baratta Street former landfill. SQP role in site investigations and monitoring to assess current levels of soil, groundwater, surface water and/or landfill gas contamination at former landfill and adjacent properties; preparation of CLIDs and draft Site Management Plans (Department of Transport and Main Roads).
- Cronulla Park former landfill, Slacks Creek. Site investigations to assess current levels of soil, groundwater, surface water and/or landfill gas contamination at the former landfill; development of remediation action plan to allow the development of parts of the site for recreational purposes; SQP supervision of remedial works (Logan City Council).
- Belmont Shooting Complex. Site investigations to assess current soil, groundwater, surface water and/or sediment contamination levels at rifle range/shooting complex in Brisbane. (Queensland Rifle Association)
- Bloodwood Creek Underground Coal Gasification (UCG) Pilot Project. Preparation of Site Investigation and Remediation Plan in response to recommendations made by the Queensland Government appointed Independent Scientific Panel on UCG to demonstrate understanding of the level and extent

Curriculum Vitae – Representative Experience

of the impact of UCG operations and the ability to develop and implement remediation. (Carbon Energy Ltd)

- Callide Mine Water Exceedance Investigation. Completion of contaminant trigger investigations into the potential for environmental harm, following exceedances in water quality trigger levels in the mine site's Environmental Authority conditions. (Anglo American)
- Moranbah ADF Spill. Site investigations and soil remediation following diesel spill near evaporation dams in Moranbah CSG fields. (Arrow Energy Pty Ltd)
- Site assessments and remediation projects at various army sites in Queensland, including RAAF Base Amberley, Enoggera Barracks, RAAF Base Townsville (Department of Defence)
- Site Remediation, Oil Wastewater Treatment Facility. Site investigations, remediation and validation of an Oil Wastewater Treatment Facility in Mackay. (Transpacific Industries Group Ltd)
- Stage 2 Environmental Investigations, RAAF Base Amberley. Environmental investigation, including an Airborne Geophysical Survey, baseline hydrological data collection and water quality monitoring to undertake a Base-wide strategic assessment of current and historical site activities that could cause contamination. (Department of Defence)
- Zinc Refinery Site Assessments. Soil, sediment and groundwater investigations to assess the level and extent of site contamination associated with leakage from evaporation ponds at a zinc refinery. (Sunmetals)
- Jackson Oil Field Risk Assessments. Development of site-specific remediation criteria as clean-up levels for soil and groundwater remediation of oil spills associated with the operation of the Jackson oil field facilities and risk-ranking of existing evaporation ponds. (Santos)
- Ammonia Nitrate Soil Remediation Project. Technical lead for site investigations and phytoremediation project of ammonia nitrate soil contamination at a facility within the Bajool Explosives Reserve. (Dyno Nobel Asia Pacific Ltd)
- Bohle Abattoir Remediation. Site investigation and remediation of the Bohle abattoir, rendering plant and sale yards, including demolition of all buildings, remediation of anaerobic treatment ponds and remediation of cattle dips. (Queensland Abattoir Corporation)
- Hydrogeological Risk Assessment of Slurry Fraction Injection, Duri Oil Field. Technical lead for hydrogeological and geophysical investigations at Duri Oil Field to assess potential human health and/or environmental risks associated with high-pressure injection of the slurried oily sands into permeable formations at approximately 500 m depth. (PT. Caltex Pacific Indonesia)
- Groundwater Remediation Feasibility Study. Project Manager for a feasibility study for remediation of hydrocarbon contaminated groundwater, including Risk Based Corrective Action risk assessment, removal of free phase hydrocarbon product and remediation of dissolved hydrocarbons. (Confidential Client)
- Environmental Site Investigation, Charters Towers. Project Manager for an environmental site investigation at a former tailings disposal area, including identification of potential soil remediation methods and technologies. (Aurora Gold Ltd)
- Risk Assessment Workshop, Fly Ash Dam Extension. Data review and preparation of briefing documents for an Environmental and Health Risk Assessment workshop to assess the impact of a proposed extension of a fly ash storage area. (Confidential Client)

Curriculum Vitae – Representative Experience

- Service Station Environmental Site Assessments. Investigation, remediation and final reporting of all works to DEH standards to obtain either a 'former' or 'restricted' clarification for several petrol service station sites throughout Queensland. (Caltex)
- Cattle Dip Remediation, Oxenford. Design, supervision and client and DEH liaison for the site investigation and subsequent remediation of a former cattle dip site.
- Phase II-III Environmental Site Assessment. Underwood. Project Management, site supervision and remediation of a chemical manufacturing facility and reporting to the DEH.

4. ENVIRONMENTAL INVESTIGATIONS AND MONITORING

- Peregrin Springs and Coolum Ridges Water Quality Monitoring. Technical lead for 2013 water quality monitoring program (including surface water, stormwater, sediment and groundwater monitoring) at residential developments. (FKP Developments Pty Ltd)
- Environmental Monitoring, Mt Oxide Copper Mine. Technical lead for the 2011-2012 environmental monitoring program at the Mount Oxide abandoned mine site, including surface water, groundwater, sediment and macropod monitoring; creek geomorphology surveys; stakeholder meetings and presentations. (Queensland Department of Natural Resources and Mines)
- Comalco Alumina Refinery Water Monitoring Services. Technical lead for a comprehensive water quality monitoring program at an existing alumina refinery. (Comalco Alumina Refinery)
- Gurulmundi Secure Landfill Environmental Monitoring 1998/99 Program: Project Manager for an environmental monitoring program at a closed landfill site, including surface water, groundwater, soil sediment, soil gas and dust sampling. (Department of Environment, Queensland)
- Northern Wastewater Strategy Environmental Study. Evaluation and assessment of the impact of a proposed reclaimed wastewater storage facility on the local and regional groundwater environment. (Gold Coast City Council)
- Trade Water Treatment and Disposal Feasibility Study. Feasibility study of trade waste treatment and disposal options for the McDonald's Family Restaurant in Gatton, including a cost-benefit analysis of viable long-term options. (McDonald's Australia)

5. MERGER & ACQUISITIONS OR DIVESTMENT DUE DILIGENCE

Willy has been the Project Manager and/or Project Director for several merger & acquisitions (M&A) and divestment due diligence projects.

- Acquirer Environmental Due Diligence – Port of Newcastle Asset Sale. Environmental and contaminated land due diligence on behalf of the Parkes Consortium, one of the bidders for the Port of Newcastle Asset sale. The role included the due diligence review of more than 700 reports and documents, determining the environmental liabilities that the potential acquirer would inherit and providing advice on associated costs for environmental management and monitoring. (Parkes Consortium)
- Abbot Point Coal Terminal Transaction – Due Diligence. Part of a technical team that undertook a due diligence review associated with the sale of the coal terminal to enable the client to decide whether to submit a bid. (Confidential Client)
- ExxonMobil South Pacific Island Divestment Program. Project director for more than 15 sites assessments across the South Pacific Islands as part of a property divestment program. (ExxonMobil)

Curriculum Vitae – Representative Experience

- Shell South Pacific Island Divestment Program. Project director for more than 50 sites assessments across South Pacific Islands as part of a property divestment program. (Shell Australia Pty Ltd)
- Project Braveheart Site Investigations. Site investigations at five abattoirs in Queensland as part of a merger & acquisition due diligence program. (Confidential client)

6. OTHER

- Mine Closure Plan, White Dam Gold Mine. Development of a mine closure plan in accordance with SA regulatory requirements for a gold mine and processing plant near Broken Hill. (CopperChem Pty Ltd)
- Preliminary Hazard Analysis, Port Waratah Coal Services Terminal 4 Project, NSW. Completion of Preliminary Hazard Analysis for the construction and operation of a new coal export terminal at the Port of Newcastle in accordance with *State Environmental Planning Policy No.33 – Hazardous and Offensive Development*. (Port Waratah Coal Services)
- Preliminary Hazard Analysis, Brewpack Brewery. Completion of Preliminary Hazard Analysis for the development of a boutique and craft beverage manufacturing plant, as part of compliance with NSW Director-General's Requirements (DGRs) and for inclusion in an Environmental Assessment (EA) under Part 3A of the *Environmental Planning and Assessment Act 1979*. (Brewpack Pty Ltd)
- Financial Assurance Calculations for Upstream EA. Part of a technical team that undertook a third-party review of the Financial Assurance Calculations for upstream CSG operations in Queensland. (QGC)
- National Well Inventory Project. Senior project office and technical advisor on a project that completed a detailed inventory of 128,000 water wells, survey of cropping patterns and water demands of 90,000 properties and analysis of 15,000 water samples to assess nationwide groundwater usage and quality for planning purposes. (Ministry of Water Resources, Sultanate of Oman)

7. PUBLICATIONS

- Beard L.P., Doll W.E., Sheehan J.R., Gamey J.T., Norton J., Siwiak M., and Van Vaerenbergh W. (2010) *Airborne EM Data Complement Magnetism in an Unexpected Way*. Proceedings of the 2010 Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP), Keystone, Colorado, USA, 11-15 April 2010. Environmental and Engineering Geophysical Society.



Appendix B

EMR and CLR searches

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Department of Environment, Science and Innovation (DESI)
ABN 46 640 294 485
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Lubna Ferdous
Unit 3
3
WINDSOR QLD 4030

Transaction ID: 51002712 EMR Site Id: 07 April 2025
Cheque Number:
Client Reference:

This response relates to a search request received for the site:

Lot: 8 Plan: SP277384
831 PEAK DOWNS MINE RD
WINCHESTER

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority



Department of Environment, Science and Innovation (DESI)
ABN 46 640 294 485
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Lubna Ferdous
Unit 3
3
WINDSOR QLD 4030

Transaction ID: 51002711 EMR Site Id: 07 April 2025
Cheque Number:
Client Reference:

This response relates to a search request received for the site:

Lot: 9 Plan: GV33
POITREL RD
COPPABELLA

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

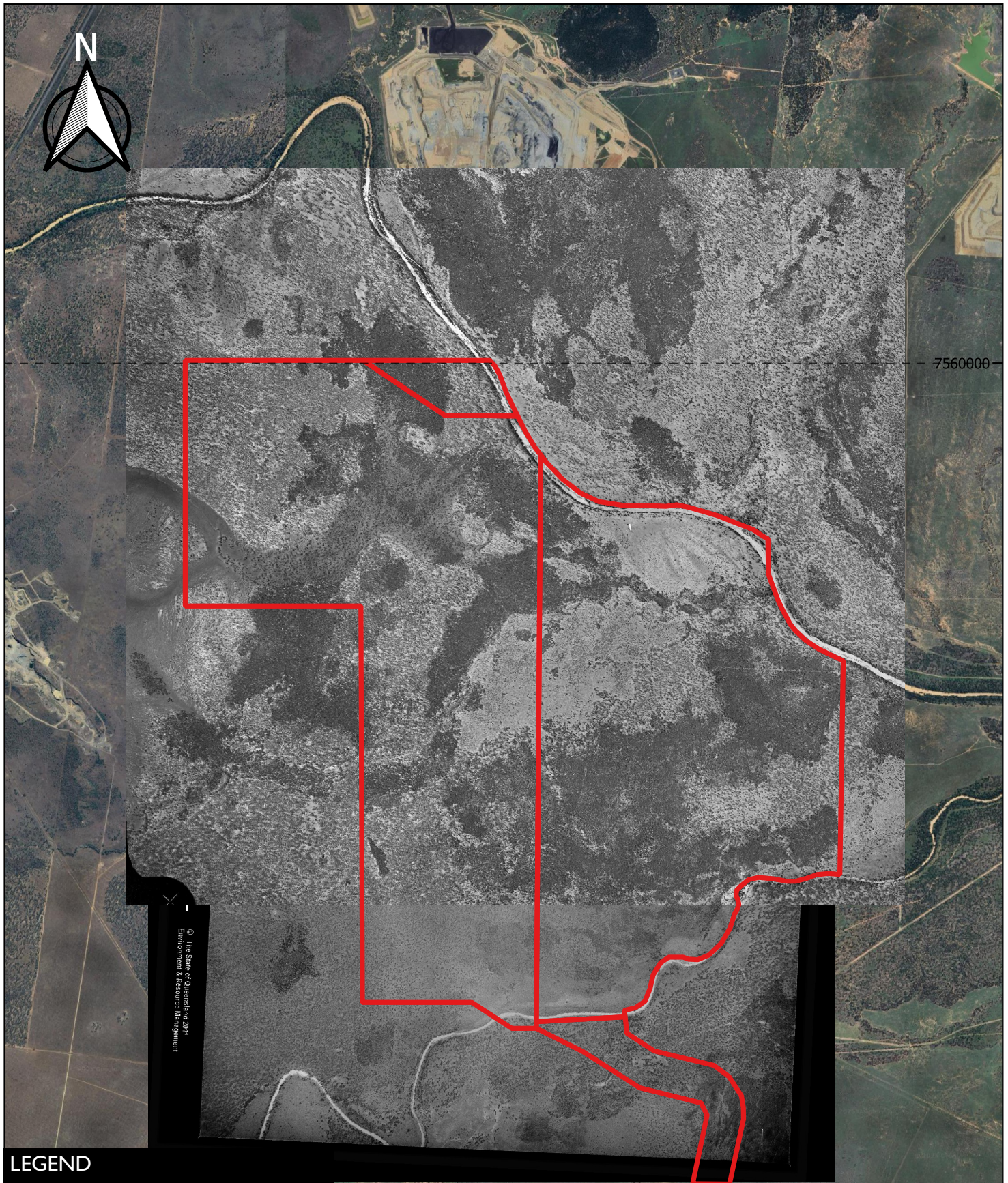
Administering Authority



Appendix C

Historical imagery

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LEGEND

MLA 1, 2, 3 and 4

1966 Historical Imagery

Scale 1 : 25 000

0 0.75 1.5 km



Client

Stanmore IP South Pty Limited

Project

Contaminated Land Assessment

Design: SGME Pty Limited 30.10.2025

Scale: 1 : 25,000

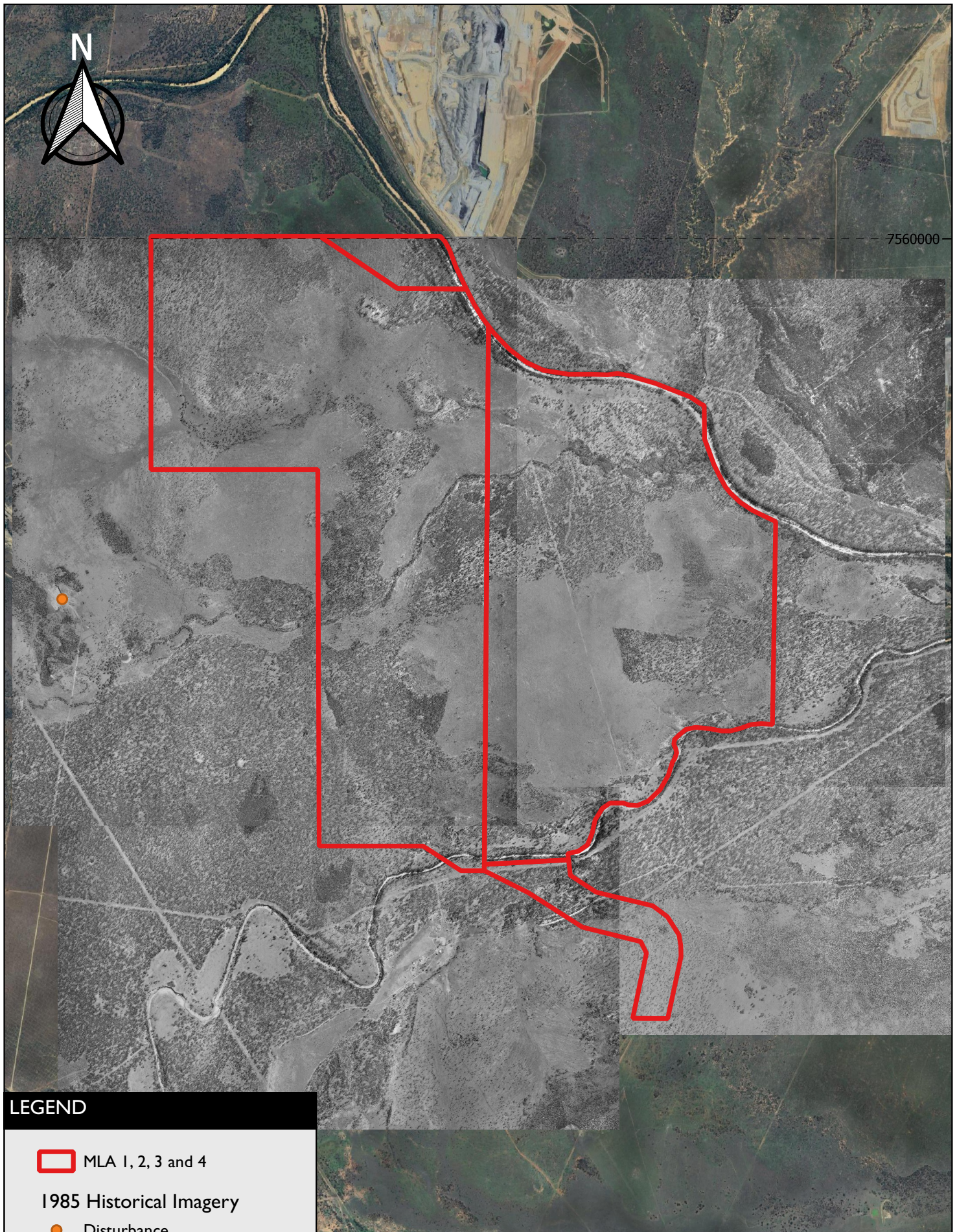
CRS: GDA94 / MGA zone 55

Title

Year 1966 Historical Imagery

Figure

B1



LEGEND

MLA 1, 2, 3 and 4

1985 Historical Imagery

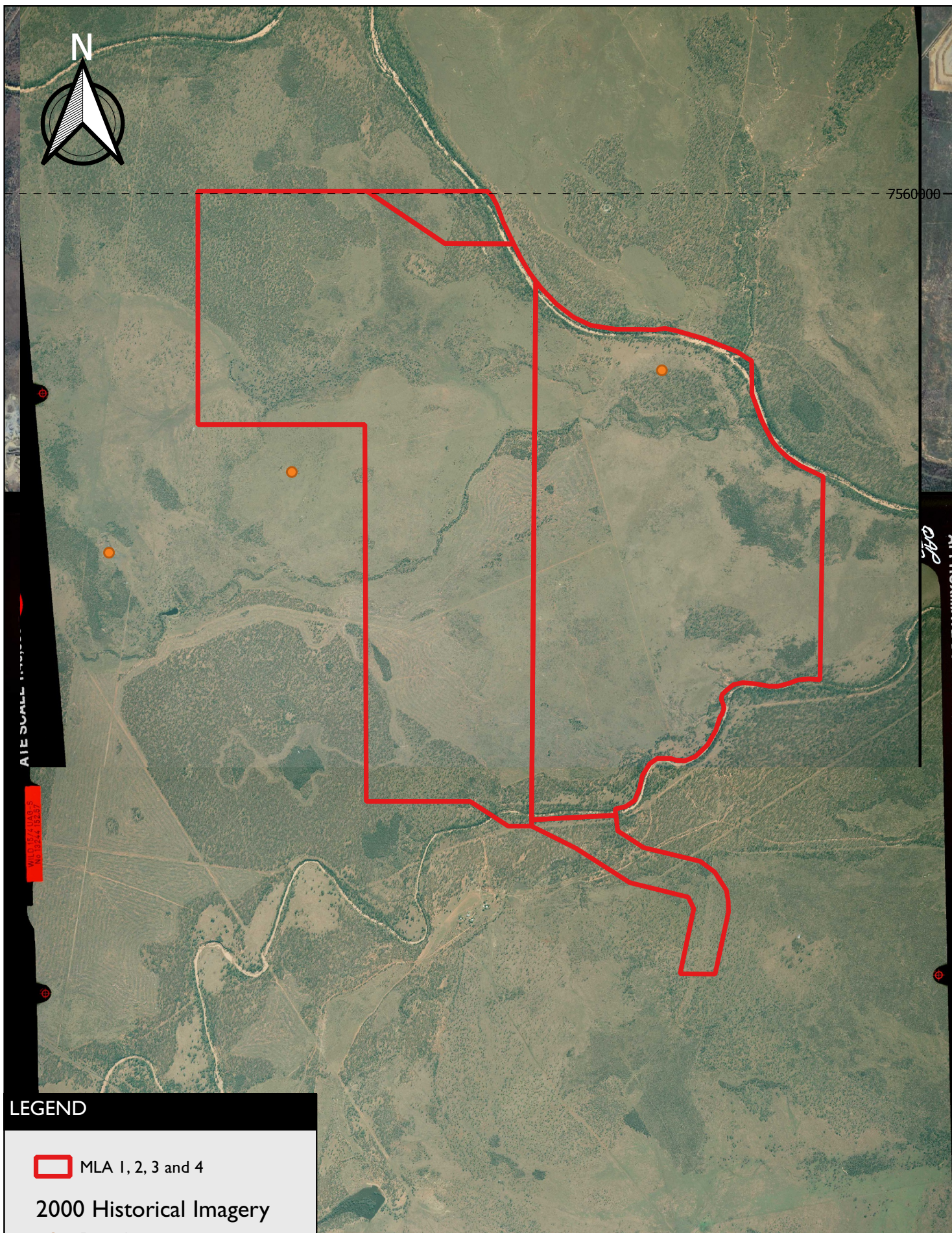
● Disturbance

Scale 1 : 25 000

0 0.75 1.5 km



Client Stanmore IP South Pty Limited		Project Contaminated Land Assessment	
Design: SGME Pty Limited 30.10.2025 Scale: 1 : 25,000 CRS: GDA94 / MGA zone 55		Title Year 1985 Historical Imagery	Figure B2



LEGEND

MLA 1, 2, 3 and 4

2000 Historical Imagery

● Disturbance

Scale 1 : 25 000

0 0.75 1.5 km



Client

Stanmore IP South Pty Limited

Project

Contaminated Land Assessment

Design: SGME Pty Limited 30.10.2025

Scale: 1 : 25,000

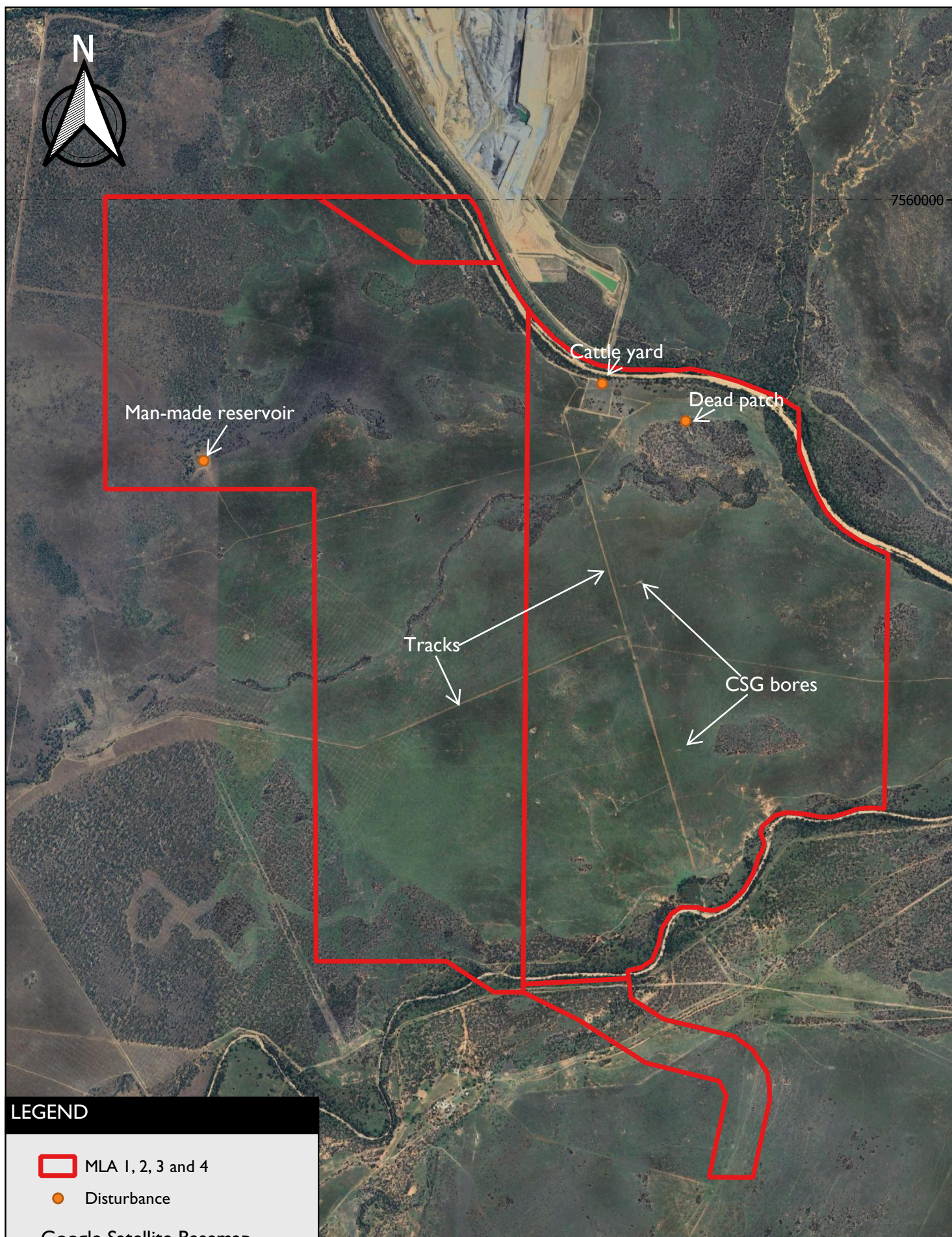
CRS: GDA94 / MGA zone 55

Title

Year 2000 Historical
Imagery

Figure

B3



LEGEND

- MLA 1, 2, 3 and 4
- Disturbance

Google Satellite Basemap

Scale 1 : 25 000

0 0.75 1.5 km



Client

Stanmore IP South Pty Limited

Project

Contaminated Land Assessment

Design: SGME Pty Limited 30.10.2025

Scale: 1 : 25,000

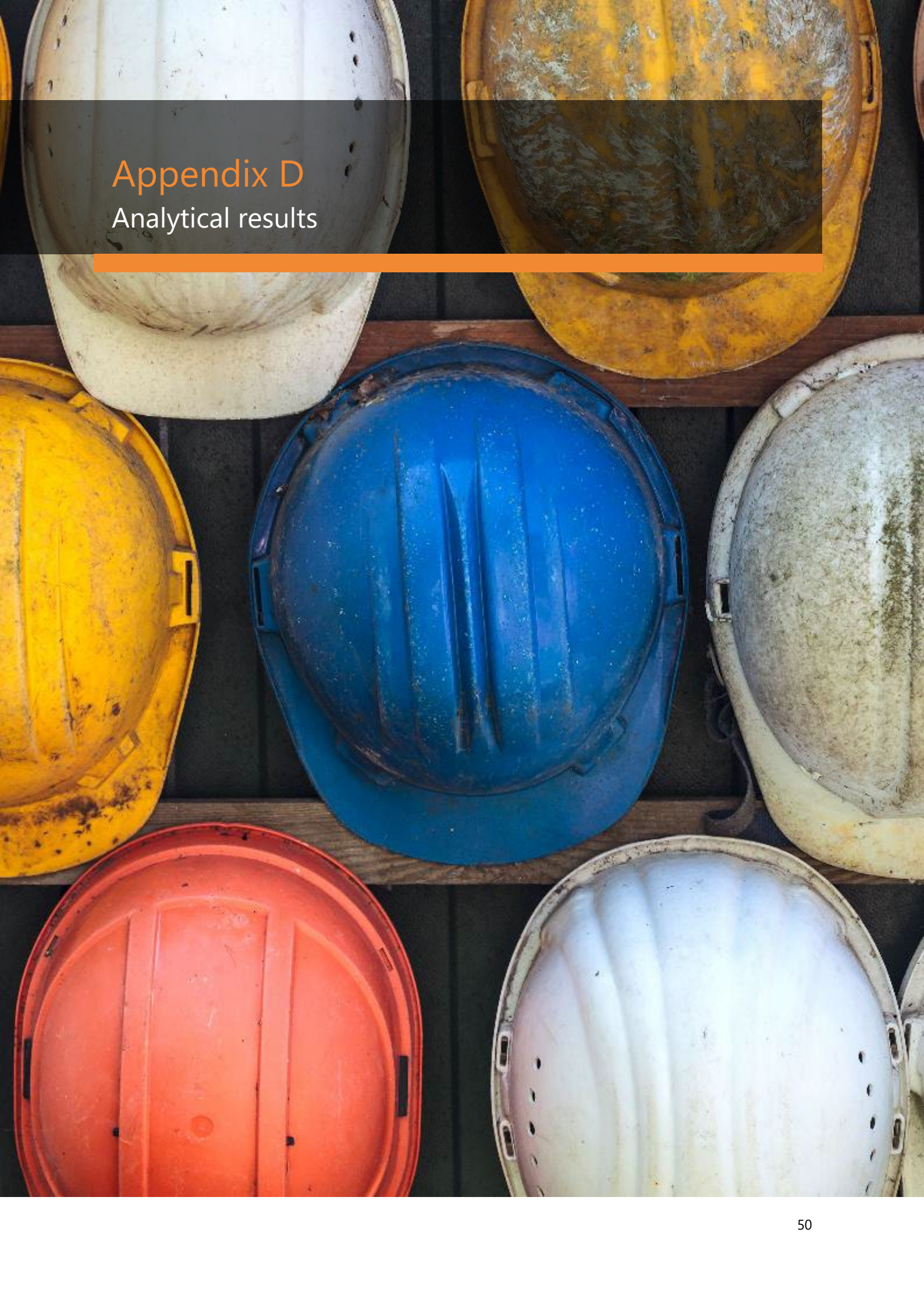
CRS: GDA94 / MGA zone 55

Title

Year 2023 Imagery
(Current)

Figure

B4



Appendix D

Analytical results

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CLIENT DETAILS

Contact Luby Ferdous
Client SGM ENVIRONMENTAL
Address PO BOX 5622
STAFFORD HEIGHTS QLD 4053

Telephone 61 7 3385 7098
Facsimile (Not specified)
Email lferdous@sgme.au

Project **25B014 - Stanmore (ID) Soil**
Order Number (Not specified)
Samples 10

LABORATORY DETAILS

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

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

SGS Reference **CE181934 R0**
Date Received 12 May 2025
Date Reported 22 May 2025

COMMENTS

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

Organics subcontracted to SGS Sydney, Unit 16 33 Maddox St Alexandria NSW 2015, NATA Accreditation Number: 2562, Site Number: 4354, Report No: SE282822.

SIGNATORIES



Jon DICKER
Manager Northern QLD



Mitsuko BALDWIN
Metals Team Leader

Parameter	Units	LOR	Sample Number	CE181934.001	CE181934.002	CE181934.003	CE181934.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	06 May 2025	06 May 2025	06 May 2025	06 May 2025
			Sample Name	1	2	3	4

VOC's in Soil Method: AN433 Tested: 16/5/2025

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
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Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	81	86	86	91
d8-toluene (Surrogate)	%	-	85	90	88	93
Bromofluorobenzene (Surrogate)	%	-	95	99	96	101

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

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 16/5/2025

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)	%	-	81	86	86	91
d8-toluene (Surrogate)	%	-	85	90	88	93
Bromofluorobenzene (Surrogate)	%	-	95	99	96	101

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

Parameter	Units	LOR	Sample Number	CE181934.001	CE181934.002	CE181934.003	CE181934.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	06 May 2025	06 May 2025	06 May 2025	06 May 2025
			Sample Name	1	2	3	4

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 16/5/2025

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: 16/5/2025

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

Surrogates

d5-nitrobenzene (Surrogate)	%	-	73	84	82	80
2-fluorobiphenyl (Surrogate)	%	-	78	89	87	86
d14-p-terphenyl (Surrogate)	%	-	78	87	85	84

PCBs in Soil Method: AN420 Tested: 16/5/2025

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)	%	-	82	90	88	86
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Parameter	Units	LOR	Sample Number	CE181934.001	CE181934.002	CE181934.003	CE181934.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	06 May 2025	06 May 2025	06 May 2025	06 May 2025
			Sample Name	1	2	3	4

Moisture Content Method: AN002 Tested: 22/5/2025

% Moisture	%w/w	1	15.0	6.2	3.0	8.9
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TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil Method: AN403 Tested: 22/5/2025

TRH C10-C14-Silica	mg/kg	20	<20	<20	<20	<20
TRH C15-C28-Silica	mg/kg	45	<45	<45	<45	<45
TRH C29-C36-Silica	mg/kg	45	<45	<45	<45	<45
TRH C37-C40-Silica	mg/kg	100	<100	<100	<100	<100
TRH C10-C36-Silica	mg/kg	110	<110	<110	<110	<110
TRH >C10-C16-Silica	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34-Silica (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40-Silica (F4)	mg/kg	120	<120	<120	<120	<120

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/5/2025

Arsenic, As	mg/kg	0.5	7.3	3.7	1.6	3.7
Cadmium, Cd	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Chromium, Cr	mg/kg	0.5	31	24	5.1	46
Copper, Cu	mg/kg	0.5	13	11	1.4	19
Nickel, Ni	mg/kg	0.5	18	21	2.6	15
Lead, Pb	mg/kg	0.5	11	10	2.9	17
Zinc, Zn	mg/kg	0.5	27	18	6.6	27

Mercury in Soil Method: AN312 Tested: 20/5/2025

Mercury	mg/kg	0.01	<0.01	<0.01	<0.01	0.01
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Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE181934.005 Soil 06 May 2025 5	CE181934.006 Soil 06 May 2025 7	CE181934.007 Soil 06 May 2025 8	CE181934.008 Soil 06 May 2025 9
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VOC's in Soil Method: AN433 Tested: 16/5/2025

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
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Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	91	92	90	86
d8-toluene (Surrogate)	%	-	94	94	93	89
Bromofluorobenzene (Surrogate)	%	-	102	101	102	97

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

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 16/5/2025

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)	%	-	91	92	90	86
d8-toluene (Surrogate)	%	-	94	94	93	89
Bromofluorobenzene (Surrogate)	%	-	102	101	102	97

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

Parameter	Units	LOR	Sample Number	CE181934.005	CE181934.006	CE181934.007	CE181934.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	06 May 2025	06 May 2025	06 May 2025	06 May 2025
			Sample Name	5	7	8	9

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 16/5/2025

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: 16/5/2025

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

Surrogates

d5-nitrobenzene (Surrogate)	%	-	81	86	82	82
2-fluorobiphenyl (Surrogate)	%	-	85	88	87	86
d14-p-terphenyl (Surrogate)	%	-	85	87	87	87

PCBs in Soil Method: AN420 Tested: 16/5/2025

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)	%	-	86	89	88	88
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Parameter	Units	LOR	Sample Number	CE181934.005	CE181934.006	CE181934.007	CE181934.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	06 May 2025	06 May 2025	06 May 2025	06 May 2025
			Sample Name	5	7	8	9

Moisture Content Method: AN002 Tested: 22/5/2025

% Moisture	%w/w	1	4.4	8.1	11.7	16.8
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TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil Method: AN403 Tested: 22/5/2025

TRH C10-C14-Silica	mg/kg	20	<20	<20	<20	<20
TRH C15-C28-Silica	mg/kg	45	<45	<45	<45	<45
TRH C29-C36-Silica	mg/kg	45	<45	<45	<45	<45
TRH C37-C40-Silica	mg/kg	100	<100	<100	<100	<100
TRH C10-C36-Silica	mg/kg	110	<110	<110	<110	<110
TRH >C10-C16-Silica	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34-Silica (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40-Silica (F4)	mg/kg	120	<120	<120	<120	<120

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/5/2025

Arsenic, As	mg/kg	0.5	2.3	1.4	5.1	5.6
Cadmium, Cd	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chromium, Cr	mg/kg	0.5	18	18	42	29
Copper, Cu	mg/kg	0.5	6.2	7.1	18	20
Nickel, Ni	mg/kg	0.5	10	9.7	17	22
Lead, Pb	mg/kg	0.5	5.9	4.6	11	17
Zinc, Zn	mg/kg	0.5	11	37	22	31

Mercury in Soil Method: AN312 Tested: 20/5/2025

Mercury	mg/kg	0.01	<0.01	<0.01	0.01	<0.01
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		Sample Number	CE181934.009	CE181934.010
		Sample Matrix	Soil	Soil
		Sample Date	06 May 2025	06 May 2025
		Sample Name	10	11
Parameter	Units	LOR		

VOC's in Soil Method: AN433 Tested: 16/5/2025

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
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Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	94	87
d8-toluene (Surrogate)	%	-	94	89
Bromofluorobenzene (Surrogate)	%	-	101	97

Totals

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

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 16/5/2025

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

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	94	87
d8-toluene (Surrogate)	%	-	94	89
Bromofluorobenzene (Surrogate)	%	-	101	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

		Sample Number	CE181934.009	CE181934.010
		Sample Matrix	Soil	Soil
		Sample Date	06 May 2025	06 May 2025
		Sample Name	10	11
Parameter	Units	LOR		

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 16/5/2025

TRH C10-C14	mg/kg	20	<20	22
TRH C15-C28	mg/kg	45	<45	53
TRH C29-C36	mg/kg	45	<45	51
TRH C37-C40	mg/kg	100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	130
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	30
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	30
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: 16/5/2025

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

Surrogates

d5-nitrobenzene (Surrogate)	%	-	84	80
2-fluorobiphenyl (Surrogate)	%	-	88	85
d14-p-terphenyl (Surrogate)	%	-	88	82

PCBs in Soil Method: AN420 Tested: 16/5/2025

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

		Sample Number	CE181934.009	CE181934.010
		Sample Matrix	Soil	Soil
		Sample Date	06 May 2025	06 May 2025
		Sample Name	10	11
Parameter	Units	LOR		

PCBs in Soil Method: AN420 Tested: 16/5/2025 (continued)

Surrogates

TCMX (Surrogate)	%	-	90	87
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Moisture Content Method: AN002 Tested: 22/5/2025

% Moisture	%w/w	1	1.4	12.6
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TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil Method: AN403 Tested: 22/5/2025

TRH C10-C14-Silica	mg/kg	20	<20	<20
TRH C15-C28-Silica	mg/kg	45	<45	<45
TRH C29-C36-Silica	mg/kg	45	<45	<45
TRH C37-C40-Silica	mg/kg	100	<100	<100
TRH C10-C36-Silica	mg/kg	110	<110	<110
TRH >C10-C16-Silica	mg/kg	25	<25	<25
TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34-Silica (F3)	mg/kg	90	<90	<90
TRH >C34-C40-Silica (F4)	mg/kg	120	<120	<120

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 16/5/2025

Arsenic, As	mg/kg	0.5	1.8	3.5
Cadmium, Cd	mg/kg	0.1	<0.1	<0.1
Chromium, Cr	mg/kg	0.5	21	30
Copper, Cu	mg/kg	0.5	2.0	17
Nickel, Ni	mg/kg	0.5	4.6	26
Lead, Pb	mg/kg	0.5	2.2	11
Zinc, Zn	mg/kg	0.5	5.5	38

Mercury in Soil Method: AN312 Tested: 20/5/2025

Mercury	mg/kg	0.01	<0.01	0.02
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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.

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Mercury	LB140452	mg/kg	0.01	<0.01	0 - 4%	107 - 109%

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	LB140478	mg/kg	0.5	<0.5	0%	100%
Cadmium, Cd	LB140478	mg/kg	0.1	<0.1	0%	99%
Chromium, Cr	LB140478	mg/kg	0.5	<0.5	1%	100%
Copper, Cu	LB140478	mg/kg	0.5	<0.5	0%	101%
Nickel, Ni	LB140478	mg/kg	0.5	<0.5	0%	98%
Lead, Pb	LB140478	mg/kg	0.5	<0.5	3%	98%
Zinc, Zn	LB140478	mg/kg	0.5	<0.5	4%	95%

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.

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.

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

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.

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-silica) 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).
Total PAH calculated from individual analyte detections at or above the limit of reporting.

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.

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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SAMPLE RECEIPT ADVICE

CE181934

CLIENT DETAILS

Contact Luby Ferdous
Client SGM ENVIRONMENTAL
Address PO BOX 5622
STAFFORD HEIGHTS QLD 4053

Telephone 61 7 3385 7098
Facsimile (Not specified)
Email lferdous@sgme.au

Project **25B014 - Stanmore (ID) Soil**
Order Number (Not specified)
Samples 10

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

Samples Received Mon 12/5/2025
Report Due Mon 19/5/2025
SGS Reference **CE181934**

SUBMISSION DETAILS

This is to confirm that 10 samples were received on Monday 12/5/2025. Results are expected to be ready by COB Monday 19/5/2025. Please quote SGS reference CE181934 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	10 x Soil	Type of documentation received	COC
Date documentation received	12/5/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	Ambient
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

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SAMPLE RECEIPT ADVICE

CE181934

CLIENT DETAILS

Client **SGM ENVIRONMENTAL**

Project **25B014 - Stanmore (ID) Soil**

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	1	1	26	9	7	10	11	7
002	2	1	26	9	7	10	11	7
003	3	1	26	9	7	10	11	7
004	4	1	26	9	7	10	11	7
005	5	1	26	9	7	10	11	7
006	7	1	26	9	7	10	11	7
007	8	1	26	9	7	10	11	7
008	9	1	26	9	7	10	11	7
009	10	1	26	9	7	10	11	7
010	11	1	26	9	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .



SAMPLE RECEIPT ADVICE

CE181934

CLIENT DETAILS

Client SGM ENVIRONMENTAL

Project 25B014 - Stanmore (ID) Soil

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil
001	1	1
002	2	1
003	3	1
004	4	1
005	5	1
006	7	1
007	8	1
008	9	1
009	10	1
010	11	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Job Reference Number:

Page 1 of 1

(SGS use only)

[illegible]

Company Name:	SGMEPTY LIMITED	Client Order Number:		Laboratory Contact:	
Address:	UNIT 20 37 McDOWALL RD WINDSOR, Qld 4030	Project Name:	28014		
Contact Name:	LUBA FERDUS	Project Number:	STANMORE (10)	Total Number of Containers/Bottles:	
Email address:	LFERDUS@SGME.AU	Results Required By:	STA	Total Number of Samples/Sites:	
Telephone:	0431 715 999	Facsimile:			

Relinquished by: T. R. OHOE Date: 7/5/25 Time: 0930 Received by: CN Date: 12/05/25 Time: 3:40

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

* Circle whichever is applicable

Circle whichever is applicable Sample Cooler Sealed: YES/NO* Samples Intact: YES/NO* Correct Sample Bottles Used: YES/NO* Temperature: AMBIENT/CHILLED*				
Comments including subcontracting details: 20x soil				Please provide client with details Consent given for subcontracting

Dear Guila,

Please can you do the following analysis for **all the soil samples** for your attached COC ? We are testing for contaminated soil (mainly looking out for pesticides/hydrocarbons).

1. VOCs in soil;
2. Volatile Petroleum Hydrocarbons in soil;
3. Total Recoverable Hydrocarbons in soil;
4. Total Recoverable Hydrocarbons in soil - Silica Gel;
5. Polynuclear Aromatic Hydrocarbons in soil;
6. PCBs in soil;
7. Total recoverable metals in soil (As, Cd, Cr, Cu, Ni, Pb and Zn);
8. Mercury in soil; and
9. Moisture content

Please let me know if you need anything else from my side.

Thanks

Luby

On Wed, May 7, 2025 at 12:33 PM Reeve, Guila (Portsmouth) <Guila.Reeve@sgs.com> wrote:

Hi Ludy,



Engineering
new environments

SGME Pty Limited (SGME) is a boutique consulting firm of experienced industry experts working with our clients and their stakeholders to develop and deliver innovative solutions to complicated challenges that create enduring value.

SGME was established to provide services in soil science, geochemistry, mine closure and Environmental management, planning & approvals cost efficiently. When you engage SGME you engage a partner to your business, priding themselves on:

Honest – Straight-up and no nonsense.

Trust – We say what we mean and we will deliver on our promises. We will advocate strongly for you.

Innovation – We will always look for new ways to help and create enduring value because that is what friends do when they work together.

Safety – We do it right so we all go home safely.

Australian Location

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